VXT 2000+/VXT 2000 Windowing Terminal

User Information

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This document describes how to use the VXT 2000+/VXT 2000 windowing terminal with VXT Version 2.1 software.

Topics include

- Creating X window and terminal window sessions on a host system

- Customizing the terminal's screens and operating features

- Using VXT software or VXT EX (essential X server) software

- Programming with the X windows image extension (XIE)

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docteam@gwen.enet.dec.com

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About This Guide

This guide describes how to use VXT software on a VXT 2000 windowing terminal. The terminal makes use of the open windowing environment. The guide describes how to create X window or terminal window sessions on a wide variety of operating systems.

Who Should Use This Guide

This guide is for the general user of the VXT 2000 windowing terminal.

- If you are new to windows or the Motif windows environment, the guide provides basic information on how to use windows and the mouse pointing device.

- If you are familiar with windows, you can use the guide to learn about VXT software features and customize your terminal's operating features.

Organization

This guide contains the following chapters and appendices:

- Chapter 1, "A Look at the Terminal," provides an overview of the terminal and its features.

Terminal Manager Window

- Chapter 2, "Using the Terminal," describes the basic features of the Terminal Manager window. The chapter describes how to create sessions, print the screen, and view online VXT 2000 documentation.

- Chapter 3, "Customizing the Terminal," describes how to customize basic terminal settings for your language, personal preference, and system security.

- Chapter 4, "Customizing Communications," describes how to customize terminal settings that affect communications with host computer systems.

- Chapter 5, "Customizing Fonts and Startup Settings," describes how to customize more advanced settings. Topics include autostarting sessions and applications, changing font paths, booting VXT software, and loading or unloading VXT software features.

- Chapter 6, "Checking the Terminal's Status," describes how to use the Terminal Manager window's Status menu to monitor memory use, network use, network counters, and the terminal's system configuration. You can also view TCP/IP routes and use ping to determine the availability of hosts.

VXT DECterm Windows

- Chapter 7, "Using VXT DECterm Windows," describes how to use DECterm windows, which emulate a VT300 series terminal.

- Chapter 8, "Customizing VXT DECterm Windows," describes how to customize your DECterm windows for your computing environment and personal preference.

VXT 3270 Windows

- Chapter 9, "Using VXT 3270 Windows," describes how to use the VXT 3270 terminal emulator to run applications on an IBM SNA host system through a DECnet/SNA gateway.

- Chapter 10, "Customizing VXT 3270 Windows," describes how to customize the VXT 3270 terminal emulator window.

Window Manager

- Chapter 11, "Using Windows," describes how to manage windows and use menus, dialog boxes, and scroll boxes. The chapter also shows how to use the mouse.

- Chapter 12, "Customizing Windows," describes how to check and control the settings for many of the window manager's features. You can make changes to the settings and save them for all future sessions.

- Chapter 13, "Launching Applications," describes how to launch sessions, local VXT applications or remote host applications from your terminal.

VXT EX Software

- Chapter 14, "Using VXT EX Software," describes how to use VXT EX software. VXT EX software is a minimal version of VXT software without a terminal manager and other local clients.

Keyboards

- Chapter 15, "Using Your Keyboard," describes the keys and indicator lights on the terminal's ANSI, short ANSI (UNIX), PC, and Sun style keyboards. It also describes how to type additional characters not listed on your keyboard keys and how to use the keyboard in place of the mouse.

Appendixes

- Appendix A, "Solving Problems and Getting Service," describes how to solve typical operating problems and how to get service.

- Appendix B, "Mixing Colors," describes how to use the Color Mixing dialog box that lets you change the color of windows and the screen.

- Appendix C, "Programming with the X Windows Image Extension," provides guidelines for programming with XIE protocol functions.

- Appendix D, "Related Documentation," lists related documentation.

- Appendix E, "Options," lists available hardware options.

- Appendix F, "Specifications," lists the general, environmental, and electrical specifications for the terminal.

- Appendix G, "Setting Up the Work Environment," lists recommendations for your health and safety while using the terminal.

- The glossary defines new terms introduced in the text and other relevant terms.

Comments?

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When making comments, please include the manual title and part number listed on the front cover. For specific comments, please include a page number, section number, or section title for reference.

Conventions

This guide uses the following conventions:

Convention	Meaning
VXT 2000 windowing terminal	Refers to all models of the VXT 2000 windowing terminal.
InfoServer system	Refers to a disk server that downloads a VXT system image to the terminal.
Mouse	Refers to any pointing device, such as a mouse, a puck, or a stylus.
MB1, MB2, and MB3	Represent the three mouse buttons: left (MB1), middle (MB2), and right (MB3). Lefthanded users can exchange the MB1 and MB3 button assignments if desired.
key	Keys or switches that are labeled appear in a box.
	Example: Press the Return key.
Alt	Represents the Alt or Alt Function key on your keyboard.
Ctrl *key* *key*	For Ctrl key sequences, press and hold each key in order until you complete the sequence.
Ctrl+left *Alt*	If a key sequence includes descriptive words, the keys are joined by a plus (+) symbol for clarity.
Caution	Provides information to prevent damage to equipment or software.
Note	Provides general information about the current topic.
Menu item . . .	Menu items followed by . . . display a dialog box when chosen.
Menu item ▷	Menu items followed by ▷ display a submenu when chosen.
Glossary entries	Appear in **bold** when first used in text.
Index entries	The following abbreviations are used in the index:
	(TM) for Terminal Manager (WM) for Window Manager

Notes to the Reader

The screens and windows shown in this guide represent the latest information available at the time of publication. Some screens and windows may not exactly match those that appear on your terminal or reflect the system-default settings.

1

A Look at the Terminal

This chapter provides an overview of the VXT 2000 windowing terminal and its basic operating features. The chapter tells you where to look in this guide for more information about each feature.

1.1 Terminal Highlights

The VXT 2000 windowing terminal lets you access X window applications and traditional terminal applications on computer systems in your network. You can open several windows on the terminal, to display multiple applications from different systems at the same time.

The VXT 2000 terminal provides many features of a workstation without the need for workstation management. Here are some of the terminal's main features:

Hardware

- A workstation-style display, a keyboard, and a mouse.

- A monochrome, gray scale, or color monitor.

- A choice of Ethernet network connectors: ThinWire, thickwire, or twisted pair.

- A 25-pin RS-232 serial printer/communications port with full modem control.

- A 25-pin parallel printer port.

- Serial interfaces for a keyboard and a mouse or tablet.

- Expandable memory (user installable).

Software

- The ability to access several computer systems at the same time, using the TCP/IP, LAT, or DECnet transports.

- A choice of **VXT software** or **VXT EX software**, downloaded from a host computer system or an InfoServer system.

- VXT software provides local applications and features such as

  - A local Terminal Manager window that lets you create and manage connections to computer systems. You can connect to systems using the TCP/IP, LAT, or DECnet transport. See Chapter 2.

  - VXT DECterm windows that let you access VT video terminal applications on computer systems. VXT DECterm windows emulate VT300 series video terminals. See Chapter 7.

  - VXT 3270 windows that let you access applications on an IBM SNA system. See Chapter 9.

  - A local Motif window manager that lets you easily move and resize windows, using a mouse or keyboard for navigation. See Chapter 11.

  - An AutoStart feature to automatically start your selected computer sessions and local terminal applications when you start work, or at any other time. See Section 5.6.

  - A Customize Boot dialog box for choosing the VXT software version you want your terminal to load. See Section 5.7.

  - A Customize Font Path dialog box that lets you access fonts from host systems and font servers on your network. See Section 5.3.

  - Configuration Manager windows that let a system manager configure individual terminals or groups of terminals to share customized settings and fonts. See *VXT Software Version 2.1 Installation and System Management*.

- VXT EX (essential X server) software is a clientless version of VXT software, without local applications. You can use VXT EX software to access X applications on computer systems with minimal memory installed in the terminal. When you use VXT EX software, the system you connect to must provide all window and session management features.

1.2 How the Terminal Works

The VXT software and fonts for your terminal are installed on a host computer system or an **InfoServer system**. An InfoServer system is a high-performance virtual disk server that can efficiently download software to many terminals.

You can use the terminal with one or more computer systems. You can connect the terminal to

- An Ethernet network, using the ThinWire, thickwire, or twisted-pair port

- A computer, using the serial port

The computer system you connect to is called the **host**. You can connect your terminal to several hosts.

You use the keyboard, mouse and monitor to interact with applications on your host. You send data to the application by typing on the keyboard or selecting window options with the mouse. Data sent by the application appears as text or graphics on the terminal's screen. You can print text or graphics on a printer connected to the terminal's printer port or on any networked printer.

You can use a variety of host software applications on the terminal. For example, your host may have applications for word processing, data entry, programming, or business graphics. Most applications involve interactive processing. This means the terminal immediately sends the information you enter from the keyboard or mouse to the host.

1.3 VXT Software

Each time you start up the terminal, it sends out a network request for a host or InfoServer system to download VXT software and fonts to the terminal. This process of starting up the software and bringing it to an operable state is also known as **booting**.

Knowledgeable users can customize the terminal's boot settings to load a particular VXT software version. See Section 5.7 for details.

There are some differences between host-based and server-based operation.

VXT Host-Based Software

If your terminal downloads VXT software from a host system, the terminal always uses its own physical memory to display applications and store your customized terminal settings. Host-based operation provides

- A Terminal Manager window

- VXT DECterm and VXT 3270 windows

- A local Motif window manager

- A configuration manager—Your system manager can use the Configuration Manager dialog boxes to customize and manage individual terminals from a central terminal.

VXT Server-Based Software

If your terminal downloads VXT software from an InfoServer system, the terminal typically operates in server-based mode. In server-based mode, the terminal saves your customized terminal settings on an InfoServer system. Server-based mode provides all the features of the host-based operation, plus

- Virtual memory capability—The InfoServer system provides the terminal with additional memory as needed to display more applications. As a result, the terminal needs less installed memory than when you use host-based operation.

- More configuration manager features—Your system manager can use the Configuration Manager dialog boxes to customize and manage groups of terminals, as well as the fonts they use.

- InfoReader library—You can access this library of online VXT documentation from the Getting Started menu in the Terminal Manager window. The library includes this user guide.

You can also choose the host-based mode of operation when downloading from an InfoServer system. In this case, your customized settings are stored in the terminal's memory, and the terminal cannot use the InfoServer system for memory services. You still have access to the InfoReader library. Your boot settings determine the mode of operation. See Section 5.7.

1.4 VXT EX Software

VXT EX (essential X server) software is a clientless version of VXT software, which means it does not include any local applications such as the Terminal Manager window, VXT DECterm and VXT 3270 windows, or the Motif window manager.

VXT EX software lets you use a VXT 2000 windowing terminal as a workstation companion, relying on the host system to provide a session manager, window manager, and other applications. You can use VXT EX software with minimal memory installed in the terminal.

VXT EX software provides a single dialog box for starting an X session on a host system. You can start a session on a system that supports the LAT or TCP/IP transports and access that system's X window applications. See Chapter 14.

1.5 Memory Requirements

When you turn on the terminal, the VXT software is loaded into the terminal
from an InfoServer system or from a host computer system. There are
different memory requirements for using server-based or host-based software.
The optional image accelerator board for some VXT 2000 models also requires
extra memory.

If You Use VXT Software...	And...	Your Terminal Needs At Least...
Server-based	–	4 megabytes of memory
Server-based	Image accelerator board	6 megabytes
Host-based	–	10 megabytes
Host-based	Image accelerator board	12 megabytes

If You Use VXT EX Software...	And...	Your Terminal Needs At Least...
Host- or server-based	–	4 megabytes of memory
Host- or server-based	Image accelerator board	6 megabytes

Standard Terminal (4 MB)

The standard terminal comes with 4 megabytes of memory. You can expand
memory up to 18 megabytes by installing memory modules in the terminal. To
expand memory on system box models, you must install a memory controller
board.

Optional Memory (To 18 MB)

- 2-megabyte memory controller board (for system box models)

- One to three 2-megabyte or 4-megabyte memory modules

To install memory, see *VXT 2000+/VXT 2000 Windowing Terminal Installing
and Getting Started*. To order memory, see Appendix E.

1.5.1 Monitoring Memory Use (Host-Based Terminals)

If your terminal uses host-based VXT software, the number of applications and windows you can display is limited by the amount of physical memory in the terminal. The amount of memory in use changes as you open and close windows and applications. If you run out of memory, the terminal may quit all current X sessions and terminal window sessions and reboot itself.

When the amount of available memory is low, the Terminal Manager window displays a warning message. You can also monitor memory use by checking the System Monitor dialog box (Section 6.5).

To regain memory, you can

- Close or quit from any unused applications, windows, or sessions.

- Decrease the number of lines the terminal saves when you scroll them off the top of a VXT DECterm window. See Section 8.4.

- Limit the software options you load to only those you need. See Section 5.8.

- End all current sessions by rebooting the terminal's software. To reboot the terminal's software:

  – Choose Reset, Reboot, or Shutdown from the Terminal Manager window's Session menu.

  – Press the reboot key sequence for your keyboard:

ANSI (LK401) keyboard	Press Ctrl Alt . , using the left Alt key and the period key on the numeric keypad.
PC (LK443/LK444) keyboard	Press Ctrl Alt . , using the period key on the numeric keypad.
Short ANSI (LK421) keyboard	Press Ctrl Alt Extend . .
Sun style (LK460) keyboard	Press Ctrl ◇ Del.

To install more memory in the terminal, see Appendix E.

1.6 X Window Sessions and Terminal Window Sessions

You can use two types of sessions on your host computers: an **X window session** or a VXT **terminal window session**. You can open X window sessions and VXT terminal window sessions at the same time.

X Window and DECwindows Sessions

The X Window System is a graphically oriented user interface that lets you display one or more windows on the screen. Each window can represent a different **software application** running on its own host system. For example, you could run a word processing application in one window and a spreadsheet application in another window. With multiple windows, you can perform many tasks in an easy and efficient manner.

The X Window System was designed at the Massachusetts Institute of Technology. Digital's DECwindows Motif software is based on the X Window System and the Open Software Foundation's Motif standard.

To use an X window session, you log in to a host that has X window applications. In an X window session, you can use all the applications and utilities provided in the X Window System. For more information about Digital's X applications, see the *DECwindows Motif User's Guide* for your operating system.

Terminal Window Sessions

You can create terminal windows to access video text terminal applications on host systems. The terminal lets you create multiple VXT DECterm or VXT 3270 terminal windows. When you open a terminal window, you log in to a host as you would on a conventional video terminal.

1.7 Customizing Your Terminal

VXT software provides menus and dialog boxes that let you customize the operating settings for your terminal's window manager, terminal manager, VXT DECterm windows, and VXT 3270 windows. You can save your own settings or use factory-default settings from memory.

When you save customized settings in dialog boxes, the terminal stores your settings in a **native resource file**. Whenever you turn on or reset the terminal, it reads the settings in the native resource file.

If you use host-based operation, the terminal stores the native resource file in the terminal's nonvolatile memory. If you use server-based operation, the terminal stores the native resource file on an InfoServer system.

If you want central management, you or your system manager can use the configuration manager on any VXT 2000 windowing terminal in your network. The configuration manager lets you customize settings for individual terminals or groups of terminals. Configuration manager settings are stored in the native resource files. Alternatively, you can create your own **host-based resource files** and store them on a host system.

Using Menus

You can use the following menus to customize settings:

- **Terminal Manager—Customize menu**
  You use the Customize menu in the Terminal Manager window to view and change the settings for most of the terminal's operating features.

  – For user-preference features, see Chapter 3.

  – For communication settings, see Chapter 4.

  – For startup settings and fonts, see Chapter 5.

- **Window manager—Options submenu**
  The window manager provides an Options submenu that lets you customize window features such as border colors. You can access the Options submenu from the window menu button (Section 11.3) or from the Workspace pop-up menu (Chapter 12).

  Advanced users can customize window manager menus, mouse buttons, or keyboard keys (Section 12.9). For example, you can define menu items, buttons, or keys to launch local VXT applications or remote host applications (Chapter 13).

- **VXT DECterm Options menu**
  Each VXT DECterm terminal window you create includes an Options menu. This menu lets you change many DECterm operating features for that window while an application is running in the window. However, many applications handle the customization of the VXT DECterm window on their own. Chapter 8 describes how to use the VXT DECterm Options menu.

- **VXT 3270 Options menu**
  Each VXT 3270 terminal window you create includes an Options menu. This menu lets you change certain VXT 3270 operating features while an application is running. However, many applications handle customization of the VXT 3270 window on their own. Chapters 9 and 10 describe how to use the VXT 3270 Options menu.

Central Management

VXT Software Version 2.1 Installation and System Management describes how to centrally manage terminals, using the configuration manager or your own host-based resource files.

- **Configuration Manager**
  When you click on Configuration . . . in the Terminal Manager window's Customize menu, the terminal displays the Configuration submenu. From

the Configuration submenu you can display a Resource Management or Font Management dialog box.

The Resource Management dialog box lets a system manager centrally manage VXT 2000 windowing terminals from one terminal. The system manager can control the customizable features of these menus:

- Terminal Manager window's Customize menu

- Terminal Manager window's Create menu

- Window manager's Options menu

- VXT DECterm window's Options menu

The Font Management dialog box lets a system manager customize and configure font support for terminals on multiple InfoServer systems.

- **Host-based resource files**
  You can create your own host-based resource files to store the customized settings for terminals. You edit these files directly. Host-based resource files provide a way for host-based terminals to share the same settings.

Other Features on Host Systems

Host systems can also customize certain features of your terminal:

- **Host-based control functions**
  Applications can control many terminal features from the host system by using control functions.

- **Client Customize**
  The X window or DECwindows software package includes its own Customize utility, not described here. For more information, see the *DECwindows Motif User's Guide* for your operating system.

1.8 Compatibility with VT Series and 3270 Terminals

The terminal can operate as a video text terminal when you want to log in to a host system and use applications designed for conventional video terminals.

You can use VXT DECterm windows to emulate VT300 series video terminals. See Chapters 7 and 8.

You can use VXT 3270 windows to access applications on an IBM SNA system. See Chapters 9 and 10.

1.8.1 Character Sets

VXT DECterm Windows

When you use VXT DECterm terminal windows, you can choose different character sets to match your computer system or software application requirements. You can choose from

- Two 8-bit multinational character sets—DEC Multinational or the ISO Latin Alphabet No. 1 set of the International Standards Organization

- Several 7-bit national replacement character sets (NRCs) for Western European languages

Chapter 3 describes how to choose characters sets.

VXT 3270 Windows

VXT 3270 windows use a translation table to translate the characters generated by the terminal into EBCDIC characters that your IBM application uses. See Section 10.3.

2

Using the Terminal

This chapter describes how to start using the terminal with VXT software.

When you turn on the terminal, it normally displays the Terminal Manager window after loading VXT software. This window acts as a control panel for creating sessions and customizing terminal settings.

VXT 2000⁺/VXT 2000 Windowing Terminal Installing and Getting Started provides step-by-step instructions to start creating sessions with the Terminal Manager window. This chapter provides more details and describes other basic functions you can perform from the Terminal Manager window. The chapter covers the following major topics:

- Terminal Manager Window
- VXT Message Box
- Creating Sessions and VXT Applications
- Autostarting, Pausing, or Ending Sessions
- Checking Network and Terminal Status
- Working with Multiple Remote X Session Managers
- Using the Open Look Window Manager from Sun Systems
- Printing
- Getting Started Menu

If you want to use VXT EX software, see Chapter 14. When you use VXT EX software, the terminal displays a VXT EX connection window instead of the Terminal Manager window.

2.1 Terminal Manager Window

When you turn on the terminal, it normally displays the Terminal Manager window and VXT Message Box. Here is the Terminal Manager window:

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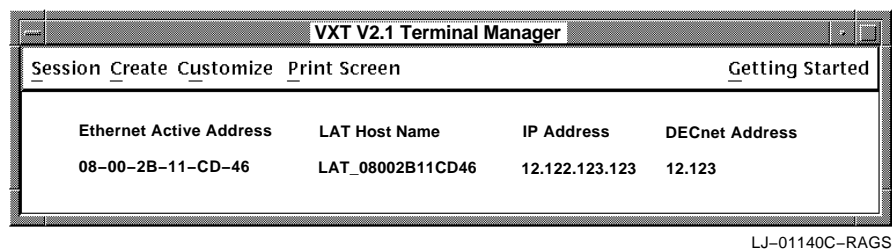
- The **title bar** displays the window title and VXT software version.

- The **menu bar** provides access to the following menus:

Session	To end, pause, or autostart a session, or to display network and terminal status information (Chapter 6)
Create	To start X sessions, terminal windows, and local terminal applications
Customize	To customize terminal manager features and access the Configuration Manager dialog boxes
Print Screen	To print all or part of the screen on a local printer, or to cancel a LAT print job
Getting Started	To get help on creating sessions and entering your terminal's IP or DECnet address
	To access the InfoReader library of online VXT documentation (server-based terminals)

- The **address** region shows the terminal's Ethernet, LAT, IP, and DECnet addresses. These addresses define the terminal's location on a network for LAT, TCP/IP, and DECnet communications.

  Initially, the IP and DECnet addresses are blank. To use TCP/IP or DECnet communications, you must enter and save the terminal's IP or DECnet address in the appropriate Customize Communications dialog box.

  Initially, the Ethernet Active Address field displays the terminal's Ethernet hardware address. If you enable DECnet communications, the displayed Ethernet address is converted to a global network address in the network service access point (NSAP) format. In this case, you can still view the Ethernet hardware address in the System Configuration dialog box.

2.1.1 VXT Message Box

The VXT Message Box lets you monitor system messages that affect the terminal's operating status.

The VXT Message Box provides a Customize menu that lets you choose the category of messages displayed and change the box's position and size (Section 3.13).

Normally, the terminal starts the Terminal Manager window and the VXT Message Box as a single application. You can start them as separate applications if you want to control them separately (Section 5.6). In this case, the VXT Message Box also includes a File menu with an Exit item that lets you close the box.
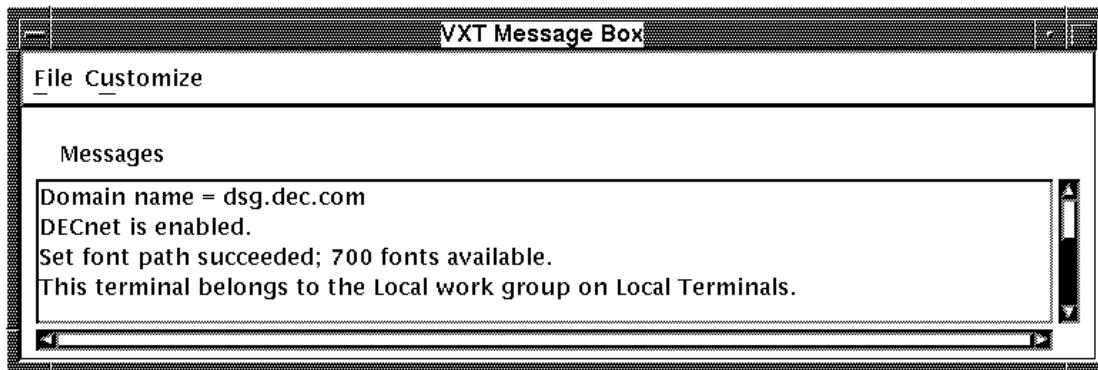
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2.1.2 Closing the Terminal Manager Window and VXT Message Box

The Terminal Manager window and Message box are local VXT applications. You can close these applications without closing your other open sessions. Closing the Terminal Manager window can free the terminal's memory to perform other tasks. You can restart the Terminal Manager window and VXT Message Box if needed.

To close the Terminal Manager window and VXT Message Box:

• Click on the Session menu in the Terminal Manager window.

• Click on the Close menu item.

If you have customized settings in the Customize AutoStart dialog box to run the Terminal Manager window and VXT Message Box as separate applications, the VXT Message Box remains open.

To restart the Terminal Manager window and VXT Message Box:

1. Click and hold MB2 anywhere on the screen background, outside your windows. The terminal displays the pop-up VXT Create menu.

2. Click on the Term Mgr + Msg Box menu item.

Hiding the Terminal Manager Window

You can also hide the Terminal Manager window and Message Box applications without stopping them. You can choose to hide these applications each time you start the terminal or hide them during operation. You can enable the F3 key to act as a toggle switch for hiding or displaying these applications. See Section 3.10.

2.2 Creating Sessions and VXT Applications

You can open two types of sessions on host systems—an X session or a terminal window session. X sessions let you access X window applications on your host. Terminal window sessions provide a VXT DECterm or VXT 3270 terminal emulator for accessing traditional video terminal applications on your host. You can open multiple sessions.

You can also start or stop three VXT applications:

Terminal Manager window
VXT Message Box
Motif window manager

By default, the terminal starts all three applications when you turn on or reset the terminal.

Initially, you use a Create dialog box to start sessions or change VXT applications. After you save a list of preferred services in the dialog box, you can quickly start sessions and VXT applications from the Create pull-down menu or VXT Create pop-up menu (Section 2.2.8).

2.2.1 Displaying the Create Dialog Box

To display the Create dialog box:

1. Click on the Create menu in the Terminal Manager window.

2. Click on Other... menu item to display the Create dialog box.

_____ **Note** _____

Your system manager can use the terminal's configuration manager to prevent users from accessing the Create dialog box. In this case, the

Other... menu item is dimmed.

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You can connect to hosts or services on a network supporting the TCP/IP, LAT, or DECnet protocol.

2.2.2 Starting LAT or Serial Sessions

To start a LAT or serial session from the Create dialog box:

1. In the Application box, click on the type of session you want to start: X Session, DECterm, or 3270.

2. In the Transport box, click on the communication method to use for the session: LAT or Serial.

   If you choose the Serial transport, skip the next step.

3. Click on the Host Name or Address box and enter the name or address of the host you want to connect to.

4. Click on the ⬆ button to add your session settings to the Preferred Services scroll box.

5. Click on the Save button to save your Preferred Services list for future use. The terminal adds your services to the Create menu and VXT Create pop-up menu for quick access.

6. Click on the Start button to connect to the host. The terminal displays a login window.

7. Log in to the session.

If the Start button is dimmed:

If you are trying to start a serial DECterm window, see Section 4.2 to change the Port Usage feature to set the serial port to work as a host port.

2.2.3 Starting a DECnet Session

Before you create your initial DECnet session, you must enter and save your terminal's DECnet address (Section 4.9).

Your host system must have the VXT$SERVER DECnet object installed. For more information, see the section on the OpenVMS operating system in *VXT Software Version 2.1 Installation and System Management*.

To start a DECnet session from the Create dialog box:

1. In the Application box, click on the type of session you want to start: X Session, DECterm, or 3270.

2. In the Transport box, click on the DECnet button.

3. Click on the Host Name or Address box and enter the DECnet host address or name (up to 6 characters). Host names require at least one alphabetic character.

    You can specify DECnet addresses in two forms:

    *   The long form uses a period to separate the area number and node number. For example: 61.513.

    *   The short form collapses the area and node numbers into a single decimal value, using the formula (*area_number* × 1024) + *node_number*. For example: 62977 = (*61* × 1024) + *513*.

    If you want to use host names instead of addresses, you first must enter and save the address of your network's DECnet name translator (Section 4.10).

4. Click on the ⬆ button to add your session settings to the Preferred Services scroll box.

5. Click on the Save button to save your Preferred Services list for future use. The terminal adds your list to the Create menu and VXT Create pop-up menu for quick access.

6. Click on the Start button to connect to the host. The terminal displays a login window.

7. Log in to the session.

2.2.4 Starting an IP Session

Before you create your initial session, you must enter and save your terminal's TCP/IP address (Section 4.5).

─────────────────── **Note** ───────────────────

You can create only one IP X session to a given host. If you try to create a second IP X session to the same host, the X display manager (XDM) closes the first IP X session while creating the second IP X session.

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To start an IP session from the Create dialog box:

1. In the Application box, click on the type of session you want to start: X Session, DECterm, or 3270.

2. In the Transport box, click on the TCP/IP button.

3. Click on the Host Name or Address box and enter the IP host address or name (up to 30 characters).

   If you want to use host names instead of addresses, you first must enter and save the address of your network's TCP/IP name server (Section 4.6).

   Options:

   • Use the Any Host button if you want to use the first available IP host.

   • Use the Any Host Indirect button to specify a host that will act as a pathway to find the first available IP host. Specify the host in the Host Name or Address box.

   • Use the Comment box to enter optional text comments. For example, if you entered a host name, you may want to enter the IP address as a comment.

- Use the List Known Hosts... button to display a dialog box that lets you list available IP hosts.

See Section 2.2.4.1 for button descriptions.

You can enter a host IP address in one of the following formats:

Format	Example
Decimal whole number	215279382
Decimal dot notation	12.212.231.22
Hexadecimal	0xcd4e716
Hexadecimal dot notation	0xc.d4.e7.16
Octal dot notation	01465163426
Octal whole number	014.324.347.26

For DECterm windows, you can specify the port for Telnet to connect on. Simply append a comma to the host name or IP address followed by the port number.

Format	Example
Host_Name,Port	market,24
IP_Address,Port	12.212.231.22,24

4. Click on the ⬆ button to add your session settings to the Preferred Services scroll box.

5. Click on the Save button to save your Preferred Services list for future use. The terminal adds your list to the Create menu and VXT Create pop-up menu for quick access.

6. Click on the Start button to connect to the host. The terminal displays a login window.

7. Log in to the session.

HP–UX Systems: Reset Required if You Cannot Log In

When creating X IP sessions to the HP–UX system, you may have to reset the terminal if you are unable to log in. This is because the HP–UX system does not issue a server reset after closing the login box.

2.2.4.1 Optional Buttons for Specifying IP Hosts
☐ Any Host
Use the Any Host button if you want to connect to first available IP host on the network. When you click on the Any Host button, an asterisk appears in the Host Name or IP Address box.

☐ **Any Host Indirect**

Use the Any Host Indirect button if you want to enter a host to use as a path
to your destination host. When you click on the Any Host Indirect button, the
title of the Host Name or IP Address box changes to Through Host Name or IP
Address. You can then enter the host name or IP address of the host to use as
a pathway.

☐ **Optional Comment for Host**

You can store optional text comments with your host name or IP address. For
example, if you entered a host name in the Host Name or IP Address box, you
may want to store the IP address as a comment.

☐ **List Known Hosts...**

You can choose from a list of hosts on your local subnet or on other subnets,
by using on the List Known Hosts... button. Click on the button to display the
Known Hosts dialog box:
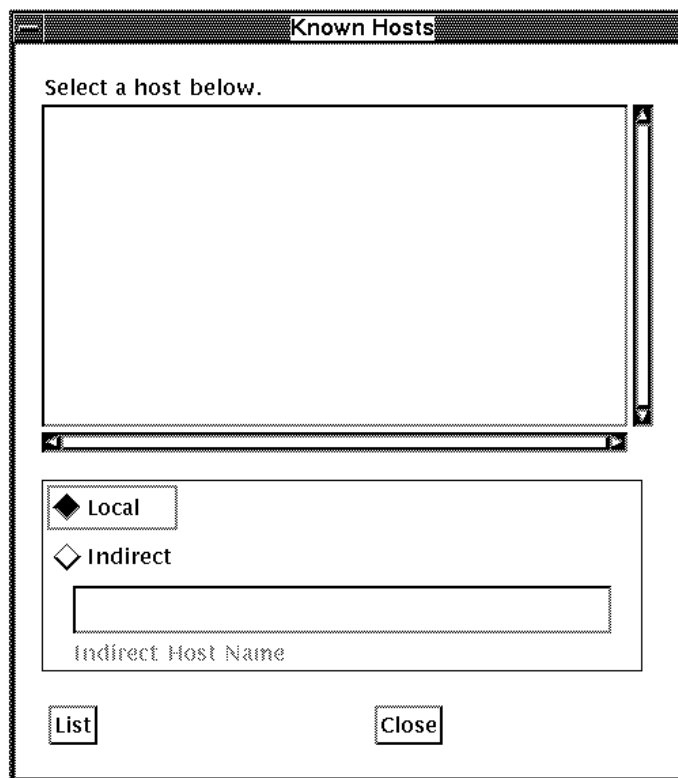
LJ–1147A–RAGS

The Known Hosts dialog box lists the available TCP/IP hosts and services on the network. If the host you want is not listed, it may be currently unavailable. Click on the List button to update the list. You may have to click on this button several times before the host you want is listed. Sometimes it takes a few minutes for the terminal to establish communication with hosts on the network.

If the Known Hosts box displays IP addresses with question marks (?) where host names should appear, you need to enter your TCP/IP Name Server address in the TCP/IP Name Server dialog box (Section 4.6).

To view hosts on the local subnet:

Click on the Local button. The dialog box lists known hosts in the terminal's local subnet. In the following example, 135 represents the local subnet of the terminal.

Subnet example:

`16.122.135.222`

To view hosts on other subnets:

Click on the Indirect button. Then click on the Indirect Host Name box and enter the name of a host to use as a source for subnet information.

To connect to a Host in the Known Hosts scroll box:

There are two ways to connect to a host from the Known Hosts scroll box.

- Double click on the host in the Known Hosts scroll box.

- Click on the host name or address in the Known Hosts scroll box. The name or address appears in the Host Name or IP Address box of the Create Session dialog box.

  Click on the Connect button in the Create dialog box.

To add a host from the Known Hosts scroll box to the Preferred Services scroll box:

1. Click on the host name in the Known Hosts scroll box. The host name appears in the Host Name or IP Address box of the Create dialog box.

2. Click on the ⬆ button in the Create dialog box. The host appears in the Preferred Services scroll box.

3. Click on the Save button in the Create dialog box.

To update the Known Hosts scroll box list:

Click on the List button. The terminal updates the list of available hosts.

To close the Known Hosts dialog box:

Click on the Close button.

2.2.5 Starting VXT Applications

To start a VXT application from the Create dialog box:

1. In the Application box, click on the type of local application you want to start: Motif Window Manager, Terminal Manager, Message Box, or Terminal Manager + Message Box.

    By default, the terminal runs the Terminal Manager window and VXT Message Box as a single application.

2. Click on the ⬆ button to add the application to the Preferred Services scroll box.

3. Click on the Save button to save your Preferred Services list for future use. The terminal adds your list to the Create menu and VXT Create pop-up menu for quick access.

4. Click on the Start button if you wish to start the application.

    If the application is already running, it will not start again. Only one copy of an application can run at a time.

2.2.6 Starting Remote Applications

You can start a remote application on a host system that you are currently connected to. Before you start a remote application, you must run the VXT application launcher on the host system. For instructions, see Section 13.3.

To start a remote application from the Create dialog box:

1. In the Application box, click on the Remote Application button.

2. In the Name box, enter the name of the VXT launcher. The default name is **VXT**.

    If you plan to launch applications from several host systems, you must specify a unique name for the VXT launcher on each system. You can specify a name when you run the VXT launcher. See *Chapter 13*.

3. In the Command box, enter the host system command to start the application.

    For example, the following command starts a clock:

    OpenVMS system   MCR DECW$CLOCK

ULTRIX, DEC OSF/1   /usr/bin/dxclock
AXP, or UNIX system

4. Click on the ⬆ button to add your remote application settings to the
    Preferred Services scroll box.

5. Click on the Save button to save your Preferred Services list for future use.
    The terminal adds your list to the Create menu and VXT Create pop-up
    menu for quick access.

6. Click on the Start button to start the remote application. The terminal
    displays the application.

2.2.7 Preferred Services

You can add, move, and delete services from your Preferred Services list in the
Create dialog box.

To add a service to the Preferred Services scroll box:

1. Use the Application, Transport, and Host Name or Address boxes to specify
    the service you want to add.

2. Click on the ⬆ button to add the service to the Preferred Services scroll
    box.

3. Click on the Save button to save your service's name so you do not have to
    enter it each time you turn on the terminal.

**To start a session or application from the Preferred Services scroll
box:**

•   Double click on a service in the Preferred Services scroll box.

•   Click on a service in the Preferred Services scroll box. The service name
    appears in the Service or Host Name box. Click on the Connect button.

To move a service in the Preferred Services scroll box:

You can move a service up or down in the list. The terminal will display the
services in the same order on the Create pull-down submenus and the VXT
Create pop-up menu.

1. Click on the service name you want to move.

2. Click on the △ or ▽ button to move the service one place up or down in
    the list.

To remove a service from the Preferred Services scroll box:

1. Click on the service name you want to remove.

2. Click on the trash can button.

2.2.8 Creating Sessions from a Menu: Preferred Services

After you save preferred services in the Create dialog box, the terminal adds them to

- The Create menu, as submenus

- The VXT Create pop-up menu (after you restart the window manager)

You can quickly start a preferred service (a session or VXT application) by choosing the service name from these menus.

Create Menu

The Create menu adds a menu item for each type of session you have saved – DECterm, X Session, and so on. When you choose one of these menu items, the terminal displays a submenu that lists all of your preferred services for that type of session.
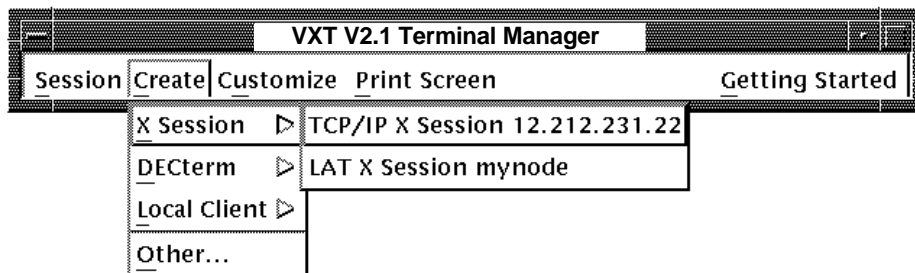
LJ–01145C–RAGS

VXT Create Pop-Up Menu

After you restart the window manager, the VXT Create pop-up menu also lists all preferred services.

To restart the window manager and view the VXT Create pop-up menu:

1. Click and hold mouse button 1 (MB1) anywhere on the screen background, outside the Terminal Manager window and other windows.

   The terminal displays a Workspace pop-up menu.

2. Drag the pointer to the **Restart...** menu item, then release MB1.

   The terminal displays a confirmation box asking if you really want to restart the window manager.

3. Click on the **OK** button to restart the window manager.

   The borders around the windows on the screen disappear while the window manager is being restarted.

4. After the window borders reappear, click and hold MB2 anywhere on the screen background.

   The terminal displays the VXT Create pop-up menu, listing your preferred services. The default VXT Create pop-up menu lists the combined Terminal Manager and VXT Message Box applications:

VXT Create
Term Mgr + Msg Box

LJ–03026–RAGS
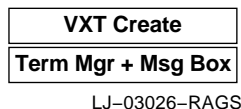
2.3 Autostarting, Pausing, or Ending Sessions

The Terminal Manager window's Session menu lets you automatically start or pause a session. You can also end all sessions by using the Reset, Reboot, or Shutdown items to reset the terminal's VXT software.

```
┌─────────────────────────────────────────────────────────┐
│                VXT V2.1 Terminal Manager                 │
├─────────────────────────────────────────────────────────┤
│ Session│ Create  Customize  Print Screen   Getting Started│
├────────┤                                                  │
│ AutoStart                                                 │
│ Status    ▷                                               │
│ Pause                                                     │
│ Reset                                                     │
│ Reboot                                                    │
│ Shutdown                                                  │
│ Close                                                     │
└────────┘
```
LJ–01141C–RAGS
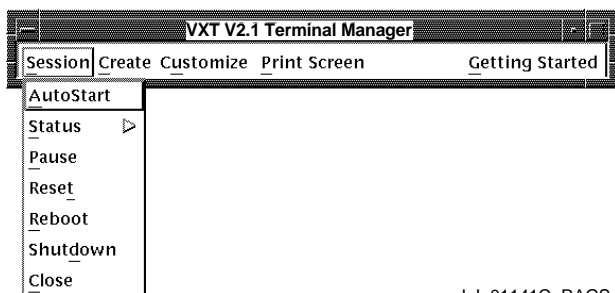
2.3.1 Autostarting a Session

The AutoStart menu item lets you quickly start the list of sessions and VXT applications that you saved in the Customize AutoStart dialog box. The terminal also autostarts this list when you perform any action that restarts the terminal, such as

- Turning the terminal on

- Choosing the Reset, Reboot or Shutdown menu items from the Session menu

To enter your AutoStart settings, see Section 5.6.

To autostart your applications:

1. Click on the Session menu in the Terminal Manager window.

2. Click on AutoStart. The terminal starts up the sessions and applications in the order you listed them in the Customize AutoStart dialog box.

2.3.2 Pausing a Session

If you want to interrupt your work without ending your session, you can pause a session. When you pause a session, the terminal displays the Pause Password dialog box. After you enter and verify a pause password, the terminal clears the screen and displays the `Enter Password to Resume` prompt. Any applications you started continue to run. When you resume your session, you can continue work where you left off.

The pause password is valid for the current terminal session only. The password is not saved when you reboot or reset the terminal.

To pause your session:

1. Click on the Session menu in the Terminal Manager window.

2. Click on Pause to display the Pause Password dialog box.
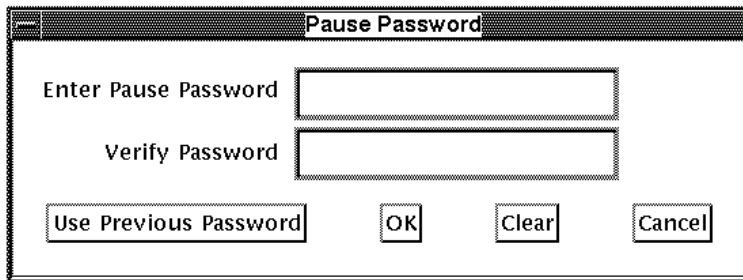
LJ–01142–RAGS

3. You can enter a new pause password or use a previous pause password that you saved during the current terminal session.

   To enter a new pause password:

   a. Enter the password in the Enter Pause Password box. The password may be from 1 to 127 characters. Blank spaces are not allowed.

   b. Click on the Verify Password box and enter the same password. If you make a mistake, click on the Clear button to start over.

   c. Click on the OK button to save the password and exit the dialog box.

   To use your previous pause password:

   Click on the Use Previous Password button.

When you click on the OK or Use Previous Password button, the terminal clears the screen and displays the `Enter Password to Resume` prompt.

Enter Password to Resume

Password [   ]

```
[  OK  ]        [ Clear ]        [ Reset ]
```

LJ–01143A–RAGS

To resume your session :

Enter your password into the Password box and click on the OK button.

If you forget the password, you can click on the Reset button to end all sessions and restart the terminal.

If you choose...	The terminal...
OK	Verifies that your password is correct.
Clear	Clears the password box.
Reset	Ends all sessions on the terminal. Resets the X server and restarts applications listed in the Customize AutoStart dialog box.

_____ **Note: Serial Window Not Closed** _____

The Reset button does not end a terminal window created on the serial port. To close a session on the serial port, choose the Exit menu item from the terminal window's File menu.

_____

2.3.3 Ending All Sessions and Restarting VXT Software

You can use the Reset, Reboot, or Shutdown menu items on the Session menu to end all active sessions on the terminal. If you choose Reboot or Shutdown, the terminal also reloads the VXT software from a host system or InfoServer system. You must reload VXT software to activate changes you make in some Customize dialog boxes (Language, Boot, Communications, Software Options, Resource Files).

If you choose...	The terminal...
Reset	Ends all sessions on the terminal.
	Resolicits the network for the terminal's resource file.
	Restarts your AutoStart sessions and clients.
	Resets the X server.
Reboot	Ends all sessions on the terminal.
	Resolicits the network for the terminal's resource file.
	Reloads VXT software.
	Restarts your AutoStart sessions and clients.
	Resets the X server.
Shutdown	Ends all sessions on the terminal and displays the message
	`Press RETURN to restart VXT`
	After you press Return , the terminal
	Resolicits the network for the terminal's resource file.
	Reloads VXT software.
	Restarts your AutoStart sessions and clients.
	Resets the X server.

When you choose the Reset, Reboot, or Shutdown menu item, the terminal displays a confirmation box. To confirm your choice, click on Yes. To remain in the session, click on No. To bypass this confirmation box, see Confirm Reset Session in Section 3.10.

You can also reboot the terminal by pressing Ctrl+left Alt+keypad . .

2.3.4 Ending Individual Sessions

If you have multiple sessions open, you can end individual sessions. The effect of ending a session depends on the type of session.

Ending an IP X Session

You can end an IP X session by using the quit function in the remote session manager for that session. Quitting from the remote session manager (xsession) on a UNIX, ULTRIX, or DEC OSF/1 AXP system ends the xsession and the window manager (xwm).

Ending a LAT X or DECnet X Session

You can end a LAT X or DECnet X session by using the End Session function in the remote session manager for that session.

By default, using the End Session function from an OpenVMS remote session manager restarts the terminal, ending *all* sessions on the terminal. If your terminal is using VXT server-based software, you can customize the terminal so it only ends the LAT X window session without restarting the terminal. See Section 5.4.

Ending Terminal Window Sessions

You can end a Telnet, LAT, DECnet, or Serial terminal window session by using the Exit menu item in the window's File menu.

2.4 Checking Network and Terminal Status

You can use the Status menu item on the Session menu to access screens that help you identify network problems. You can

- View the terminal's configuration—software version, font path, network addresses, memory, installed options, and work group

- View TCP/IP routes and ping hosts to determine their availability

- Monitor and reset LAT and Ethernet counters

- Monitor memory and network utilization

Chapter 6 describes the Status submenu.

2.5 Working with Multiple Remote X Session Managers

Each X session you create has its own session manager on the host system. Each session manager expects to have complete control of your terminal. To maintain a consistent user interface when using multiple remote session managers, you should consider the effects on the terminal's feature settings and the Motif window manager.

Feature Settings

The host session manager changes any settable features of your terminal, such as screen background, security, and keyboard selection.

If you run multiple session managers, each one sets up the terminal according to the terminal's saved settings at the time the session manager starts up. To keep the settings from changing unexpectedly, be sure to change and save all your preferences in all of your session managers.

When you quit from a remote session manager, the system may ask you if you want to save customized settings before quitting. This question refers only to the remote session manager's settings.

Security Settings with OpenVMS DECwindows Session Manager The DECwindows session manager overrides the terminal manager's Customize Security settings. Every time you log into a new OpenVMS host and run its DECwindows session manager, the security settings on the new node override the current settings. To maintain security, enter your settings on each host.

Remote Window Managers

You can choose whether or not a host-based window manager can take over windowing operations on the screen. The terminal's local window manager provides you with quicker response time and overall higher performance. However, a host-based window manager may offer more features. To let the host control windowing operations, click on the Allow Remote Window Manager button in the Customize Terminal Manager dialog box (Section 3.10).

2.6 Using the Open Look Window Manager from Sun Systems

If your host system has the Open Look window manager, you can perform the following steps to use this window manager on the terminal:

1. Load the fonts for the Sun Open Look cursor in the /vxt/fonts/misc directory on the host system.

2. In the Customize Terminal Manager dialog box, click on the Allow Remote Window Manager button (Section 3.10).

3. In the Customize Security dialog box, click on the All button to allow all connections for TCP/IP (Section 3.7).

4. In the Customize X Server dialog box, set the X Session Reset Server Action to Ignore Reset Server.

5. In the Create dialog box, create a session on your Sun system. The Sun system must have the X display manager (XDM) installed to be able to display the username and password banner on the terminal.

6. Use the `env` command to verify the following symbol definitions on the Sun system:

```
OPENWINHOME=/usr/openwin
DISPLAY=vxt-ip:0
LD_LIBRARY_PATH=/usr/openwin/lib
```

   If the symbols are not defined, apply them manually. For example:

```
#  setenv OPENWINHOME /usr/openwin
#  setenv DISPLAY vxt_ip_address:0.0
#  setenv LD_LIBRARY_PATH /usr/openwin/lib
```

7. To complete the initialization of the window manager, enter the following commands:

```
#  xrdb .Xdefaults (or .OWdefaults for Solaris 2.n systems)
#  /usr/openwin/lib/openwin-sys
This is the OpenWindows X11/NeWS Server system
initialization file)
#  olwm &
```

   After you complete these steps, the Open Look window manager environment should appear after a short time.

If the system displays errors about elements not found, you may need to modify your path in `.cshrc` to access those elements.

1. Use the `find` command to find the elements' location.

2. Modify the `.cshrc` file to include the correct path to the elements.

3. Enter the following command to have the system read the updated `.cshrc` file.

```
#  source .cshrc
```

   The following example uses the `find` command to locate the executable code named xrdb:

```
#  find / -name xrdb -print
```

Using Sun Open Look Fonts from the Host System

You use the Customize Font Path dialog box (Section 5.3) to enter the path to the Sun Open Look fonts on your host system. By default, the VXT software installation places font directories in the following path:

```
/tftpboot/vxt/fonts or /usr/tftpboot/vxt/fonts
```

The fonts you need are in the `100dpi` and `misc` directories.

Specify the following two font paths in the Customize Font Path dialog box. You need both font paths to access the fonts for various Sun applications. The font paths you specify depend on whether your host system uses restricted or unrestricted TFTP access. Digital recommends using restricted TFTP access, for security reasons.

Restricted TFTP Systems

```
/vxt/fonts/misc/fonts.dir
```

```
/vxt/fonts/100dpi/fonts.dir
```

Unrestricted TFTP Systems

```
/tftpboot/vxt/fonts/misc/fonts.dir
(or /usr/tftpboot/vxt/fonts/misc/fonts.dir)
```

```
/tftpboot/vxt/fonts/100dpi/fonts.dir
(or /usr/tftpboot/vxt/fonts/100dpi/fonts.dir)
```

Using Sun Open Look Fonts from an InfoServer

Server-based terminals can use an InfoServer system to provide the Sun Open Look fonts. *VXT Software Version 2.1 Installation and System Management* describes how to use the terminal's font manager to copy host fonts to InfoServer font sets.

Converting Sun Fonts

The VXT 2000 windowing terminal uses fonts in the portable compiled font (PCF) format. You can convert Sun fonts into PCF format, using conversion utilities provided with the VXT software installation kit. See *VXT Software Version 2.1 Installation and System Management*.

2.7 Customizing Your Terminal's Environment

The Customize menu in the Terminal Manager window lets you check and control the settings for many features—from the keyboard to host communications. See the following chapters for details on the Customize menu:

Chapter 3   Describes user-preference and security settings (top half of the Customize menu).

Chapter 4   Describes settings that affect communication with host systems (Communications submenu).

Chapter 5   Describes advanced settings for autostarting sessions, entering font paths, booting VXT software, and turning VXT software options on or off (bottom half of Customize menu).

2.8 Printing

This section describes how to

- Print the screen from the Print Screen menu

- Send printing jobs from a host system to the terminal's printer

You can also perform printing operations from the Print menu in VXT DECterm windows (Section 7.5).

Supported Printers

The terminal supports level 1 and level 2 Digital printers.

- Level 1 printers include the LA50 and LA70 dot matrix printers.

- Level 2 printers include the LA75 and LA324 dot-matrix printers; LJ250 (serial) and LJ252 (parallel) color ink-jet printers; and LN03, LN05, and LN06 laser printers.

The terminal also supports PostScript printers, including Digital's and ScriptPrinter and DEClaser family, the HP LaserJet II and HP LaserJet III printers, and the IBM 4019 laser printer.

2.8.1 Printing the Screen

The Print Screen menu in the Terminal Manager window lets you print all or part of the screen display, using a serial or parallel printer connected to the rear of the terminal. Depending on your printer, you can print monochrome, gray scale, or color displays in sixel or PostScript format.

You can also cancel a current printing job sent from a remote host system to the terminal's printer.

Before printing, you should customize the print screen settings and select the port you are using (serial or parallel). Normally, the print screen function is set to print a monochrome image in sixel format on the parallel port. To customize the print screen settings, see Section 3.6. To choose the printer port, see Section 4.2.

The Print Screen menu looks like this:

```
┌─────────────────────────────────────────────────┐
│ ─          VXT V2.1 Terminal Manager        ▿  ▯ │
├─────────────────────────────────────────────────┤
│ Session  Create  Customize │ Print Screen │    Getting Started │
│                            ┌──────────────────────────┐
│                            │ Local Print Entire Screen │
│                            ├──────────────────────────┤
│                            │ Local Print Portion of Screen │
│                            ├──────────────────────────┤
│                            │ Cancel Current Remote Print Job │
│                            └──────────────────────────┘
```
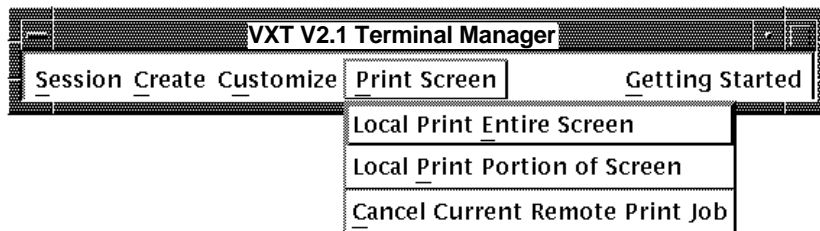
LJ–01153C–RAGS

To print the complete screen image:

Choose the Local Print Entire Screen menu item.

If you are printing from a VR319 monitor to an LA50 printer, the image may be too large for the page. Click on the Rotate/Scale Picture button in the Terminal Manager window's Customize Print Screen dialog box to print the image on the page.

To print a portion of the screen image:

1. Choose the Local Print Portion of Screen menu item. The pointer turns into a cross.

2. Wait for terminal to redisplay the Print Screen menu.

3. Move the pointer to one corner of the area you want to print. Hold down MB1 and drag the pointer to the opposite corner of the desired area. As you drag the pointer, a rectangular outline is displayed.

4. Release MB1 to send the selected image to the printer.

To cancel a remote printing job that is currently printing:

Choose the Cancel Current Remote Print Job menu item. The remote print job currently printing stops.

Normally, the terminal can accept printing jobs from systems using the TCP/IP or LAT transport. To change this setting, see Section 4.2.

Printer Status

When you send a job to the printer, the terminal displays printer status messages in the VXT Message Box.

Printer Offline   Indicates that the printer is turned off or not connected. The printer did not assert its DTR signal within 2 seconds after the print request.

Printer Busy   Indicates the printer is printing another job.

In both cases, your print request is canceled.

Canceling a Print Screen Operation

During large printing jobs, the terminal displays a Print Cancel dialog box to let you cancel the print operation. To cancel the print operation, click on the Click Here to Cancel Print button. Printing stops when the printer empties its input buffer. The Print Cancel dialog box is not printed.

2.8.2 Printing from a Host System

VXT Software Version 2.1 Installation and System Management describes how to set up the terminal's printer port for printing from a host system. After the host is set up, you can send printing jobs from the host to the terminal's printer.

You can print from hosts that use the TCP/IP or LAT transport.

Printing from Hosts that Use TCP/IP

To use TCP/IP for printing:

- The terminal's TCP/IP or Ethernet address must be displayed in the Terminal Manager window

- The Host Accessible Printer Port button must be enabled in the Customize Serial and Parallel Ports dialog box (Section 4.2). This is the default setting.

- The VXT printer support utilities provided with the VXT software installation kit must be installed on your host system.

The terminal accepts only one TCP/IP printing job at a time. If a second job is sent while the first job is printing, the second job is ignored and no notification is sent to the requester. The requester must wait until the first job completes, then submit the second job again.

Printing from ULTRIX, DEC OSF/1 AXP, SunOS, or IBM AIX Hosts Use the `lpr` command to submit printing jobs to the terminal's printer. Ask your system manager for the printer name to specify.

```
lpr -Pvxt_printer [-Dpostscript] printfile
```

- *vxt_printer* is the name of the printer connected to the terminal.

- *printfile* is the file to print.

- The `-Dpostscript` option is for printing PostScript files from ULTRIX systems. You can use this option if your printer supports PostScript printing.

For more information, see the `lpr` man page.

Printing from an HP–UX or SCO ODT Host Use the `lp` command to submit printing jobs to the terminal's printer. Ask your system manager for the printer name to specify.

```
lp -dvxt_printer printfile
```

- *vxt_printer* is the name of the printer connected to the terminal.

- *printfile* is the file to print.

Printing from an OpenVMS Host

To print from an OpenVMS system to a VXT 2000 windowing terminal's printer, use the DCL PRINT command. Ask your system manager for the printer's queue.

```
$ PRINT/QUEUE=vxt_printer myfile.EXT
```

- *vxt_printer* is the name of the terminal's printer queue. Use the queue name that was created when initializing the printer port.

- *myfile.ext* is the file you wish to print.

Canceling a Remote Printing Job

To cancel a printing job from a host that is currently printing, choose the Cancel Current Remote Print Job menu item from the Print Screen menu in the Terminal Manager window. The terminal stops printing the current job.

2.9 Getting Started Menu

The Getting Started menu in the Terminal Manager window provides help
on choosing your keyboard type, entering an IP or DECnet address, and
creating sessions. If you have a server-based terminal, you can also acess
the InfoReader library of online VXT documentation. To display the Getting
Started menu, click on the Getting Started menu in the menu bar. The Getting
Started menu looks like this:

```
┌──────────────────────────────────────────────────────────┐
│                  VXT V2.1 Terminal Manager                 │
├──────────────────────────────────────────────────────────┤
│ Session  Create  Customize   Print Screen      Getting Started │
├─────────────────────────┬──────────────────────────────┤
│                         │ About the VXT Terminal Manager... │
│                         │ Choosing the Correct Keyboard Type... │
│                         │ Entering an IP Address...         │
│                         │ Entering a DECnet Address...      │
│                         │ Creating Sessions...              │
│                         ├──────────────────────────────┤
│                         │ InfoReader ...                   │
└─────────────────────────┴──────────────────────────────┘
```
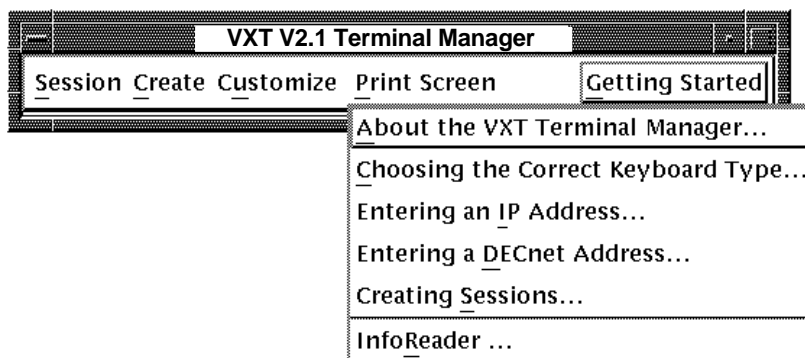
LJ–01144D–RAGS

InfoReader—Viewing Online VXT Documentation

To view online VXT documentation, choose the InfoReader... menu item.
The documentation is an optional part of the VXT software installation. The
InfoReader utility is similar to the Bookreader utility on DECwindows systems.
When you choose the InfoReader... menu item, the terminal displays a new
window that lists the available VXT document titles. If you are unfamiliar
with Bookreader or InfoReader, double click on the *Using InfoReader* selection.

For VXT Version 2.1 software, the following titles are available:

*   *VXT 2000+ /VXT 2000 Windowing Terminal Installing and Getting Started*
    (in six languages)

*   *VXT 2000+ /VXT 2000 Windowing Terminal User Information*

*   *VXT Software Version 2.1 Release Notes*

*   *VXT Software Version 2.1 Installation and System Management*

    Each section of this document is a separate online book that covers the use
    of VXT software on different operating systems.

- *InfoServer System Operations Guide*


```
┌─────────────────────────────────────────────────────────┐
│  —          InfoReader : Library              ▼          │
├─────────────────────────────────────────────────────────┤
│  File  Link  View                             Help       │
├─────────────────────────────────────────────────────────┤
│ ▙ InfoReader Library                                     │
│   ▟ Using InfoReader                                     │
│   ▟ VXT Software Version 2.1 Release Notes               │
│   ▟ VXT 2000+/VXT 2000 Installing and Getting Started    │
│   ▟ VXT 2000+/VXT 2000 Installations- und Startanleitung │
│   ▟ VXT 2000+/VXT 2000 Instalación e introducción        │
│   ▟ VXT 2000+/VXT 2000 Manuel d'installation et d'initiation │
│   ▟ VXT 2000+/VXT 2000 Guida all'installazione e all'uso │
│   ▟ VXT 2000+/VXT 2000 Installatie en inleiding          │
│   ▟ VXT 2000+/VXT 2000 User Information                  │
│   ▟ VXT Software Version 2.1 Installation And System Management │
│   ▟ VXT Software on InfoServer                           │
│   ▟ VXT Software on OpenVMS                              │
│   ▟ VXT Software on DEC OSF/1 AXP                        │
│   ▟ VXT Software on ULTRIX                               │
│   ▟ VXT Software on SunOS                                │
│   ▟ VXT Software on HP-UX                                │
│   ▟ VXT Software on IBM AIX                              │
│   ▟ VXT Software on SCO ODT                              │
│   ▟ VXT Software: Managing Terminals and Work Groups     │
│   ▟ VXT Software: Appendixes                             │
│   ▟ InfoServer System Operations Guide V3.0              │
└─────────────────────────────────────────────────────────┘
```

LJ–03013A–RAGS

3

Customizing the Terminal

This chapter describes how you can customize basic terminal feature settings, using the top half of the Customize menu in the Terminal Manager window. The chapter also describes how to customize the VXT Message Box.

Initially, the terminal uses factory-default settings that work with many host systems. You can make changes to suit your personal preference and computing environment. After you make changes, you can save your settings for all future sessions.

The chapter covers the following major topics:

- Displaying the Customize Menu
- Saving and Restoring Terminal Manager Settings
- Changing Your Keyboard Settings
- Choosing the Display Language
- Changing Your Pointer and Mouse Settings
- Changing Your Print Screen Settings
- Changing Your Security Settings
- Changing Your Screen Background
- Changing Your Window Colors
- Changing Your Terminal Manager Settings
- Changing Your Video Alignment Settings (VX227 Models)
- Saving the Terminal Manager Window's Position and Size
- Customizing the VXT Message Box

3.1 Displaying the Customize Menu

To display the Customize menu, click on Customize in the Terminal Manager
window's menu bar. This chapter describes the menu items highlighted in
gray:

```
┌──────────────────────────────────────────────────────────────────┐
│                    VXT V2.1 Terminal Manager                       │
├──────────────────────────────────────────────────────────────────┤
│ Session  Create │Customize│ Print Screen                Getting Started │
│                 ├──────────────────┤                               │
│                 │Keyboard...        │                              │
│      Ethernet Act│Language...       │  Address      DECnet Address │
│                 │Pointer...         │                              │
│      08−00−2B−25│Print Screen...    │                              │
│                 │Security...        │                              │
│                 │Screen Background...│                             │
│                 │Window Colors...    │                             │
│                 │Terminal Manager... │                             │
│                 │Communications    ▷ │                             │
│                 │Configuration     ▷ │                             │
│                 │Font Path...        │                             │
│                 │X Server...         │                             │
│                 │Startup           ▷ │                             │
│                 │Resource Files...   │                             │
│                 ├──────────────────┤                               │
│                 │Save Terminal Manager Window │                    │
│                 │Restore Terminal Manager Window │                 │
│                 │Default Terminal Manager Window │                 │
│                 └────────────────────────────────┘                 │
└──────────────────────────────────────────────────────────────────┘
```
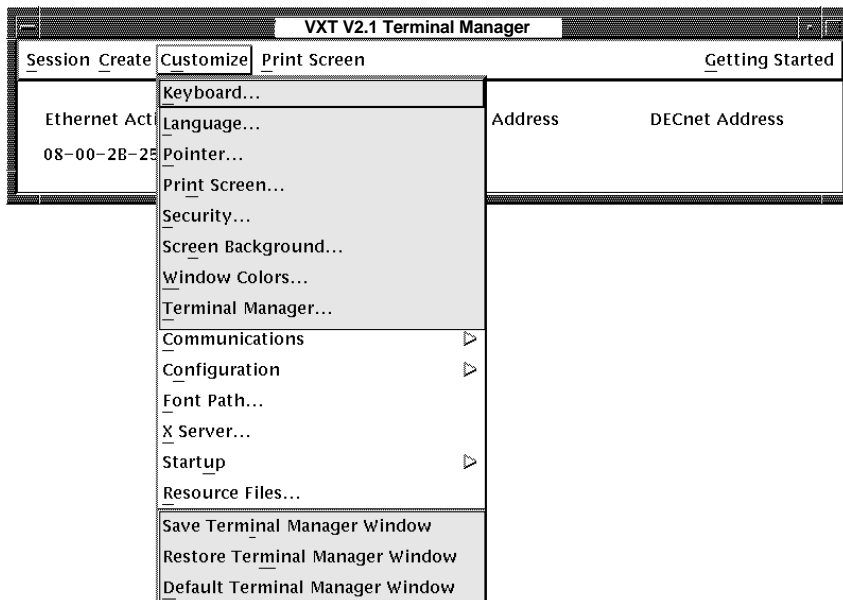
LJ−01157D−RAGS

When you choose one of the highlighted menu items from the Customize menu,
the terminal displays a dialog box with the feature settings for that topic. In
dialog boxes, shaded buttons indicate the current settings. You can examine
the settings and change them if desired. You can use the last three menu items
to save and restore the Terminal Manager window's position and size.

─────────────────────── **Note** ───────────────────────

A system manager can customize settings for terminals and work
groups. The system manager can also lock or unlock access to one or
more of the Customize menu items. Locked menu items are dimmed.

──

3.2 Saving and Restoring Terminal Manager Settings

Each dialog box has a set of push buttons for saving and restoring settings. After you make changes in a dialog box, you can save your settings for future sessions by clicking on the OK button or Apply button. If you do not want to save your changes, click on the Cancel button. Some new settings do not take effect until you end your current session and begin another one.

Click on ...	To ...
OK	Apply and save new settings and dismiss the dialog box.
Apply	Apply and save new settings without dismissing the dialog box.
System Defaults	Apply and save the factory-default settings, clearing all text and scroll boxes. **If your terminal is in a work group:** Clicking on the System Defaults button applies and saves the work group's customized settings.
Cancel	Dismiss the dialog box without changing any settings. If you made any changes without applying them, clicking on the Cancel push button cancels those changes.

3.3 Changing Your Keyboard Settings

You can control general keyboard settings from the Terminal Manager window, such as your keyboard type and keyclick volume. The keyboard type setting should match the keyboard you are using. To view or change your keyboard settings, choose Keyboard... from the Terminal Manager window's Customize menu. The Customize Keyboard dialog box looks like this:

Note ───────────────

You can also customize some keyboard settings for individual VXT DECterm windows. See Chapter 7.
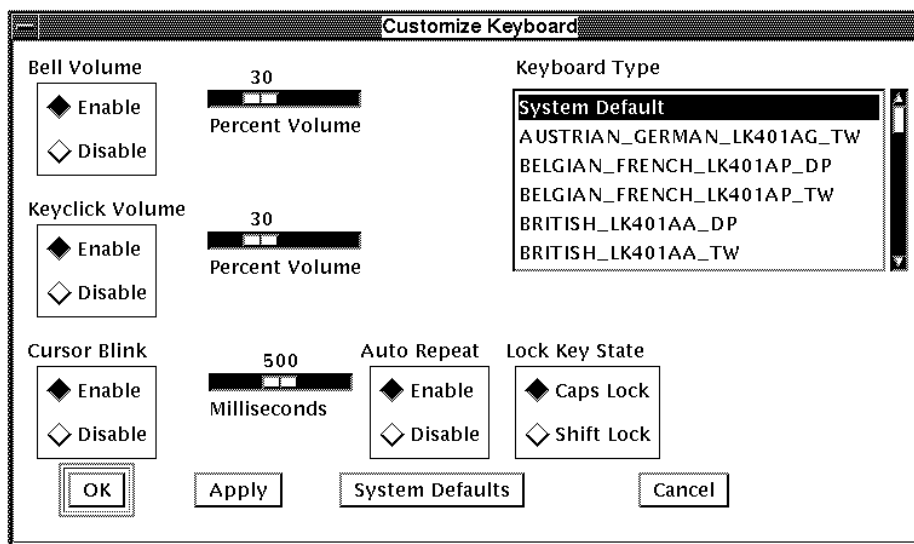
LJ–01158–RAGS

From the Customize Keyboard dialog box, you can change any of the following settings:

☐ **Keyboard Type**

The keyboard comes in various models for different languages and dialects. The location of some keyboard characters varies, depending on the keyboard model. Make sure the Keyboard Type setting in the dialog box matches your keyboard model number, so the system will send the correct characters when you use the keyboard.

The System Default setting is the North American model of your standard (LK401), short UNIX style (LK421), PC style (LK443 or LK444), or Sun style (LK460) keyboard. If you are using a keyboard for another language or dialect, you must choose the matching keyboard type.

To find your keyboard model number: Look on the bottom of the keyboard for the label that specifies the model number. The model number should be in a format similar to LK4nn-*xx* or *nn-nnnnn-xx*. Use the *xx* value to choose your keyboard type from the Keyboard Type scroll box.

For example, if you have a British keyboard and the model number is LK401-AA, you choose British_LK401AA_TW or British_LK401AA_DP.

Typewriter (TW) or data processing (DP) keys

You also use the keyboard type setting to specify whether you want your keyboard to act as a typewriter (TW) or data processing (DP) keyboard. This setting affects keys with three or more characters. If you choose data processing, these keys send the characters on the right half of their keycaps. If you choose the typewriter setting, these keys send the characters on the left half of their keycaps.

Typewriter and data processing settings are identical for these keyboard types:

• North American and Dutch

• When using 8-bit multinational characters: British, German, and Portuguese

When using DECwindows: The DECwindows host session manager has a similar Keyboard Type option. Digital recommends that you leave the host setting at System Default to avoid having the host session manager and local terminal manager compete to set the keyboard.

☐ **Bell Volume**
The keyboard's warning bell alerts you to system messages. To adjust the bell volume, either drag the Percent Volume slider to the right or left, or point to a new location on the scale and click MB1. To disable the bell, click on the Disable button.

☐ **Keyclick Volume**
When you press a keyboard key, the keyboard makes a clicking sound. To adjust the keyclick volume, either drag the Percent Volume slider to the right or left, or point to a new location on the scale and click MB1. To disable keyclicks, click on the Disable button.

☐ Cursor Blink

Normally, the text input cursor blinks. To adjust the rate of blinking, either drag the Milliseconds slider to the right or left, or point to a new location on the scale and click MB1. To disable blinking, click on the Disable button. Your new setting takes effect when you restart the terminal.

VXT DECterm windows also have a Cursor Blink feature, controlling the text cursor in the VXT DECterm terminal window. The Cursor Blink setting in the Customize Keyboard dialog box has no effect on the VXT DECterm Cursor Blink setting.

☐ Auto Repeat

When you press a key longer than normal, it repeats until you release it. To disable this feature, click on the Disable button. The Help and Return keys never autorepeat.

VXT DECterm windows also have an Auto Repeat feature. When you create a VXT DECterm window, its Auto Repeat setting works independently of the Terminal Manager window's setting. To disable Auto Repeat for the Terminal Manager and VXT DECterm windows, disable both settings.

☐ Lock Key State

Normally when you press the lock key, the alphabetic keys send uppercase letters; the number keys and nonalphabetic character keys do not send their shifted character.
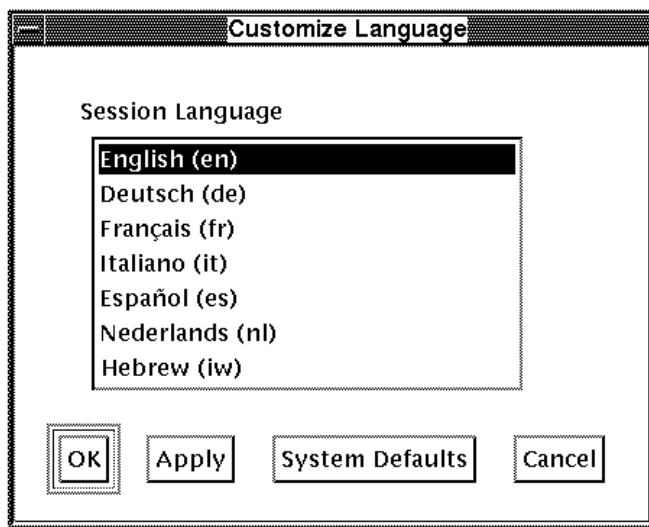
When you click on the Shift Lock button, all keys send their shifted character. The new setting takes effect when you restart the terminal.

3.4 Choosing the Display Language

The terminal supports different display languages for VXT screens. To change your display language setting, choose Language... from the Terminal Manager window's Customize menu. The Customize Language dialog box looks like this:

```
┌─────────────────────────────────────────────────┐
│ ─   ▒▒▒▒▒▒▒▒▒▒▒Customize Language▒▒▒▒▒▒▒▒▒▒▒     │
├─────────────────────────────────────────────────┤
│                                                 │
│     Session Language                            │
│                                                 │
│    ┌──────────────────────────────────────┐     │
│    │█English (en)█████████████████████████│     │
│    │ Deutsch (de)                         │     │
│    │ Français (fr)                        │     │
│    │ Italiano (it)                        │     │
│    │ Español (es)                         │     │
│    │ Nederlands (nl)                      │     │
│    │ Hebrew (iw)                          │     │
│    └──────────────────────────────────────┘     │
│                                                 │
│   ┌────┐  ┌───────┐  ┌───────────────┐ ┌──────┐ │
│   │ OK │  │ Apply │  │ System Defaults│ │Cancel│ │
│   └────┘  └───────┘  └───────────────┘ └──────┘ │
│                                                 │
└─────────────────────────────────────────────────┘
                    LJ–01159A–RAGS
```

To choose a new language:

1. Click on the language in the Session Language scroll box.

2. Click on OK to save the setting and dismiss the Customize Language dialog box.

3. Display the Session menu from the Terminal Manager window's menu bar.

4. Click on Reboot to restart the terminal and display the new language.

Hebrew Language for VXT DECterm Windows Only

The Hebrew language setting only affects VXT DECterm windows. All other VXT windows are displayed in English. You may also wish to select the Hebrew keyboard type.

Reenter Your AutoStart Settings

If you have customized AutoStart settings, you must reenter the settings after you change your display language (Section 5.6).
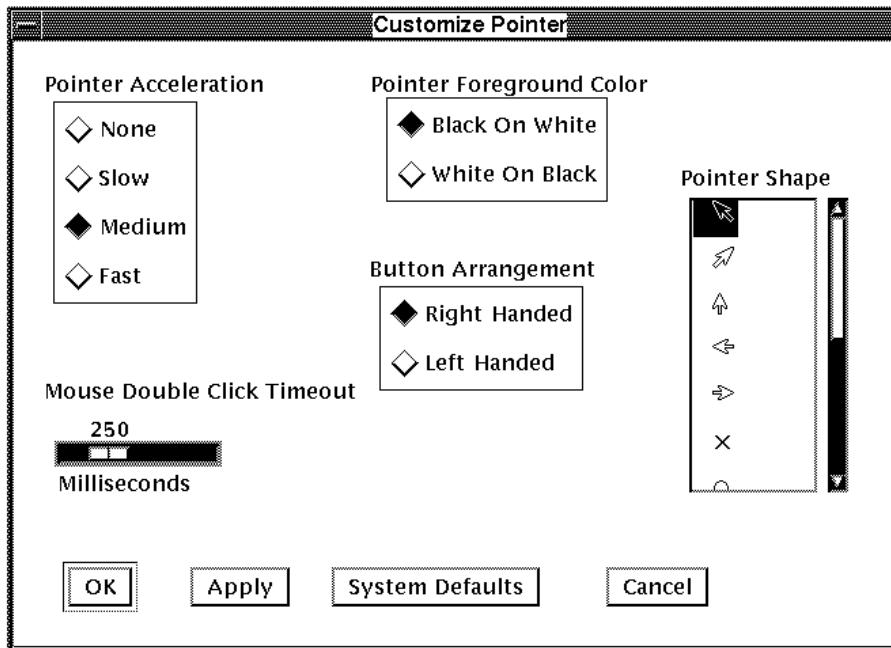
3.5 Changing Your Pointer and Mouse Settings

You can change the shape, color, and speed of the screen pointer for the mouse or other input device. You can set the mouse buttons for a left-handed or right-handed user. You can also set the time limit for performing the second click in a double-click sequence. To change your mouse and pointer settings, choose Pointer... from the Terminal Manager window's Customize menu. The Customize Pointer dialog box looks like this:
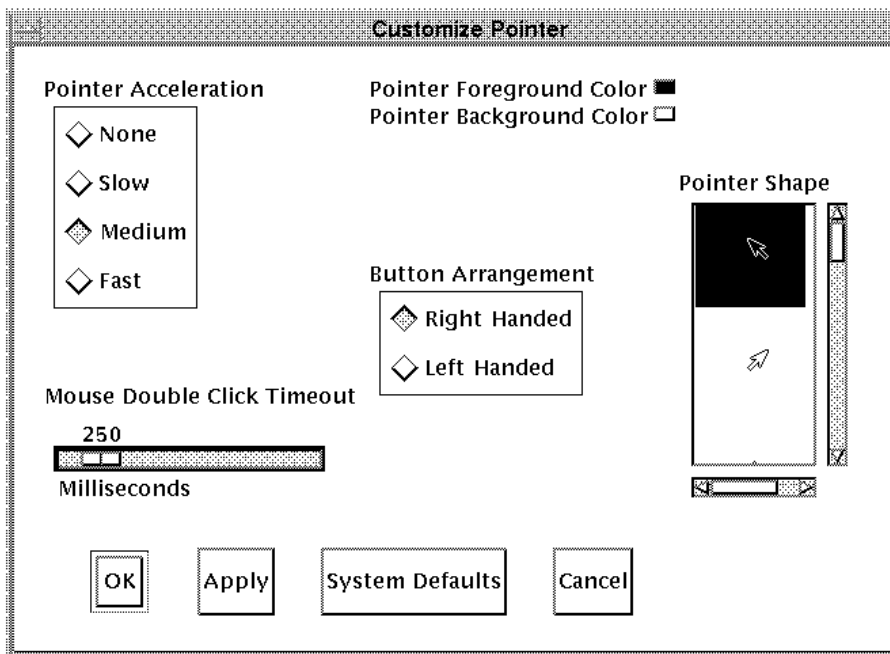
Customize Pointer Dialog Box (Monochrome)

LJ–01160–RAGS

Customize Pointer Dialog Box (Gray Scale or Color)

LJ–01150–RAGS

From the Customize Pointer dialog box, you can change any of the following
settings:

☐ **Pointer Acceleration**

Click on one of the four options to vary the rate at which the pointer moves in
relation to the mouse. The None setting keeps the pointer speed constant. The
Fast setting makes the pointer move farther as you move the mouse faster.
The default setting is Medium.

☐ **Button Arrangement**

The default mouse button arrangement is for a right-handed user—MB1 on the
left of the mouse and MB3 on the right. If you are left-handed, you can click
on the Left Handed button. This makes MB1 the right mouse button and MB3
the left mouse button. MB2 is always the middle button.

☐ **Pointer Foreground Color**

The pointer consists of an outline and filled center.

On a monochrome terminal: Normally, the pointer's filled area is black with a white outline. To reverse the fill and outline colors, click on the White On Black button.

On gray scale and color terminals: Normally, the pointer's filled area (foreground) is black. To change this setting, click on the Pointer Foreground Color button. The terminal displays a Color Mixing dialog box (Appendix B).

To see your changes, click on Apply or OK in the dialog box.

☐ **Pointer Background Color**

This button is only on gray scale and color terminals. To change the default color, click on the Pointer Background Color button. The terminal displays a Color Mixing dialog box (Appendix B).

To see your changes, click on Apply or OK in the dialog box.

☐ **Pointer Shape**

To change the pointer shape, scroll through the list of shapes and choose the one you want.

☐ **Mouse Double Click Timeout**

Some applications can tell two single clicks from a double click, based on the speed at which buttons are clicked. To change the time allowed for making the second click in a double-click sequence, drag the slider to the right or left, or move the pointer to a location on the scale and click MB1.

3.6 Changing Your Print Screen Settings

Print screen settings affect a printer connected locally to the serial or parallel port on the rear of the terminal. You can control certain printing features for print screen operations, such as the output format and the ability to center or rotate the image. To view the print screen settings, choose Print Screen... from the Terminal Manager window's Customize menu. The Customize Print Screen dialog box looks like this:
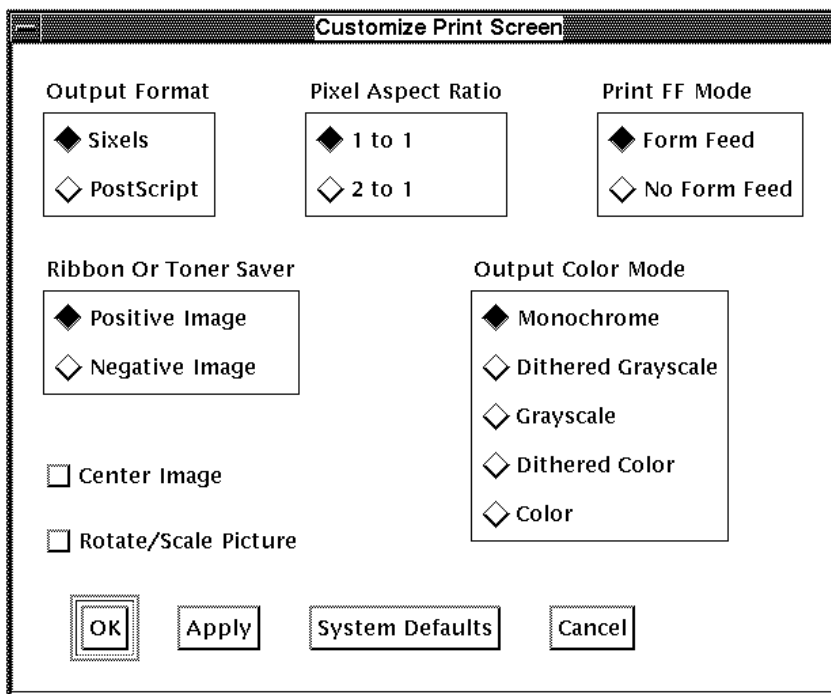
LJ–01161–RAGS

From the Customize Print Screen dialog box, you can change the following settings:

☐ **Output Format**

You can choose the output format to match your printer's data format, sixel or POSTSCRIPT.

☐ **Pixel Aspect Ratio**

You can choose the pixel aspect ratio to match the dot density of the printer you are using. A pixel aspect ratio of 1 to 1 is appropriate for most printers.

- For level 2 printers such as the LA75 or LN03, use a pixel aspect ratio of 1 to 1.

- For level 1 printers such as the LA50, use a pixel aspect ratio of 2 to 1.

☐ **Print FF Mode**

The terminal can send a form feed (FF) character to the printer port at the end of a print screen operation. If you want to send a form feed, click on the Form Feed button.

☐ **Ribbon or Toner Saver**

Normally, you print dark images on a light background. However, a large image may consume a great deal of printer ribbon or toner. To save ribbon or toner, you can click on the Negative Image button; this reverses the dark and light portions of the printed output.

☐ **Output Color Mode**

Window snapshots are usually printed or captured in black and white.

Click on the Color option if you want to print color pictures. Click on the Grayscale option to print black and white images in various gray tones. The Grayscale setting also makes screen colors easier to distinguish in black and white print.

You may want to use the Dithered Color or Dithered Grayscale buttons when you are printing continuous tone images, such as photographic images.

☐ **Center Image**

Use the Center Image button to automatically center the screen image on the printed page.

☐ **Rotate/Scale Picture**

For wide images, you can use the Rotate/Scale button to automatically rotate and scale images so they fit on the printed page.

3.7 Changing Your Security Settings

Initially, you cannot connect to your terminal from another system (unless
your system manager has customized your security settings). This means you
cannot log in from another system and use your terminal until you authorize
yourself to do so.

You can choose which hosts and users can connect to your terminal. Only
authorized hosts and users can make connections to the terminal to display
applications on your screen or request data from your screen. To change your
security settings, choose Security... from the Terminal Manager window's
Customize menu. The Customize Security dialog box looks like this:
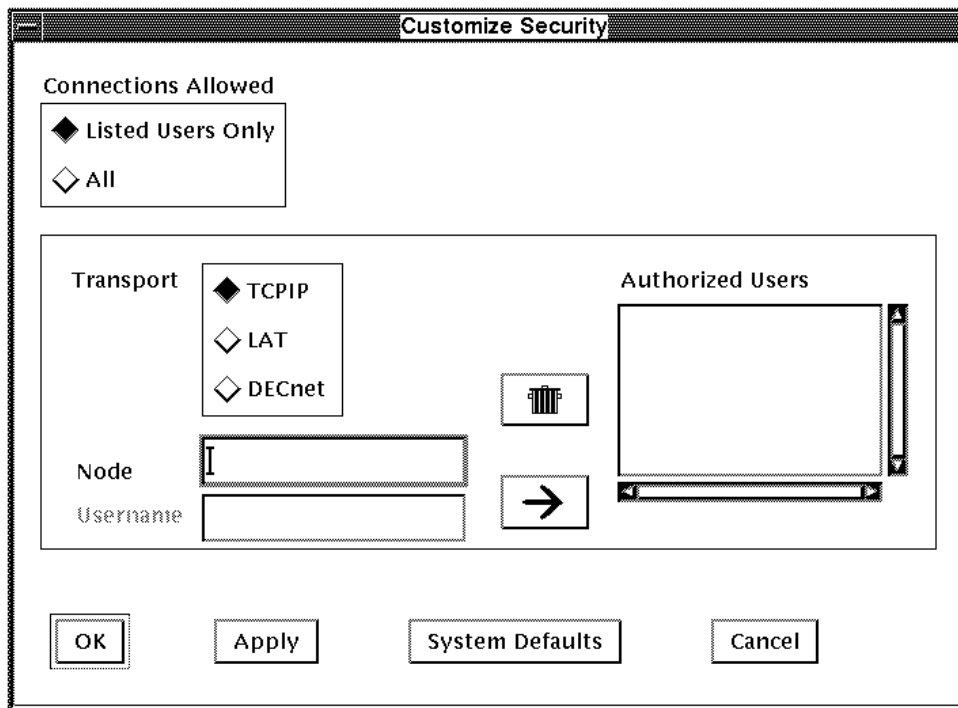
LJ–01162B–RAGS

☐ **Connections Allowed**

Normally, only those users listed in the Authorized Users scroll box can connect
to the terminal. To allow any user on the network to connect to the terminal,
click on the All button.

To prevent any X connection to your terminals, click on the Listed Users Only
button and leave the Authorized Users scroll box empty.

Listed Users Only When you choose this setting, only the systems and users entered in the Authorized Users scroll box can establish X connections to your terminal. This setting requires that you authorize your own account in addition to any others that need access to your display.

All When you choose this setting, any system on the Ethernet can establish an X connection to your terminal. Use this setting if you are part of a small group running interactive applications that require sharing of information in real time.

☐ **Authorized Users**

The Authorized Users scroll box contains the names of those users you allow to have access to your terminal. When you add a user, you associate the user with their communication transport, address, node name, and username, if applicable.

To add users to the Authorized Users List:

1. In the Transport box, click on the type of transport of the user (TCP/IP, LAT, or DECnet).

2. Enter an address or node name in the Node box, then press the `Return` key.

    - *TCP/IP example:* `market` or `12.345.123.45`

    - *LAT example:* `MARKET`

    - *DECnet example:* `MARKET` or `61.513`

3. For LAT and DECnet, enter a username in the Username box, then press the `Return` key. You can use the asterisk (*) wildcard character to specify all users.

    - *Example:* `CAROLYN` or `*`

4. Click on the `→` button to enter the user in the Authorized Users scroll box.

5. Repeat the previous steps for each user you want to add to the Authorized Users scroll box.

6. Click on Apply or OK to save your security settings.

To remove an authorized user:

1. In the Authorized Users scroll box, click on the username you want to remove.

2. Click on the trash can button.

_____ **Caution** _____

If you click on System Defaults, you clear the Authorized Users scroll
box. If you belong to a work group, System Defaults recalls your work
group settings.

_____

3.8 Changing Your Screen Background

You can change the look of your terminal's screen display. For example, you
can change the screen's background color or select the default screen pattern.
To change your screen settings, choose Screen Background... from the Terminal
Manager window's Customize menu. The Customize Screen Background dialog
box is displayed:
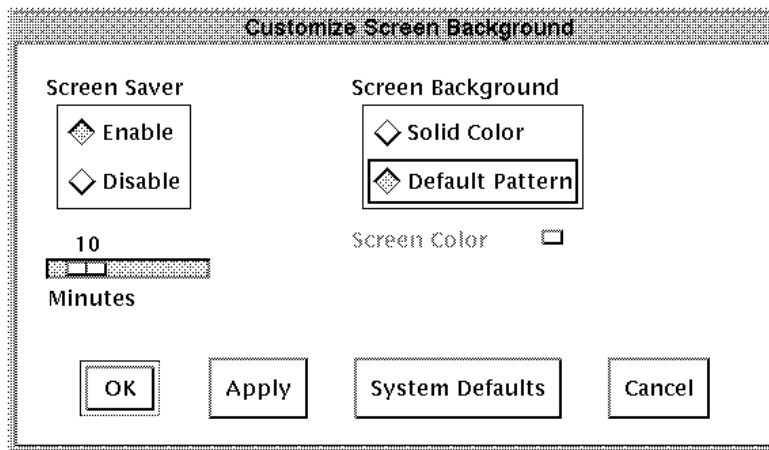
Customize Screen Background Dialog Box (Monochrome)
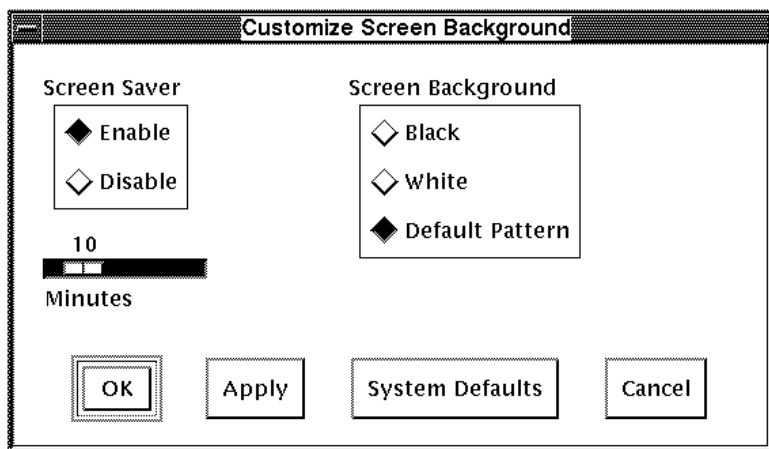
LJ–01163A–RAGS

Customize Screen Background Dialog Box (Gray Scale or Color)

```
┌──────────────────────────────────────────────────────────┐
│                Customize Screen Background                 │
│  ┌─────────────────────┐    ┌─────────────────────────┐   │
│   Screen Saver              Screen Background             │
│   ┌──────────────┐          ┌──────────────────────┐     │
│   │ ◈ Enable     │          │ ◇ Solid Color        │     │
│   │              │          │ ◈ Default Pattern    │     │
│   │ ◇ Disable    │          └──────────────────────┘     │
│   └──────────────┘                                        │
│        10                   Screen Color      ☐           │
│   ▭▭▭▭▭▭▭▭▭▭▭▭                                            │
│   Minutes                                                 │
│                                                           │
│   ┌──────┐   ┌───────┐   ┌────────────────┐  ┌─────────┐  │
│   │  OK  │   │ Apply │   │ System Defaults │ │ Cancel  │  │
│   └──────┘   └───────┘   └────────────────┘  └─────────┘  │
└──────────────────────────────────────────────────────────┘
                                        LJ–01177–RAGS
```

From the Customize Screen Background dialog box, you can change the following settings:

☐ **Screen Saver**

The Screen Saver extends the life of your monitor by shutting off the display if the terminal is inactive for a specified time. Normally, the terminal shuts off its display after 10 minutes of keyboard or mouse inactivity. You can use the sliding scale to vary the time, from 1 to 60 minutes.

☐ **Screen Background**

The default screen background pattern is a tight, gray crossweave. To change the screen background to a solid color:

On a monochrome terminal: Click on the Black or White radio button.

On gray scale and color terminals: Click on the Solid Color button. Then click on the Screen Color button. The terminal displays a Color Mixing dialog box (Appendix B).

To see your new setting in effect, click on Apply or OK.

To display the default pattern, click on the Default Pattern button.

DECwindows Session Manager Sets the Screen Background

On host systems that use DECwindows software, the session manager has a similar Screen Background option. If you create an X session to the system, the screen background setting on the host system takes effect. For a consistent screen background, use the same setting on the terminal and the host.
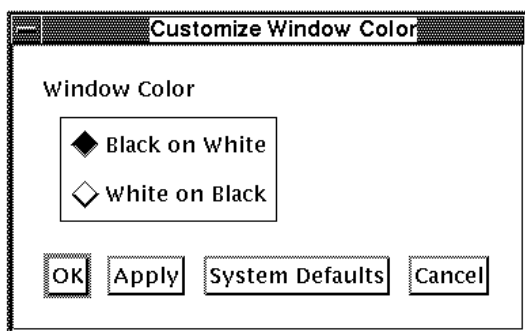
3.9 Changing Your Window Colors

You can change the window colors of your local VXT windows. On monochrome terminals, you can use the default black text on a white background or change to white text on a black background. On gray scale and color terminals, you can change foreground, background, and highlight colors. You can also change the shadow colors that produce the three-dimensional look.

If you have VXT Version 2.1 software, your color settings also affect local VXT DECterm windows.

Your window color settings do not affect windows that you open through a remote session manager. For example, if you open DECterm windows through a remote session manager on a host system, you can set the colors for those windows in the remote session manager.

To change your window color settings, choose Window Color... from the Terminal Manager window's Customize menu. The terminal displays the Customize Window Color dialog box for a monochrome or color terminal.

Customize Window Color Dialog Box (Monochrome)

LJ–01164–RAGS

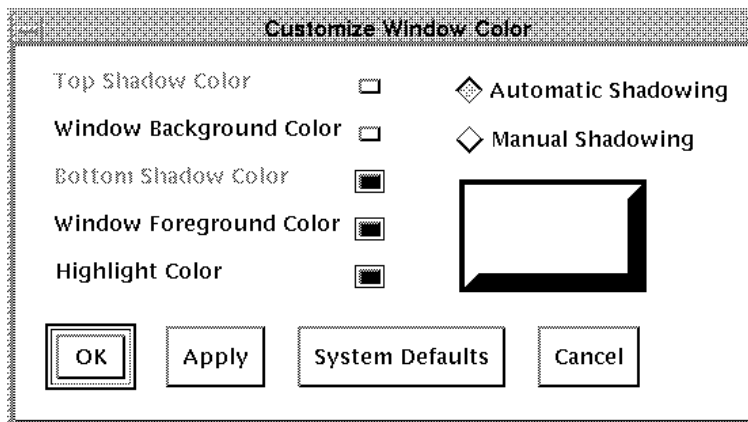From the Customize Window Color dialog box, you can change the following settings on monochrome terminals:

On Monochrome Terminals

☐ Window Color

The window color is normally black on white. Click on the White On Black radio button to reverse the colors.

To see your new setting in effect, click on Apply or OK.

Customize Window Color Dialog Box (Color)

LJ–01165–RAGS

From the Customize Window Color dialog box, you can change the following settings on gray scale or color terminals:

On Gray Scale or Color Terminals

☐ Top Shadow Color

Top and bottom shadow colors must be well matched to present a three-dimensional look. Normally, the terminal automatically determines top and bottom shadow colors when you change the window color. When you use automatic shadowing, the Top Shadow Color and Bottom Shadow Color labels are dimmed.

To choose your own top shadow color:

1. Click on the Manual Shadowing button to disable automatic shadowing.

2. Click on the Top Shadow Color button to display the Color Mixing dialog box (Appendix B).

☐ **Window Background Color**

The window background color is normally white. To change this setting, click on the Window Background Color button to display the Color Mixing dialog box (Appendix B).

If you save your changes by clicking on Apply or OK in the Color Mixing dialog box, your new settings take effect when you start your next session.

☐ **Bottom Shadow Color**

The Bottom Shadow button works like the Top Shadow button.

☐ **Window Foreground Color**

The Window Foreground Color setting changes the color of text and graphics in the window.

To change the window foreground color, click on the Window Foreground Color button to display the Color Mixing dialog box (Appendix B).

If you save your changes by clicking on Apply or OK in the Color Mixing dialog box, your new settings take effect when you start your next session.

☐ **Highlight Color**

The Highlight Color setting controls the color of screen objects with input focus such as text-entry boxes and check and radio buttons. The highlight color is normally black. To change the highlight color, click on the Highlight Color button to display the Color Mixing dialog box (Appendix B).

If you save your changes by clicking on Apply or OK in the color mixer, your new settings take effect when you start your next session.

3.10 Changing Your Terminal Manager Settings

The Customize Terminal Manager dialog box lets you choose various settings that affect the terminal manager and window management. You can

- Choose to use the terminal's window manager or a window manager on a host system

- Choose the Terminal Manager window's startup state (normal, icon, or hidden)

- Use the F3 toggle key to hide or display the Terminal Manager window

- Disable the confirmation box displayed when resetting the terminal

- Enter a tag to identify your terminal in the configuration manager

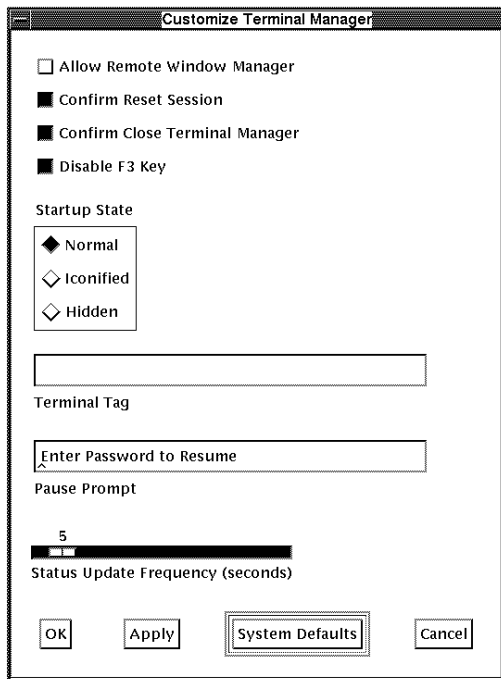- Enter the text to display when you pause a session

• Specify how frequently to update the status boxes in the Session menu

To change your Terminal Manager window settings, choose Terminal Manager...
from the Terminal Manager window's Customize menu. The Customize
Terminal Manager dialog box looks like this:

LJ–01166C–RAGS

From the Customize Terminal Manager dialog box, you can change the
following settings:

☐ **Allow Remote Window Manager**

You can choose whether or not a host-based window manager can take over
windowing operations on the screen. The terminal's local window manager
provides you with quicker response time and overall higher performance.
However, a host-based window manager may offer more features. To let the
host control windowing operations, click on the Allow Remote Window Manager
button.

☐ **Confirm Reset Session**

When you choose Reset, Reboot, or Shutdown from the Session menu, the terminal normally asks for confirmation. You can turn this feature on or off by clicking on the Confirm Reset Session button. When this feature is off, choosing Reset, Reboot, or Shutdown from the Session menu will immediately end the current session, without displaying the confirmation box. See Section 2.3.3 for details on the Session menu.

☐ **Confirm Close Terminal Manager**

When you choose Close from the Session menu, the terminal normally asks you to confirm that you want to close the Terminal Manager window. You can turn this confirmation feature on or off by clicking on the Confirm Close Terminal Manager button. When this feature is off, choosing Close from the Session menu immediately closes the Terminal Manager window, without displaying the confirmation box. Closing the Terminal Manager window also closes the VXT Message Box, unless you have customized the terminal to start the VXT Message Box as a separate application.

☐ **Disable F3 Key (For Hiding the Terminal Manager Window)**

You can choose to use the F3 key as a toggle key for hiding and displaying the Terminal Manager window, VXT Message Box, and their icons. This feature allows you to hide these applications while you are working in other windows, then redisplay them when needed. Normally, the F3 key function is disabled.

When you redisplay the Terminal Manager window and VXT Message Box, the message box receives input focus.

If you have customized the AutoStart dialog box to start the Terminal Manager window and VXT Message Box as separate applications, then the F3 key cannot hide the message box. In this case, the Terminal Manager window receives input focus when you redisplay it.

When you use the F3 key to hide and redisplay the Terminal Manager and VXT Message Box, you lose any customized window size settings for those applications. If you maximize the windows before hiding them, you cannot use the maximize button to return them to their normal size.

☐ **Startup State**

Normally when you restart the terminal, it displays the Terminal Manager window and VXT Message Box. You can choose to hide the Terminal Manager window and VXT Message Box at startup, or to display them as icons. To change the current setting, click on the appropriate button.

If you have changed the Customize AutoStart dialog box settings to start the Terminal Manager window and VXT Message Box as separate applications, the Startup State only affects the Terminal Manager window.

Caution

Before you change the Startup State to Hidden, decide whether or not you need to make the Terminal Manager window viewable after startup. If you want the window to be viewable, make sure the F3 key is enabled to display the Terminal Manager window. See the Disable F3 Key button in this dialog box. If you forget to enable the F3 key, see your system manager to change the setting from the Configuration Manager: Resource Management dialog box.

☐ **Terminal Tag**

You can specify a name to identify your terminal in the configuration manager (server-based systems only). To enter a name, click on the Terminal Tag box. Your name can have up to 31 characters. After you click on Apply or OK in the Customize Terminal Manager dialog box, your system manager can display the new terminal tag in the Configuration Manager: Resource Management dialog box.

Your system manager can also create a name for your terminal by using the Optional Name field in the configuration manager's Create Terminal dialog box. The terminal uses the most recently entered name (Terminal Tag or Optional Name).

☐ **Pause Prompt**

You can specify the text displayed in the pause prompt box when you pause your terminal session. Click on the Pause Prompt box and enter a prompt of up to 80 characters.

☐ **Status Update Frequency (seconds)**

You can specify how frequently the terminal updates the information in the status dialog boxes displayed from the Session menu. The normal setting is 5 seconds. Click on the Status Update Frequency (seconds) slider to specify an interval from 0 to 60 seconds.

3.11 Changing Your Video Alignment Settings (VX227 Models)

If you have a VXT 2000 model VX227 windowing terminal, you adjust your video alignment from a Customize dialog box rather than using physical controls on the terminal. The video alignment dialog box is only for VX227 terminals.

To adjust your video alignment settings, choose Video Alignment... from the Terminal Manager window's Customize menu. The Customize Video Alignment dialog box looks like this:
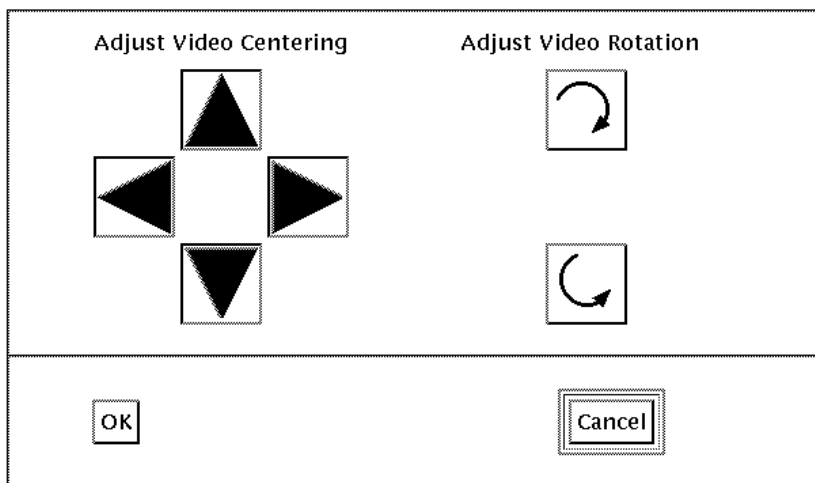
LJ–01139–RAGS

From the video alignment dialog box, you can change the following settings. Your new settings take effect when you click on OK.

☐ **Adjust Video Centering**

You use the four Adjust Video Centering buttons to center the display on the screen. Each time you click on an ⬆ button, the display shifts in the arrow's direction.

☐ **Adjust Video Rotation**

You use the two Adjust Video Rotation buttons to rotate the display on the screen. Each time you click on one of the buttons, the display rotates in the arrow's direction.

3.12 Saving the Terminal Manager Window's Position and Size

You can make changes to the Terminal Manager window's position and size on the screen, then save the changes for use in all future sessions. You can also recall the factory-default position and size for the Terminal Manager window, or recall the last position and size you saved.

To save or restore the Terminal Manager window's position and size on the screen, use the following menu items from the Customize menu:

Choose...	To...
Save Terminal Manager Window	Save the Terminal Manager window's current position and size for use in all future sessions.
Restore Terminal Manager Window	Restore the last position and size you saved. Choose this menu item if you want to reset features you changed temporarily, but did not save.
Default Terminal Manager Window	Recall the factory-default position and size for the Terminal Manager window.

3.13 Customizing the VXT Message Box

The VXT Message Box displays system status and error messages. You can choose the categories of messages displayed. You can also set the number of message lines saved in the scroll box. To change your VXT Message Box settings:

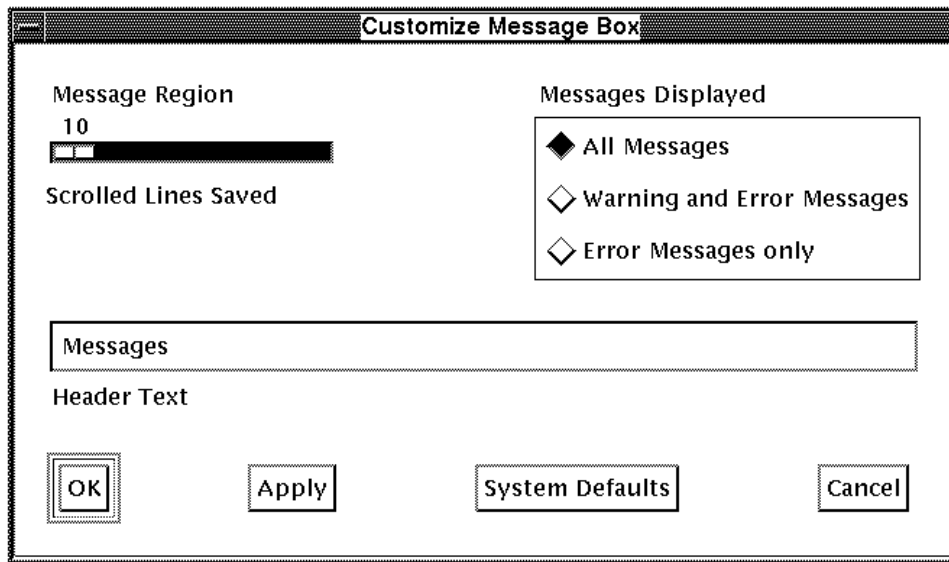1. Click on the Customize menu in the VXT Message Box.
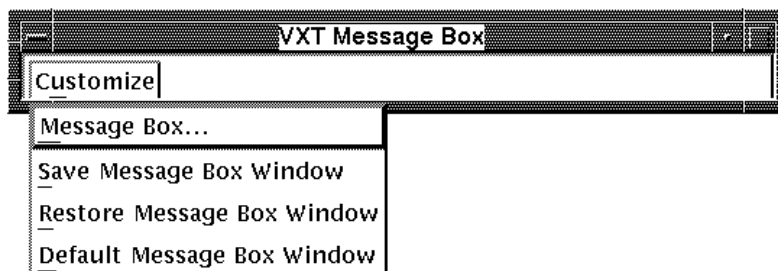
TI–03011–RAGS

2. Choose Message Box... to display the Customize Message dialog box.

TI–03012–RAGS

From the Customize Message dialog box, you can change the following settings:

☐ **Message Region**

You can scroll through text in the VXT Message Box. The Scroll Lines Saved slider lets you specify how many message lines to save when they are scrolled out of the region. Any extra lines are discarded.

This feature does not affect the size of the Messages region. You can change the size of the scroll box by changing the size of the VXT Message Box window.

☐ **Messages Displayed**

Normally, the terminal displays all informational, warning, and error messages in the Messages scroll box. You can choose to display warning and error messages only, or error messages only.

☐ **Header Text**

Normally, the title of the Messages scroll box in the VXT Message Box is Messages. To change the title, click on the Header Text box and enter a new title.

3.13.1 Saving the VXT Message Box's Position and Size

You can make changes to the VXT Message Box's position and size on the screen, then save the changes for use in all future sessions. You can also recall the factory-default position and size, or recall the last position and size you saved.

To save or restore the VXT Message Box's position and size on the screen, use the following menu items from the Customize menu:

Choose...	To...
Message Box...	Display the Customize Message Box.
Save Message Box Window	Save the VXT Message Box's current position and size for use in all future sessions.
Restore Message Box Window	Restore the last position and size you saved. Choose this menu item if you want to reset features you changed temporarily, but did not save.
Default Message Box Window	Recall the factory-default position and size for the VXT Message Box.

Closing the VXT Message Box:

Normally, the VXT Message Box runs together with the Terminal Manager window. To close the Terminal Manager window and VXT Message Box, click on the Session menu in the Terminal Manager window and choose Close.

If you customize your AutoStart settings to run the VXT Message Box as a separate application, the VXT Message Box has a separate File menu. In this case, you can close the VXT Message Box alone by clicking on the File menu and choosing Exit. See Section 5.6.

4

Customizing Communications

This chapter describes how to customize communication between the terminal and host systems. Your terminal can use several communication protocols to communicate with host systems: TCP/IP, NFS, LAT, LASTport, and DECnet. You can also choose to use a serial or parallel port for a local printer or host system. After you make changes, you can save your settings for all future sessions.

The chapter covers the following major topics:

- Changing Your Serial and Parallel Port Settings

  These settings affect your local printer or serial host.

- Changing Your LAT Settings

  These settings let a system manager fine-tune communication in a LAT network.

- Changing Your LASTport Group Code Settings (InfoServer Systems)

  The group code determines which InfoServer systems your terminal can communicate with.

- Changing Your TCP/IP IP Address Settings

  You must enter an IP address to communicate with systems that use the TCP/IP transport.

- Changing Your TCP/IP Name Server Settings

  You must specify a name server if you want to identify TCP/IP systems by name in other dialog boxes.

- Changing Your TCP/IP Routing Table Settings

  You can specify routing information for communicating with TCP/IP systems.

- Changing Your NFS Settings

  You must enter NFS Mount Points to communicate with systems that use the NFS transport.

- Changing Your DECnet Name Translator Settings

  You must specify a name translator if you want to identify DECnet systems by name in other dialog boxes.

To customize communications, you use the Communications submenu on the Terminal Manager window's Customize menu.

4.1 Displaying the Communications Submenu

To display the Communications submenu, first click on the Customize menu in the Terminal Manager window and choose Communications. The Communications submenu looks like this:

VXT V2.1 Terminal Manager		
Session Create	**Customize** Print Screen	Getting Started
	Keyboard...	
Ethernet Act	Language...	Address DECnet Address
AA−00−04−0	Pointer...	.12.123.123 12.123
	Print Screen...	
	Security...	
	Screen Background...	
	Window Colors...	
	Terminal Manager...	
	Communications ▷	Serial and Parallel Ports...
	Configuration ▷	LAT...
	Font Path...	LASTport...
	X Server...	TCP/IP...
	Startup ▷	TCP/IP Name Server...
	Resource Files...	TCP/IP Routing Tables...
	Save Terminal Manager Window	NFS...
	Restore Terminal Manager Window	DECnet...
	Default Terminal Manager Window	DECnet Name Translator...

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When you choose a menu item from the Commmunications submenu, the terminal displays a dialog box with the feature settings for that topic. In dialog boxes, shaded buttons indicate the current settings. You can examine the settings and change them if desired.

_____ **Note** _____

A system manager can customize settings for terminals and work
groups. The VXT manager can also lock or unlock access to one or
more of the Customize menu items. Locked menu items are dimmed.

_____

4.2 Changing Your Serial and Parallel Port Settings

You can specify the communication settings of the terminal's serial and parallel
ports to make them compatible with a serial host system or a local printer.
The default settings work with most Digital systems. Make sure the settings
you use match your host system.

The serial port is for connecting a host system or a local serial printer. The
parallel port is for connecting a local parallel printer. Each port has one 25-pin
connector on the rear of the system box.

When you connect to a host system through the serial port, you use the 25-pin,
RS–232 serial port connector on the rear of the terminal. The serial port
connector is above the parallel port connector.

To change the port settings, choose the Communications submenu from the
Terminal Manager window's Customize menu. Then choose Serial and Parallel
Ports... to display the Customize Serial and Parallel Ports dialog box:

```
┌─────────────────────────────────────────────────┐
│ ─ │    Customize Serial and Parallel Ports       │
├─────────────────────────────────────────────────┤
│                                                   │
│  Port Usage                                       │
│  ┌─────────────────────────────────────────────┐ │
│  │ ◆ Parallel Port: Printer, Serial Port: Host │ │
│  │                                             │ │
│  │ ◇ Serial Port: Printer                      │ │
│  └─────────────────────────────────────────────┘ │
│                                                   │
│  Transmit │ 9600 ▭│    Receive │ rx=tx ▭│        │
│                                                   │
│  Character Format │ 8-bit, No Parity  ▭│         │
│                                                   │
│  ■ Parity Check   ■ Host Accessible Printer Port │
│                                                   │
│  Stop Bits   XOFF At      Modem Control           │
│  ┌────────┐ ┌──────────┐ ┌──────────────────────┐│
│  │ ◆ One  │ │ ◆ 64     │ │ ◆ Data Leads Only    ││
│  │        │ │          │ │                      ││
│  │ ◇ Two  │ │ ◇ 128    │ │ ◇ Modem Control      ││
│  └────────┘ │          │ └──────────────────────┘│
│             │ ◇ No XOFF │                         │
│             └──────────┘                          │
│                                                   │
│  ┌────┐  ┌───────┐  ┌─────────────────┐  ┌──────┐│
│  │ OK │  │ Apply │  │ System Defaults │  │Cancel││
│  └────┘  └───────┘  └─────────────────┘  └──────┘│
│                                                   │
└─────────────────────────────────────────────────┘
```
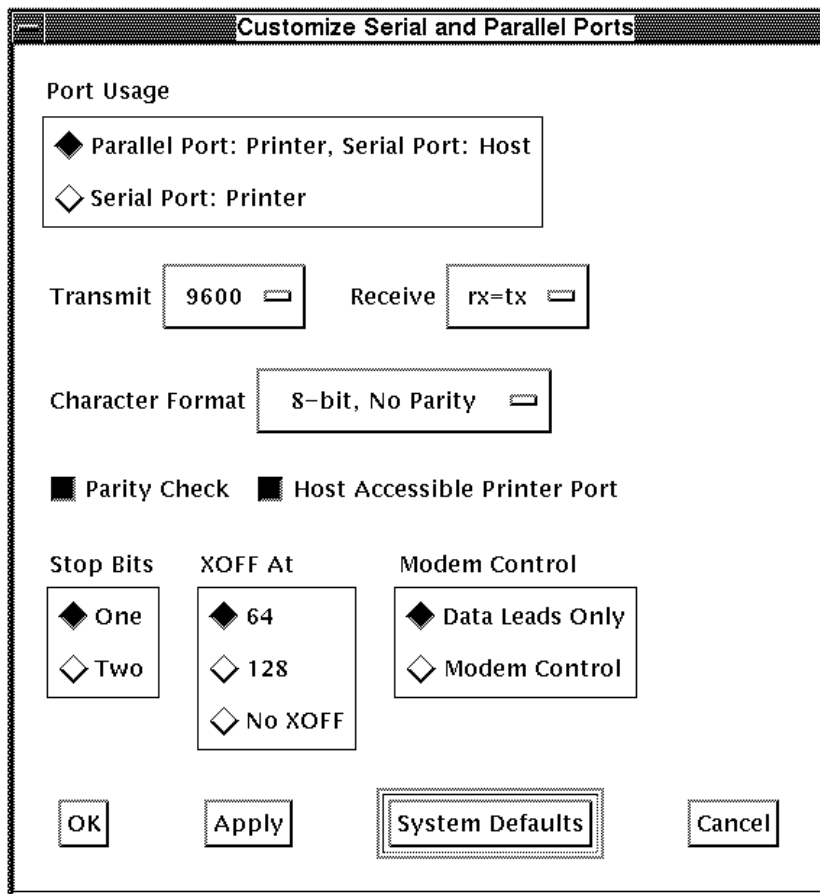
LJ–01168B–RAGS

From the Customize Serial and Parallel Ports dialog box, you can change the following settings:

☐ **Port Usage**

By default, the parallel port acts as a printer port and the serial port acts as a host port. You can set the serial port to act as the printer port. You can choose one of two functions for the serial port:

Choose...	To...
Parallel Port: Printer, Serial Port: Host	Use the parallel port for a parallel printer, and the serial port for a host system.
Serial Port: Printer	Use the serial port for a serial printer.

☐ Transmit

You can change the speed the terminal uses to send data, to match your host system or printer. Normally, the serial port uses a speed of 9600 baud, which works with most Digital systems. To choose another speed, click on the button in the Transmit box and make a choice from the pop-up menu. Your new speed appears in the Transmit box.

The terminal does not support speeds lower than 300 baud.

☐ Receive

You can change the speed the terminal uses to receive data from the host system or printer. Make sure you choose a receive speed that matches your host's or printer's transmit speed. Normally, the terminal's receive speed matches its transmit speed (rx = tx setting). However, the terminal can transmit at one speed and receive at another.

To choose another speed, click on the button in the Receive box and make a choice from the pop-up menu. Your new speed appears in the Receive box.

☐ Character Format

You can choose the word size and number of parity bits used to communicate with the host system or printer. The terminal uses a default word size of 8 bits and no parity. This setting works with most of today's computer systems.

To choose another setting, click on the button in the Character Format box and make a choice from the pop-up menu. Your new setting appears in the Character Format box.

☐ Parity Check

Normally, the terminal performs a parity check on bytes of data. To turn this feature on or off, click on the Parity Check button.

☐ Host Accessible Printer Port

Normally, the terminal can accept remote printing jobs sent from host systems that use the TCP/IP or LAT transport. To turn this feature on or off, click on the Host Accessible Printer Port button. To send printing jobs from a host, see Section 2.8.2.

☐ **Stop Bits**

You can choose the number of stop bits used in the character format. Digital recommends using one stop bit for most applications. To select two stop bits, click on the Two button.

☐ **XOFF At**

You can choose how many characters the terminal stores in its receive buffer before sending the host or printer an XOFF signal to stop sending data. Normally, the terminal sends XOFF to the host when the input buffer contains 64 characters. To choose 128 characters or no XOFF, click on the appropriate button.

☐ **Modem Control**

You can choose Modem Control if you are communicating with a host system and need to use extended modem features. Otherwise, use Data Leads Only.

Data Leads Only Choose Data Leads only if you do not plan to use modem control features or your modem (or modem cable) is not configured for modem control. The terminal uses pin 2 to transmit data and pin 3 to receive data.

The terminal asserts the data terminal ready (DTR) signal on pin 20 whenever the terminal is on.

The terminal receives the data set ready (DSR) signal on pin 6. The terminal uses DSR to detect the status of the connected printer or host system modem and display status messages about the device. Note that in Data Leads Only mode data is always transmitted, regardless of the state of the DSR signal.

Modem Control Choose Modem Control if you plan to use modem features that require additional signals beyond data leads only, such as call origination and dialing from the keyboard. The control lines follow the CCITT V.24 and V.28 and EIA RS–232–C designations and control the flow of data based on the state of various signals.

4.3 Changing Your LAT Settings

OpenVMS systems typically use the local area transport (LAT) to connect to the terminal. The terminal connects to all LAT group codes (0 to 255); you cannot select group codes.

Your system manager can fine-tune the characteristics of your LAT environment by adjusting the three slide bars in the Customize LAT dialog box.

_____ **Note** _____

These settings directly affect the performance of your local area
network. Do not try to adjust these settings yourself; they should be
adjusted only by system managers. Incorrect adjustments can produce
poor network and terminal performance.

_____

To change LAT settings and adjust performance, choose the Communications
submenu from the Terminal Manager window's Customize menu. Then choose
LAT... to display the Customize LAT dialog box:
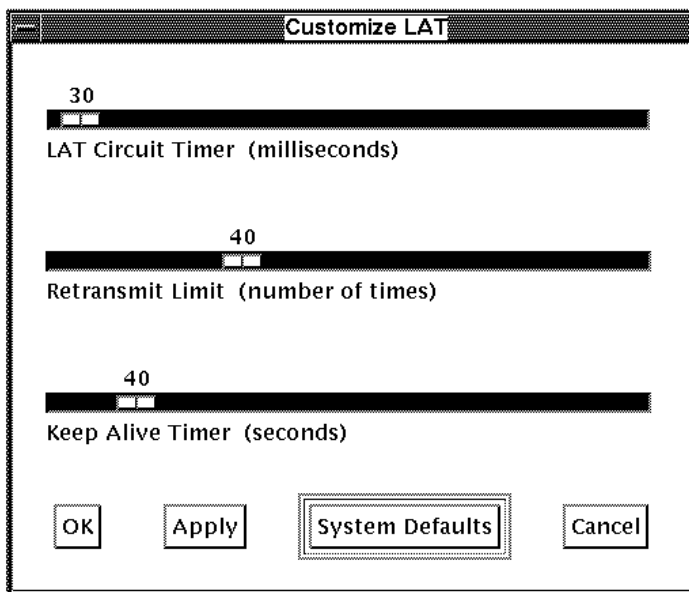
LJ–01169A–RAGS

From the Customize LAT dialog box, you can change the following settings:

☐ LAT Circuit Timer

You set the LAT Circuit Timer to tune the network for the best response time
and network performance when running an X window or DECterm terminal
window session. The optimum setting depends on the number of users on
the local area network and the typical network traffic conditions. The normal
setting of 30 milliseconds produces the best performance for most systems.

LAT circuit timer settings takes effect when the first LAT circuit is created. If you change the setting while LAT circuits are running, it does not take effect until you exit all existing LAT circuits.

☐ **Retransmit Limit**

To make a LAT connection to a host system, the terminal sends out a request-to-connect message, then waits for an acknowledgement. If the host does not acknowledge the request, the terminal resends the message a specified number of times.

The Retransmit Limit setting tells the terminal how many times to resend the message. If the terminal does not receive an acknowledgement after sending the message the specified number of times, the terminal stops requesting a connection and indicates it could not connect to that host.

Normally, the terminal resends the message 40 times before it stops trying to connect to the host. This setting works well with most Digital systems.

☐ **Keep Alive Timer**

When the terminal is inactive, it sends certain LAT messages out on the network every few seconds to keep the LAT connection alive. Normally, the terminal sends messages out every 40 seconds. This setting works well with most Digital systems.

4.4 Changing Your LASTport Group Code Settings (InfoServer Systems)

Server-based terminals use an InfoServer system for downloading and booting VXT software, configuration management, access to the InfoReader library, virtual memory, and other services. To communicate with a particular InfoServer system, your terminal must have the same group code as the InfoServer. On large local area networks, group codes can help reduce the number of InfoServer systems that your terminal must identify and communicate with.

By default, the LASTport group code on InfoServer systems and VXT 2000 windowing terminals is set to 0. If the InfoServer system's group code is not 0, you or your system manager must change the terminal's default group code to match the InfoServer's group code.

The LASTport Group Code dialog box lets you change the terminal's group code setting to match the servers that you want to access. Ask your system manager for your server's group code. New group code settings take effect when you restart the terminal.

If you cannot boot your terminal from an InfoServer system because your terminal has a different group code:

1. Quickly press and release the halt button on the rear of the terminal.

   • If your terminal has a system box, the halt button is next to the indicator lights on the rear of the system box.

   • If your terminal does not have a system box, the halt button is below the keyboard connector on the rear of the monitor.

2. At the >>> prompt, enter the command **b/100000**.

3. At the LASTport group code (0-1023)> prompt, enter the group code of the server you want to connect to. See your system manager for the correct group code.

4. After the Terminal Manager window appears, enter the group code in the Customize LASTport dialog box.

To enter or change LASTport group code address settings, choose the Communications submenu from the Terminal Manager window's Customize menu. Then choose LASTport... to display the Customize LASTport dialog box:
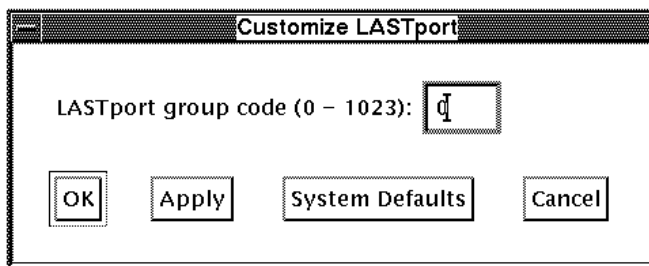
LJ–01117–RAGS

To enter a LASTport group code:

1. Enter the LASTport group code (from 0 to 1023) in the text-entry box.
   Examples: 34 or 567.

2. Press Return or click on OK or Apply.

3. Restart the terminal.

4.5 Changing Your TCP/IP IP Address Settings

UNIX, ULTRIX, and DEC OSF/1 AXP systems typically use the TCP/IP transport to connect to the terminal. To communicate with systems using TCP/IP, you must enter an IP address and subnet mask for the terminal. You use the Customize TCP/IP dialog box to enable or disable TCP/IP and enter the terminal's IP address and subnet mask. After you enter and save the IP address, it appears at the bottom of the Terminal Manager window.

To enter or change TCP/IP address settings, choose the Communications submenu from the Terminal Manager window's Customize menu. Then choose TCP/IP... to display the Customize TCP/IP dialog box:
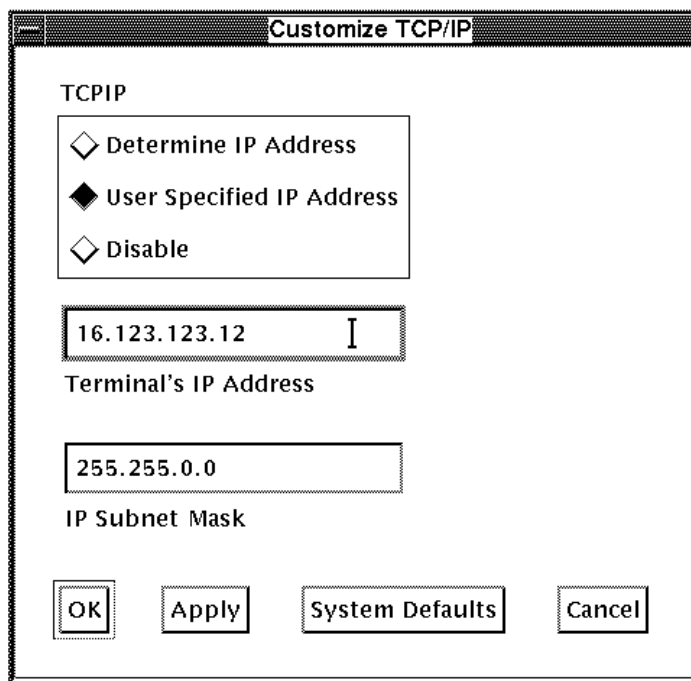
LJ–01170C–RAGS

From the Customize TCP/IP dialog box, you can change the following settings:

☐ **TCPIP**

You can choose to enter an IP address yourself or to have the terminal automatically determine its address from a file set up by your system manager. Normally, the User Specified IP Address button is on. You can disable the use of TCP/IP by clicking on the Disable button.

Determine IP Address Use this setting if you want the terminal to automatically determine its IP address, subnet mask, and the IP address of an optional name server by reading a host system file created by your system manager.

After you reboot the terminal, the terminal's IP address appears in the Terminal Manager window.

---------------------------- **Note** ----------------------------

Your system manager must enter your terminal's information in the BOOTP daemon's configuration file.

User Specified IP Address Use this setting if you want to enter your terminal's IP address in this dialog box. After you enter the address and reboot the terminal, the terminal's IP address appears in the Terminal Manager window.

Disable Use this setting to disable TCP/IP.

☐ **Terminal's IP Address**

After you click on the User Specified Address button, you can enter an IP address for your terminal. See your system manager for an address to use. After you enter the IP address and subnet mask, click on OK to save the address and dismiss the dialog box. Then reboot the terminal.

☐ **IP Subnet Mask**

After you click on the User Specified Address button, you can enter the IP subnet mask for your terminal. An IP subnet mask acts as a filter for your TCP/IP network. Using the subnet mask makes the terminal ignore certain traffic on the network.

See your system manager for a subnet mask to use. After you enter the IP subnet mask, click on the OK button to save the setting and dismiss the dialog box. Then reboot the terminal.

4.6 Changing Your TCP/IP Name Server Settings
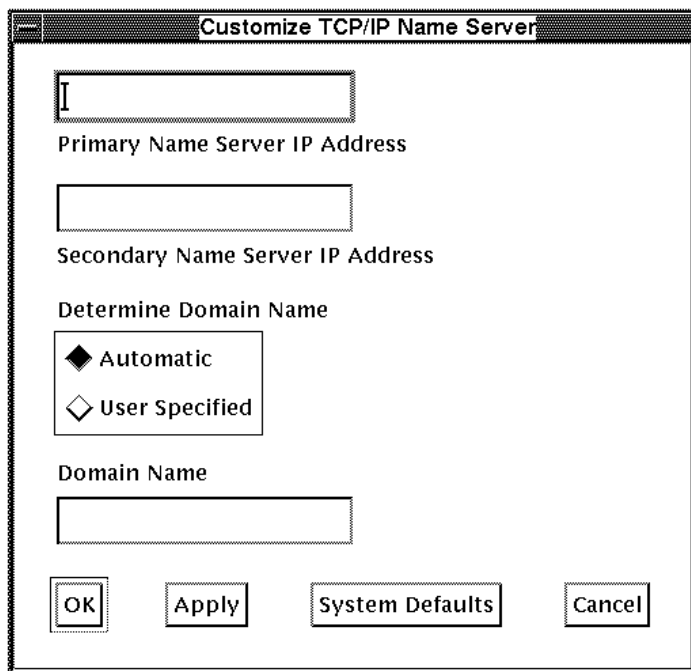
If your network has a name server, you can specify host systems by their names instead of addresses when making entries in the Create and Customize AutoStart dialog boxes. A name server stores host names and addresses, so it can determine a host's address from the name you enter.

You can specify a primary and secondary name server. See your system manager for your name server's IP address.

To enter your name server, choose the Communications submenu from the
Terminal Manager window's Customize menu. Then choose TCP/IP Name
Server... to display the Customize TCP/IP Name Server dialog box:

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From the Customize TCP/IP Name Server dialog box, you can change the
following settings:

☐ Primary Name Server IP Address

The terminal first attempts to use the primary name server to resolve names
entered into fields requiring a host name or IP address. If the terminal cannot
find the primary name server specified, you need to enter your terminal's
domain name.

To enter or change the primary name server, click on the Primary Name Server
IP Address box and enter the primary name server's IP address.

☐ **Secondary Name Server IP Address**

If the terminal cannot resolve a host name or IP address with the primary name server, the terminal queries the secondary name server.

If the Automatic button for Determine Domain Name is selected and the primary name server is unavailable, the terminal uses the secondary name server to provide translations from names to IP addresses for connections. However, the secondary name server does not return the terminal's domain name, because it customarily resides within a second domain.

To enter or change the secondary name server, click on the Secondary Name Server IP Address box and enter the secondary name server's IP address.

☐ **Determine Domain Name**

The terminal displays its domain name in the Domain Name box if the primary name server finds it available on the network. The terminal attempts to resolve a domain name only if a primary name server is specified.

To enter a domain name:

1. Click on the User Specified button in the Determine Domain Name box.

2. Enter a domain name in the Domain Name box.

3. Click on Apply or OK.

If you choose the System Defaults button or clear the name server fields and choose OK or Apply, the terminal's Name Server capability is turned off and the terminal no longer has a domain name. The Domain Name field is not cleared, even though there is no domain name.

When you reboot the terminal, the domain name is determined and maintained in the name server. If you change your primary name server, the domain of the terminal does not change unless you change the domain name for the subnet and reboot the terminal.

If the primary name server is on a different subnet than the terminal, the domain name may not be available when you reboot the terminal. In this case, the domain name is resolved the next time it is needed.

4.7 Changing Your TCP/IP Routing Table Settings

You can enter TCP/IP routes from your network to hosts on other networks. You can also enable or disable dynamic routing to automatically update the network routing table. After you save your settings, you can view these and other TCP/IP routes in the TCP/IP Routes dialog box (Section 6.3).

To enter your routes, choose the Communications submenu from the Terminal
Manager window's Customize menu. Then choose TCP/IP Routing Tables... to
display the TCP/IP Routing Tables dialog box:
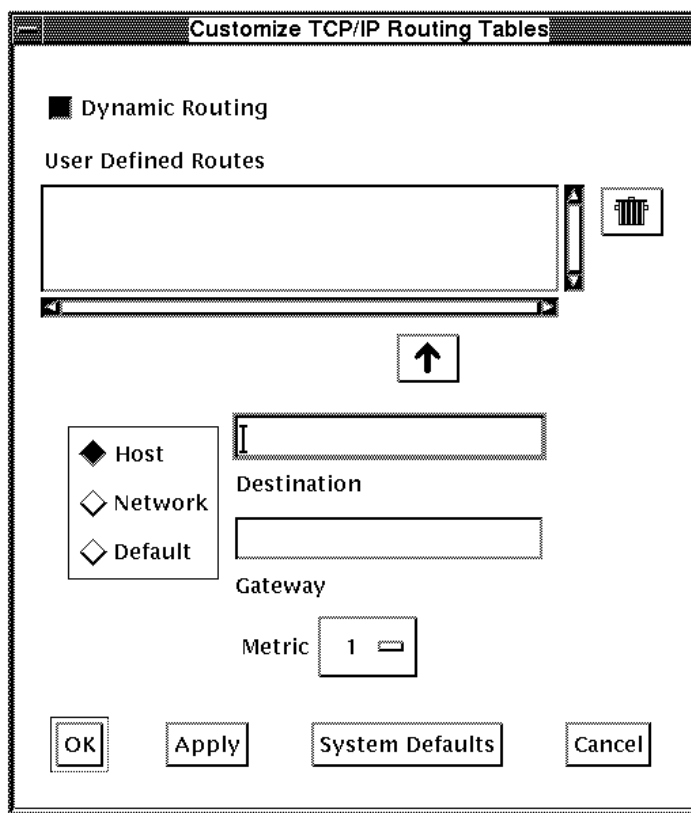
LJ–01172A–RAGS

From the Customize TCP/IP Routing Tables dialog box, you can change the
following settings:

☐ Dynamic Routing button

The Dynamic Routing button lets you enable or disable the VXT software's
routing daemon. This daemon listens for routing information protocol (RIP)
packets and uses the packets to automatically enter, update, or delete TCP/IP
routes in the TCP/IP Routes dialog box (Section 6.3).

☐ **User Defined Routes scroll box**

The User Defined Routes scroll box lists the route destination for each entry. The gateway for each entry is stored, but not displayed.

To add a route to the User Defined Routes scroll box:

1. Specify whether the route applies to either a host or a network, by clicking on the Host, Network, or Default button. If you click on the Default button, the terminal tries to determine if the route is for a host or a network.

2. Click on the Destination box and enter the route's destination.

3. Click on the Gateway box and enter the route's gateway.

4. Click on the ⬆ button to add your route to the Routes scroll box.

To remove a route:

1. In the Routes scroll box, click on the route you want to remove.

2. Click on the trash can button.

☐ **Metric button**

RIP packets contain a metric that helps to determine which gateway to use. Metric values range from 1 to 15, with smaller metrics indicating preferred paths. A 0 metric affects only the system routing table and tells the system the route is locally reachable.

4.8 Changing Your NFS Settings

You can use the NFS transport to load fonts or read your customized terminal resource files from host systems that use an NFS server.

The NFS transport uses mount points to identify locations where files can be accessed. You can define up to 10 mount points in the Customize NFS dialog box. You use these mount points when making entries in the Customize Font Path dialog box (Section 5.3) or Customize Resource Files dialog box (Section 5.9).

To enter your mount points, choose the Communications submenu from the Terminal Manager window's Customize menu. Then choose NFS... to display the Customize NFS dialog box:
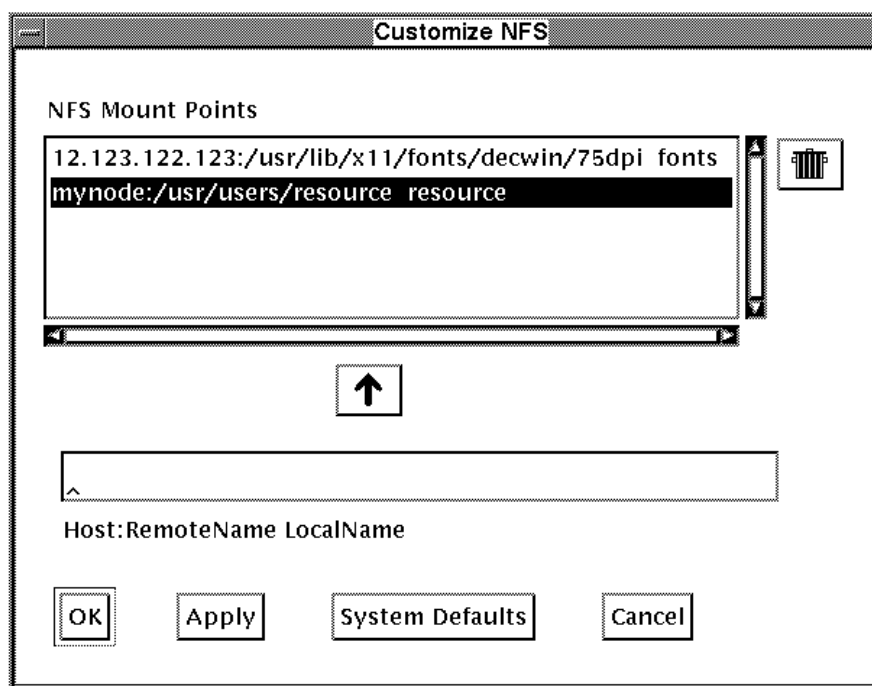
LJ–03534–RAGS

From the Customize NFS dialog box, you can change the following settings:

☐ **NFS Mount Points**

The NFS Mount Points scroll box lists the currently entered mount points.
Each entry lists the full mount point name on the host and an equivalent name
that you define for local use on the terminal.

☐ **Host:RemoteName LocalName**

You use the Host:RemoteName LocalName box to add a new mount point in
the scroll box.

To add a mount point to the NFS Mount Points scroll box:

1. Click on the Host:RemoteName LocalName box. Enter the mount point in
   the following format:

   Host:RemoteName LocalName

   - *Host* is the name or IP address of the host with the NFS server.

   - *RemoteName* is the directory path for the NFS server to export.

- *LocalName* is a local name you want to use for this mount point. You use the local name when making entries in the Customize Font Path or Customize Resource Files dialog box.

Examples

Host:RemoteName	LocalName
16.122.128.224:/usr/lib/X11/fonts/decwin/75dpi	nfs_fonts
mynode:/usr/users/resource	resource

To load fonts from the first sample mount point, you would use the local name nfs_fonts when entering the font path in the Customize Font Paths dialog box.

To load a terminal resource file from the second sample mount point, you would use the local name resource when entering the path to the file in the Customize Resource Files dialog box.

2. Click on the ⬆ button to add your mount point to the NFS Mount Points scroll box.

To apply your mount points:

Click on OK or Apply. The terminal saves the listed mount points and tries to mount any remote file systems you added.

To remove a mount point:

1. In the NFS Mount Points scroll box, click on the mount point you want to remove.

2. Click on the trash can button.

Notes on Using NFS

For more information about using NFS, refer to your host system's NFS documentation.

- If an error occurs when mounting or accessing file systems, the VXT Message Box displays an NFS error code. See Section A.1.1 for a list of error codes.

- Some NFS mount daemons require name service to honor mount requests that use an address instead of a name.

- Files on the NFS server must be world-readable. The terminal implements NFS for clients only, so the NFS server must provide open file access.

- The NFS server must `export` remote file systems before the terminal can mount them. The exported file system should include the areas holding the desired fonts or terminal resource files.

4.9 Changing Your DECnet Address Settings

To communicate with other DECnet nodes, your terminal must have a unique DECnet address. From the Customize DECnet dialog box, you can enable or disable the use of the DECnet transport and enter the terminal's DECnet address.

See your system manager for your terminal's DECnet address. The new setting takes effect when you reboot the terminal.

To enter or change your terminal's DECnet address settings, choose the Communications submenu from the Terminal Manager window's Customize menu. Then choose DECnet... to display the Customize DECnet dialog box:
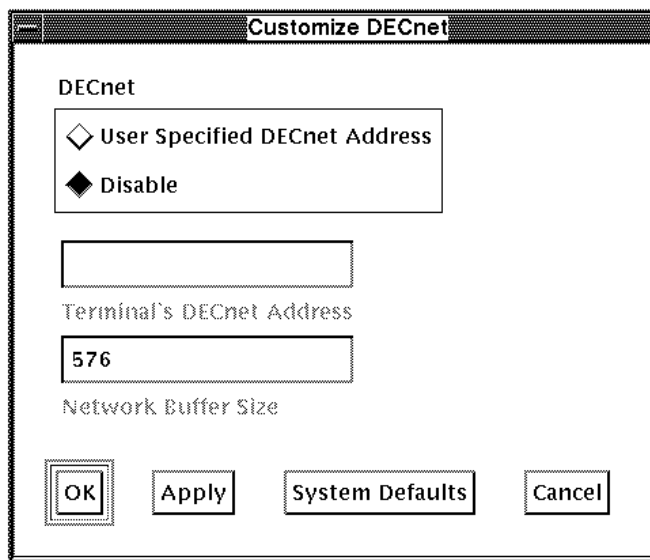
LJ–01118–RAGS

From the Customize DECnet dialog box, you can change the following settings:

☐ **DECnet**

Before you can enter an address, you must click on the User Specified DECnet Address button. You can disable the use of the DECnet transport by clicking on the Disable button.

☐ **Terminal's DECnet Address**

After you click on the User Specified DECnet address button, you can enter your terminal's DECnet address in the Terminal's DECnet Address box. Click on OK to save the address and dismiss the dialog box.

You can enter your DECnet address in the long or short form:

- The long form uses a period to separate the area number and node number.

  Example: 61.513.

- The short form collapses the area number and node number into a single decimal value, using the formula ($area\_number \times 1024$) + $node\_number$.

  Example: (61×1024) + 513) = 62977.

☐ **Network Buffer Size**

The system manager chooses a DECnet network buffer size to optimize the traffic flow on a wide area network, minimizing retransmission costs while maximizing throughput. The default network buffer size 576 bytes.

You enter your network buffer size in the Network Buffer Size box. See your VXT manager for the correct size. The buffer size value must be consistent throughout your network. Click on OK to save the size and dismiss the dialog box.

4.10 Changing Your DECnet Name Translator Settings

You can use DECnet node names instead of DECnet addresses to specify host systems in the Create and Customize AutoStart dialog boxes.

The terminal can check the DECnet node names you use without maintaining a local node name database. To do this, the terminal uses the DECnet Network Management Listener (NML) object (object 19) on a host system as its name translator. You specify the host system in the Customize DECnet Name Translator dialog box.

When resolving a DECnet address, the terminal connects to the NML object and issues a Network Information and Control Exchange (NICE) protocol message. This message conveys the NCP command SHOW NODE *nodename* to the host. The host responds with the DECnet address associated with the supplied node name.

Your terminal first attempts to connect to the primary name translator. If the primary name translator is unavailable, the terminal attempts to use the secondary name translator.

See your system manager for the addresses of primary and secondary DECnet name translator nodes. Settings take effect immediately.

To enter or change DECnet name translator addresses, choose the
Communications submenu from the Terminal Manager window's Customize
menu. Then choose DECnet Name Translator... to display the Customize
DECnet Name Translator dialog box:
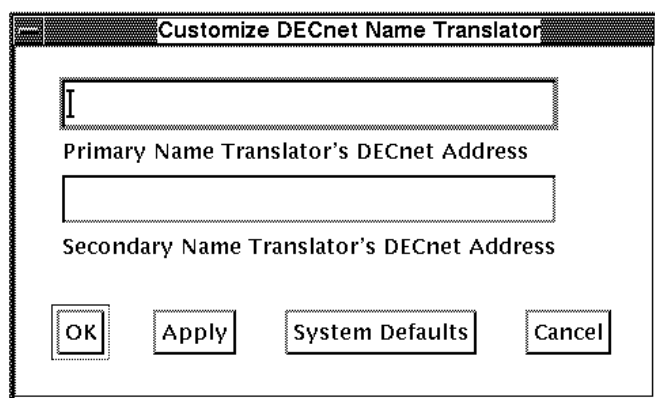
LJ–01119–RAGS

From the Customize DECnet Name Translator dialog box, you can change the
following settings:

☐ **Primary Name Translator's DECnet Address**

Use this box to enter the address of the host that serves as the primary name
translator for DECnet addresses. Click on OK to save the address and dismiss
the dialog box. You can enter your DECnet address in the long or short form
(Section 4.9).

☐ **Secondary Name Translator's DECnet Address**

Use this box to enter the address of a secondary host for DECnet name
translation, if you have one. Click on OK to save the address and dismiss
the dialog box.

5

Customizing Fonts And Startup Settings

This chapter describes how you can customize more advanced system settings to autostart sessions and applications, change font paths, boot VXT software, and load or unload VXT software features. To customize these settings, you use the bottom half of the Customize menu in the Terminal Manager window.

Initially, the terminal uses factory-default settings that work with many host systems. You can make changes to suit your personal preference and computing environment. After you make changes, you can save your settings for all future sessions.

The chapter covers the following major topics:

- Changing Your Font Path Settings
- Changing Your X Server Settings
- Specifying Your AutoStart Settings
- Changing Your Boot Settings for VXT Software
- Changing Your Software Options Settings

5.1 Displaying the Customize Menu

To display the Customize menu, click on Customize in the Terminal Manager
window's menu bar. This chapter describes the menu items highlighted in
gray:
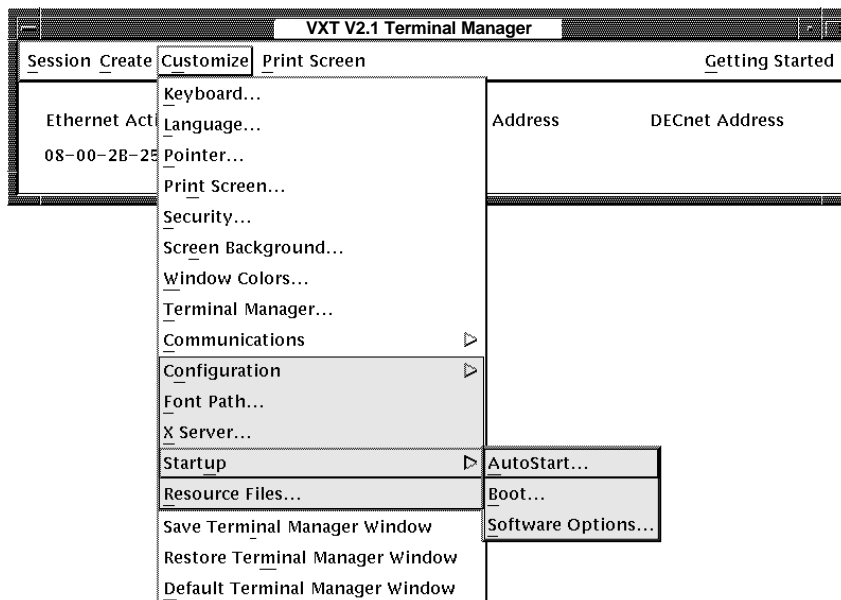
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Note

A VXT manager can customize settings for terminals and work groups.
The VXT manager can also lock or unlock access to one or more of the
Customize menu items. Locked menu items are dimmed.

5.2 Changing Your Configuration Manager Settings

The **configuration manager** lets you centrally manage and customize the
VXT 2000 windowing terminals on your local network from a single terminal.
You also have the alternative of creating your own terminal resource files
and storing them on a host system. Typically, these are system management
functions. The *VXT Software Version 2.1 Installation and System Management*
guide describes the configuration manager, host-based resource files, and how
to use them.

From the configuration manager, a system manager can access the Customize dialog boxes for each terminal and lock or unlock customized settings. If you customize settings at your terminal, they override terminal or work group settings entered in the configuration manager.

For host-based terminals, the system manager can customize individual terminals in the configuration manager. The customized settings are written directly to your terminal. The settings take effect the next time you reboot your terminal.

For server-based terminals, the system manager can customize individual terminals or set up terminal work groups to share the same settings. Your terminal stores its customized settings on an InfoServer system rather than in the terminal. The system manager can also set up font sets on an InfoServer system for work groups to share.

To display the Configuration submenu, choose Configuration... from the Terminal Manager window's Customize menu.

5.3 Changing Your Font Path Settings

VXT software provides 23 local fonts for use with the terminal. If you have a server-based terminal, the VXT software on an InfoServer system provides 1166 fonts. You can also access fonts on host systems or font servers in your network. To access fonts from network devices, you enter a font path in the Customize Font Path dialog box.

A **font** is a set of character images in a particular typeface and style. The font defines how characters look. The terminal displays characters as they are defined in the selected font. A **font path** points to the network location of a set of fonts residing on a host or server.

Font Formats and Communication Protocols

The terminal supports the industry-standard X11R5 server for accessing fonts. You can access fonts from multiple sources, in any supported format, using different communication methods. For each font source you want to use, you enter a font path element in the Customize Font Path dialog box. The terminal can use any fonts in the active font path, plus the 23 local fonts.

The terminal can access fonts from the following systems:

System	Communication Method
X11R5 font server	TCP/IP
InfoServer system	LASTport
UNIX host	NFS or TFTP
OpenVMS host	LAT

Fonts can be in any of the following formats:

- Portable compiled format (PCF) (compressed and uncompressed)

- Server natural format (SNF) (Version 1 and Version 4)

- Bitmap distribution format (BDF)

- Speedo outline format

- PostScript Type 1 format (ASCII or binary form)

VXT Software Version 2.1 Installation and System Management also provides information on converting fonts for use on your terminal.

Activating the Font Path
The terminal tries to set a font path when you

- Turn on the terminal

- Reset or Reboot the terminal from the Session menu

- Click on OK, Apply, or System Defaults in the Customize Font Path dialog box

You can make changes to the font path while you are using the terminal. After you apply your changes in the Customize Font Path dialog box, any applications you start use the fonts from the new font path. Applications that were already running continue to use the same fonts; one exception is VXT DECterm windows, which use the new fonts. See Section 8.3.1 for information on using fonts in VXT DECterm windows.

Customize Font Path Dialog Box

To customize the font path, choose Font Path... from the Terminal Manager window's Customize menu. The Customize Font Path dialog box looks like this:
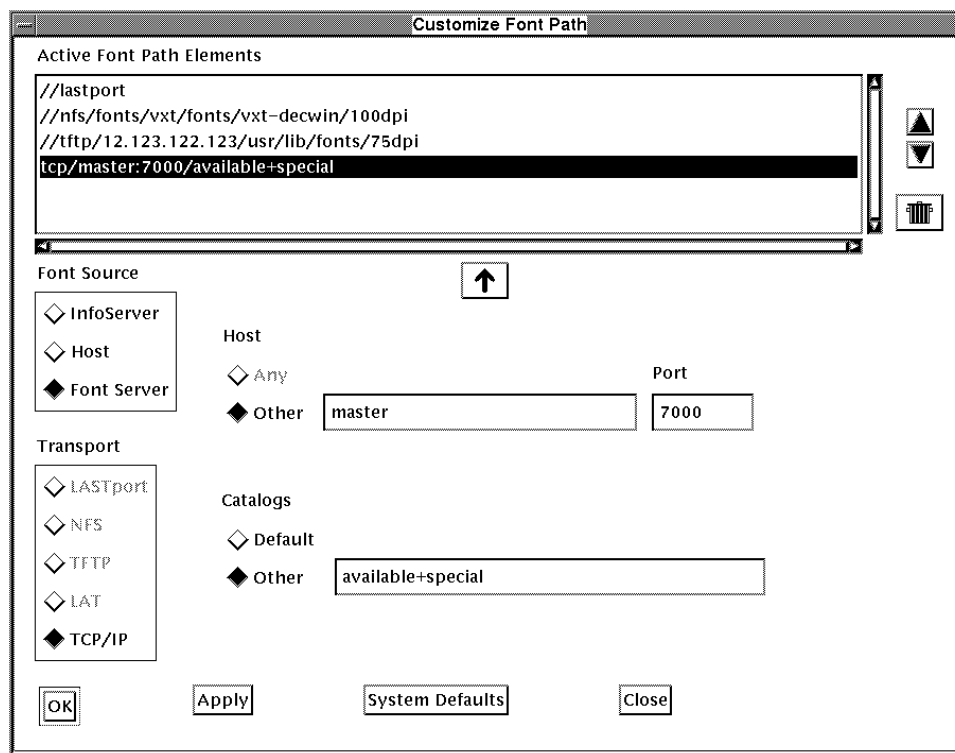
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5.3.1 Entering a Font Path

The Active Font Path Elements scroll box lists the font paths the terminal uses to find fonts. The font server searches for font paths in the order listed in the scroll box.

To enter a font path into the Active Font Path Elements scroll box:

1. In the Font Source box, choose the type of device supplying your fonts: InfoServer, host, or font server.

2. In the Transport box, choose the protocol used to communicate with the font source. The choices available depend on the font source you chose. The titles of the two text-entry boxes also depend on the type of font source you chose.

Font Source	Transport	Server/Host/Mountpoint	Font Sets/Path/Catalogs
InfoServer	LASTport	Server	Font Sets
Host	NFS	Mount Point	Path
Host	TFTP	Host	Path
Host	LAT	Host	Path
Font Server	TCP/IP	Host	Catalogs

3. In the Server/Mount Point/Host box, enter the host name or address of the font source (font server, InfoServer system, host, or NFS mount point) where the fonts reside.

4. In the Font Sets/Path/Catalogs box, enter the path to the directory where the fonts reside.

5. Click on the ⬆ button to add the font path to the Active Font Path Elements scroll box.

6. Click on Apply or OK. The terminal tries to set a new font path to each element listed in the scroll box.

To remove a font path:

1. In the Font Paths scroll box, click on the font path element you want to remove.

2. Click on the trash can button.

The following sections provide more detailed examples for each type of font source and transport.

InfoServer Font Path

To enter a font path to fonts on an InfoServer system:

1. Click on the InfoServer button in the Font Source box. The LASTport transport is automatically selected.

2. In the Server box, click on Any if you want to use any InfoServer on your network.

   Click on Other if you want to specify a particular InfoServer. Enter the name of the InfoServer in the Server box.

3. In the Font Sets box, click on Default if you want to use the default font set on the InfoServer.

    Click on Other if you want to specify a particular font set. Enter the font set name in the Font Sets box.

4. Click on the ⬆ button to add your font path to the scroll box.

    Examples

`//lastport`	Solicits any InfoServer and its default font set.
`//lastport/InfoServer_1`	Solicits for InfoServer_1 and its default font set.
`//lastport//v2_1`	Solicits for any InfoServer with font set V2_1.
`//lastport/InfoServer_1/V2_1`	Solicits for InfoServer_1 and font set V2_1.

Host System Font Path (NFS)

To set an NFS font path, you must first enter the NFS mount point in the Customize NFS dialog box (Section 4.8).

To enter a font path to a host system using NFS:

1. In the Font Source box, click on the Host button. The NFS transport is automatically selected.

2. In the Host box, enter the local name of the NFS mount point. You define the local name in the Customize NFS dialog box.

    Example: `fonts`

3. In the Path box, click on Default if you want to use the default path.

    Click on Other if you want to specify a particular font path. Enter the path in the Path box.

    Example: `/vxt/fonts/vxt-decwin/100dpi`

4. Click on the ⬆ button to add your path to the scroll box.

    Example: `//nfs/fonts/vxt/fonts/vxt-decwin/100dpi`

Host System Font Path (TFTP)

To enter a font path to a host system using TFTP:

1. In the Font Source box, click on the Host button.

2. In the Transport box, click on the TFTP button.

3. In the Host box, enter the name or IP address of the host where the fonts reside.

    Example: `market` or `12.345.678.901`

4. In the Path Box, enter the path to the fonts.

Example: `/usr/lib/fonts/100dpi`

5. Click on the ⬆ button to add your font path to the scroll box.

   Example

   `//tftp/12.123.123.122/usr/lib/fonts/100dpi`

Host System Font Path (LAT)

To enter a font path to a host system using the LAT transport:

1. In the Font Source box, click on the Host button.

2. In the Transport box, click on the LAT button.

3. In the Host box, enter the name of the host where the fonts reside.

   Example: `MARKET`

4. In the Path Box, click on Default if you want to use the default font directory search list on the host.

   Click on Other if you want to specify a particular font path. Enter the path into the Path text entry box.

   Example: `fonts$disk:[user_fonts.100dpi]`

5. Click on the ⬆ button to add your font path to the scroll box.

   Examples

`lat/market`	Specifies the default font directory search list on host MARKET.
`lat/market/fonts$disk:[user_fonts.100dpi]`	Specifies a particular font path on host MARKET.

Font Server Font Path (TCP/IP)

To enter a font path to a font server using TCP/IP:

1. In the Font Source box, click on the Font Server button. The TCP/IP transport is automatically selected.

2. In the Host box, enter the name or IP address of the host where the fonts reside.

   Example: `expo`

3. If you want to specify a particular port, click on the Port box and enter a port address. The default port address is 7000.

4. In the Catalogs box, click on Default if you want to use the default font catalog on the font server.

Click on Other if you want to specify a catalog. Enter the catalog name in the Catalogs box.

Example: `available`

5. Click on the ⬆ button to add your font path to the scroll box.

Examples

```
tcp/expo:7000/available
tcp/18.30.0.212:7890
```

Font Path Errors

If a font source is unavailable: The VXT Message Box displays a message indicating the terminal could not set a font path to that source.

Backup font services: If a font source fails while in use, the terminal can automatically access the same font from a second source if available. The second source must be listed somewhere after the first source in the Active Font Path Elements scroll box. If the terminal does not find the font on another font source, the terminal sends an error to the client that was using the font.

If no fonts are found in a valid LAT font path: The VXT Message box displays a message indicating that the set font path action succeeded and the number of fonts which are available.

Tips on Setting Font Paths

- If host applications need fonts, use the fonts from the host supplying the application.

- Include backup font sources in your font path. If the primary font source is unavailable, the terminal can find the same fonts on the backup source.

- Use an InfoServer system to supply fonts, if available. If your network has multiple InfoServers, the terminal provides automiatic font failover service to backup InfoServers. You can also use the Font Management dialog box to create and manage font sets on an InfoServer; you can copy fonts from host systems. VXT Software Version 2.1 Installation and System Management describes how to use the Font Management dialog box.

- To reduce the time for setting the font path, make sure your font path includes only fonts required for your applications.

5.4 Changing Your X Server Settings

The Customize X Server dialog box lets you

- Choose whether or not to reset the X server or reboot the terminal's software when you end an X session.

- Scale display fonts to emulate a 75/dots inch display on a 100 dots/inch monitor, or a 100 dots/inch display on a 75 dots/inch monitor

- Set an 8-plane terminal to use color or gray scale settings.

When you end an X session on an OpenVMS system, resetting the server will end *all* open sessions on the terminal. If you do not reset the server, you can end an X session without affecting other open sessions.

To change your X server settings, choose X Server... from the Terminal Manager window's Customize menu. The Customize X Server dialog box looks like this:
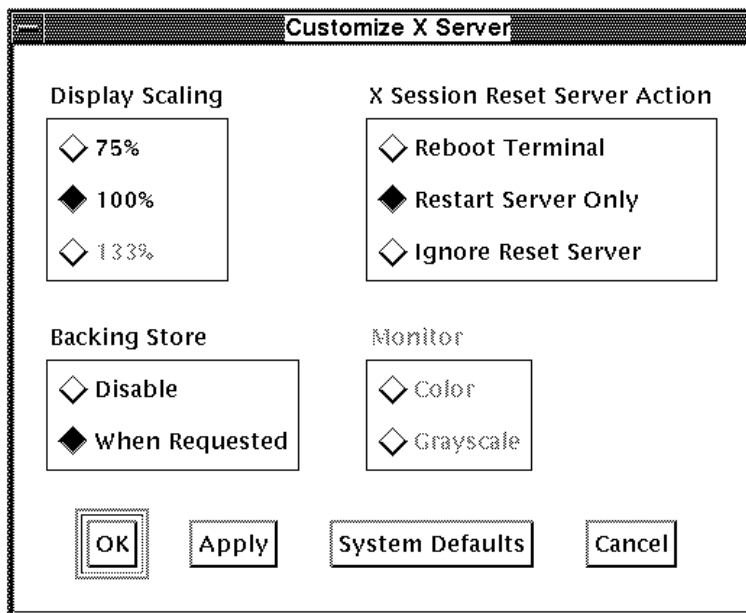
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☐ **Backing Store**

The backing store function improves the time needed to restore a window from an icon, by having the terminal perform the restore instead of the remote

application. The Graphics Option dialog box in VXT DECterm windows also has a Backing Store button (Section 8.8).

The Disabled setting causes the terminal to ignore application requests for backing store, and not to save the contents of an obscured window. The terminal informs the client when its window is uncovered, and should be redrawn. Use this setting to conserve the terminal's memory.

The When Requested setting causes the terminal to save the contents of an obscured window, or a portion of that window, when requested by the client. If you select When Requested, the terminal can display an iconified or covered window without waiting for the client to redraw it.

☐ **Display Scaling**
The display scaling option lets you adjust the font size displayed on your terminal to resemble a 75 dots/inch or 100 dots/inch display. Use the 75% button if you have a 100 dots/inch monitor and want your display to look like a 75 dots/inch monitor. Use the 133% button to make a 75 dots/inch monitor display look like a 100 dots/inch monitor display. Your new setting takes effect when you restart the terminal.

☐ **X Session Reset Server Action**
Normally, the terminal restarts the X server when you quit from an X session. If you end an X session on an OpenVMS system, restarting the X server causes the terminal to end all open sessions.

If you click on the Ignore Reset Server button, you can end an OpenVMS X session without ending other open sessions.

If you click on the Reboot Terminal button, the terminal reloads the VXT software when you end an X session.

Your new setting takes effect when you click on Apply or OK.

☐ **Monitor**
You can choose a gray scale or color setting for an 8-plane terminal. These buttons are dimmed on monochrome terminals. Your new setting takes effect when you restart the terminal.

5.5 Changing Your Startup Settings

You can customize the terminal to automatically start up the applications you frequently use. You can also customize the terminal to load a particular VXT system image or turn off individual VXT software options.

To customize startup settings, you use the Startup submenu on the Terminal Manager window's Customize menu. The following sections describe the functions you can perform from the Startup submenu:

- Specifying Your AutoStart Settings

  The AutoStart dialog box lets you enter a list of host sessions and VXT applications to automatically start each time you turn on, autostart, or reboot the terminal.

- Changing Your Boot Settings for VXT Software

  The Customize Boot dialog box lets you customize the VXT software loading process to match your system environment.

- Changing Your Software Options Settings

  The Customize Software Options dialog box lets you turn VXT software options options on or off. Host-based terminals can use this feature to improve memory use.

5.6 Specifying Your AutoStart Settings

The AutoStart dialog box lets you enter a list of host sessions and VXT applications to automatically start each time you

- Turn on the terminal

- Choose the AutoStart menu item from the Session menu

- Choose the Reset, Reboot, or Shutdown menu item from the Session menu

By default, the terminal autostarts the Terminal Manager window, VXT Message Box, and local Motif window manager.

The format of the AutoStart dialog box is the same as the Create dialog box. To display the AutoStart dialog box, choose AutoStart... from the Terminal Manager window's Customize menu. The Customize AutoStart dialog box looks like this:

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☐ **AutoStart List**

The terminal starts applications in the order you list them in the AutoStart List. The default entries in the Customize AutoStart dialog box are

- Terminal Manager window and VXT Message Box

- Motif Window Manager

By default, the terminal starts the Terminal Manager window and VXT Message Box as a single application. You can choose to start them as separate applications.

To add a session or application to the AutoStart list:

Use the following steps. The AutoStart dialog box controls operate the same as the Create dialog box controls. See Section 2.2 for syntax rules and details on buttons.

1. In the Application box, click on the type of session (X Session, DECterm, 3270) or VXT application you want to autostart. For VXT applications, skip steps 2 and 3.

2. In the Transport box, click on the communication method to use for the session. If you choose Serial, skip step 3.

3. In the Host Name or Address box, enter the name or address of the host system. If you make a typing mistake, you can use the Clear button to clear the box.

   For IP sessions:

   • Use the Any Host button if you want to use the first available IP host.

   • Use the Any Host Indirect button to specify a host that will act as a pathway to find the first available IP host.

   • Use the Comment box to enter optional text comments. For example, if you entered a host name, you may want to enter the IP address as a comment.

   • Use the List Known Hosts... button to display a dialog box that lets you list available IP hosts.

4. Click on ⬆ to add your entry to the AutoStart List.

   To delete entries, select the entry in the list and click on the trash can button.

   To move entries, select the entry in the list and click on the △ or ▽ button.

5. Click on the OK button to save your settings.

The AutoStart dialog box saves your settings when you click on the OK button. The Create dialog box contains a Save button for saving settings.

Reenter AutoStart Settings After Changing the Display Language

If you change your display language, you must reenter your AutoStart settings.

User Tip: Remove Unused Applications to Start the Terminal Faster

Normally, the terminal autostarts the local Motif window manager and the combined Terminal Manager window + VXT Message Box applications. If you no longer need to use an application, you should remove it from your AutoStart list. The fewer applications listed in the AutoStart List, the faster the terminal can start up and connect to your host sessions.

If you use the remote window manager on a host system, you may want to remove the local Motif window manager application from the AutoStart list. You can enable the use of remote window managers in the Customize Terminal manager dialog box (Section 3.10).

If you remove the combined Terminal Manager window + VXT Message Box applications, you can restart them from the VXT Create pop-up menu. To display the pop-up menu, click MB2 anywhere on the screen workspace.

Caution

If you remove the combined Terminal Manager window + VXT Message Box applications from the Preferred Services list in the Create dialog box, they will not appear on the VXT Create pop-up menu the next time you reset the terminal.

5.7 Changing Your Boot Settings for VXT Software

The Customize Boot dialog box lets you specify a VXT software image and how to load it. You can specify

- VXT software or VXT EX software

- Host-based or server-based mode of operation

You can also turn the following options on or off:

- X image extension, for working with XIE software to display graphics

- MOP trigger feature, for booting the terminal from a remote system

Your new Customize Boot settings take effect when you reboot the terminal. When a loading process succeeds, the terminal saves the successful method in local memory. The next time you reboot the terminal, it attempts to use the same method. When you save your settings in the Customize Boot dialog box, they override any previously saved settings.

Your booting options depend on what type of systems in your network have VXT software and how your system manager has configured them to work with VXT 2000 windowing terminals. For example, your system manager can enter boot settings for your terminal in a file stored on a host system.

You can also enter boot commands at the terminal's >>> prompt. See Section 5.7.5.

Caution

Before you change settings in the Customize Boot box, you should understand how and when the terminal loads its software.

5.7.1 Overview

How Does the Terminal Load VXT Software?

Your terminal operates in a computer network. The terminal loads its VXT software from a host computer system or InfoServer system in the network. To begin the loading process, the terminal sends out a sequence of requests on the network for the *first available* host system or InfoServer system that has VXT software or the VXT loader file. The VXT loader file is for server-based operation only.

The terminal sends each request by using a communication transport. The terminal can communicate with systems that use the maintenance operations protocol (MOP) or the Internet protocol (IP) transport.

By default, the terminal loads its software from one of these systems:

- A host system that your system manager has preconfigured

  VXT Software Version 2.1 Installation and System Management provides instructions to configure systems.

- An InfoServer system

  If your network has an InfoServer system with VXT software, you can use your terminal without a system manager having to configure a host system.

When Does the Terminal Load VXT Software?

Booting is the process of loading a system's software and bringing it to an operable state. The terminal tries to **boot** after you

- Turn on the terminal and the terminal's self-test succeeds

- Restart the terminal by choosing the Reboot or Shutdown menu item from the Session menu

- Press one of these key sequences to reboot the terminal:

  ANSI (LK401) keyboard   Ctrl +left Alt +keypad .

| PC (LK443/LK444) keyboard | Ctrl + Alt +keypad . |
| Short ANSI (LK421) keyboard | Ctrl Alt Function Extend . |

5.7.2 Using Host-Based Operation

The terminal can load a VXT or VXT EX software image directly from a host system, using the MOP or IP protocol. You can also load a VXT or VXT EX software image in host-based mode from an InfoServer system; however, the terminal does not make use of the InfoServer's memory services in host-based mode.

When you load a VXT or VXT EX software image in **host-based** mode, the terminal stores all of your customizations in its nonvolatile memory. For host-based operation, the terminal needs at least 10 megabytes of memory installed.
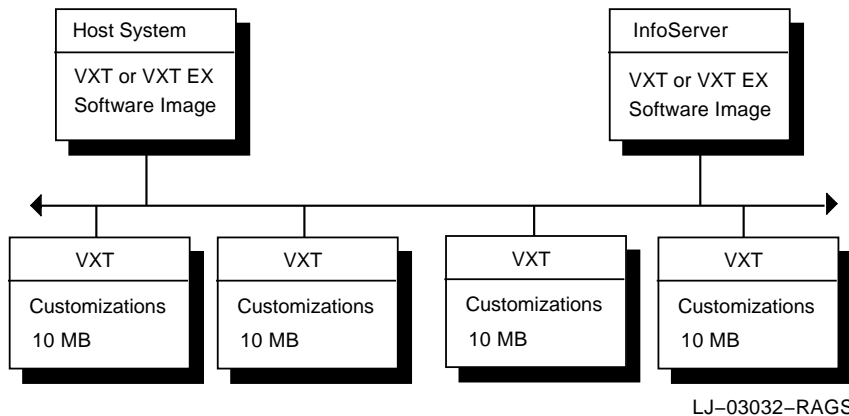
LJ−03032−RAGS

Setting Up a Host System

Your system manager can preconfigure a host system that uses MOP or IP to load a host-based VXT software image into your terminal. *VXT Software Version 2.1 Installation and System Management* describes how to preconfigure systems.

If you use IP The system manager must preconfigure the host system. *VXT Software Version 2.1 Installation and System Management* describes how to add a line item to the /etc/bootptab file listing each terminal's Ethernet address, IP address, and the VXT software image file or VXT loader file (for server-based operation).

If you use MOP The system manager can preconfigure the host system or InfoServer system, or you can enter the name of a VXT software image file in the Customize Boot dialog box.

Specifying a Host-Based Image in the Customize Boot Dialog Box

If your system manager has not preconfigured a host system or InfoServer system to load your terminal, you can specify a host-based VXT or VXT EX software image in the Customize Boot dialog box. Your system must support the MOP transport. To specify a host-based image:

1. Display the Customize Boot dialog box (Section 5.7.4).

2. In the Primary Boot box, click on the MOP button.

3. In the MOP Boot File box, click on the Other button. Enter the name of the VXT or VXT EX software image file.

Enter...	To load this image...
VXT Version 2.1 software provides two VXT software image files:	
VXT	VXT software image
VXTEX	VXT EX software image
VXT Version 2.0 software included version numbers in the software image files:	
VXT020	VXT software image
VXTEX020	VXT EX software image
Earlier versions of VXT software used separate software images to support monochrome and color/gray scale terminals:	
VXTMP00*nn*0	VXT host-based, monochrome image
VXTSP00*nn*0	VXT host-based, color or gray scale image
VXTMPI0*nn*0	VXT host-based, monochrome image with XIE support
VXTSPI0*nn*0	VXT host-based, color or gray scale image with XIE support

nn is the version number. For example, *12* is Version 1.2.

4. Click on the OK button to save your setting and dismiss the dialog box.

5. In the Terminal Manager window, click on the Session menu.

6. In the Session menu, click on the Reboot menu item to reboot the terminal.

   The terminal loads the specified VXT or VXT EX software image from the *first available* host system or InfoServer system that has the software.

5.7.3 Using Server-Based Operation

When you load a VXT software image file from an InfoServer system, you can choose to operate in **server-based** mode or host-based mode (Section 5.7.2).

In server-based mode, the terminal stores its customizations on an InfoServer system. The InfoServer system also performs certain memory functions for the terminal, so the terminal needs only 4 megabytes of installed memory.

In server-based mode, the terminal takes two steps to load a VXT or VXT EX software image:

1. The terminal loads a VXT loader file from an InfoServer system or host system, using the MOP or IP protocol.

2. The VXT loader file loads the VXT software image file from an InfoServer system, using the LASTport Version 3.1 protocol.

LJ–03325–RAGS
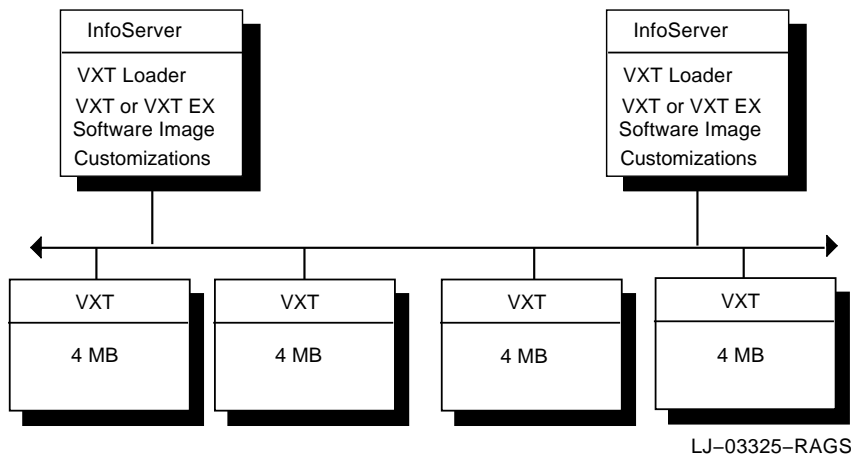
Plug and Play Operation

If you have an InfoServer with VXT software, the terminal can normally load the software without any need to configure a host system or use the Customize Boot dialog box. By default, the terminal looks for a VXT loader file named VXTLDR, which is supplied with VXT software kits for InfoServer systems. By default, the VXT loader first solicits the network for the full-function VXT software image; if the VXT software image is not available, the VXT loader solicits for the VXT EX image.

_____ **Network Bridges May Affect the VXT Loader** _____

If your InfoServer system is on the other side of a network bridge that filters MOP messages, your system manager must install the VXT

loader file on a host system. Your system manager can preconfigure the host to load the file into the terminal. After the terminal loads the VXT loader file, the VXT loader file loads the VXT software image from the InfoServer system.

Specifying a Server-Based Image in the Customize Boot Dialog Box

If you want to load a particular VXT or VXT EX software version in server-based mode, you can use the Customize Boot dialog box.

1. Display the Customize Boot dialog box (Section 5.7.4).

2. In the Primary Boot box, click on the MOP button.

3. In the MOP Boot File box, click on the Other button.

    Enter the name of the VXT loader file. The default name is **VXTLDR**.

    If needed, you can specify the loader supplied with a particular VXT software version. Normally you do not need to specify a version, unless you are loading a new version of VXT software that has not been made the default on your network yet. For example, if VXT Version 1.3 is the default version and you want to load VXT Version 2.1, you would specify the loader for VXT Version 2.1.

Enter...	To use this loader...
VXTLDR	Default version on your network
VXTLDR_NODENAME	Default version on nodename
VXTLDR021	VXT Version 2.1 loader
VXTLDR020	VXT Version 2.0 loader
VXTLDR0130	VXT Version 1.3 loader
VXTLDR1	VXT Version 1.3 loader (for VXT 2000+ terminals)
VXTLDR0120	VXT Version 1.2 loader

_____ **VXT Loader Requirements** _____

To load the VXT Version 2.1 software image, you must use the VXT Version 2.1 loader file.

To load the VXT EX software image, you must use the VXT Version 2.0 or 2.1 loader file.

---

4. In the Secondary Boot box, choose the type of VXT software you want to use. Click on the VXT Software button or the VXT EX button.

5. In the Version box, click on the Default button if you want to load the default version of VXT or VXT EX software on your network.

   Click on the Other button if you want to specify a VXT or VXT EX version other than the default. The terminal displays the letters VXT or VXT EX in front of the box. Enter the value for the version number (three digits for Version 2.0 and Version 2.1, four digits for earlier versions).

Enter...	To load this version...	
	VXT	VXT EX
021	2.1	2.0
020	2.0	2.0
0130	1.3	–
0120	1.2	–
0110	1.1	–
0100	1.0	–

6. Click on the OK button to save your setting and dismiss the dialog box.

7. In the Terminal Manager window, click on the Session menu.

8. In the Session menu, click on the Reboot menu item to reboot the terminal.

   The terminal loads the VXT loader file from the *first available* system.

   ───────── **Server-Based Customizations and Loading** ─────────

   If you have several InfoServer systems with VXT software, your terminal always loads the VXT software from the first available InfoServer system that has the same LASTport group code. However, your terminal's customized settings are always stored on a specific InfoServer system; therefore, your terminal does not necessarily use the same system to load software and store customizations.

5.7.4 Customize Boot Dialog Box Description

To view or change your boot settings, choose Boot... from the Terminal Manager window's Customize menu. The Customize Boot dialog box looks like this:

LJ–00176D–RAGS

From the Customize Boot dialog box, you can change the following settings:

☐ Primary Boot

Normally, the terminal alternates between using MOP and IP on attempts to boot the VXT software image file (host-based mode) or VXT loader file (server-based mode). To use IP only, click on the IP button. To use MOP only, click on the MOP button.

☐ MOP Boot File

If you use MOP, the MOP Boot File box lets you specify a host-based VXT software image file (from a host or InfoServer system) or a VXT loader file. The VXT loader file is for loading a server-based VXT software image.

Default   By default, the terminal looks for the VXT loader file on an InfoServer system or host. The terminal repeats this sequence using different versions of the MOP protocol.

Host Preconfigured   The terminal first looks for any host system using MOP that has been preconfigured to load the terminal with VXT software. If it does not find a host, the terminal looks for the VXT loader file on an InfoServer system or host. The terminal repeats this sequence using different versions of the MOP protocol.

VXT Software Version 2.1 Installation and System Management describes how your system manager can add your terminal's Ethernet address and the desired host-based VXT software image file or VXT loader file to a system database.

If you use MOP: OpenVMS system managers use the Network Control Program (NCP), and ULTRIX system managers use the addnode utility.

Other   This setting lets you specify a host-based VXT software image file or VXT loader file. The image or loader file can be on a host or InfoServer system. Omit the .SYS file extension.

The file should be in a default MOP directory. For example:

- OpenVMS systems—Use VXT$LIBRARY or MOM$SYSTEM. To use VXT$LIBRARY, the system manager must add it to the MOM$LOAD search list. See the OpenVMS section in *VXT Software Version 2.1 Installation and System Management*.

- ULTRIX systems—Use /usr/lib/mop on the local subnet.

VXTLDR is the default name of the VXT loader file. If you enter the file name VXTLDR, any MOP service with the load file can respond and supply the file to the terminal. The VXT loader uses the LASTport Version 3.1 protocol to load the system image specified in the Secondary Boot and Version fields.

Typically, the terminal uses the VXT loader file from the InfoServer system
that supplies the VXT software image. However, if there is a bridge that
filters MOP requests between the terminal and InfoServer system, the system
manager should make sure the VXT loader file is available on a host system in
the same network segment as the terminal.

☐ **Secondary Boot**

When you load a server-based VXT software image from an InfoServer system,
you use the Secondary Boot box to choose VXT software or VXT EX software.

Version You can use the default version of your Secondary Boot choice (VXT
Software or VXT EX) or specify a version in the Other box. If you specify a
version, make sure a VXT software image file with that name is available on
an InfoServer system.

☐ **Options: X Image Extension**

VXT software images include an X image extension (XIE) capability that allows
server-based and host-based terminals to work with XIE software. The VXT
EX software image does not include XIE capability.

Normally, the terminal's XIE capability is turned on. If you turn this feature
off and on, you must reboot the terminal before your new setting takes effect.
Appendix C describes how to use the terminal with XIE.

VXT 2000 terminals with a system box and 17-inch VX227 models without a
system box can use an optional image accelerator board to increase the speed
at which the terminal displays XIE bitonal images. However, you do not need
the image accelerator board to use the terminal's XIE capability.

☐ **Reboot Options**

The MOP protocol provides a trigger mechanism for rebooting a remote node.
If you enable the MOP trigger feature, your terminal can be rebooted from a
remote node.

Allow MOP Trigger Normally, the terminal ignores MOP trigger messages. To
enable MOP triggering, click on the Allow MOP Trigger button.

Trigger Password You can also supply a password to restrict rebooting from
a remote node. The MOP trigger password can be from 1 to 16 hexadecimal
characters (0–9 and A–F characters). If you do not supply a password, a
default value of 0 is used (equivalent to no password).

See your host system's network control program (NCP) manual or online help
for more information on the syntax for triggering remote nodes.

5.7.5 Entering Boot Commands to Load VXT Software

In addition to the Customize Boot dialog box, you can load VXT software from the terminal's >>> prompt.

Displaying the >>> Prompt

To display the >>> prompt, you must halt your terminal. There are two ways to halt the terminal; you can use the keyboard, or you can use the halt button.

Caution ---

Halting the terminal closes any currently open sessions.

To display the >>> prompt from the keyboard:

Press Ctrl+left Alt+keypad . . The terminal ends all sessions and begins to boot VXT software. Immediately press Ctrl C to halt the booting sequence and display the >>> prompt.

To display the >>> prompt using the halt button:

Quickly press and release the halt button on the rear of the terminal. The terminal halts all activity and displays a >>> prompt.

- For terminals with a system box: The halt button is next to the indicator lights on the rear of the system box.

- For terminals without a system box: The halt button is below the keyboard connector on the rear of the monitor.

Loading VXT Version 2.0 or 2.1 Software

To load VXT Version 2.0 or 2.1 software, enter the command sequence for host-based or server-based operation.

To load...	In this mode...	Enter...
VXT Version 2.1	Host	
		>>> **B/100** Return Bootfile: **VXT** Return
	Server	
		>>> **B/101** Return Bootfile: **VXTLDR** Return VXTLDR> **VXT.SYS** or **VXT021.SYS** Return

To load...	In this mode...	Enter...
VXT EX*	Host	
		>>> **B/100** `Return` Bootfile: **VXTEX** or **VXTEX020** `Return`
	Server	
		>>> **B/101** `Return` Bootfile: **VXTLDR** `Return` VXTLDR> **VXTEX020.SYS** `Return`
VXT Version 2.0	Host	
		>>> **B/100** `Return` Bootfile: **VXT020** `Return`
	Server	
		>>> **B/101** `Return` Bootfile: **VXTLDR** `Return` VXTLDR> **VXT020.SYS** `Return`

*If you have VXT Version 2.1 software, you can omit the version number when specifying VXT EX software.

Loading Earlier VXT Software Versions

Earlier versions of VXT software used separate software images to support monochrome and color/gray scale terminals. Enter the command sequence for host-based or server-based operation.

Host-Based Mode

```
>>>  B/100  Return
Bootfile:  host_image  Return
```

Enter *host_image*...	To load this image...
VXTMP00*nn*0	VXT host-based, monochrome image
VXTSP00*nn*0	VXT host-based, color or gray scale image
VXTMPI0*nn*0	VXT host-based, monochrome image with XIE support
VXTSPI0*nn*0	VXT host-based, color or gray scale image with XIE support

nn is the version number. For example, *12* is Version 1.2.

Server-Based Mode

```
>>>  B/101  Return
Bootfile:  VXTLDR  Return
VXTLDR>  server_image  Return
```

Enter *server_image*...	To load this image...
VXTMV00*nn*0.SYS	VXT server-based, monochrome image
VXTSV00*nn*0.SYS	VXT server-based, color or gray scale image

nn is the version number. For example, *12* is Version 1.2.

5.8 Changing Your Software Options Settings

The Customize Software Options dialog box lets you turn certain VXT software features on or off at startup. By default all options are turned on.

If you have a host-based terminal, you can conserve memory by selecting only those options you need to use. You can monitor your terminal's memory use by checking the Memory Remaining scale in the System Monitor dialog box (Section 6.5).

The following table lists the approximate memory saved for each option unloaded.

If You Unload This Option...	You Save This Much Memory (Kilobytes)...
DECterm	235 KB
Motif WM	617 KB
Terminal Manager	1422 KB
Print Screen	19 KB
Message Box	116 KB
Net Print	8 KB
3270	233 KB
X Image Extension	194 KB
Font Manager	37 KB
InfoReader	33 KB
Total	2914 KB

If you try to use a disabled option, the VXT Message Box displays the following message:

```
Software option is disabled.
```

To view or change your software option settings, choose the Startup submenu from the Terminal Manager window's Customize menu. Then choose Software Options... to display the Customize Software Options dialog box:
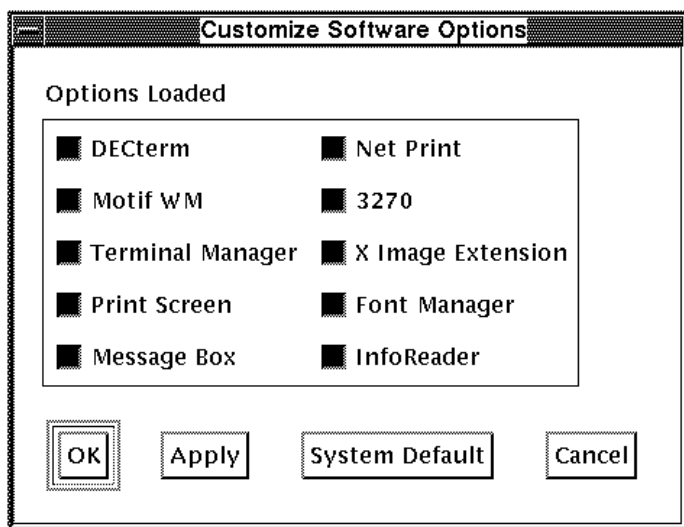
LJ–03539–RAGS

From the Customize Software Options dialog box, you can turn the following options on or off as startup:

☐ **DECterm Terminal Windows**

This setting affects your ability to create VXT DECterm windows.

☐ **Motif Window Manager**

This setting affects your ability to use the terminal's Motif window manager. If you disable this option, you cannot restart the window manager using the Create dialog box or any other method.

☐ **Terminal Manager**

This setting affects your ability to use the Terminal Manager window. This setting also affects the VXT Message Box, unless you autostart the message box as a separate application from the the Terminal Manager window.

Caution

The Software Options dialog box is part of the Terminal Manager window. If you turn off the Terminal Manager window and reboot the terminal, you cannot access the Software Option dialog box to enable the Terminal Manager window again. See your system manager to reenable the Terminal Manager window.

☐ **Print Screen**

This setting affects your ability to use the Print Screen menu item in the VXT's Terminal Manager window.

☐ **Message Box**

This setting affects your ability to use the VXT Message Box.

☐ **Network Printing**

This setting affects your ability to print from a host system to a local printer attached to the terminal. If this setting is disabled, you cannot use the Host Accessible Printer Port setting in the Customize Serial and Parallel Ports dialog box.

☐ **VXT 3270 Terminal Windows**

This setting affects your ability to create VXT 3270 terminal windows. VXT 3270 terminal windows also require a separate software license and access to a DECnet/SNA gateway.

☐ **X Image Extension**

This setting affects the terminal's ability to work with X image extension (XIE) software (Appendix C). VXT EX software does not include XIE capability.

☐ **Font Manager**

This setting affects your ability to use the Font Management dialog box for server-based terminals, described in VXT Software Version 2.1 Installation and System Management.

☐ **InfoReader**

This setting affects your ability to display the InfoReader library of VXT documentation from the Getting Started menu.

5.9 Using Customized Resource Files

VXT software provides two methods for remotely managing terminal settings—
the configuration manager or your own host-based resource files. If you use
your own host-based resource files, you can create individual terminal resource
files and group resource files. You enter the network location of a terminal's
individual and group resource file in the Customize Resource Files dialog box.

To display the Customize Resource Files dialog box, choose Resource Files...
from the Terminal Manager window's Customize menu. *VXT Software
Version 2.1 Installation and System Management* describes the configuration
manager, resource files, and how to use the Customize Resource Files dialog
box.

You can use the TFTP or NFS transport to access your resource files on
the host. If you use NFS, you must first enter the NFS mount point in the
Customize NFS dialog box.

6

Checking the Terminal's Status

This chapter describes how to monitor the operating status of your terminal and of network communication. To monitor the terminal's status, you use the Status submenu accessed from the Session menu in the Terminal Manager window. This chapter covers the following topics:

- Displaying the Status Submenu
- Checking a TCP/IP Host System
- TCP/IP Routes Dialog Box
- Displaying LAT and Ethernet Counters
- Monitoring the Terminal's Memory and Network Use
- Checking the Terminal's System Configuration

6.1 Displaying the Status Submenu

To display the Status submenu, choose the Status menu item from the Session menu in the Terminal Manager window.

```
┌─────────────────────────────────────────────────────────────┐
│ ─ ─          VXT V2.1 Terminal Manager              ∙ ─ ─    │
├─────────────────────────────────────────────────────────────┤
│ │Session│ Create  Customize  Print Screen      Getting Started│
├──────────────────┬──────────────────────────┐
│ AutoStart        │                          │
├──────────────────┤                          │
│ Status         ▷ │ TCP/IP Network Test (ping)...│
├──────────────────┤ TCP/IP Routes...         │
│ Pause            │                          │
├──────────────────┤ LAT Counters...          │
│ Reset            │                          │
├──────────────────┤ Ethernet Counters...     │
│ Reboot           │                          │
├──────────────────┤ System Monitor...        │
│ Shutdown         │                          │
├──────────────────┤ System Configuration...  │
│ Close            │                          │
└──────────────────┴──────────────────────────┘
```
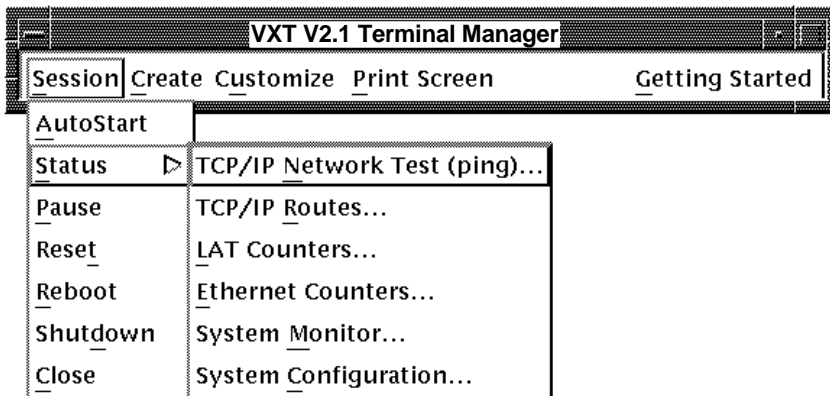
LJ–01154D–RAGS

When you choose a menu item from the Status submenu, the terminal displays a dialog box for that topic.

6.2 Checking a TCP/IP Host System

You can check if a TCP/IP host is available by using the TCP/IP Network Test (ping) dialog box. You specify a host name or IP address and a timeout period for the test. The terminal sends a ping (Packet InterNet Groper) packet once every second for the time you enter in the Timeout box. If you are testing the availability of a remote host on another network, you may want to increase the timeout value.

To display the TCP/IP Network Test (ping) dialog box, choose TCP/IP Network Test (ping)... from the Status submenu.

```
┌─────────────────────────────────────────────┐
│ ─ ║  TCP/IP Network Test (ping)       ▞ ▚ │
├─────────────────────────────────────────────┤
│  ┌─────────────────────────────────────┐    │
│  │ I                                   │    │
│  └─────────────────────────────────────┘    │
│   Host Name or IP Address                    │
│                                              │
│  ┌──────┐                                    │
│  │ 20   │                                    │
│  └──────┘                                    │
│   Timeout (seconds)                          │
│                                              │
│   Status:                                    │
│                                              │
│  ┌────┐                          ┌─────┐    │
│  │Test│                          │Close│    │
│  └────┘                          └─────┘    │
└─────────────────────────────────────────────┘
```

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To run the test:

1. Click on the Host Name or IP Address box and enter a host name or address. Use the ⊠ key if you make a mistake.

   Examples

   ```
   market
   12.212.231.22
   ```

2. Click on the Test button. The terminal displays the status of the host on the Status line:

   • Host name or IP Address is alive

   • No answer from Host name or IP Address

   • Trying...

To change the timeout period for performing the test:

Click on the Timeout (seconds) box and enter a new timeout value from 1 to 99 seconds. Use the ⊠ key if you make a mistake.

To dismiss the dialog box:

Click on the Close button.

6.3 TCP/IP Routes Dialog Box

You can display a list of TCP/IP routes from your network to hosts on other
networks. To display the TCP/IP Routes dialog box, choose TCP/IP Routes...
from the Status menu.

```
┌─────────────────────────────────────────────────────┐
│ ─         │      TCP/IP Routes      │            │▽│ │
│ ┌───────────────────────────────────────────────────┐ │
│ │                                                   │ │
│ │ Type: Host, Gateway                               │ │
│ │ ┌───────────────────────────────────────────┬───┐ │ │
│ │ │ Host: 127.0.0.1, 127.0.0.1                │▲│ │ │ │
│ │ │ Network: 16.0.0.0, 16.122.128.145         │ │ │ │ │
│ │ │                                           │ │ │ │ │
│ │ │                                           │ │ │ │ │
│ │ │                                           │▼│ │ │ │
│ │ ├───────────────────────────────────────────┴───┤ │ │
│ │ │◄│                                          │►│ │ │ │
│ │ └───────────────────────────────────────────────┘ │ │
│ │                                                   │ │
│ │ ┌──────────────┐                        ┌───────┐ │ │
│ │ │ Update Routes│                        │ Close │ │ │
│ │ └──────────────┘                        └───────┘ │ │
│ └───────────────────────────────────────────────────┘ │
└─────────────────────────────────────────────────────┘
```
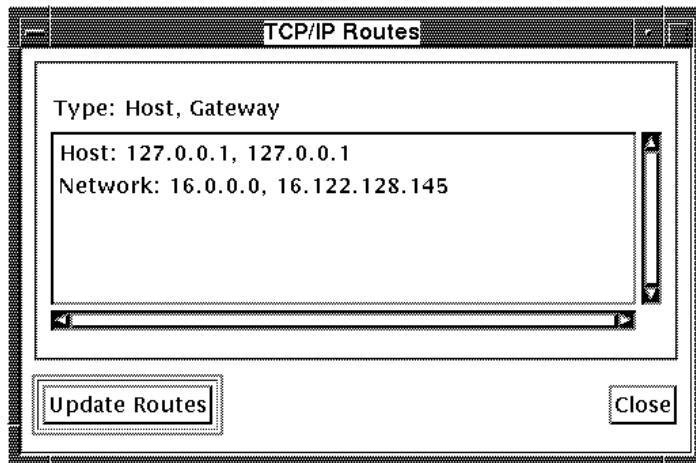
LJ–01113–RAGS

The dialog box lists routes from four sources:

- Static routes you enter in the Customize TCP/IP Routing Tables dialog box

- Interface routes added by interface initialization (NID startup)

- Internet control message protocol (ICMP) redirects

- Dynamic routes added by RIP packets (Normally dynamic routing is
  enabled. See Section 4.7 to enable or disable.)

To enter your own routes into the TCP/IP Routes dialog box:

See Section 4.7.

To update the list:

Click on the Update Routes button. The terminal displays the current list of
static and dynamic routes.

To dismiss the dialog box:

Click on the Close button.

6.4 Displaying LAT and Ethernet Counters

You can check the status of the terminal's LAT and Ethernet counters.
Normally, the terminal updates the information in these dialog boxes every 5
seconds. You can set the update frequency time from 1 to 60 seconds, using the
Customize Terminal Manager dialog box (Section 3.10).

LAT Counters Dialog Box

To display the LAT Counters dialog box, choose LAT Counters... from the
Status submenu. Table 6–1 describes each counter.

LAT Counters			
Seconds Since Zeroed:	25712	Duplicates Received:	0
Messages Received:	5738	Messages Retransmitted:	0
Messages Transmitted:	5193	Illegal Messages:	0
Slots Received:	4795	Illegal Slots:	0
Slots Transmitted:	3007	Virtual Circuit Timeouts:	0
Bytes Received:	209339	Protocol Errors	2
Bytes Transmitted:	207332	Protocol Error Mask:	110

Zero Counters   Close
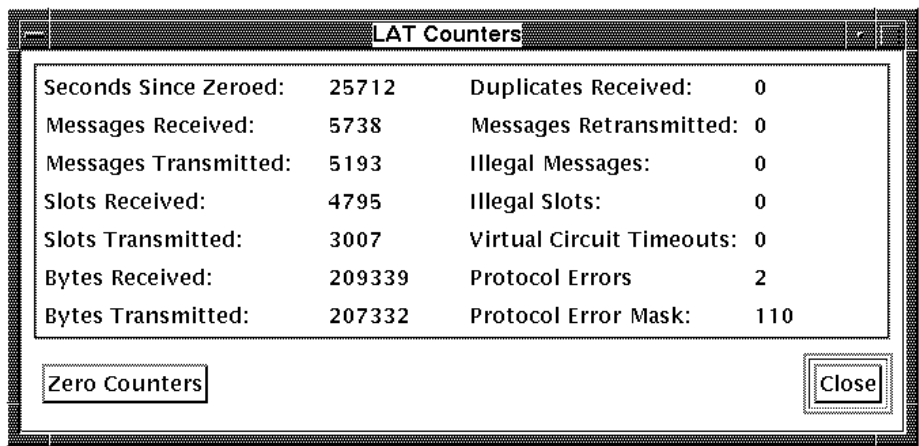
LJ–01155A–RAGS

To set all counters to 0:

Click on the Zero Counters button. All counters in the list are set to 0.

To dismiss the dialog box:

Click on the Close button.

Table 6–1 LAT Counters Display Fields

Field	Description
Seconds Since Zeroed	The number of seconds since these counters were set to 0.

(continued on next page)

Table 6–1 (Cont.)   LAT Counters Display Fields

Field	Description
Messages Received	The number of LAT protocol messages successfully received by the terminal.
Messages Transmitted	The number of LAT protocol messages successfully transmitted by the terminal.
Slots Received	The number of LAT slots received by the terminal. A slot represents a message segment for a particular LAT session.
Slots Transmitted	The number of LAT slots transmitted by the terminal. A slot represents a message segment for a particular LAT session.
Bytes Received	The number of data bytes received by the terminal over the LAT protocol.
Bytes Transmitted	The number of data bytes sent by the terminal over the LAT protocol.
Duplicates Received	The number of virtual circuit messages the terminal received that were not in the correct sequence.
Messages Retransmitted	The number of virtual circuit messages that the terminal resent to remote nodes.
Illegal Messages	The number of incorrectly formatted LAT messages the terminal has received.
Illegal Slots	The number of incorrectly formatted slots of data in a LAT message that the terminal has received.
Virtual Circuit Timeouts	The number of times that the terminal terminated a LAT connection because the remote node did not respond within the time allowed by the LAT protocol.
Protocol Errors	The number of times that the terminal determined that the LAT protocol has been violated by a remote node. See the Protocol Error Mask field for more information.
Protocol Error Mask	A bit mask providing information about the LAT protocol errors detected by the terminal. The bits in the mask are numbered from right to left, starting with bit 0 on the right. The following bits are defined in the mask:
	0 An unknown LAT message type was received.
	1 An invalid LAT START message was received.
	2 A zero-valued virtual circuit reference was received.

(continued on next page)

Table 6–1 (Cont.)   LAT Counters Display Fields

Field	Description
3	An out-of-range virtual circuit reference was received.
4	A reference to a nonexistent virtual circuit was received.
5	A reference to a virtual circuit no longer in use was received.
6	An invalid LAT STOP message was received.
7	An invalid reference to a remote slot was received.
8	A reference to a nonexistent slot was received.
9	A credit violation was detected.
10	A repeated creation of a slot was detected.
11	An invalid sequence number was received.
12	A repeated disconnect of a slot was detected.

Ethernet Counters Dialog Box

To display the Ethernet Counters dialog box, choose Ethernet Counters... from the Status submenu. Table 6–2 describes each counter.
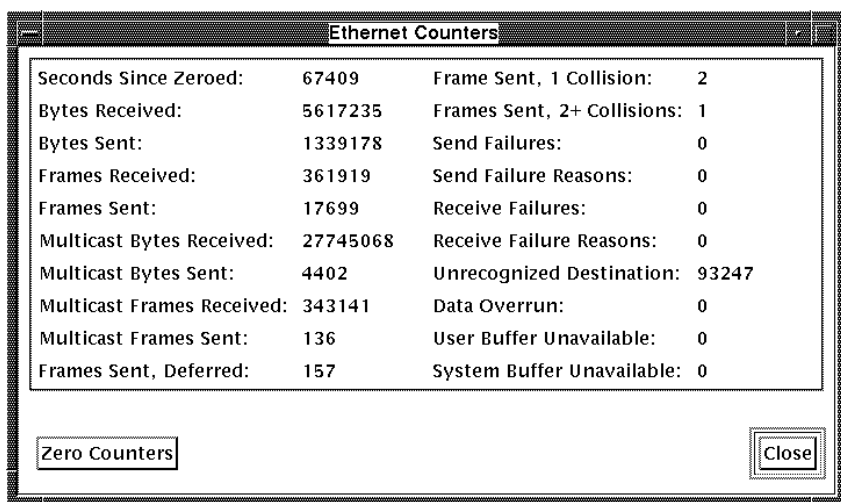
```
┌─────────────────────── Ethernet Counters ───────────────────────┐
│ ┌──────────────────────────────────────────────────────────────┐ │
│ │ Seconds Since Zeroed:     67409      Frame Sent, 1 Collision:     2     │ │
│ │ Bytes Received:           5617235    Frames Sent, 2+ Collisions:  1     │ │
│ │ Bytes Sent:               1339178    Send Failures:               0     │ │
│ │ Frames Received:          361919     Send Failure Reasons:        0     │ │
│ │ Frames Sent:              17699      Receive Failures:            0     │ │
│ │ Multicast Bytes Received: 27745068   Receive Failure Reasons:     0     │ │
│ │ Multicast Bytes Sent:     4402       Unrecognized Destination:    93247 │ │
│ │ Multicast Frames Received: 343141    Data Overrun:                0     │ │
│ │ Multicast Frames Sent:    136        User Buffer Unavailable:     0     │ │
│ │ Frames Sent, Deferred:    157        System Buffer Unavailable:   0     │ │
│ └──────────────────────────────────────────────────────────────┘ │
│                                                                    │
│ [Zero Counters]                                          [Close]   │
└────────────────────────────────────────────────────────────────┘
```

LJ–01156A–RAGS

To set all counters to 0:

Click on the Zero Counters button. All counters in the list are set to 0.

To dismiss the dialog box:

Click on the Close button.

Table 6–2 Ethernet Counters Display Fields

Field	Description
Seconds Since Zeroed	The number of seconds since these counters were set to 0.
Bytes Received	The number of bytes contained in datagrams successfully received by the terminal, excluding Ethernet header and CRC data.
Bytes Sent	The number of bytes contained in datagrams successfully sent by the terminal, excluding Ethernet header and CRC data.
Frames Received	The number of datagrams successfully received by the terminal, including multicast frames.
Frames Sent	The number of datagrams successfully sent by the terminal, including multicast frames.
Multicast Bytes Received	The number of bytes received by the terminal in multicast frames, excluding Ethernet header and CRC data.
Multicast Bytes Sent	The number of bytes sent by the terminal in multicast frames, excluding Ethernet header and CRC data.
Multicast Frames Received	The number of multicast frames received by the terminal.
Multicast Frames Sent	The number of multicast frames sent by the terminal.
Frames Sent, Deferred	The number of times that the terminal deferred a frame transmission because the datalink was in use.
Frames Sent, 1 Collision	The number of times the terminal sent a frame on the second attempt after a collision occurred on the first attempt.
Frames Sent, 2+ Collisions	The number of times the terminal successfully sent a frame after collisions during the first two or more attempts.

Table 6–2 (Cont.)   Ethernet Counters Display Fields

Field	Description
Send Failures	The number of times the Ethernet interface aborted a transmission request. If this count is not 0, see the Send Failure Reasons field for more information.
Send Failure Reasons	A bit mask providing information about the reason for a send failure if the Send Failures counter is not 0. The bits in the mask are numbered from right to left, starting with bit 0 on the right. The following bits are defined in the mask:
	0 A transmission failed to complete after 16 retries, usually due to excessive collisions.
	1 A loss of carrier occurred on the Ethernet during a transmission.
	2 A short circuit occurred on the Ethernet during a transmission.
	3 An open circuit occurred on the Ethernet during a transmission.
	4 Heartbeat error.
	5 Data underflow.
Receive Failures	The number of frames received with an error condition. For more information, see the Receive Failure Reasons field.
Receive Failure Reasons	A bit mask providing information about the type of receive failures encountered if the Receive Failures counter is not 0. The bits in the mask are numbered from right to left, starting with bit 0 on the right. The following bits are defined in the mask:
	0 A block check error. The received frame did not pass the cyclical redundancy check (CRC).
	1 A framing error. The received packet did not contain an integral number of 8-bit bytes.
Unrecognized Destination	The number of frames received by the terminal that did not contain a multicast address or protocol type recognized by the terminal. These frames are discarded.
Data Overrun	The number of times that the terminal's hardware lost an incoming frame because it was unable to keep up with the data rate.

Table 6–2 (Cont.)   Ethernet Counters Display Fields

Field	Description
User Buffer Unavailable	Currently unused. Should always be 0.
System Buffer Unavailable	The number of times that the terminal's software did not have a buffer available to receive an incoming frame (MISS error).

6.5 Monitoring the Terminal's Memory and Network Use

You can use the System Monitor dialog box to monitor the amount of local memory available for use by the terminal. You can also monitor the percent of the terminal's network capacity currently being used. Normally, the terminal updates this information every 5 seconds. You can set the update frequency time from 1 to 60 seconds, using the Customize Terminal Manager dialog box (Section 3.10). To display the System Monitor dialog box, choose System Monitor from the Status submenu.
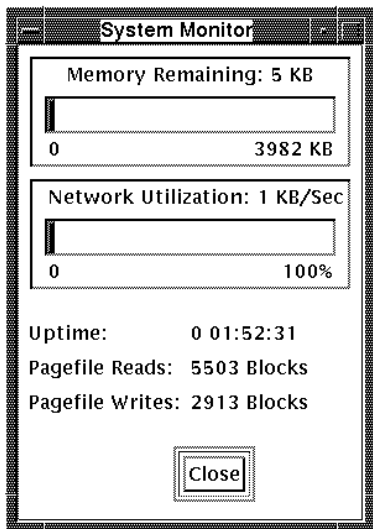
LJ–0111A–RAGS

Memory Remaining: Indicates how much of the local memory installed in the terminal is currently available for use.

Network Utilization: Indicates what percent of the network capacity of the terminal is currently being used.

Uptime: Indicates how long the terminal has been running since being booted.

Pagefile Reads: Indicates the number of blocks of memory read by the
terminal since being booted.

Pagefile Writes: Indicates the number of blocks of memory written by the
terminal since being booted.

To dismiss the dialog box:

Click on the Close button.

6.6 Checking the Terminal's System Configuration

You can use the System Configuration dialog box to check the terminal's
software version, network addresses, work group, active font path, installed
options, and amount of installed memory.

To display the System Configuration dialog box, choose System Configuration...
from the Status submenu.
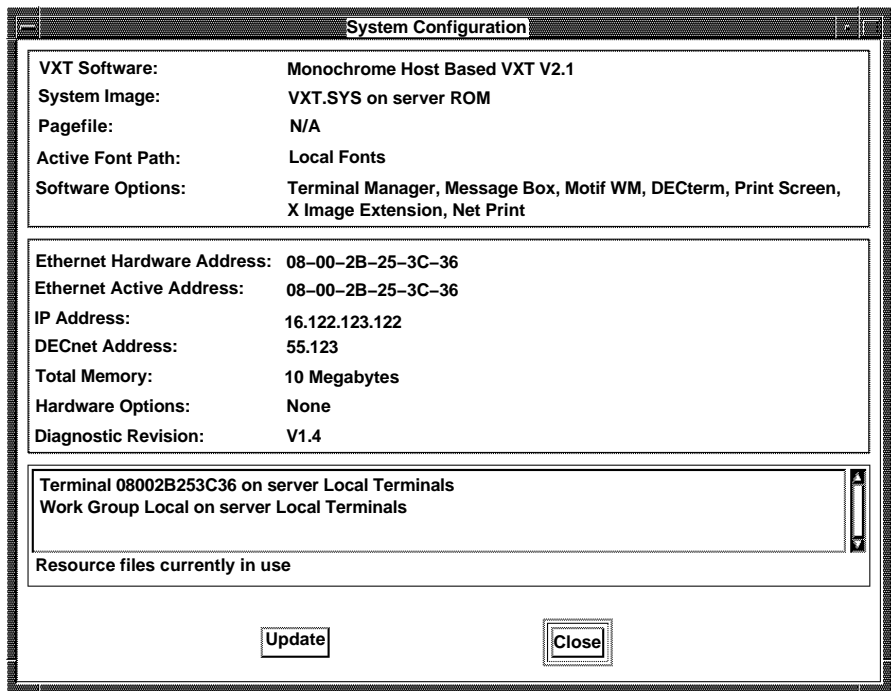
LJ–0110C–RAGS

Table 6–3 describes the System Configuration fields:

Table 6–3   System Configuration Display Fields

Field	Description
VXT Software:	Lists the VXT software version and type:
	{Monochrome, Color} {Host-Based, Server-Based} VXT V*n.n*
	A plus symbol (+) after the word Monochrome or Color indicates the terminal has a VXT 2000+ video board installed.
System Image:	Lists the system image name of the VXT software in use and the name of the server supplying the software. The default system image name for VXT Version 2.0 software is VXT or VXT021.
	For host-based software: the displayed server name is always ROM, because VXT host-based software is loaded into the terminal's ROM memory and does not use an InfoServer for memory services.
	For server-based software: the server name is the name of the InfoServer system from where the software was loaded.
	If you have several InfoServer systems with VXT software on your network, the terminal may use different servers to load software, provide fonts, and store terminal and work group customizations.
Pagefile:	**For server-based software:** this field lists the name of the InfoServer pagefile the terminal is using for memory paging services. The pagefile resides on the InfoServer that loaded the terminal's VXT software.
	If a pagefile has not been opened yet, this field displays No Pagefile.
	For host-based software: this field lists N/A for not applicable.

Table 6–3 (Cont.)   System Configuration Display Fields

Field	Description
Active Font Path:	Lists the location of the fonts currently in use. Font path elements are separated by commas. To change the font path, use the Customize Font Path dialog box (Section 5.3). Font path elements are listed in the order entered in the Customize Font Path dialog box.
	For host-based software: by default, the terminal uses the Local Fonts set loaded with VXT software into the terminal's local memory.
	`Local Fonts`
	For server-based software: by default, the terminal uses the Local Fonts set and the VXT fonts on an InfoServer. The font path indicates the name of the InfoServer system supplying fonts:
	`//lastport/`*server_name*`/VXT, Local Fonts`
Software Options:	Lists the VXT software options available for use. By default, all options are available. You can turn options on and off in the Customize Software Options dialog box (Section 5.8). Host-based terminals can conserve memory by turning off unused options.
	`Terminal Manager, Message Box, Motif WM, DECterm, Print Screen, X Image Extension, Net Print, 3270, Font manager, InfoReader`
Ethernet Hardware Address:	Lists the terminal's Ethernet physical address, set at the factory.
Ethernet Active Address:	**If you use DECnet:** this field lists the terminal's global network address, in the network service access point (NSAP) format. DECnet derives this address from the Ethernet hardware address.
	If you use TCP/IP or LAT: this field lists the same address as the Ethernet Address field.
IP Address	Lists the terminal's Internet protocol address, for communicating with systems that use the TCP/IP protocol. If you have not entered an IP address in the Customize TCP/IP dialog box, this field is empty.

(continued on next page)

Table 6–3 (Cont.)   System Configuration Display Fields

Field	Description
DECnet Address	Lists the terminal's DECnet address, for communicating with systems on a wide area network that use the DECnet protocol. If you have not enabled the DECnet protocol and entered an DECnet address in Customize DECnet dialog box, this field is empty.
Total Memory:	Lists the amount of memory installed in the terminal, from 4 megabytes to 18 megabytes.
Hardware Options:	Lists any option boards installed in the terminal: `Image` VXT image accelerator board
Diagnostic Revision:	Lists the terminal's ROM revision level.
Resource files currently in use:	Lists the name and location of the terminal and work group resource files that store the terminal's customizations.
	For host-based software: the terminal and work group resource files are always listed on the Local Terminals server.
	For server-based software: the terminal and work group resource files reside on the same InfoServer system. This system may be a different InfoServer system than the one that loads the terminal's VXT software.
	The system manager may have new terminals join the Unregistered Terminals work group.

To display updated information:

Click on the Update button. The terminal displays updates any information that has changed since you opened the dialog box.

To dismiss the dialog box:

Click on the Close button.

7

Using VXT DECterm Windows

This chapter describes how to use VXT DECterm windows, also known as terminal windows. The chapter covers the following major topics:

- The VXT DECterm Window

- Copying and Pasting Text

- Clearing or Resetting the Window

- Printing the DECterm Window

- Exiting from a VXT DECterm Window

7.1 The VXT DECterm Window

The VXT DECterm window is a VT300 series terminal emulator. You can open several VXT DECterm windows on the screen and run different applications in each window. You can use your mouse to move between windows.

Chapter 2 describes how to create a terminal window session on your host, using the Create menu and dialog box. When you create the session, the terminal displays a VXT DECterm window.
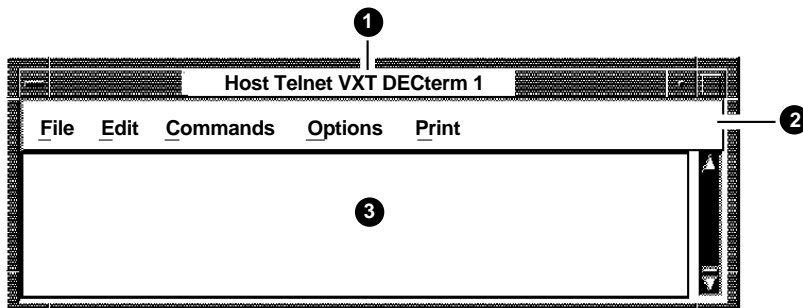
LJ–01636C–RAGS

Chapter 11 describes the basic features of windows. For VXT DECterm windows:

❶ The **window title** uses the following format:

    Transport VXT DECterm on *Host n*

Transport is the method used to connect to the host system —Telnet, LAT, DECnet, or Serial. The *Host* system is identified by a host name, service name, or IP address. VXT DECterm windows are numbered sequentially (*n*) in the order you open them during a session. The name VXT DECterm lets you distinguish the terminal's DECterm windows from any remote DECterm windows you create using a host system's session manager. You can change the title by choosing the Window... menu item from the Options menu.

❷ The **menu bar** displays the names of the five pull-down menus available from the window:

```
File    Edit    Commands    Options    Print
```

You can use your mouse or keyboard to display menus and choose menu items. To display a menu from the keyboard, press the Alt key and the key for the underlined letter in the menu name at the same time. After that, you can use the arrow keys to navigate to different menu items and menus. You choose a menu item the same way you choose a menu: Alt + underlined letter.

❸ The **work area** is where you enter text and commands and interact with host applications, similar to a video terminal screen. By default, the size of this area is 24 lines by 80 columns. You can change the terminal size by selecting the Window... menu item from the Options menu.

The Terminal Size setting in the Window Options dialog box should match the host system's row and page settings, to ensure the proper display of applications such as editors and mail.

Window Colors

VXT DECterm windows use the same color scheme as other VXT windows. You choose the colors in the Terminal Manager's Customize Window Color dialog box (Section 3.9). You can also use the Display Options dialog box in the VXT DECterm window to choose dark text on a light background or light text on a dark background (Section 8.4).

7.2 Copying and Pasting Text

You can copy and paste text in a DECterm window. You can also copy text from
one window and paste the text into another window. To copy and paste text,
you use the DECterm window's Edit menu. The Edit menu looks like this:

```
┌─┬──────────────Telnet VXT DECterm on host 1──────────────┬─┐
├─┴────────────────────────────────────────────────────────┴─┤
│  File │ Edit │ Commands   Options   Print                   │
│       ├──────────┐                                          │
│       │ Copy     │                                          │
│       ├──────────┤                                          │
│       │ Paste    │                                          │
│       ├──────────┤                                          │
│       │ Select All│                                         │
│       └──────────┘                                          │
```
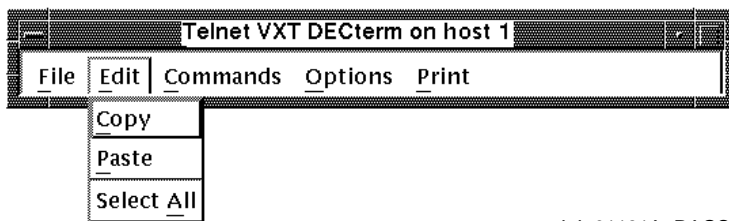
                                                    LJ–01181A–RAGS

From the Edit menu, you can perform the following functions:

Copy
Choosing this item places the currently selected text into the terminal's copy
buffer. You can also use the Select All menu item to select the complete
window.

Paste
Choosing this item sends the contents of the terminal's copy buffer to the
cursor location in the window as if it were typed on the keyboard.

Select All
Choosing this item places all of the window's text into the terminal's copy
buffer. You can also use the Copy menu item to place selected text from the
window into the copy buffer.

7.2.1 Host Synchronization Required

To prevent loss of data when the contents of the paste buffer is sent to the host,
set the host to send XON and XOFF synchronization characters as follows:

On a UNIX or ULTRIX system

```
% stty ixoff ixon
```

On an OpenVMS system

```
$ SET TERMINAL/HOSTSYNC
```

7.2.2 Selecting Text to Copy

You can select a word, a line, or a block of text at a time. A block can be a single character or any number of contiguous characters, up to the complete window. You can also use the Select All menu item in the Edit menu to select the complete window.

To select a block of text:

1. Point to the start of the block.

2. Press and hold MB1, then drag the pointer to the end of the block.

3. Release MB1 to indicate the end of the block. The selected text is highlighted.

4. In the Edit menu, click on the Copy menu item.

To select a single word:

1. Point to the word.

2. Double click MB1 to select the word. The selected word is highlighted.

3. In the Edit menu, click on the Copy menu item.

To select a line of text:

1. Point to the line.

2. Triple click MB1 to select the line. The selected line is highlighted.

3. In the Edit menu, click on the Copy menu item.

7.2.3 Pasting Text

After you select text and store it in the copy buffer, you can paste the text to the text cursor location in the same window or in a different window.

To paste text:

1. Place the text cursor where you want to copy the text.

2. Choose the Paste menu item from the Edit menu of the window that will receive the copied text. The terminal copies the text to the cursor position.

7.2.4 Using Quick Copy

The quick copy feature lets you paste text without storing it in the copy buffer or using the Edit menu. There are two ways to perform a quick copy:

Method 1

1. Select the text as described in Section 7.2.2.

2. Place the text cursor where you want to paste the text.

3. Press and release MB2. If you accidentally move the mouse before releasing MB2, method 2 is activated.

You can use this method to copy text from one window to another. Move the input focus to the other window before clicking MB2. To paste into remote DECterm windows, use MB3.

Method 2

1. Place the text cursor where you want to paste the text.

2. Point to the start of the text you want to copy.

3. Press and hold MB2. Drag the pointer to the end of the text to be copied. Release MB2 to copy the selected text to the cursor position.

Copy and Paste Functions Disabled by Some Applications

If you are running an application that provides support for positioning its pointer or cursor from the mouse, the copy and paste functions may not work. See your application's documentation.

7.2.5 Extending Your Selected Text

After you select an area of text to copy, you may decide that you wanted to copy a larger area. Before you paste text, you can use the mouse or the arrow keys to extend the area you have selected.

To extend your selection with the mouse:

1. After selecting text with MB1, move the mouse cursor to the position that marks the boundary of the area you would like to have selected.

2. Press the Shift key and click MB1. This extends the initially selected area up to the present position of your mouse cursor.

To extend your selection with the arrow keys:

After selecting text with MB1, press the Shift key and any arrow key to extend your selected text in the direction of the arrow.

7.3 Clearing or Resetting the Window

The Commands menu in a VXT DECterm window lets you clear, reset, or resize the window. To display the Commands menu, click on Commands in the VXT DECterm window's menu bar. The Commands menu looks like this:
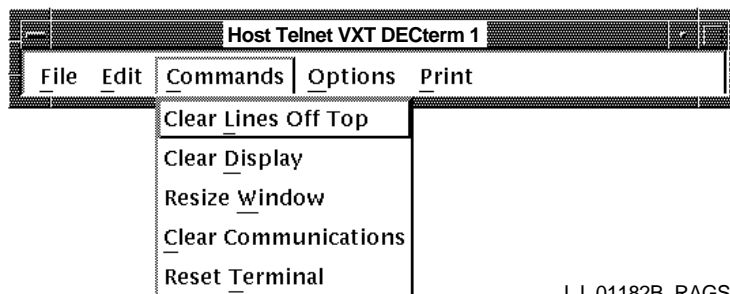
```
┌──────────────────────────────────────────────────────┐
│▒▒▒▒▒▒▒▒▒▒▒▒▒ Host Telnet VXT DECterm 1 ▒▒▒▒▒▒▒▒▒▒▒▒▒▒│
├──────────────────────────────────────────────────────┤
│  File   Edit  │Commands│  Options   Print             │
├───────────────────────────────┐                       │
│  Clear Lines Off Top           │                       │
│  Clear Display                 │                       │
│  Resize Window                 │                       │
│  Clear Communications          │                       │
│  Reset Terminal                │                       │
└────────────────────────────────┘
```
                                          LJ–01182B–RAGS

From the Commands menu, you can perform the following functions:

Clear Lines Off Top

Choosing this item clears the information stored in the transcript. The **transcript** is an area of memory that contains the last saved lines of your screen display. You can read the transcript by using the scroll bars. The transcript exists as long as the Record Lines Off Top option in the Display dialog box is enabled. To change the size of the transcript, use the Display Options dialog box from the Options menu.

Clear Display

Choosing this item clears the contents of the current window.

Resize Window

Choosing this item resizes the window to match the size (number of rows and columns) of your DECterm terminal.

Clear Communications

Choosing this item performs the following actions:

- Cancels any print operation in progress.

- Cancels any escape sequence, control sequence, control string, or character string processing in progress.

- Clears the keyboard buffer.

- Clears the receive buffer.

Reset Terminal

Choosing this item sets several terminal operating features to their default settings.

Resets...	To...
Color map	Default.
Cursor mode	Visible.
Insert/replace mode	Replace.
Origin mode	Upper left of window, independent of margins.
Autowrap mode	Off.
Keyboard action mode	Unlocked.
Keypad mode	Numeric.
Cursor key mode	Normal.
Top margin	Line 1.
Bottom margin	The bottom line in the window.

7.4 Using Options

The Options menu in a VXT DECterm window lets you customize the settings for many VXT DECterm features–from window settings to printing. Chapter 8 describes the Options menu and how to use it.

```
┌─────────────────────────────────────────────────────┐
│ ─ ▓▓▓▓▓▓ Host Telnet VXT DECterm 1 ▓▓▓▓▓▓▓        ▪ ▪│
├─────────────────────────────────────────────────────┤
│  File   Edit   Commands │ Options │ Print            │
└─────────────────────────┬─────────┬─────────────────┘
                          │ Window...           │
                          │ Display...          │
                          │ General...          │
                          │ Keyboard...         │
                          │ 7–Bit NRCS Selection...│
                          │ Graphics...         │
                          │ Printer...          │
                          ├─────────────────────┤
                          │ Save Options        │
                          │ Restore Options     │
                          │ Restore System Options│
                          └─────────────────────┘
```
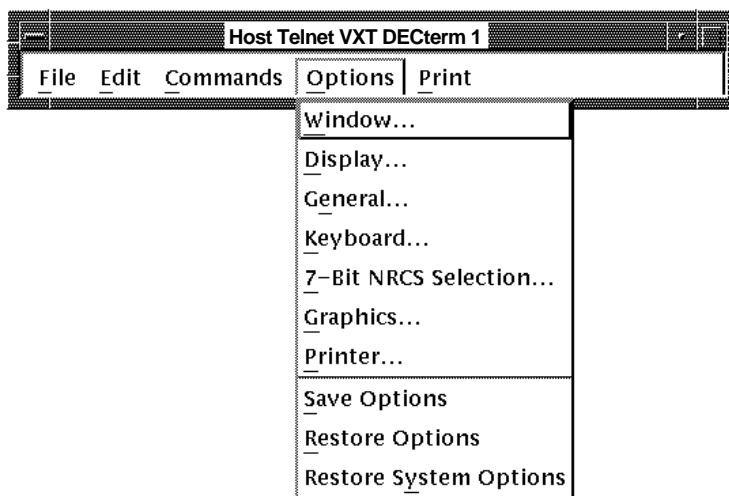
LJ–01185B–RAGS

───────────────────── **Note** ─────────────────────

Your VXT manager may choose to restrict your access to the Options menu or certain menu items. In this case, the items are dimmed.

──

7.5 Printing the DECterm Window

You can print the contents of the DECterm window on a serial or parallel printer connected to the rear of the terminal. See Section 4.2 to activate the serial or parallel printer port. You can print all or part of the window. You can print the window as text, sixel graphics, or PostScript if your printer supports the format. To display the Print menu, click on Print in the DECterm window's menu bar. The Print menu looks like this:
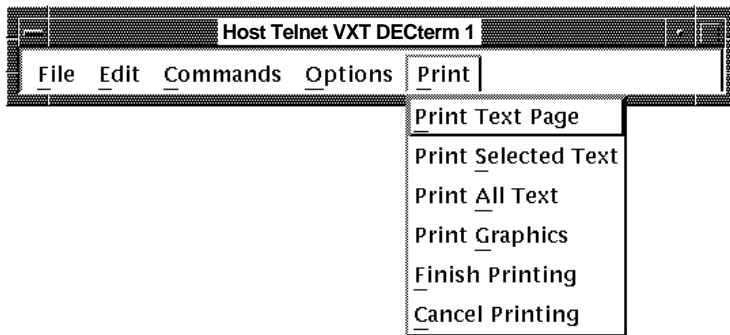
LJ–01183B–RAGS

From the Print menu, you can perform the following functions:

P̲rint Text Page

This option sends the contents of the page to the printer as text. The page size is set by the Terminal Size option in the Window Options dialog box. You can choose the Window Options dialog box from the Options menu in the VXT DECterm window. The default size is 24 lines.

Print S̲elected Text

This option sends text you select on the screen to the printer.

Print A̲ll Text

This option sends the contents of the page and the transcript to the printer as text. The transcript contains the lines that were saved after they were scrolled off the top of the screen. You can control the number of lines saved.

Print G̲raphics

This option sends the contents of the page to the printer in text, PostScript, or sixel format.

F̲inish Printing

This option stops the printing after the current contents of the buffer are printed.

C̲ancel Printing

This option stops the printing immediately.

7.6 Exiting from a VXT DECterm Window

There are two ways to exit from a VXT DECterm window:

- Log out from the window as you normally log out from your host system.

  This action closes the window and stops all applications in the window.

- Click on the File menu in the Terminal Manager's menu bar and choose Exit.

  This action closes the window, but may leave applications running. Depending on your operating system, you may be able to create another DECterm window and reconnect to the application.

LJ–01184B–RAGS

8
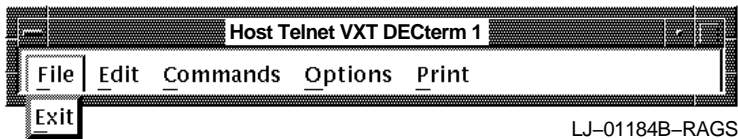
**Customizing
VXT DECterm Windows**

This chapter describes how to set many VXT DECterm window features to
suit your personal preference, by using the Options menu in a VXT DECterm
window. Initially, the features use factory-default settings that work with
many host systems. You can make changes to the settings and save them for
all future sessions.

The chapter covers the following major topics:

- Displaying the Options Menu
- Saving and Restoring VXT DECterm Option Settings
- Changing Your Window Settings
- Changing Your Display Settings
- Changing Your General Operating Features
- Changing Your Keyboard Features
- Choosing National Replacement Character Sets
- Changing Your Graphics Display Settings
- Changing Your Printer Settings

8.1 Displaying the Options Menu

To display the Options menu, click on Options in the VXT DECterm window's menu bar. The Options menu looks like this:
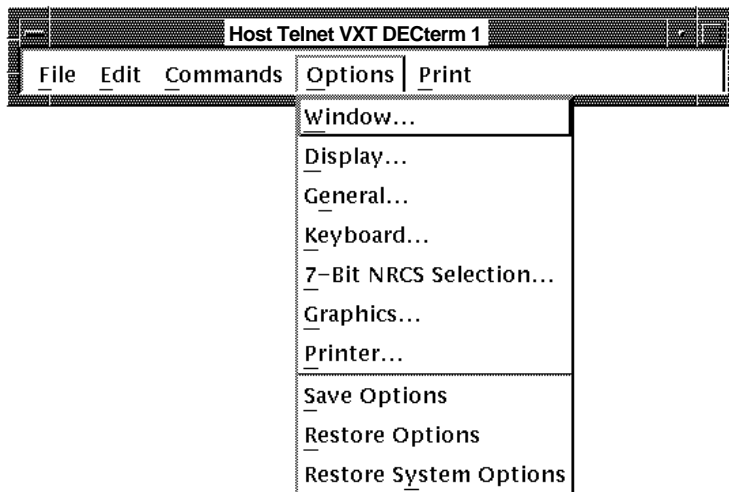
LJ–01185B–RAGS

When you choose a menu item from the Options menu, the terminal displays a dialog box with the feature settings for that topic. In dialog boxes, shaded buttons indicate the current settings. You can examine the settings and change them if desired. You can use the last three menu items to save your settings, restore your last saved settings, or restore the system-default settings.

_____ **Note** _____

A system manager can customize settings for terminals and work groups. The system manager can also lock or unlock access to menu items on the Options menu.

_____

8.2 Saving and Restoring VXT DECterm Option Settings

Initially, the terminal uses the system-default settings for each VXT DECterm window you create. If you make changes to option settings and save them, the terminal applies your saved settings to each new VXT DECterm window you create. To make changes to VXT DECterm settings and save them:

1. Make your changes in a VXT DECterm Options dialog box, then click on the OK or Apply button. The changes are applied to the current VXT DECterm window.

2. Click on Save Options in the Options menu. The settings are saved for future VXT DECterm windows.

Applying Changes in a Dialog Box

Each VXT DECterm Options dialog box has three push buttons for applying or dismissing new settings in that box:

Click on . . .	To . . .
OK	Apply new settings for the current session and dismiss the dialog box.
Apply	Apply new settings for the current session without dismissing the dialog box.
Cancel	Dismiss the dialog box without changing any settings. If you made any changes without applying them, clicking on the Cancel button cancels those changes.

Some option settings do not take effect until you open a new VXT DECterm window.

OK and Apply Do Not Save VXT DECterm Options

Note that the OK and Apply buttons work differently in VXT DECterm Options dialog boxes than in the Terminal Manager window's Customize dialog boxes. In the Customize dialog boxes, the OK and Apply buttons save the feature settings for future use.

Saving or Restoring Option Settings

To save or restore settings for future sessions, choose from the following menu items on the Options menu:

Choose . . .	To . . .
Save Options	Save your current option settings for use in all future sessions.
Restore Options	Recall the last option settings you saved with the Save Options menu item. Choose the Restore Options menu item if you want to reset any option settings that you changed temporarily, but did not save. To see changes to specific settings, display the dialog box for those settings.
Restore System Options	Restore the terminal's default option settings. To see changes to specific settings, display the dialog box for those settings.

If you have changed some settings and want to use or view the factory-default settings for your VXT DECterm Option dialog boxes, click on Restore System Options in the Options menu. If you saved some customized settings but decide you want to return to the factory-default settings for future sessions, click on Restore System Options and Save Options; remember that this clears the customized settings you saved.

Applications May Customize Some Settings

Some application software that you use may also set certain window features. Programmers can use control sequences in their applications to customize most DECwindows features from the host system. This provides the individual application with more control.

ReGIS and Sixel Graphics

VXT DECterm windows emulate the VT300 series terminal, so you can display ReGIS and sixel graphics on the terminal. You can also use the remote DECterm application available under a host session manager to display ReGIS and sixel graphics.

8.3 Changing Your Window Settings

You can use the Window Options dialog box to control the size of the VXT
DECterm window, by choosing the number of rows and columns displayed.
You can also control such features as the window title and the font size (big or
small) used to display characters. You can use an alternative font on your host
system or InfoServer system, if the font meets certain requirements.

Before your resize a VXT DECterm window in the Window Options dialog box,
you should understand how host system and window manager settings also
affect the window's operation.

Factors Affecting the VXT DECterm Window Size

Three factors affect the display of a VXT DECterm window:

*   The Terminal Size setting in the Window Options dialog box

*   The host's settings for the DECterm terminal size

*   Any adjustments you make to the window size, using a local or remote
    window manager (such as maximizing the window or using the window
    border to stretch the window)

The normal Terminal Size in the Window Options dialog box is 24 rows by
80 columns. Keeping the Terminal Size matched with the host's setting
ensures the proper display of applications such as editors and mail. If you
use unmatched settings, be aware that some application displays may be
affected.

If you change the Terminal Size, you can make the same adjustments on the
host. The commands for setting the DECterm window size on the host depend
on the operating system.

For example, on OpenVMS hosts you can enter the SHOW TERMINAL
command to check the Page and Width settings. These settings should match
the Terminal Size row and column settings. You can adjust the host settings
with the SET TERM/PAGE=n and SET TERM/WIDTH=n commands.

The Auto Resize Terminal feature in the Window Options dialog box
determines whether or not the Terminal Size automatically changes when
you adjust the window with a window manager. Normally this feature is off,
so the Terminal Size remains matched with the host's settings. For example,
when you click on the window border and stretch the window, the number of
rows and columns within the window does not change.

Using the Window Options Dialog Box

To view or change your VXT DECterm window settings, choose Window... from the Options menu. The terminal displays the Window Options dialog box:

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From the Window Options dialog box, you can change the following features:

☐ **Auto Resize Terminal**

Normally, changing the window size does not change the number of rows and columns displayed. If you click on Auto Resize Terminal, the terminal automatically adjusts the number of display rows and columns when you or your application software changes the window size.

☐ **Auto Resize Window**

Normally, the terminal automatically resizes the window when the number of rows and columns changes. You can turn this feature on or off by clicking on Auto Resize Window. If you display a large number of rows and columns when this feature is off, some information may be outside the window boundary.

☐ **Terminal Size**

The default size of the VXT DECterm window is 24 rows and 80 columns. You can choose from standard values or enter your own value:

- Standard values: Choose 24, 48, or 72 rows and 80 or 132 columns.

- Your own value: Click on the Rows box and enter a number from 1 to 99. Click on the Columns box and enter a number from 9 to 254.

☐ **Normal Font, Condensed Font**

Normally, the terminal displays characters in a font suitable for the display width—a normal font for 80 columns, a condensed font for 132 columns. You can also choose to use the normal font or condensed font at all times, by clicking on the Normal Font (80 Columns) button or Condensed Font (132 Columns) button. The condensed font lets you display more characters in a small window.

☐ **Window Title**

You can choose a window title of up to 30 characters for each window you open. The default title is

Host Transport VXT DECterm *n*

- *Host* is the host name, service name, or IP address of the host system.

- *Transport* is the method used to connect to the host system —Telnet, LAT, DECnet, or Serial.

- *n* is the number of the window. VXT DECterm windows are numbered sequentially in the order you open them during a session.

Programmers can change the title by using the following command:

```
<OSC>21;title_string<ST>
```

If you change the title, the terminal stops numbering windows in the session. The only way to restart numbering is to choose Restore Systems Options from the Options menu. In doing so, all VXT DECterm settings are restored to their system-default settings.

☐ Icon Name

You can choose an icon name to identify each window you reduce to an icon. This option works the same as the Window Title option.

Programmers can change the icon name with the following command:

```
<OSC>2L;icon_string<ST>
```

☐ Big Font, Little Font, German Standard Font

You can display characters in a little font, big font, or German standard font. Normally, the terminal displays characters in its little font, which is a 14-point font (10-point font on 100 dots/inch monitors). The big font is an 18-point font.

As an alternative, you can specify a suitable font on your host system or InfoServer system. In any case, you can display only one font in a window at a time. You may use a different font in each VXT DECterm window.

To choose one of the terminal's default fonts:

1. Click on the Big Font, Little Font, or German Standard Font button.

2. Click on the Default button next to the font you chose.

3. Click on OK or Apply to see the new font in the VXT DECterm window.

To save a font selection for future use:

Click on Save Options in the Options menu.

8.3.1 Using Fonts on Your Host System or InfoServer

If you have suitable fonts on your host or InfoServer system, you can use those fonts instead of the terminal's fonts in your VXT DECterm windows. In each VXT DECterm window, you can specify an alternative big font, little font, and German standard font. You can specify fonts from different hosts or InfoServer systems.

To use alternative fonts on a host or InfoServer system, you must specify a font path and font name.

Note

VXT DECterm windows require specific fonts and sizes to run and display properly. Most fonts do not meet these requirements. Problems and error messages will occur if VXT DECterm cannot find the proper fonts.

Step 1: Specify a Font Path

Use the Customize Font Path dialog box in the Terminal Manager window (Section 5.3).

You can set only one font path at a time. You can change font paths while a VXT DECterm window is running. Applications currently running continue to use the old font path.

Step 2: Enter the Font Name in the Window Options Dialog Box

You can specify an alternative font for each of the standard font choices: big font, little font, and German standard font. You can specify different fonts in each VXT DECterm window you create. You can also change fonts while a VXT DECterm window is displayed.

To save your font settings, click on Save Options in the Options menu. New applications will use the new font. Applications currently running will continue to use the same font.

1. Click on the Big Font, Little Font, or German Standard Font button.

2. Click on the Other button next to font you chose in step 1.

3. Clear the text in the box next to the Other button. Double-click on the box. All text in the box is highlighted. Press the $\boxed{\text{Remove}}$ key to erase all the text.

4. Enter the name of your font in the box. See your system manager if you need help.

Use the following steps if your font is on an InfoServer system.

To use a font on an InfoServer system:

After you set the font path, you can use the terminal's Configuration Manager: Font Management dialog box to list the available fonts on your InfoServer system. You can cut and paste the font name into the DECterm Window Options dialog box.

1. In the Terminal Manager window, click on Customize in the menu bar to display the Customize menu.

2. In the Customize menu, click on Configuration... to display the Configuration submenu.

3. Click on the Font Management... menu item to display the Configuration Manger: Font Management dialog box.

4. Click on the name of the font set you want. The font set name appears highlighted in the scroll box.

5. Click on the List Contents... button to display the List Font Set Contents box.

6. In the List Font Set Contents scroll box, find the font you want. Triple click on the font.

7. Click on the DECterm Window Options dialog box. The input cursor should be blinking in the Other box that you cleared. If not, click on the Other box.

8. Click on MB2. The font name is copied to the Other box.

9. Click on Apply or OK. The terminal applies the new font to the VXT DECterm window.

8.4 Changing Your Display Settings

You can control display features such as the type of cursor, use of scroll bars, and appearance of text (light or dark). You can also specify how many lines to save when text is scrolled off the top of the window. To view or change your display settings, choose Display... in the Options menu. The terminal displays the Display Options dialog box:
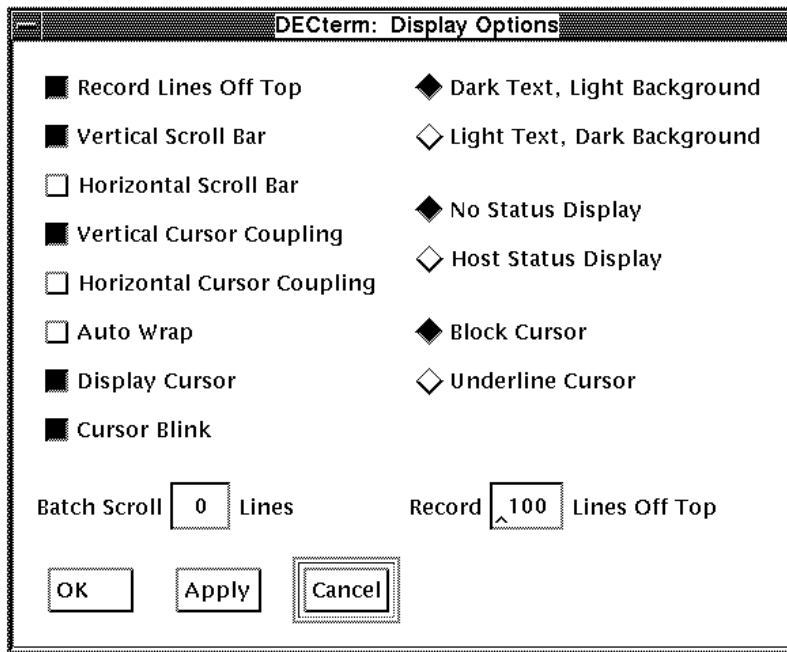
LJ–01187A–RAGS

From the Display Options dialog box, you can change the following settings:

☐ **Record Lines Off Top**

Normally, the terminal saves lines that are scrolled off the top of the VXT DECterm window. To view these lines, use the vertical scroll bar. If you do not want to save lines that are scrolled from the display, click on the Record Lines Off Top button to turn it off. To specify the number of lines to save, use the Record [100] Lines Off Top box in this display box.

☐ **Vertical Scroll Bar**

Normally, the VXT DECterm window has a vertical scroll bar. To remove the scroll bar, click on the Vertical Scroll Bar button to turn it off.

☐ **Horizontal Scroll Bar**

Normally, the VXT DECterm window does not have a horizontal scroll bar. To add a horizontal scroll bar to the bottom of the window, click on the Horizontal Scroll Bar button.

☐ **Vertical Cursor Coupling**

Normally, the cursor automatically returns to the cursor position in the DECterm window to display text when it comes from your host system. For example, if you scroll back into transcript and output from the host occurs, the cursor returns to display the output text. Click on the Vertical Cursor Coupling button if you wish to turn vertical cursor coupling off.

☐ **Horizontal Cursor Coupling**

Normally, the cursor does not return to display text from a host system if you are scrolling horizontally. For example, if you scroll horizontally into transcript and output from the host occurs, the cursor will not return to display the output text. Click on the Horizontal Cursor Coupling button if you wish to turn horizontal cursor coupling on.

☐ **Auto Wrap**

Normally, text does not automatically wrap to the next line when the cursor reaches the right margin in the window. To have text automatically wrap to the next line, click on the Auto Wrap button.

☐ **Display Cursor**

Normally, the terminal displays the text cursor, which is a block or underline character. To turn the text cursor off, click on the Display Cursor button.

☐ **Cursor Blink**

Normally, the text cursor blinks. To have the cursor appear steady, click on the Cursor Blink button. The terminal manager also has a Cursor Blink feature, in the Customize Keyboard dialog box. The two settings have no effect upon each other.

☐ **Text and Window Background**

VXT DECterm windows use the same color scheme as other VXT windows. You choose the colors in the Terminal Manager's Customize Window Color dialog box (Section 3.9). To swap the text and background colors, you can use the Dark Text, Light Background or Light Text, Dark Background buttons.

☐ **Status Display**

If you want to display a host status line, click on the Host Status Display button. The host status line is a line at the bottom of the window where your host application software can display messages.

☐ **Cursor Style**

Normally, the terminal uses a solid block cursor to indicate the active position. To use an underline character for the cursor, click on the Underline Cursor button.

☐ **Batch Scroll** ⟨0⟩ **Lines**

You can specify the speed at which the terminal displays text from your host during scrolling. The slowest settings of 0 or 1 line display every line during scrolling. Faster settings greater than 1 line cause multiple lines to be displayed quickly from the host.

☐ **Record** ⟨100⟩ **Lines Off Top**

Normally, the terminal saves up to 100 lines that are scrolled off the top of the display. You can specify the number of lines to save (0 to 999) by using the Record ⟨500⟩ Lines Off Top box. Increasing the number of lines saved increases the terminal's memory usage.

8.5 Changing Your General Operating Features

You can set general operating features to match your computing environment and application software. For example, you choose which of the terminal's character sets to use. To view or change general operating settings, click on General... in the Options menu. The terminal displays the General Options dialog box:

```
┌─────────────────────────────────────────────────────────────┐
│ ▬              DECterm: General Options                       │
│  ☐ Newline                    ◇ VT300 Mode, 8–Bit Controls   │
│  ☐ Lock UDKs                  ◆ VT300 Mode, 7–Bit Controls   │
│  ☐ Lock User Features         ◇ VT100 Mode                   │
│  ☐ Local Echo                 ◇ VT52 Mode                    │
│  ◆ Normal Cursor Keys        Terminal ID                     │
│  ◇ Appl Cursor Keys           ◆ DECterm ID                   │
│                               ◇ VT340 ID                     │
│  ◆ Numeric Keypad             ◇ VT330 ID                     │
│  ◇ Application Keypad         ◇ VT320 ID                     │
│                               ◇ VT240 ID                     │
│  ◆ UPSS DEC Supplemental      ◇ VT220 ID                     │
│  ◇ UPSS ISO Latin 1           ◇ VT125 ID                     │
│                               ◇ VT102 ID                     │
│  ◆ 8–Bit Multinational Characters  ◇ VT101 ID                │
│  ◇ 7–Bit NRCS Characters      ◇ VT100 ID                     │
│  ┌──────────────────────────┐                               │
│  │ ^                        │                               │
│  Answerback Message                                          │
│  ☐ Conceal Answerback Message                                │
│  ┌──────┐  ┌───────┐  ┌────────┐                            │
│  │  OK  │  │ Apply │  │ Cancel │                            │
│  └──────┘  └───────┘  └────────┘                            │
└─────────────────────────────────────────────────────────────┘
```
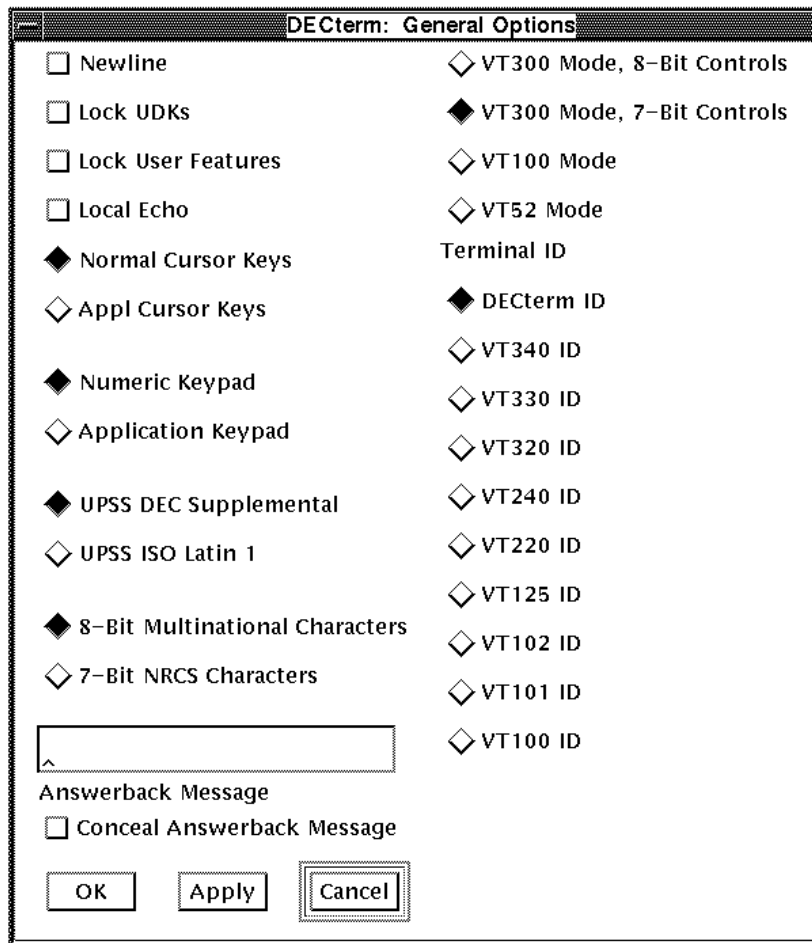
LJ–01188–RAGS

From the General Options dialog box, you can change the following settings:

☐ **Newline**

Normally when you press the ⌷Return⌷ key, the cursor moves to a new line because the terminal sends a carriage return (CR) character and a line feed (LF) character. Similarly, when the terminal receives a line feed, form feed (FF), or vertical tab (VT) character, the cursor moves to the first column of the next line.

If you click on the Newline button, pressing ⌷Return⌷ sends only a carriage
return, so the cursor does not move to a new line. When the terminal receives
a LF, FF, or VT character, the cursor moves to the current column of the next
line.

☐ Lock UDKs

Your keyboard contains keys you can define for your own use (Chapter 15).
Normally, the host system can change the function of these user-defined keys
(UDKs). If you click on the Lock UDKs button, the host system cannot change
your definitions.

☐ Lock User Features

There is a set of VXT DECterm option features that users often set to their
own preference, including the terminal size (in Window Options), text and
background color (in Display Options), and auto repeat feature for keys (in
Keyboard Options). Your host applications can override these option settings
unless you click on the Lock User Features button.

☐ Local Echo

Normally, the terminal sends data entered at the keyboard to your host system,
which may send it back to the terminal for display after processing. This is
called a remote echo.

If you want to send keyboard data to both the host system and the terminal
(local echo), click on the Local Echo button.

☐ Cursor Keys

Normally, the arrow keys move the cursor by sending standard ANSI cursor
control sequences. Clicking on the Application Cursor Keys button lets the
arrow keys send application-specific control sequences.

☐ Keypad

Normally, numeric keypad keys send the character shown on the key (using
ASCII codes). If you click on the Application Keypad button, the numeric
keypad keys send control sequences used with some applications.

☐ User-Preferred Supplemental Set (UPSS)

If you click on the 8-Bit Multinational Characters button in this dialog box, you
can choose one of two supplemental character sets to use—DEC Supplemental
or ISO Latin 1 Supplemental. Both character sets feature special characters
used in the major Western European languages. The ISO Latin-1 set includes
a few more characters that are not included in the DEC Supplemental set.

Normally, the terminal uses the UPSS DEC Supplemental set. Click on the
UPSS ISO Latin 1 button to use the UPSS ISO Latin 1 Supplemental set.

☐ 8-Bit Multinational or 7-Bit NRCS Characters

You can select the type of characters the terminal uses, 8-bit multinational or 7-bit national replacement characters.

Normally, the terminal uses 8-bit multinational characters. This setting supports most of today's computing environments. There are two multinational character sets available—the DEC Multinational character set and the ISO Latin Alphabet No. 1 character set. Both sets consist of the ASCII character set and their own supplemental set. To choose one of the multinational character sets, you choose their supplemental set by using the UPSS buttons in this dialog box.

Clicking on the 7-Bit NRCS Characters button lets the terminal use one of several national replacement character sets. This setting is useful in computing environments that are restricted to 7 bits. The 7-bit NRC character sets are for the major Western European languages. When you choose this setting, the terminal uses the NRC set that matches the current Keyboard Type chosen in the Terminal Manager's Customize Keyboard dialog box (Section 3.3). You can also choose the individual NRC set by using the 7-Bit NRCS Selection menu item from the Options menu.

☐ VT Emulation Mode

The terminal can emulate the responses of VT300 series, VT200 series, VT100 series, or VT52 text terminals to text and control functions sent from the host system. If you have application software developed for one of these terminals, you can choose the appropriate operating mode to run that software.

Normally, the terminal uses VT300 7-bit controls. In 7-bit controls mode, the terminal sends 7-bit controls and 8-bit character codes to the host. Use this mode with VT300 and VT200 applications that use 7-bit control characters.

In 8-bit controls mode, the terminal can send 8-bit controls and 8-bit character codes to the host. This mode supports VT300 and VT200 8-bit text applications.

In either VT300 mode, the terminal accepts both 7-bit and 8-bit controls from the host.

VT100 mode lets the terminal run applications that require VT100 compatibility.

VT52 mode lets the terminal run VT52 applications.

☐ Terminal ID

The terminal sends the host system a terminal identification (ID) message to let the system know the terminal's specific operating characteristics. You can choose another terminal ID if needed. The terminal ID is also called the device attributes response.

☐ **Answerback Message**

The terminal sends an answerback message to the host system when (1)
you press Ctrl F5, or (2) the host requests the message by sending an ENQ
character. Host requests do not affect screen data or require a user response.
To enter an answerback message, click on the Answerback Message box. Your
message can have up to 30 characters.

☐ **Conceal Answerback Message**

You can conceal your answerback message by clicking on the Conceal
Answerback Message button. Your answerback message is replaced with
the text <concealed> in the Answerback Message box.

If you conceal the message, you can never redisplay it. If you click on the
Answerback Message box, your concealed message is erased; you can enter a
new message and conceal it by clicking on the Conceal button.

8.6 Changing Your Keyboard Features

You can turn the keyboard's warning bell and margin bell on and off. You can
also control the function of the <⊠, tilde, angle bracket, and comma keys to
suit your working environment. To view or change these and other keyboard
settings, choose the Keyboard... menu item from the Options menu. The
terminal displays the Keyboard Options dialog box:
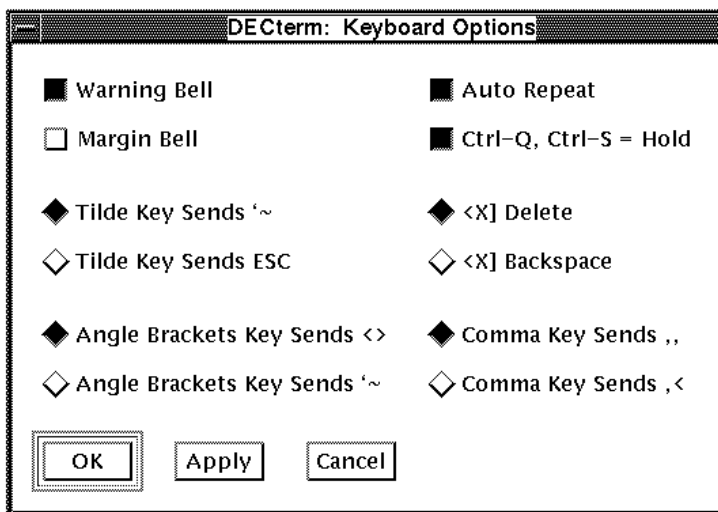
LJ–01189–RAGS

From the Keyboard Options dialog box, you can change any of the following
settings:

☐ **Warning Bell**

Normally, a warning bell sounds whenever the terminal receives a bell (BEL)
character from the host system. To turn this feature off, click on the Warning
Bell button.

☐ **Margin Bell**

The terminal can sound a bell when the cursor approaches the right margin.
Normally, the margin bell feature is turned off. To turn this feature on, click
on the Margin Bell button.

☐ **Tilde Key Sends**

North American, British, and Dutch keyboards only: You can use the
tilde key ⟨ ~ ` ⟩ to send the escape (ESC) character for control sequences.
Normally, the tilde key sends an accent mark (`) when unshifted and a
tilde (~) when shifted. To use the tilde key as an ESC key, choose the Tilde
Key Sends ESC button. To type an ESC character, press the tilde key twice.

☐ **Angle Brackets Key**

North American, British, and Dutch keyboards only: If you use the tilde
key as an ESC key, you may want to use the ⟨ < > ⟩ key to send the accent mark
(` ) and tilde ( ~ ) characters. If you click on the Angle Brackets Key Sends `~
button, the ⟨ < > ⟩ key sends the accent mark (`) when unshifted and the tilde (
~) when shifted.

☐ **Auto Repeat**

Most keys on the keyboard automatically repeat when you hold them down.
You can turn this feature off or on by clicking on the Auto Repeat button. The
⟨Return⟩ and ⟨Help⟩ keys never autorepeat.

The Terminal Manager window's Customize Keyboard dialog box also has an
Auto Repeat feature. The two settings do not affect each other. To disable
autorepeating in both the Terminal Manager and VXT DECterm windows,
disable both settings.

☐ **Ctrl-Q, Ctrl-S = Hold**

Normally, pressing ⟨Ctrl⟩ ⟨S⟩ prevents data from the host appearing on the
screen. Pressing ⟨Ctrl⟩ ⟨Q⟩ allows data to display.

You can turn this feature off or on by clicking on the Ctrl-Q, Ctrl-S = Hold
button. If you turn the feature off, pressing ⟨Ctrl⟩ ⟨S⟩ or ⟨Ctrl⟩ ⟨Q⟩ have no effect on
the display of text.

☐ ⟨ⓧ **Delete / Backspace Key**

Normally, pressing the ⟨ⓧ key sends a delete (DEL) character to the host application.

When you click on the ⟨ⓧ Backspace button, the ⟨ⓧ key sends a backspace (BS) character.

☐ **Comma Key**

North American, British, and Dutch keyboards only: Normally, the ⎡ , < ⎤ key sends a comma whether shifted or unshifted, and the ⎡ . > ⎤ key sends a period. If you want to use these keys to send angle brackets in the shifted position, click on the Comma Key Sends ,< button.

8.7 Choosing National Replacement Character Sets

You can use 8-bit multinational character sets or 7-bit national replacement character (NRC) sets with VXT DECterm windows. You should use the type of character set that matches your computing environment. To choose the type of character set, select the General... menu item from the Options menu.

When you choose to use 7-bit character sets, the terminal automatically uses the NRC set that matches the current Keyboard Type chosen in the Terminal Manager's Customize Keyboard dialog box (Section 3.3). You can also choose an NRC set by using the Options menu. Choose 7-Bit NRCS Selection... to display the 7-Bit NRCS Selection Options dialog box:
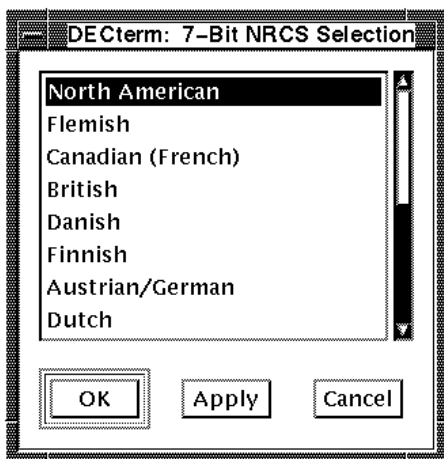
LJ–01190–RAGS

The scroll box lists the available NRC sets. To choose an NRC set for the current window, click on a set in the scroll box. Then click on the OK button.

8.8 Changing Your Graphics Display Settings

You can control some features that affect the display of graphics, such as color map entries. To view or change the graphic settings used with VXT DECterm windows, choose Graphics... from the Options menu. The terminal displays the Graphics Options dialog box:
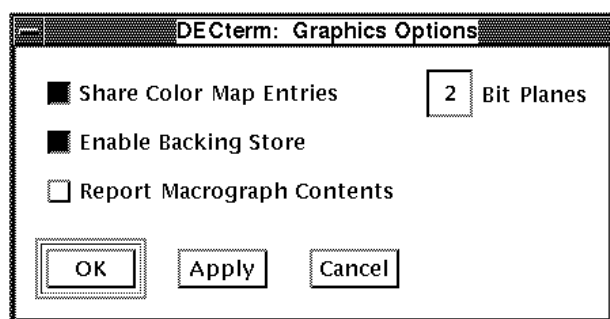
LJ–01191–RAGS

From the Graphics Options dialog box, you can change the following settings:

☐ **Share Color Map Entries**

Normally, color map entries are shared. This prevents the VXT DECterm window from allocating color map entries for its exclusive use. Instead, DECterm allocates shared, read-only colors out of a default color map. This means that DECterm does not need to create a private color map, which would prevent the windows from displaying in their true colors. However, it also means that DECterm colors may not match the colors used on a VT terminal.

☐ **Enable Backing Store**

The backing store feature enables the terminal to redisplay DECterm graphics after they are covered by another window or iconified. The Customize X Server dialog box in the Terminal Manager window also has a Backing Store button (Section 5.4).

☐ **Report Macrograph Contents**

The VXT DECterm window does not respond to a request by an application to report macrograph contents. Clicking on this option enables ReGIS commands to report macrograph contents. When reporting is complete, disable this feature to reduce any security risks.

☐ **Number of Bit Planes**

The number of bit planes supported by your system determines the number of colors available for ReGIS and sixel graphics. With 2-bit planes, the DECterm emulator can display four different colors at the same time. With 4-bit planes, the DECterm emulator can display 16 colors.

The DECterm emulator uses 2-bit planes on 4-plane systems; it uses 4-bit planes on all other systems. This reduces the probability that the DECterm emulator must create a private color map. You can choose the number of colors available in ReGIS and sixel graphics by entering the number of planes supported by your system.

8.9 Changing Your Printer Settings

You can control print settings used with VXT DECterm windows, such as what area of the window to print. To view or change printer settings, choose Printer... from the Options menu. The terminal displays the Printer Options dialog box:
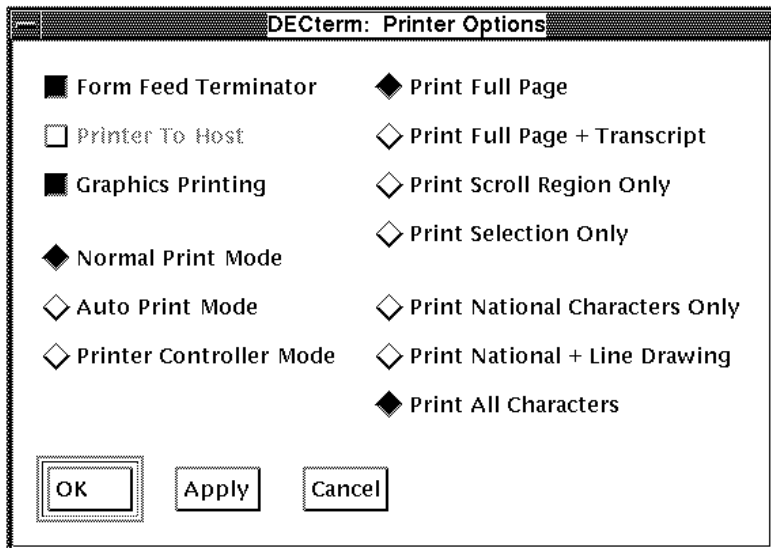
LJ–01192A–RAGS

From the Printer Options dialog box, you can change the following settings:

☐ **Form Feed Terminator**

Normally, the terminal sends a form feed (FF) character to the printer port at the end of any printing operation started from the VXT DECterm window's Print menu.

☐ **Printer to Host**

If you use a serial input device connected to the terminal's serial port, the terminal can accept input data from the device and send the data to the host application. By default, the serial port does not work as a printer port, so the Printer to Host button is dimmed. To use the serial port to receive data, change the Port Usage setting to Serial Port: Printer (Section 4.2). Then choose the Printer to Host button.

☐ **Graphics Printing**

Normally the terminal supports graphics printing operations in addition to text printing.

Printing Modes

You can choose from three printing modes:

- Normal Print Mode

- Auto Print Mode

- Printer Controller Mode

☐ **Normal Print Mode**

Normally, you can send all or part of the text displayed in a window to a local printer. To print the window's text, press the ☐ F2 (Print) key.

☐ **Auto Print Mode**

Auto print mode immediately sends each line of text received from the host system to your local printer. The terminal sends the current display line to the printer when the cursor moves to the next line after a line feed, form feed, vertical tab, or autowrap.

To turn auto print mode on or off, press Alt A . You return to normal print mode when you leave auto print mode.

You can perform normal printing functions in auto print mode.

☐ **Print Controller Mode**

Printer controller mode lets a host system send text directly to the local printer, without displaying the text in the VXT DECterm window. You cannot select this mode from the keyboard. Applications select this mode by using VT320 programming functions.

The F2 (Print) key does not work in printer controller mode.

Printing All or Part of the Window

You can print all or part of the VXT DECterm window. You can also choose to print selected characters. To print the window's text, press the [F2] (Print) key. You can choose from the following options.

☐ **Print Full Page**

Normally when you print a VXT DECterm window, the terminal sends the text in the main display to the printer.

☐ **Print Full Page + Transcript**

This option prints the text in the transcript (the lines saved off the top of the scrolling region), followed by the text in the main display. You can specify the number of lines saved by using the Display Options dialog box.

☐ **Print Scroll Region Only**

This option prints the text in the scrolling region of the main display.

☐ **Print Selection Only**

This option prints text that you have selected in the main display.

Matching Your Printer's Capabilities

You can print from character sets that match the capability of your printer.

☐ **Print National Characters Only**

This option prints national replacement characters (NRC) only. Other characters are converted to the corresponding national characters, if any; otherwise they are not sent.

☐ **Print National + Line Drawing**

This option prints national replacement characters and line-drawing characters.

☐ **Print All Characters**

This option prints all characters, including multinational and technical characters.

9

Using VXT 3270 Windows

This chapter describes how to create and use VXT 3270 windows. The chapter covers the following major topics:

- VXT 3270 Windows

- Before You Start

- Creating a VXT 3270 Session

- Entering 3270 TE Connection Parameters

- Using the VXT 3270 Window

9.1 VXT 3270 Windows

VXT 3270 windows emulate IBM graphic display terminals. The windows let you access application programs on an IBM Systems Network Architecture (SNA) host system through a DECnet/SNA gateway. You can have several VXT 3270 windows displayed at the same time, running different applications. You can use your mouse to move between windows.

All VXT 3270 terminal emulation tasks are performed by the VXT 2000 windowing terminal, significantly decreasing the load on the host system and on the network.

VXT 3270 windows provide functions similar to the following IBM terminal models:

IBM 3178
IBM 3179–G and 3192–G
IBM 3180 models 1–5
IBM 3270
IBM 3270–S3G
IBM 3278 models 1–5

IBM 3279–S3G

Common features supported by the VXT 3270 include

- Active and passive connects

- Protected and unprotected fields

- Alphanumeric and numeric data

- Audible alarm

- Intensified display, normal display, and nondisplay characters

- Alphanumeric cursor (block cursor)

9.2 Before You Start

Before you create a VXT 3270 window, you need the following:

☐ A VXT 3270 software license

☐ A DECnet address for your terminal, displayed in the Terminal Manager window (Section 4.9)

☐ A DECnet name server address entered in the DECnet Name Translator dialog box (Section 4.10)

☐ A gateway name to enter in the Connection Parameters dialog box

☐ An access name to enter in the Connection Parameters dialog box

9.3 Creating a VXT 3270 Session

To create a VXT 3270 session:

1. Display the Create dialog box (Section 2.2.1).

   a. In the Application box, click on the 3270 button.

   b. In the Transport box, click on the DECnet button.

   c. In the Host Name or Address box, enter the name or address of the DECnet host to use for the connection.

   d. Click on the ⬆ button to save your settings in the Preferred Services list.

   e. Click on Start to start the session.

2. Enter connection information in the 3270 TE Enter Connection Parameters dialog box (Section 9.4).

9.4 Entering 3270 TE Connection Parameters

When you create a VXT 3270 session from the Create dialog box, the terminal displays a Connection Parameters dialog box for establishing a connection with an IBM host:

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To connect to an IBM host, you need to specify a gateway name and one of the following:

- An access name

- A PU name and the Wait button

- A PU name and an application name

For example:

1. Click on the Gateway box and enter your gateway name.

2. Click on the Access Name box and enter your access name.

3. Click on the Save button to save your connection parameters for future sessions.

4. Click on the OK button to establish connection with your host.

5. A login box appears. Log in to your host system.

From the Connection Parameters dialog box, you can enter the following settings:

☐ **Gateway**

Identifies the name of the DECnet node that is defined as the host node for the gateway.

Example: `MARKET`

☐ **Access Name**

Identifies the name of the entry in the gateway access name table to use when connecting to the SNA network. Access names are set up on the host DECnet node for the gateway. The name can be 1 to 16 characters from the set of A to Z, 0 to 9, period (.), dollar sign ($), at sign (@), and pound sign (#).

Example: `PAYROLL`

An access name can provide values for the following parameters:

> Application name
> Data
> Logon mode
> PU
> Session address

If you specify these parameters with the Access Name parameter, they override any existing values in the access name table you specified.

☐ **PU Name**

Identifies the name of a particular physical link from the gateway to the IBM host. Ask the gateway manager for the appropriate PU value.

Example: `SNA-1`

☐ **Session Address**

Identifies the IBM session address used to communicate with the IBM host. The gateway manager receives this value from the IBM systems programmer. The value is defined by the LOCADDR operand on the ACF/NCP LU macro or the VTAM LU macro.

The address is a decimal number from 0 to 255. You can specify 0 to let the gateway select the next available session address.

Example: 42

☐ **Application Name**
Identifies the IBM application that will be the primary logical unit (PLU). The gateway manager receives this value from the IBM VTAM programmer. The value is defined in the VTAM APPL statement. The application name can be 1 to 8 characters from the set of A to Z, 0 to 9, period (.), dollar sign ($), at sign (@), and pound sign (#).

Example: CICS

☐ **Logon Mode**
Identifies the name of an entry in the logon mode table defined by the host IBM system. This entry specifies a selected set of SNA protocol parameters. The gateway manager receives this value from the IBM VTAM programmer. The value is defined in the VTAM MODEENT macro. The Logon Mode entry can be 1 to 8 characters from the set of A to Z, 0 to 9, period (.), dollar sign ($), at sign (@), and pound sign (#).

Example: T3279M3

☐ **Data**
Identifies user data to send to the IBM system as part of the logon request. The data can be a string of up to 110 ASCII characters.

Some IBM subsystems use values for the Data parameter at VXT 3270 window startup time to speed the logon process.

Example: JOE

☐ **Authorization Password**
Allows access to secured logical units (LUs). Ask your gateway manager for the value of an authorization password if you need to specify this parameter. It is relevant only if your version of the DECnet/SNA gateway or VMS/SNA Gateway supports LU security. The value can be 1 to 32 characters from the set of A to Z, 0 to 9, period (.), dollar sign ($), at sign (@), and pound sign (#).

Example: 645312

☐ **Terminal Type**
Identifies the IBM display station to emulate. The value can be 3192G (default), 3279S3G, or 3270.

If you specify 3270, the VXT 3270 window emulates a generic 3270 display station. Graphics will not be displayed, and a smaller font and window size may be used. Use 3270 to emulate an IBM Model 4 (43×80 window) terminal or an IBM Model 5 (27×132 window) terminal.

Example: `3192G`

☐ **[No]Wait**
Causes the VXT 3270 window to wait for an IBM application (PLU) to initiate a session. Nowait is the default. The Unformatted Systems Services (USS) window may appear when the session is established, depending on the version of the gateway or VMS/SNA gateway you are using.

Wait does not have a value as the other parameters do. If you use the Wait parameter, you cannot specify values for the following parameters:

Application Name
Data
Logon Mode

9.5 Using the VXT 3270 Window

After you establish a session establish a session with the IBM host, the terminal displays a VXT 3270 TE dialog box. The dialog box provides the work area for your session. This section describes how to use the work area to perform different tasks. The section covers the following major topics:

- Using the VXT 3270 Window Work Area

- Entering Data

- Editing Data

- Printing Text

- Copying and Pasting Text

- Recording and Playing Back Key Sequences

- Using the Numeric Keypad to Enter Numbers

- Saving Current Settings

- Viewing Your Connection Parameters

- Using the MB3 Pop-Up Menu

Chapter 11 describes the basic features of windows and how to use menus.

9.5.1 Using the VXT 3270 Window Work Area

The VXT 3270 work area has two sections — the display area and the operator
information area.

```
┌─────────────────────────────────────────────────────────────────────┐
│                            VXT 3270 TE                                │
├─────────────────────────────────────────────────────────────────────┤
│ File Edit Commands View Options                                       │
│ IESADMSO1                        VSE/SP ONLINE                        │
│                                                                       │
│                                                                       │
│     VVV   VVV     SSSSSSS    EEEEEEEE       **      SSSSSSS   PPPPPPPPP│
│     VVV   VVV  SSS          EE             **    SSS          PP    PP │
│      VVVVVV     SSSSSSS      EEEEE        **       SSSSSSS    PPPPPPPPP │
│       VVVV            SSSS  EE          **              SSSS  PP       │
│        VV      SSSSSSSS     EEEEEEEE   **      SSSSSSSS   PP           │
│       ----------------------------------------------------------      │
│                                                                       │
│           IBM INTERCONNECT VSESP32 INTERACTIVE INTERFACE              │
│                                                                       │
│                                                                       │
│                                                                       │
│          Your terminal is A002 and its name in the network is H02E1101│
│          Today is 04/05/93    To sign on to CICSVSE1  --  enter your: │
│                                                                       │
│          USER-ID........ ____     The name by which the system knows you.│
│          PASSWORD.......           Your confidential access code.     │
│                                                                       │
│       PF1=HELP      2=TUTORIAL   3=TO VM     4=REMOTE APPLICATIONS     │
│                                              10=NEW PASSWORD           │
│                                                                       │
│                                                                       │
│  ──────────────────────────────────────────────────────────────────  │
│                  SysAvl                      Appl                      │
└─────────────────────────────────────────────────────────────────────┘
```

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9.5.2 Working in the Display Area

The display area is where you perform most application-related duties, such as entering data and receiving output. The following sections explain some of the characteristics of the display area.

The window

The VXT 3270 window lets you display different window sizes, which are controlled by the IBM host.

The VXT 3270 window can be unformatted or formatted. An unformatted window has no fields. How you enter data in an unformatted window depends on the application program you are using. Your IBM application program user's guide gives you instructions for using an unformatted window.

A formatted window contains two types of fields:

- **Protected fields** prompt you for required data. You cannot alter or add to the text in a protected field. If you try to enter data in a protected field, the keyboard locks, the terminal bell rings, and the word Inhib appears on the status line. To free the keyboard, press Reset.

- **Unprotected fields** are the spaces where you can enter data. When displaying a formatted window, the program normally places the cursor under the first empty position in an unprotected field. You can enter data until the field is full or use the Tab function to move to the start of the next unprotected field.

The Cursor

The cursor in the display area can take three forms:

- The default **text cursor** is a blinking block. You can use the CrBlnk (Cursor Blinking) parameter to select a nonblinking cursor. See Section 10.2 to use VXT 3270 parameters.

- The **selector mouse cursor** is a small hand with a pointing finger that appears when you use the Selector Mouse function (Section 10.1.4).

- A small **cross cursor** appears for certain graphics applications.

9.5.3 Understanding Operator Information

The operator information area displays status indicators that let you monitor the current status of your session. Table 9–1 lists possible status indicators.

Table 9–1 Status Indicators

Status Indicator	Meaning
Appl	You are in a session with an application program (an LU–LU session).
Ext	You are using the Ext function.
Insert	You are in insert mode.
Inhib	The software suspended input from your keyboard. This occurs when
	— You try to enter data in a protected field
	— You enter the wrong type of data in a field
	— The VXT 3270 window is communicating with the IBM software after you press a key such as Enter
O	You are using the numeric lock override function. This indicator is turned off when you press the NumOvr function again.
P	You are in play mode. A key sequence is being recalled by the Play function.
Print	The contents of your window are being copied to the printer you specified at startup. The indicator remains displayed until the process is complete. The window is refreshed when the process is complete.
R	You are in record mode. A key sequence is being recorded.
SSCP	You are in a session with the IBM control program (an SSCP–LU session).
SysAvl	You are successfully communicating with the IBM system and can initiate transmission. SysAvl turns off while the VXT 3270 window transmits data to the IBM host.
Wait	The IBM system is not available for input.

9.5.4 Entering Data

Unformatted windows

If your IBM application displays an unformatted window, use the FM key to separate entries. Your application guide explains how and when to use this key.

Improper use of some keys causes the keyboard to lock in order to prevent input to protected fields. If the keyboard locks, the Inhib status indicator appears and you cannot use any keys to enter data. Use the Reset function to unlock the keyboard and continue entering data.

Formatted windows

When the IBM application displays a formatted window, enter and edit data in the unprotected fields only. After you fill an unprotected field with data, the application may move the cursor to the start of the next protected or unprotected field. You can also move the cursor by using the arrow keys or the Tab, BckTab, Home, and Newlin functions (Section 10.2).

9.5.5 Editing Data

You can edit data in unprotected fields by typing new data over the old data (normal mode) or inserting new data into partially filled fields (insert mode). You can also use the Delete, ErEof, ErInp, and RubOut functions to change the contents of unprotected fields (Section 10.2).

Using Normal Mode

Normal mode lets you enter new data or edit existing data. When you enter data, the character you type either fills in an empty position or replaces a character previously displayed in that position. The cursor then moves to the next position. Remember that a space or a blank is a character.

Using Insert Mode

Insert mode lets you enter new characters between existing characters in an unprotected field.

Use the Insert function to activate insert mode. Place the cursor under the character where you want to insert text. When you insert text, characters starting from the cursor position move right.

You can insert characters in an unprotected field until it is full. If you try to insert text after the field is full, the keyboard locks, and Inhib is displayed on the Status line. Use the Reset function to exit insert mode and return to normal mode. Insert mode is also ended by any Enter, Clear, PA, or PF function.

_____ **Note** _____

Some fields that appear to have room for more data may contain one or more trailing blank characters that cause the field to fill.

_____

9.5.6 Printing Text

The VXT 3270 Print... function lets you print text from the VXT 3270 window to a printer connected to the terminal's printer port.

To Print from the File Menu

To print the contents of an application window, pull down the File Menu and choose Print. The VXT 3270 window send the text from the active window to the terminal's printer.

9.5.7 Copying and Pasting Text

You can copy and paste text in a VXT 3270 window. You can also copy text from one window and paste the text into another window. To copy and paste text, you use the VXT 3270 window's Edit menu.

From the Edit menu, you can perform the following functions:

Copy
Choosing this item places the currently selected text into the terminal's copy buffer. You can also use the Select All menu item to select the complete window.

Paste
Choosing this item sends the contents of the terminal's copy buffer to the cursor location in the window as if it were typed on the keyboard.

Select All
Choosing this item places all of the window's text into the terminal's copy buffer. You can also use the Copy menu item to place selected text from the window into the copy buffer.

9.5.8 Selecting Text to Copy

You can select text a word, a line, or a block at a time. A block can be a single character or any number of contiguous characters, up to the complete window. You can also use the Select All menu item in the Edit menu to select the complete window.

To select a block of text:

1. Point to the start of the block.

2. Press and hold MB1, then drag the pointer to the end of the block.

3. Release MB1 to indicate the end of the block. The selected text is highlighted.

4. In the Edit menu, click on the Copy menu item.

To select a single word:

1. Point to the word.

2. Double click MB1 to select the word. The selected word is highlighted.

3. In the Edit menu, click on the Copy menu item.

To select a line of text:

1. Point to the line.

2. Triple click MB1 to select the line. The selected line is highlighted.

3. In the Edit menu, click on the Copy menu item.

9.5.9 Pasting Text

After you select text and store it in the copy buffer, you can paste the text to the text cursor location in the same window or in a different window.

To paste text:

1. Place the text cursor where you want to copy the text.

2. Choose the Paste menu item from the Edit menu of the window that will receive the copied text. The terminal copies the text to the cursor position.

9.5.10 Using Quick Copy

The quick copy feature lets you paste text without storing it in the copy buffer or using the Edit menu. There are two ways to perform a quick copy:

Method 1

1. Select the text as described in Section 9.5.8.

2. Place the text cursor where you want to paste the text.

3. Press and release MB2. If you accidentally move the mouse before releasing MB2, method 2 is activated.

You can use this method to copy text from one window to another. Move the input focus to the other window before clicking MB2. To paste into remote DECterm windows, use MB3.

Method 2

1. Place the text cursor where you want to paste the text.

2. Point to the start of the text you want to copy.

3. Press and hold MB2. Drag the pointer to the end of the text to be copied. Release MB2 to copy the selected text to the cursor position.

9.5.11 Extending Your Selected Text

After you select an area of text to copy, you may decide that you wanted to copy a larger area. Before you paste text, you can use the mouse or the arrow keys to extend the area you have selected.

To extend your selection with the mouse:

1. After selecting text with MB1, move the mouse cursor to the position that marks the boundary of the area you would like to have selected.

2. Press the Shift key and click MB1. This extends the initially selected area up to the present position of your mouse cursor.

To extend your selection with the arrow keys:

After selecting text with MB1, press the Shift key and any arrow key to extend your selected text in the direction of the arrow.

9.5.12 Copying and Pasting With the Keyboard Only

If your mouse is not operating, you can use the keyboard to copy and paste text. Table 9–2 lists the keys to use.

Table 9–2 Keyboard Copy and Paste Keys

Press...	To...
Select	Define the starting point for selected text.
Shift Select	Select the range between the starting point and the current cursor position. This sequence also deselects any previous selection.
Shift F8	Toggle between add mode and normal mode. The default mode is normal.
Shift ↑, ↓, →, ←	Extend the current selection.
Ctrl /	Select all.
Ctrl \	Deselect all.
F14	Paste.
Ctrl Insert Here	Do a clipboard copy.
Shift Insert Here	Do a clipboard paste.

9.5.13 Recording and Playing Back Key Sequences

You can save frequently used text and commands, then recall them when needed. The VXT 3270 lets you record up to 127 keystrokes on a PF key, then play them back using the Playback... function.

Recording Key Sequences

To record a key sequence:

1. Pull down the Commands menu and choose Record... to display the Record dialog box.
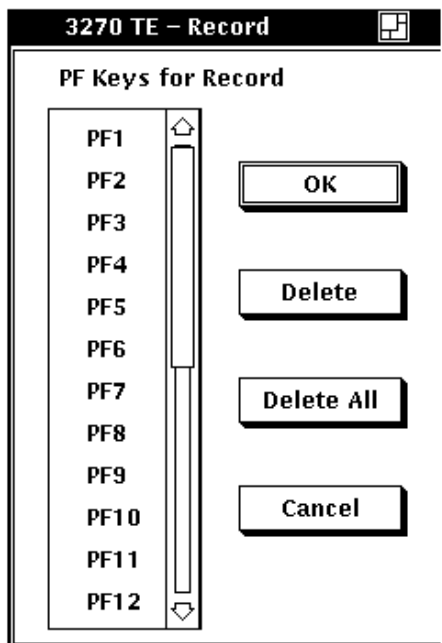
TI–03016–RAGS

2. Click on the PF key that you want to store your key sequence.

3. Click on OK. The window displays an R in the operator information area, and a message box pops up requesting the key sequence.

4. Click on OK to dismiss the message box.

5. Enter the key sequence you want to save.

6. To record your keystrokes, pull down the Commands menu and choose Record... again. Click on OK.

Canceling a Key Sequence While Recording

You can cancel a key recording in progress at any time up until you choose Record Key a second time. To cancel a recording in progress:

1. Pull down the Commands menu and choose Cancel Recording. The Cancel Recording dialog box appears.

2. Click on Yes to cancel the Record function.

Viewing Recorded Key Sequences

To view currently recorded keystrokes:

1. Pull down the View menu and choose Recorded Key Sequences. The Recorded Key Sequences dialog box appears.

2. Click on the PF key that contains the keystrokes you want to see. The key sequence appears. Items enclosed in angle brackets are function keys.

3. Click on the Dismiss button to close the dialog box.

Playing Back Recorded Key Sequences

Before playing back a recorded key sequence, be sure your cursor is at the right place on the application window. If your cursor was in a specific field when you recorded a sequence of text and commands, you must be in the same field for the playback sequence to work properly. To play back a recorded key sequence:

1. Pull down the Commands menu and choose Playback... to see which PF keys have key sequences. The VXT 3270 displays the Playback dialog box.

2. Click on the PF key that stores the keystrokes you want to play back. Then click on OK. The letter P appears in the operator information area while the VXT 3270 plays back the key sequence you have chosen.

9.5.14 Using the Numeric Keypad to Enter Numbers

When you use a VXT 3270 window, the numeric keypad keys have default functions assigned. If you want to use the keypad to enter numbers, pull down the Options menu and select Numeric Keypad. This menu selection is a toggle that lets you switch back and forth between entering numbers and functions.

The toggle indicator next to the Numeric Keypad selection is darkened when the keypad's numeric values are in effect.

9.5.15 Saving Current Settings

To save your current settings, choose Save Current Settings from the Options pull-down menu.

When you save the current settings, the terminal saves the settings in your terminal's resource file for future sessions.

9.5.16 Viewing Settings

The following sections describe how to view

- Keyboard layout maps

- Function list

- Connection parameters

- Field attributes

9.5.17 Viewing Keyboard Layout Maps

Supported Keyboards

The VXT 3270 supports key function definitions and keyboard layout maps for the LK401 keyboard. By default, the VXT 3270 functions map to the LK401-style keyboard, and the LK401 layout is the default keyboard map. This section explains how to enable key function definitions and access keyboard layout maps.

Interpreting Keyboard Layout Maps

The left half of the layout map lists function keys and their functions.

- A shaded key means you press the Ext key then the character key. The Ext key is the period key on the numeric keypad.

- The caret (^) symbol in front of a key means you must press the Ctrl key along with that key to access the associated function.

The top and right area of the layout map shows the functions assigned to keypad keys. For shaded functions, press the Ext key first.

Viewing Your Keyboard Layout Map

To view the keyboard layout map for your LK401 keyboard, pull down the View menu and choose Key Definitions.

9.5.18 Viewing the Function List

Many of the VXT 3270's keys have default function definitions. Section 10.2 provides detailed explanations of VXT 3270 functions and their default mappings. You can redefine these functions so that they more closely match your particular needs. To see how VXT 3270 functions are mapped, you can check the VXT 3270 Function List.

To view the Function List, pull down the View menu and choose the Function List menu item. The 3270 TE Function List dialog box appears. The Function List dialog box displays how functions map to the keys on your keyboard.

If you change any key definitions during a session, those changes are automatically reflected in the function list when you click on the Update button.

The Dismiss button closes the dialog box.

9.5.19 Viewing Your Connection Parameters

You can check current connection parameters at any time by pulling down the View menu and choosing Connection Parameters. The Connection Parameters dialog box appears, showing the parameters as they are currently set. Click on Dismiss when you finish viewing the parameters.

9.5.20 Viewing Field Attributes

Field attributes are characters that appear at the start of a field to indicate how the field displays on the window: at normal intensity, at high intensity, or invisibly. You can display field attributes three ways:

- Choose the Field Attributes menu item from the View menu.

- Choose the View Attributes menu item from the MB3 pop-up menu.

- Define a key to enable or disable the DspAtt function.

Table 9–3 describes the attribute characters.

Table 9–3 Field Attributes

Field Attribute	Meaning
n	Unprotected field with normal intensity
N	Protected field with normal intensity
d	Unprotected field, detectable with a light pen
D	Protected field, detectable with a light pen
h	Unprotected field with high intensity
H	Protected field with high intensity
i	Unprotected nondisplay field
I	Protected nondisplay field

To remove the field attributes from your window, display the MB3 pop-up menu again. The View Attributes selection has a toggle indicator next to it, showing that field attributes are turned on. Choose View Attributes again to turn them off.

9.5.21 Using the MB3 Pop-Up Menu

The MB3 pop-up menu provides you with quick access to certain functions also found on pull-down menus. Table 9–4 lists the MB3 pop-up menu items and their corresponding location on the main menus:

Table 9–4 Quick Access to Functions: MB3 Pop-Up Menu

MB3 Pop-Up Menu	Main Menu
Key Definitions	View menu
View Attributes	View menu
Numeric Keypad	Options menu
Print	File menu
Record...	Commands menu
Playback...	Commands menu
Cancel Recording	Commands menu

9.5.22 Exiting from a VXT 3270 Window

To exit the VXT 3270 window, pull down the File menu and choose Exit. You can also press Ctrl Z to exit your session.

10

Customizing
VXT 3270 Windows

This chapter describes how to customize VXT 3270 windows and use keyboard functions. The chapter covers the following major topics:

- Customizing the VXT 3270 Window
- Using VXT 3270 Keyboard Functions
- Translation Table

10.1 Customizing the VXT 3270 Window

The VXT 3270 window lets you define keys and customize certain display features such as the font size and window title. You can also set the mouse to perform certain light pen functions. This section describes the following topics:

- Customizing Key Definitions
- Saving and Loading Custom Key Definitions
- Modifying VXT 3270 Window Options
- Using the Selector Mouse Function

10.1.1 Customizing Key Definitions

When you use a VXT 3270 window, certain keys perform specific IBM 3270 functions. You can customize key definitions to suit your needs. This section describes how to assign and delete custom key definitions.

Assigning Custom Key Definitions

To assign your own key definitions, pull down the Options menu and choose
the Define Key... menu item. The Define Key dialog box looks like this:
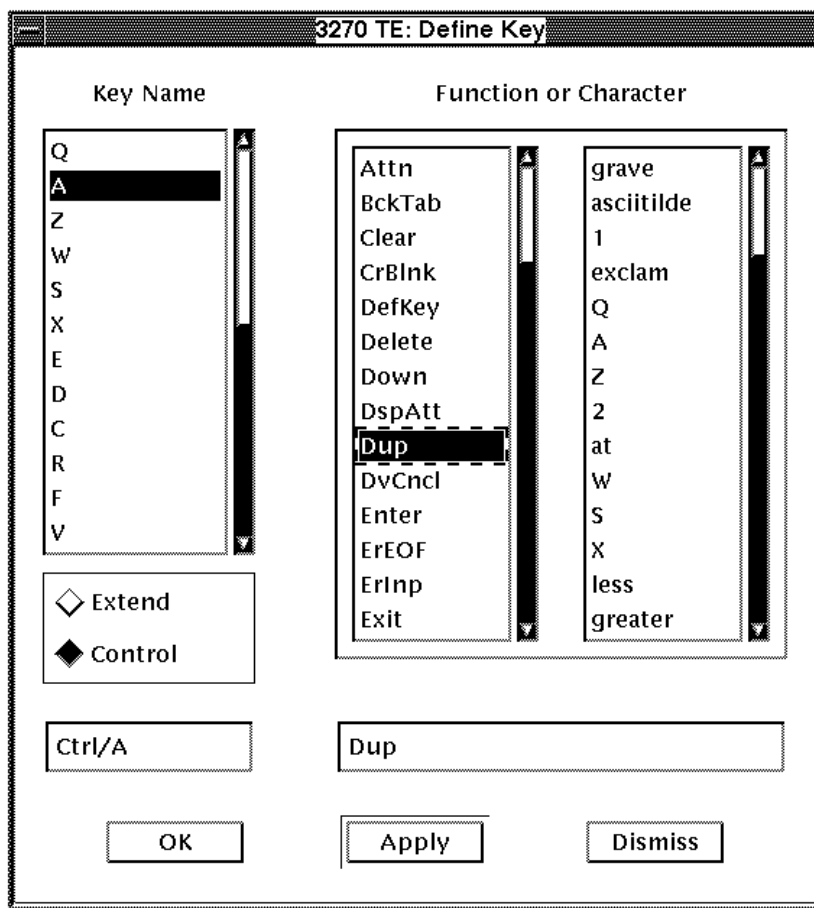
TI–03017–RAGS

This figure shows an example of the Dup function being assigned to the Ctrl Y
key sequence.

To Assign a Key Definitions

1. In the Key Name list box, click on the key you want to define. To define Ctrl
    key or extend+key sequences, click on the Extend or Control option button
    first.

2. The Function or Character box contains a list of functions (left) and characters (right). Click on the name of the function or character that you want to assign to the key you just selected. Click on Apply to assign the function or character to the key.

3. Repeat this procedure to create as many custom key definitions as you want.

4. Click on OK to dismiss the dialog box.

Your new key definitions remain in effect for the current session. to create a permanent file of your key definitions, choose the Save Key Definitions... menu item from the File menu.

Deleting Custom Key Definitions

To delete custom key definitions:

1. Pull down the Options menu and choose Delete Key... to display the Delete Key dialog box.

2. Click on the key whose function you want to delete. Click on the Extend or Control button if you are deleting a Ctrl $\boxed{key}$ or extend+$\boxed{key}$ function.

3. Click on Apply to delete the key definition.

4. Repeat this procedure for each key function you want to delete.

5. Click on OK to dismiss the dialog box.

10.1.2 Saving and Loading Custom Key Definitions

You can save your customized key definitions for future sessions. The terminal loads your saved key definitions when you start a new VXT 3270 window or choose the Last Saved Key Definitions menu item from the File menu. You can also return to the default key definitions at any time.

Saving Key Definitions

To save your customized key definitions:

From the VXT 3270 window, pull down the File menu and choose the Save Key Definitions menu item. Your customized key definitions are saved in the terminal's resource file.

Loading Customized or Default Key Definitions

You can recall the last set of key definitions you saved whenever you need them. You can also recall the system-default key definitions when needed. For example, you may want to use the default key definitions for some tasks, then switch to your customized definitions for other tasks.

To load customized or default key definitions:

1. In the VXT 3270 dialog box, pull down the File menu and choose Load Key Definitions.

2. To use customized keys, choose Last Saved Key Definitions.

   To use system-default keys, choose Default Key Definitions.

   If the definitions cannot be loaded, the session continues with the previous definitions still in use.

10.1.3 Modifying VXT 3270 Window Options

The Window Options dialog box lets you change the font size used in application windows. You can also change the window title and icon name of the VXT 3270 dialog box.

To view the Window Options dialog box, pull down the Options menu and choose the Window... menu item. The Window Options dialog box looks like this:
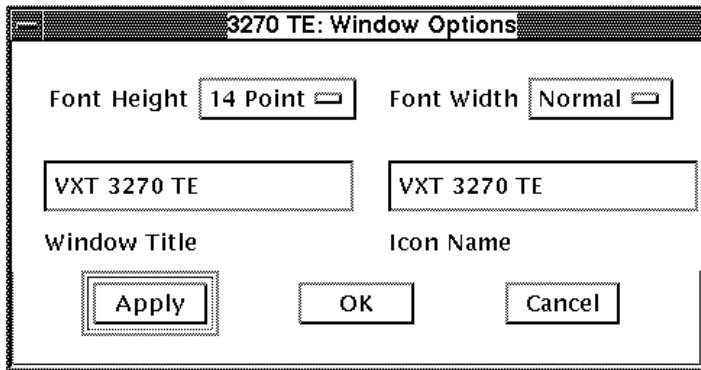
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If you are running in 3270 emulation mode, you can change any of the settings listed in the dialog box. You cannot change the font height in 3279S3G or 3192G emulation mode.

To change the font height or width:

Click on the button in the Font Height or Font Width box to display a pop-up menu of choices.

To change the Window Title or Icon Name:

Click on the Window Title or Icon Name box and enter your text.

To apply your changes, click on Apply.

To apply your choices and dismiss the dialog box, click on OK.

10.1.4 Using the Selector Mouse Function

The Selector Mouse function lets you use your mouse to perform selection and attention operations provided by a selector light pen. When you use Selector Mouse, the mouse pointer appears as a small hand with a pointing finger.

To use the Selector Mouse function, pull down the Options menu and choose Selector Mouse. This menu selection is a toggle switch that lets you go back and forth between Selector Mouse and normal mouse operation. A toggle indicator appears next to the Selector Mouse selection when it is in use.

_____ **Note** _____

You cannot access the MB3 pop-up menu within the display area while you are using the Selector Mouse function. To access the MB3 pop-up menu, move the mouse pointer to the operator information area.

_____

10.2 Using VXT 3270 Keyboard Functions

This section describes available VXT 3270 keyboard functions and the default keys that perform these functions. To customize key functions, see Section 10.1.

The VXT Terminal Manager's Customize Keyboard dialog box contains a Keyboard Type scroll box. The Keyboard Type setting has no effect on the key definitions used in the VXT 3270 window.

Table 10–1 lists default key functions on the standard LK401 ANSI keyboard.

Table 10–1   VXT 3270 Window — Default Key Functions

Function	Default Key or Key Combination
Attn	F19 or Ext+ A
BckTab	F12 or Ctrl H
Clear	Ext+ F20 or Ext+ Enter
CrBlnk	F17

Ext = the period key on the numeric keypad.
KP = keypad.

Table 10–1 (Cont.)   VXT 3270 Window — Default Key Functions

Function	Default Key or Key Combination
Defkey	Ctrl K
Delete	Next Screen
DspAtt	Ext+F17 or Ctrl V
DUP	Ext+F12 or Ext+ *
DvCncl	Ext+Remove
Enter	Do or Enter
ErEof	F18
ErInp	Ext+F18 or Ext+KP -
Exit	F10 or Ctrl Z
Ext	KP .
FM	Ext+F13 or Ext+ ;
Help	Help or Ext+ H
Home	F13 or Ext+ B
Horizontal Control	← and →
Insert	Ext+PF4
Logical NOT	Ext+ N
Logical OR	Ext+ O
Newlin	Return or Ctrl M
NumOvr	Remove or Ext+ J
PA1	PF4
PA2	KP -
PA3	KP ,
PF1	PF1
PF2	PF2
PF3	PF3
PF4	KP 7
PF5	KP 8
PF6	KP 9

Ext = the period key on the numeric keypad.
KP = keypad.

(continued on next page)

Table 10–1 (Cont.)   VXT 3270 Window — Default Key Functions

Function	Default Key or Key Combination
PF7	KP 4
PF8	KP 5
PF9	KP 6
PF10	KP 1
PF11	KP 2
PF12	KP 3
PF13	Ext+ PF1
PF14	Ext+ PF2
PF15	Ext+ PF3
PF16	Ext+KP 7
PF17	Ext+KP 8
PF18	Ext+KP 9
PF19	Ext+KP 4
PF20	Ext+KP 5
PF21	Ext+KP 6
PF22	Ext+KP 1
PF23	Ext+KP 2
PF24	Ext+KP 3
Play	Insert Here
Print	F11 or Ext+ P
Record	Ext+ Insert Here
Reset	KP 0
RubOut	<X|
Save	Ext+ V
Select	Ext+ Select
SelTab	Prev Screen
SysReq	Ext+ F19
Tab	Tab

Ext = the period key on the numeric keypad.
KP = keypad.

(continued on next page)

Table 10–1 (Cont.)   VXT 3270 Window — Default Key Functions

Function	Default Key or Key Combination
Vertical Control	$\boxed{\downarrow}$ and $\boxed{\uparrow}$
Warp	Ext+$\boxed{\text{w}}$

Ext = the period key on the numeric keypad.
KP = keypad.

If the Keyboard Is Locked

Improper use of some keys causes the keyboard to lock. For example, if you try to enter data in a protected field, the keyboard may lock. If the keyboard locks, the status indicator Inhib appears, and you cannot use any keys to enter data. Use the Reset function to unlock the keyboard and resume using it.

If you need additional information about the VXT 3270 window key functions, refer to these IBM documents:

- *IBM 3270 Information Display System*

- *IBM 3270 Information Display System: Operator's Guide*

- *IBM 3270 Information Display System: 3278 Display Station Operator's Guide*

- *IBM 3179-G/3192-G Color Graphics Display Station Description*

10.2.1 Key Functions Defined

Attn

The Attn function requests the attention of the IBM application program that you are running. Attn sends an SNA SIGNAL command to the IBM application. See your application's user guide to determine the program's response.

BckTab

The BckTab function moves the cursor backward.

In a formatted window, the cursor moves to the beginning of the unprotected field it is in or to the beginning of the preceding unprotected field. If the cursor is in the first position of the first unprotected field, the cursor moves to the first position of the last unprotected field in the window.

In an unformatted window, the cursor returns to the first position on the window.

Clear

The Clear function clears the window contents and moves the cursor to the first position in the window. When you use Clear, the software notifies the application that this function is being used.

Crblnk

The CrBlnk function lets you turn cursor blinking on and off. By default, the cursor blinks.

Defkey

The Defkey function lets you define keys during an active session. When you use Defkey, the terminal displays the Define Key dialog box.

Delete

The Delete function deletes the character at the cursor position. The cursor remains where it is, and characters to the right of the cursor in the same field move one position to the left. The end of the field fills with null characters.

DspAtt

The DspAtt (display attributes) function turns visible attribute mode on and off. You use this mode of operation to display the field attribute characters at the beginning of fields (Table 9–3).

DUP

The DUP (duplicate) function lets you enter the same value in the same field on different forms without having to repeat the entry for each form. After entering the value in the first form, use DUP when you come to the same field on other forms. The application fills these fields with the same value. See your application's user guide for details on using the DUP function.

When you use the DUP function, the window displays an asterisk (∗).

DvCncl

The DvCncl (device cancel) function lets you cancel a Record function at any point.

Enter

The Enter function sends the data you type to the application running on the IBM host. While data is being sent, the keyboard locks and the window displays the Inhib status indicator Inhib. Usually, the application releases the keyboard after it finishes processing your data.

ErEof

The ErEof (erase to end of field) function erases the contents of the current field, from the cursor to the end of the field. The cursor remains in the same location.

ErInp

In formatted windows, the ErInp (erase input) function clears all data in unprotected fields and moves the cursor to the first position in the first unprotected field.

In unformatted windows, ErInp clear all data and moves the cursor to the first position in the window.

You can use Record + ErInp to remove all recorded key sequences.

Exit

The Exit function exits the VXT 3270 window. Communications with the IBM host ends, including any data exchange in progress.

Ext

The Ext (extended function) key lets you access the second function of another key. You press Ext, then press the other key. The Ext key is the period key on the numeric keypad.

When you press Ext, the window displays the Ext status indicator.

_____ **Note** _____

If you press Ext accidentally, you can press Reset to cancel its effect.

_____

FM

The FM (field mark) function marks the end of a field on an unformatted window or the end of part of an unprotected field on a formatted window. See your application's user guide for specific uses.

When you use FM, your window displays a semicolon (;).

Help

The Help function displays your current keyboard layout. This function is identical to the Keyboard Layout selection on the View menu.

Home

The Home function repositions the cursor to the first position in the first unprotected field on the window.

Left and Right Arrow Keys

The ⬅ and ➡ keys let you move the cursor to the left or right without changing data you have already entered.

If you use the ➡ key when the cursor is at the end of a line, the cursor automatically moves down to the start of the next line.

If you use the ⬅ key when the cursor is at the beginning of a line, the cursor automatically moves up to the end of the previous line.

Insert

The Insert function enables Insert mode, which lets you edit data by entering new characters between existing characters in an unprotected field (Section 9.5.4). When you use Insert, the window displays the Insert status indicator.

Use Reset to return your window to Normal mode. Using any Clear, Enter, PA, or PF function also returns your window to Normal mode.

If the keyboard locks when you try to insert characters into a field that looks empty, there may be trailing spaces in that field. Use the ErEof function to erase these spaces.

Logical NOT

The use of the Logical NOT function is controlled by the IBM application.

Logical OR

The vertical bar (|) represents the IBM symbol for a Logical OR. The use of the Logical OR is controlled by the IBM application.

Newlin

The Newlin (new line) function moves the cursor to the first unprotected position on the next line of your window. If there are no unprotected fields on the window, the cursor moves to the first location in the window. If the window has no fields, the cursor moves to the beginning of the next line.

NumOvr

The NumOvr (numeric lock override) function is a toggle switch that lets you enter nonnumeric characters into numeric fields. When you use NumOvr, the window displays the O status indicator.

PA1 to PA3

The program access keys PA1 to PA3 are defined by the application you are using. These keys request attention from the IBM application without sending any data. See your application's user guide for the function of these keys.

PF1 to PF24

The program function keys PF1 to PF24 are defined by the application you are using. They request attention from the application and send the data entered to the host. The PF keys are coded by the application to perform related application functions. See your application's user guide for PF key assignments.

Play

The Play function lets you recall text and commands that you stored in a PF key by using the Record function. To recall a sequence, press the Play key followed by the PF key that stores the sequence. The Play function executes any commands included in the sequence.

When you use the Play function, the window displays the P status indicator.

Print

Use Print to send the contents of your window to the terminal's printer. For more information, see Section 9.5.6. When you use Print, the window displays the Print status indicator.

Record

Use Record to store a keystroke sequence in a specific PF key. Press Record, choose a PF key, enter the keystroke sequence, then press Record again. You can save a up to 127 keystrokes on a PF key. When you use the Record function, the window displays the R status indicator R.

You cannot record the following functions as a part of your keystroke sequence:

- Defkey
- DvCncl
- Play
- Record
- Save
- SysReq

To recall the keystroke sequence, use the Play function.

To cancel a Record function in progress, use the DvCncl function.

To erase all previously recorded sequences, use Record + ErInp.

You can also record keystrokes by using the Record Keys selection from the MB3 pop-up menu (Section 9.5.13).

Reset

Use Reset to return your keyboard to Normal mode after using Insert mode. Also,

You can also use Reset to unlock the keyboard if you tried to enter data into a protected or a full field, or you tried to enter the wrong type of data into a field.

Reset removes the Inhib status indicator. The cursor remains where it is and the window remains unchanged.

RubOut

The RubOut function erases the character to the left of the cursor and moves the cursor to that position.

Save

The Save function lets you save any key definitions you have redefined during a session.

Select

The Select function lets you choose items from a menu, table, or list, then notify the application of your selection. Use the vertical and horizontal control keys to place the cursor on the field designator character, then use Select. See the appropriate IBM manual for more information.

SelTab

The SelTab function repositions the cursor to the first character position of the next select-key detectable field (protected or unprotected) with a designator character. SelTab works the same as the IBM Selectable Field Tab key. See the appropriate IBM manual for more information.

SysReq

The SysReq (System Request) function lets you shift between the application program (LU-LU session) and the control program (SSCP-LU session). When you are in an LU–LU session, the window displays the Appl indicator. When you are in the SSCP–LU session, the window displays an SSCP indicator. The window in your LU-LU session is refreshed when you return to it by using SysReq.

Tab

The Tab function moves the cursor to the first character location of the next unprotected field on your window. If the window has no fields, Tab moves the cursor to the first location on the window.

If you press Tab when the cursor is within the last unprotected field in the window, the cursor moves to the first position of the first unprotected field on the window.

Up and Down Arrow Keys

The ↑ and ↓ keys let you move the cursor up or down on your window without altering data already entered.

If you use the ↑ key when the cursor is at the top of the window, the cursor moves to the same column at the bottom of the window.

If you use the ↓ key when the cursor is at the bottom of the window, the cursor moves to the same column at the top of the window.

Warp

By default, the VXT 3270 supports warping. When using certain applications, the mouse pointer shifts (or warps) to a new position on the window. You can use the Warp function to turn warping on or off.

10.3 Translation Table

The VXT 3270's built-in translation table contains a modified version of the ISO-Latin character set, meant mainly for use in North America. The ISO-Latin to Extended Binary Coded Decimal Interchange Code (EBCDIC) table translates the ISO-Latin characters you generate to the EBCDIC characters that your IBM application uses. The EBCDIC to ISO-Latin table then translates the EBCDIC characters generated by the IBM application back into the appropriate ISO-Latin characters.

The following figure shows the left and right halves of the 8-bit code table for the modified ISO-Latin character set. To determine the hexadecimal code for the character you want, locate the character and then combine the number or letter in its row with the number or letter in its column. For example, the letter A is represented by the hexadecimal code 41.

Customizing VXT 3270 Windows
10.3 Translation Table

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0																
1																
2		!	"	#	$	%	&	'	(	)	*	+	,	–	.	/
3	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6	'	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
7	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
8	▓	f	=	─												
9																
A		¡	¢	£	¤	¥	¦	§	¨	©	ª	«	¬	-	®	‾
B	°	±	²	³	´	µ	¶	·	¸	¹	º	»	¼	½	¾	¿
C	À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï
D	Ð	Ñ	Ò	Ó	Ô	Õ	Ö	×	Ø	Ù	Ú	Û	Ü	Ý	Þ	ß
E	à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï
F	ð	ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û	ü	ý	þ	ÿ

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11
Using Windows

This chapter describes how to use windows, menus, dialog boxes, and window icons on your terminal.

The chapter covers the following major topics:

- Using the Mouse
- Working with Windows
- The Window Menu
- Choosing Items from Pull-Down Menus
- Supplying Information in Dialog Boxes
- Using Scroll Bars

11.1 Using the Mouse

When you work with windowing applications, you use your mouse to perform many operations—from making menu selections to manipulating windows on the screen. Your mouse lets you move quickly through windowing applications. When you roll the mouse across your mouse pad, you move the pointer on the screen. If you run out of space on the pad, you can pick up and move the mouse without moving the pointer.

The mouse has three buttons:

MB1 (mouse button 1) on the left
MB2 in the middle
MB3 on the right

This button arrangement normally suits right-handed users. If you are left-handed, you can reverse the position of MB1 and MB3 by changing the **Button Arrangement** setting in the Customize Pointer dialog box (Chapter 3).

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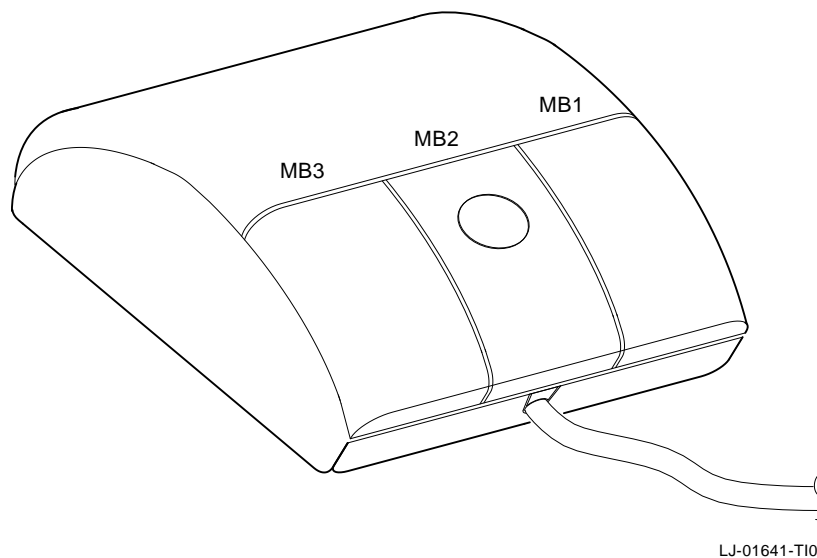
You can perform six basic actions with the mouse.

Point	Move the mouse across the mouse pad until the pointer is where you want the next action to occur.
Click	Quickly press and release MB1. You should hear and feel a faint click.
Press	Point to a menu name, scroll bar, or other action item that you want to perform. Without moving the mouse, press and hold MB1.
Drag	Point to an object, such as a window outline. Press and hold MB1 (or MB2), move the pointer to drag the object, then release MB1.
Double click	Point to an object and click MB1 twice in quick succession.
Shift click	Point to an object. Press and hold the Shift key and click MB1. Then release the Shift key.

You will get a chance to practice these movements when you open your first session.

Using the Keyboard Instead of the Mouse

If you prefer, you can use your keyboard to navigate through windows, display menus, and make selections from menus and dialog boxes. See Section 15.5 for a list of keyboard commands.

11.1.1 Pointer Shapes

Usually the pointer is an arrow, but you can choose a different shape. (See Section 3.5.) The pointer also changes shape when you perform certain actions, to reflect the type of action or state of the action. For example, the pointer may become an hourglass or a wristwatch to indicate a working action is in progress.

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11.2 Working with Windows

This section describes the basic techniques for manipulating windows:

- What Are Windows?
- Selecting the Active Window
- Moving Windows
- Changing the Size of Windows
- Reducing Windows to Icons
- Raising and Lowering Stacked Windows

You can also perform many of these functions from the window menu. See Section 11.3.

11.2.1 What Are Windows?

A window is an area on your screen that represents all or part of an application. You can use windows to view several applications at once. You can move windows on the screen, organizing information for easier use. The VXT DECterm window is one of several windows available on your terminal.
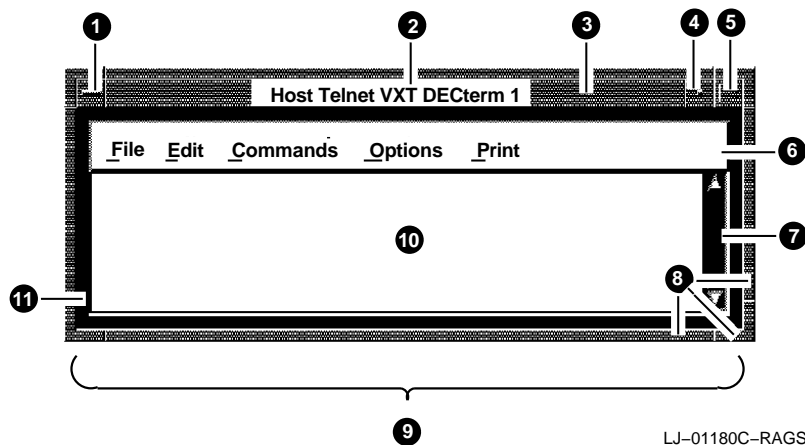
LJ–01180C–RAGS

❶ The **window menu button** displays a window menu that lets you perform common window management functions.

❷ The **window title** identifies the function of a window. For a main window, it usually contains the name of the application. For a dialog box, it may also contain specific information about the use of the window.

❸ The **title bar** includes the window title and is used for moving the window on the screen.

❹ The **minimize button** lets you shrink a window to an icon. An **icon** is a small graphic representation of the window.

❺ The **maximize button** is a toggle button that lets you enlarge a window to its maximum size or return it to its normal size.

❻ The **menu bar** contains pull-down menus for the application's commands. You can display the menus and choose menu items.

❼ The **scroll bar** at the right allows you to view text or graphics that do not fit in the window.

❽ The **resize border** surrounds an application window and lets you resize the application's window.

❾ The **window frame** includes the resize border and title bar.

❿ The **work area** displays the application's text and graphics.

⓫ The **matte** is an optional decorative border between the window frame and the work area.

11.2.2 Selecting the Active Window

The terminal lets you open several windows on the screen. When you have several windows open at one time, you give **input focus** to a window by selecting it. Only one window can have input focus at a time. Input focus activates the window, allowing you to enter information in the window from your keyboard or mouse.

To select a window:

1. Point to any location in the window or its title bar.

2. Click MB1.

The window's title bar and frame is highlighted to indicate it has input focus. Any text you type appears in this window, if your application allows text entry. When you select another window, the first window's title bar and frame is no longer highlighted.

Window With Input Focus

—	**Host Telnet VXT DECterm 1**	
File **Edit** **Commands** **Options** **Print**		
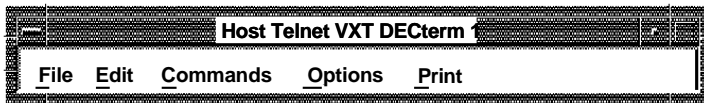
Window Without Input Focus

—	**Host Telnet VXT DECterm 1**	
File **Edit** **Commands** **Options** **Print**		
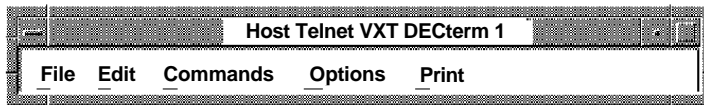
LJ–01221C–RAGS

Optional Method: You can also set the terminal to make a window active simply by moving the pointer into the window. See Section 12.3.

11.2.3 Moving Windows

When you display several windows, they may overlap one another on the screen. You can rearrange the windows to make them visible.

Title Bar

Host Telnet VXT DECterm 1

File   Edit   Commands   Options   Print

LJ–01122C–RAGS
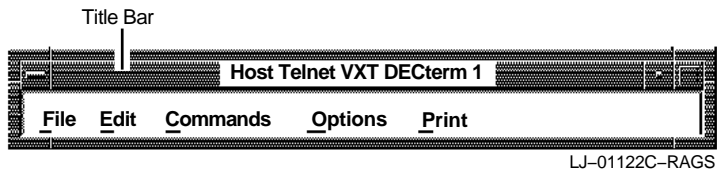
To move a window by the title bar:

1. Point to the window's title bar.

2. Press and hold MB1. The pointer changes to a cross, and an outline of the window is displayed.

3. While holding MB1, drag the outline to the new location.

4. Release MB1. The window moves to the new location.

11.2.4 Changing the Size of Windows

You can make windows larger, to display more information. You can also make windows smaller, so you can view more applications.

There are three ways to change the size of your windows.

*   Window frame

*   Maximize button

*   Window menu

To use the window menu, see Section 11.3.

Window Frame   Maximize Button

Host Telnet VXT DECterm 1

File   Edit   Commands   Options   Print

LJ–01123C–RAGS
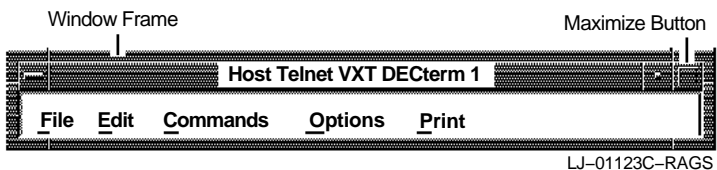
To make a window larger or smaller:

1. Point to a location on the window's frame. Depending on the location chosen, the pointer changes to a **resize cursor**.
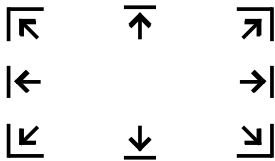
ZK–3572A–GE

2. Press and hold MB1. An outline of the window is displayed.

3. While holding MB1, drag the window outline to make the window the size you want. You can move vertically, horizontally, or diagonally to change one or both dimensions of the window in any direction. The window outline changes size as you move.

4. Release MB1. The size of the window changes to the outline size.

To maximize the size of a window:

You can enlarge a window to cover the entire screen by using the maximize button.

1. Point to the window's maximize button.

2. Click MB1. The window expands to fill the entire screen.

Pressing the maximize button again returns the window to its normal size.

11.2.5 Reducing Windows to Icons

You can reduce a window to an icon by using the minimize button. Minimizing a window frees up space on your screen to run other applications. The application represented by the icon continues to run in memory and remains easily accessible.

Minimize Button

Host Telnet VXT DECterm 1

File   Edit   Commands   Options   Print

LJ–01639C–RAGS
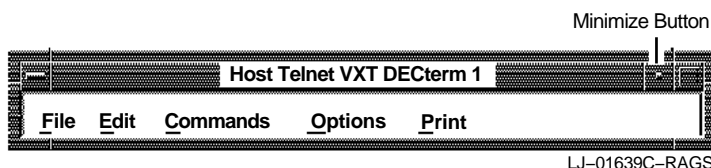
To reduce a window to an icon:

1. Point to the window's minimize button.

2. Click MB1. The window closes, and its icon is displayed at the lower right of the screen.

To restore a window from an icon:

1. Point to the icon on the screen.

2. Double click MB1. The window is restored at the position where it was minimized.

To rearrange icons in the lower-right portion of the screen:

1. Point to the icon.

2. Press and hold MB1. A moving pointer and outline is displayed.

3. While holding MB1, drag the icon to the new location. The outline follows the moving pointer, showing where the icon will be repositioned.

4. Release MB1. The icon moves to the new location.

11.2.6 Raising and Lowering Stacked Windows

When windows overlap, you can view partially concealed windows by changing their stacking order rather than moving windows around on the screen.

You can raise a window to the top of the stack by clicking on any visible portion of the lower window. Clicking on the window also gives it input focus.

You can also lower the top window to the bottom of the stack by using the window menu.

11.3 The Window Menu

The window menu provides another method for performing window management commands, such as sizing, moving, and stacking windows. To display the window menu, click on the window menu button at the left corner of the title bar.

You can also display the window menu by clicking on MB3 in the window border.

Window Menu Button

	Host Telnet VXT DECterm 1		
Restore	Alt+F5	Options	Print
Move	**Alt+F7**		
Size	**Alt+F8**		
Minimize	**Alt+F9**		
Maximize	**Alt+F10**		
Lower	**Alt+F3**		
Workspace	▷		
Close	**Alt+F4**		
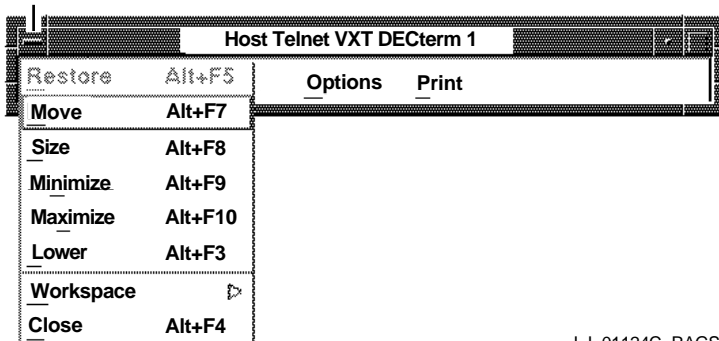
LJ–01124C–RAGS

From the window menu, you can choose the following menu items. Some items may not apply to a particular window.

Restore

To restore a window from an icon:

1. Point to the window's icon at the lower right of the screen.

2. Click MB1. The window menu is displayed.

3. Choose the Restore menu item. The window is restored at the position where it was minimized.

Move

When you choose the Move menu item, a moving pointer and outline of the window is displayed. To move the window:

1. Move the window outline to the new location.

2. Click MB1. The window moves to the new location.

Size

When you choose the Size menu item, a moving pointer and window outline are displayed. To resize the window:

1. Move the pointer vertically, horizontally, or diagonally until the window outline is the desired size.

2. Click MB1. The window size changes to the new size.

Minimize

When you choose the Minimize menu item, the window closes and its icon appears at the lower right of the screen.

Maximize

When you choose the Maximize menu item, the window expands to fill the entire screen.

Lower

When you choose the Lower menu item, you lower the top window to the bottom of the stack.

Workspace

The Workspace menu item provides access to a submenu with more choices for stacking windows and icons. See Section 11.3.1.

Close

When you choose the Close menu item, the window closes.

11.3.1 Using the Workspace Submenu

The workspace submenu lets you control the stacking order of your windows and icons. You can also access the Options submenu to customize window features. After you customize features, you can save your settings by restarting the window manager from the workspace submenu.

To view the workspace submenu:

1. Click on the window menu button to display the window menu.

2. Click on the Workspace menu item to display the workspace submenu.
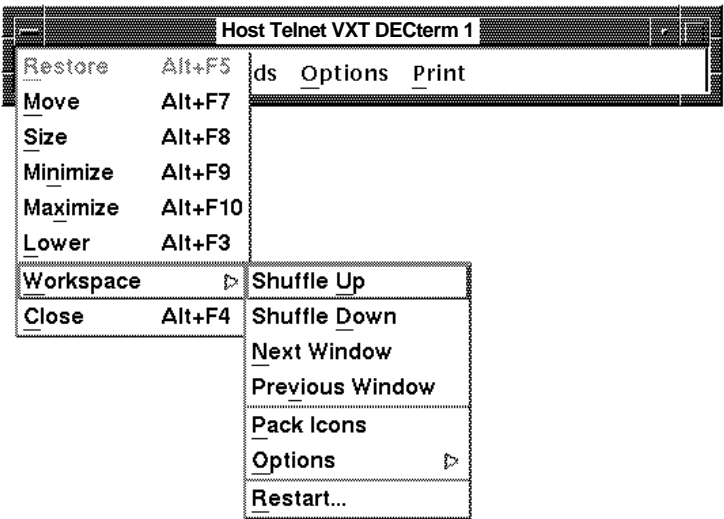
LJ–01125B–RAGS

You can also display this menu as a pop-up menu, by clicking on MB1 (for left-handed buttons) or MB3 (for right-handed buttons) in the screen background.

From the workspace submenu you can choose any of the following menu items:

Shuffle Up

The Shuffle Up menu item lets you move the bottom window to the top of the stack, giving that window input focus.

Shuffle Down

The Shuffle Down menu item lets you move the top window to the bottom of the stack.

Shuffle Up and Shuffle Down are useful for uncovering small windows that are completely concealed by larger windows.

Next Window

The Next Window menu item gives input focus to the next window in the stack.

Previous Window

The Previous Window menu item gives input focus to the previous window in the stack.

Pack Icons

The Pack Icons menu item lets you stack the icons in order at the lower right of the screen.

Options

The Options menu item lets you display a submenu with items for checking and controlling the settings for many of the window manager's features. Chapter 12 describes the options submenu.

Restart...

The Restart... menu item lets you save your window manager settings and restart the window manager. When you choose the Restart... menu item, the terminal displays a confirmation box. Chapter 12 further describes the Restart menu item.

11.4 Working With Menus

Menus display a list of related items that you can choose from. Some menu items perform actions, while others display screens with more information to choose from, such as dialog boxes. The terminal's windows use three types of menus:

- Pull-down menus

- Pop-up menus

- Options menus

Using the Keyboard to Choose Menus and Menu Items

If you prefer, you can perform menu actions from the keyboard, without using a mouse. There are three methods:

- Each menu name and menu item has an underlined letter, called a **mnemonic**. To display a menu or activate a menu item, you can press the ⟨Alt⟩ key and the underlined letter on the keyboard at the same time. A menu remains displayed after you release the keys. You can then use the arrow keys to move to different menu items and menus.

- Some menu items in the Window Manager window menu list an **accelerator** key sequence on the right. You can use the accelerator key sequence to perform that menu function. You do not have to display the menu to perform the function.

- You can use the arrow keys to move the pointer around the screen. Press ⟨Shift⟩ ⟨Ctrl⟩ ⟨F3⟩ to turn this feature on or off. You can use the following keys to perform mouse functions:

⟨Select⟩	MB1
⟨Prev⟩	MB2
⟨Next⟩	MB3

For more key sequences, see Section 15.5.

11.4.1 Choosing Items from Pull-Down Menus

The menu bar of a window lists the names of menus for that application.

To display a pull-down menu:

Point to the menu name, then click on MB1. The menu remains displayed until you choose a menu item or click MB1 outside the menu.

Here is an example of a pull-down menu:
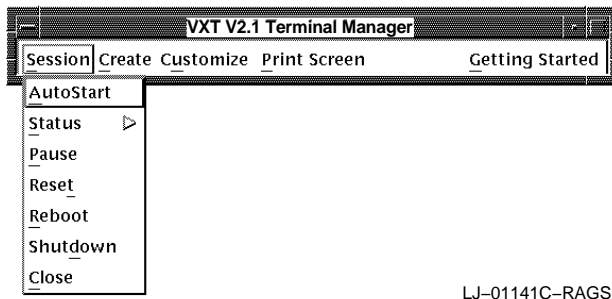
LJ–01141C–RAGS

Some pull-down menus list commands. Others list the names of items you can work with.

If a menu item is followed by three periods (...), choosing that item displays a dialog box. If a menu item is followed by an arrowhead (▷) , choosing that item displays a submenu.

To choose an item from a pull-down menu:

1. On the menu bar, point to the name of the menu you want to display.

2. Click MB1 to pull down the menu.

3. Move the pointer to the menu item you want.

4. Click MB1 to choose the menu item.

If you change your mind while looking at a pull-down menu, drag the pointer outside the menu and release MB1. The menu disappears, and no action is taken.

11.4.2 Choosing Items from Pop-Up Menus

Pop-up menus provide quick access to functions that are also available on pull-down menus.

The terminal provides a pop-up Workspace menu (Chapter 12) for managing windows and a pop-up VXT Create menu (Section 2.2.8) for quickly starting sessions. To display the Workspace menu, click and hold MB1 anywhere on the screen background outside windows. To display the VXT Create menu, click and hold MB2 anywhere on the screen background. Here is a sample VXT Create pop-up menu:

```
┌─────────────────────────────┐
│         VXT Create          │
├─────────────────────────────┤
│  DECnet 3270                │
│  Message Box                │
│  Terminal Manager           │
│  LAT X Session mynode       │
└─────────────────────────────┘
```
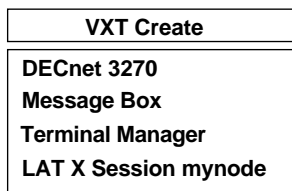
LJ–03020–RAGS

Some host applications you use may also provide pop-up menus within their window. In most cases, you click and hold MB1 within the window area to display the pop-up menu.

To choose items from pop-up menus:

1. While holding the designated mouse button down, drag the pointer to the menu item you want.

2. Release the mouse button.

   If you decide not to choose an item, drag the pointer outside the menu before releasing the mouse button.

11.4.3 Choosing Items from Options Menus in Dialog Boxes

An options menu is a type of pop-up menu used in dialog boxes. The dialog box displays the current selection from the menu.

To display an options menu and choose a new setting:

1. Press and hold MB1 on the current option, to display the menu.

2. Drag the pointer to the setting you want.

3. Release MB1. The dialog box now displays your new setting.

   If you decide not to make a change, drag the pointer outside the menu and release MB1.

11.5 Supplying Information in Dialog Boxes

Windowing applications display a dialog box when they need more information from you to carry out a task. Dialog boxes are like forms, offering various ways to supply information. In some dialog boxes, you need to enter text. In others, you click MB1 on a button to change a setting. Some dialog boxes display settings you chose earlier.
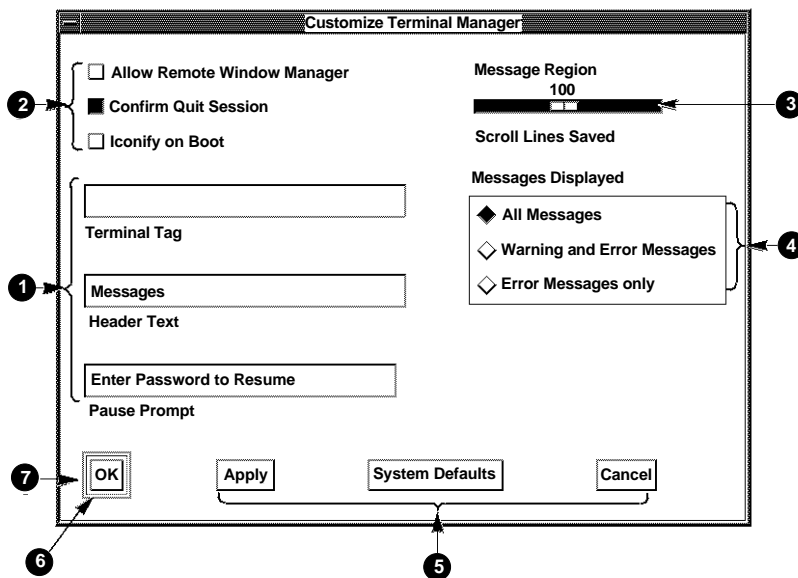
LJ–01640A–RAGS

❶	Text-entry box	Clicking on a text-entry box allows you to enter text from the keyboard into the box. When you click on the box, it receives input focus and displays a blinking text input cursor (I).
		What you type appears to the left of the cursor. When editing text entries, if you use an arrow key or other key to move the cursor back and forth in the text, a caret symbol (∧) appears as a placemarker at the point where you started moving the cursor.
		Use the ⊠ key to delete typing mistakes. Use the ← and → keys to move within the text. Password text-entry boxes do not display a text cursor.
		If a dialog box has more than one text-entry box, you can move between boxes by

- Clicking MB1 on the box you want

- Pressing Tab to advance to the next box in the window

❷	Check buttons	Clicking on a square check button turns a setting on or off.

❸	Scales	You use scales to select a numeric value from a range of settings. You drag a slider in the scale. The arrow in the slider points to the current value.
❹	Radio buttons	Clicking on a diamond-shaped radio button selects that option from a group of options.
❺	Push buttons	Clicking on a rectangular push button (such as OK, Apply, Cancel, or System Defaults) tells an application what to do with the information you supplied in the dialog box.
❻	Default push buttons	A button with a second border is the default action for a dialog box. On a color terminal, the border area looks recessed. Default actions are those that you choose most frequently. Usually, the OK button is the default action for a dialog box. You can also choose the default action by pressing the Return key.
❼	Push buttons with input focus	A default button with a third border has input focus. Input focus means that keyboard input is connected to the push button. You can change the input focus by clicking on another element in the dialog box. When you open a dialog box, the OK button usually has input focus.
		When you enter a dialog box that has a text field, the OK button is the default option but does not have input focus. In some dialog boxes, the default action may change from the OK button to another button after you start using the dialog box.

11.5.1 Dimmed Items in Menus and Dialog Boxes

If a menu item, button, or text-entry box is dimmed, you cannot currently use that item. There are several reasons why an item may be dimmed:

• You must perform some other action before you can choose the item.

• Your VXT manager has configured your terminal so that item is not selectable.

11.5.2 Moving and Changing Settings in a Dialog Box

Here are the methods for moving among text-entry boxes and for changing text entries, button settings, and scales in a dialog box.

Moving

To move . . .	Do this . . .
Forward among text-entry boxes.	Press Tab or click MB1 on the box.
Backward among text-entry boxes.	Press Shift Tab, or click MB1 on the box.

To move . . .	Do this . . .
The cursor in a text-entry box	Point to where you want to insert text and press MB1, or use the $\leftarrow$ or $\rightarrow$ keys.

Changing

To . . .	Do this . . .
Change a radio or check button setting.	Point to the button and click MB1.
Change the numeric value on a scale.	Drag the slider left or right on the scale, or point to a location on the scale and click MB1.

11.6 Using Scroll Bars

Some windows have **scroll bars** that let you view text or graphics that do not fit in the window. A scroll bar has **stepping arrows** at either end of the **scroll region**. The **slider** represents your relative position in the list or file. If the slider is at the top of the scroll region, the beginning of the list is visible. If the slider is at the bottom of the scroll region, the end of the list is visible.
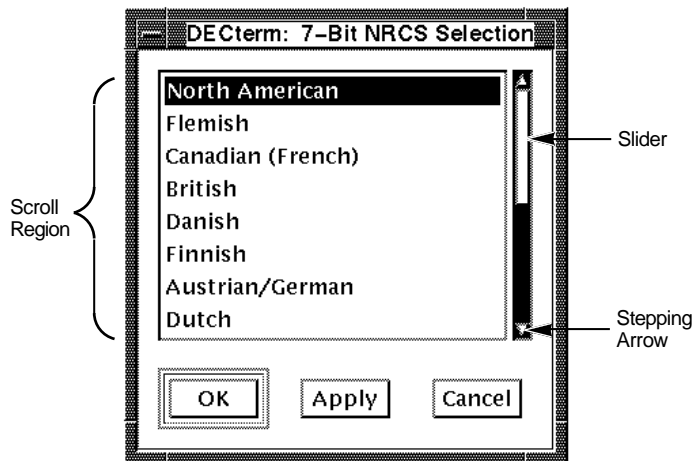
LJ–01637–RAGS

The size of the slider tells you how much of the list the window is displaying. If the slider is as large as the scroll region, the complete list is displayed. If the slider is small, only part of the list is displayed. The smaller the slider, the larger the list.

Using scroll bars: You can scroll a line at a time, a window at a time, or to a selected point.

To scroll this way . . .	Do this . . .
One line at a time.	Click MB1 on the stepping arrow at either end of the scroll bar.
Forward one window of text at a time.	Point to the scroll region below the slider and click MB1.
Backward one window of text at a time.	Point to the scroll region above the slider and click MB1.
Continuously, one line at a time.	Press and hold MB1 on the stepping arrow at either end of the scroll bar.
Continuously, one window of text at a time.	Press and hold MB1 in the scroll region.
To another location in the list or file.	Drag the slider to a point in the scroll region that you think corresponds to the location you want to see. For example, if the slider is at the top of the scroll region, you are viewing the beginning of the list or file.
	To cancel the drag, click another mouse button before releasing MB1.

12

Customizing Windows

This chapter describes how to customize many of the window manager's features, using an Options submenu in the workspace area. The Options submenu lets you check and control the settings for many window features—from window borders and icons to the way windows become active on the screen. Initially, the features use factory-default settings that work with many host systems. You can make changes to suit your personal preference and computing environment. After you make changes, you can save your settings for all future sessions.

This chapter describes the tasks you can perform from the Options submenu:

- Displaying the Options Submenu
- Saving and Restoring Window Option Settings
- Changing Your Workspace Settings
- Changing Your Border Settings
- Changing Your Border Color Settings
- Changing Your Icon Settings
- Changing Your Icon Color Settings
- Changing Your Matte Settings
- Changing Menu, Button, and Key Bindings

The chapter describes how to use the Options submenu from the workspace area. You can also display the Options submenu from the window menu button. Display the window menu and choose the Workspace menu item. Then choose the Options menu item from the Workspace submenu.

12.1 Displaying the Options Submenu

To display the Options submenu:

1. Click and hold MB1 anywhere on the screen's workspace. The workspace submenu is displayed.

2. Drag the pointer down to the Options menu item. The Options submenu is displayed.

3. Release MB1.

```
┌──────────────────────────┐
│        Workspace         │
├──────────────────────────┤
│ Shuffle Up               │
│ Shuffle Down             │
│ Next Window              │
│ Previous Window          │
├──────────────────────────┤
│ Pack Icons               │
├──────────────────────────┤┌─────────────────────────────┐
│ Options              ▷   ││ Workspace...                │
├──────────────────────────┤├─────────────────────────────┤
│ Restart...               ││ Border...                   │
└──────────────────────────┘│ Border colors...            │
                            │ Icons...                    │
                            │ Icon colors...              │
                            │ Matte...                    │
                            │ Resource configuration...   │
                            ├─────────────────────────────┤
                            │ Apply current settings      │
                            │ Reset to last saved settings│
                            │ Reset to default            │
                            └─────────────────────────────┘
```
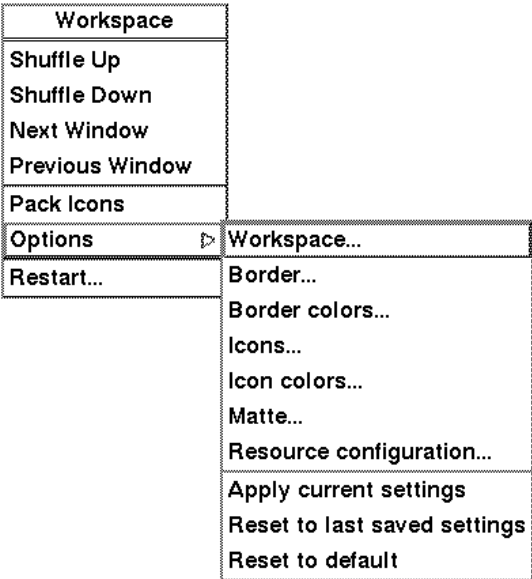
LJ–01130–RAGS

───────────────── **Note** ─────────────────

A system manager can lock or unlock settings in the Options submenu by using the terminal's configuration manager. If the settings are locked, the Options menu item is dimmed and you cannot view the Options submenu. See your system manager.

───

When you choose a menu item from the Options submenu, the dialog box for that item is displayed. Shaded buttons in the dialog box indicate current settings. You can examine the settings and change them if desired.

12.2 Saving and Restoring Window Option Settings

To make changes to window settings and save them:

1. Make your changes in a dialog box, then click on the OK button.

2. Click on the Restart... menu item in the Workspace submenu.

    or

    Click on the Apply current settings menu item in the Options submenu.

3. The terminal displays a box to confirm that you want to apply the current settings and restart the window manager.

    For example, if you modify your window settings, and click on the Restart... menu item, the terminal displays the following box:
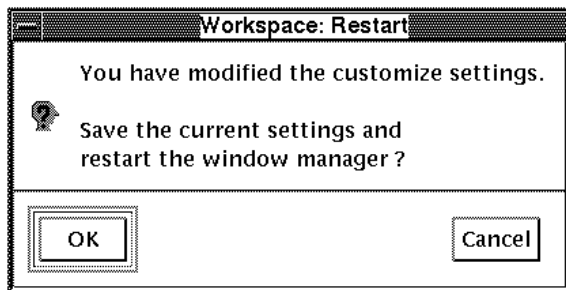
LJ–01126–RAGS

Click on the OK button to close the confirmation box, save changes, and restart the window manager.

To cancel the restart operation, click on the Cancel button. The Cancel button closes the restart confirmation box without restarting the window manager.

Making Changes in a Dialog Box

Each dialog box displayed from the Options submenu has a set of control push buttons:

Click on...	To...
OK	Record new settings temporarily and dismiss the dialog box.
Reset	Display the currently saved settings.
Default	Restore the factory-default settings.
Cancel	Dismiss the dialog box without changing any settings.

If you make changes, you must use the Apply current settings or Restart... menu item to save your settings for future sessions.

Saving or Restoring Option Settings

To save or restore settings, use the following menu items on the Options submenu of the window menu:

Choose...	To...
Apply current settings	Apply new settings and save them. You can also use the Reset... menu item on the Workspace submenu.
Reset to last saved settings	Restores the last settings you saved. Choose this menu item if you want to reset any features that you changed temporarily, but do not want to save.
Reset to default	Restore the factory-default settings.

12.3 Changing Your Workspace Settings

You can change how and when windows become active in your workspace. You can also show an entire window while it is moving instead of just the window outline. To change these and other workspace settings, click anywhere on the screen's workspace to display the Workspace submenu. Choose the Options submenu, then choose Workspace... to display the Workspace: Options dialog box.

```
┌────────────────────────────────────────────────────┐
│ ▬  ▦▦▦▦▦▦▦▦▦Workspace: Options▦▦▦▦▦▦▦▦▦  ◤ ▣ │
│ ┌────────────────────────────────────────────────┐ │
│ │ Customize the workspace                         │ │
│ │ ┌────────────────────────────────────────────┐ │ │
│ │ │ To make a window active,                    │ │ │
│ │ │ ┌──────────────────────────────────┐        │ │ │
│ │ │ │      select the window      ▭    │        │ │ │
│ │ │ └──────────────────────────────────┘        │ │ │
│ │ │ When a window becomes active,               │ │ │
│ │ │     ■ Raise it to the top of the screen     │ │ │
│ │ │ Make a window active when it is             │ │ │
│ │ │     ■ Created                               │ │ │
│ │ │     ■ Restored from an icon                 │ │ │
│ │ │ When a window is removed from the screen,   │ │ │
│ │ │     ■ Make another window active            │ │ │
│ │ │                                             │ │ │
│ │ │ When moving a window, show the │ outline ▭ │ │ │ │
│ │ │ ■ Show feedback when moving or sizing windows│ │ │
│ │ │ ☐ Set Alt+Space to display the window menu  │ │ │
│ │ │ ☐ For international keyboards, ignore the Mod keys│ │ │
│ │ │ ■ Freeze on interactive placement and resize of window│ │ │
│ │ └────────────────────────────────────────────┘ │ │
│ │                                                 │ │
│ │  ┌──────┐ ┌───────┐ ┌─────────┐ ┌────────┐      │ │
│ │  │  OK  │ │ Reset │ │ Default │ │ Cancel │      │ │
│ │  └──────┘ └───────┘ └─────────┘ └────────┘      │ │
│ └────────────────────────────────────────────────┘ │
└────────────────────────────────────────────────────┘
```

LJ–01131–RAGS

From the Workspace: Options dialog box, you can change any of the following settings:

☐ **To make a window active,**

Normally, a window becomes active when you select it with your mouse or keyboard. If desired, you can have windows become active as soon as you move the pointer into them. To do this, click on the **select the window** button and choose **move the pointer into the window** from the pop-up menu.

If you use the pointer to make windows active, you cannot use the Alt Tab and Alt F11 keyboard navigation sequences to move the input focus among windows.

☐ **When a window becomes active,**

Normally, a window is raised to the top of the stack on the screen when activated. Click on the button if you want to turn this feature off.

☐ **Make a window active when it is created or restored from an icon**

Normally, a window becomes active when it is created or restored from an icon. Click on the appropriate button if you want to change the current settings.

☐ **When a window is removed from the screen,**

Normally when you remove a window from the screen, another window becomes active. Click on the button if you do not want another window to become active.

☐ **When moving a window, show the outline or entire window.**

Normally when you move windows, only the window outline appears. If you want to display the entire window while it is moving, click on the **outline** button and choose **entire window** from the pop-up menu.

☐ **Show feedback when moving or sizing windows**

Normally when you move or size a window, a box appears in the center of the screen. For moving, the box provides a horizontal and vertical screen coordinate position. For sizing, the box provides a horizontal and vertical size. Click on the button if you do not want the box to appear. Turning off the box can improve performance.

☐ **Set Alt+Space to display the window menu**

If you choose this feature, you can press the $\boxed{\text{Alt}}$ key and space bar to display the window menu. This is an alternative to the window menu button.

☐ **For international keyboards, ignore the Mod keys**

If you choose this feature, the terminal ignores modifier keys such as the $\boxed{\text{Ctrl}}$ key.

☐ **Freeze on interactive placement and resize of window**

Normally when you move a window, its frame appears solid on the background. To change to a flickering frame, click on the button.

12.4 Changing Your Border Settings

You can change the features of your window border to include or exclude minimize and maximize buttons, borders, a title, or menus. You can also change the size of borders. To change your border settings, click anywhere on the screen's workspace to display the Workspace submenu. Choose the Options submenu, then choose Border... to display the Workspace: Border Options dialog box.

```
┌──────────────────────────────────────────────────┐
│ ─  ▓▓▓▓▓Workspace: Border Options▓▓▓▓▓      · ▢  │
│  Customize the border                             │
│  ┌──────────────────────────────────────────────┐ │
│  │ Border Decorations                           │ │
│  │    ■ Minimize Button      ■ Window Border    │ │
│  │    ■ Maximize Button      ■ Title            │ │
│  │    ■ Resize Border        ■ Menu             │ │
│  │  Resize Border Size │ Medium ▭ │             │ │
│  │  Other Resize Border Size │   │              │ │
│  │  □ Double Click on Window Menu to Close Window│ │
│  └──────────────────────────────────────────────┘ │
│   ┌─────┐  ┌───────┐  ┌─────────┐  ┌────────┐     │
│   │ OK  │  │ Reset │  │ Default │  │ Cancel │     │
│   └─────┘  └───────┘  └─────────┘  └────────┘     │
└──────────────────────────────────────────────────┘
```
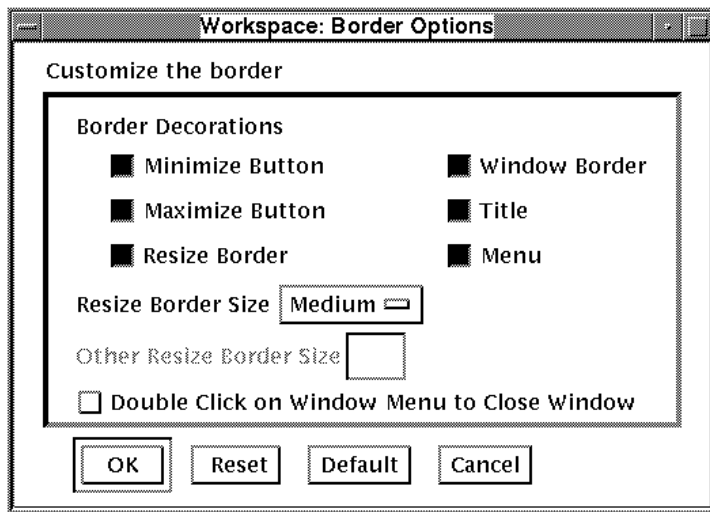
LJ–01132–RAGS

From the Workspace: Border Options dialog box, you can change any of the
following settings:

☐ **Border Decorations**

You can add or remove border decorations and buttons from all of your window
frames. To change the current setting for a border decoration, click on its
button.

☐ **Resize Border Size**

The **resize border** is the part of the window frame that you drag to resize
a window. To change the thickness of the border, click on the button in the
Resize Border Size box and make a choice from the pop-up menu. If you choose
Other, you can enter a specific size in the Other Resize Border Size box.

☐ **Other Resize Border Size**

If you choose Other from the pop-up menu in the Resize Border Size box, you
can enter a border width from 0 to 999 in the Other Resize Border Size box.

☐ **Double Click on Window Menu to Close Window**

When this setting is enabled, a window will close when you double click on the
window menu button.

12.5 Changing Your Border Color Settings

You can choose distinct colors for active and inactive windows, to make it
easy to see which window is active. To change your border color settings,
click anywhere on the screen's workspace to display the Workspace submenu.
Choose the Options submenu, then choose Border Colors... to display the
Workspace: Border Color Options dialog box.
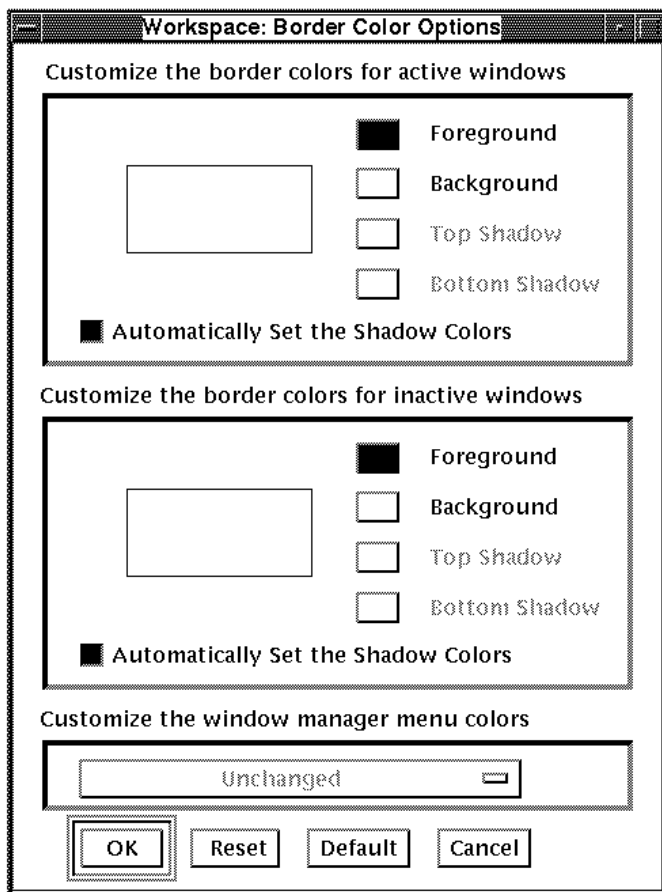
LJ–01133–RAGS

From the Workspace: Border Color Options dialog box, you can change any of
the following settings for active or inactive windows:

<u>**On Gray Scale and Color Systems**</u>

☐ **Foreground**

The Foreground button lets you change the foreground color of the window's title. When you click on the button, the window manager displays a Color Mixing dialog box (Appendix B).

☐ **Background**

The Background button lets you change the color behind the title. When you click on the button, the window manager displays a Color Mixing dialog box.

☐ **Top Shadow**

The Top Shadow button lets you change the color on the top and left sides of the border. The top and bottom shadow colors create the three-dimensional effect of the window display, so it is important to use well-matched colors. If the Automatically Set the Shadow Colors button is on, the terminal automatically chooses the top and bottom shadow colors when you change the background color.

To choose your own top shadow color, first turn off the automatic button. Then click on the Top Shadow button to display the Color Mixing dialog box. You should use the HLS model in the dialog box to choose a color that is lighter and less saturated than the bottom shadow color.

☐ **Bottom Shadow**

The Bottom Shadow button works like the Top Shadow button, but changes the color on the bottom and right sides of the border.

☐ **Customize the window manager menu colors**

This button lets you change the colors of the window manager menu. Click on the button to display a pop-up menu of choices.

<u>**On Monochrome Systems**</u>

The Color Mixing dialog box is not displayed on monochrome systems. To change the foreground, background, or shadow colors, click on the appropriate button.

12.6 Changing Your Icon Settings

You can customize the size, placement, and use of labels and images for your window icons. To change your icon settings, click anywhere on the screen's workspace to display the Workspace submenu. Choose the Options submenu, then choose Icons... to display the Workspace: Icon Options dialog box.
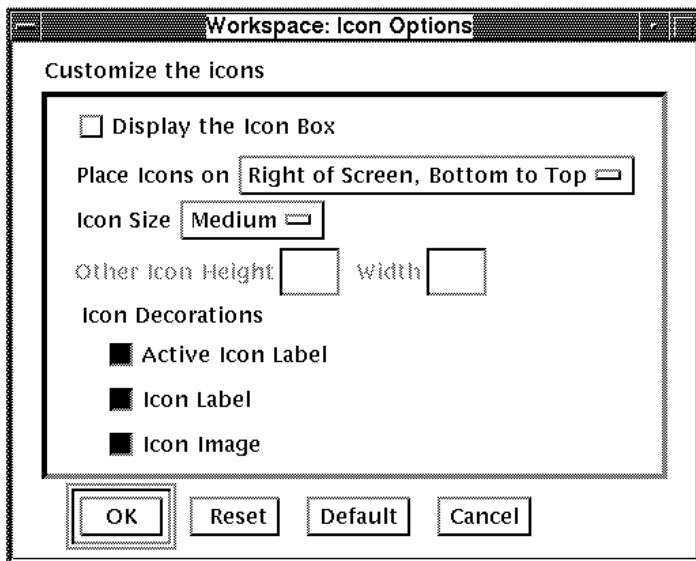
LJ–01134–RAGS

From the Workspace: Icon Options dialog box, you can change any of the
following settings:

☐ Display the Icon Box

Click on the Display the Icon Box button to turn the display of an icon box on
or off. The icon box contains the window icons of each session and application
running on the terminal.

You can save changes to the size or location of the icon box for future sessions.
You cannot save changes to the location of icons within the icon box. To save
the icon box, click on the Apply current settings menu item in the Options
submenu, then click on the Restart... menu item to restart the window
manager (Section 12.1).

☐ Place Icons on

This button lets you choose the location and direction for placing icons on the
screen. Click on the button to display a pop-up menu of choices.

☐ Icon Size

The Icon Size button lets you choose the size of the icons. Click on the button
to display a pop-up menu of choices. If you choose Other, you can enter a
specific size in the Other Icon Height and Width boxes.

☐ **Other Icon Height and Width**

If you choose Other from the Icon Size pop-up menu, you can enter a value from 0 to 999 in the Other Icon Height and Width boxes.

☐ **Icon Decorations**

To turn the use of icon labels and images on or off, click on the appropriate button.

12.7 Changing Your Icon Color Settings

You can customize the colors for icon images and boxes. To change your icon color settings, click anywhere on the screen's workspace to display the Workspace submenu. Choose the Options submenu, then choose Icon Colors... to display Workspace: Icon Color Options dialog box.
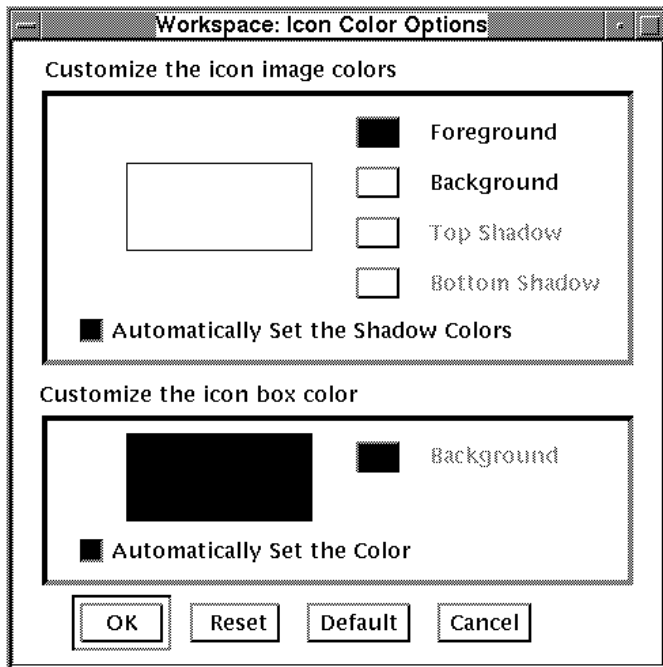
LJ–01135–RAGS

From the Workspace: Icon Color Options dialog box, you can change any of the following settings:

<u>**On Gray Scale and Color Terminals**</u>

– Customize the icon image colors –

☐ **Foreground**

The Foreground button lets you change the color of the icon's title. To change the color, click on the Foreground button to display the Color Mixing dialog box (Appendix B).

☐ **Background**

The Background button lets you change the color behind the icon's title. To change the color, click on the Background button to display the Color Mixing dialog box.

☐ **Top Shadow**

The Top Shadow button lets you change the color on the top and left of the icon border. The top and bottom shadow colors create the three-dimensional effect of the icon display, so it is important to use well-matched colors. If the Automatically Set the Shadow Colors button is on, the terminal automatically chooses the top and bottom shadow colors when you change the background color.

To choose your own top shadow color, first turn off the automatic button. Then click on the Top Shadow button to display the Color Mixing dialog box. You should use the HLS model in the dialog box to choose a color that is lighter and less saturated than the bottom shadow color.

☐ **Bottom Shadow**

The Bottom Shadow button works like the Top Shadow button, but changes the color on the bottom and right of the icon border.

– Customize the icon box color –

☐ **Background**

Normally, the background color of the icon box is set automatically. To change the color, turn off the Automatically Set the Color button and click on the Background button to display the Color Mixing dialog box.

<u>**On Monochrome Terminals**</u>

The Color Mixing dialog box is not displayed on monochrome terminals. To change the foreground, background, or shadow colors, click on the appropriate button.

12.8 Changing Your Matte Settings

You can add an optional matte frame between the window border and the work area. You can control the matte's size and colors. To create a matte or change your matte settings, click anywhere on the screen's workspace to display the Workspace submenu. Choose the Options submenu, then choose Matte... to display the Workspace: Matte Options dialog box.
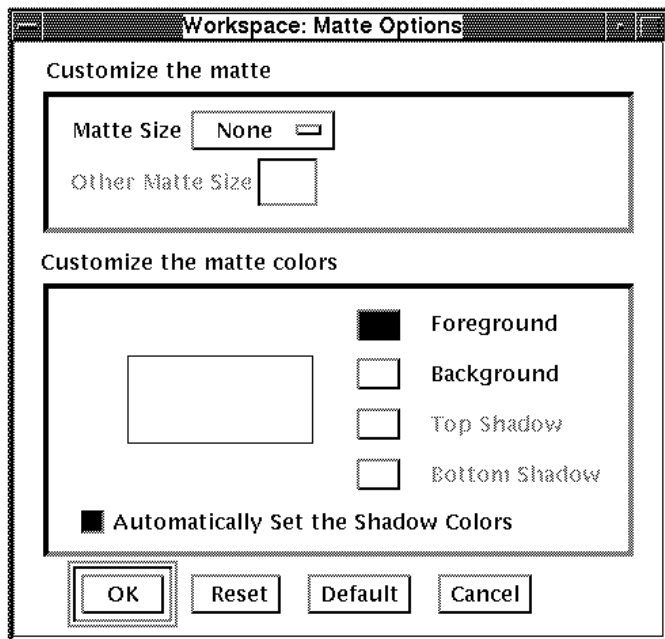
LJ–01136–RAGS

From the Workspace: Matte Options dialog box, you can change any of the following settings:

On Gray Scale and Color Terminals

– Customize the matte –

☐ **Matte Size, Other Matte Size**

The Matte Size button lets you change the size of the matte. To change the size, click on the button and make a choice from the pop-up menu. To turn off the matte, choose None. To enter your own size, choose Other, then click on the Other Matte Size box and enter a size.

– Customize the matte colors –

☐ **Foreground**

To change the matte's foreground color, click on the Foreground button to display the Color Mixing dialog box (Appendix B).

☐ **Background**

To change the color behind the matte's title, click on the Background button to display the Color Mixing dialog box.

☐ **Top Shadow**

The Top Shadow button lets you change the color on the top and left of the matte. The top and bottom shadow colors create the three-dimensional effect, so it is important to use well-matched colors. If the Automatically Set the Shadow Colors button is on, the terminal automatically chooses the top and bottom shadow colors when you change the background color.

To choose your own top shadow color, first turn off the automatic button. Then click on the Top Shadow button to display the Color Mixing dialog box. You should use the HLS model in the dialog box to choose a color that is lighter and less saturated than the bottom shadow color.

☐ **Bottom Shadow**

The Bottom Shadow button works like the Top Shadow button, but selects the color on the bottom and right of the matte.

<u>On Monochrome Terminals</u>

The Color Mixing dialog box is not displayed on monochrome terminals. To change the foreground, background, or shadow colors, click on the appropriate button.

12.9 Changing Menu, Button, and Key Bindings

_____ **Caution** _____

This topic is for advanced users who have a thorough understanding of the information discussed in the *OSF/Motif Programmers Guide*. Changing menu, button, or key bindings could remove needed functions from menus and may disable your ability to use the window manager.

For example, if you edit a menu or binding and leave a blank line when you remove a function, the items below the blank line will not work or may not appear on the menu following a restart.

_____

You can modify six of the window manager's menus and the functional bindings for certain buttons and keys.

To change your bindings, click anywhere on the screen's workspace to display the Workspace submenu. Choose the Options submenu, then choose Resource configuration... to display the Workspace: Customize Resource Configuration dialog box.
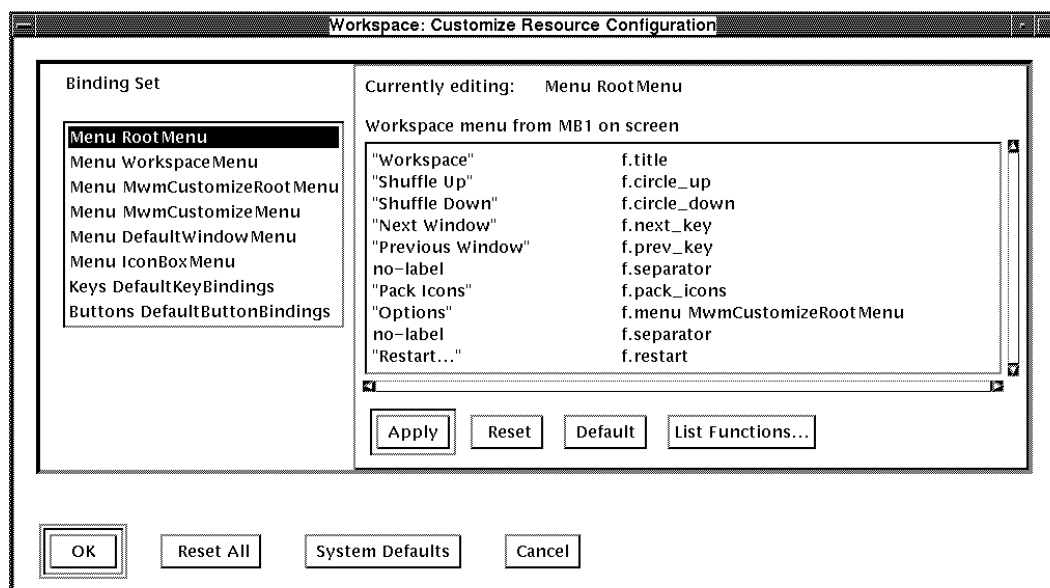
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☐ **Binding Set**

The Workspace: Customize Resource Configuration dialog box contains a list of six menu binding sets, one keyboard key binding set, and one mouse button binding set. When you click on a binding set in the list, the bindings for that set are displayed in the scroll box to the right of the list. The name of the set is displayed in the **Currently editing:** field.

Here is what each binding sets does:

Click on...	To modify...
Menu RootMenu	The Workspace menu accessed by clicking MB1 in an open space.
Menu WorkspaceMenu	The Workspace submenu accessed from the window menu.
Menu MwmCustomizeRootMenu	The Options submenu accessed from the Workspace submenu.
Menu MwmCustomizeMenu	The Options submenu accessed from the window menu.
Menu DefaultWindowMenu	The window menu accessed from the window menu button.
Menu IconBoxMenu	The Icon Box menu.
Keys DefaultKeyBindings	Keyboard keys associated with window management functions.
Buttons DefaultButtonBindings	Mouse button actions associated with window management functions.

Push Button Controls

Below the scroll box are push buttons to control the editing process:

Choose...	To...
Apply	Record the setting of the currently edited binding set.
Reset	Redisplay the current settings for the currently edited binding set, if you changed the setting without applying them.
Default	Restore the factory-default settings for the currently edited binding set.
List Window Manager Functions...	Display a list of supported window manager functions.

To display window manager functions:

To display the List of Window Manager Functions dialog box, click on the List Window Manager Functions... button in the Customize Resource Configuration dialog box. From this list, you can select and copy functions into the binding set you are editing in the scroll box. For descriptions of the window manager functions, see the *OSF/Motif Programmers Guide*.

```
┌──────────────────────────────────────────────────────────────────────┐
│ ▬                    List of Window Manager Functions         ▪  ▫    │
│  ┌──────────────────────────────────────────────────────────────────┐ │
│  │ List of possible window manager functions:                       │ │
│  │                                                                  │ │
│  │   f.beep          f.lower        f.normalize          f.raise_lower │ │
│  │   f.circle_down   f.maximize     f.normalize_and_raise f.refresh   │ │
│  │   f.circle_up     f.menu         f.pack_icons          f.refresh_win │ │
│  │   f.dec_customize f.minimize     f.pass_key            f.resize     │ │
│  │   f.exec          f.move         f.post_wmenu          f.restart    │ │
│  │   f.focus_color   f.next_cmap    f.prev_cmap           f.separator  │ │
│  │   f.focus_key     f.next_key     f.prev_key            f.set_behavior │ │
│  │   f.kill          f.nop          f.raise               f.title      │ │
│  │                                                                  │ │
│  └──────────────────────────────────────────────────────────────────┘ │
│                            ┌───────┐                                  │
│                            │ Close │                                  │
│                            └───────┘                                  │
└──────────────────────────────────────────────────────────────────────┘
```
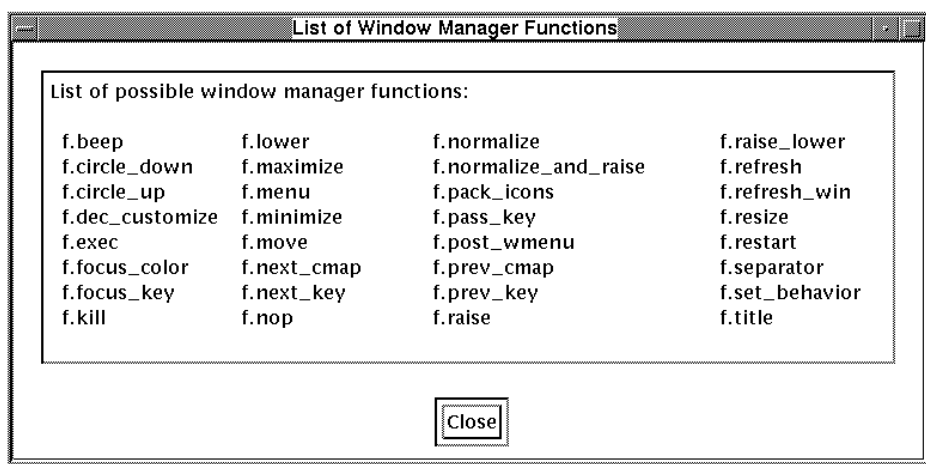
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To change or add to a menu binding:

1. Click on a menu binding set in the Workspace: Customize Resource Configuration dialog box. The functions for the menu appear in the scroll box.

2. **To make changes:** Enter changes from your keyboard or use your mouse to copy a new binding from the List of Window Manager Functions.

   To add functions to the binding: Click to the right of the last function listed in the scroll box, then press ⌈Return⌋.

   Each menu item entry has the following syntax:

   ```
   item [mnemonic]   [accelerator] function [argument]
   ```

   The mnemonic and accelerator are optional. The function is the action the window manager takes when a user chooses the menu item. Some functions may require arguments.

   The window manager treats blank lines as the end of the menu binding set. To remove blank lines, use the ⟨X⟩ key or ⌈ ←Backspace ⌋ key.

3. Click on Apply.

4. Click on OK.

To change or add to a key binding:

1. Click on the Keys DefaultKeyBindings binding set. The functions for certain keyboard keys are displayed in the scroll box.

2. **To make changes:** Enter changes from your keyboard or use your mouse to copy a new binding from the List of Window Manager Functions.

   To add functions to the binding: Click to the right of the last function listed in the scroll box, then press Return .

   Each key binding has the following syntax:

   ```
   key context[|context] function [argument]
   ```

   Each line identifies a unique key sequence, one or more contexts in which the sequence is valid, and the function of the sequence. The context indicates where the keyboard input focus must be when keys are pressed, in order for the sequence to work: window, icon, or root. The function is the action the window manager takes when a user chooses the menu item. Some functions may require arguments.

   The window manager treats blank lines as the end of the key binding set. To remove blank lines, use the ⊠ key or ←Backspace key.

3. Click on Apply.

4. Click on OK.

To change or add to a button binding:

1. Click on the Buttons DefaultButtonBindings binding set. The functions for the buttons are displayed in the scroll box.

2. **To make changes:** Enter changes from your keyboard or use your mouse to copy a new binding from the List of Window Manager Functions.

   To add functions to the binding: Click to the right of the last function listed in the scroll box, then press Return .

   Each button binding has the following syntax:

   ```
   button context[|context] function [argument]
   ```

   Each line identifies a certain button action, one or more contexts in which the button action is valid, and the function to perform. The context indicates where the pointer must be for the button action to work: window, root, frame, icon, title, or border. The function is the action the window manager takes when a user chooses the menu item. Some functions may require arguments.

The window manager treats blank lines as the end of the button binding set. To remove blank lines, use the ⟨X⟩ key or ←Backspace key.

3. Click on Apply.

4. Click on OK.

To save settings:

To save the settings in the Workspace: Customize Resource Configuration dialog box, use the push buttons at the bottom of the dialog box.

Choose...	To...
OK	Record new settings and dismiss the dialog box.
Reset All	Redisplay the current settings for the entire dialog box if you changed settings without applying them.
System Defaults	Restore the factory-default settings for the entire dialog box.
Cancel	Dismiss the dialog box without changing any settings. If you made changes without applying them, clicking on Cancel button cancels those changes.

13

Launching Applications

This chapter describes how to launch local VXT applications and remote host applications on your terminal. The chapter covers the following major topics:

- Launching Sessions and Applications
- Launching Sessions and VXT Applications with the Window Manager
- Launching Remote Applications
- Launching Sessions and VXT Applications Using rsh

13.1 Launching Sessions and Applications

Application launching refers to starting sessions, local VXT applications, or remote host applications on the terminal. Normally, you start sessions and applications from the Terminal Manager window by using

- The Create dialog box, Create menu, or VXT Create pop-up menu (Section 2.2)
- The Customize AutoStart dialog box or AutoStart menu item (Section 5.6)

You can also launch sessions and applications from the terminal's local window manager. This feature is provided for users who may want to run sessions or applications without running the Terminal Manager window or a remote session manager.

To launch applications or sessions from the window manager, you define menu items, keys, or mouse buttons. Section 12.9 describes the general steps to define menu items, mouse buttons, or keys. This chapter lists the specific functions and arguments you can use to launch sessions and applications from the window manager.

Launching Remote Applications

To launch host applications from the Terminal Manager window or window manager, you first must run the VXT application launcher on the host system. See Section 13.3.

13.2 Launching Sessions and VXT Applications with the Window Manager

There are two methods to launch sessions and local VXT applications with the window manager:

- Use the VXT Create pop-up menu (Section 2.2.8).

- Define menu items or keys.

13.2.1 Defining Menu Items to Launch Sessions and Local VXT Applications

You can add menu items to the window manager's Workspace submenu to start local VXT applications or sessions.

1. Click and hold MB1 anywhere on the screen's workspace to display the Workspace submenu. Choose the Options submenu, then choose Resource configuration... to display the Workspace: Customize Resource Configuration dialog box.

2. In the Binding Set box, click on the Menu RootMenu binding set.

3. Enter new menu items at the bottom of the scroll box list.

   - Use the following syntax to add a menu item for a session:

     "*Menu item*" f.exec "*session transport host*"

     Examples

     ```
     "Market DECterm"     f.exec "decterm -ip market"
     "Market X Session"   f.exec "x -ip market"
     "Serial DECterm"     f.exec "decterm -serial"
     ```

   - Use the following syntax to start a local VXT application:

     "*Menu item*" f.exec "*application*"

     Examples

     ```
     "Terminal Manager"   f.exec "term_mgr"
     "Message Box"        f.exec "msgbox"
     ```

Table 13–1 lists all possible session and application functions.

4. Click on Apply.

5. Click on OK.

6. Restart the window manager.

   a. Click and hold MB1 anywhere on the screen's workspace to display the Workspace submenu.

   b. Click on Restart... to restart the window manager.

      The window manager adds your new menu items to the Workspace submenu.

After you restart the window manager, you can use your new menu items to launch the sessions or local VXT applications you added.

1. Click and hold MB1 anywhere on the screen's workspace to display the Workspace submenu.

2. Choose the desired menu item to launch a particular session or local VXT application.

Table 13–1   Application Names and Arguments

Application Name	Arguments
x	[-ip],[-lat],[-dnet] <host>
decterm	[-ip],[-lat],[-dnet] <host>
decterm	[-serial]
mwm	none
term_mgr	[-msgbox]
msgbox	none
font_mgr	none
3270	[-dnet]

<> indicates a required argument.
[ ] indicates an optional argument. Commas separate choices.
IP is the default transport for DECterm and X sessions.
DECnet is the default transport for the VXT 3270 application.
You cannot launch the configuration manager as a separate application.

13.2.2 Defining Keys to Launch Sessions and Local VXT Applications

You can define keys to start local VXT applications or sessions.

1. Click and hold MB1 anywhere on the screen's workspace to display the Workspace submenu. Choose the Options submenu, then choose Resource configuration... to display the Workspace: Customize Resource Configuration dialog box.

2. In the Binding Sets box, click on the Keys DefaultKeyBindings binding set.

3. Enter your new key definitions at the bottom of the list.

   - Use the following syntax to define a key to launch a session:

     <Key>*key* root|window f.exec "*session transport host*"

     Examples

     ```
     <Key>F18        root|window        f.exec "decterm -lat market"
     <Key>F19        root|window        f.exec "x -ip market"
     <Key>F20        root|window        f.exec "decterm -serial"
     ```

   - Use the following syntax to define a key to launch a local VXT application:

     <Key>*key* root|window f.exec "*application*"

     Example

     <Key>F17 root|window f.exec "term_mgr -msgbox"

   Table 13–1 lists all possible session and application functions.

4. Click on Apply.

5. Click on OK.

6. Restart the window manager.

   a. Click and hold MB1 anywhere on the screen's workspace to display the Workspace submenu.

   b. Click on Restart... in the Workspace menu.

      The window manager updates your key definitions.

After you restart the window manager, you can use your new key definitions to launch the sessions or local VXT applications you defined.

1. Click and hold MB1 anywhere on the screen's workspace to display the Workspace submenu.

2. Press the key you defined to launch your session or local VXT application.

13.3 Launching Remote Applications

You can launch applications on your host system from the terminal. For example, you may want to run your host's clock or calendar program on your terminal.

There are two basic steps in launching a remote application:

1. Before you launch remote applications, you must run the VXT launcher in a host session on the terminal (Section 13.3.1).

2. Launch the remote application from the Terminal Manager window or the window manager. This step is similar to launching sessions or local VXT applications.

   - If you use the Terminal Manager window, you can enter and launch applications in the Create dialog box (Section 2.2.6). After you save your settings and restart the window manager, your applications are also listed on the Create menu and VXT Create pop-up menu.

   - You can also use the terminal's local window manager to define keys or menu items on the Workspace submenu for launching remote applications (Section 13.3.3). This feature is provided for users who may want to run sessions or applications without running the Terminal Manager window or a remote session manager.

Launching Remote Applications from Several Systems

You can launch remote applications from several systems and display those applications concurrently on your terminal. However, you must define a unique name for the launcher on each system.

One VXT Application Launcher Connection
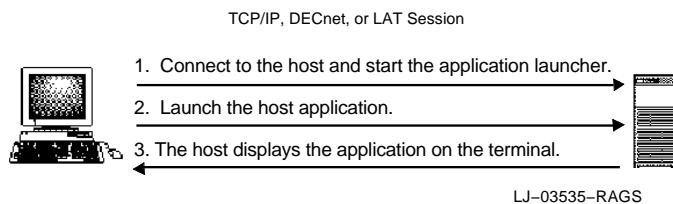
TCP/IP, DECnet, or LAT Session

1. Connect to the host and start the application launcher.

2. Launch the host application.

3. The host displays the application on the terminal.

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Two VXT Application Launcher Connections

Launcher 1
Application 1

Connect to host 1 and start launcher 1.
Launch application 1.
The host displays application 1.

Connect to host 2 and start launcher 2.
Launch application 2.
The host displays application 2.

Launcher 2
Application 2

LJ–03536–RAGS
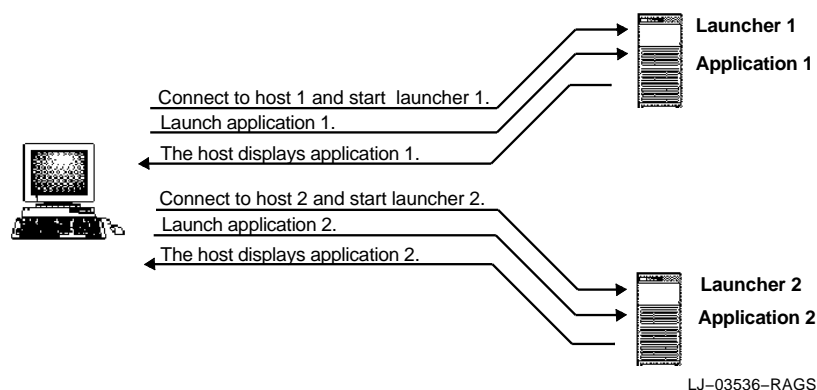
13.3.1 Running the Application Launcher

VXT Version 2.1 and later software provides the application launcher. Check with your system manager for the name and location of the application launcher file on your host system. *VXT Software Version 2.1 Installation and System Management* describes the installation and setup of the launcher.

The launcher establishes a display connection with the terminal. This allows you to send launch commands from the terminal to the launcher, which relays the commands to the host system.

The following sections describe methods to run the application launcher on UNIX or OpenVMS systems. Section 13.3.2 describes the command syntax in detail.

UNIX, ULTRIX, and DEC OSF/1 Systems

The default name of the application launcher file is `vxtlaunch`. The default file location is in the `/usr/local/bin` path.

You can use the following commands to run the launcher. Make sure the launcher is in your current path.

% setenv DISPLAY *terminal's_IP_address*:0
% vxtlaunch *arguments* &

Section 13.3.2 describes possible command arguments.

Example

The following commands starts the launcher with a process name of launch1, to connect to a terminal with a TCP/IP address of 16.122.144.56:

```
%  setenv DISPLAY 16.122.144.56:0
%  vxtlaunch -name launch1 &
```

If you do not specify a process name, the default is vxt.

OpenVMS Systems

The default name of the application launcher file is VXT$LAUNCH.EXE. The default file location is VXT$LIBRARY. The following commands shows one possible method for invoking the launcher:

$ SET DISPLAY/CREATE/NODE=*terminal's_DECnet_address*
$ MCR VXT$LIBRARY:VXT$LAUNCH *arguments*

Section 13.3.2 describes possible command arguments.

Example

The following command starts the launcher with the name LAUNCH1 to connect to a terminal with a DECnet address of 3456:

```
$  SET DISPLAY/CREATE/NODE=3456
$  MCR VXT$LIBRARY:VXT$LAUNCH -NAME LAUNCH1
```

If you do not specify a process name, the default is VXT.

13.3.2 Launch Command Arguments

This section lists the arguments you can use with the command that runs the application launcher. On UNIX systems, the command is vxtlaunch. On OpenVMS systems, the system manager must define a foreign command name. This section assumes the command is vxtlaunch.

vxtlaunch *arguments*

Standard vxtlaunch Arguments

The application launcher supports the following arguments:

Argument	Description
-help	Provides help information on arguments.

Argument	Description
-display *name*	Enter the name of the display to connect to.
	IP Enter *terminal's_IP_address*:0.
	DECnet Enter *terminal's_DECnet_address*::0
-name *name*	Specifies a name to use for the launcher on this host system. If you launch applications from multiple systems for display on the same terminal, you must specify a unique name for the launcher on each system. You use this name when entering launch commands for applications. The default name is VXT.
-kill	Stops a VXT launcher process on the host system. You must specify the -name argument if the launcher has a name other than the default (VXT).

Examples

Here are some `vxtlaunch` command examples using the supported arguments:

Argument Example	Description
vxtlaunch	Starts a launch process with the default name VXT.
vxtlaunch -name LCH1	Starts a launch process with the name LCH1.
vxtlaunch -kill	Stops a launch process with the default name VXT.
vxtlaunch -kill -name LCH1	Stops a launch process with the name LCH1.

Other vxtlaunch Arguments

The following `vxtlaunch` arguments may present security implications on your system:

Argument	Description
-retry *interval*:*number*	If the launcher fails to make an X connection with the terminal, this argument specifies how often (interval) and how many times (number) the launcher should retry to make a connection. The default interval is 1 second. The default duration is forever.
-reconnect	If the launcher receives a fatal error after a successful X connection, this argument tells the launcher to try to reestablish the connection.

Examples

Here are some `vxtlaunch` command examples using the `-retry` and
`-reconnect` arguments:

Argument Example	Description
vxtlaunch -retry -reconnect	Retry to make a connection every 1 second, forever. If an existing connection fails, try to reconnect.
vxtlaunch -retry 3	Retry to make a connection every 3 seconds, forever.
vxtlaunch -retry :3	Retry to make a connection every 1 second, for 3 times.
vxtlaunch -retry 3:3	Retry to make a connection every 3 seconds, for 3 times.

13.3.3 Defining Menu Items or Keys to Launch Remote Applications

You can define keys or menu items on the Workspace submenu to launch
remote applications.

To define a menu item to launch a remote application:

Follow the same steps used to define menu items for local applications or
sessions (Section 13.2.1), but use the following command syntax:

"*menu item*" root|window f.exec "rexec *launcher command*"

The *launcher* is the name of the application launcher. Default name: VXT.

The *command* is the host system command to launch the desired application.

Examples

The following examples show typical commands to start a clock on a UNIX
system or OpenVMS system.

UNIX system:

```
"xclock"        root|window   f.exec "rexec launch1 /usr/bin/X11/xclock"
```

OpenVMS system:

```
"Clock"         root|window   f.exec "rexec vxt run @sys$system:decw$clock"
```

To define a key to launch a remote application:

Follow the same steps used to define keys for local applications or sessions
(Section 13.2.2), but use the following command syntax:

"<Key>*key*" f.exec "rexec *launcher command*"

The *key* is the key you want to define.

The *launcher* is the name of the application launcher. Default name: VXT.

The *command* is the host system command to launch the desired application.

Examples

The following examples show typical commands to start a clock on a UNIX system or OpenVMS system.

UNIX system:

```
"<Key>F17"      f.exec   "rexec launch1 /usr/bin/X11/xclock"
```

OpenVMS system:

```
"<Key>F17"      f.exec   "rexec vxt run @sys$system:decw$clock"
```

13.4 Launching Sessions and VXT Applications Using rsh

On UNIX systems, you can use the `rsh` (r shell) application to launch sessions and local VXT applications over the IP transport. The `rsh` commands contain the host name, user name, and the command to launch the application. The terminal checks the host name and user name for authorization in the terminal's Customize Security list.

rsh *vxt_name application* -ip *node*

vxt_name is the terminal's IP host name, as listed in the host system's `/etc/hosts` file. You cannot use IP addresses with `rsh`.

application is the session or local VXT application to start.

node is the host system you are connected to.

Example

The following example starts a VXT DECterm window on the terminal `myvxt` from the host system `market`.

```
csh>rsh myvxt decterm -ip market
```

TCP/IP Session

1. Connect to the host.

2. Use an r shell command to start a VXT application.

3. The host passes the command to the terminal's window manager, which displays the application.

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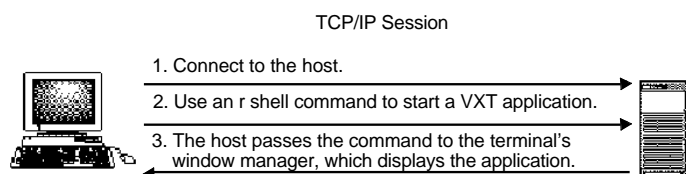
Using VXT EX Software

This chapter describes how to load and use VXT EX software with the terminal. The chapter covers the following major topics:

- VXT EX Software
- Loading VXT EX Software
- Creating a Session
- VXT EX Options Dialog Box

14.1 VXT EX Software

VXT EX (essential X server) software is a minimal version of VXT software, without any local applications such as the Terminal Manager window, VXT DECterm and VXT 3270 windows, and the Motif window manager. VXT EX software lets you create X sessions with minimal memory installed in the terminal. The system you connect to must provide all window management and terminal emulation features.

VXT EX software provides a single dialog box for creating an X session. You can create an X session to systems that support the TCP/IP or LAT transports.

VXT EX software

- Requires only the minimum 4 megabytes of installed memory
- Requires host-based clients for window management and terminal emulation
- Does not support printing to locally attached printers
- Requires a mouse or pointing device

14.2 Loading VXT EX Software

When you turn or reboot the terminal, it normally loads full-function VXT
software. There are two ways to load VXT EX software instead of VXT
software:

- Specify VXT EX software in the Customize Boot dialog box and reboot the
  terminal. To specify host-based operation, see Section 5.7.2. To specify
  server-based operation, see Section 5.7.3.

- Enter a BOOT command that specifies VXT EX software (Section 5.7.5).

14.3 Creating a Session

When you reboot the terminal with VXT EX software, the terminal displays
the VXT EX connection dialog box. You use the dialog box to create an X
session to a host system. You can create multiple X sessions.

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The Video Alignment button is for VXT 2000 model VX227 windowing terminals only. This button provides centering and rotation controls to align the screen display if necessary. See Section 3.11.

To connect to a host system:

1. Choose your display language. The default is English.

2. Choose the communication transport to use for the X session—LAT or IP.

3. **For LAT:** Enter your LAT Service Name. By default, the host system you connect to supplies your fonts.

   For IP: Enter your Host IP Address, TFTP Font Path, and IP Name Server.

   Your terminal's IP address and name server must be defined on a host system by your system manager. See Section 4.5.

4. Click on the Save button if you want to save your host settings.

   If you save your host settings, the terminal automatically tries to establish a connection to that host whenever you turn on or reboot the terminal. The terminal does not display the VXT EX dialog box.

   If you do not save your settings, the terminal uses these settings for the current session only. The next time you turn on or reboot the terminal, it will display the VXT EX dialog box again.

5. Click on the Connect button. If a connection is made, the terminal displays your host system's login prompt.

   If a connection is not made, the terminal redisplays the VXT EX dialog box.

6. Log in to your host system.

To redisplay the VXT EX dialog box:

Press the F3 key.

You can change your settings or create a second X session.

To switch from VXT EX to VXT software:

If you are using host-based operation, you must halt the terminal and enter a BOOT command that specifies VXT software. See Section 5.7.5.

If you are using server-based operation, you can choose VXT software from the VXT EX options box (Section 14.4).

14.4 VXT EX Options Dialog Box

You can specify VXT EX option settings by choosing the Options... button in
the VXT EX dialog box. When you click on Options, the terminal displays the
VXT EX options dialog box:
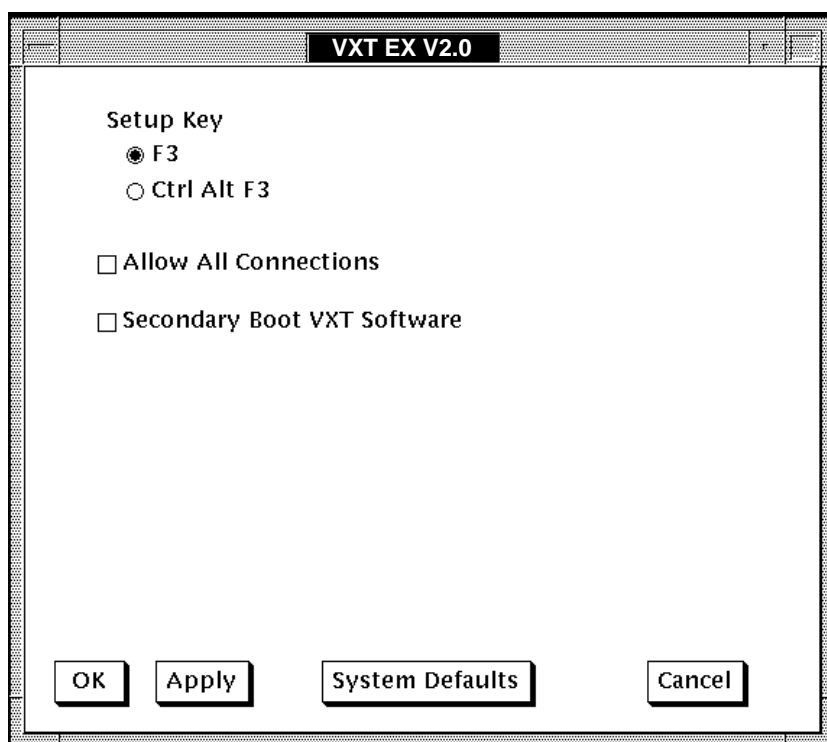
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From the VXT EX options dialog box, you can change the following settings:

☐ **Setup Key**

Normally, you use the F3 key to display the VXT EX dialog box. You can choose
to use the Ctrl Alt F3 key sequence instead.

☐ **Allow All Connections**

Normally, other systems and users cannot connect to your terminal when you
are using VXT EX software. If you click on the Allow All Connections button,
any system on the Ethernet can establish an X connection to your terminal.

☐ **Secondary Boot VXT Software**

If your terminal operates in server-based mode, you can use this button to switch from VXT EX software to full-function VXT software. The VXT software image must be available on an InfoServer system in your network. Your new setting takes effect the next time you turn on or reboot the terminal. You can reboot the terminal by pressing the [Ctrl]+left [Alt]+keypad [.] sequence.

Host-based terminals and server-based terminals operating in host-based mode cannot use this option. However, you can switch to VXT software by entering a boot command (Section 5.7.5).

To close the Options dialog box:

Click on the Cancel button.

15

Using Your Keyboard

You can use one of the following keyboards with your terminal:

- ANSI Keyboard
- Short ANSI Keyboard
- The PC Keyboard
- The Sun Style Keyboard

This chapter describes the basic functions of the keys and indicators on each keyboard. The chapter also describes how to use the keyboard instead of the mouse to navigate through windows and to choose items from menus and dialog boxes. Finally, the chapter describes how to type additional characters not shown on the keyboard keys.

VXT 3270 Keyboard Functions

For keyboard functions in VXT 3270 windows, see Chapter 9.

15.1 ANSI Keyboard

The ANSI keyboard comes in many versions for use with different languages and dialects. The only physical difference between these keyboards are the legends on the keys.

15.1.1 Keyboard Dialect

The terminal is initially set to work with the North American/United Kingdom keyboard. If you have a keyboard for a different language or you want to use the British dialect, you must change the Keyboard Type setting in the Customize Keyboard dialog box (Section 3.3).

15.1.2 Layout

The keyboard has four groups of keys and two visual indicators. The keys are grouped by function.

> Main keypad
> Editing keypad
> Numeric keypad
> Top-row function keys

The keyboard also has two audible indicators, a keyclick and bell.

The following figure shows the North American/United Kingdom keyboard:
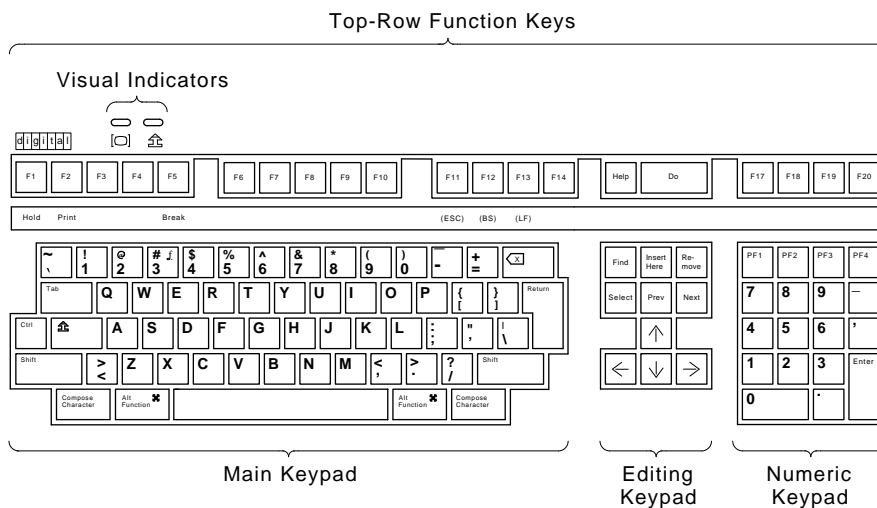
GSF_1436_89.DG

15.1.3 Main Keypad

The main keypad is similar to a typewriter keyboard with alphanumeric characters, punctuation marks, and Shift keys. The main keypad also has a number of keys not found on a standard typewriter, such as the Ctrl modifier key and the Compose Character and Alt prefix keys. The German keyboard has a Group Shift key and Alternate Shift key instead of Compose Character keys.

Modifier keys are pressed in combination with another key, to modify the code sent by that key. **Prefix keys** are pressed and released before pressing another key, to change the function of one or more keystrokes.
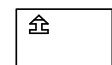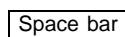
Special-Function Keys

The main keypad has the following special-function keys:

Tab	In VXT DECterm windows, pressing Tab sends a horizontal tab, which normally moves the cursor to the next tab stop. Applications can change tab stops. In the Terminal Manager window screens and in some DECwindows menus, Tab moves the cursor to the next text-entry box.
Ctrl	Holding down Ctrl and pressing another key sends a control code to the host.
	For example, Ctrl Z means to hold down Ctrl and press the Z key.
Shift	There are left and right Shift keys. Holding down Shift and pressing a standard key sends the shifted (top) character on the key.
	Holding down Shift and pressing a special-function key starts a predefined control function. For example, Shift F2 (Print) means to hold down Shift while pressing the F2 (Print) key.

Pressing the lock key down puts the keyboard in caps lock mode or shift lock mode. You can set the mode from the Customize Keyboard dialog box (Section 3.3). The default setting is Caps Lock.

- In caps lock mode, the alphabetic keys send their uppercase or shifted character when pressed alone. You can use a Shift key to send the shifted character on other keys. You turn caps lock mode on and off by pressing and releasing the lock key.

- In shift lock mode, all keys on the main keypad send their shifted character. You can turn shift lock mode on or off by pressing the Lock key.

When the lock key is down, the lock indicator on the keyboard turns on.

Return	Pressing Return sends either a carriage return or a carriage return and a line feed (newline). You can choose the function of the Return key from the VXT DECterm General Options dialog box (Section 8.5).
⟨X⟩ Backarrow key	Pressing the ⟨X⟩ key normally sends a delete (DEL) character. Many applications use DEL to erase one character to the left of the cursor.
	You can make the ⟨X⟩ key send a backspace (BS) character instead of DEL. You can select the function of the ⟨X⟩ key from the VXT DECterm Keyboard Options dialog box (Section 8.6).
Space bar	Pressing the space bar sends a space (SP) character. You use spaces to separate words or move the cursor forward.

Compose Character (left and right)	These are prefix keys, used to generate characters that do not appear as standard keys on your keyboard. See Section 15.6.3. On the German keyboard, the Compose Character key is replaced by Group Shift and Alternate Shift.
Group Shift (German)	You use Group Shift as a prefix or modifier key, to type the characters on the right half of keycaps. See Section 15.6.4.
Alternate Shift (German)	Alternate Shift is a modifier key, used to generate a no break space (NBSP) or soft hyphen (SHY) character. Alternate Shift + space bar = NBSP character. Alternate Shift - = SHY character.
Alt Function (left and right)	You use Alt with other keys, to select alternate functions defined by your application software. You can use Alt as a Compose Character key, by holding down the Alt and space bar. This action starts a compose character sequence. Your keyboard has both Compose Character and Alt Function keys. If a workstation application's documentation specifies use of the Compose Character key as a modifier for keyboard keys or mouse buttons, you may need to use the Alt key instead on the terminal.

15.1.4 Editing Keypad

The editing keypad has four arrow keys and six editing keys.

Normally, pressing an arrow key moves the text cursor in the direction of the arrow. For example, pressing the ↓ key moves the cursor down one line.

If you press Ctrl Shift F3, you can use the editing keypad to perform some mouse functions. In this mode, the arrow keys move the mouse pointer. The Select , Prev , and Next keys correspond to the three mouse buttons. The mouse continues to operate. There is no indication the mode is on, but the arrow keys will not work for normal editing functions.

To turn this mode off, press Ctrl Shift F3 again.

The six editing keys generally perform screen control functions defined by application software.

15.1.5 Numeric Keypad

Numeric keypad keys often have functions assigned by your software applications, especially PF1 to PF4. For example, you may use a spreadsheet program that assigns special functions to these keys. See your application manuals for details.

You can use the numeric keypad to enter numeric data as you would with a calculator. Programmers can use this keypad to do hexadecimal compose sequences. See Section 15.6.7.

When you use VXT DECterm windows, you can set the keypad to work as a numeric keypad or application keypad. See the VXT DECterm Keyboard Options dialog box in Section 8.6.

Enter   The Enter key on the numeric keypad normally works like the Return key. Enter sends a carriage return, or a carriage return and a line feed. You can select the function of the Return key from the VXT DECterm General Options dialog box (Section 8.5).

                         Application software may use Enter as a special-function key.

15.1.6 Top-Row Function Keys

Predefined Keys

The first five top-row keys, F1 to F5, are predefined to perform the following functions. You cannot change these functions. Your application software defines the functions of the remaining top-row keys. See your application manual for details.

F1 (Hold)   Pressing F1 (Hold) puts the screen display in the active window on hold. This stops the scrolling of text, which can make reading easier. When you press F1 (Hold), the hold indicator on the keyboard turns on. Pressing F1 (Hold) again allows scrolling to resume.

F2 (Print)   Pressing F2 (Print) sends the text in the active window to the printer.

                         The output may or may not correspond exactly to the display in the window. The output depends on the window size and font size. See Chapter 8 for more information on printing.

Ctrl F2   Pressing Ctrl F2 (Print) turns auto print mode on or off. In auto print mode, you can automatically print each line of text as it is received from the host system.

F3   This key if enabled in the Customize Terminal Manager window lets you hide or display the Terminal Manager window. See Section 3.10.

Ctrl Shift F3	Pressing Ctrl Shift F3 lets you use the editing keypad to perform some mouse functions. In this mode, the arrow keys move the mouse pointer. The Select , Prev , and Next keys correspond to the three mouse buttons. The mouse continues to operate. There is no indication the mode is on, but the arrow keys will not work for normal editing functions.
	To turn this mode off, press Ctrl Shift F3 again.
F4	This key is disabled.
F5 (Break)	Pressing Break ends communication with your system if you are using a VXT DECterm window running over the serial communication line.
	Pressing F5 (Break) has no effect on LAT, TCP/IP, or DECnet connections.
Shift F5	Pressing Shift F5 (Break) performs a disconnect on any VXT DECterm window session (LAT, TCP/IP, DECnet, or serial line). A disconnect is normally used to end communication with a modem in preparation for another call.
Ctrl F5	Pressing Ctrl F5 (Break) sends the answerback message to the system using LAT, TCP/IP, DECnet, or the serial line.

Note

Ctrl F5 (Break) sends the answerback message even if you set the Conceal Answerback Message feature in the VXT DECterm Keyboard Options dialog box (Section 8.6).

User-Defined Keys and Application-Specific Keys

The function of the remaining top-row keys, F6 to F20, often depends on your application software. Refer to your application software manuals for a description of key functions. You can also define the function of these keys yourself.

F6 to F20	When pressed alone, these keys send predefined programming sequences to the host system. Applications that recognize these sequences can use the keys to perform various functions.
	In VT100 and VT52 modes
Keys F11 , F12 , and F13 send control characters ESC, BS, and LF respectively. Keys F6 to F10 and F14 to F20 do not function.

Shift F6 to Shift 20	**User-defined keys (UDKs)** Pressing Shift and one of these keys sends the user-defined function for that key. You can define keys F6 to F20 by using programming sequences. You can use any sequence of characters in your definitions. Definitions are loaded from the host system. See the *VT320 Programmer Reference Manual* for details.

15.1.7 Data Processing Keys

Most versions of the keyboard have some keys with characters on the left half and right half of their keycap. Normally, you use the characters on the left half of the key. These are called typewriter characters. The characters on the right half are for data processing use.

You can set these keys to send their typewriter or data processing characters, by choosing the keyboard mode. See Section 3.3.

For the following keyboard types, the typewriter and data processing settings are identical:

- North American and Dutch

- When using 8-bit multinational characters: British, German, and Portuguese

If you use 7-bit national replacement character sets (NRCs), make sure you have chosen the correct NRC to match your keyboard. All data processing keyboards, regardless of language, expect the U.S. ASCII character set to be chosen. See Section 8.7.

£ **Key**

The North American/United Kingdom standard keyboard has only one key with three characters.

To use the £ symbol, you choose the British Keyboard type in the Customize Keyboard dialog box (Section 3.3). To use the # symbol, you choose the North American Keyboard type. There are no separate data processing legends on the North American/United Kingdom keyboard.

15.1.8 Compose Characters

You can type compose sequences to display many more characters than those shown on the keycaps. For example, you can display accented letters. See Section 15.6.

15.1.9 Text-Editing Functions

You can use the following key sequences to move the cursor or delete text in most applications.

To move . . .	Press . . .
To the next word	Shift →
To the previous word	Shift ←
To the beginning of the line	F12 or Ctrl H
To the end of the line	Shift F12 or Ctrl E

To delete . . .	Press . . .
The characters to the left of the cursor, up to and including the beginning of the word	F13 or Ctrl J
The characters to the right of the cursor, up to and including the end of the word	Shift F13
The character to the left of the cursor and move all text to the right of the deleted character one space to the left	⊲X
The character to the right of the cursor and move all text to the right of the deleted character one space to the left	Shift ⊲X
All characters to the start of the line	Ctrl U

15.1.10 Indicator Lights

The keyboard has two indicator lights that work with the F1 (Hold) and lock keys. The indicator lights are at the upper-left of the keyboard.

[◯] Turns on or off when you press the F1 (Hold) key.

⇧ Turns on or off when you press the lock key.

15.1.11 Audible Indicators

The keyboard has two audible indicators, a keyclick and a bell. You can use the bell as a margin bell, warning bell, or both. You can turn off the keyclick and bell, or adjust their volume. See the Customize Keyboard dialog box (Section 3.3).

15.1.12 Keyclick

You hear the keyclick sound each time you press a key that sends a code or causes the terminal to take some immediate action. Shift and Ctrl never click. If a key is autorepeating, the keyclick will repeat once for each character or key sequence sent. You can turn off the keyclick in the Customize Keyboard dialog box.

15.1.13 Bell

The bell tone is a beeping sound. You can use the bell as a margin bell, warning bell, or both.

Margin Bell

This bell sounds when the cursor is eight characters from the right margin.

Warning Bell

This bell sounds for any of the following conditions:

- During the power-up self-test

- When the terminal receives a bell (BEL) character from the host system

- After a compose character error

- After pressing a key for a character that is not available in the current character set

15.2 Short ANSI Keyboard

The short ANSI keyboard is a compact version of the ANSI keyboard, for those who make little use of auxiliary editing and numeric keypads. Most keys on the short ANSI keyboard work the same way as on the ANSI keyboard. This section describes how the short ANSI keyboard differs from the ANSI keyboard.

The short ANSI keyboard is only available in the North American/United Kingdom version. The keyboard has three groups of keys. The keys are grouped by function.

The keyboard also has two audible indicators, a keyclick and bell.
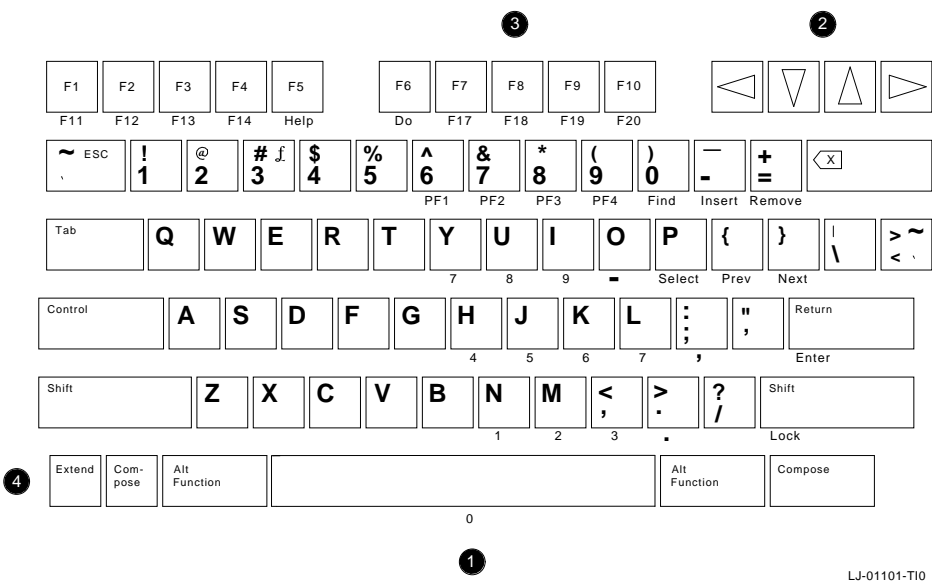
❶ Main keypad   ❸ Top-row function keys
❷ Arrow keys   ❹ Extend key

15.2.1 Main Keypad

The layout of the main keypad is similar to the ANSI keyboard, but includes
an ⌷Extend⌷ key. The ⌷Extend⌷ key lets you enter the same keystrokes as the
keypad and function keys found on the longer ANSI keyboard.

15.2.2 Using ⌷Extend⌷ Key Sequences for Keypad and Function Keys

You can use two-stroke ⌷Extend⌷ key sequences to perform the same functions as
the following keys that are on the longer ANSI keyboard:

* ⌷F11⌷ to ⌷F20⌷

* Editing keypad

* Numeric keypad

These functions are printed on the front of certain keys on the short ANSI
keyboard. For example, the ⌷P⌷ key also serves as the ⌷Select⌷ editing key. To
access this second function, you press the ⌷Extend⌷ key first. The following table
lists all the two-stroke ⌷Extend⌷ key sequences:

To Select ...	Press ...	To Select ...	Press ...
Top-Row Function Keys			
F11 to F20	Extend F1 to Extend F10		
Editing Keypad Keys			
Find	Extend 0	Select	Extend P
Insert	Extend -	Prev	Extend {
Remove	Extend =	Next	Extend }
Numeric Keypad Keys			
PF1	Extend 6	4	Extend H
PF2	Extend 7	5	Extend J
PF3	Extend 8	6	Extend K
PF4	Extend 9	,	Extend L
7	Extend Y	1	Extend N
8	Extend U	2	Extend M
9	Extend I	3	Extend ,
-	Extend O	.	Extend .
		0	Extend space bar

Special-Function Keys

The main keypad has the same special-function keys as the ANSI keyboard. The only difference from the ANSI keyboard is the Extend key.

Extend *front*   Pressing a two-stroke Extend sequence lets you perform the same functions as the following keys on the longer ANSI keyboard: F11 to F20, editing keypad, and numeric keypad. Functions are printed on the front of short ANSI keys.

Extend right Shift	Pressing the Extend and right Shift keys puts the keyboard in caps lock mode or shift lock mode. You can select the mode from the Customize Keyboard dialog box (Section 3.3). The default setting is Caps Lock.

- In caps lock mode, the alphabetic keys send their uppercase or shifted character when pressed alone. You can use a Shift key to send the shifted character on other keys. You turn `Caps Lock` mode on and off by pressing the Extend and right Shift keys.

- In shift lock mode, all keys on the main keypad send their shifted character. You can turn shift lock mode on by pressing the Extend and right Shift keys. You can turn it off by pressing either the Extend and right Shift keys or the Shift key.

The ` ~ key and < > key work the same way as on the ANSI keyboard, but the keycap legends are slightly different.

~ ESC `	Pressing this key normally sends the ` or ~ character. You can also use this key to send the escape (ESC) control character, by choosing the Tilde Key Sends ESC button in the VXT DECterm Keyboard Options dialog box (Section 8.6).
> ~ < `	If you use the ` ~ key to send the ESC character, you may want to use the <> key to send the ` and ~ characters. To do this, choose the Angle Bracket Key Sends '~ in the VXT DECterm Keyboard Options dialog box (Section 8.6).

15.2.3 Arrow Keys

The four arrow keys work the same as on the ANSI keyboard.

If you press Ctrl Shift F3, you can use the editing keypad to perform some mouse functions. In this mode, the arrow keys move the mouse pointer. The Select, Prev, and Next keys correspond to the three mouse buttons. The mouse continues to operate. There is no indication the mode is on, but the arrow keys will not work for normal editing functions.

To turn this mode off, press Ctrl Shift F3 again.

15.2.4 Top-Row Function Keys

Predefined Keys

The first five top-row keys, F1 to F5 , have the same predefined functions as on the ANSI keyboard.

User-Defined Keys and Application-Specific Keys

As on the ANSI keyboard, the function of the remaining top-row keys, F6 to
F10 and Extend F1 to Extend F10, often depends on your application software.
Refer to your application software manuals for a description of key functions.
You can also define the function of these keys yourself.

F6 to F10 | When pressed, these keys send predefined programming
and | sequences to the host system. Applications that recognize
Extend F1 to | these sequences can use the keys to perform various
Extend F10 | functions.

In VT100 and VT52 modes
Keys Extend F1 , Extend F2 , and Extend F3 send control
characters ESC, BS, and LF respectively. Keys F6 to F10 and
Extend F4 to Extend F10 do not function.

> _____ **Note** _____
>
> You can use the ~ key to send
> the ESC character. See the VXT
> DECterm Keyboard Options dialog
> box in Section 8.6.
> _____

Shift F6 | **User-defined keys (UDKs)**
to | Pressing Shift and one of these key sequences sends the
Shift F10 | user-defined function for that key. You can define keys F6 to
and | Extend F10 by using programming sequences. You can use
Shift Extend F1 | any sequence of characters in your definitions. Definitions are
to | loaded from the host system.
Shift Extend F10 |

 # £ Key

This key works the same way as on the ANSI keyboard.

To use the £ symbol, you select the `British Keyboard` setting in the Customize
Keyboard dialog box (Section 3.3). To use the # symbol, you select the `North
American Keyboard` setting.

15.2.5 Compose Characters

The Compose keys work the same as the Compose Character keys on the ANSI
keyboard.

You can type compose sequences to display many more characters than those
shown on the keycaps. For example, you can display accented letters. See
Section 15.6.

15.2.6 Indicator Lights

The short ANSI keyboard does not have indicator lights.

15.2.7 Audible Indicators

The short ANSI keyboard has the same two audible indicators as the ANSI keyboard, a keyclick and a bell. You can use the bell as a margin bell, warning bell, or both. You can turn off the keyclick and bell, or adjust their volume. See the Customize Keyboard dialog box (Section 3.3).

15.3 The PC Keyboard

You can use Digital's LK443 or LK444 PC keyboards with a VXT 2000 windowing terminal. The terminal does not support other PC keyboards.

You can operate the PC keyboard as a PC keyboard or as an ANSI keyboard (Section 15.1). This chapter describes using the PC keyboard keys in both modes.

15.3.1 PC Keyboard Models—Setting the Keyboard Type

There are two PC keyboards, a worldwide model (LK443) and a North American model (LK444). This section shows the North American model.

- The North American model has 101 keys.

- The worldwide model has 102 keys. The worldwide model comes in the following versions, for use in different countries.

Belgium	Germany	Portugal	Switzerland
Denmark	Italy	Spain	United Kingdom
France	Norway	Sweden	

When you start up the terminal with a PC keyboard connected, the terminal uses the North American PC keymap by default. To choose the keymap for one of the worldwide models, change the Customize Keyboard Type to the appropriate country (Section 3.3).

15.3.2 Using the ANSI Keyboard Layout

To switch from a PC keymap to an ANSI keymap, select one of the LK401 keyboard types (Section 3.3). When you switch to an ANSI keymap, the keyboard keys work like the keys on that ANSI keyboard. For example, if you have the LK443 North American PC keyboard, you might switch to the NORTH_AMERICAN_LK401AA keymap. To switch back to the North American PC keymap, you would choose the PC_US_LK443AA keymap.

The PC keyboard does not have the following keys, which appear on the ANSI keyboard: `F16` Do, `F17`, `F18`, `F19`, `F20`, and the `-` hyphen key on the numeric keypad. Applications that use these keys may not work properly with the PC keyboard, unless the applications provide alternate keystrokes.

15.3.3 Layout

The PC keyboard has four groups of keys and three indicator lights. The keys are grouped by function. The PC keyboard also has two audible indicators, a keyclick and bell.
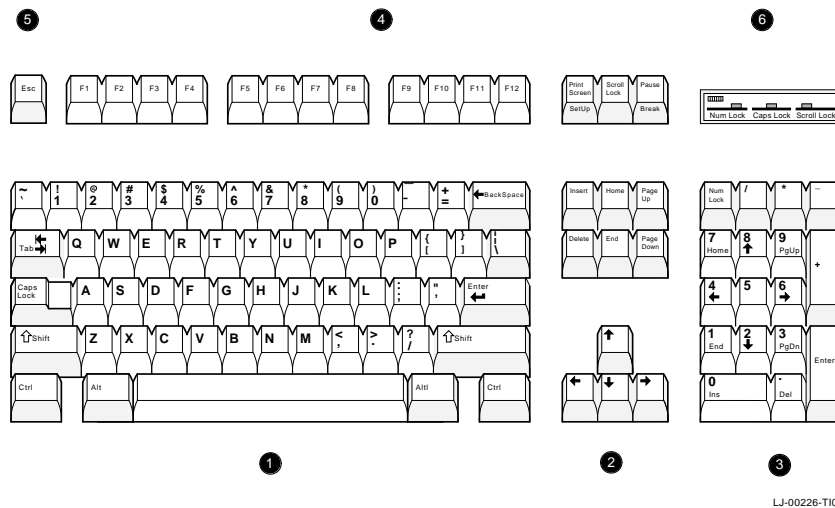
LJ-00226-TI0

❶ Main keypad   ❹ Top-row function keys
❷ Editing keypad   ❺ Escape key
❸ Numeric keypad   ❻ Indicator lights

15.3.4 Main Keypad

The layout of the main keypad is similar to a typewriter keyboard, with alphanumeric characters, punctuation marks, and `Shift` keys. The main keypad also has a number of keys not found on a typewriter, such as the `Ctrl` and `Alt` modifier keys.

Modifier keys are pressed in combination with another key, to modify the code sent by that key. **Prefix keys** are pressed and released before pressing another key, to change the function of one or more keystrokes.

Special-Function Keys

The main keypad and top row have the following special-function keys:

Tab	Pressing Tab moves the cursor to the next tab stop.
Ctrl	Holding down Ctrl and pressing another key sends a control code to the host.
	For example, Ctrl Z means to hold down Ctrl and press the Z key.
Caps Lock	Pressing the Caps Lock key puts the keyboard in caps lock mode or shift lock mode. You can select the mode from the Customize Keyboard dialog box (Section 3.3). The default setting is Caps Lock mode.
	• In Caps Lock mode, the alphabetic keys send their uppercase or shifted character when pressed alone. You can use a Shift key to send the shifted characters on other keys. You turn Caps Lock mode on and off by pressing the Caps Lock key.
	• In Shift Lock mode, all keys on the main keypad send their shifted character. You can turn Shift Lock mode on by pressing the Caps Lock key. You can turn it off by pressing either the Caps Lock key or the Shift key.
Shift	Holding down a Shift key and pressing a standard key generates the uppercase character on the key.
Enter	Pressing Enter sends a carriage return to the host, which usually puts the cursor either at the beginning of the next line or at the beginning of the same line.
	Pressing Enter normally moves the cursor to the beginning of the next line.
← Backspace	Pressing ← Backspace deletes one character to the left of the cursor.
Space bar	Pressing the space bar adds a space character. You use spaces to separate words or move the cursor forward.
Alt	Alt is used to generate characters or alternate functions that do not appear as standard keys on your PC keyboard. You can use Alt with another key to generate additional codes, or with the function keys to generate a third-level function for the key. See Section 15.1.8.
	When you select the North American keyboard type, both Alt keys work the same.
AltGr (right)	You use AltGr with **Janus-faced** or front-faced keys to generate the third character on a keycap. The North American PC keyboard does not have an AltGr key.

15.3.5 Janus-Faced and Front-Faced Character Keys

All PC keyboards, except the North American and United Kingdom, have keycaps with more than two characters. In most cases, the third character is on the top of the keycap, to the right of the first character. These keys are called Janus-faced character keys. In other cases the extra characters are on the front of the keycap. These keys are called front-faced character keys.

To display the third character on a Janus-faced or front-faced key:

- Press AltGr and the selected key.

15.3.6 Editing Keypad

The editing keypad has four arrow keys and six editing keys.

Pressing an arrow key normally moves the cursor in the direction of the arrow. For example, pressing the ↓ key moves the cursor down one line.

You can use the editing keys in several ways:

- For panning up or down a page, or for changing the size of a window on the screen.
- For special functions defined by the application software.

15.3.7 Numeric Keypad

You can use the numeric keypad to enter numbers and arithmetic operators. If you use an MS–DOS emulator, you can also use the numeric keypad as a cursor keypad. You press the Num Lock key to change from a numeric to a cursor keypad and back. In cursor keypad mode, the arrow keys and the Home key work exactly like the arrow keys on the editing keypad.

15.3.8 Top-Row Function Keys

The top-row keys perform the following functions:

F1 to F5	These keys perform the same functions as on the ANSI keyboard (Predefined Keys).
F6 to F12	Your application software defines the functions of these keys. See your application manual for details.
Esc	Pressing Esc begins a control sequence.

The function of the Print Screen , Scroll Lock , and Pause keys depends on your operating system environment and the keyboard type selected in the Customize Keyboard dialog box. In an MS–DOS environment (MS–DOS emulation):

Print Screen	Prints the screen.
Scroll Lock	Stops the screen from scrolling.
Pause	Stops or cancels a command.

In a non MS–DOS environment, the function of Print Screen , Scroll Lock , and Pause is application-specific.

When you change the keyboard type to an LK401 ANSI keymap:

* F13 becomes the Print Screen key.

* F14 becomes the Scroll Lock key.

* Help (F15) becomes the the Pause key.

15.3.9 Audible Indicators

The PC keyboard has two audible indicators, a keyclick and a bell. You can use a margin bell, warning bell, or both. See Section 3.3.

15.3.10 Keyclick

You hear the keyclick sound each time you press a key that sends a code or causes the terminal to take some immediate action. If a key is autorepeating, the keyclick will repeat once for each character or key sequence sent. Keys do not click under the following conditions:

* You press Shift , Ctrl , or Alt . These keys never click except when Shift is leaving the shift-lock state.

* You disable the Keyclick Volume in the Customize Keyboard dialog box (Section 3.3).

* You press a key or key combination that does not have a function under the current operating conditions.

15.3.11 Bell

The bell tone is a beeping sound. You can use the bell as a margin bell, warning bell, or both.

Margin Bell

This bell sounds when the cursor is eight characters from the right margin.

Warning Bell

This bell sounds for any of the following conditions:

- During the power-up self-test

- When the terminal receives a bell (BEL) character from the host system

- After a compose character error

15.3.12 Redefining Keys

You can use the X application xmodmap to modify key definitions. Section 15.3.13 lists the default key definitions. Each key on the keyboard sends a unique keycode to the terminal, and each keycode is assigned a key symbol. The applications that you use perform actions based on key symbols.

To change a key's function, you redefine the key by changing the key symbol. For example, if you wanted to redefine the Insert key to work like the Find key, you would look up the keycode for the Insert key in the Section 15.3.13. Then you would assign the key symbol Find to that keycode by using the xmodmap program.

For UNIX, ULTRIX, and DEC OSF/1 AXP systems

Here is the command format for redefining a key:

```
% xmodmap -e "keycode 0x keycode = key_symbol"
```

Examples

- To define the Insert key to work like the Find key:

  ```
  % xmodmap -e "keycode 0x8A = Find"
  ```

- To make the Insert key work normally again:

  ```
  % xmodmap -e "keycode 0x8A = Insert"
  ```

For OpenVMS systems

—————————————— **Note** ——————————————

The xmodmap program is available for systems using a DECwindows Motif version later than Version 1.1.

————————————————————————————————————

First, define a logical name (like xmodmap) pointing to the xmodmap executable image on your system. For example:

```
$ xmodmap:==$DECW$UTILS:XMODMAP.EXE
```

Here is the command format for redefining a key:

```
$  xmodmap -e "keycode 0xkeycode = key_symbol"
```

Examples

- To define the Insert key to work like the Find key:

  ```
  $  xmodmap -e "keycode 0x8A = Find"
  ```

- To make the Insert key work normally again:

  ```
  $  xmodmap -e "keycode 0x8A = Insert"
  ```

15.3.13 PC Keyboard Keycodes and Symbol Assignments

Table 15–1 lists the key labels, keycodes, and key symbols for each key on the North American PC keyboard.

Table 15–1 PC Keyboard Keycodes and Symbol Assignments

Key Label	Key Code	Key Symbol	Shifted Key Symbol
Main Keypad Keys			
↑ Shift	AB	Shift_R	
Alt	AC	Alt_L	
Ctrl	AD	Control_R	
↑ Shift	AE	Shift_L	
Ctrl	AF	Control_L	
Caps Lock	B0	Caps_Lock	
Alt Gr	B2	Alt_R	
← Backspace	BC	Delete	
Enter	BD	Return	
Tab	BE	Tab	
' ~	BF	quoteleft	asciitilde
1 !	C0	1	exclam
Q	C1	Q	
A	C2	A	
Z	C3	Z	
2 @	C5	2	at
W	C6	W	
S	C7	S	
X	C8	X	
3 #	CB	3	numbersign

(continued on next page)

Table 15–1 (Cont.)   PC Keyboard Keycodes and Symbol Assignments

Key Label	Key Code	Key Symbol	Shifted Key Symbol
Main Keypad Keys			
E	CC	E	
D	CD	D	
C	CE	C	
4 $	D0	4	dollar
R	D1	R	
F	D2	F	
V	D3	V	
Spacebar	D4	Space	
5 %	D6	5	percent
T	D7	T	
G	D8	G	
B	D9	B	
6 ^	DB	6	asciicircum
Y	DC	Y	
H	DD	H	
N	DE	N	
7 &	E0	7	ampersand
U	E1	U	
J	E2	J	
M	E3	M	
8 *	E5	8	asterisk
K	E7	K	
, <	E8	comma	less
9 (	EA	9	parenleft
O	EB	O	
L	EC	L	
. >	ED	period	greater
0)	EF	0	parenright
P	F0	P	
; :	F2	semicolon	colon
/ ?	F3	slash	question
= +	F5	equal	plus
] }	F6	bracketright	braceright
\		F7	backslash	bar

Table 15–1 (Cont.)   PC Keyboard Keycodes and Symbol Assignments

Key Label	Key Code	Key Symbol	Shifted Key Symbol
Main Keypad Keys			
- _	F9	minus	underscore
[{	FA	bracketleft	braceleft
' "	FB	quoteright	quotedbl
Editing and Arrow Keypad Keys			
Insert	8A	Insert	
Home	8B	Home	
Page Up	8C	Prior	
Delete	8D	Delete	
End	8E	End	
Page Down	8F	Next	
←	A7	Left	
→	A8	Right	
↓	A9	Down	
↑	AA	Up	
Top-Row Function Keys			
Esc	55	Escape	
F1	56	F1	
F2	57	F2	
F3	58	F3	
F4	59	F4	
F5	5A	F5	
F6	64	F6	
F7	65	F7	
F8	66	F8	
F9	67	F9	
F10	68	F10	
F11	71	F11	
F12	72	F12	
Print Screen	73	Print	
Scroll Lock	74	Scroll_Lock	
Pause	7C	Pause	

Table 15–1 (Cont.)   PC Keyboard Keycodes and Symbol Assignments

Key Label	Key Code	Key Symbol	Shifted Key Symbol
Numeric Keypad Keys			
0	92	KP_0	
.	94	KP_Decimal	
Enter	95	KP_Enter	
1	96	KP_1	
2	97	KP_2	
3	98	KP_3	
4	99	KP_4	
5	9A	KP_5	
6	9B	KP_6	
+	9C	KP_Add	
7	9D	KP_7	
8	9E	KP_8	
9	9F	KP_9	
Num Lock	A1	Num_Lock	
/	A2	KP_Divide	
*	A3	KP_Multiply	
-	A4	KP_Subtract	

15.4 The Sun Style Keyboard

This section describes the Sun style keyboard (LK460) for the VXT 2000 windowing terminal. The Sun style keyboard comes in a North American model (101 keys) only.

When you start up the terminal with a Sun style keyboard connected, the terminal automatically chooses the Sun style keyboard map. To choose the keymap for another keyboard model, change the Keyboard Type in the Customize Keyboard dialog box (Section 3.3).

15.4.1 Layout

The Sun style keyboard has four groups of keys and four indicator lights. The keys are grouped by function. The Sun style keyboard also has two audible indicators, a keyclick and bell.
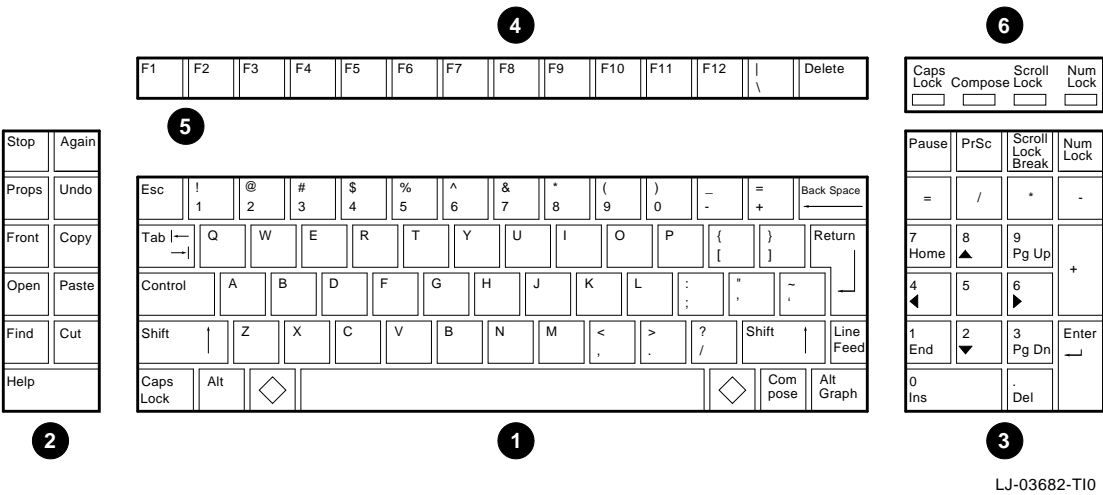
LJ-03682-TI0

❶ Main keypad   ❹ Top-row function keys
❷ Editing keypad   ❺ Escape key
❸ Numeric keypad   ❻ Indicator lights

15.4.2 Main Keypad

The layout of the main keypad is similar to a typewriter keyboard, with alphanumeric characters, punctuation marks, and ⎡Shift⎤ keys. The main keypad also has a number of keys not found on a typewriter, such as the ⎡Control⎤ and ⎡Alt⎤ modifier keys.

Modifier keys are pressed in combination with another key, to modify the code sent by that key. **Prefix keys** are pressed and released before pressing another key, to change the function of one or more keystrokes.
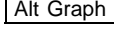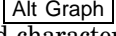
Special-Function Keys

The main keypad and top row have the following special-function keys:

Esc	Pressing Esc begins a control sequence.
Tab	Pressing Tab moves the cursor to the next tab stop.
Control	Holding down Control and pressing another key sends a control code to the host.
	For example, Control Z means to hold down Control and press the Z key.
Shift	Holding down a Shift key and pressing a standard key generates the uppercase character on the key.
Caps Lock	Pressing the Caps Lock key puts the keyboard in caps lock mode or shift lock mode. You can select the mode from the Customize Keyboard dialog box (Section 3.3). The default setting is Caps Lock mode.

  • In Caps Lock mode, the alphabetic keys send their uppercase or shifted character when pressed alone. You can use a Shift key to send the shifted characters on other keys. You turn Caps Lock mode on and off by pressing the Caps Lock key.

  • In Shift Lock mode, all keys on the main keypad send their shifted character. You can turn Shift Lock mode on by pressing the Caps Lock key. You can turn it off by pressing either the Caps Lock key or the Shift key.

Return	Pressing Return sends a carriage return to the host, which usually puts the cursor either at the beginning of the next line or at the beginning of the same line.
	Pressing Return normally moves the cursor to the beginning of the next line.
← Backspace	Pressing ← Backspace moves the cursor one character to the left.
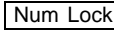
Space bar	Pressing the space bar adds a space character. You use spaces to separate words or move the cursor forward.
◇	You use ◇ instead of Alt in key sequences for VXT 2000 functions. For example, you press Ctrl ◇ Del to reboot the terminal. If you use the keyboard instead of the mouse to navigate windows, use ◇ instead of Alt in key sequences (Section 15.5).
Alt	You use Alt key sequences to generate added characters or functions. To compose added characters, see Section 15.1.8. When you use Alt with certain function keys, you generate a third-level function for the key.
Alt Graph	You use Alt Graph with **Janus-faced** or front-faced keys to generate the third character on a keycap.

15.4.3 Editing Keypad
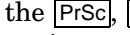
The 11 editing keys generally perform functions defined by application software. See your Sun system documentation.
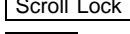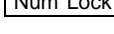
15.4.4 Numeric Keypad

You can use the numeric keypad to enter numbers and arithmetic operators. You can also use the numeric keypad as a cursor keypad. You press the Num Lock key to change from a numeric to a cursor keypad and back.

In cursor keypad mode, you can use arrow key functions. Pressing an arrow key normally moves the cursor in the direction of the arrow. For example, pressing the ↓ key moves the cursor down one line. Other keys let you

- Pan up or down a page
- Change the size of a window on the screen
- Perform functions defined by your application software

The numeric keypad also includes special-function keys. The function of the PrSc, Scroll Lock, and Pause keys depends on your operating system environment and the keyboard type selected. When using the Open Look window manager:

PrSc	Prints the screen.
Scroll Lock	Stops the screen from scrolling.
Pause	Stops or cancels a command.
Num Lock	Changes numeric keypad to a cursor keypad.

15.4.5 Top-Row Function Keys

The top-row keys perform the following functions:

| Delete | Pressing | Delete | deletes one character to the left of the cursor. |

15.4.6 Audible Indicators

The Sun style keyboard has two audible indicators, a keyclick and a bell. You can use a margin bell, warning bell, or both.

15.4.7 Keyclick

You hear the keyclick sound each time you press a key that sends a code or causes the terminal to take some immediate action. If a key is autorepeating, the keyclick will repeat once for each character or key sequence sent. Keys do not click under the following conditions:

- You press Shift, Control, or Alt. These keys never click except when Shift is leaving the shift-lock state.

- You disable the Keyclick Volume in the Customize Keyboard dialog box (Section 3.3).

- You press a key or key combination that does not have a function under the current operating conditions.

15.4.8 Bell

The bell tone is a beeping sound. You can use the bell as a margin bell, warning bell, or both.

Margin Bell

This bell sounds when the cursor is eight characters from the right margin.

Warning Bell

This bell sounds for any of the following conditions:

- During the power-up self-test

- When the terminal receives a bell (BEL) character from the host system

- After a compose character error

15.4.9 Redefining Keys

You can use the X application xmodmap to modify key definitions.
Section 15.4.10 lists the default key definitions. Each key on the keyboard
sends a unique keycode to the terminal, and each keycode is assigned a key
symbol. The applications that you use perform actions based on key symbols.

To change a key's function, you redefine the key by changing the key symbol.
For example, if you wanted to redefine the Insert key to work like the Find key,
you would look up the keycode for the Insert key in the Section 15.4.10. Then
you would assign the key symbol Find to that keycode by using the xmodmap
program.

Here is the command format for redefining a key using its keycode:

```
%  xmodmap -e "keycode 0x keycode = key_symbol"
```

Examples

- To define the Insert key to work like the Find key:

  ```
  %  xmodmap -e "keycode 0x8A = Find"
  ```

- To make the Insert key work normally again:

  ```
  %  xmodmap -e "keycode 0x8A = Insert"
  ```

You can also redefine a key by looking up its key symbol and assigning a new
key symbol. However, make sure the key symbol you choose performs the
expected function. In other words, make sure that a new keycode was not
assigned to the key symbol. Here is the format for assigning a new key symbol:

```
%  xmodmap -e "keysym old_key_symbol = new_key_symbol"
```

Example

To define the Backspace key to work like the Del key:

```
%  xmodmap -e "keysym BackSpace = Delete"
```

15.4.10 Sun Keyboard Keycodes and Symbol Assignments

Table 15–2 lists the keycodes and key symbols for each key on the Sun style
keyboard. There are up to four key symbols for each keycode.

Table 15–2   Sun Keyboard Keycodes and Symbol Assignments

Key Code	Key Symbols				Key Symbol Valuess			
8	F11	F11	Cancel		ffc8	ffc8	ff69	
a	F12	F12	Redo		ffc9	ffc9	ff66	
c	F1				ffbe		ffbe	
d	F2				ffbf		ffbf	
e	F10				ffc7		ffc7	
f	F3				ffc0		ffc0	
10	SunXK_F36				1005ff10		1005ff10	
11	F4				ffc1		ffc1	
12	SunXK_F37				1005ff11		1005ff11	
13	F5				ffc2		ffc2	
14	Mode_switch				ff7e		ff7e	
15	F6				ffc3		ffc3	
17	F7				ffc4		ffc4	
18	F8				ffc5		ffc5	
19	F9				ffc6		ffc6	
1a	Alt_L				ffe9		ffe9	
1c	F21	F21	Pause		ffd2	ffd2	ff13	
1d	F22	F22	Print		ffd3	ffd3	ff61	
1e	F23	F23	Scroll_Lock	Break	ffd4	ffd4	ff14	ff6b
20	F13	F13	SunXK_Props		ffca	ffca	1005ff70	
21	F14	F14	Undo		ffcb	ffcb	ff65	
24	Escape				ff1b		ff1b	
25	1	exclam			31	21	31	21
26	2	at			32	40	32	40
27	3	numbersign			33	23	33	23
28	4	dollar			34	24	34	24
29	5	percent			35	25	35	25
2a	6	asciicircum			36	5e	36	5e
2b	7	ampersand			37	26	37	26
2c	8	asterisk			38	2a	38	2a
2d	9	parenleft			39	28	39	28
2e	0	parenright			30	29	30	29
2f	minus	underscore			2d	5f	2d	5f
30	equal	plus			3d	2b	3d	2b
31	grave	asciitilde			60	7e	60	7e
32	BackSpace				ff08		ff08	
34	F24	F24	KP_Equal		ffd5	ffd5	ffbd	
35	F25	F25	KP_Divide		ffd6	ffd6	ffaf	

(continued on next page)

Table 15–2 (Cont.)   Sun Keyboard Keycodes and Symbol Assignments

Key Code	Key Symbols				Key Symbol Valuess			
36	F26	F26	KP_Multiply		ffd7	ffd7	ffaa	
38	F15	F15	SunXK_Front		ffcc	ffcc	1005ff71	
39	Delete	Delete	KP_Decimal		ffff	ffff	ffae	
3a	F16	F16	SunXK_Copy		ffcd	ffcd	1005ff72	
3c	Tab				ff09		ff09	
3d	Q				71	51	71	51
3e	W				77	57	77	57
3f	E				65	45	65	45
40	R				72	52	72	52
41	T				74	54	74	54
42	Y				79	59	79	59
43	U				75	55	75	55
44	I				69	49	69	49
45	O				6f	4f	6f	4f
46	P				70	50	70	50
47	bracketleft	braceleft			5b	7b	5b	7b
48	bracketright	braceright			5d	7d	5d	7d
49	Delete				ffff		ffff	
4a	Multi_key				ff20		ff20	
4b	F27	F27	KP_7	Home	ffd8	ffd8	ffb7	ff50
4c	Up	F28	KP_8		ff52	ffd9	ffb8	
4d	F29	F29	KP_9	Prior	ffda	ffda	ffb9	ff55
4e	KP_Subtract				ffad		ffad	
4f	F17	F17	SunXK_Open		ffce	ffce	1005ff73	
50	F18	F18	SunXK_Paste		ffcf	ffcf	1005ff74	
53	Control_L				ffe3		ffe3	
54	A				61	41	61	41
55	S				73	53	73	53
56	D				64	44	64	44
57	F				66	46	66	46
58	G				67	47	67	47
59	H				68	48	68	48
5a	J				6a	4a	6a	4a
5b	K				6b	4b	6b	4b
5c	L				6c	4c	6c	4c
5d	semicolon	colon			3b	3a	3b	3a
5e	apostrophe	quotedbl			27	22	27	22
5f	backslash	bar	brokenbar		5c	7c	a6	

(continued on next page)

Table 15–2 (Cont.)   Sun Keyboard Keycodes and Symbol Assignments

Key Code	Key Symbols				Key Symbol Valuess			
60	Return				ff0d		ff0d	
61	KP_Enter				ff8d		ff8d	
62	Left	F30	KP_4		ff51	ffdb	ffb4	
63	F31	F31	KP_5		ffdc	ffdc	ffb5	
64	Right	F32	KP_6		ff53	ffdd	ffb6	
65	Insert	Insert	KP_0		ff63	ff63	ffb0	
66	F19	F19	Find		ffd0	ffd0	ff68	
68	F20	F20	SunXK_Cut		ffd1	ffd1	1005ff75	
69	Num_Lock				ff7f		ff7f	
6a	Shift_L				ffe1		ffe1	
6b	Z				7a	5a	7a	5a
6c	X				78	58	78	58
6d	C				63	43	63	43
6e	V				76	56	76	56
6f	B				62	42	62	42
70	N				6e	4e	6e	4e
71	M				6d	4d	6d	4d
72	comma	less			2c	3c	2c	3c
73	period	greater			2e	3e	2e	3e
74	slash	question			2f	3f	2f	3f
75	Shift_R				ffe2		ffe2	
76	Linefeed				ff0a		ff0a	
77	R13	R13	KP_1	End	ffde	ffde	ffb1	ff57
78	Down	F34	KP_2		ff54	ffdf	ffb2	
79	F35	F35	KP_3	Next	ffe0	ffe0	ffb3	ff56
7d	Help				ff6a		ff6a	
7e	Caps_Lock				ffe5		ffe5	
7f	Meta_L				ffe7		ffe7	
80	space				20		20	
81	Meta_R				ffe8		ffe8	
84	KP_Add				ffab		ffab	

15.5 Using the Keyboard Instead of the Mouse

This section describes how to use the keyboard to navigate through windows and choose items from menus and dialog boxes. You will find this section useful if you prefer using the keyboard rather than the mouse, or if your mouse is not working.

Sun Style Keyboard: Use ◇ Instead of Alt
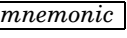
On the Sun style keyboard, use ◇ instead of Alt in keyboard navigation sequences.

15.5.1 Using the Editing Keypad to Perform Mouse Functions

When you enable the editing keypad to perform mouse functions, you can still use your mouse. There is no indication the mode is on, but you cannot use the arrow keys for normal editing functions.

To...	Press...
Enable the editing keypad to perform mouse functions.	Ctrl Shift F3
Move the mouse pointer	↑ , ↓ , ← , →
Perform MB1 functions	Select
Perform MB2 functions	Prev
Perform MB3 functions	Next
Disable the editing keypad from performing mouse functions.	Ctrl Shift F3 again

15.5.2 Using Menu Bars and Pull-Down Menus

To...	Press...
Move to the first menu in a menu bar	F10
Pull down a menu from the menu bar	Alt *mnemonic* *
Move to the next menu item in a pull-down menu	↑ or ↓
Move to another menu in the menu bar	← or →
Move from one pull-down menu to the preceding menu on the left in the menu bar	← , Ctrl ← , or Ctrl ↑

*The underlined character in the menu name

To...	Press...
Move from one pull-down menu to the next menu on the right in the menu bar	$\boxed{\rightarrow}$, $\boxed{Ctrl}$ $\boxed{\rightarrow}$, or $\boxed{Ctrl}$ $\boxed{\downarrow}$
Choose a menu item	$\boxed{Return}$, $\boxed{Ctrl}$ $\boxed{Return}$, or $\boxed{Enter}$
Remove a menu, leaving the cursor on the menu name	$\boxed{F11}$ (ESC)
Move the cursor from the menu bar to where it was before you started using the menu bar (explicit focus policy), or	$\boxed{F11}$ (ESC)
Move the cursor from the menu bar to wherever the pointer is located (implicit focus policy)	
Remove all displayed menus	$\boxed{F10}$

15.5.3 Using Pop-Up Menus

To...	Press...
Display a pop-up menu	$\boxed{F4}$
Move to the next menu item in a pop-up menu	$\boxed{\uparrow}$ or $\boxed{\downarrow}$
Display a submenu from a pop-up menu item	$\boxed{\rightarrow}$
Choose a menu item	$\boxed{Return}$, $\boxed{Ctrl}$ $\boxed{Return}$, or $\boxed{Enter}$
Remove the displayed menu	$\boxed{F11}$ (ESC)
Dismiss the menu	$\boxed{F4}$

15.5.4 Using Submenus

To...	Press...
Display a submenu	Any of these:
	Arrow key (in direction of submenu), $\boxed{Ctrl}$ arrow key, $\boxed{Return}$, $\boxed{Ctrl}$ $\boxed{Return}$, or $\boxed{Enter}$
Choose a menu item	$\boxed{Return}$, $\boxed{Ctrl}$ $\boxed{Return}$, or $\boxed{Enter}$
Choose the default entry in a submenu	$\boxed{Alt}$ $\boxed{mnemonic}$ *
Move to another menu item in a submenu	$\boxed{\uparrow}$ or $\boxed{\downarrow}$
Remove the submenu and move back to the parent menu	$\boxed{\leftarrow}$

*The underlined character in the menu name

To...	Press...
From the submenu to the parent menu	`←` , `Ctrl` `←` , or `Ctrl` `↑`
Move from the parent menu to the default menu item in the associated submenu	`→` , `Ctrl` `→` , or `Ctrl` `↓`

15.5.5 Navigating Windows

This section describes how to use your keyboard to move between and within windows.

Moving Between Windows

To move between groups of windows:

To move...	Press...
From one group of windows to another	`Alt` `Tab` or `Alt` `F11`*
From one minimized window to another when the minimized windows are not in an icon box	`Alt` `Tab` or `Alt` `F11`*
From one minimized window to another in an icon box	Arrow keys
Within a group of windows	`Alt` `F6`
To the previous group of windows	`Alt` `Shift` `F11` or `Alt` `Shift` `Tab`
To move between minimized windows in an icon box	Arrow keys

*If you use the mouse pointer to make windows active (Section 12.3), you cannot use the `Alt` `Tab` or `Alt` `F11` functions.

15.5.6 Miscellaneous

To ...	Press...
Pop up the window menu of a minimized window when that window is in an icon box.	F4
Restore a minimized icon box	`Alt` `F5` or `Return`

Moving Within Windows

To move within menus:

To ...	Press...
Focus on the menu bar	F10
Pull down the window menu	Alt +space bar or Shift F11
Move from one tab group to another	Tab

To choose items in the window menu:

To ...	Press...
Lower a window to the bottom of the window stack	Alt F3
Close (not minimize) a window	Alt F4
Restore a minimized window	Alt F5
Move a window	Alt F7
Size a window	Alt F8
Minimize a window	Alt F9
Maximize a window	Alt F10

To move a window around the screen:

1. Press Alt F7.

2. Use the arrow keys to move the window in the desired direction. You can also press Ctrl + arrow keys to move the window several pixels at a time.

3. Press Return or Ctrl Return to finish the operation.

To size a window:

1. Press Alt F8.

2. Press one arrow key to indicate which side of the window to size. For example, press ↑ for the top of the window.

   You can also press two arrow keys in a row to indicate which corner to size. For example, press ↑ ← to indicate the upper-left corner.

3. Press the arrow keys to size the window in the desired direction. You can also press Ctrl arrow keys to size the window several pixels at a time.

4. Press Return or Ctrl Return to finish the operation.

15.5.7 Using Dialog Boxes

To move...	Press...
Forward from tab group to tab group (field to field)	`Tab` or `Ctrl` `Tab`
Backward from tab group to tab group	`Shift` `Tab` or `Ctrl` `Shift` `Tab`
From button to button in a tab group	Arrow keys
To a pop-up Options menu	`Select`, space bar, or `Ctrl`+space bar

To activate...	Press...
The default selection in the dialog box	`Return`, `Ctrl` `Return`, or `Enter`
A check or radio button in a group	`Select`, space bar, or `Ctrl`+space bar
A push button in a group	`Select`, space bar, `Ctrl`+space bar, `Return`
A push button in a group	`Ctrl` `Return` or `Enter`
An item in an Options menu	`Return`, `Ctrl` `Return`, or `Enter`

To cancel...	Press...
A dialog box or an Options menu	`Alt` `F4`

15.6 Typing Additional Characters

The terminal lets you type more characters than appear on your keyboard. For
example, you can type accented characters or a © symbol. This chapter lists
the available characters and shows you how to select them.

To enter one of these characters, you type a sequence of keys. Most sequences
begin with one of the `Compose Character` keys. If you use the German
keyboard, you use the `Group Shift` key instead of `Compose Character`.

This chapter describes the following types of key sequences:

- Three-stroke `Compose Character` sequences (with all LK401 keyboards)

- `Group Shift` sequences (with the German keyboard)

- Two-stroke key sequences (with keyboards that have nonspacing diacritical keys)

- Hexadecimal key sequences (for programmers)

Two basic factors determine the key sequences you can use.

- The Keyboard Type setting, which should match your keyboard type (Section 3.3).

- The character set the terminal is currently using (Chapter 8).

15.6.1 What Characters Can I Type?

You can type any of the characters in the character set the terminal is currently using. You can select from two 8-bit multinational sets (DEC Multinational or ISO Latin Alphabet No. 1) or many 7-bit national replacement character sets (NRCs).

To choose ...	Use...
The use of 8-bit multinational sets or 7-bit NRC sets	The VXT DECterm General Options dialog box (Section 8.5).
An 8-bit multinational set	The VXT DECterm General Options dialog box.
A 7-bit NRC set	The 7-Bit NRCS Selection dialog box (Section 8.7).

By default, the terminal uses the DEC Multinational character set. Section 8.5 describes multinational and national character sets.

15.6.2 Key Sequences with Nonspacing Diacritical Keys

Table 15–3 lists the keyboards that have keys with *diacritical marks*. Table 15–4 lists all the additional characters for all character sets in the terminal. Many of these characters include a diacritical mark. For example, Á includes an acute accent.

To enter a character that has a diacritical mark, you press the diacritical key followed by the character. If your keyboard does not have the diacritical key, you must press the `Compose Character` key followed by the correct key sequence listed in Table 15–4.

To use diacritical keys, you must be using a multinational character set.

Table 15–3   Keyboards with Diacritical Marks

Keyboard	Grave Accent	Acute Accent	Circumflex Accent	Tilde Mark	Umlaut
Finnish	yes	no	yes	yes	no
Flemish	yes	no	yes	yes	yes
French/Belgian	yes	no	yes	yes	yes
French Canadian	yes	no	yes	yes	no
German	yes	yes	yes	yes	yes
Portuguese	no	no	no	yes	no
Spanish	yes	yes	yes	yes	yes
Swedish	yes	no	yes	yes	no
Swiss (French)	yes	no	yes	yes	yes
Swiss (German)	yes	no	yes	yes	yes

15.6.3   How to Type a Character Using the Compose Character Key

To enter a ⎍Compose Character⎍ key sequence:

1. Find the character you want to type in Table 15–4.

2. Press the ⎍Compose Character⎍ key.

3. Type the sequence in Table 15–4 for the character you want.

Example

To type an é:

1. Find the é character in Table 15–4.

2. Press ⎍Compose Character⎍.

3. Type ⎍e⎍ and ⎍'⎍ (apostrophe).

_____ **Note** _____

If you try to enter a character that is not available in the current character set, a warning bell sounds. See Section 15.6.5.

_____

15.6.4 How to Type a Character Using the Group Shift Key

If you select the Austrian-German keyboard type in the Customize Keyboard dialog box (Chapter 3), the [Group Shift] key replaces the [Compose Character] key.

Many keys on the German keyboard have a second group of legends on the right half of their keycap. These legends are called Group-2.

To enter a single character from Group-2:

1. Press and release the [Group Shift] key.

2. Type the key that has the desired character on the right half of the keycap. The character appears on the screen.

Example

To type an ø:

1. Press [Group Shift].

2. Type the key that has the ø character on the right half of the keycap: [O ø].

To enter a series of characters from Group-2:

1. Hold down the [Group Shift] key.

2. Type the series of keys that have the desired characters on the right half of their keycaps. The characters appear on the screen.

3. When you are done typing characters from Group-2, release the [Group Shift] key.

15.6.5 Invalid Sequences

When you complete a valid compose or group-shift sequence, the character appears on the screen. If you use an invalid sequence, the terminal cancels the sequence and sounds the warning bell.

Some compose characters require that you type the key sequence in the order listed in Table 15–4. If you do not follow the order, the sequence is invalid and the warning bell sounds. If the terminal does not display the character, repeat the sequence exactly as shown in Table 15–4.

_____ **Note** _____

Pressing a function key cancels a compose or group-shift sequence without sounding the bell.

You can turn the warning bell on or off from the Customize Keyboard dialog box (Chapter 3).

_____

15.6.6 Canceling or Restarting a Key Sequence

If you accidentally start a key sequence by pressing ⎢ Compose Character ⎥,
⎢ Group Shift ⎥, or a nonspacing diacritical key, press the ⌫ key. This immediately
cancels the sequence.

If you press ⎢ Compose Character ⎥ during a compose sequence, a new three-stroke
sequence starts from that point. The first sequence is canceled.

If you press any of the following keys during a key sequence, they cancel the
sequence and perform their usual function:

- Tab
- Enter
- Any top-row key
- Any Ctrl *other key* combination

15.6.7 Hexadecimal Key Sequences

This feature is primarily for programmers who are familiar with character
coding and hexadecimal representation.

The terminal uses coded character sets to exchange data with a host computer.
The code for a character can be represented by a pair of hexadecimal digits.
You can enter any 8-bit code from the terminal, by pressing ⎢ Compose Character ⎥
or ⎢ Group Shift ⎥ then entering two hexadecimal digits on the numeric keypad.

When you press ⎢ Compose Character ⎥ or ⎢ Group Shift ⎥, the terminal assigns
hexadecimal values to the numeric keypad keys. Here are the values assigned
to each key:

Key Name	Hexadecimal Digit
PF1	A
PF2	B
PF3	C
PF4	D
Minus (–)	E
Comma (,)	F

_____ **Note** _____

The 8-Bit Multinational Characters, 7-Bit NRCS Characters, and UPSS
DEC Supplemental buttons in the VXT DECterm General Options
dialog box do not affect hexadecimal compose sequences.

_____

Examples

- You can use a hexadecimal compose sequence to send the US (unit
  separator) control character. The hexadecimal value for US is 1F.

  1. Press ⎡ Compose Character ⎤ or ⎡ Group Shift ⎤.

  2. Press ⎡1⎤ on the numeric keypad.

  3. Press ⎡,⎤ on the numeric keypad.

- You can use a hexadecimal compose sequence to send the DCS (device
  control string) character. The hexadecimal value for DCS is 90.

  1. Press ⎡ Compose Character ⎤ or ⎡ Group Shift ⎤.

  2. Press ⎡9⎤ on the numeric keypad.

  3. Press ⎡0⎤ on the numeric keypad.

Invalid Hexadecimal Sequences

If you enter an invalid sequence, the terminal cancels the sequence and sounds
the warning bell. You can turn the warning bell on or off from the Customize
Keyboard dialog box (Chapter 3).

Table 15–4 Key Sequences for Additional Characters

Character		Sequence
"	quotation mark	¨ (sp)
#	number sign	+ +
′	apostrophe	´ (sp)
@	commercial at	A A
[	opening bracket	((
\	backslash	/ / or / <
]	closing bracket	))
^	circumflex accent	^ (sp)
`	grave accent	` (sp)
{	opening brace	(-
|	vertical line	/ ^
}	closing brace	) -
~	tilde	~ (sp)
¡	inverted !	!!
¢	cent sign	C / or C |
£	pound sign	L- or L=
¥	yen sign	Y- or Y=
§	section sign	SO or S! or S0
¤	currency sign	XO or X0
©	copyright sign	CO or C0
ª	feminine ordinal	A_
«	open angle brackets	< <
°	degree sign	0 ^
±	plus or minus sign	+ -
²	superscript 2	2 ^
³	superscript 3	3 ^
µ	micro sign	/ U
¶	paragraph sign	P!
·	middle dot	. ^

Table 15–4 (Cont.)   Key Sequences for Additional Characters

Character		Sequence
¹	superscript 1	1 ^
º	masculine ordinal	O_
»	closed angle brackets	>>
¼	fraction one-quarter	1 4
½	fraction one-half	1 2
¿	inverted ?	??
À	A grave	`A
Á	A acute	′A
Â	A circumflex	^A
Ã	A tilde	~A
Ä	A umlaut	¨A or "A
Å	A ring	°A or *A
		(degree sign)
Æ	A E diphthong	AE
Ç	C cedilla	C,
È	E grave	`E
É	E acute	′E
Ê	E circumflex	^E
Ë	E umlaut	¨E or "E
Ì	I grave	`I
Í	I acute	′I
Î	I circumflex	^I
Ï	I umlaut	¨I or "I
Ñ	N tilde	~ N
Ò	O grave	`O
Ó	O acute	′O

Most sequences that include diacritical marks can also be typed in reverse order.

Table 15–4 (Cont.)   Key Sequences for Additional Characters

Character		Sequence
Ô	O circumflex	^O
Õ	O tilde	~O
Ö	O umlaut	¨O or "O
Œ	O E diphthong*	O E
Ø	O slash	o /
Ù	U grave	`U
Ú	U acute	′U
Û	U circumflex	^U
Ü	U umlaut	¨U or "U
Ÿ	Y umlaut*	¨Y or "Y
ß	German small sharp s	ss
à	a grave	`a
á	a acute	′a
â	a circumflex	^a
ã	a tilde	~a
ä	a umlaut	¨a or "a
å	a ring	°a or a* (degree sign)
æ	a e diphthong	a e
ç	c cedilla	c , (comma)
è	e grave	`e
á	e acute	′e
ê	e circumflex	^e
ë	e umlaut	¨e or "e
ì	i grave	`i
í	i acute	′i
î	i circumflex	^i

*This character is only available when you use the DEC Multinational character set. See the VXT DECterm General Options dialog box (Section 8.5).

Table 15–4 (Cont.)   Key Sequences for Additional Characters

Character		Sequence
ï	i umlaut	¨i or "i
ñ	n tilde	~n
ò	o grave	`o
ó	o acute	′o
ô	o circumflex	^o
õ	o tilde	~o
ö	o umlaut	¨o or "o
œ	o e diphthong[*]	o e
ø	o slash	o /
ù	u grave	`u
ú	u acute	′u
û	u circumflex	^u
ü	u umlaut	¨u or "u
ÿ	y umlaut[*]	¨y or "y

[*]This character is only available when you use the DEC Multinational character set. See the VXT DECterm General Options dialog box (Section 8.5).

(continued on next page)

Table 15–4 (Cont.)   Key Sequences for Additional Characters

Character		Sequence
ISO Characters†		
	no break space	sp sp
¦	broken vertical bar	| | or ! ^
¬	logical not	- ,
-	soft (syllable) hyphen	- -
®	registered trade-mark	R O
¯	macron	- ^
¾	three quarters	3 4
÷	division sign	- :
×	multiplication sign	x x
´	acute accent	' '
¸	cedilla	, ,
¨	diaeresis	¨ (sp) or " "
Ý	Y acute	' Y
ý	y acute	' y
Þ	capital Icelandic thorn	T H
þ	small Icelandic thorn	t h
Ð	capital Icelandic Eth	- D
ð	small Icelandic Eth	- d

†These characters are only available when you use the ISO Latin Alphabet No. 1 character set. See the VXT DECterm General Options dialog box (Section 8.5).

A

Solving Problems And Getting Service
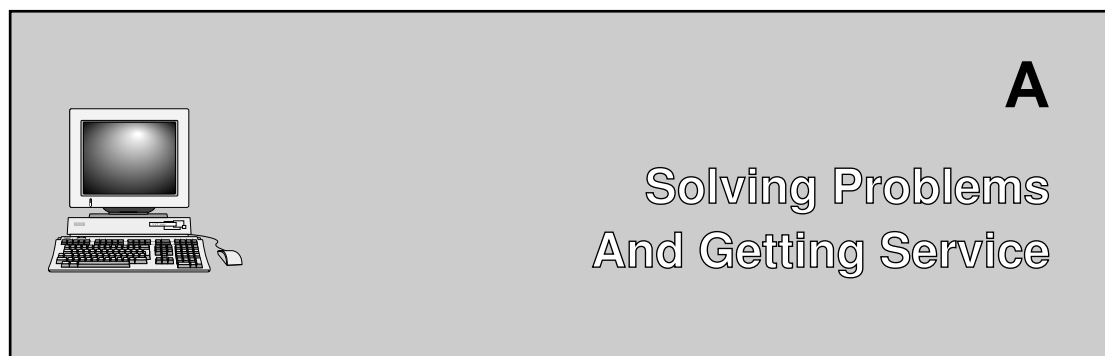
This appendix describes some simple operating problems you can solve yourself. The appendix covers the following major topics:

- Operating Problems
- Power-Up Self-Test
- Digital Service Overview

A.1 Operating Problems

The following tables list some possible operating problems and suggested solutions. If you have a problem with your terminal, check this list before calling for service. If the problem persists and you need service, see Section A.4 in this appendix.

Table A–1, System Box, Monitor, Keyboard, Mouse, and Printer Problems
Table A–2, Booting, Server, and Network Problems
Table A–3, Session, Application, and Dialog Box Problems

Table A–1 System Box, Monitor, Keyboard, Mouse, and Printer Problems

Symptom	Suggested Solution
System Box Problems	
The system box fan is off.	Check the power source. Make sure the power cord is plugged in. Turn the system box's power switch on (❘).
	Note: The VX225 and VX227 terminals do not have a system box.

(continued on next page)

Table A–1 (Cont.)   System Box, Monitor, Keyboard, Mouse, and Printer Problems

Symptom	Suggested Solution
Monitor Problems	
When you turn the terminal on, the monitor does not display the Terminal Manager window after 45 seconds.	Make sure the monitor's power switch is on (	).
	System box models: Check the monitor cable connections at the system box and monitor.
	Adjust the monitor's brightness and contrast controls. See the monitor's installation guide.
	If you have a VRM17 monitor, set the scan switch to High.
	If you have customized the terminal to hide the Terminal Manager window at startup, you can press F3 to redisplay the Terminal Manager window.
	If you have customized the terminal to not run the terminal manager, you can start the Terminal Manager window from the VXT Create pop-up menu. Press MB2 anywhere on the screen background to display the menu.
	Check the keyboard cable connections at the terminal and keyboard
The screen is blank, but the terminal is on.	Check if the two keyboard lights are blinking, which may indicate the CRT saver is on. If the CRT saver is on, press any key to reactivate the screen.
	Check if brightness and contrast controls are set correctly.
System box models: On a color terminal, the window colors look wrong. The red and blue colors appear to be swapped.	Check the monitor's cable connection at the back of the system box. The cable may be plugged in upside down.

**Table A–1 (Cont.)   System Box, Monitor, Keyboard, Mouse, and Printer
Problems**

Symptom	Suggested Solution
Keyboard Problems	
The bell tone does not sound when you turn the terminal on. All keyboard indicator lights are off.	Check the keyboard cable connection to the system box.
The information you type is not displayed.	Check the hold indicator to see if the keyboard is on hold. If the keyboard is on hold, press the F1 (Hold) key to release the screen.
	The current window may not accept input, or you may not have activated the window. Check the window's title bar to see if the window has input focus.
Mouse Problems	
The pointer for the mouse or tablet does not appear on the screen, or the pointer does not respond to the pointing device commands.	Turn the system box's ⎢ I O ⎢ power switch off (O), then disconnect and reconnect the mouse or tablet cable. Turn the system box's ⎢ I O ⎢ power switch on (I).
	Replace the mouse. Until you get a new mouse, press Ctrl Shift F3 to use the editing keypad to perform mouse functions. See Chapter 15.
Printer Problems	
The printer does not print.	Turn the printer's power switch on (I).
	Check the printer cable connections.
	Check the settings in the Customize Serial and Parallel Ports dialog box (Section 4.2). Check that the correct port is enabled (serial or parallel). Check that the transmit rate, baud rate, and parity setting in the dialog box match the printer's settings.

Solving Problems and Getting Service
A.1 Operating Problems

Table A–2   Booting, Server, and Network Problems

Symptom	Suggested Solution
Booting Problems or Operating Failure	
The monitor displays a >>> prompt.	The >>> prompt appears when the terminal fails operation or when you halt the terminal (by pressing the halt button, or by pressing <u>Ctrl</u> <u>C</u> before the terminal boots its VXT software).
	Turn the terminal's <u>I O</u> power switch off (O) and on (I) again. (On system box models, this is the switch on the system box.)
	If the terminal fails to load its software or fails operation again, keep notes of any error messages and the terminal's operating state when the failure occurred. For host-based terminals, see Section 1.5.1 to monitor memory use.
	You can also enter boot commands at the >>> prompt, to load a specific version of VXT software (Section 5.7.5).
	If you cannot correct the problem, call your Digital Service representative with any error messages you noted.

Table A–2 (Cont.)   Booting, Server, and Network Problems

Symptom	Suggested Solution
Server-Based Terminals: Problems with Server Connections	
The first time you start the terminal, it fails to load its VXT software from an InfoServer system and displays the following message four times: `LASTport... Group code 0`	The terminal does not have the same LASTport group code as the InfoServer system. See your system manager for the correct code. See Section 4.4 to enter a LASTport code.
The terminal stops operating correctly and displays a message on the top line of the screen.	The terminal may have lost its connection to the InfoServer system. Wait for the connection to be reestablished. When the connection resumes, the message is erased, the screen is restored, and the terminal returns to normal functions. Contact your system manager if these messages appear too frequently or for longer than a few seconds. If the terminal does not recover, turn the terminal's ⎢ O power switch off (O) and on (⎢) again to restart the terminal. On system box models, this is the switch on the system box.
The terminal's software seems to be hanging in a suspended state.	Reboot the terminal by pressing the following key sequence: **ANSI keyboard –** Press Ctrl+left Alt+keypad . . **PC keyboard –** Press Ctrl+Alt+keypad . . **Short ANSI keyboard –** Press Ctrl Alt Extend . . **Sun style keyboard –** Press Ctrl ◇ Del.

(continued on next page)

Table A–2 (Cont.) Booting, Server, and Network Problems

Symptom	Suggested Solution
Network Problems	
The host system and terminal do not communicate.	Check that the Ethernet cable is securely connected to the terminal.
	Make sure the port that your system cable is connected to is active by trying a working system in the port.
	If you are using a ThinWire Ethernet cable, make sure the cable is attached to the system box by a T-connector. Make sure there is no ThinWire segment between the system box and the T-connector. Check if a terminator has been removed or is connected to an active ThinWire segment.
Server-based terminals: the InfoServer system displays messages at the top of the terminal's screen.	Communication between the InfoServer system and terminal may have been interrupted. Wait to see if the InfoServer system can reconnect to the terminal. If normal operation does not resume, you may need to reboot the terminal:
	ANSI keyboard – Press Ctrl+left Alt+keypad . .
	PC keyboard – Press Ctrl+Alt+keypad . .
	Short ANSI keyboard – Press Ctrl Alt Extend . .
	Sun style keyboard – Press Ctrl ◇ Del.

Table A–3 Session, Application, and Dialog Box Problems

Symptom	Suggested Solution
Problems Creating Sessions and VXT Applications	
You cannot view the Terminal Manager window.	If you have customized the terminal to hide the Terminal Manager window, you can press F3 to redisplay the Terminal Manager window.
	If you have customized the terminal to not run the terminal manager, you can start the Terminal Manager window from the VXT Create pop-up menu. Press MB2 anywhere on the screen background to display the menu.

Table A–3 (Cont.)   Session, Application, and Dialog Box Problems

Symptom	Suggested Solution
Problems Creating Sessions and VXT Applications	
You cannot create sessions with the TCP/IP transport in the Create dialog box. The TCP/IP button is dimmed.	Make sure your terminal's IP address is entered in the Customize TCP/IP dialog box and appears at the bottom of the Terminal Manager window. See Section 4.5.
	Also, your system manager may have restricted access to the Create menu settings by using the terminal's configuration manager. Ask your system manager which of your terminal's create and customize features are restricted.
You cannot use the DECnet transport to create sessions in the Create dialog box. The DECnet button is dimmed.	Make sure your terminal's DECnet address is entered in the Customize DECnet dialog box and appears at the bottom of the Terminal Manager window. See Section 4.9.
	Also, your system manager may have restricted access to the Create menu settings by using the terminal's configuration manager. Ask your system manager which of your terminal's create and customize features are restricted.
You cannot create a DECnet X session to an OpenVMS host from the Create dialog box.	Make sure your system manager installed the network object VXT$SERVER.COM on the OpenVMS host. See *VXT Software Version 2.1 Installation and System Management*.
Font Problems	
Your host application fonts display incorrectly on the terminal.	Set the font path in the Customize Font Path dialog box to access the fonts from your host system. List the font path to your host system as the first entry in the Customize Font Path dialog box (Section 5.3).
The terminal cannot access fonts on your host system or InfoServer system. The VXT Message Box displays Font not found error messages.	Include backup font sources in the Customize Font Path dialog box. If the primary font source is unavailable, the terminal can find the same fonts on the backup source.

(continued on next page)

Table A–3 (Cont.)   Session, Application, and Dialog Box Problems

Symptom	Suggested Solution
Problems with Customize Dialog Boxes	
You cannot change settings in Customize dialog boxes.	Your system manager may have restricted access to some Customize dialog boxes by using the terminal's configuration manager. Ask your system manager which of your terminal's customize features are restricted.
	Some buttons are dimmed if they do not apply to the action you are currently performing.
VXT DECterm Window Problems	
The DECterm window is too high on the screen.	Adjust the terminal size in the DECterm Window Options dialog box. You can also use the window menu to move the window. To display the menu, click MB3 anywhere on the window frame.

A.1.1 NFS Error Codes

If an error occurs when mounting or accessing file systems, the VXT Message Box displays an NFS error code. Table A–4 lists NFS numeric error codes.

Table A–4   NFS Error Codes

Error Code	Meaning
0	NFS$_NORMAL
-1	NFS$_ERROR
10001	NFS$_NOMOREMNT
10002	NFS$_CANTMPGBL
10003	NFS$_NOTMOUNTED
10004	NFS$_INVPARAM
10005	NFS$_ALRDYMOUNTED
10006	NFS$_NOHOSTNAME
10007	NFS$_INVHOSTNAME
10008	NFS$_CANTGETHNAM
10009	NFS$_CANTGETIP

Table A–4 (Cont.)   NFS Error Codes

Error Code	Meaning
10010	NFS$_DQUOTA
10011	NFS$_NFSDQUOTA
10020	NFS$_QUEERR
10021	NFS$_NOREQQUE
10022	NFS$_NOTOPENED
20001	NFS$_CANTENCODE
20002	NFS$_CANTDECODE
20003	NFS$_RPCTIMEDOUT
20004	NFS$_PROGUNAVAIL
20005	NFS$_PROCUNAVAIL
20006	NFS$_CANTDECODE
20007	NFS$_CANTSEND
20008	NFS$_CANTRECV
20009	NFS$_VERSMISMATCH
20010	NFS$_AUTHERR
20011	NFS$_PRGVERMISMATCH
20012	NFS$_ATHERERR
20013	NFS$_PMAPFAILURE
20014	NFS$_RPCSYSERR
20015	NFS$_RPCPROGNOTREG
30001	NFS$_NFS_PERM
30002	NFS$_NFS_NOENT
30003	NFS$_NFS_IO
30004	NFS$_NFS_NXIO
30005	NFS$_NFS_ACCES
30006	NFS$_NFS_EXIST
30007	NFS$_NFS_NODEV

Table A–4 (Cont.)   NFS Error Codes

Error Code	Meaning
30008	NFS$_NFS_NOTDIR
30009	NFS$_NFS_ISDIR
30010	NFS$_NFS_FBIG
30011	NFS$_NFS_NOSPC
30012	NFS$_NFS_ROFS
30013	NFS$_NFS_NAMTOOLNG
30014	NFS$_NFS_NOTEMPTY
30015	NFS$_NFS_DQUOT
30016	NFS$_NFS_STALE
30017	NFS$_NFS_WFLUSH

A.2 Power-Up Self-Test

Every time your turn the terminal on, it automatically runs a power-up
self-test. This test checks the operating status of many internal parts in the
terminal. During the test, the keyboard lights turn on and off. The power-up
self-test should not take more than 45 seconds to complete.

If the test is successful:

The terminal downloads the VXT system image software, performs its boot
procedure, and displays the Terminal Manager window or a login prompt for
your host system.

If there were any test errors:

The terminal displays a diagnostic error message.

A.2.1 Error Messages

If the terminal fails the power-up self-test, the terminal may display an error
message and >>> prompt. The following table lists error messages for some
simple problems that you can correct yourself. If you see other error messages,
note the error messages and call your Digital service representative; only
qualified service personnel should try to correct these problems.

Error Message	Reason
?? 002 3 QDZ 0080	The keyboard failed the self-test. Check that the keyboard is plugged in correctly.
?? 001 9 VNI 0132	The Ethernet failed the self-test. Check that your network cable is plugged in correctly.
?? 020 12 IMG 0016	The image accelerator option board failed the self-test. Check that the board is installed correctly. For VXT 2000 system box models, see *VXT 2000 Windowing Terminal Installation Information*. For other models, see instructions supplied with the image accelerator board.
?MOP 1	Transmit error. MOP was unable to transmit due to a system board error.
?MOP 255	Not enough space in memory to load the image.
?IP 2	An ICMP Protocol Unreachable message was received. The TFTP host listed in the BOOTP response does not understand the user datagram protocol (UDP) that TFTP runs over. The IP download stops.
?IP 3	An ICMP Port Unreachable message was received. The remote TFTP daemon has either never been started or is not running on the load host. The IP download stops.
?TFTP 1	A TFTP error message was received while sending a TFTP Read Request packet. The TFTP load stops. This error usually means a file was not found or you do not have access to the file.
?TFTP 3	A TFTP error message was received while sending a TFTP Acknowledgment packet. The TFTP load stops.
?TFTP 5	A TFTP error message was received while sending a TFTP Error packet. The TFTP load stops.
?TFTP 255	Not enough space in memory to load the image.

A.3 Restoring the Terminal to Factory-Default Settings

You can reset the VXT 2000 windowing terminal's nonvolatile RAM (NVRAM) to the factory-default settings by entering a console command.

1. Place the terminal in console mode by pressing Ctrl Alt keypad . or pressing the halt button on the rear of the terminal.

2. At the >>> console prompt, enter the following command:

   ```
   >>>  T/UTIL 1
   ```

When you boot the terminal successfully it saves a record of the successful booting method used. When you reboot the terminal, it tries using this saved method first. You can clear this saved state while booting the terminal:

```
>>> B/10000
```

A.4 Digital Service Overview

As a full-service vendor, Digital provides hardware, software, network, and operations support to a diverse, worldwide customer base. Digital offers one of the most comprehensive portfolios of service in the industry, designed to support customers throughout the computing life cycle—planning, design, implementation and ongoing management.

Customers tailor the type and level of support to meet their individual business needs. Regardless of the service solution, customers benefit from Digital's single-source support strategy.

Digital's commitment to be the Best in Class service provider means that there is a force of 40,000 service professionals operating from 450 locations in over 80 countries dedicated to support our customers.

Digital believes in backing its products with meaningful warranties. This product may be covered by the Standard Product Warranty, which is entitlement to one year of hardware Basic Service with priority response time Monday through Friday, 8 AM to 5 PM. Where applicable, entitlement to the Product Foundation Warranty for the kernel software is provided. This Standard Warranty is further proof of Digital's commitment to the customer.

Digital provides on-site and off-site remedial services.

Digital offers fast, competitively priced, quality maintenance performed at your site by Digital trained Service Specialists. There are several on-site services available.

A.4.1 How to Get Service

Digital has a central service center in your area to help you keep your system running at peak efficiency. To find out more about Digital's hardware and software service offerings

In the United States

For customers who purchased standard warranty (on-site) support, have your system manager call for remedial service at 1–800–354–9000.

Other customers may call 1–800–225–5385 for return to Digital Service.

For general information, call 1–800–DEC–INFO.

For ordering and ordering support, call 1–800–DIGITAL.

Outside the United States
Contact your local Digital Customer Services Office.

B

Mixing Colors

This appendix describes how to use the Color Mixing dialog box on VXT 2000 color and gray scale terminals. You can choose and mix your own colors for windows, window borders, and certain other customizable features. When you choose a feature that has customizable colors, the terminal displays a Color Mixing dialog box.

The VXT 2000 color and gray scale terminals use 8-plane displays. The color terminal lets you display 256 colors from a palette of 16.7 million colors. The gray scale terminals provide 256 levels of gray.

B.1 What Color Settings Can I Customize?

Here is a list of VXT 2000 color settings you can change, using the Terminal Manager window and workspace Options submenu.

To change this feature's color...	Use this dialog box...
Terminal Manager (Customize Menu)	
Pointer	Customize Pointer
Window	Customize Window Color
Screen	Customize Screen Background

To change this feature's color...	Use this dialog box...
Window Manager (Workspace Options Submenu)	
Border for active windows	Border Color Options
Border for inactive windows	Border Color Options
Window manager menu colors	Border Color Options
Icons	Icon Color Options
Window matte	Matte Options

B.2 Color Mixing Dialog Box

The Color Mixing dialog box offers different methods for mixing colors, based on different color models:

- Picker
- Hue, Lightness, Saturation (HLS)
- Red, Green, Blue (RGB)
- Browser
- Gray scale

The default model is the Picker model. You can use one model or a combination of models. For example, you can use any color model to select a color, then use the Picker color model to blend the selected color. When you choose a color model in the dialog box, the terminal displays the set of controls for that model in the dialog box.

The following sections describe how to use each of the color models to choose your own colors.

B.2.1 Picker Color Model

When you click on a button in a dialog box to change a color, the terminal displays the Picker version of the Color Mixing dialog box:

_____ **Note** _____

The title of the dialog box may be Color Mixing or Highlight Color, depending on what feature you are customizing.

_____

```
                              Highlight Color

                          Color Display
                          Box

Current Color

                          New Color

        Color Model:    Picker

                 Spectrum              Spectrum Label

                                       Color Spectrum

Paint Bucket
        Lighter        Interpolator        Warmer
Lightness                                              Warmth
Arrow Buttons                                          Arrow Buttons
        Darker                          Cooler
Smear                                                  Interpolator
Push Button     Smear   Undo                           Undo
                                                       Push Button
                 Scratch Pad...

           OK   Apply   Reset   Cancel
```
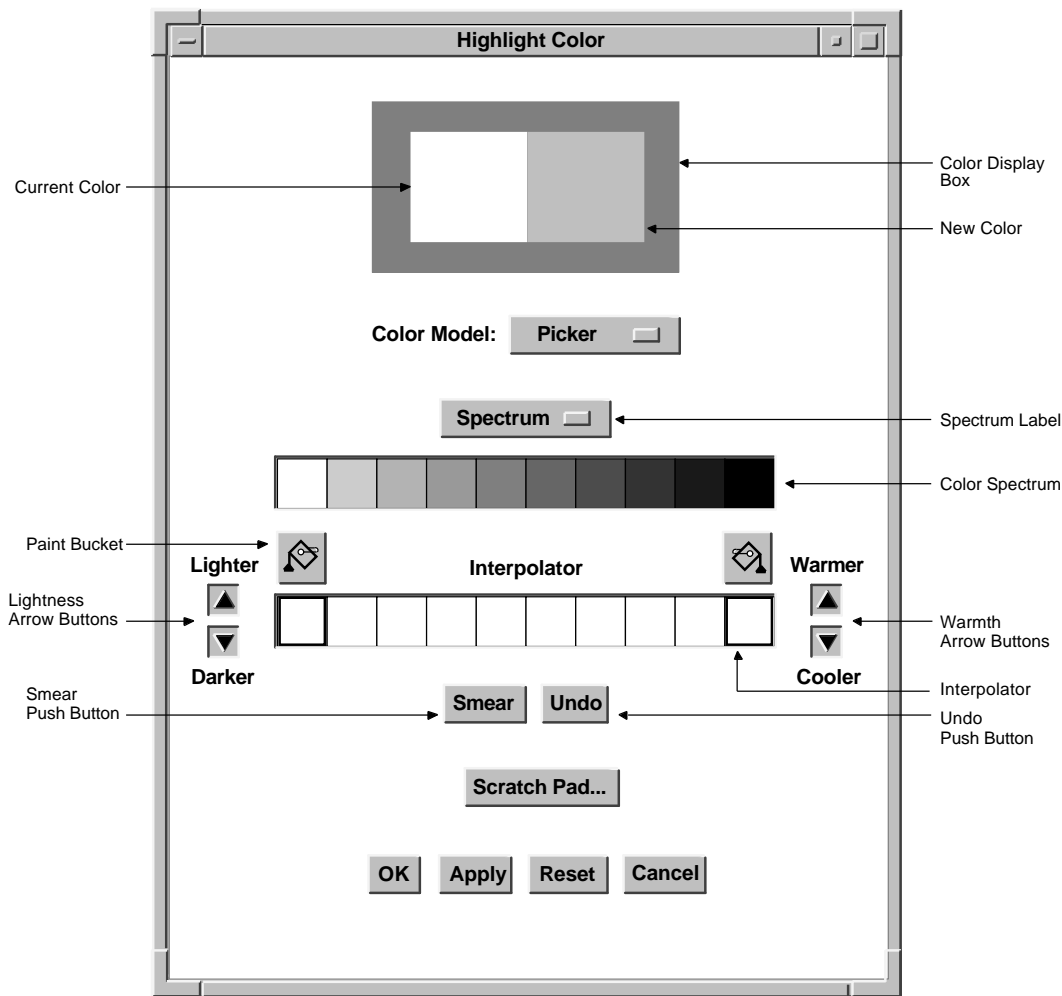
LJ−03030−RAGS

The **color spectrum** is a static collection of colors. The spectrum options menu lets you set the spectrum to one of the following common color palettes:

- Rainbow spectrum (white, red, orange, yellow, green, blue, blue-violet, violet, brown and black)

- Pastels

- Vivids

- Earthtones

- Any application-specific palettes

When you click MB1 on a spectrum tile or interpolator tile, that color becomes the new color. The tile is highlighted to identify it as the currently selected color.

You can use the selected color without modification, or you can do on or more of the following tasks:

- Use the interpolator to smear (blend) the selected color into various shades.

- Use the arrow buttons to make the color lighter or darker, warmer or cooler.

- Switch to another color model and use the features of that model to modify the current selection.

To smear colors, use the two **paint buckets** to load the **interpolator** with the colors:

1. Click MB1 on a spectrum tile or interpolator tile. The color display box displays the color of that tile.

2. Click on a paint bucket, which fills the interpolator end tile below it with the selected color.

3. Fill both interpolator end tiles or one. If you only fill one end tile, the color of the empty interpolator end tile is white.

As an alternative to the paint buckets, you can use an **eyedropper** pointer to load the interpolator. If you click and hold MB1 on a spectrum or interpolator tile, the pointer becomes an eyedropper filled with the color of the tile.

You can use the eyedropper to fill one of the interpolator's two end tiles, by moving the eyedropper to the tile and clicking on MB1. If you do not position the eyedropper directly on one of the two end tiles, the closest end tile is filled with the eyedropper color. The cursor must be inside the interpolator.

Use the Undo button to reverse the last interpolator action, which can be a smear, the filling of an end tile, or the activation of one of the warmth or lightness adjustment buttons.

B.2.2 Hue, Lightness, Saturation (HLS) Color Model

When you choose HLS from the pop-up Color Model menu, the Color Mixing dialog box displays the controls for the HLS color model.
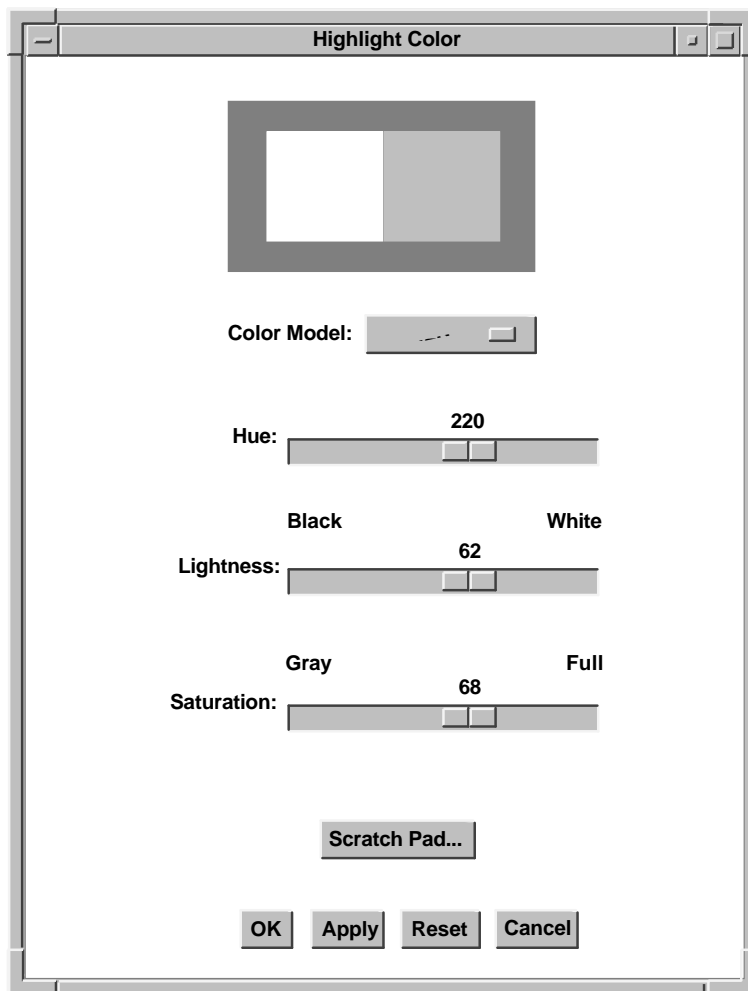
LJ–03027–RAGS

In the HLS color model, you specify a color by three characteristics: hue, lightness, and saturation.

- Hue is color, such as red or blue.

- Lightness is color intensity, the amount of color.

- Saturation is the purity of the color, or how much the color is diluted by white.

The HLS color model contains three scales that represent the ranges of hue, lightness, and saturation.

B.2.3 Red, Green, Blue (RGB) Color Model

In the RGB color model, you mix a color by adding different intensities of the primary colors red, green, and blue. A primary color is a basic color that cannot be created by mixing other colors.

The RGB color model contains three scales that represent the of red, green and blue.
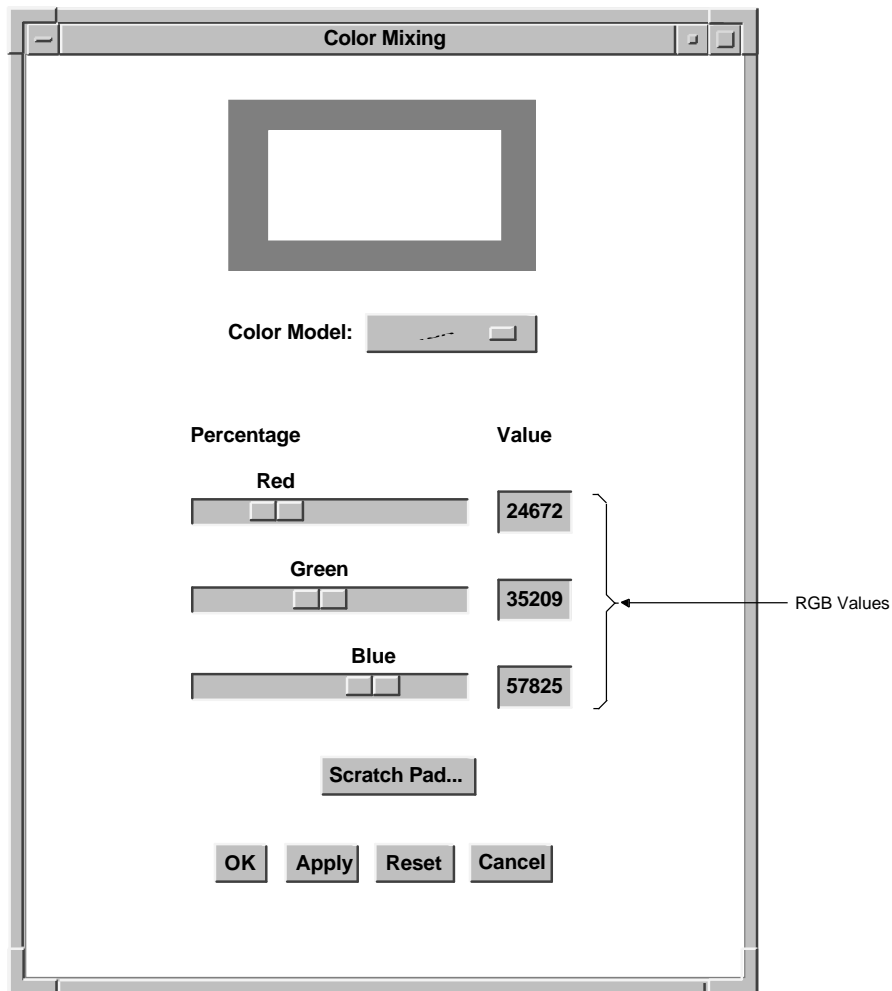
LJ–03028–RAGS

B.2.4 Browser Color Model

The browser color model is a scrolled window that displays a list of X11 named colors. Each button in the scrolled window shows the name of an X11 color. Use the scroll bar to scroll through this color list. When you click MB1 on a color in the list, the color display box becomes filled with that color. The color browser is available on all systems.
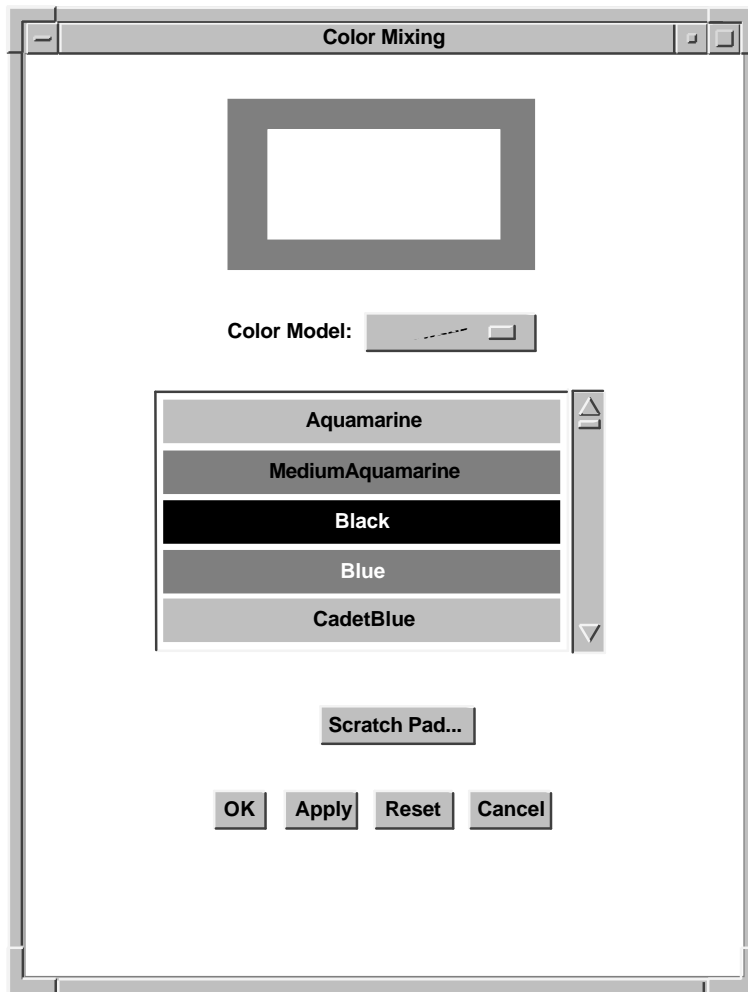
LJ–03029–RAGS

B.2.5 Grayscale

The grayscale color model contains a scale that lets you mix gray shades ranging from black to white. Note that when you switch to the grayscale color model, the current new color becomes a shade of gray.
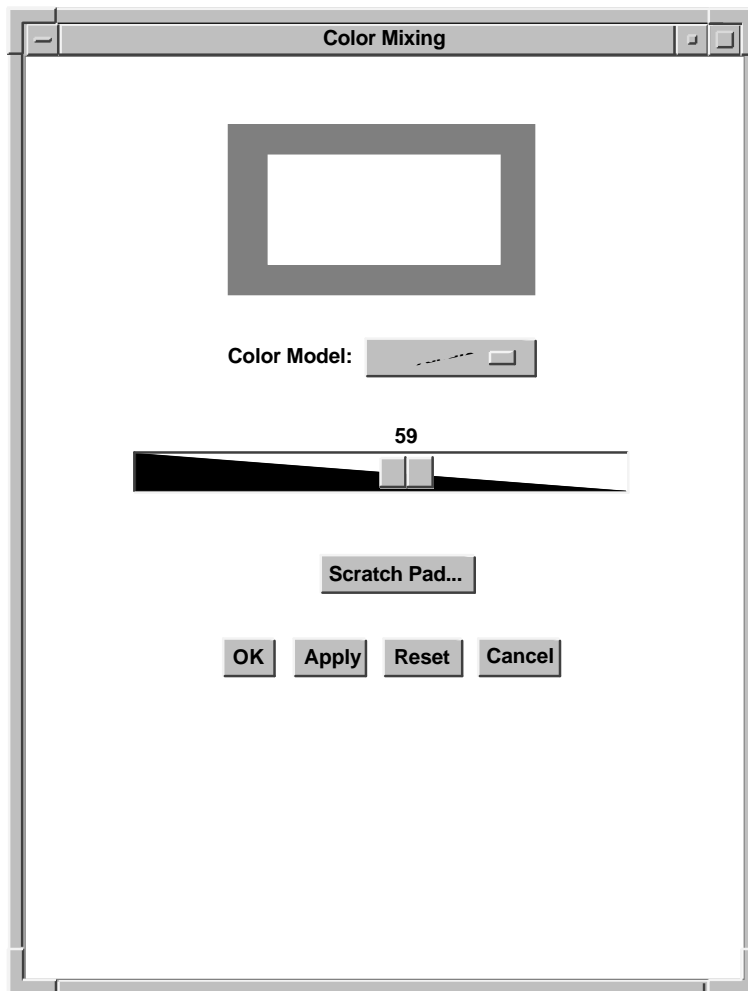
LJ–03031–RAGS

Scratch Pad

The scratch pad lets you store intermediate colors for later use in color mixing.

To access the scratch pad, click on the Scratch Pad button in any of the color models.
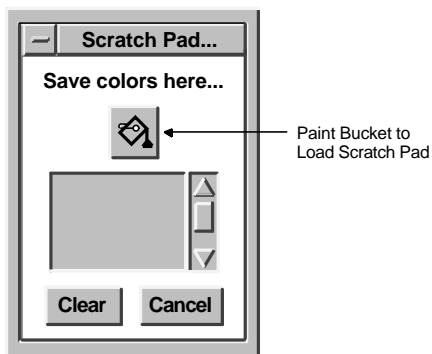
ZK–2577A–GE

To store the currently selected color in the scratch pad, click on the paint bucket above the scratch pad color tile. The scratch pad adds that color to its stored colors, which you can scroll through with the scroll bar.

To clear the scratch pad list, use the Clear button.

On the picker model, the currently selected color can be one of many color tiles. On other color models, you can select only the new and original color tiles.

To set the new color tile to a scratch pad, scroll to that color and click on the scratch pad color tile. The new color tile changes and the scratch pad tile becomes highlighted. If you are in the picker model, you now have the option to dump the highlighted scratch pad color into one of the interpolator end tiles by using the paint bucket buttons.

C

Programming with
The X Windows Image Extension

This appendix is for programmers using X windows image extension (XIE) software for applications on the terminal. The appendix briefly covers the following topics:

- Checking the Terminal's Imaging Capabilities

- Hardware Accelerated XIE Functions

- XIE Pipeline Definitions

- XIE Pipeline Constraints

- XIE Pipeline Examples

The terminal includes the X windows image extension (XIE) to the X windows server. The terminal supports Version 3.0 of the XIE protocol. With XIE:

- The server can save resources by managing images in compressed form

- The server can manipulate the images while accepting user input from client-based application programs

The terminal supports all XIE protocol functions. Many VXT 2000 models have an optional image accelerator board available. You do not need the optional image accelerator board to use XIE functions, but the board accelerates certain bitonal XIE functions to help display images faster.

All full function VXT system images include XIE support. The VXT EX system image does not support XIE. To use XIE, make sure the X Image Extension button in the Customize Boot dialog box is on. See Section 5.7.

For more information on XIE: Appendix D lists some available documentation on XIE and Digital's image application toolkit products that support XIE, such as DECimage Application Services.

C.1 Checking the Terminal's Imaging Capabilities

If the terminal is using a VXT software image that supports XIE, you can
have your application use the following query to determine if the bitonal image
accelerator is present:

```
status = XInternAtom(display, "_DEC_XIE_ACCEL_TYPE_A", True);
```

The presence of the _DEC_XIE_ACCEL_TYPE_A atom indicates that the
bitonal image accelerator board is present in the terminal. This board
accelerates the following functions:

- CCITT Group 3 and Group 4 image data decompression

- Scaling range from 1/64 to 64 times the original size

- Orthogonal rotation (0°, 90°, 180°, and 270°)

- Cropping

- Convolution using a 3×3 or 5×5 kernel, with kernel values between 0 and
  255

C.2 Hardware Accelerated XIE Functions

To take maximum advantage of the bitonal image accelerator, you must follow
these general rules:

- Use the XIE pipeline method of processing to display images (instead of
  atomic XIE processing).

- Group all accelerated XIE functions together.

- Transport and work from compressed bitonal images whenever possible.

C.3 XIE Pipeline Definitions

Always use XIE pipelines to display images on the terminal.

XIE uses process control services, known as **pipelines**, to allow a client
to create and execute linear, macro-like assemblies of protocol requests. A
pipeline is a single threaded list of XIE protocol functions through which image
data flows sequentially.

When you construct pipelines for processing images in the terminal, use the
following guidelines for the best image display performance:

- Group all accelerated XIE functions together. That is, do not mix
  nonaccelerated functions with accelerated functions. Accelerated XIE
  functions include crop, area-constrain, scale, rotate, and mirror.

- When using any accelerated functions, observe the following order: crop, area-constrain, scale, rotate, mirror.

- If you use the area function, it *must* be followed by the constrain function.

- Do not include more than one instance of an accelerated XIE function in the pipe. Do not use two scale functions in a single pipeline.

- End the pipeline with the export function.

- Do not use phototaps in the pipeline.

C.3.1 XIE Pipeline Constraints

Some accelerated XIE functions have associated constraints, to ensure that the bitonal image accelerator option can handle the request. By following these constraints, you ensure that the hardware accelerator is used to process XIE requests, rather than the XIE software alone.

Following is a list of the hardware accelerated XIE constraints:

- The bitonal image accelerator supports CCITT Group 3 and Group 4 compressed image formats and Pulse Code Modulated (PCM) data. CCITT is the Comitè Consultatif International de Télégraphique et Téléphonique, a standards committee for the communication industry in Europe.

- Specify kernel values in the area request as follows:

  - Each value must be between 0 and 255.

  - The kernel size must be either 3×3 or 5×5.

  - The sum of all values must be between 224 and 255.

- Specify the IDC parameter as null in an area request.

- Specify the parameters **op1** and **op2** as **mult** and **sum**, respectively, in the area request.

- Images may not be scaled to a size greater than 64 times or less than 1/64 of the original in the scale request.

- For data alignment purposes, the server may slightly adjust the output scanline length from that specified in the scale request. Any adjustment will be close to the specified scale, and will always be equal to or greater than the specified scale.

- Specify a rotation request of 0°, 90°, 180°, or 270° only.

- The constrain function immediately following the area function determines the number of levels for a given output pixel.

  - Specifying two levels in the constrain function produces a bitonal output on any display. In this case, the export function parameters (**lut_id**, **colormap_id**, **match**, and **grey**) should all be null in the export request.

  - In a gray scale or color system, specifying up to 256 levels in the constrain function produces a multibit output. In this case, the export function parameters **colormap_id**, **match**, and **grey** should be null in the export request. The **lut_id** parameter should be specified as a previously created server image resource.

    Digital suggests that an application allocate a fixed number of gray scale colormap entries at initialization time and always use these entries to display the enhanced bitonal images. This is accomplished by allocating the colors (actually gray scales) from the default colormap, and creating a one-scanline image with these colormap entry pixel values to use as the **lut_id** in all XIE export calls.

    Digital recommends using from 8 to 32 gray scale values. Fewer values introduce artifacts in the displayed image, and more values are a waste of server resources. See the XIE documentation for details on creating a LUT image.

C.3.2 XIE Pipeline Examples

The following examples show sample pipelines that illustrate how functions are mapped either to the image accelerator board or to the XIE software routines. The examples illustrate the difference in image display performance when you program with the image accelerator board in mind.

1. **All Accelerated Functions (Best Performance)**

   Crop
   Area-Constrain
   Scale
   Rotate
   Mirror

   In this pipeline, all XIE routines are mapped to the image accelerator board. Thus, this pipeline requires only one pass through the image accelerator board, resulting in the best image display performance.

2. **Interspersed Software Functions (Poorer Performance)**

   Crop
   Scale

Translate
Rotate

In this pipeline, the Crop and Scale XIE routines are first mapped to
the image accelerator board. The Translate routine is then mapped to
the XIE software. Finally, the Rotate routine is mapped to the image
accelerator board. Thus, this pipeline requires two passes through the
image accelerator board, resulting in degraded image display performance.

D
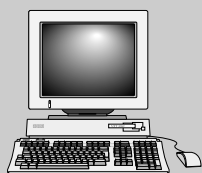
Related Documentation

This document is part of your terminal's user documentation kit.

Document	Part Number
VXT 2000+/VXT 2000 Windowing Terminal User Documentation Kit	EK–VXT20–DK
VXT 2000+/VXT 2000 Windowing Terminal Installing and Getting Started	EK–VXT20–IN
VXT 2000+/VXT 2000 Windowing Terminal User Information	EK–VXT20–UG
VXT 2000+/VXT 2000 Windowing Terminal Release Notes	EK–VXT20–RN

You can also order the following related documents from Digital. Check with your Digital sales representative for availability in your country.

Software and Service Documentation	Part Number
VXT Software Version 2.1 Installation and System Management	AA–PJHFE–TE
VXT Software Version 2.1 Release Notes	AA–PKWSG–TE
VT320 Programmer Reference Manual	EK–VT320–RM
DECimage Application Services for VMS	
X Image Extension Programmer's Reference Manual	AA–PH7XA–TE
Image Display Services Programmer's Reference Manual	AA–LE73C–TE
Programmer's Overview	AA–LE65C–TE
ULTRIX DECwindows Motif User's Guide	AA–MA87B–TE
VMS DECwindows Motif User's Guide	AA–PGZ5A–TE
VXT 2000 Windowing Terminal and DECimage 2000 Option Service Information	EK–VXT20–SV

Related Documentation

Software and Service Documentation	Part Number
VXT 2000 Model VX225 Windowing Terminal Service Information	EK–VXT15–SV
VXT 2000 Model VX227 Windowing Terminal Service Information	EK–VXT17–SV
VRM17 Monitor Service Guide	EK–VRM17–SV
VR315 Monitor Service Guide	EK–VR315–SV
VR319 Monitor Service Guide	EK–VR319–SV
VR320 Monitor Service Guide	EK–VR320–SV
VR326 Monitor Service Guide	EK–VR326–SV

D.1 Ordering Information

You can order options and documentation by mail, phone, or electronically. For a list of options, see *Appendix E*.

Need Help?

If you need help deciding which documentation best meets your needs, please call 800–DIGITAL (800–344–4825) and press 2 for technical assistance.

Electronic Orders

To place an order through your account at the Electronic Store, dial 800–234–1998, using a modem set to 2400 or 9600 baud. You must be using a VT terminal or terminal emulator set at 8 bits, no parity. If you need help, call 800–DIGITAL (800–344–4825) and ask for an Electronic Store specialist.

Telephone or Direct Mail Orders

If You Are From . . .	Call . . .	Or Write . . .
U.S.A.	DECdirect Phone: 800–DIGITAL (800–344–4825) FAX: (603) 884–5597	Digital Equipment Corporation P.O. Box CS2008 Nashua, New Hampshire 03061
Puerto Rico	Phone: (809) 781–0505 FAX: (809) 749–8377	Digital Equipment Caribbean, Inc. 3 Digital Plaza, 1st Street Suite 200 Metro Office Park San Juan, Puerto Rico 00920
Canada	Phone: 800–267–6215 FAX: (613) 592–1946	Digital Equipment of Canada Ltd. 100 Herzberg Road Kanata, Ontario, Canada K2K 2A6 Attn: DECdirect Sales
International	–	Local Digital subsidiary or approved distributor

Digital Personnel

To order hardware or software documentation, contact the U.S. Software Supply Business group for instructions. For software documentation, request an Internal Software Order Form (EN–01740–07).

U.S. Software Supply Business
Digital Equipment Corporation
10 Cotton Road
Nashua, NH, 03063–1260
DTN: 264–3030
(603) 884–3030
FAX: (603) 884–3960

E
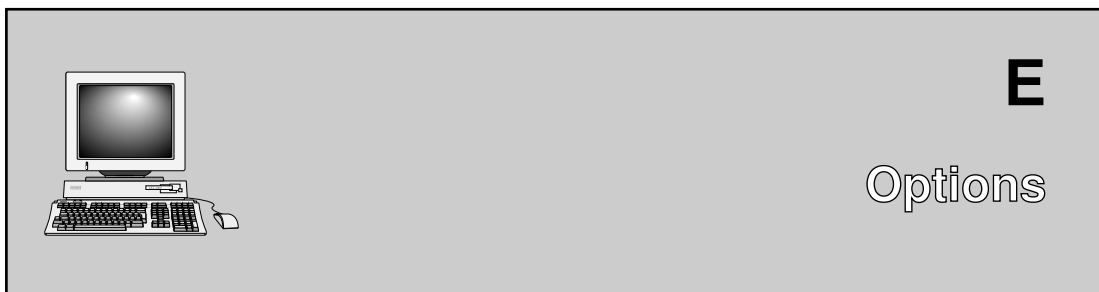
Options

This appendix lists the options available from Digital for the VXT 2000 windowing terminal. For ordering information, see Section D.1.

E.1 Options

Boards

Board	Part Number
2 MB memory controller board	VX20X–MA
2 MB memory module	MS200–AA
4 MB memory module	MS200–BA
Network board with ThinWire and thickwire connectors	VX20D–AA
Network board with twisted-pair and thickwire connectors	VX20D–BA
Image board	VX20A–OP

Modems

Model	Description
DF242 Scholar Plus	300, 1200, and 2400 baud, full-duplex asynchronous
DF224	300, 1200, and 2400 baud, full-duplex asynchronous
DF124	300, 600, and 1200 baud, full-duplex asynchronous

Cables

Cable	Length	Part Number
Network Cables		
Thickwire	2 m (6.5 ft)	BNE4C–02
Twisted pair, uncrossed (❘ ❘)	3 m (10 ft)	BN24G–03
Twisted pair, crossed (x)	3 m (10 ft)	BN24F–03
ThinWire	3.6 m (12 ft)	BC16M–12
	9 m (30 ft)	BC16M–30
T-connector	–	H8223
Terminator	–	H8225
LAN kit	Includes 3.6 m (12 ft) cable, T-connector, and terminator	BC16T–12
Video Cables		
Monochrome		M–17–02441–01
Color		C–17–02906–02
Gray scale		G–17–02878–01
AC Power Cables		
Australia, New Zealand		BN20V–2E
Austria, Belgium, Finland, France, Germany, Netherlands, Norway, Portugal, Spain, Sweden		BN20S–2E
Canada		BN20P–2E
Denmark		BN20U–2E
Ireland, United Kingdom		BN20R–2E
Israel		BN19U–2E
Italy		BN20W–2E
Switzerland		BN20T–2E

For parallel and serial port cables and adapters, contact your Digital sales representative.

F
Specifications

This appendix lists general, environmental, and electrical specifications for the terminal.

Site Planning

	Weight	Height	Width	Depth
System box	9 kg	57 mm	394 mm	360 mm
	(20 lb)	(2.25 in)	(15.5 in)	(14.17 in)
VRC16 monitor	22.5 kg	432 mm	411 mm	434 mm
	(49.6 lb)	(17 in)	(16.2 in)	(17.1 in)
VRM17 monitor	27.2 kg	457 mm	495 mm	452 mm
	(60 lb)	(18 in)	(19.5 in)	(17.8 in)
VR315 monitor	13 kg	400 mm	400 mm	391 mm
	(29 lb)	(15.7 in)	(15.7 in)	(15.4 in)
VR319 monitor	27.2 kg	457 mm	495 mm	452 mm
	(60 lb)	(18 in)	(19.5 in)	(17.8 in)
VR320 monitor	29 kg	457 mm	495 mm	452 mm
	(63 lb)	(18 in)	(19.9 in)	(17.8 in)
VR326 monitor	17.2 kg	381 mm	381 mm	396 mm
	(38 lb)	(15 in)	(15 in)	(15.6 in)
LK401/LK402 ANSI keyboard	1.4 kg	45 mm	478 mm	191 mm
	(3.1 lb)	(1.75 in)	(18.8 in)	(7.5 in)
LK421 Short ANSI keyboard	1.0 kg	51 mm	335 mm	165 mm
	(2.2 lb)	(2.0 in)	(13.5 in)	(6.5 in)

Specifications

LK443/LK444 PC keyboard	1.4 kg	50 mm	450 mm	180 mm
	(3.1 lb)	(2.0 in)	(18.25 in)	(7.25 in)
Mouse	**Weight**	**Height**	**Width**	**Length**
	97 g	32.5 mm	60.9 mm	99.1 mm
	(3.4 oz)	(1.28 in)	(2.4 in)	(3.4 in)

Environment

	Operating	**Storage**
Temperature	10° to 40° C	–40° to 66° C
	(50° to 104° F)	(–40° to 151° F)
Relative humidity	10% to 90%	0% to 95%
Maximum wet bulb	28° C (82° F)	
Minimum dew point	2° C (36° F)	
Maximum altitude	4.9 km (16,000 ft)	9.1 km (30,000 ft)

Electrical

Line voltage (U.S.)	100 V to 120 V ac nominal
	88 V to 132 V rms operating range
	single-phase, 3-wire
Line voltage (Europe)	220 V to 240 V ac nominal
	176 V to 264 V rms operating range
	single phase, 3-wire
Line frequency	50 Hz to 60 Hz
Input power	80 W maximum
Power cord	Detachable, 3-conductor, grounded
Power cord receptacle	EIA specified, CEE22-6A

Monitors (Screen Size and Resolution)

Monitor	Screen Size	Resolution
VRC16 CRT	425 mm (17 in)	100 dots/in
VRM17 CRT	425 mm (17 in)	100 dots/in
VR315 CRT	380 mm (15 in)	108 dots/in
VR319 CRT	495 mm (19 in)	95 dots/in
VR320 CRT	495 mm (19 in)	100 dots/in

Specifications

Monitor	Screen Size	Resolution
VR326 CRT	381 mm (15 in)	100 dots/in

LK401 or LK402 ANSI Keyboard

Item	Description
Number of keys	108 sculptured keys with matte finish
Models	Available in many language dialects, including English.
Cord	1.8 m (6 ft) coiled cord with a 4-pin telephone-type modular connector
Indicator lights	2 keyboard indicators:

	[◯]	Hold
	⇧	Lock

Keys	(Approximate Size)
Home row	30 mm (1.18 in) above desktop
Key size (top)	13 mm (0.50 in) square
Key spacing	19 mm (0.75 in) center to center (for single-width keys)
Numeric keypad	18 keys
Function keys	5 predefined keys, 15 user-definable keys

Audible Indicators	If enabled . . .
Keyclick	Sounds after each keystroke.
Margin bell	Rings once when cursor approaches right margin
Warning bell	Rings for compose errors and certain system messages.

Specifications

LK421 Short ANSI Keyboard (UNIX Style)

Item	Description
General	74 sculptured keys with matte finish
	Available in North American/UK version only
Cord	1.8 m (6 ft) coiled cord with a 4-pin telephone-type modular connector

Keys	Approximate Size or Number
Home row	30 mm (1.18 in) above desktop
Key size (top)	13 mm (0.50 in) square
Key spacing	19 mm (0.75 in) center to center (for single-width keys)
Function keys	5 predefined keys, 15 user-definable keys (including 10 Extend key sequences, to emulate the full set of ANSI keyboard keys)

Audible Indicators	If enabled . . .
Keyclick	Sounds after each keystroke.
Margin bell	Rings once when cursor approaches right margin.
Warning bell	Rings for compose errors and certain system messages.

Specifications

LK443 or LK444 PC Keyboard

Item	Description
Number of keys	101 or 102 sculptured keys with matte finish
Models	Available in many language dialects, including English
Cord	1.8 m (6 ft) coiled cord with a 4-pin telephone-type modular connector
Indicator lights	3 keyboard indicators:
	Num Lock Caps Lock Scroll Lock

Keys	Approximate Size
Home row	30 mm (1.18 in) above desktop
Key size (top)	13 mm (0.50 in) square
Key spacing	19 mm (0.75 in) center to center (for single-width keys)
Numeric keypad	17 keys
Function keys	3 predefined key, 16 user-definable keys

Audible Indicators	
Keyclick	Sounds after each keystroke.
Margin bell	Rings once when cursor approaches right margin.
Warning bell	Rings for compose errors and certain system messages.

Mouse

Item	Description
Switches	Three tactile-feel type switches with an actuating force of 85 grams (3 ounces) ±25%
Surface	Nonglare textured finish
Cable	1.5 m (5 ft) round, 0.375 cm (0.15 in) diameter 6-conductor, number 26 stranded, shielded, high-flexibility design
Connector	7-pin micro-DIN type (male)

G

**Setting Up
The Work Environment**

This appendix contains recommendations to protect your health and safety.

G.1 Proper Setup and Use

Certain recent scientific literature suggests that poor posture, work habits, or office equipment setup may cause injuries. Other literature suggests that there is no cause and effect. Because the safety of our users is a great concern, it is important to take the precautions described in Table G–1.

Setting Up the Work Environment
G.1 Proper Setup and Use

Table G–1 Recommendations for Proper Setup and Use

Adjust		So that . . .
Chair	1	Feet are flat on the floor or footrest, if needed.
	2	Legs are vertical forming a right angle to the floor.
	3	Your weight is off your thighs and your thighs are in a horizontal position. Keep the back of your knees away from the seat so you do not compress the area behind them, which could restrict the blood flow.
	4	Your upper body is erect and your lower back is supported with a backrest.
Keyboard	5	Your wrists are straight and do not flex more than 15°. They may be supported but should not rest on sharp edges.

If you use a mouse, rest your hand on the mouse so your wrist is not on the work surface. Operate the mouse close to your body's centerline.

	6	Upper arms are straight down at your sides, elbows are close to your sides and support your arm weight. Forearms are at a 70° to 90° angle.
Head	7	Your neck is not strained. Your head should incline downward, but no more than 15° to 20°.
Terminal	8	The terminal is at eye level and at the correct distance for proper vision.
Eyes	9	You avoid eye fatigue, which can be caused by glare, image quality, uncomfortable furniture, eye height, and uncorrected vision. If you cannot read the screen at different distances, you may need special glasses. Relax your eyes periodically by looking at distant objects.

Table G–1 (Cont.)   Recommendations for Proper Setup and Use

MA–0069–93.IL

(continued on next page)

Table G–1 (Cont.)   Recommendations for Proper Setup and Use

Adjust	To . . .
Work Breaks	Take periodic work breaks. Morning, lunch, and afternoon breaks meet most recommendations. Take advantage of work breaks to move around and do other movements.
Lighting	Avoid direct lighting or sunlight on the screen, which causes glare and reflections. Place lighting behind or to the side of your work area, and distribute the lighting evenly on your work area. Adjust the terminal brightness and the contrast controls as needed.
Noise	Keep background noise at a minimum. Background noise above 65 dBA is tiring. Sound-absorbing materials, such as curtains, carpeting, and acoustic tile, can help reduce background noise.
Temperature	20°C to 23°C (68°F to 74°F)
Humidity	30% to 70%
Ventilation	Provide adequate air ventilation for equipment operation and to avoid fatigue.
Space between terminals	More than 70 cm (28 in) center to center, preferably more than 152 cm (60 in).

_____ **Warning** _____

If you experience pain or discomfort while using the terminal, take a substantial break and review the instructions for posture and work habits. If the pain or discomfort continues after resuming use of the terminal, then discontinue use and report the condition to your job supervisor or physician.

_____

Glossary

Accelerator

A key or sequence of keys that provides an alternative to using the mouse. You can perform all mouse actions from the keyboard, such as displaying menus and choosing menu items.

Active window

The terminal window that is ready to accept input. This window displays the information you type (if the window accepts user input). Only one terminal window can be active at a time.

ANSI

American National Standards Institute

ANSI keyboard

Digital's standard keyboard, with a main keypad, editing keypad, numeric keypad, and top-row function keys. Compare to *Short ANSI keyboard*.

Application launcher

In VXT software, a utility that allows terminal users to start applications residing on a host system, for display on the terminal. The terminal user connects to the host system, runs the application launcher, then enters a command to launch the desired host application.

ASCII

American Standard Code for Information Interchange. A set of 7- or 8-bit binary numbers representing the alphabet, punctuation, numerals, and other special symbols used in text representation and communications protocol.

Application

A program that performs a specific task.

Background process

A process that does not require the total attention of the computer for operation. Background processing enables the operating system to execute more than one program or command at a time. As a general rule, all clients should run as background processes.

BDF

Bitmap distribution font format

Boot

To bring a device or system to a defined state where it can operate on its own.

CCITT

Comite Consultatif International de Telegraphique et Telephonique (International Telegraph and Telephone Consultative Committee). A standards committee for the communication industry in Europe.

Configuration manager

In VXT software, a set of windows and dialog boxes that system managers use to centrally manage terminals and InfoServer font sets for terminals. System managers can place server-based terminals in work groups that share settings.

Character set

A group of graphic characters and control characters stored as a unit in the terminal. Graphic characters are characters you can display on the screen. Control characters perform special functions.

Check buttons

A group of square toggle buttons that provide different settings for an option. You choose one button from the group.

Click

To press and release a mouse button. The term comes from the fact that pressing and releasing the buttons of most mice makes a clicking sound.

Client

A program written specifically for X windows. Clients make their own windows and know how to resize and minimize themselves.

Compose character

A character produced by pressing two or three keys in sequence, starting with the ⌸ Compose Character ⌸ key or a diacritical mark key. You can use compose sequences to produce characters that do not appear as standard keys on your keyboard.

Computer system

A combination of system hardware, software, and external devices that performs operations and tasks.

Cursor

A blinking line or block on the screen that indicates the active position.

Customizations

In VXT software, the set of customized operating settings for a terminal or work group. Customizations are stored in a *resource* file.

Data processing keys

Keys that have three or four characters on the top of their keycap. The characters on the right half of the keycap are data processing characters. To use data processing characters, you must choose the data processing version of your keyboard in the Customize Keyboard dialog box.

DECconnect cabling

Digital's cabling system for extending Ethernet and terminal interconnections into offices and work areas.

DEC Multinational character set

The default character set for the terminal. The DEC Multinational set is one of two 8-bit sets built into the terminal. The other set is ISO Latin-1. Both 8-bit sets include the standard ASCII character set and a supplemental set. For 7-bit environments, see *National replacement character sets*.

DECnet software

Digital's networking software that runs on nodes in both local and wide area networks.

DEC OSF/1 operating system

Digital's implementation of the Open Software Foundation technology, with the Motif graphical user interface and programming environment.

DECterm

Digital's VT series terminal emulator. VXT 2000 windowing terminals let users create DECterm sessions on host systems.

Default option

A push button with a double outline, indicating the most frequently used setting for a window. You can choose a default option by pressing Return or clicking on the push button.

Default setting

A standard setting for one of the terminal's operating features, set at the factory. The terminal uses factory-default settings, unless you choose a new setting.

Device icon

An icon on the back of the system box that identifies the device that can be plugged into the connector.

Diacritical marks

Marks or symbols that indicate a change in the standard pronunciation of a letter. Examples of diacritics are acute accent ('), grave accent ('), and tilde (~). On the terminal, you can use diacritical marks (if available on your keyboard) to start two-stroke compose sequences.

Double click

To press and release a mouse button twice in rapid succession.

Drag

To press and hold down a mouse button while moving the mouse on the desktop and the pointer on the screen. Typically, dragging is used with menu selecting, and window moving and resizing.

Ethernet

A type of local area network, based on Carrier Sense Multiple Access with Collision Detection (CSMA/CD). A communication concept for local communication networks that use coaxial cable.

Filter rectangle

A bounded area used defined on the screen. To activate the filter, you define its coordinates with a control function. If the terminal detects that the locator is outside the filter rectangle, the terminal sends an outside rectangle event and disables the rectangle.

Font

A font is a set of character images in a particular typeface and style. For example, Times Roman bold is a font.

Font path

A logical file that lets a device access alternate character fonts for certain X window applications.

Full-duplex modem

A *modem* that can handle simultaneous, two-way communications.

Graphics

The use of lines, figures, shapes, and shaded areas to display information.

Graphics tablet

An optional device used to move the graphics input cursor on the screen and to enter data to an application program. Most tablets have three parts: a tablet, stylus, and puck. To move the cursor you move the puck or stylus across the tablet. Also known as a *locator device*.

Group code

A number that represents a host or group of hosts on a *LAT* network.

Hardware

The physical equipment—mechanical and electrical—that make up a system. Compare to *Software*.

Hardware Ethernet address

The unique Ethernet physical address associated with a particular Ethernet communications controller.

Host-based terminal

A terminal that uses its own memory to operate VXT software. By default, host-based terminals also use their own memory to store their *customizations* in a *native resource file*. Compare to *server-based terminal*.

Host-based resource file

A file created by a system manager or user to store customizations for a terminal or group of terminals. The file is stored on a host system; terminals can access the file using the NFS or TFTP protocols. Compare to *native resource file*.

Host system

A computer system that has an active connection to your terminal. The primary or controlling computer in a multiple-computer network.

Icon

A small graphic representation of an object, usually an application. A window can be shrunk to an icon (or minimized) to save room on the workspace.

InfoReader

A library of online documentation provided with VXT software kits for InfoServer systems. VXT 2000 windowing terminal users access the library from the Getting Started menu in the Terminal Manager window.

InfoServer

A high-performance virtual disk server that can efficiently download the VXT system image software to many terminals.

Internet

A collection of networks that includes the ARPAnet, a number of local networks at universities and research institutions, and many military networks. See *TCP/IP*.

IP address

A unique network address that identifies a device on the TCP/IP network.

ISO

International Standards Organization. ISO Latin-1 is one of the two 8-bit multinational character sets built into the terminal. The other set is the *DEC Multinational* set. For 7-bit environments, see *National replacement character sets*.

Kilobyte (KB)

When referring to memory, 1024 bytes.

LASTport group code

A number from 0 to 1023 assigned to an InfoServer system. The InfoServer only communicates with systems that belong to the same group code.

LAT protocol

A network protocol created by Digital for local area network communication.

LAT address

A network address that identifies the location of a device on the LAT network.

LED

Light-emitting diode. LEDs are used as indicators on the keyboard.

Local area network (LAN)

A high-speed communications network that covers a limited geographical area, such as a section of a building, an entire building, or a cluster of buildings.

Locator device

See *pointing device*.

Local terminal

A terminal from which the configuration manager is being used to manage other terminals and work groups.

Matte

An optional decorative border between the window frame and the work area.

Maximize button

A button that lets you increase the size of the window to its maximum allowable size. The maximize button is at the right edge of a window's title bar.

Megabyte (MB)

When referring to memory, 1024 kilobytes or 1,048,576 bytes.

Menu bar

The area below a window's title bar that lists the names of pull-down menus for the window's application.

Minimize button

A window button that lets you shrink a window to an icon. The minimize button is to the left of the maximize button.

Mnemonic

An underlined character in a menu. Mnemonics allow you to display menus and choose functions by typing letters on your keyboard.

Modem

Modulator - **dem**odulator. A device that converts data from a computer or terminal into signals that can be sent over a telephone line and back again.

Modifier key

A key pressed in combination with another key, to modify the code sent by that key. Ctrl is a modifier key.

Monochrome monitor

A video screen that displays images in shades of one color.

MOP

Maintenance operation protocol. A network management protocol within DECnet software that handles tasks such as downloading, upline dumping, and circuit testing.

Mouse

A handheld pointing device used to select menu options and draw graphics. Moving the mouse across the desktop moves the pointer or mouse cursor on the screen. The mouse has three buttons that serve as function keys.

National replacement character sets (NRCs)

Seven-bit character sets for many Western European languages. Each set has 94 characters. NRC sets are similar to the ASCII set, except for a few characters.

Native resource file

In VXT software, the file that stores a terminal's customized settings, entered from the terminal's dialog boxes or from the configuration manager of another terminal. *Host-based terminals* store their native resource file in the terminal's nonvolatile memory. *Server-based terminals* store their native resource file on an InfoServer system. Compare to *Host-based resource file*.

Network

Two or more computers linked by communication lines to share information or resources.

NFS

A network protocol developed by Sun Microsystems, Inc. The VXT 2000 windowing terminal can use NFS to access fonts or *host-based resource files* on host systems.

Node

A computer, workstation, or peripheral device that is connected to a network and can communicate with other members of the network.

Nonvolatile memory

Random access memory (RAM) that does not lose its contents when you turn the terminal off. The terminal uses this memory to store your saved customize settings.

OpenVMS operating system

Digital's proprietary operating system.

PC keyboard

Digital's LK443 or LK444 PC keyboard. The LK443 is a worldwide model, with 102 keys. The LK444 is a North American model, with 102 keys.

Pixel

Picture elements. The smallest displayable unit on a video screen. To display a character, the terminal turns on a series of pixels.

Pointer

A graphic symbol indicating a screen position. You control the pointer location by moving the mouse. You can change the pointer shape; an application may also change the pointer's shape to indicate the type or state of an action.

Port

A means for connecting one device to another. Usually, each port has an associated connector.

Prefix key

A key that you press and release before pressing another key, to change the function of one or more keystrokes. ⎨Compose Character⎬ is a prefix key.

Pull-down menu

A menu accessed by pointing to the menu bar and pulling down with the mouse. Pull-down menus are generally organized by the types of functions they contain.

Push button

A control that causes an immediate action. To press a push button on the screen, point to it then click the select button.

Radio buttons

A group of option buttons that allow you to select only one of the selections at a time. Radio buttons may appear in a menu or in a program's window. Radio buttons are usually displayed as small diamond-shaped buttons.

Random access memory (RAM)

Memory that can be read from and written to. The terminal uses this memory to store instructions of programs currently being run.

Read-only memory (ROM)

Memory that can be read from, but not modified. The terminal uses ROM memory to store its operating code.

Read-only terminal

A terminal that cannot save new customized settings. It belongs to a work group that does not allow the saving of new settings.

ReGIS software

A serial geometric graphics display protocol created by Digital.

Resize border

The resize border surrounds a window and is divided into eight handles—one for each side, and one for each corner.

Restore

To change an icon back into its original window.

Resource file

In VXT software, the file that stores the *customizations* for a terminal or work group. See *Host-based resource file* and *Native resource file*.

Scroll bar

A vertical or horizontal bar that lets you control what portion of a larger object is displayed within a window. The slider represents the relative position in the list. The size of the slider represents the relative portion of the list that is currently visible.

Scrolling

Moving information on the screen upward or downward to display more data.

Select button

The mouse button used for most operations, also known as mouse button 1 (MB1). By default, the select button is the left mouse button.

Server

Hardware or software that provides a specific set of services to a *client*.

Server-based terminal

In VXT software, a terminal that uses an *InfoServer* system to load its VXT software and provide memory paging services. By default, a server-based terminal also stores its *customizations* on the InfoServer, in a *native resource file*. Compare to *host-based terminal*.

Service

A name that represents a host or cluster of hosts that provides access to that host or cluster.

Session

An active connection between the terminal and the host system.

Short ANSI keyboard

A compact version of Digital's ANSI keyboard, for those who make little use of auxiliary editing and numeric keypads. An Extend key allows users to perform keypad keystrokes when needed.

Sixel

A vertical column of six *pixels*. Screen displays can be printed in the form of sixel graphics.

Slider

Part of a *scroll bar* that lets you scroll through information in a window. The size of the slider indicates how much of a file is currently displayed. The smaller the slider, the larger the file. The location of the slider in the scroll region indicates your relative position in the file.

Software

Programs that perform a chosen or required function. Compare to *Hardware*.

Stepping arrow

Part of a scroll bar that lets you move incrementally through information in a window.

Submenu

A menu associated with a menu item on a pull-down or pop-up menu. When you choose the menu item, you display the submenu.

Sun style keyboard

Digital's LK460 keyboard. The Sun style keyboard comes in a North American model only.

System

A combination of hardware, software, and peripheral devices that perform specific processing operations.

System image

The VXT software, downloaded from a host system or server.

System manager

A person who performs tasks necessary to operate and maintain the system. See *VXT manager*.

TCP/IP

Transmission control protocol/Internet protocol. The standard wide area networking software for the ULTRIX and UNIX operating systems. TCP/IP is a set of protocols developed by researchers centered around the Advanced Research Projects Administration Network (ARPAnet).

Terminal Manager window

In VXT software, the window for creating and managing sessions, customizing terminal settings, and performing local printing functions.

Terminal server

An intelligent unit that can connect a number of asynchronous devices (terminals and printers) to a host system. For example, Digital's DECserver 200 can link eight terminals to a system in a local area network (LAN), using a high-speed Ethernet cable.

Terminal window

A window that emulates a video terminal. Terminal windows allow you to use applications that were designed for the video terminal they emulate.

Terminator

A connector used on one or both ends of an Ethernet segment that provides the 50-ohm termination resistance needed for the cable.

TFTP

Trivial file transfer protocol. The Internet standard protocol for file transfer with minimal capability and minimal overhead. TFTP is intended for use in application environments that do not require complex interaction among clients and servers.

ThinWire Ethernet network

A term to describe Digital's 10base2 (IEEE standard 802.3 compliant) Ethernet products used for local distribution of data.

Title bar

An area at the top of the window frame that displays the name of the application and provides window management buttons.

Toggle buttons

See *Check buttons*.

Transcript

An area of memory that contains the last saved lines of your screen display.

transport

The network software that routes user data to its destination and controls the flow of data.

ULTRIX operating system

A UNIX based operating system created by Digital.

UNIX operating system

An operating system created by AT&T and in wide use.

Unregistered Terminals work group

A work group supplied on a newly installed InfoServer, to let terminals operate until they are registered (created) in a work group you have created. The Unregistered Terminals work group is preconfigured with factory-default settings that are read-only.

User-defined keys (UDKs)

Keyboard keys that a user can define to perform specific functions.

Visual character attribute

A quality of a display character that highlights the character, such as bolding and underlining.

VXT launcher

See *Application launcher*.

VXT manager

The person who manages the VXT system, work groups and the network. This person assigns unique node names and addresses for each terminal on the network, and provides administrative assistance to network users.

Window

An area on your monitor screen that represents all or part of an application.

Window frame

The resize border and title bar surrounding a window.

Window manager

The window manager controls the size, placement, and operation of windows in the workspace. The terminal's Motif window manager includes the window frames that surround each window object as well as the workspace menu. The Motif window manager is a client program of the X Window System.

Window menu

A menu that lets you control the size, shape, and position of a window. To display the menu, you use the *window menu button*.

Window menu button

The button at the left corner of a window's title bar. Clicking MB1 on the window menu button displays the window menu.

Window system

A windowing architecture that allows the execution and display of applications to be independent. Specific components of the architecture control the display of applications and determine how applications run. Since its introduction by MIT, the X Window System has become an industry standard.

Work area

The area in a window where you can perform user tasks.

Work group

A customization file and a set of terminals that share the file. Each work group is assigned to a particular support server.

Workspace

The monitor screen, where all windows are displayed.

Workspace menu

A pop-up menu with items for arranging windows and customizing the window manager. To display the workspace menu, point to anywhere in the workspace and click MB1 or MB3. You can also display the workspace menu from the window menu.

XIE

X image extension. An extension to the X core protocol that handles image functions. XIE enables compressed image data to be sent across the X wire and image processing to be handled at the X server.

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