TinyTERM
Terminal Emulation Software for MS-DOS and Windows

User’s Guide

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Preface

Welcome

Welcome to TinyTERM, a powerful yet simple terminal emulation program which allows you to access remote applications on your UNIX host. This TinyTERM package includes both a DOS memory-resident program as well as the installation and application for Microsoft Windows.

TinyTERM's features include:

- Complete and accurate emulation of the most popular terminals from DEC and Wyse, as well as SCO and AT386 standards.
- Winsock support for over 10 networks including Wollongong TCP/IP, Beame and Whiteside BW-TCP, FTP PC/TCP, Novell LAN WorkPlace, and Microsoft LAN Manager.
- Support for standard network interfaces such as INT14h, NetBIOS, BAPI, and Novell NVT.

How to Use This Guide

The TinyTERM User's Guide provides an in-depth look into how to use TinyTERM to satisfy all your terminal emulation needs. This guide is intended for users and administrators of TinyTERM.

To fully utilize TinyTERM for Windows you should first familiarize yourself with the Windows operating system. This guide assumes that you know how to use Windows, and uses Windows-specific terminology. For help with Windows, see your Windows documentation.

Conventions Used in This Guide

Century uses different type faces to provide visual clues to screen output, keys and commands you type. The conventions used are:

Table P-1. Keyboard and Text/Data Input Conventions

Convention	Description
HELVETICA	Represents a key to be pressed. For example F1. It also represents screen output, such as system prompts.
KEY + KEY	Represents a key combination such as ALT+F1. This indicates you should hold the ALT key and then press the F1 key.
italics	Represent pathnames, file names, and command references within the text.
0	Is a zero.
O	Is an uppercase letter "oh".
\E	Represents the escape code.
Boldface	Represents commands or options you should type exactly. A sample command prompt with a command appears below:
	c:> a:setup
↵	Represents the RETURN or ENTER key when located on a command line such as:
	c:> a:setup↵
Select item | item | item	A menu selection hierarchy, where each item is different and available after making the previous selections.

Table P-2. Mouse Conventions

Convention	Description
Point	Move the screen pointer by using the mouse.
Click	Press the left mouse button.
Double-Click	Press the left mouse button twice in quick succession.
Drag	Press the left mouse button, and hold it while moving the mouse.
Right-Click	Press the right mouse button.

Table P-3. General Conventions

Convention	Description
Choose	Use the mouse or the keyboard to move the highlight bar or focus.
Select	Use the mouse click or RETURN key to activate the chosen selection.
Press	Refers to on screen buttons. Pressing involves selecting the button and then "pushing" it. The keyboard involves TABbing and pressing RETURN. The mouse involves pointing and pressing the left mouse button.
To Cancel	Press ESCAPE, double click the window menu box (upper left corner), or press the cancel button.

If You Need Help

Century Software is committed to providing the highest quality support available. Our commitment extends to every dealer, reseller, and end-user who purchases a Century product.

If you are having problems installing, configuring, or using TinyTERM, try these debugging steps before calling the support number:

1. Verify that you meet all the requirements for installing and running TinyTERM. Refer to the section *Before You Install* in this guide.

2. Verify that your computer, modem, software, and cables are installed, configured, and connected properly. Refer to your hardware and software manuals.

3. Review the appropriate section(s) in your *TinyTERM User's Guide*.

If you still need help, please contact Century:

By mail:

Century Software, Inc.

ATTENTION: Technical Support
5284 South Commerce Drive, Suite C-134
Salt Lake City, UT 84107

By phone: (801) 268-3088

By fax: (801) 268-0642
ATTENTION: Technical Support

By E-mail TECH@CenSoft.com

By 24-hour FACTS by FAX line: (800) FAX-ADVICE
(800) 329-2384

Century Software's FACTS by FAX line offers answers to some of Technical Support's most commonly asked questions .

Or by 24-hour BBS: (801) 266-0330

Baud:	300 to 14,400 V.32 bis
WordLen:	8
Stop Bits:	1
Parity:	NONE
Emulation:	SCOANSI

Century Software's BBS provides help in the following ways:

- General help through BBS mail and conferencing (non-interactive)
- Download services:
  - Updates of Century products
  - Sample scripts written by support personnel and end-users
  - Technical support documents, including technical help papers
- Upload services:
  - Questions for technical support

Phone support

Century Software's Technical Support is available weekdays from 8:00 a.m. to 5:00 p.m., Mountain Standard Time, except for the following holidays:

New Year's Day
Independence Day
Thanksgiving Day
Christmas Eve
Memorial Day
Labor Day
Day After Thanksgiving
Christmas Day

Support line procedures

To answer your questions and resolve your problems quickly, we ask that you follow these support line procedures:

1. Be prepared to provide specific details concerning your computer system's hardware and software configuration.In addition, the Serial Number and Version Number of TinyTERM should be noted prior to contacting Technical Support.

   Because Century Software's products run on a wide variety of systems, this information is important to our Technical Support Representatives to provide correct answers quickly.

2. Call from a phone which allows you access to your computer system while speaking with a Technical Support Representative.

3. Have your documentation readily available. Read and note any applicable sections or release notes.

4. If possible, be prepared to re-create the problem with our service representative. Otherwise be prepared to give a step-by-step description of how the problem occurred.

5. Do not request a specific representative for new questions or problems; this may cause delays in responding to your call.

What Century Software will do

1. A Technical Support Representative will discuss your questions or problems. We usually resolve them during the initial contact.
2. If your request requires additional research, the problem will be referred to a Product Technician for further review.
3. If a representative is not available on your initial call, one will respond to your call in the order it was received. If you are unavailable on a call back, the representative will leave a message and wait for your response.

Century Software is committed to resolving all problems within 24 hours. However, some resolutions require a longer period of time. If your situation requires more time, a representative will keep you updated on the progress of your problem resolution.

Installing TinyTERM

Prior to Install

Requirements:

- An IBM AT®, PS/2® or compatible computer.
- MS-DOS or PC-DOS, version 3.1 or later.
- Windows version 3.1 or higher.
- One floppy disk drive and one fixed drive.
- For asynchronous (serial) connections, a direct serial connection between the computer and another system or a modem. For information on serial connections, see *Appendix A: Serial and Modem Connections* in this guide.
- For network connections, previously installed network hardware and software. For information on network connections, see *Appendix B: Network Connections*.
- Activation Key sheet. Keep this page in a safe place. The serial number and activation key must be entered to install or to upgrade the software.

Installing TinyTERM

TinyTERM's setup program automates loading TinyTERM on thehard disk. Since the TinyTERM files are in a compressed format, this program must be used to install the software.

Install menu

TinyTERM's Window's install menu provides the following options for installation:

- TinyTERM for Windows
- TinyTERM for DOS

Progress Dialog boxes

Install displays a progress bar to show install progress and a line showing the name of the file being copied.

TinyTERM Setup

During the install process, the following will be asked:

- In what directory to install TinyTERM. The default is c:\Century:
- To enter the serial number (located on the Activation Key sheet).
- To enter the activation key (located on the Activation Key sheet).
- If the*readme* file will be reviewed. This file contains the most up-to-date information about the new software.
- Create the needed directories and subdirectories if they do not exist.
- TinyTERM's setup program creates a program group called 'Century' and places two icons in it: USTinyTERM and readme.
- Unpack needed files and copy them to the hard disk.

Running install

1. Run Windows from the DOS prompt. If Windows is already running, then ignore this step.

If using Windows 95, use the RUN option from the main Windows menu. Windows 95 will automatically detect the setup program on the floppy.

2. Insert TinyTERM install disk into drive A. This example will use drive A. If drive B is used, replace drive A with drive B in each step.
3. Select Run from the Program Manager File menu. Run the install program by typing:

   ```
   a:setup
   ```

4. Select OK. The install program will start to load and ask where to install TinyTERM's files.
5. Follow the prompts and answer the questions.

When install is finished, TinyTERM will be ready to run. The TinyTERM installation program places several drivers and fonts on the system. To allow them to initialize properly, it is best to exit and restart Windows before running TinyTERM.

Installing TinyTERM to a network file server

Login as Supervisor and run TinyTERM's installation program. After the installation is complete, users may be set up by running *setup.exe* from File Manager.

A separate subdirectory will be created for each user. The user should have all access rights to the directory. TinyTERM must be run from the user directory, not the main TinyTERM directory.

When installing to a network file server the subdirectory \SER is created under the main TinyTERM directory. All users must have read and write permission to this directory. Any users with insufficient rights will get an error message and be returned to the operating system.

Chapter 1
The TinyTERM Emulator

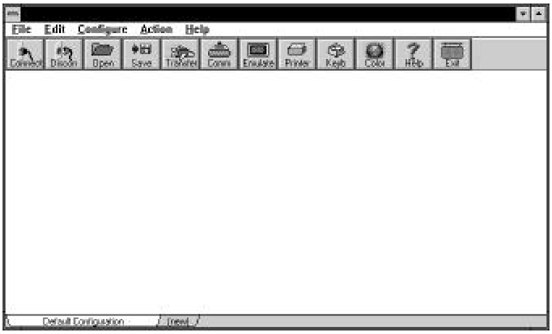
In This Chapter:

The TinyTERM Window
Using The Help System
Changing Your Settings
Saving Your New Settings

The TinyTERM Window

When TinyTERM is started, the following will be displayed:

Figure 1-1 TinyTERM Main Screen



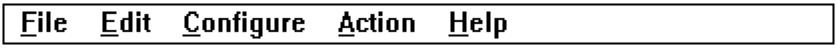
The TinyTERM window has the following components:

- Menu Bar
- Ribbon Bar
- Session Bar
- Control Menu
- Title Bar
- Iconify (Minimize) Button
- Maximize Button

Menu Bar

TinyTERM's Menu Bar offers easy access to most features. The Menu Bar is located at the top of the window and looks like this:

Figure 1-2 TinyTERM Menu Bar



File

- Open ICONect
  Displays a standard open file dialog with a list of configuration files. Options include:
  - OK
    Loads the configuration file into memory, but makes no connection. This option is useful for changing parameters in the configuration without making a connection. Click on the Connect button on the Ribbon Bar to establish a connection.
  - Cancel
    Exits without making any changes to the current configuration.
- Save ICONect
  Saves the current configuration information as described later in this chapter.
- Save ICONect As
  Displays a file save dialog. This allows the user to save the configuration to a different configuration file.
- ICONect Summary

  The Summary button brings up a dialog which allows entry of detailed information about the TAP file. Items include author, date, subject, version, e-mail and description.
- Print Screen
  Prints the current emulation screen to the printer. The emulation screen is actually text, so a graphics printer is unnecessary.
- File Transfer
  Displays the File Transfer dialog box.
- Open URL
  Allows the setup of a shortcut for transferring and manipulating FTP and HTTP files, as well as accessing TELNET sessions.

- Edit Text File
  Displays an edit file dialog. This allows the user to edit a text file using the defined editor.
- Change Directory
  Displays a change directory dialog. This allows the user to change the current directory.
- Erase File
  Displays an erase file dialog. This allows the user to delete a file.
- Install Language
  Displays an Install New Languages dialog. This allows the user to install additional language versions.
- Exit
  Exits from TinyTERM to the Program Manager.

Edit

- Copy
  Copies the selected emulator screen text to the Windows clipboard.
- Paste
  Copies the text in the Windows clipboard to the currently active connection.
- Paste Link
  If text in the Windows clipboard is in Windows LINK format, copies it to the currently active connection.
- Clear Screen
  Clears the emulator screen.

Configure

The Configure options are discussed in detail later in this chapter. This listing serves as a short description for reference.

- Communications
  Change the communications settings of a configuration.
- Emulation
  Change the emulation settings of a configuration.
- Data Capture/Printer
  Change TinyTERM’s printer options.

- Modem
  Change the modem settings of a configuration.

- DDE
  Change TinyTERM’s default DDE settings.
- Keyboard
  Change the keyboard settings used by TinyTERM.
- Color
  Change TinyTERM’s default color settings.
- Fonts
  Change the font TinyTERM uses for the emulation window.
- Login
  Change the automatic login settings of a configuration.
- Code Page
  Change the selected code page.
- Server
  Change the server settings of a configuration.
- General
  Change the general settings of a configuration.
- Ribbon Bar
  Customize the default TinyTERM ribbon bar settings.

Action

- Script Command
  Displays an edit dialog, allowing the user to enter any single script command for immediate execution.
- Command File
  Displays an execute command file dialog, allowing the user to select a script command file to run.
- Capture
  Toggles current capture mode status.
- Macro Bar
  Toggles current macro bar display status.
- Server Mode
  Initiates TinyTERM server mode.
- Connect
  Connects using the settings of the current configuration. If already

connected, the connection will be dropped and then a new connection will be made.

- Disconnect
  Disconnects the current connection.

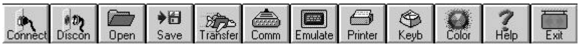
Help

- Contents
  Calls Window’s Help system with the TinyTERM Help file. It opens the file to the contents screen.
- Search for Help on
  Displays an entry dialog. Enter keywords in the entry field. TinyTERM then displays Windows Help on the keywords from the entry dialog.
- ToolTips
  Controls ToolTips (balloon help) display status. When this item is checked, ToolTips are displayed. When unchecked, ToolTips are not displayed.
- About ICONect
  Displays the current TAP file dialog, which includes icon and description information.
- About TinyTERM
  Displays the TinyTERM copyright dialog, which includes version information.
- Auto Register TinyTERM
  TinyTERM may be registered electronically by filling the requested information with the Auto Register function.

Ribbon Bar

From the main menu, you control all of TinyTERM’s functions. In addition, many of TinyTERM’s important features are available quickly from the default Ribbon Bar.

Figure 1-3 TinyTERM's Ribbon Bar



The following list explains the buttons on the default Ribbon Bar (listed from left to right):

- Connect
  Connects using the settings of the current configuration. If already connected, the connection will be dropped and then a new connection will be made.

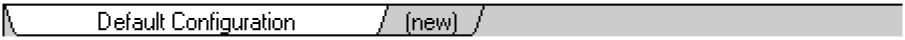
- Disconnect
  Disconnects the current connection.
- Open
  Open a configuration file.

- Save
  Save current configuration into the configuration and system files.
- Transfer
  Brings up the Transfer File dialog box.
- Communications Setup
  Configure the communications settings of a configuration.
- Emulation Setup
  Configure the emulation settings of a configuration.
- Printer
  Configure the printer settings.
- Key
  Configure the keyboard settings.
- Color
  Configure the color settings.
- Help
  Access the on-line Help system.
- Exit
  Exit TinyTERM to the Program Manager.

Session Bar

The Session Barcontrols and displays information on all TinyTERM sessions:

Figure 1-4 TinyTERM's Session Bar



The current connection's description is shown inside a large tab. Background sessions and the new session option are shown within small tabs. Click on any tab to change to that session, or click on (new) to establish another concurrent session.

Control Menu

The Control Menuis a pull-down menu that appears in the upper left hand corner of the TinyTERM window and controls moving, resizing, maximizing, iconifying, and closing the TinyTERM window.

Click on the Control Menubutton in the upper left hand corner or press ALT+SPACEBARto open this pull-down menu.

You can access the selections on the Control Menu three ways: click on the selection, use the ALT keys if available, or type the underlined letter. ALT key combinations allow you to access the Control Menu options without opening the window first:

Table 1-1 Control Menu Options

Item	Function
Restore	Restores an icon to an active window or resize a window to its original size.
Move	Moves the window to a new location. Once selected, the cursor becomes a crosshair. Move the cursor until the window is in the desired position and click.
Size	Enlarges or reduces the window. The cursor becomes a crosshair. While keeping the mouse button down, move the cursor until the window outline is the desired size and release the mouse button.
Minimize	Reduces your window to an icon. Double-click on the TinyTERM icon to open and activate the window.
Maximize	Enlarges your window to the size of the screen.
Close or ALT+F4	Exits TinyTERM.
Switch To... or Ctrl+ESC	Opens the Task List dialog box so you can switch to another running Windows application. You can also use ALT+TAB to cycle through your applications.

Title Bar

The Title Bar displays the title of the TinyTERM window. If you place the mouse pointer on the title bar and press the mouse button once without releasing, you can move your window to a new position on the screen. Release the button when the window outline is in the desired position.

Iconify (Minimize) Button

Clicking on the Iconify Button iconifies (minimizes) your window and is useful for eliminating screen clutter. Remote applications are not affected when you iconify TinyTERM.

To re-activate TinyTERM, double-click on the TinyTERM icon.

Maximize Button

Clicking on the Maximize Buttonenlarges your window to the size of your screen. When maximized, this button changes to a double arrow. Click again to reduce the window to its original size.

Using the Help System

If you are familiar with the Windows Help system, you already know how to use TinyTERM's Help.

If you ever forget how to use any section of TinyTERM, there is an on-line Help system that explains what to do. The Help option of the menu runs a separate program under Windows. You may leave Help running concurrently while you are working in TinyTERM.

To access Help

- Select Main Menu | Help | Contents, Main Menu | Help | Search for Help On..., or press the Help button on the Ribbon Bar.

To exit Help

- Double-click the system menu (located in the upper left corner of the Help window).
- Select close from the Help window system menu.

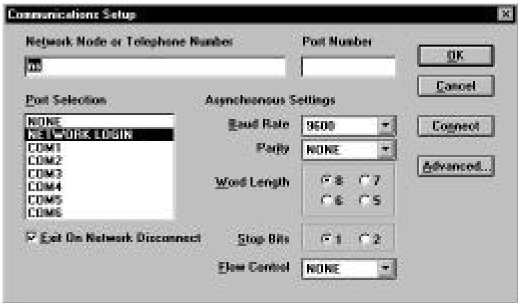
Changing Your Settings

Changing your communications settings

1. Select Main Menu | Configure | Communication or click on the Communications SetupButton on the default Ribbon Bar.

   The Communications Setupdialog box appears:

Figure 1-5 TinyTERM Communications Setup Dialog Box



Communications Setup

Network Node or Telephone Number:

Port Number:

Port Selection: NONE, NETWORK LOGIN, COM1, COM2, COM3, COM4, COM5, COM6 (NETWORK LOGIN selected)

☑ Exit On Network Disconnect

Asynchronous Settings

Baud Rate: 9600

Parity: NONE

Word Length: ● 8 ○ 7 ○ 6 ○ 5

Stop Bits: ● 1 ○ 2

Flow Control: NONE

2. In the Network Node or Telephone Number edit field, type one of three items, depending on your Port Selection:
   - Phone number. This is valid with any COM port selection.
   - Network node name or Internet address. This is valid with the NETWORK LOGIN port selection.
3. In the Port Number edit field, type the network port number to connect to. This is valid only with the NETWORK LOGIN port selection.
4. In the Port Selection list box click on:
   - NONE to connect to neither asynchronous nor network communications links.
   - NETWORK LOGIN to connect to a network. You must also define a network service and connection type under the Advanced settings.
   - COMn to connect to a serial port.
5. Click the checkbox to change the Exit On Disconnect setting. When checked, TinyTERM will automatically exit when a network connection closes. This option is only valid for network connections.
6. In the Asynchronous Settings group change:
   - Baud Rate
     The baud rate is the speed of the serial connection, roughly equivalent to bits per second. Click the Baud Rate down arrow to display the list of possible values. Click on the desired Baud Rate.

     For a direct connection the speed should probably be 9600 or 19200; for a modem connection, it depends on the speed of your modem and the speed of the modem used by the system you are communicating with. TinyTERM will set the speed you specify when it opens the port.

- Parity
  Click on the down arrow for the list of values. Parity is a primitive form of error checking used before the development of more sophisticated communications protocols. While it is less frequently used for error checking, both systems must use the same value in order to communicate.

  The possible values for parity are NONE, EVEN, ODD, MARK, and SPACE. You should specify NONE unless you are planning to communicate with another system that you are sure uses one of the other options.

- Word Length
  Click on the word length needed within the group box. If parity must be even or odd, word length must be 7. Otherwise, connections with no parity must have a length of 8.

- Stop Bits
  Click on the number of stop bits needed within the group box. The only time two stop bits are used is at a low speed like 110 baud, so you should rarely need to change this value.

- Flow Control
  The optimum flow control method to be used. If you are unsure, use XON/XOFF. Choices are:

  NONE No flow control will be used.

  XON/XOFF Software flow control utilizing XON (^S) and XOFF (^Q) characters will be used.

  HARDWARE Hardware flow control between the modems and serial ports will be used.

  ETX/ACK Software flow control utilizing ETX (^C) and ACK (^F) characters will be used.

7. To accept the new settings without connecting, press ENTER.
   Or click on the OK Button.

   To accept the new settings and establish a connection, click on the Connect Button.

   To reject the new settings, press ESC.
   Or click on the Cancel Button.

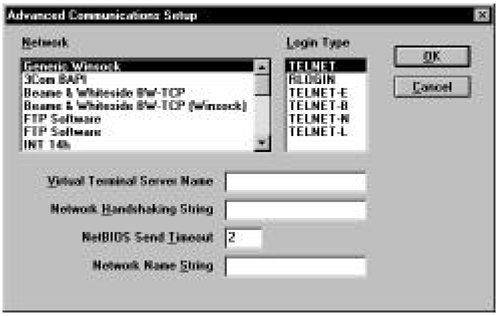
Changing your advanced communications settings

If you have chosen NETWORK LOGIN as your Port Selection, you must define your advanced settings.

1. From the Communications Setupdialog box click on the Advanced button.

   The Advanced Communications Setupdialog box appears:

Figure 1-6 TinyTERM Advanced Communications SetupDialog Box



Virtual Terminal Server Name
Network Handshaking String
NetBIOS Send Timeout 2
Network Name String

2. In the Network list box, click on the name of the network you are using.
3. In the Login Type list box, click on the login type for network connections.

   The Login Types are:

TELNET	Standard TELNET access.
RLOGIN	Standard RLOGIN access.
TELNET-E	TELNET access - echo enabled.
TELNET-B	TELNET access - binary mode.
TELNET-N	TELNET access- send EOL None.
TELNET-L	TELNET access - Send EOL Linefeed

4. In the NetBIOS/MSNET group, enter the values for the following entry fields (These options are only used if the selected Network is NetBIOS, MSNET, or LAN Manager):
   - Virtual Terminal Server Name
   - Network Handshaking String
   - NetBIOS Send Timeout
   - Network Name String
5. To accept the new settings, pressENTER.
   Or click on the OK Button.

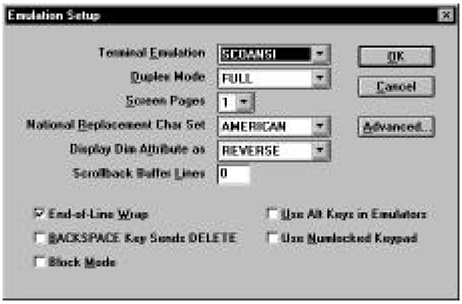
   To reject the new settings, pressESC.
   Or click on the Cancel Button.

Changing your emulation settings

1. Select Main Menu | Configure | Emulation or click on the Emulation Setup Button on the default Ribbon Bar

   The Emulation Setupdialog box appears:

Figure 1-7 TinyTERM Emulation SetupDialog Box



Terminal Emulation: SCOANSI
Duplex Mode: FULL
Screen Pages: 1
National Replacement Char Set: AMERICAN
Display Dim Attribute as: REVERSE
Scrollback Buffer Lines: 0

☑ End-of-Line Wrap
☐ BACKSPACE Key Sends DELETE
☐ Block Mode
☐ Use Alt Keys in Emulators
☐ Use Numlocked Keypad

2. The options which can be set are as follows:

   - Terminal Emulation
     Terminal Emulation is a pop up field. Click the down arrow to display the list of available terminal emulations:

     ADM1 ADM1 terminal emulation.

     ANSI ANSI 3.64. Generic ANSI emulation.

     AT386 AT&T UNIX System V/386 Color Console. This is a full-screen, 25 line emulation of the console on AT&T and Interactive UNIX System V/386 systems and System V.4.

     IBM3101 IBM 3101 terminal. Supports block and line mode.

     IBM3151 IBM 3151 terminal.Defaults to a 24 line emulation.

     IBM3151-25 IBM 3151 terminal.Defaults to a 25 line emulation.

     PCTERM WYSE WY-60 scancode mode emulation. Automatically selected if Wyse60 is selected and the application requests it.

     SCOANSI SCO UNIX Color Console. This is a full-screen, 25 line emulation of the console on SCO UNIX and XENIX systems. Scancode mode is also supported in this emulation.

     TTY Pass-through or "teletype" mode. All characters received are displayed on the screen and no special escape processing is performed.

TV912	TeleVideo 912 terminal emulation.

TV925 TeleVideo 925 terminal emulation.

TV950 TeleVideo 950 terminal emulation.

VT320 DEC VT320 terminal emulation. Includes support for Multinational Character Sets, compose characters, label line, transparent printing, double-high/double-wide characters, numeric keypad, and more.

VT320-7 DEC VT320 terminal emulation with National Replacement Character Set support, which allows foreign character display over 7-bit connections.

VT220 DEC VT220 terminal emulation with Multinational Character Set support.

VT220-7 DEC VT220 terminal emulation with National Replacement Character Set support.

VT100 DEC VT100 terminal emulation.

VT52 DEC VT52 terminal emulation.

WYSE60 WYSE WY-60 24 line terminal emulation. Includes support for 132 columns, label line and 25-line mode.

WYSE60-25 WYSE WY-60 terminal emulation 25-line mode. Automatically selects 25-line mode.

WYSE50 WYSE WY-50 terminal emulation.

- Duplex Mode
  Click on the down arrow to display available options. Click on the duplex mode desired.

  FULL In full-duplex mode, characters typed on the local keyboard are echoed to the screen by the remote system, not by the terminal itself. Full-duplex mode is the default.

  HALF Characters typed are immediately displayed on the screen before being sent over the communications line. This is sometimes called “local echo.”

- Screen Pages
  Click the down arrow to display possible values. Each terminal emulation supports multiple screen memory pages for use with programs like Mscreenand DigiScreen, which provide multiple sessions over a single connection. Screen pages are allocated upon opening a

configuration; changing screen pages on an open configuration requires reopening the configuration.

- National Replacement Char Set
  Click on the down arrow to display possible values. The DEC VT320 and VT220 terminals support an alternate character set when used over a 7-bit data connection. This allows displaying of special foreign characters which are usually available over 8-bit connections. This option effects only the VT320-7 or VT220-7 emulation selections.

- Display DimAttributeas
  Click on the down arrow to display possible values. This option affects only the WYSE50 and WYSE60 emulations. It controls how TinyTERM should display characters with the dim attribute. Your choices are:

  NORMAL Dim characters will be displayed in the same color as normal characters.

  REVERSE Dim characters will be displayed in the reverse color.

  DIM Dim characters will be displayed in the low intensity color of the normal color and normal characters will be displayed in their high intensity colors.

- Scrollback Buffer Lines
  This is an edit field which defines the number of previously viewed lines to be saved in terminal mode. This allows you to scroll backward and forward to see data which has already scrolled by your screen. The maximum number of lines which can be defined is 200. If you change the number of lines, the changes are not in effect until you save and reload your configuration.

- End-of-Line Wrap
  Controls whether the selected emulation automatically linefeeds when a character is typed in the last column. Checked causes the cursor to move to the first column of the next line. Unchecked causes the cursor to remain in the last column until a carriage return is received.

- BACKSPACE Key Sends DELETE
  Selects what the BACKSPACE key sends to the remote system: the ASCII value for a backspace or the ASCII value for a delete. VMS systems expect the DEC VT terminals' BACKSPACE to send the delete value. When checked, the BACKSPACE key sends the ASCII value for delete (octal 177).

- Block Mode
  Controls block mode operation of the WYSE 50, IBM3101 and TeleVideo 912, 925 and 950 emulations. Checked uses block mode. Unchecked uses line mode (default).

- Use Alt Keys in Emulators
  Controls usage of ALT key combinations within TinyTERM. If checked, all ALT key combinations will be processed by TinyTERM and not by Windows. For example, ALT+F4 would not close TinyTERM. If unchecked, all ALT key combinations are first processed by Windows (default).

- Use Numlocked Keypad
  Controls allowable toggling of the NumLock key within TinyTERM. If checked, the NumLock key will be on at all times. If unchecked, the NumLock key functions normally (default).

3. To accept the new settings, press ENTER.
   Or click on the OK Button.

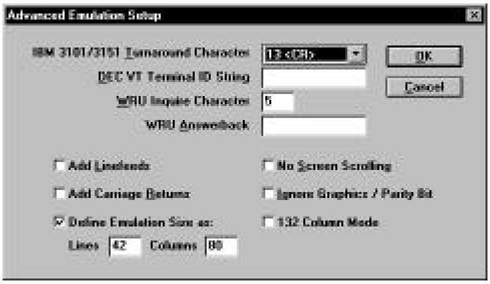
   To reject the new settings, press ESC.
   Or click on the Cancel Button.

Changing your advanced emulation settings

1. From the Emulation Setup dialog box, click on the Advanced button.

   The Advanced Emulation Setup dialog box appears:

Figure 1-8 TinyTERM Advanced Emulation Setup Dialog Box



IBM 3101/3151 Turnaround Character 13 <CR>
DEC VT Terminal ID String
WRU Inquire Character 5
WRU Answerback

☐ Add Linefeeds
☐ Add Carriage Returns
☑ Define Emulation Size as:
Lines 42 Columns 80

☐ No Screen Scrolling
☐ Ignore Graphics / Parity Bit
☐ 132 Column Mode

- IBM 3101/3151 Turnaround Character
  This is an edit field which defines the line-turnaround character for the IBM 3101 and IBM 3151 emulations. It is also the end-of-page for the IBM 3101, IBM 3151, and WYSE 50 emulations. There are four possible characters.

- DEC VT Terminal ID String
  This edit field defines the response to report requests from remote systems. The DEC VT series of terminals respond to requests for information such as what type of terminal, video capabilities and printing

capabilities. Normally TinyTERM responds only with the terminal type, but some applications require more. This field allows you to customize the response

- WRU Inquire Character
  This is an edit field which defines the WRU request character. This is an edit field of 3 digits. Enter the ASCII number for the character that is the WRU Inquiry from the host. Valid numbers are from 1 to 255.
- WRU Answerback
  This edit field allows you to set an answerback string for connection to systems which require it.
- Add Linefeeds
  This selects whether to add linefeeds to data sent and received. Although usually unchecked, some remote systems require it.
- Add Carriage Return
  This selects whether to add carriage returns to data sent and received. Although usually unchecked, some remote systems require it.
- Define Emulation Size As
  This defines the size of the emulation screen. If ToolTips are activated, the tip for lines and columns will indicate the maximum value allowed for the current font selected. Please note that selecting this option will uncheck the 'Scale to a TERM Font' option in the Font Setup dialog box, as these options are mutually exclusive.
- No Screen Scrolling
  This selects whether the screen scrolls when a character is typed in the last column of the last line, or a linefeed code is received on the last line. If unchecked, all lines scroll up one line and the cursor appears at the beginning of the last line. If checked, the cursor moves to the beginning of the first line.
- Ignore Graphics / Parity Bit
  This enables (checked) and disables (unchecked) masking of the parity (8th) bit for incoming and outgoing data during terminal emulations and data captures. This option is ignored in 8-bit emulators -including AT386, SCO ANSI, WYSE 60, PCTERM and VT220/VT320.
- 132 Column Mode
  This controls the number of columns available in the current emulation. If checked, the current emulation will be switched into 132 column mode. By default, this is unchecked, providing 80 columns.

2. To accept the new settings, press ENTER.
   Or click on the OK Button.

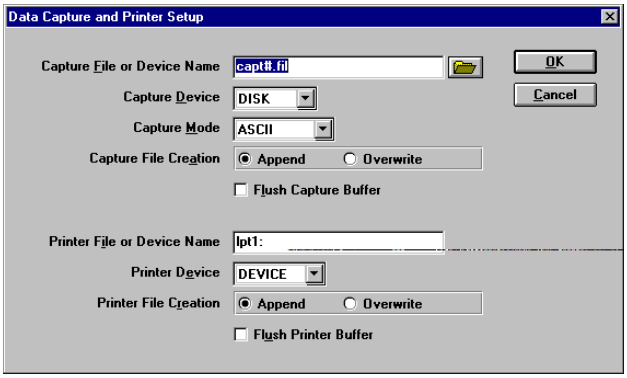
   To reject the new settings, press ESC.
   Or click on the Cancel Button.

Changing your data capture and printer settings

1. Select Main Menu | Configure | Data Capture/Printer or click on the Printer Setup Button on the default Ribbon Bar

   The Data Capture and Printer Setup dialog box appears:

Figure 1-9 TinyTERM Data Capture and Printer Setup Dialog Box



Data Capture and Printer Setup

Capture File or Device Name: capt#.fil

Capture Device: DISK

Capture Mode: ASCII

Capture File Creation: ● Append ○ Overwrite

□ Flush Capture Buffer

Printer File or Device Name: lpt1:

Printer Device: DEVICE

Printer File Creation: ● Append ○ Overwrite

□ Flush Printer Buffer

2. In the Capture group, you can change the following options:

   - CaptureFile or Device Name
     This edit field specifies where data captured goes while data capture is turned on. Valid device names include LPT1:, LPT2:, and COM1: through COM4:.

     If you specify a filename and include a number sign (#), TinyTERM substitutes a two-digit number from 00 to 99 to ensure that each data capture file has a unique name. The numbers are incremented each time you open the capture file (i.e., at the start of a TinyTERM session, not each time you toggle capture on and off). They start over when you reach 99 or when you assign a new filename that includes a number sign.

     The capture file is placed in the current directory unless you specify a full pathname. The default filename is capt#.fil.

   - Capture Device
     Click on the down arrow to display options. This pop-up field defines whether the File or Device Name field is a DEVICE (such as a printer), a DISK file, a SPOOL utility, or PrintMgr (the Windows Print Manager). If NONE is selected, all data capture requests will be ignored.

- Capture Mode
  Click on the down arrow to display options. This pop-up field specifies whetherdata is captured as an ASCII file, a BINARY file or a MNEMONIC dump file.
- CaptureFile Creation
  This group of 2radialbuttons determines how an existing capture file should be treated. If APPEND is selected, captured data is appended to the end of the existing file. If OVERWRITE is selected, the existing file is overwritten with new captured data. This field does not affect data which is sent to a device or spooler.
- Flush CaptureBuffer
  This checkbox controls ifTinyTERMflushes out the output buffer immediately upon receiving a capture off request. This ensures that all capture data is written to the file or printed. If checked the output buffer will be flushed.

3. In the Printergroup, you can change the following options:

- PrinterFile or Device Name
  This edit field specifies where the data should go when printing is turned on. Valid device names include LPT1:, LPT2:, and COM1: through COM4:.

  If you specify a filename and include a number sign (#), TinyTERM substitutes a two-digit number from 00 to 99 to ensure that each print file has a unique name. The numbers are incremented each time you open the print file (i.e., at the start of aTinyTERMsession, not each time you toggle print on). They start over when you reach 99 or when you assign a new filename that includes a number sign.

  The print file is placed in the current directory unless you specify a full pathname. The default filename is pr#.fil.
- PrinterDevice
  Click on the down arrow to display options. This pop-up field defines whether the File or Device Name field is a DEVICE (such as a printer), a DISK file or a SPOOL utility, or PrintMgr (the Windows Print Manager). If CAPTURE is selected, all print requests will be routed through the data capture system. If NONE is selected, all print requests will be ignored.
- PrinterFile Creation
  This group of 2radialbuttons determines how an existing print file should be treated. If APPEND is selected, print data is appended to the end of the existing file. If OVERWRITE is selected, the existing file is

overwritten with new print data. This field does not affect data which is sent to a device or spooler.

- Flush PrinterBuffer
  This checkbox controls ifTinyTERMflushes out the output buffer immediately upon receiving a capture off request. This ensures that all capture data is written to the file or printed. If checked the output buffer will be flushed.

4. To accept the new settings, pressENTER.
   Or click on the OK Button.

   To reject the new settings, pressESC.
   Or click on the Cancel Button.

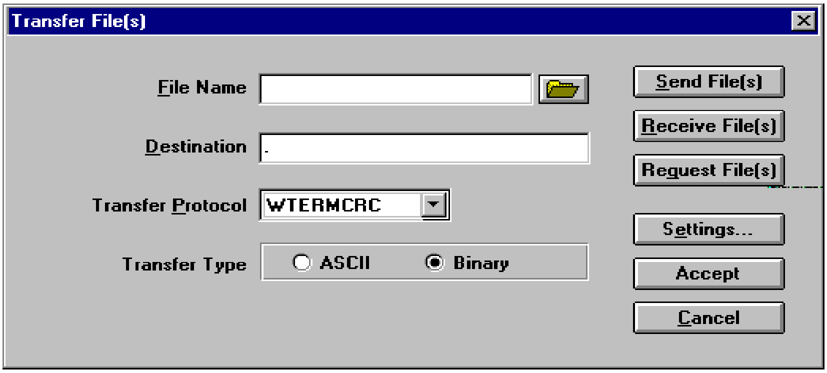
File Transfers

Transfer Files

1. Select Main Menu |File | File Transferor click on the Transfer Button on the Ribbon Bar.

   The Transfer File dialog box is displayed

Figure 1-10 TinyTERM Transfer File(s) Dialog Box



Destination: .
Transfer Protocol: WTERMCRC
Transfer Type: ○ ASCII ● Binary

2. Options available include:

   - File Name
     This edit field contains the file to be transferred. Wildcards may be used to transfer more than one file.

   - Destination
     This edit field contains the destination directory for the file(s) being transferred. This defaults to the current directory, represented by a period (".").

- Transfer Protocol
  This list box determines the protocol to use for the file(s) being transferred. If FTP is selected, the FTP Host... button is enabled, allowing configuration of the FTP hostname, username, and password.
- Transfer Type
  This group of 2 radio buttons determines how transferred files should be treated. If ASCII is selected, text file conversion will be attempted. It is the responsibility of the system receiving the file(s) to perform text file conversion. If Binary is selected, the file(s) will be transferred with no modifications.

3. Click on the Browse button to select a specific file on the local system.
   Or press ENTER.

   To transfer the file(s) in the File Name field to a remote system, click on the Send File(s) Button. The remote system should be ready to receive files before this button is selected.

   To receive the file(s) in the File Name field from a remote system, click on the Receive File(s) Button. This button should be used only if the remote system has begun sending the file(s).

   To request the file(s) in the File Name field from a remote system, click on the Request File(s) Button. This button should be used only if the remote system is in server mode.

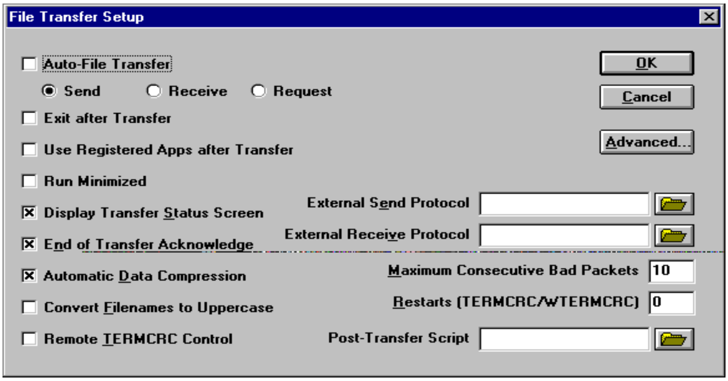
   To exit file transfer, press ESC.
   Or click on the Cancel Button.

Changing File Transfer Settings

To change the settings to be used when transferring files, select the Settings button in the file transfer screen.

The following screen will then be displayed:

Figure 1-11 TinyTERM File TransferSettings



□ Auto-File Transfer

● Send ○ Receive ○ Request

□ Exit after Transfer

□ Use Registered Apps after Transfer

□ Run Minimized

☒ Display Transfer Status Screen

☒ End of Transfer Acknowledge

☒ Automatic Data Compression

□ Convert Filenames to Uppercase

□ Remote TERMCRC Control

External Send Protocol

External Receive Protocol

Maximum Consecutive Bad Packets 10

Restarts (TERMCRC/WTERMCRC) 0

Post-Transfer Script

Settings

- Auto-File Transfer
  If this box is checked, the file transfer will begin sending, receiving or requesting file information whenever TinyTERM is initiated.
- Exit After Transfer
  This option will exit TinyTERM after the transfer is complete
- Use Registered Apps After Transfer
  When receiving files that have a registered extension (i.e. ".doc" for Word), this option when checked, will instruct Windows to launch the appropriate application software. The extensions and the associated application programs are set up within Windows.
- Run Minimized
  By checking this box, the transfer function screen will be minimized during the actual transfer. This allows other functions to be performed while the transfer is taking place.
- Display Transfer Status Screen
  This checkbox selects whether to display the file transfer status screen. During file transfers, a status screen is displayed to keep you updated on the condition of the transfer. If you do not want to display this status screen, uncheck this field and TinyTERM will display a series of periods on the emulator window as the transfer occurs (i.e". . . . .").

- End of Transfer Acknowledge
  This checkbox selects whether TinyTERM's file transfer status screen requires acknowledgment at the conclusion of a file transfer command. This option is checked by default, which requires you to close the file transfer status screen manually. If unchecked, the file transfer status screen will display all information as normal, but will close automatically at the conclusion of the file transfer command.

- Automatic Data Compression
  This checkbox selects whether TERMCRC and WTERMCRC perform automatic data compression to decrease the amount of time required to transfer files. Uncheck to turn compression OFF.

- Convert Filenames to Uppercase
  This checkbox selects whether filenames are sent in all caps. If checked, TinyTERM will create files with uppercase names on UNIX systems when those files come from DOS systems.

- Remote TERMCRC Control
  This checkbox selects control mode for file transfer. In control mode, TinyTERM acts as a server, waiting for REMOTE and file requests from a remote computer also running TinyTERM.

3. The External Protocols group:

   - Send
     This edit field defines the DOS command line necessary for sending files with the external protocol.

   - Receive
     This edit field defines the DOS command line necessary for receiving files with the external protocol.

   - Maximum Consecutive Bad Packets
     This is an edit field. Use this field to set the maximum number of consecutive bad packets that may be received before TinyTERM aborts a file transfer. The default value is 10. Set the value lower if you want TinyTERM to abort sooner during transfers across noisy communications lines.

     If the phone line is very noisy, even TinyTERM's error-checking protocols may not be able to transfer a file. A bad packet (one that doesn't arrive intact) is retransmitted. However, if packets are consistently bad, it may be better to abort the transfer and try again later. (Retransmitting packets takes time, and thus increases the time of a file transfer.)

- Restarts (TERMCRC/WTERMCRC)
  This edit field turns on or off the restartable file transfer feature. If this field is set at 0, restarts are not attempted. If the field is set at 1 or more, TinyTERM attempts *n* times to restart a file transfer after interruption. Restartable file transfers are only attempted if the file transfer protocol is TERMCRC or WTERMCRC.

- Post-Transfer Script
  If a custom script should be executed after the transfer is complete, the appropriate directory and file name may be entered for this option. Either type the information or press the Browse button to determine the correct directory and file to be entered for this item, if any.

4. To accept the new settings, press ENTER.
   Or click on the OK Button.

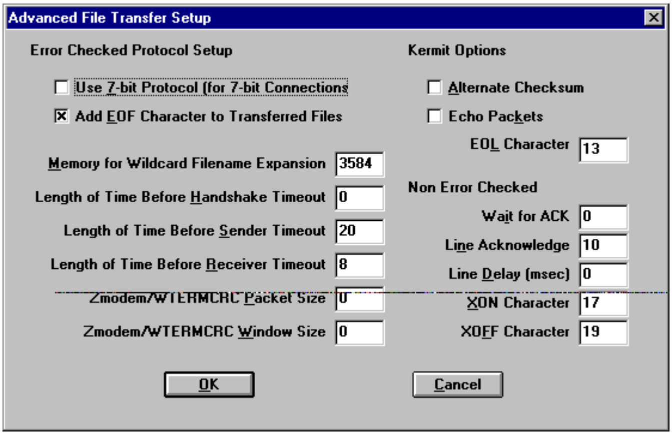
   To reject the new settings, press ESC.
   Or click on the Cancel Button.

Changing your advanced file transfer settings

1. The advanced file transfer settings may be changed using the Protocol Setup functions.From the Protocol Setup dialog box click on the Advanced Button.

   The Advanced Protocol Setup dialog box appears:

Figure 1-12 TinyTERM Advanced Protocol Setup Dialog Box



Advanced File Transfer Setup

Error Checked Protocol Setup

☐ Use 7-bit Protocol (for 7-bit Connections

☒ Add EOF Character to Transferred Files

Memory for Wildcard Filename Expansion: 3584

Length of Time Before Handshake Timeout: 0

Length of Time Before Sender Timeout: 20

Length of Time Before Receiver Timeout: 8

Zmodem/WTERMCRC Packet Size: 0

Zmodem/WTERMCRC Window Size: 0

Kermit Options

☐ Alternate Checksum

☐ Echo Packets

EOL Character: 13

Non Error Checked

Wait for ACK: 0

Line Acknowledge: 10

Line Delay (msec): 0

XON Character: 17

XOFF Character: 19

2. The Error Checked Protocols group:

   - Use 7-bit Protocol (for 7-bit Connections)
     This checkbox selects whether to strictly use 7-bit characters during file transfers. If checked, file transfers over 7-bit links use only characters between hex 20-7e and ^X, which are printable characters. This field should be unchecked for all 8-bit connections, but checked for most networks.

   - Add EOF Character to Transferred Files
     This checkbox controls the addition of an End Of File character to the end of a transferred file.

   - Memory for Wildcard Filename Expansion
     This edit field specifies the number of bytes to allocate for filename expansions. The default memory allocated for filename expansions is 3584 (13 x 275) bytes, sufficient for 275 filenames, one byte per character in the filename. TinyTERM's filename expansion routine uses only the number of bytes in the filename plus one for memory storage. This field can be used either to specify a smaller amount of memory if memory conservation is important, or to specify a larger memory allocation so that more filenames may be selected by the wildcard.

   - Length of Time Before Handshake Timeout
     This edit field specifies the number of seconds TinyTERM should wait at the beginning of a transfer before timing out due to a lack of response. When set to zero, TinyTERM will never time out.

   - Length of Time Before Sender Timeout
     This edit field specifies the number of seconds for packet sender timeout. When set to zero, TinyTERM will never time out.

   - Length of Time Before Receiver Timeout
     This edit field specifies the number of seconds for packet receiver timeout. When set to zero, TinyTERM will never time out.

   - Zmodem/WTERMCRC Packet Size
     This edit field allows you to override the Zmodem and WTERMCRC packet sizes. The packet size is in bytes. A zero entry sets this field to the default.

   - Zmodem/WTERMCRC Window Size
     This edit field allows you to adjust the Zmodem and WTERMCRC maximum sliding window size. This is preset by the baud rate, but you can override it. It is used to change the window size so that the time

required to transmit a packet matches the ACK transmission delay time. A zero entry sets this field to the default.

3. The KERMIT Options group:

   - Alternate Checksum
     This checkbox selects the new (unchecked) or the old (checked) version of KERMIT checksum generation. Older versions of KERMIT use a different error-checking method. If you are communicating with an older version, you may need this checked.

   - Echo Packets
     This checkbox selects whether to echo received packets to the screen. Check this box to display all packets to the screen as they are received.

   - EOL Character
     This is an edit field for the numeric ASCII value of the End Of Line Character. It defaults to 13 which is the Carriage Return

4. The Non-Error Checked group:

   - Wait for ACK
     This edit field sets the number of seconds TinyTERM waits for an XON or ACK during ASCII and Line transfers. TinyTERM will timeout if an XON or ACK is not received within the specified period of time. Default of zero means TinyTERM will not timeout.

   - Line Acknowledge
     This edit field defines the acknowledge character during Line sends. The acknowledge character signals readiness to send another line out the communications line.The default character is the linefeed character (\n).

   - Line Delay (msec)
     This edit field sets the amount of time TinyTERM should delay after each linefeed character is sent down the communications line. The default value is 0, which means “no delay.” If you are communicating with a system that cannot handle input at the full baud rate speed, set this value higher.

   - XON Character
     This edit field will accept the numeric ASCII value for the software flow control character XON. The default value XON=17(^S) is usual and normal for asynchronous communications.

   - XOFF Character
     This edit field will accept the numeric ASCII value for the software flow control character XOFF. The default value XOFF=19(^Q) is usual and normal for asynchronous communications.

5. To accept the new settings, press ENTER.
   Or click on the OK Button.

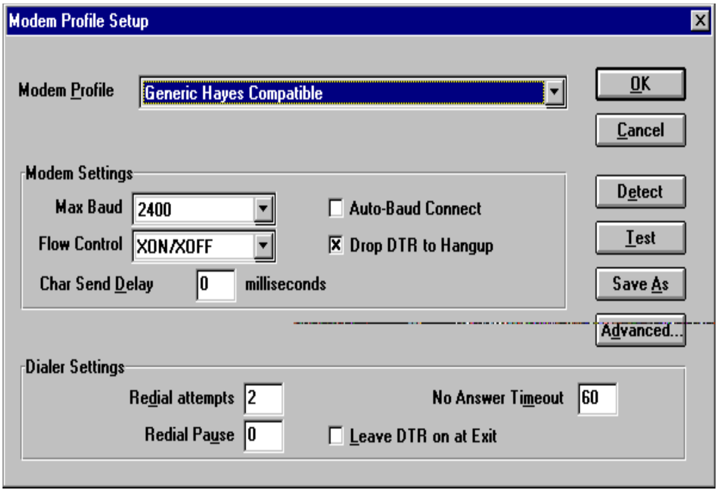
   To reject the new settings, press ESC.
   Or click on the Cancel Button.

Changing your modem settings

Select Main Menu | Configure | Modem.

The Modem Profile Setup dialog box appears:

Figure 1-13 TinyTERM Modem Profile Setup Dialog Box



Modem Profile Setup

Modem Profile: Generic Hayes Compatible

Modem Settings

Max Baud: 2400

Flow Control: XON/XOFF

Char Send Delay: 0 milliseconds

☐ Auto-Baud Connect

☒ Drop DTR to Hangup

Dialer Settings

Redial attempts: 2

Redial Pause: 0

No Answer Timeout: 60

☐ Leave DTR on at Exit

In the Modem Profile pop-up field, select the modem name which matches the modem you are using.

If no modem name in the list matches your modem type, select one that most closely matches your modem. Generic Hayes Compatible will work for most Hayes compatible modems.

Modem Settings group change:

- Max Baud
  The maximum baud rate (bps) supported by your modem.

- Flow Control
  The optimum flow control method used by your modem. If you are unsure, use XON/XOFF. Choices are:

  NONE No flow control will be used.

  XON/XOFF Software flow control utilizing XON (^S) and XOFF (^Q) characters will be used.

  HARDWARE Hardware flow control between the modems and serial ports will be used.

  ETX/ACK Software flow control utilizing ETX (^C) and ACK (^F) characters will be used.

- Char Send Delay
  The number of milliseconds between character sends (for slower modems.)

- Auto-Baud Connect
  Check if your modem requires auto baud rate detection.

- Drop DTR to Hang-up
  Check if your modem supports hang-up using DTR signal.

Dialer Settings

- Redial Attempts
  The number of times TinyTERM should redial when a call does not go through (e.g., when the remote system does not answer.)

- Redial Pause
  The number of seconds to pause between redial attempts.

- No Answer Timeout
  The number of seconds TinyTERM should wait for a carrier signal before it hangs up and redials. Any number may be entered in this field, but it is recommended that you do not set this value to less than 30 seconds in order to allow time for TinyTERM to dial and for the modems to negotiate a connection.

- Leave DTR on at Exit
  If checked, the modem connection will remain active when you exit TinyTERM.

Detect

To assist in setting up the modems correctly for TinyTERM, this option will automatically search the hardware configuration and display available modem ports and the maximum baud rate for each port.

Test

To test your modem, click the Test Button.

This will send the initialization sequence to your modem and verify that the settings that you have specified are working correctly.

Saving the Settings

- To accept the new settings, press ENTER, or click the OK button.

  To reject the new settings, press ESC, or click the Cancel button.

- To save your modem settings under a name of your choice, click the Save As button.

  You will be prompted for a modem configuration profile name. Enter the name that you wish to use and press ENTER or click the OK button. Your modem profile will be added to TinyTERM's modem database, and will appear as an entry in the Modem Profile pop-up field.

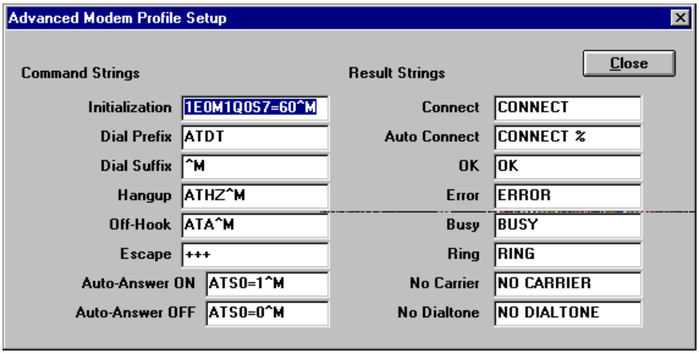
  Press ESC or click the Cancel button to exit without saving your modem profile.

Changing your advanced modem settings

From the Modem Profile Setup dialog box, click on the Advanced Button.

The Advanced Modem Profile Setup dialog box will be displayed:

Figure 1-14 TinyTERM Advanced Modem Profile Setup Dialog Box



Command Strings		Result Strings	
Initialization	1E0M1Q0S7=60^M	Connect	CONNECT
Dial Prefix	ATDT	Auto Connect	CONNECT %
Dial Suffix	^M	OK	OK
Hangup	ATHZ^M	Error	ERROR
Off-Hook	ATA^M	Busy	BUSY
Escape	+++	Ring	RING
Auto-Answer ON	ATS0=1^M	No Carrier	NO CARRIER
Auto-Answer OFF	ATS0=0^M	No Dialtone	NO DIALTONE

All of the Command Strings and Result Strings can be customized to fit the requirements of your modem.

Command Strings:

- Initialization

  The string of modem commands sent to the modem before the connect attempt.

- Dial Prefix

  The string sent to the modem before the phone number to be dialed. For Hayes modems, the string is "ATDT".

- Dial Suffix

  The string to be sent immediately following the phone number. For Hayes modems, it is a carriage return.

- Hang-up

  The string required to hang up your modem. For Hayes modems, it is "ATHZ".

- Off-Hook

  The string required to force the modem to go "off-hook". For Hayes modems, it is "ATA" followed by a carriage return.

- Escape

  The string required to place the modem into command mode. For Hayes modems, it is "+++".

- Auto-Answer ON

  The string required to set the modem to automatically answer incoming calls. For Hayes modems, it is "ATS0=1" followed by a carriage return.

- Auto-Answer OFF

  The string to disable the modem from automatically answering incoming calls. For Hayes modems, it is "ATS0=0" followed by a carriage return.

Result Strings

- Connect

  The string response received from the modem when a connection is established. For Hayes modems, it is "CONNECT".

- Auto Connect

  The string received from the modem when a connection is established at % baud.

- OK

  The string received from the modem when a valid command has been received and acknowledged. For Hayes modems, it is "OK".

- Error
  The string received from the modem when a command is rejected.

- Busy
  The string received from the modem when a busy signal is encountered while attempting a call.
- Ring
  The string received from the modem when it is ringing. For Hayes modems, it is "RING" followed by a carriage return.
- No Carrier
  The string received from the modem when a call was not completed due to a carrier signal not being detected from the remote modem.
- No Dialtone
  The string received from the modem when a call is attempted and a dial tone is not detected on the telephone line.

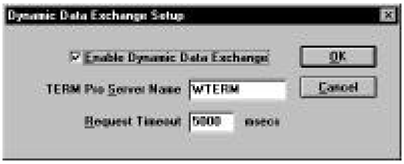
3. Press ENTER, or click the Close button to return to the Modem Profile Setup dialog box.

Changing your DDE settings

1. Select Main Menu | Configure | DDE.

   The Dynamic Data Exchange Setup dialog box appears:

Figure 1-15 TinyTERM Dynamic Data Exchange Setup Dialog Box



☑ Enable Dynamic Data Exchange
TERM Pro Server Name: WTERM
Request Timeout: 5000 msecs

2. The following DDE settings may be changed:
   - Enable Dynamic Data Exchange
     This checkbox controls whether TinyTERM accepts requests for DDE conversations.
   - TinyTERM server name
     This edit field changes the name used by a DDE client to request a DDE conversation with TinyTERM.
   - Request timeout
     This edit field sets the number of seconds TinyTERM waits for a Request reply before it times out and displays an error.

3. To accept the new settings, press ENTER. Or click on the OK Button.

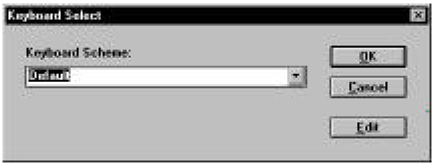
   To reject the new settings, press ESC. Or click on the Cancel Button.

Modifying your keyboard mappings

1. Select Main Menu | Configure | Keyboard or click on the Keyboard Setup Button on the default Ribbon Bar

   The Keyboard Select dialog box appears:

Figure 1-16 TinyTERM Keyboard Select Dialog Box



Keyboard Scheme: Default

2. Select the keyboard scheme that you wish to edit or load.

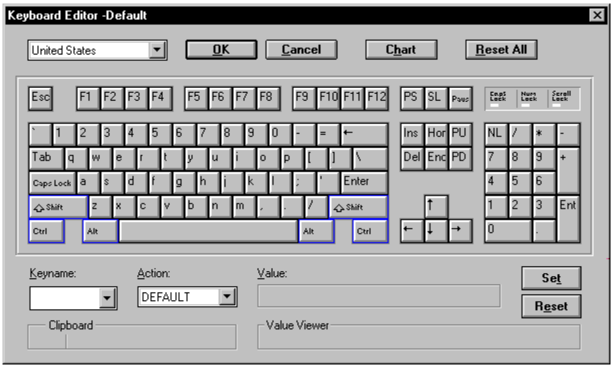
   To load the keyboard scheme and have the key mappings take effect, click the OK button.

   To close the Keyboard Select dialog without selecting a keyboard, click the Cancel button.

   To edit an existing keyboard scheme, click the Edit button. If you wish to create a new keyboard scheme, type a description in the Keyboard Scheme edit field and click the Edit button.

   The Keyboard Editor dialog box appears:

Figure 1-17 TinyTERM Keyboard Editor Dialog Box


Keyboard Editor -Default
OK
Cancel
Chart
Reset All
Esc F1 F2 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 PS SL Paus
Caps Lock Num Lock Scroll Lock
` 1 2 3 4 5 6 7 8 9 0 - = ← Ins Hor PU NL / * -
Tab q w e r t y u i o p [ ] \ Del End PD 7 8 9 +
Caps Lock a s d f g h j k l ; ' Enter 4 5 6
Shift z x c v b n m , . / Shift ↑ 1 2 3 Ent
Ctrl Alt Alt Ctrl ← ↓ → 0 .
Set
Reset
Clipboard
Value Viewer

United States

Keyname:

Action: DEFAULT

Value:

3. The keyboard editor controls and buttons are as follows:

   - The Keyboard pop-up list box
     This field selects the default keyboard that you wish to remap. The displayed keyboard will change to match the selected keyboard type.

   - The OK button
     Click this button to exit the keyboard mapper.

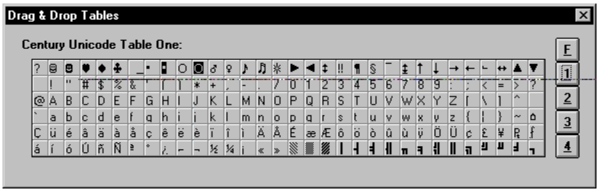
     If keyboard settings have been changed, you will be asked if you would like to save your new settings. Click Yes to save settings, No to discard settings, or Cancel to return to the editor.

     If keyboard settings have been changed, you will be asked if you want your new settings to take effect immediately. Click the Yes button to have the settings take effect immediately, No to maintain the current keyboard settings, or Cancel to return to the editor.

   - The Cancel button
     Click this button to exit the keyboard editor and discard all changes.

   - The Chart button
     Clicking this button opens the TCS chart.

Figure 1-18 TinyTERM TCS ChartDialog Box

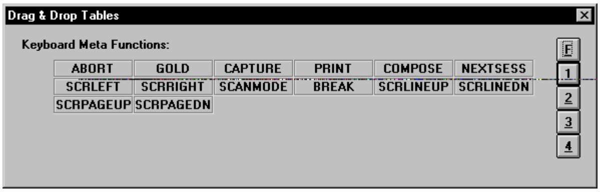


?	☺	☻	♥	♦	♣	_	▪	◘	○	◙	♂	♀	♪	♫	☼	►	◄	↕	‼	¶	§	▬	↨	↑	↓	→	←	∟	↔	▲	▼
	!	"	#	$	%	&	'	(	)	*	+	,	-	.	/	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	
`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	{	¦	}	~	⌂
Ç	ü	é	â	ä	à	å	ç	ê	ë	è	ï	î	ì	Ä	Å	É	æ	Æ	ô	ö	ò	û	ù	ÿ	Ö	Ü	¢	£	¥	₧	ƒ
á	í	ó	Ú	ñ	Ñ	ª	º	¿	⌐	¬	½	¼	¡	«	»	░	▒	▓	│	┤	╡	╢	╖	╕	╣	║	╗	╝	╜	╛	┐

Characters from the chart can be dragged to the keyboard editor and dropped on a key to remap the key value. Each 'page' of the TCS chart can be viewed by clicking the buttons labeled 1, 2, 3, and 4 on the right side of the chart.

The TinyTERM Functions chart can be displayed by clicking the "F" button. TinyTERM functions can be dragged from this chart to any key in the keyboard editor:

Figure 1-19 TinyTERM Function ChartDialog Box



- The Reset All button
  Clicking this button resets all key values to the TinyTERM default setting.

- The Keyboard
  All 'keys' on the keyboard accept several actions:

  > Any key can be 'dragged' and 'dropped' on any other key to change the destination key to send the sequence of the source key. The label on the destination key will change to the new value and the font will be bold to show that the key has been changed.
  >
  > Any character from the chart can be dropped on any key to remap the destination key to the chart value. The label on the destination key will change to the new value and the font will be bold to show that the key has been changed.
  >
  > Any key can be clicked on and the keyname will appear in the Keyname list box for manual editing.
  >
  > If the ALT, SHIFT, or CTRL keys are clicked, the keyboard will redraw to display the keys modified by the ALT, SHIFT, or CTRL keys. Combinations of SHIFT and CTRL can be used. Keys that do not display a value do not have default key mappings.

- The Keyname pop-up list box
  This field allows selection of a keyname to be mapped.

- The Action pup-up list box
  This field lists the action associated with the selected key.

  > RESET indicates that the selected key is set to the default value.
  >
  > MACRO indicates that the key is mapped to send a string, is mapped to a different TinyTERM Character Set value, or set to a TinyTERM function. The value is displayed in the Value edit box.

- The Value Edit box
  This edit box displays the value of a current key mapping. The contents of the box can be changed to the desired value for the selected key.

- The Set button
  Sets the value in the Value Edit box to the selected key.

- The Reset button
  Clicking this button resets the selected key to the default value.

- The Clipboard
  The clipboard is a temporary holding area for keys and values. Use the clipboard to drag keys and values from modified keys (ALT, SHIFT, CTRL) to unmodified keys and vice versa.

  Values or keys can be dragged to the clipboard, then dragged to any other key or value.

  Keys can be dragged to and from the left section of the clipboard, mappings and values can be dragged to and from the right section of the clipboard.

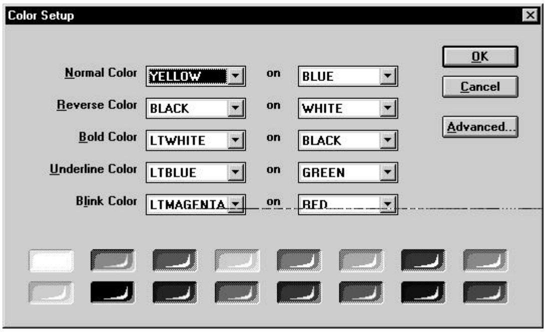
- The Value Viewer text box
  Keys and Values dropped in the Value Viewer text box will be appended to the value in the Value edit box. This is useful for building long strings and values.

Changing your color settings

1. Select Main Menu | Configure | Color or click on the Color SetupButton on the default Ribbon Bar.

   The Color Setupdialog box appears:

Figure 1-20 TinyTERM Color SetupDialog Box



Color Setup

Normal Color YELLOW on BLUE

Reverse Color BLACK on WHITE

Bold Color LTWHITE on BLACK

Underline Color LTBLUE on GREEN

Blink Color LTMAGENTA on RED

2. From this screen, colors for the 5 basic attributes can be customized. Each option allows you to define one of 16 foreground colors and one of 8 background colors. The attributes which can be set are:

   - Normal Color
   - Reverse Color
     If DEFAULT is selected, reverse characters are displayed in the reverse colors of the Normal Color.

- Bold Color
  If DEFAULT is selected, bold characters are displayed in the high intensity color of the foreground Normal Color.
- Underline Color
  If DEFAULT is selected, underline characters are displayed underlined.
- Blink Color

To assign colors to these attributes:

- Click on the down arrow next to the listbox containing the color you want changed. A list of valid color choices will be displayed. Select the desired color;

  or

- Drag a color from one of the paint pots into the listbox containing the color you want changed. All sixteen colors are valid for a foreground color. Only the bottom row of paint pots, the dark hues, are valid choices for a background color.

3. To accept the new settings, press ENTER.
   Or click on the OK Button.

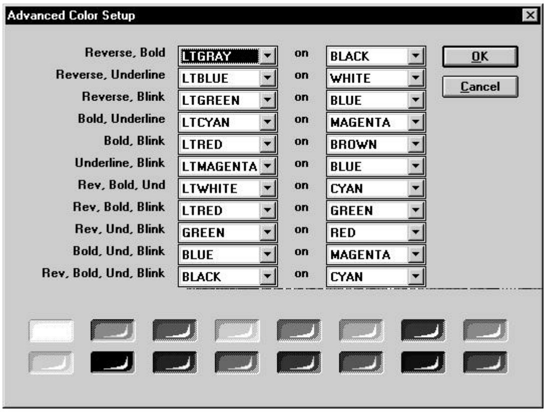
   To reject the new settings, press ESC.
   Or click on the Cancel Button.

Changing your advanced color settings

1. From the Color Setup dialog box, click the Advanced button.

   The Advanced Color Setup dialog box appears:

Figure 1-21 TinyTERM Advanced Color Setup Dialog Box



Advanced Color Setup

Reverse, Bold	LTGRAY	on	BLACK
Reverse, Underline	LTBLUE	on	WHITE
Reverse, Blink	LTGREEN	on	BLUE
Bold, Underline	LTCYAN	on	MAGENTA
Bold, Blink	LTRED	on	BROWN
Underline, Blink	LTMAGENTA	on	BLUE
Rev, Bold, Und	LTWHITE	on	CYAN
Rev, Bold, Blink	LTRED	on	GREEN
Rev, Und, Blink	GREEN	on	RED
Bold, Und, Blink	BLUE	on	MAGENTA
Rev, Bold, Und, Blink	BLACK	on	CYAN

2. Colors for 11 permutations of attribute handling schemes are available. To assign colors to these attributes:

   - Click on the down arrow next to the listbox containing the color you want changed. A list of valid color choices will be displayed. Select the desired color;

     or

   - Drag a color from one of the paint pots into the listbox containing the color you want changed. All sixteen colors are valid for a foreground color. Only the bottom row of paint pots, the dark hues, are valid choices for a background color.

3. To accept the new settings, press ENTER.
   Or click on the OK Button.

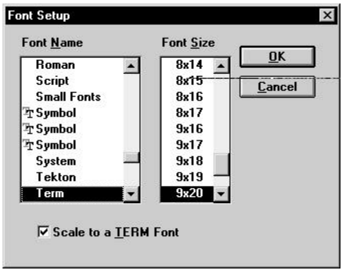
   To reject the new settings, press ESC.
   Or click on the Cancel Button.

Modifying your font settings

1. Select Main Menu | Configure | Fonts.

   The Font Setup dialog box appears:

Figure 1-22 TinyTERM Font SetupDialog Box



2. The Font Name box lists the Windows fonts available on your computer. Click on an item to make a selection.

3. The Font Size box lists the sizes supported by the font listed in the Font Name box. Click on an item to make a selection.

4. If the “Scale to a TinyTERM” Font is selected, TinyTERM automatically scales the current font to display a standard 80x24 or 80x25 character screen in the current window size. If a 132 column mode sequence is received, the font will adjust to the size of the Window.

5. To accept the new settings, press ENTER.
   Or click on the OK Button.

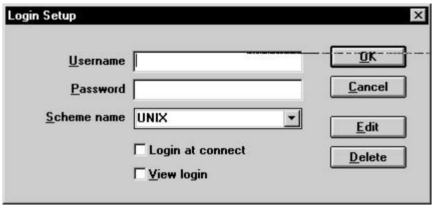
   To reject the new settings, press ESC.
   Or click on the Cancel Button.

Changing your login settings

1. Select Main Menu | Configure | Login .

   The Login Setupdialog box appears:

Figure 1-23 TinyTERM Login SetupDialog Box



Scheme name UNIX

□ Login at connect

□ View login

2. Options available include:

- Username
  This field should contain the response required by your remote system's "login" prompt.

- Password
  This field should contain the response required by your remote system's "password" prompt. The contents of this field are automatically encrypted.

- Scheme name
  Click on the down arrow to display options. This pop up field determines which scheme name is executed.

- Login at connect
  This checkbox controls whether TinyTERM performs an auto-login or simply loads the username and password information. If checked, the login information will be used every time a connection is made. If unchecked, the username, password, and login type information is stored in memory.

- View login
  This checkbox controls whether TinyTERM displays the login sequences to the screen. If checked, all login dialog information will be displayed in the emulator window. If unchecked, TinyTERM will perform a silent login.

- Delete button
  Removes the currently selected login scheme from the login type database.

3. To accept the new settings, press ENTER.
   Or click on the OK Button.

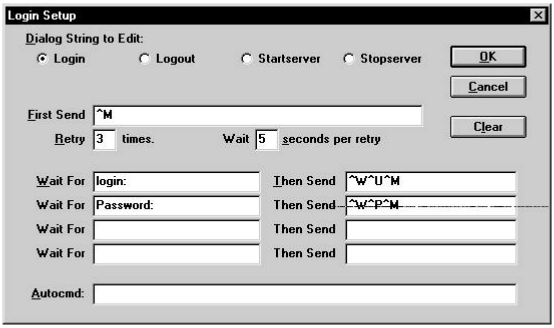
   To reject the new settings, press ESC.
   Or click on the Cancel Button.

Changing your advanced login settings

1. From the Login Setup dialog box, click the Edit button.

   The Advanced Login Setup dialog box appears:

Figure 1-24 TinyTERM Advanced Login Setup Dialog Box



Login Setup

Dialog String to Edit:
● Login ○ Logout ○ Startserver ○ Stopserver

First Send: ^M
Retry: 3 times. Wait: 5 seconds per retry

Wait For: login: Then Send: ^W^U^M
Wait For: Password: Then Send: ^W^P^M
Wait For: Then Send:
Wait For: Then Send:

Autocmd:

2. Options available include:

   - Dialog String to Edit
     These radio buttons determine which string within the chosen scheme to edit.

   - First Send
     This is a connection initialization string. Some systems may require a carriage return or break sequence before they respond with a login. Place any preliminary transmissions in this field.

   - Retry *n* times
     "*n*" is the number of times TinyTERM attempts to log in before reporting a login failure.

   - Wait *n* seconds per retry
     This is the number of seconds to wait for each "Wait For" string before timing out and beginning the next retry.

- Wait For/Then Send
  These are paired fields that conduct a dialogue with a remote system during auto login. Generally the user must wait for the login string from the remote system and reply with the username, and repeat the same sequence of waiting and answering for the password. TinyTERM will automate this process by using a dialog string created here. TinyTERM will sequentially "Wait For" and "Then Send" the strings entered in these fields.
- Autocmd
  This edit field contains the filename of a script command file to automatically execute after logging in.
- Clear button
  Clears all values from the fields.

3. To accept the new settings, press ENTER.
   Or click on the OK Button.

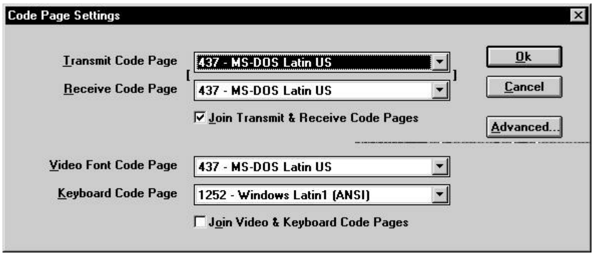
   To reject the new settings, press ESC.
   Or click on the Cancel Button.

Modifying your code page settings

1. Select Main Menu | Configure | Code Page.

   The Code Page Settings dialog box appears:

Figure 1-25 TinyTERM Code Page Settings Dialog Box



Transmit Code Page: 437 - MS-DOS Latin US
Receive Code Page: 437 - MS-DOS Latin US
☑ Join Transmit & Receive Code Pages
Video Font Code Page: 437 - MS-DOS Latin US
Keyboard Code Page: 1252 - Windows Latin1 (ANSI)
☐ Join Video & Keyboard Code Pages

2. There are four code page fields that can be changed:

- Transmit Code Page
  This field contains the code page setting for all communications sent from TinyTERM to the remote host. This field should correspond with the code page of the application on the remote host.
- Receive Code Page
  This field contains the code page setting for all communications received

from a remote host. This field should correspond with the code page of the application on the remote host.

- Join Transmit & Receive Code Pages
  If checked, both transmit and receive code pages will be set to the value of Transmit Code Page. If Transmit Code Page is changed, both fields will change.

- Video Font Code Page
This field contains the code page used in the video font being used by TinyTERM. If this field is changed, you most likely will need to change the font used by TinyTERM to a font based on the selected code page.

- Keyboard Code Page
This field contains the code page used by the keyboard. If a keyboard driver is being used, set this field to match the code page used by the driver.

  - Join Video & Keyboard Code Pages
    If Checked, both Video and Keyboard code pages will be set to the value of Video Font Code Page. If Video Font Code Page is changed, both fields will change.

3. To accept and save the new settings, press ENTER.
   Or click on the Save Button.

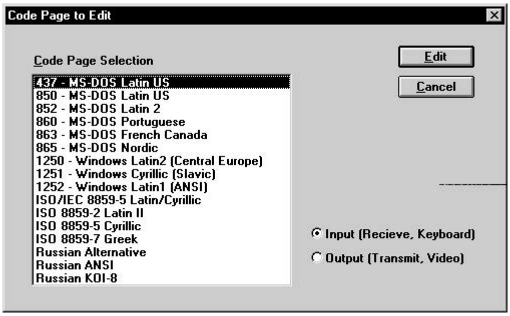
   To reject the new settings, press ESC.
   Or click on the Cancel Button.

Changing your advanced code page settings

1. From the Code Page Settings dialog box, click the Advanced button.

   The Code Page to Edit dialog box appears:

Figure 1-26 TinyTERM Code Page to Edit Dialog Box



Code Page to Edit

Code Page Selection

437 - MS-DOS Latin US
850 - MS-DOS Latin US
852 - MS-DOS Latin 2
860 - MS-DOS Portuguese
863 - MS-DOS French Canada
865 - MS-DOS Nordic
1250 - Windows Latin2 (Central Europe)
1251 - Windows Cyrillic (Slavic)
1252 - Windows Latin1 (ANSI)
ISO/IEC 8859-5 Latin/Cyrillic
ISO 8859-2 Latin II
ISO 8859-5 Cyrillic
ISO 8859-7 Greek
Russian Alternative
Russian ANSI
Russian KOI-8

● Input (Recieve, Keyboard)
○ Output (Transmit, Video)

2. In the Code Page Selection list box, select the code page that you wish to edit.

   Input (Receive and Keyboard) code pages may be selected by clicking the Input Radio button.

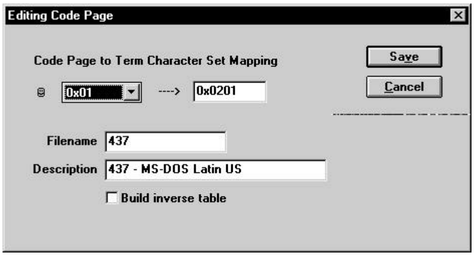
   Output (Transmit and Video) code pages may be selected by clicking the Output radial button.

3. To Edit the code page, press ENTER, or click the Edit button.

   To return to the Code Page Settings Dialog without editing, press ESC or click the Cancel button.

If Edit is selected from the Code Page to Edit dialog box, the Editing Code Page dialog box appears:

Figure 1-27 TinyTERM Editing Code Page Dialog Box



Code Page to Term Character Set Mapping

☺ 0x01 ▼ ----> 0x0201

Filename 437

Description 437 - MS-DOS Latin US

☐ Build inverse table

1. To change a character within a code page file, select the value to edit in the pop-up list box.

   If Input code page was selected in the Code Page to Edit dialog, the pop-up list box will display the Hexadecimal values of the input code page values (0x01 through 0xFF);

   or

   If Output code page was selected in the Code Page to Edit dialog, the pop-up list box will display the TERM Character Set (TCS) values.

   The character corresponding to the pop-up list box value is displayed to the left of the pop-up list box.

2. In the Edit field, change the character value to your desired value.

   The Edit field will display the Hexadecimal value of the TCS character if editing input codes pages, or the output code page value if editing output code pages.

   The edit field corresponds to the character mapping in the output code page or the character to be displayed from the TERM Character Set. A complete listing of TCS values and glyphs is available from Century Software, Inc.

3. Enter the new filename to save your character mappings in the Filename edit box.

   This new file name will appear in the Code Page settings dialog box as a choice in the Code Page settings fields.

4. Enter a description of your code page mappings in the Description edit field.

5. If the Build inverse table check box is checked, an inverse code page mapping will be created for input code pages if output pages were edited, or for output code pages if input pages were edited.

6. To accept and save the new settings, press ENTER.
   Or click on the Save Button.

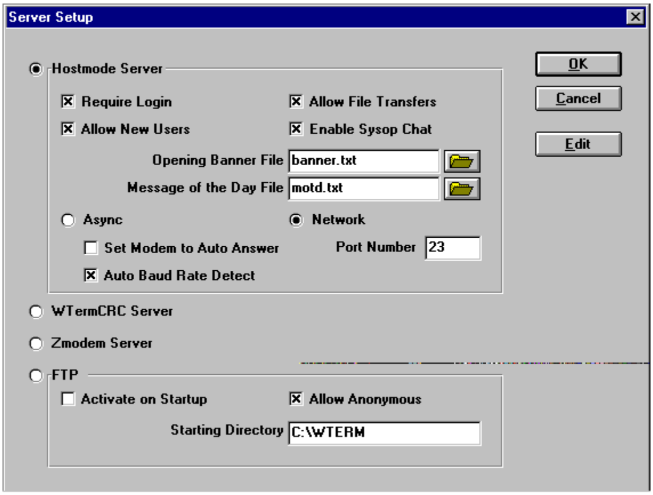
   To reject the new settings, press ESC.
   Or click on the Cancel Button.

Changing your server settings

Select Main Menu | Configure | Server.

The Server Setupdialog box appears:

Figure 1-28 TinyTERM Server SetupDialog Box



Server Setup

● Hostmode Server

☒ Require Login ☒ Allow File Transfers

☒ Allow New Users ☒ Enable Sysop Chat

Opening Banner File: banner.txt

Message of the Day File: motd.txt

○ Async ● Network

□ Set Modem to Auto Answer

Port Number: 23

☒ Auto Baud Rate Detect

○ WTermCRC Server

○ Zmodem Server

○ FTP

□ Activate on Startup ☒ Allow Anonymous

Starting Directory: C:\WTERM

Options available include:

- HostmodeServer
  Selecting this button enables TinyTERM to function as a host machine, similar in many ways to a BBS. Options which affect hostmode are:

  Require Login
  This checkbox determines if a login requirement exists. If checked, a username MUST be provided in order to login. If unchecked, connection does not require any sort of login.

  Allow New Users
  This checkbox determines whether unrecognized login names are accepted or rejected. If checked, any login name entered that does not exist in the hostmode user list will be added as a new user. If unchecked, only the names within the hostmode user list will be valid login names.

  Allow File Transfers
  This checkbox determines if file transfers can be performed. If checked, file transfers are permitted. If unchecked, no file transfers can occur.

  Enable Sysop Chat
  This checkbox determines whether the Sysop is available to be paged for chat. If checked, the Sysop chat function is available. If unchecked, the Sysop chat function is disabled.

  Opening Banner File
  This edit field provides the name of a text file to display when a successful connection is made. Either type the file name if the pathname is known, or press the Browse button to determine the correct name.

  Message of the Day File
  This edit field provides the name of a text file to use for the message of the day. Either type the file name if the pathname is known, or press the Browse button to determine the correct name.

  Async
  Select this radial button to place hostmode in asynchronous ready mode.

  Network
  Select this radial button to place hostmode in network ready mode.

- WTERMCRC Server
  Selecting this button enables TinyTERM to accept remote commands from another WTERMCRC capable product.
- Zmodem Server
  Selecting this button enables TinyTERM to accept remote commands from another Zmodem capable product.

- FTP
  Selecting this server option allows the use of the FTP options as described in the *Transfer Files* option described on page 26. There are several options available when this selection is marked:

  Activate on Startup-This option allows FTP to execute automatically when TinyTERM is started.

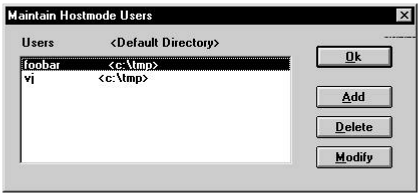
  Allow Anonymous Login allows clients to enter the server without a password.

  Starting Directory-type the directory that should be accessed when the connection is made either manually or automatically.

To edit the hostmode users list, select Hostmode Server and then click Edit.

The Maintain Hostmode Users dialog box appears:

Figure 1-29 TinyTERM Maintain Hostmode Users Dialog Box



Maintain Hostmode Users

Users	<Default Directory>
foobar	<c:\tmp>
vj	<c:\tmp>

To accept the user list, press ENTER.
Or click on the OK Button.

To delete the currently selected name, click on the Delete Button.

To add a new user, click on the Add Button.

To modify the currently selected user, click on the Modify Button.

To accept the new settings, press ENTER.
Or click on the OK Button.

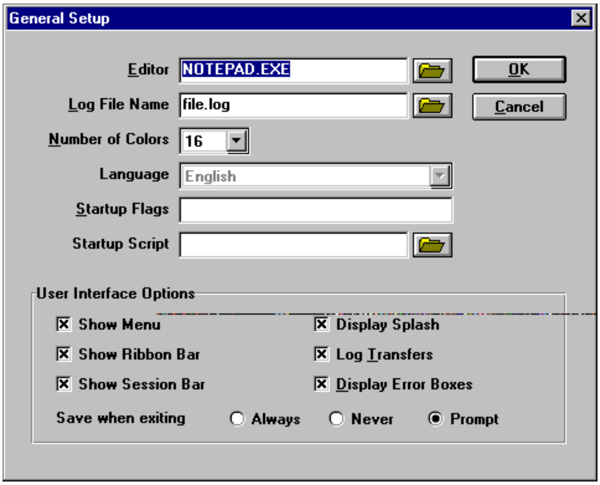
To reject the new settings, press ESC.
Or click on the Cancel Button.

Changing your general settings

Select Main Menu | Configure | General.

The General Setup dialog box appears:

Figure 1-30 TinyTERM General SetupDialog Box



Editor: NOTEPAD.EXE

Log File Name: file.log

Number of Colors: 16

Language: English

Startup Flags:

Startup Script:

☒ Show Menu

☒ Show Ribbon Bar

☒ Show Session Bar

☒ Display Splash

☒ Log Transfers

☒ Display Error Boxes

Save when exiting ○ Always ○ Never ● Prompt

In the General Settings group, the following options can be changed:

- Editor
  This edit field defines how to execute the editor used for editing files. Provide a full pathname, if it is not in the Windows directory. Default is NOTEPAD.EXE.

- Logfile Name
  This edit field contains the name of the default logfile used by the LOG command.

- Number of Colors
  Click the down arrow to display the options for the number of allowable colors to display. For example, if your monitor can only support eight colors, 8 should be selected. Allowable values are 2, 8 and 16. 2 colors gives black and white display.

- Language
  This option will determine how the keyboard entries will be displayed, as well as the language in which TinyTERM will be displayed.

- Startup Flags
  This edit field allows the user to set a number of values using options specified on the command line. This option allows you to set default options that are automatically used whenever TinyTERM is invoked.

A command option is a letter preceded by a dash (-). Multiple options can be concatenated following a single dash. For example, to omit the startup banner whenever you run TinyTERM without any other options, you would enter:

```
-u
```

The Startup Flags specified in your configuration are ignored if any startup flags are specified on the command line when starting TinyTERM.

- Startup Script
  If TinyTERM should be connected then run a specific script after connection, the pathname for the script will need to be entered in this space. If the pathname is not known for the desired script, press the Browse button to determine the correct name.
- Show Menu
  This checkbox selects whether to display the menu bar. Checked will show the menu bar. Unchecked hides the menu bar.
- Show Ribbon Bar
  This checkbox selects whether to display the ribbon bar. Checked will show the ribbon bar. Unchecked hides the ribbon bar.
- Show Session Bar
  This checkbox selects whether to display the session bar. Checked will show the session bar. Unchecked hides the session bar.
- Display Splash
  This checkbox selects whether to display the splash screen on startup. Checked will show the splash screen. Unchecked suppresses the splash screen.
- Log Transfers
  This checkbox selects whether to automatically log the results of all file transfers. Checked will automatically log file transfers as they are performed.
- Display Error Boxes
  Selects whether to display error boxes when errors occur. If checked, error boxes will display for user interaction. If unchecked, errors will be reported on the terminal screen.

- Save When Exiting
  If the settings should be saved without a prompt when exiting, click the “Always” radio button. If the settings should never be saved when exiting TinyTERM, click the “Never” radial button. If the option should be given when exiting TinyTERM to save the entered settings, click the “Prompt” radial button.

To accept the new settings, press ENTER.
Or click on the OK Button.

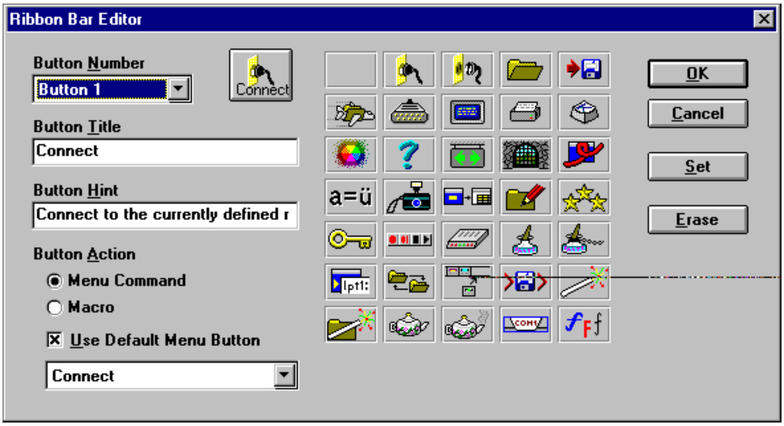
To reject the new settings, press ESC.
Or click on the Cancel Button.

Customizing your ribbon bar

Select Main Menu | Configure Ribbon Bar.

The Ribbon BarEditor dialog box appears:

Figure 1-31 TinyTERM Ribbon BarEditor Dialog Box



Ribbon Bar Editor

Button Number: Button 1

Button Title: Connect

Button Hint: Connect to the currently defined r

Button Action:
● Menu Command
○ Macro

☒ Use Default Menu Button

Connect

Options available include:

- Button Number
  This field determines which number button is being edited. To change the associated picture, click on any of the bitmaps to the right of this field.

- Button Title
  This edit field contains the name of the button to display on the ribbon bar.

- Button Hint
  This edit field contains the ToolTip to be associated with this button.

- Button Action
  These radio buttons determine what function is assigned to this button. The options are:
  - Menu Command
    Selecting this option places a list of valid TinyTERM commands into the list box. If the Use Default Menu Button is checked, the bitmap that corresponds to this command will be selected for you.
  - Macro
    Selecting this option places a list of macro files within the current directory into the list box.
- Set button
  Click this button to assign current settings to the selected button number.
- Erase button
  Click this button to delete this button from the menu bar.

To accept the new settings, pressENTER.
Or click on the OK Button.

To reject the new settings, pressESC.
Or click on the Cancel Button.

Saving Your New Settings

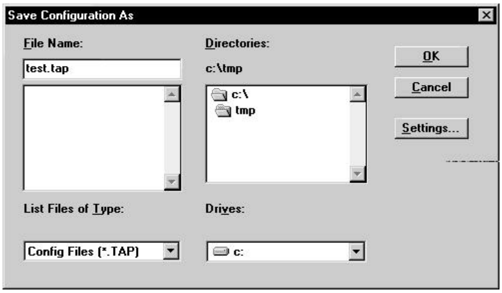
Changes made during a session are only in effect for the duration of that session unless you save them. Saving the session configuration will allow all of TinyTERM's settings to be used again. These settings will be placed in a TERM Application Profile.

To save a new configuration

Select Main Menu | File | Save ICONectAs

The Save ICONectAs dialog box appears:

Figure 1-32 TinyTERM Save ICONectAs Dialog Box



Save Configuration As

File Name: test.tap

Directories: c:\tmp

List Files of Type: Config Files (*.TAP)

Drives: c:

Select the appropriate drive and directory.

Choose the appropriate filename.

- In filename, type the name of the file you want to save. TinyTERM will automatically add the .TAP extension.

  Or

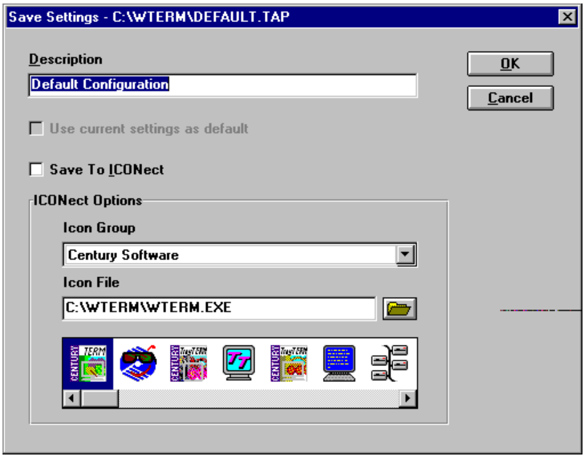
- Select the appropriate filename appearing in the listbox.

To accept the filename and save, press ENTER.
Or click the OK button.

To change current file settings, click on the Settings button.

The Save Settings dialog box appears:

Figure 1-33 TinyTERM Save Settings Dialog Box



Save Settings - C:\WTERM\DEFAULT.TAP

Description: Default Configuration

□ Use current settings as default

□ Save To ICONect

ICONect Options

Icon Group: Century Software

Icon File: C:\WTERM\WTERM.EXE

The Description edit field contains the description of the file to be saved. This also determines the name of the icon created, if any.

The Use current settings as default checkbox determines whether the default.tap file should be affected by this file. If checked, the current settings will be saved in both the selected configuration file and the default.tap file. If unchecked, only the selected configuration file will be saved.

The Save to ICONectcheckbox determines whether a new icon should be created for this configuration file. If checked, an icon will be created for this configuration file. If unchecked, the file will be saved, but no icon will be created.

The Icon Group list box sets the Program Manager group in which to place the newly created icon.

The Icon File is the filename containing the icon to assign. Click the Browse button to bring up a standard file dialog with which to select the file. All icons located within the chosen file are arranged within the icon browser.

The Summary button brings up a dialog which allows entry of detailed information about the TAP file. Items include author, date, subject, version, e-mail, and description.

To accept the settings, press ENTER.
Or click the OK button.

To reject the settings, press ESC.
Or click the Cancel button.

To exit without saving, press ESC.
Or click the Cancel button.

To save a defined configuration

1. Select Main Menu | Save ICONect or click the Save button on the default Ribbon Bar.

   The current configuration file will be saved with current settings.

To exit TinyTERM

1. Select Main Menu | File | Exit or click on the Exit Button on the default Ribbon Bar.

   - If changes were made to the configuration the “Save Settings on Exit” dialog box may be displayed. If the option is not given to save the changes in the configuration, check the “Save When Exiting” radio buttons in the General Settings. Detailed instructions can be found beginning on page 57.

     Press Y, or click on the Yes Button to save current settings. The system configuration file will be updated. Press N, or click on the No button to discard any changes. Press C, or click the Cancel button to return to TinyTERM.

   - If you have not made any changes to your configuration, the Exit dialog box will appear.

     Press Y, or click on the Yes Button to quit to the Windows Program Manager. Press N, or click on the No Button to return to TinyTERM.

Chapter 2
Advanced Configuration

In This Chapter:

TinyTERM System Files

TinyTERM distributes its system setup, startup, connection, and exit functions into two files, located in the TinyTERM install directory. This division of labor allows for very flexible system and connection configurations. TinyTERM's startup files include the following files:

DEFAULT.TAP

This file contains TinyTERM's system configuration and session default settings. The *default.tap* file is created and changed by options under the Configure menu, and should not be modified directly. This file is an ASCII text file containing TinyTERM script commands.

WTERM.EX/WTERM32.EX

This file contains custom shutdown commands. This file can be created by the user. This file is an ASCII text file containing TinyTERM script commands.

TinyTERM uses the following startup outline:

1. Load *default.tap*.
2. Load *.tap* file from command line.
3. Load dash options from the command line.
4. Execute the Script file from the command line if specified.

5. Establish a connection from the *.tap* file and dash options information.
6. Execute the AUTOCMD script from the *.tap* file, if one exists.

TinyTERM uses the following shutdown outline:

1. Execute the *WTERM.EX/WTERM32.EX* file, if one exists.
2. Close sessions and user interface.
3. Close capture and print files.
4. Exit to the Program Manager.

Quoted strings

Most of TinyTERM's edit fields support special characters. A string may contain any alphanumeric character (a..z and/or 0..9) as well as the following special macro values:

\r	carriage return (\x0D)
\n	line feed (\x0A)
\t	horizontal tab (\x09)
\v	vertical tab (\x0B)
\f	form feed (\x0C)
\b	backspace (\x08)
\e	escape (\x1B)
\^	carat (\x5E)
\\	backslash (\x5C)
\"	double quote (\x22)
\'	single quote (\x27)
\-	dash (\x2D)
\x	hex value follows
\0..\7	octal value follows

TinyTERM Environment Variables

Environment variables can be used to modify the operation of TinyTERM and are defined using the DOS SET command. For example,

```
C:>\ SET HOME=C:\MYDIR
```

defines the HOME variable. For a list of current environment variables, type SET without any options.

HOME

If this variable is set, it will override the default search path when checking for the **.tap* file.

TERMRC

This variable is the full pathname of TinyTERM's user runtime command startup file, which is always executed after the **.tap* file. This file is normally named *WTERM.RC/WTERM32.RC*.

USER

This variable determines what login name is used in an rlogin network connection. If this variable is not set, TinyTERM uses root as the login name.

Chapter 4
Using TinyTERM for DOS

In This Chapter:

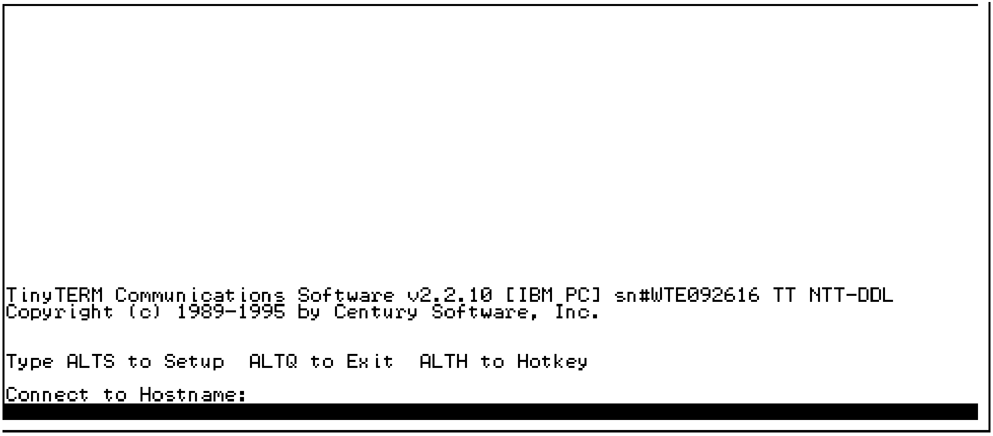
Starting TinyTERM for DOS

TinyTERM for DOS is started by typing

C:\ tt↵

The following screen appears:

Figure 4-1 TinyTERM for DOS Opening Screen



```
TinyTERM Communications Software v2.2.10 [IBM PC] sn#WTE092616 TT NTT-DDL
Copyright (c) 1989-1995 by Century Software, Inc.

Type ALTS to Setup  ALTQ to Exit  ALTH to Hotkey

Connect to Hostname:
```

In terminal mode, your local computer will act as a terminal to the remote host computer or your modem. At this point, everything you type, except TinyTERM's special control keys, will be seen by the remote computer or modem provided you have a physical connection between your computer and the remote computer.

Upon startup, TinyTERM sets its parameters such as emulation and colors to the settings defined from the Setup Utility

If you have defined a network transport in the Port Selection field in your setup, you will be prompted with the following:

Connect to Hostname:

At this prompt, type in the name or IP address of the host computer you wish to communicate with and press ENTER. Contact your Network Administrator if you do not know the names of the hosts on your network.

To connect to a specific port of a network service, use a pound sign (#) in this field. For example:

100.33.22.4#12

The connection to the network system will then be attempted. If the connection cannot be made, an error will be displayed at the bottom of the screen. For problems connecting with the network, contact your System Administrator.

Command line options

Command line options can be used to override your default settings. This is useful when you occasionally access a host system which requires a different emulation or baud rate than your default settings.

The command line options are as follows:

Table 4-1 TinyTERM for DOS Command Line Options

Option	Parameters and Functions
-h	Use half-duplex mode
-l *port*	Open the specified port for communications.
-m	Start TinyTERM, immediately go memory-resident and place the user at a DOS system prompt. This option is useful for starting TinyTERM in your *autoexec.bat* file.
-s *baudstring*	Set the communications parameters specified by *baudstring*. *baudstring* is a comma separated list of the baud rate, parity, word length, and stop bits, in that order. If only the baud rate is specified, the remaining parameters will be set to their setup values.
-u	Unload TinyTERM from RAM memory. Use this option if TinyTERM becomes suspended.
-z	Connect to NUL driver. This allows TinyTERM to run without making any active connection.
configfile	Allows you to use a configuration file other than the default.

Command line option usage

Assume your default baud rate is 9600, but you are connecting to a system which supports 19200. Start TinyTERM with

```
C:\ tt -s 19200↵
```

To access a configuration file named *office.con*, start TinyTERM with

```
C:\ tt office.con↵
```

Dash options may be joined together unless an option follows another option which requires a parameter. For example, entering the command

```
C:\ tt -hl COM2: -s 2400,e,7,1↵
```

will cause TinyTERM to open the COM2: port at 2400 baud, even parity, 7 data bits (word length), one stop bit in half-duplex mode.

Using TinyTERM for DOS

Special keys have been provided for your use during the operation of TinyTERM. The assignment of keys to these functions may be changed in the Setup Utility unless indicated otherwise.

Table 4-2 TinyTERM for DOS Special Keys

Function (Default Key)	Description
Break Key(ALT+B)	Pressing the Break key will send a break signal down the communications line.
Compose Key(ALT+C)	The Compose key is used for the support of the DEC Multinational Character Set and is available only when emulating a VT320 or VT220 terminal.
Exit Key(ALT+Q)	When the Exit key is pressed, you will be prompted with “Exit TinyTERM (y/n)?”, which allows you to exit TinyTERM and return to your DOS operating system. Confirm exiting by entering a Y, or return to TinyTERM by pressing any other key.

Table 4-3 TinyTERM for DOS Special Keys **(continued)**

Function (Default Key)	Description
Gold Key(ALT+G)	The Gold key is used to override the operation of a special key. For example, you may have the F10 key defined as TinyTERM's Exit key, yet the terminal you are emulating uses F10. Pressing F10 by itself will be interpreted as a special key by TinyTERM, but pressing the Gold key then F10 will send an F10 keystroke to the remote host computer. The Gold key cannot be changed in the Setup Utility.
Setup Key(ALT+S)	If TinyTERM is not in TSR mode, pressing the Setup key brings up the Setup Utility For further information, refer to *Using the Setup Utility*later in this section.
Hot Key(ALT+H)	Pressing the Hot key will take you from terminal mode to your local application and back again. If you are not running an application, you are placed at a DOS prompt.
Print Key(ALT+P)	Pressing the Print key will cause the current contents of the screen to be sent to a printer or saved in a disk file as specified in the Setup Utility
Scan ModeToggle Key (ALT+K)	Pressing this key toggles the PCTERM emulation in and out of scan code mode. This key cannot be changed in the Setup Utility.
Screen Right Key (CTRL+→) Screen Left Key (CTRL+←)	When your hardware cannot support 132 column mode on- screen, TinyTERM uses a scrolling 132 column screen which allows you to scroll the screen right or left to view columns beyond the edge of the screen. These keys cannot be changed in the Setup Utility

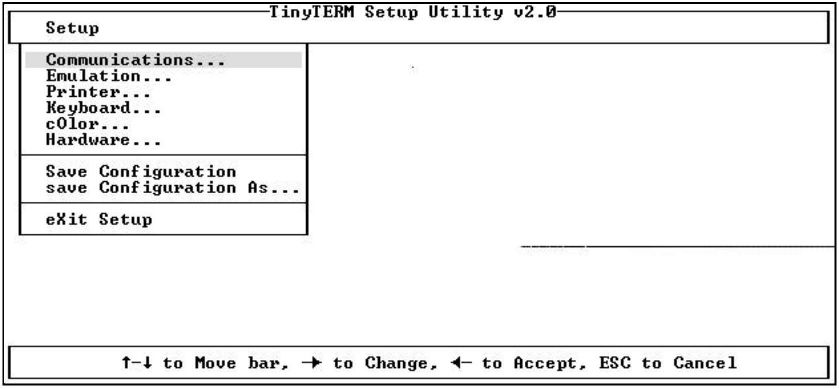
Using the Setup Utility

The Setup Utilityis provided as an easy method of configuring TinyTERM to your specific needs. It is accessed within TinyTERM by pressing the Setup key (ALT+S by default). The Setup Utility can also be invoked from DOS by typing:

```
C:\ ttsetup↵
```

When the Setup Utility is run, the main menu appears:

Figure 4-2 TinyTERM for DOS Setup Screen



While in the Setup Utility use the following keys to make your selections:

Table 4-4 Keys Used in TinyTERM for DOS Setup

Key	Function
↑ (up arrow)	Moves highlight up
↓ (down arrow)	Moves highlight down
→ (right arrow)	Selects highlighted option
← (left arrow)	Accepts selection
ESC (escape)	Cancel without accepting highlighted option
Capital Letter	Selects the main menu option with the corresponding letter. For example, C selects Communications and O selects cOlor.

The following sections will give some examples of how to use the Setup Utility For detailed instructions on using the setup functions, refer to *Chapter 5-Guided Tour: TinyTERM for DOS*.

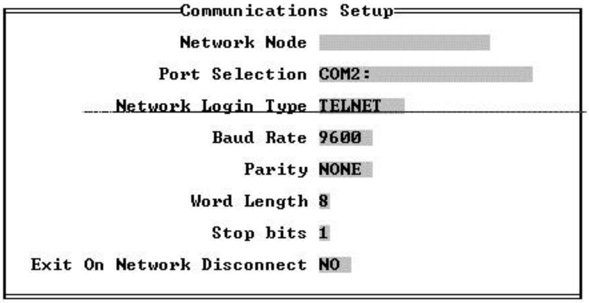
Changing communications settings

TinyTERM supports both asynchronous and network connections. This section will give an example of setting up for each type of connection. The opening steps are the same:

1. From the Main Menu, highlight Communications using ↑ or ↓.

2. Select Communications by pressing →. The Communications Setup dialog box appears:

Figure 4-3 TinyTERM for DOS Communications Setup Dialog Box

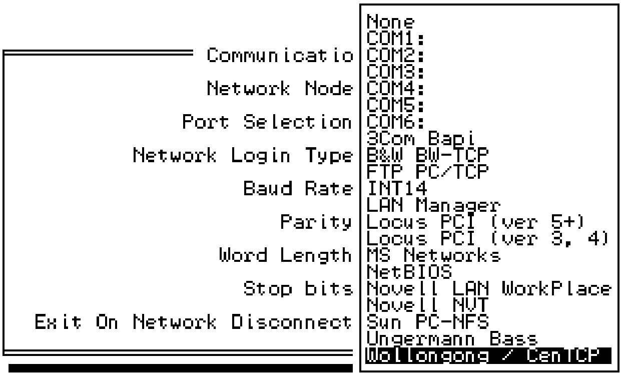


```
Communications Setup
              Network Node
            Port Selection COM2:
        Network Login Type TELNET
                 Baud Rate 9600
                    Parity NONE
               Word Length 8
                 Stop bits 1
Exit On Network Disconnect NO
```

3. Press ↓ once to move the cursor to the Port Selection field.

4. Press → to display the available selections. The Port Selection field expands to show all available options:

Figure 4-4 TinyTERM for DOS Port Selection Field



```
               Communicatio None
               Network Node COM1:
             Port Selection COM2:
         Network Login Type COM3:
                  Baud Rate COM4:
                     Parity COM5:
                Word Length COM6:
                  Stop bits 3Com Bapi
 Exit On Network Disconnect B&W BW-TCP
                            FTP PC/TCP
                            INT14
                            LAN Manager
                            Locus PCI (ver 5+)
                            Locus PCI (ver 3, 4)
                            MS Networks
                            NetBIOS
                            Novell LAN WorkPlace
                            Novell NVT
                            Sun PC-NFS
                            Ungermann Bass
                            Wollongong / CenTCP
```

At this point the steps change. Refer to *Asynchronous settings* for serial connections or *Network settings* for network connections.

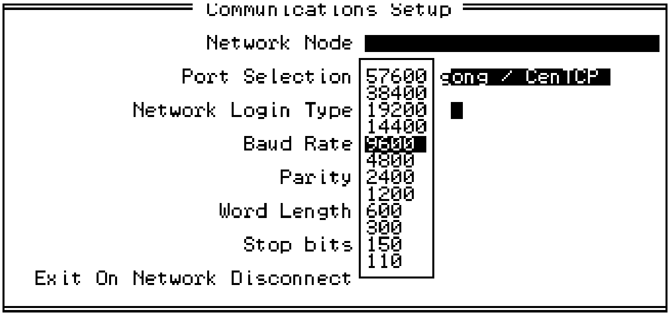
Asynchronous settings

1. Choose a serial port by using ↑ and ↓ until the one you want is highlighted, then press ← to select it and return to the Communications Setup dialog box.

2. Now press ↓ twice to move the cursor to the Baud Rate field.

3. Press → to display the available selections. The Baud Rate field expands to show all available options:

Figure 4-5 TinyTERM for DOS Baud Rate Field



```
                    Communications Setup
                     Network Node
                   Port Selection  57600  gong / Cen TCP
               Network Login Type  38400
                                   19200
                                   14400
                        Baud Rate  9600
                                   4800
                           Parity  2400
                                   1200
                      Word Length  600
                                   300
                        Stop bits  150
                                   110
     Exit On Network Disconnect
```

4. Choose a baud rateby using ↑ and ↓ until the one you want is highlighted, then press ← to select it and return to the Communications Setup dialog box.

5. Press ← to close the Communications Setup dialog box and return to the Main Menu.

6. To save these settings into the *default.con* file, select Save Configuration with either the arrow keys or press the letter "S".

7. Exit the Setup Utility by selecting eXit Setup with either the arrow keys or press the letter "X".

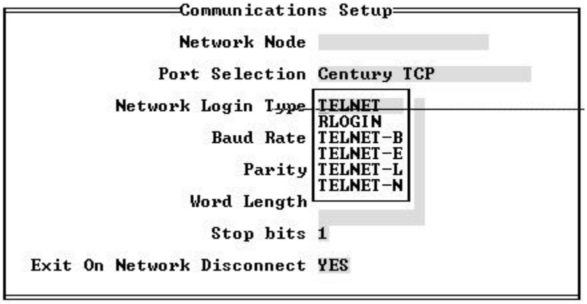
Network settings

1. Choose a network transport by using ↑ and ↓ until the one you want is highlighted, then press ← to select it and return to the Communications Setup dialog box.

2. Now press ↓ once to move the cursor to the Network Login Type field.

3. Press → to display the available selections. The Network Login Type field expands to show all available options:

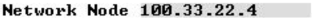
Figure 4-6 TinyTERM for DOS Login Type Field



```
                 Communications Setup
                Network Node
              Port Selection  Century TCP
          Network Login Type  TELNET
                              RLOGIN
                   Baud Rate  TELNET-B
                              TELNET-E
                      Parity  TELNET-L
                              TELNET-N
                 Word Length
                   Stop bits  1
  Exit On Network Disconnect  YES
```

4. Choose a login type by using ↑ and ↓ until the one you want is highlighted, then press ← to select it and return to the Communications Setup dialog box.
5. Press ↑ twice to move the cursor to the Network Node edit field.
6. Type the hostname or IP address of the machine you want to connect to in this field:

Figure 4-7 TinyTERM for DOS Network Node Field



Network Node 100.33.22.4

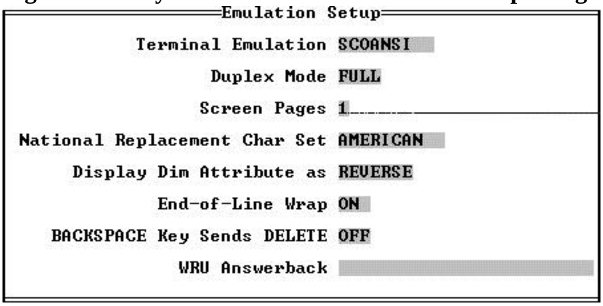
7. Press ← to close the Communications Setup dialog box and return to the Main Menu.
8. To save these settings into the *default.con* file, select Save Configuration with either the arrow keys or press the letter "S".
9. Exit the Setup Utility by selecting eXit Setup with either the arrow keys or press the letter "X".

Changing emulation settings

TinyTERM supports a variety of terminal emulations. This section will give an example of selecting one.

1. From the Main Menu, highlight Emulation using ↑ or ↓.
2. Select Emulation by pressing →. The Emulation Setup dialog box appears:

Figure 4-8 TinyTERM for DOS Emulation Setup Dialog Box

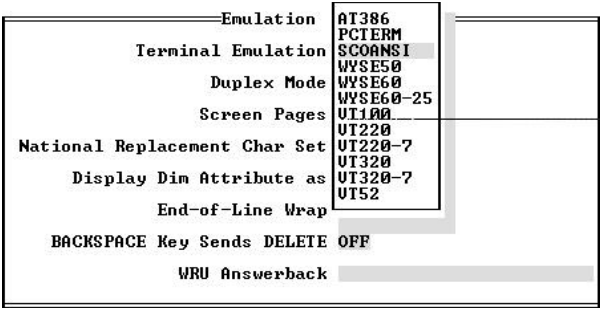


Emulation Setup

Terminal Emulation SCOANSI
Duplex Mode FULL
Screen Pages 1
National Replacement Char Set AMERICAN
Display Dim Attribute as REVERSE
End-of-Line Wrap ON
BACKSPACE Key Sends DELETE OFF
WRU Answerback

3. The Terminal Emulation field is active by default. Press → to display the available selections. The Terminal Emulation field expands to show all available options:

Figure 4-9 TinyTERM for DOS Terminal Emulation Field



Emulation

Terminal Emulation

Duplex Mode

Screen Pages

National Replacement Char Set

Display Dim Attribute as

End-of-Line Wrap

BACKSPACE Key Sends DELETE OFF

WRU Answerback

4. Choose an emulation by using ↑ and ↓ until the one you want is highlighted, then press ← to select it and return to the Emulation Setup dialog box.
5. Press ← to close the Emulation Setup dialog box and return to the Main Menu.
6. To save these settings into the *default.con* file, select Save Configuration with either the arrow keys or press the letter "S".
7. Exit the Setup Utility by selecting eXit Setup with either the arrow keys or press the letter "X".

Chapter 5
Guided Tour: TinyTERM for DOS

In This Chapter:

- Changing Your Settings
- Saving Your New Settings
- Memory Usage

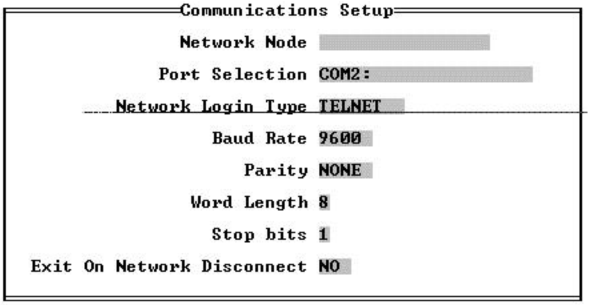
Changing Your Settings

Changing your communications settings

1. From the Main Menu, select Communications.

   The Communications Setup dialog box appears:

Figure 5-1 TinyTERM for DOS Communications Setup Dialog Box



```
                    Communications Setup
                 Network Node
               Port Selection  COM2:
            Network Login Type TELNET
                    Baud Rate  9600
                       Parity  NONE
                  Word Length  8
                    Stop bits  1
     Exit On Network Disconnect NO
```

2. In the Network Node edit field, type one of two items, depending on your Port Selection

   - Network node name or Internet address. This is valid with a network port selection.
   - Blank. If blank with a network selected, TinyTERM will prompt you for a network hostname, if required, to make a connection.

3. In the Port Selection list box select:
   - None to connect to neither asynchronous nor network communications links.
   - COMn to connect to a serial port.
   - A network service to connect to a network.
4. For a network connection, select a login type for network connections from the Network Login Type list box.

   The Login Types are:

TELNET	Standard telnet access.
RLOGIN	Standard rlogin access.
TELNET-E	Telnet access - echo enabled.
TELNET-B	Telnet access - binary mode.
TELNET-N	Telnet access - SendEOL None.
TELNET-L	Telnet access - SendEOL Linefeed

5. For an asynchronous connection, select:
   - Baud Rate
     The baud rate is the speed of the serial connection, roughly equivalent to bits per second. Press → to display the list of possible values. Highlight the desired Baud Rate and press ←.

     For a direct connection between two systems, the speed should probably be 9600 or 19200; for a modem connection, it depends on the speed of your modem and the speed of the modem used by the system you are communicating with.

     TinyTERM will set the speed you specify when it opens the port.
   - Parity
     Press → for the list of values. Parity is a primitive form of error checking used before the development of more sophisticated communications protocols. While it is less frequently used for error checking, both systems must use the same value in order to communicate.

     The possible values for parity are NONE, EVEN, ODD, MARK, and SPACE. You should specify NONE unless you are planning to communicate with another system that you are sure uses one of the other options.

- Word Length
  Press → for the list of values. Highlight the word length needed within the list box and press ←. If parity is even or odd, word length must be 7. Otherwise, connections with no parity must have a length of 8.

- Stop Bits
  Press → for the list of values. Highlight the number of stop bits needed within the list box and press—. The possible values are 1 or 2 bits. The only time two stop bits are used is at a low speed like 110 baud, so you should rarely need to change this value.

6. Select an Exit On Disconnect setting. When set to Yes, TinyTERM will automatically exit when a network connection closes. This option is only valid for network connections.

7. To accept the new settings, press—.

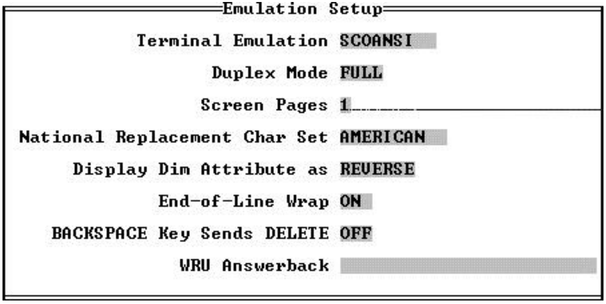
   To reject the new settings, press ESC.

Changing your emulation settings

1. From the Main Menu, select Emulation.

   The Emulation Setup dialog box appears:

Figure 5-2 TinyTERM for DOS Emulation Setup Dialog Box



```
Emulation Setup
          Terminal Emulation SCOANSI
                 Duplex Mode FULL
                Screen Pages 1
National Replacement Char Set AMERICAN
    Display Dim Attribute as REVERSE
             End-of-Line Wrap ON
  BACKSPACE Key Sends DELETE OFF
               WRU Answerback
```

2. The options which can be set are as follows:

   - Terminal Emulation
     Terminal Emulation is a list box. Press → to display the list of available terminal emulations:

AT386	PCTERM	SCOANSI
WYSE50	WYSE60	WYSE60-25
VT100	VT220	VT220-7
VT320	VT320-7	VT52

   - Duplex Mode
     Press → for the list of values. Highlight the duplex mode needed within

the list box and press←.

FULL In full-duplex mode, characters typed on the local keyboard are echoed to the screen by the remote system, not by the terminal itself. Full-duplex mode is the default.

HALF Characters typed are immediately displayed on the screen before being sent over the communications line. This is sometimes also called “local echo.”

- Screen Pages
  Press → to display the possible values. Each terminal emulation supports multiple screen memory pages for use with programs like Mscreen and DigiScreen, which provide multiple sessions over a single connection. Screen pages are allocated upon opening a configuration; changing screen pages on an open configuration requires reopening the configuration.
- National Replacement Char Set
  Press → to display the possible values. The DEC VT320 and VT220 terminals support an alternate character set when used over a 7-bit data connection. This allows displaying of special foreign characters which are usually available over 8-bit connections. This option effects only the VT320-7 or VT220-7 emulation selections.
- Display Dim Attributeas
  Press → to display all possible values. It controls how TinyTERM should display characters with the dim attribute. Your choices are:

NORMAL Dim characters will be displayed in the same color as normal characters.

REVERSE Dim characters will be displayed in the reverse color.

DIM Dim characters will be displayed in the low intensity color of the normal color and normal characters will be displayed in their high intensity colors. This option affects only the WYSE50 and WYSE60 emulations.

- End-of-Line Wrap
  Controls whether the selected emulation automatically linefeeds when a character is typed in the last column. Choosing ON causes the cursor to move to the first column of the next line. Choosing OFF causes the cursor to remain in the last column until a carriage return is received.

- BACKSPACE Key Sends DELETE
  Selects what the BACKSPACE key sends to the remote system: the ASCII value for a backspace or the ASCII value for a delete. VMS systems expect the DEC VT terminals' BACKSPACE to send the delete value. Choosing ON causes the BACKSPACE key to send the ASCII value for delete (octal 177).
- WRU Answerback
  This edit field allows you to set an answerback string for connection to systems which require it.

3. To accept the new settings, press ↵.

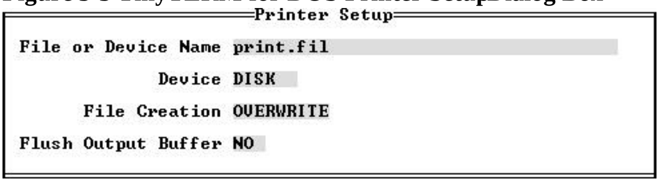
   To reject the new settings, press ESC.

Changing your printer settings

1. From the Main Menu, select Printer.

   The Printer Setup dialog box appears:

Figure 5-3 TinyTERM for DOS Printer Setup Dialog Box



Printer Setup

File or Device Name print.fil

Device DISK

File Creation OVERWRITE

Flush Output Buffer NO

2. TinyTERM supports local printing on printers attached to your PC or printing to a disk file. Printer setup allows you to specify the default action to take when a user presses the TinyTERM print screen key, or when a transparent print request is received from a remote system.

- File or Device Name
  This edit field specifies where the data should go when printing is turned on. Valid device names include LPT1: , LPT2:, and COM1: through COM6:.

  If a filename is entered, the print file is placed in the current directory unless you specify a full pathname. The default filename is *print.fil*.
- Device
  Press → for the list of options. This list box defines whether the File or Device Name field is a DEVICE (such as a printer), a DISK file, or NONE. If NONE is selected, all print requests will be ignored.

- File Creation
  Press → for the list of options. This list box determines how an existing print file should be treated. If APPEND is selected, print data is appended to the end of the existing file. If OVERWRITE is selected, the existing file is overwritten with new print data. This field does not affect data which is sent to a device or spooler.

- Flush Output Buffer
  Press → for the list of options. This list box determines whether TinyTERM flushes out the output buffer immediately upon receiving a print off request. This ensures that all print data is written to the file or printed. If YES is selected, the output buffer will be flushed.

4. To accept the new settings, press ←.

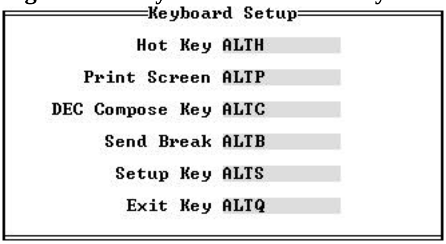
   To reject the new settings, press ESC.

Modifying your keyboard mappings

1. From the Main Menu, select Keyboard.

   The Keyboard Setup dialog box appears:

Figure 5-4 TinyTERM for DOS Keyboard Setup Dialog Box



Keyboard Setup

Hot Key ALTH

Print Screen ALTP

DEC Compose Key ALTC

Send Break ALTB

Setup Key ALTS

Exit Key ALTQ

2. The following functions can be assigned to new keys:

- Hot Key
  Used to hot key between TinyTERM and your currently running DOS application. The hot key can only be an ALT key.

- Print Screen
  Prints current contents of the screen to TinyTERM’s print system.

- DEC Compose Key
  Defines the VT320 and VT220 compose key. See *Appendix D: Terminal Emulation Reference* for details.

- Send Break
  Sends a BREAK character to the remote system. A BREAK character is defined as .275 seconds of line silence or RS-232 level 0 for an asynchronous line. Over a TCP/IP telnet connection, it sends a break sequence.
- Setup Key
  Defines the key used within TinyTERM to bring up the Setup Utility
- Exit Key
  Defines the key to quit TinyTERM.

3. To accept the new settings, press ↵.

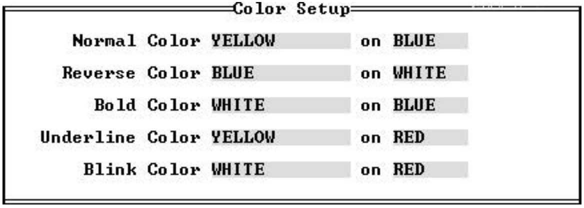
   To reject the new settings, press ESC.

Changing your color settings

1. From the Main Menu, select Color.

   The Color Setup dialog box appears:

Figure 5-5 TinyTERM for DOS Color Setup Dialog Box



```
                      Color Setup

     Normal Color YELLOW           on BLUE
    Reverse Color BLUE             on WHITE
       Bold Color WHITE            on BLUE
  Underline Color YELLOW           on RED
      Blink Color WHITE            on RED
```

2. Colors for 5 different attributes can be customized. Each option allows you to define one of 16 foreground colors and one of 8 background colors. The attributes which can be set are:

   - Normal Color
     Press → to display the list of colors. Select the desired color.
   - Reverse Color
     Press → to display the list of colors. Select the desired color. If DEFAULT is selected, reverse characters are displayed in the reverse colors of the Normal Color.
   - Bold Color
     Press → to display the list of colors. Select the desired color. If DEFAULT is selected, bold characters are displayed in the high intensity color of the foreground Normal Color.

- Underline Color
  Press → to display the list of colors. Select the desired color. If DEFAULT is selected, underline characters are displayed underlined.
- Blink Color
  Press → to display the list of colors. Select the desired color. If DEFAULT is selected, blink characters are displayed blinking.

3. To accept the new settings, press ←.

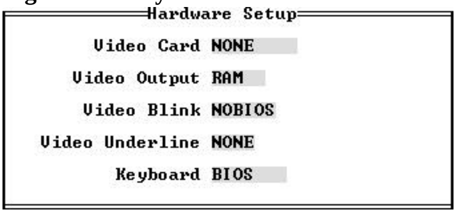
   To reject the new settings, press ESC.

Changing your hardware settings

1. From the Main Menu, select Hardware.

   The Hardware Setup dialog box appears:

Figure 5-6 TinyTERM for DOS Hardware Setup Dialog Box



Hardware Setup

Video Card NONE

Video Output RAM

Video Blink NOBIOS

Video Underline NONE

Keyboard BIOS

2. The following options can be changed:

Video Card

This field indicates which video card is in use by your computer. This field is necessary for using on-screen 132 column mode.

Table 5-1 DOS Video Card Options

Selections	Description / Supported Cards
NONE	A non-EGA or non-VGA card is in use or the card is unsupported. With this selection, only a scrolling 132 column mode is available. If you require 132 column on-screen, you must select a supported card.
AHEAD	Ahead Systems EGA 2001

Table 5-1 DOS Video CardOptions **(continued)**

Selections	Description / Supported Cards
ATI1	ATI EGA/VGA Wonder This selection requires SMS.COM (for EGA) and VCONFIG (VGA) to be loaded resident. Otherwise use ATI2.
ATI2	ATI EGA/VGA Wonder
EVEREX	Everex Micro Enhancer EGA
PARADISE	Paradise EGA-480 Paradise VGA Paradise VGA on Multi-sync Taxan 565 EGA AST VGA Plus Hewlett Packard D1180A AT&T VDC600 NSI Smart EGA+
TECMAR	Tecmar VGA/AD
TSENG	Tseng ET4000 chipset Tseng Labs EVA Orchid Prodesigner II Diamond SpeedSTAR VGA Groundhog Graphics Shadow VGA
VIDEO7	Video7 Fastwrite VGA Video7 Vram VGA Video7 VEGA VGA

Video Output

This field controls how TinyTERM accesses your video screen. TinyTERM attempts to write to the screen as quickly as possible; however, hardware limitations may require that you slow the video output.

Table 5-2 DOS Video Output Options

Selections	Description
RAM	Fastest screen access which involves writing directly to the video RAM without waiting for the retrace signal. Should work on all non-CGA systems.
SNOW	Slower than RAM and solves “SNOW” problems on CGA systems. This involves writing directly to video RAM but waiting for the retrace signal.
INT10	Slower than "RAM and SNOW because it uses BIOS interrupt 10 for performing all screen output. Use this method if the RAM or SNOW options cause problems.
BDOS	Slowest screen access because this selection routes all output to a loaded console device. Use this option if characters appear to be missing on the screen display. When using this selection, you must load the *ansi.sys* device in your *config.sys* file.

Video Blink

This field controls the method used to move from an 8-bit blink mode to a 16-bit non-blink mode. Some video cards have problems distinguishing between blink mode and high intensity color mode. If you experience a blinking screen when high intensity colors are displayed, change this field.

Table 5-3 DOS Video Blink Options

Selections	Description
NOBIOS	Do not use the video BIOS to control blinking
BIOS	Use the video BIOS to control blinking. This is required if using the

SCO Color Console emulation and experiencing a blinking background.

Video Underline

This field controls how TinyTERM draws underlined characters on the screen with EGA/VGA cards and color monitors.

Table 5-4 DOS Video UnderlineOptions

Selections	Description
NONE	Uses the Underline Color setting under the Color menu option instead. Use this selection with monochrome systems.
FONT	Loads underlined characters into memory. This limits you to 8 colors.
PORT	Writes directly to the EGA/VGA port address to turn on underlining. With this selection, underlined characters will always be blue.

Keyboard

This field specifies how TinyTERM gets keyboard strokes from the DOS operating system. Not all keyboard drivers are supported by every system so some keys may not be accessible on your computer.

Table 5-5 DOS Keyboard Options

Selections	Description
BIOS	This is the default driver for 84-key keyboards. This provides the maximum hardware compatibility but cannot access keys such as F11 or F12.
EXTBIOS	This uses the extended BIOS driver for 101-key keyboards allowing access to F11, F12, C+PGUP, C+PGDN, C+RIGHT and C+LEFT. It also allows access to the ENTER key on the keypad.
INT9	This is an INT9 replacement driver. Required to access to C+KP- and C+KP+.

INT9N	This is an INT9 driver with programmable NumLock key support.

Saving Your New Settings

Changes made during a session are only in effect for the duration of that session unless you save them. Saved configurations are stored in one of three files:

- Default Configuration File
  Options saved in this file (*default.con*) apply to the session opened when TinyTERM is first started. This file stores basic communication parameters and emulation settings. See below for a complete list of options stored in this file.
- User-Defined Configuration Files
  These files are the same as *default.con* except for they are named by you (they must have a *.con* extension). These files are accessible from the File Menu.

  Configuration Files contain the following settings:

  From Communications Setup:
  Remark/Window Name
  Port Selection
  Parity
  Stop Bits
  Network Node
  Baud Rate
  Word Length

  From Emulation Setup
  End-of-Line Wrap
  Terminal Emulation
  Duplex Mode
  BACKSPACE Sends DELETE
  National Replacement Char Set
  WRU Answerback
- System Configuration File
  Options saved in this file (*tt.sys*) apply to all sessions. All settings not saved in *.con* files are stored in this file.

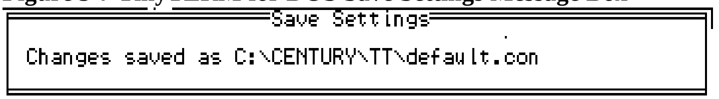
Saving connection configurations

From the Main Menu, there are two options to control configuration saves:

- If you select Save Configuration:

  1. Your configuration will be saved to your current configuration. A message box will appear:

Figure 5-7 TinyTERM for DOS Save Settings Message Box



```
Save Settings
Changes saved as C:\CENTURY\TT\default.con
```

- If you select Save Configuration As:
  1. The Save Configuration As dialog box is displayed.
  2. In the text box, type the name of the file you want to save. If you want your new settings to be saved as the default configuration, type *default*. TinyTERM will automatically add the *.con* extension.
  3. To accept the new settings and write them to the file, press ↵.

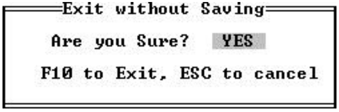
     To reject the new settings, press ESC.

Exiting TinyTERM

1. From the Main Menu, select eXit Setup or press the Exit Key

   If you have made changes to your configuration the Exit without Saving dialog box will appear.

Figure 5-8 TinyTERM for DOS Exit Without Saving Dialog Box



```
Exit without Saving
Are you Sure?  YES
F10 to Exit, ESC to cancel
```

2. Press F10 to exit without saving your changes.

   Press ESC to return to TinyTERM's Setup Utility

Memory Usage

Memory-resident programs (also known as terminate-stay-resident or TSR programs) are programs which run in the “background” while you use other applications. What this means is that you start your TSR program and place it in the background, usually by pressing a key called the hotkey. Once the TSR program is in the background, you can start another program, such as WordPerfect. At any time, you can press your hotkey and bring up your TSR program. Hit your hotkey again and you’re right back in WordPerfect.

As a TSR program, TinyTERM maintains a connection with your remote host computer even when you run something else such as WordPerfect. This allows you to freely jump back-and-forth between your computer and the remote computer without exiting your application.

Since TinyTERM is a TSR program, you cannot start it while other applications are running (except other TSR programs). For example, many applications allow you to execute DOS commands while running. In WordPerfect, you can perform a shell escape, execute a DOS command and return to your document. To avoid potential problems, do not start TinyTERM from a DOS shell. It is recommended that you start TinyTERM with the -m option in your *autoexec.bat* file. See your DOS reference manual for details on the *autoexec.bat* file.

When you exit TinyTERM with the exit key (ALT+Q by default), TinyTERM releases memory for use by other applications. The only exception is if another DOS application is currently running when TinyTERM is exited. In this instance, TinyTERM will be suspended in memory. In order to release this RAM memory, use the -u command line option:

```
C:\ tt -u↵
```

DOS TinyTERM RAM configurations

TinyTERM has the ability to load into upper memory. In order to use the upper (UMB) memory, you must have the following lines in your *config.sys* file:

```
DEVICE=HIMEM.SYS
DEVICE=EMM386.EXE NOEMS
DOS=HIGH, UMB
```

If, after including the above lines in your *config.sys* file, you invoke TinyTERM with:

```
LOADHIGH TT
```

the entire TinyTERM program will attempt to load into the UMB (Upper Memory Block) area of memory. If you do not invoke TT with LOADHIGH (and have the same configuration) TinyTERM will still attempt to load its “Dynamic DOS Libraries” (DDL’s) into the UMB area.

NOTE: Using TinyTERM in the “loadhigh” configuration with LAN Manager requires the use of the special version of *emm386.exe* included in the LAN Manager distribution. Path for the *emm386.exe* is:

```
\LANMAN.DOS\DRIVERS\DOSUTILS\EMM386.EXE
```

In addition, it may be necessary to use the "x" flag on the *emm386.exe* line of *config.sys* in order to prevent overwriting your network card base RAM address. Check your card’s settings and then refer to your MS DOS documentation.

Using *smartdrv.exe* with *emm386.exe* requires *smartdrv.exe* to be invoked with the "/l" switch. Otherwise, *emm386.exe* and *smartdrv.exe* are incompatible.

Chapter 6
Advanced Configuration - DOS

In This Chapter:

TinyTERM System Files

TinyTERM for DOS distributes its system setup, startup and connection functions into three files, located in the TinyTERM install directory. Two of the three files are for custom startup and connection functions completely controlled by the user. All of these files are text files containing TinyTERM commands. TinyTERM for DOS uses the following files:

TT.SYS

This file contains TinyTERM's system configuration. This file is created and changed by using the Setup Utility. Do not manually modify this file unless otherwise indicated.

The *tt.sys* file contains a restricted set of commands. This portion of the TinyTERM setup includes hardware and other settings not related to a specific connection:

- Video card
- Keyboard driver
- Colors
- Keyboard mappings
- Network driver

If the *tt.sys* file becomes corrupted, erase it, then run TinyTERM and create a configuration. When you exit, save your settings and TinyTERM will create this file from the settings you select.

DEFAULT.CON

This file contains session default settings. This file is created and modified through the Communications Setup. This file should not be modified directly.

The *default.con* is a special configuration file. This file contains the information for TinyTERM's initial connection at startup.

If a *.con* file is specified on the command line, *default.con* is not used.

The command line options may override some settings in the configuration file.

TT.RC

This file contains custom startup commands and is modified by the user. See the following section for more details on *tt.rc*. Usually *tt.rc* is used for keyboard

remapping and other customizing not found in any of the setup dialogs. In order to implement advanced configuration functions, you must enter them in this file.

*.CON

You may create your own configuration files. Refer to *Chapter 3, Guided Tour: TinyTERM for DOS* for details. The information is the same as *default.con*, but you may select the Save Configuration As option from the Setup Menu to save as many configurations as you may need.

TinyTERM startup outline:

1. Load *tt.sys*.
2. Load *default.con* or *.con* file from command line.
3. Load dash options from the command line into memory.
4. Execute *tt.rc* if one exists.

TinyTERM shutdown outline:

1. Close connection and user interface.
2. Close print files.
3. Exit to the operating system.

Keyboard Remapping

Keyboard remapping is the process by which the values may be changed that a key sends from the keyboard. Keys on a terminal's keyboard send escape and control sequences so that programs will "know" what key has been pressed. Remapping a key means that if your F1 key sends "\EOP" (Escape + letter O + letter P), it can be changed to send something else like "^X" (Control + letter X).

There are a few reasons that it may be necessary to change a key such as F1:

- Some software applications incorrectly interpret key sequences. If a VT220 emulation is used and F1 is pressed, the sequence "\EOP" is sent to the host computer. But what if the remote computer thinks it should receive "\EOJ". The host application cannot be changed to expect the same sequence, but the value of the F1 key may be changed from "\EOP" to "\EOJ" so that the application may be used.
- The key values may be changed to provide "short cuts". If the same system is connected to on a regular basis, keys may be set for the host system's login and passwords. At the host system's login prompt, press the appropriate keys for the login. Similarly, the appropriate password key may be pressed at the password prompt.

These changes are accomplished by using the SETKEY command in the TinyTERM advanced configuration file, *tt.rc*.

SETKEY

The SETKEY command allows the remapping of keys from their default escape and control sequences to different sequences. Each key's default sequence is determined by the selected emulation.

Usage

SETKEY *keyname new_function* (refer to page 6-12 for several usage examples).

Parameters

keyname is the name of the key to be remapped. Refer to Table 6-1 for key names.

new_function is the new function of the specified key. Allowed values for *new_function* are:

GOLD:

Specifies the key that is used to override the operation of the a special key. For example, you may have the F10 key defined as TinyTERM’s Exit key, yet the application you are running requires theuse of F10. Pressing F10 by itself will be interpreted as a special key by TinyTERM, but pressing the Gold key then F10 will send an F10 keystroke to the host computer.

RESET:

Specifies that the key should be reset to its original emulator value. This is used if you don’t want a key used that TinyTERM assigns by default. For example, if you don’t want a BREAK key to be available for use, you would enter SETKEY ALTB RESET.

SCANMODE:

Specifies the key which is used to toggle the PCTERM emulation between scan and non-scan modes.

SCRRIGHT:

DOS only. Specifies the key that is used for scrolling right when in 132 column scroll mode.

SCRLEFT:

DOS only. Specifies the key that is used for scrolling left when in 132 column scroll mode.

Quoted strings

Most of TinyTERM's edit fields support special characters. A string may contain any alphanumeric character (a..z and/or 0..9) as well as the following special macro values:

\r	carriage return (\x0D)
\n	line feed (\x0A)
\t	horizontal tab (\x09)
\v	vertical tab (\x0B)
\f	form feed (\x0C)
\b	backspace (\x08)
\e	escape (\x1B)
\^	carat (\x5E)
\\	backslash (\x5C)

\"	double quote (\x22)
\'	single quote (\x27)

\-	dash (\x2D)
\x	hex value follows
\0..\7	octal value follows

Keynames

Note: When using DOS, in order to use or remap the F11 or F12 keys, the TinyTERM keyboard driver must be set to INT9 or EXTBIOS.

Table 6-1 Key Names

Key Name	IBM PC Key
Function Keys	
f1..f12	F1..F12
sf1..sf12	Shift+F1..Shift+F12
cf1..cf12	Ctrl+F1..Ctrl+F12
csf1..csf12	Ctrl+Shift+F1..Ctrl+Shift+F12
af1..af12	Alt+F1..Alt+F12
Arrow Keys	
up	↑
c-up	Ctrl+↑
down	↓
c-down	Ctrl+↓
right	→
c-right	Ctrl+→
left	←
c-left	Ctrl+←
Edit Keys	
home	Home
c-home	Ctrl+Home
end	End

Table 6-1 Key Names **(continued)**

Key Name	IBM PC Key
Edit Keys	
c-end`	Ctrl+End
ins	Insert
c-ins	Ctrl+Insert
c-del	Ctrl+Delete
pgup	Page Up
c-pgup	Ctrl+Page Up
pgdn	Page Down
c-pgdn	Ctrl+Page down
Keypad Keys (with NumLock On)	
kp0	Keypad 0
kp1	Keypad 1
kp2	Keypad 2
kp3	Keypad 3
kp4	Keypad 4
kp5	Keypad 5
kp6	Keypad 6
kp7	Keypad 7
kp8	Keypad 8
kp9	Keypad 9
kp-	Keypad -
c-kp-	Ctrl+Keypad -
kp*	Keypad *
c-kp*	Ctrl+Keypad *

Table 6-1 Key Names **(continued)**

Key Name	IBM PC Key
Keypad Keys (with NumLock On)	
kp/	Keypad /
c-kp/	Ctrl+Keypad /
kp+	Keypad +
c-kp+	Ctrl+Keypad +
kpenter	Keypad Enter
c-kpenter	Ctrl+Keypad Enter
kp,	Keypad ,
c-kp,	Ctrl+Keypad ,
kp.	Keypad .
c-kp.	Ctrl+Keypad .
five	Keypad 5
c-five	Ctrl+Keypad 5
Control Keys	
print	Print Screen
scrlock	Scroll Lock
numlock	Num Lock
bs	Backspace
c-bs	Ctrl+Backspace
c-tab	Ctrl+Tab
Shift+Tab	Shift+Tab
enter	Enter
c-enter	Ctrl+Enter
Esc	Esc
c-Esc	Ctrl+Esc

Table 6-1 Key Names **(continued)**

Key Name	IBM PC Key
Control Keys	
"^A".."^Z"	Ctrl+a..Ctrl+z (Case is ignored)
"^\"	Ctrl+\
"^]"	Ctrl+]
"^^"	Ctrl+6
"^_"	Ctrl+_
Alt Keys	
alta..altz	Alt+a..Alt+z
alt0..alt9	Alt+0..Alt+9
alt-	Alt+-
alt=	Alt+=
Alphanumeric Keys	
"a".."z"	a..z (Case Sensitive)
"0".."9"	0..9

Using SETKEY

In order to use the SETKEY command, you must create the *tt.rc* file with a text editor.

If you need to change the VT220 key sequence of your F1 key from "\EOP" to "\EOJ" you would place the following line in the *tt.rc* file.

```
SETKEY F1 "\EOJ"
```

If you would like to create login and password keys, you could use the following to set ALT+L to your login and ALT+W to your password:

```
SETKEY altL "century\r"

SETKEY altW "software\r"
```

Now whenever you log in, press the ALT+L at the login prompt and ALT+W at the password prompt. The "\r" is called a macro character and is used to send a carriage return as part of the setkey string. Other special macro characters are listed under*Quote Strings*in the SETKEY section of this chapter.

Most of TinyTERM's control keys can be changed in the Setup Utility; the remaining may be changed with SETKEY. For example, if F9 and F10 are preferred for scroll left and right keys rather than the arrow keys, use SETKEY to change these keys as follows:

```
SETKEY F9 SCRLEFT
SETKEY F10 SCRRIGHT
```

Or suppose the remote application uses ALT+C and the DEC Compose key is not necessary on the local system. By using the following:

```
SETKEY altC RESET
```

the value for ALT+C is returned to normal and the COMPOSE key is no longer available on your system.

If you want to assign a macro to a key, enter the name of the key followed by the keystrokes to assign to the key.

For example, to assign the F7 to send a tab and a carriage return, you would use:

```
SETKEY F7 “\t\r”
```

If you have a modem connection with a phone number that you dial frequently, you could assign a key to autodial:

```
SETKEY AF1 “AT\rATDT555-5555”
```

Display Translation

In addition to altering the keyboard, character displays can be changed. TinyTERM for DOS supports a function which allows incoming characters to be translated to different characters before displaying. Any valid character from the IBM PC Character Set can be displayed. These changes should be made to the tt.rc file.

TRANS DISPLAY

The TRANS DISPLAY command is used to change your character displays.

Usage

TRANS DISPLAY*source dest*

Parameters

source Incoming character or value to be changed. Must be in quotes.

dest Character or value to change to. Must be in quotes.

Description

The source and destination parameters can be any ASCII character or hex value. Hex values are specified by using a “\x” in front of the hex value. Hex values are used to indicate characters which cannot be readily typed.

This is very useful for European character translations of 7 bit to 8 bit (or vice versa) when talking to equipment that has used portions of the 7 bit ASCII character set to represent 8 bit IBM PC characters, such as the a-umlaut.

When using the TRANS DISPLAY command, it is important to note which type of emulation you are using. DEC emulations use the DEC Multinational Character Set while other emulations use the IBM PC Character Set.

Examples

If you need to change the “#” sign to a “£” sign, use:

```
TRANS DISPLAY “#” “\xa3”
```

If you want the letter “a” to display in upper case on every occasion, use:

```
TRANS DISPLAY “a” “A”
```

TCP/IP Terminal Type Queries

NETTERM

The NETTERM command can be used in the tt.rc file to identify a custom terminal type. When TCP/IP sends a "terminal type query", TinyTERM sends out a default string (based on the selected emulation). The NETTERM command can be placed in the*tt.rc* file and when a terminal type query is received, the contents of NETTERM will be sent. This overrides the TinyTERM default.

Usage

NETTERM*string*

Parameters

string	is the response TinyTERM sends to the remote host. Must be in quotes. Refer to*Quoted Strings*in this chapter for details on defining strings.

TinyTERM Environment Variables

DOS environment variables can be used to modify the operation of TinyTERM and are defined using the DOS SET command. For example,

```
C: SET TTDIR=C:\TT20
```

defines the TTDIR variable. For a list of current environment variables, type SET without any options.

HOME

If this variable is set, it will override the default search path when checking for the .sys and .con files. See TTDIR for the search sequence.

TTDIR

When TinyTERM first starts, it tries to run the *default.tap* and tt.rc files. TinyTERM searches for these files in the following order:

1. TTDIR environment variable.
2. USER directory, defined as:
    a. the local user directory of TinyTERM defined during a network install.
    b. the value in the HOME environment variable, if set.
3. SYSTEM directory, defined as the directory where TinyTERM was installed.

The TTDIR variable must not include a trailing backslash character (\).

TTRC

This variable is the full pathname of TinyTERM's user runtime command startup file, which is always executed after the .sys and .con files. This file is normally named tt.rc.

USER

This variable determines what login name is used in an rlogin network connection. If this variable is not set, TinyTERM uses root as the login name.

DOS Index

Appendix A
Serial and Modem Connections

In This Appendix:

Direct Connections

TinyTERM can be used to directly connect your PC to a multi-user system (usually UNIX). A direct connection requires a properly made cable to connect the serial port on the PC to a serial port on a multi-user host system. This cable is known as an RS-232 or serial cable. See *The RS-232 Standard* later in this appendix.

Modem Connections

In order to communicate with a remote host computer through a modem, first you must communicate with the modem and command it to dial. If you are using a 100% Hayes compatible modem, the procedure for connecting will look like this:

1. Start TinyTERM and enter terminal mode by pressing ↵.
2. Type AT↵. If your modem is connected properly, you should see "OK" or "0" (depending on the setting of the V command). A response from the modem verifies that the connection between the terminal and the modem is correct.
   - If there is no response from the modem, make sure the modem is communicating to you by typing ATQ0↵. If there is still no response, check the cabling and port.
3. Type ATDT1-800-555-1212↵ to dial the phone. If you are near your modem you should hear a dial tone and dialing (depending on the setting of the M command).
4. Upon connection to the remote computer, you should see the message "CONNECT". At this point you are connected and you can communicate with the remote host.

5. When you want to disconnect from the remote host, type +++. This will get the modem’s attention and allow you to send a hangup command.

6. Type ATH0↵. This causes the modem to disconnect the phone line.

The above is a basic example. Your specific connection may require additional commands. See your modem documentation for more specific details.

Modem switch settings

While the Hayes dialer protocol has become the de-facto industry standard, the way to set default "switch settings" vary greatly. External modems generally have a set of switches that control various modem defaults. Internal modems will either have these switches physically on the card or programmable from the operating system. Whichever way your modem is configured, the following table lists the required settings for correct operation with TinyTERM.

Table A-1 Modem Switch Settings

Switch	Setting
Verbose	verbose replies
Quiet	send result codes
Echo	no character echo
DCD	respond to DCD
Line	RJ11 single line
CmdRec	the modem should listen to commands
AT Set	use Hayes command set

Common modem commands

The following table is provided as a convenience. For a complete list of commands compatible with your modem, please refer to your modem manual.

Table A-2 Common Hayes Modem Commands

Prefix	Function
AT	Attention code. This must precede all commands except A/ and +++.

Command	Function
A	Force answer mode command. The modem will answer the phone even if it has not received a call.
A/	Re-execute last command. This executes the last command sent to the modem. This command does not require the AT prefix.
D	Dial command. This command places the modem in originate mode and then dials the dialing string that follows.
H0	Hang up command. This disconnects the modem from the phone line.
M	Speaker status. M0 turns the speaker off. M1 turns the speaker on until a connection is established.
P	Pulse dialing command. This command causes the modem to use pulse dialing.
Q	Result-code display command. Q0 causes your modem to display the results of the commands you send to it. For example, OK = Command executed, RING = Ring signal detected. For further result codes, see your modem documentation. Q1 causes your modem not to display the results.
S0	Auto-answer command. This commands sets the number of rings to wait before answering the phone. S0=0 will cause your modem not to answer the phone. S0=1 will cause your modem to answer the phone on the first ring.
T	Tone dialing command. This command causes the modem to use touch-tone dialing.
V	Result-code form command. V0 causes results to be displayed numerically. For example, 0 = OK, 2 = RING. V1 causes the results to be displayed in verbal (English) form.
Z	Resets the modem and restores all default values.
+++	Escape command. This command sets the modem off-line so commands can be issued to it. This command does not require the AT prefix.
&F	Factory reset command. This command restores the modem to its initial factory settings.

&W	Write configuration. If your modem supports nonvolatile RAM, this command will save the current configuration.

The RS-232 Standard

The type of cables required for directly connecting two computers or connecting a computer and a modem are defined by the Electrical Institute of America's RS-232 standard. Just about every computer has one or more RS-232 connectors (usually referred to as serial ports). However, the RS-232 standard is very broad, so these ports are not configured identically on all systems.

RS-232 was originally designed for communications between terminals and modems. These two types of equipment are referred to in the standard as data terminal equipment (DTE) and data communications equipment (DCE). Most (but not all) computers are DTE. Terminals are always DTE. Modems are always DCE. Usually, a serial port on a DTE uses a 25-pin male connector, while a serial port on a DCE uses a 25-pin female connector.

Most of the wires in the cable are defined as control lines. Only two of the wires (those connected to pins 2 and 3) are actually used for data transmission. DTE sends out data on pin 2, and DCE expects to receive it there. DCE sends out data on pin 3, and DTE expects to receive it there.

If you are making a connection directly between DTE and DCE, as expected by the RS-232 standard, then you want to use a *straight-through* RS-232 cable. However, if you want to establish a direct connection between two computers with DTE ports, then you must use a *null modem* cable, in which the wires connecting pins 2 and 3 are crossed. This type of cable forces the two DTE connections into accepting one as a DCE connection.

Both straight-through and null modem cables are widely available. You should be able to get them from your system manufacturer or at most computer or electronics stores.

There are several complications: most computer manufacturers configure the serial ports on their computers as DTE ports; however some configure them as DCE. Furthermore, some manufacturers use female connectors for DTE ports, or male connectors for DCE. In addition, to save space on crowded boards, many manufacturers have adopted a more compact 9-pin connector in place of the standard 25-pin connector.

As a general rule, if your system manufacturer provides standard modem cables for use with your system, you can be confident that TinyTERM will run correctly with them.

RS-232 cables consist of up to 25 wires, each with a specific function, and each intended to carry a different signal. Only two of the wires are commonly used for data transmission; the rest are used for various kinds of control signals.

A piece of equipment (a computer or a modem) sends a signal across the cable by applying a small positive or negative voltage to a specific pin in the cable's end connector. The signal is carried through the wires in the cable to the corresponding pin at the other end, where it is detected by another piece of equipment. The voltage may either be held high (positive) as a go-ahead signal, or may pulse quickly to convey data, with the sequence of negative and positive voltages being interpreted as binary codes.

Unfortunately, as it has now come to be applied, the RS-232 standard is rather broad, and leaves a lot up to the equipment manufacturer. All that is standard is the function of each of the 25 pins found in the connectors on each end of a serial cable. All 25 pins are rarely used. Instead, different pieces of equipment require different signals to operate. To make things even more complicated, connectors with only 9 pins are becoming increasingly common.

In this appendix, we'll assume you're using a standard 25-pin connector. The pinouts for the 9-pin connector used on the IBM PC/AT are listed later.

If you buy all of your equipment from a single manufacturer, you can probably also buy the exact cables needed to connect the various pieces. If you mix and match hardware, you will probably end up building your own cables.

For authoritative treatments of serial communications in general, we recommend *Technical Aspects of Data Communications* by John McNamara (Digital Press, 1982), and *C Programmer's Guide to Data Communications* by Joe Campbell (Sams, 1987).

RS-232 signals

Many of the signals defined by the RS-232 standard are rarely used. The following table lists the signals that are important for our present purposes.

Table A-3 RS-232 Signals

Pin #	Function	Direction DTE/DCE
1	Frame Ground	⇔
2	Transmit Data (TxD)	⇒
3	Receive Data (RxD)	⇐
4	Request to Send (RTS)	⇒
5	Clear to Send (CTS)	⇐
6	Data Set Ready (DSR)	⇐
7	Signal Ground (GND)	⇔
8	Data Carrier Detect (DCD)	⇐

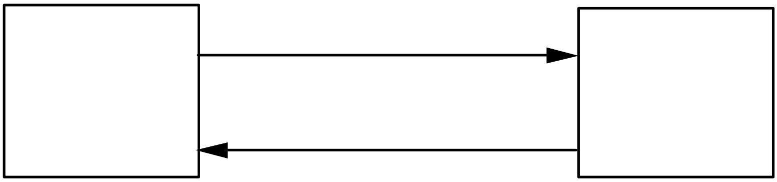
20	Data Terminal Ready (DTR)	⇒
22	Ring Indicator (RI)	⇐

Data transmission

Only two of the 25 pins are used for data transmission. The standard also calls for secondary transmit and receive lines, but they are rarely implemented. Pin 2 is defined as Transmit Data and pin 3 is defined as Receive Data.

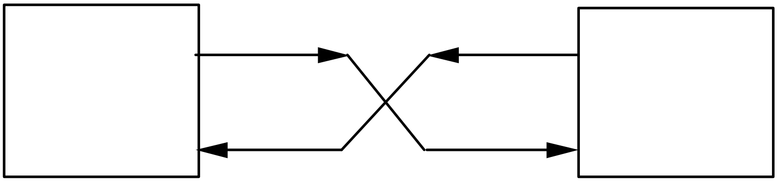
Since DTE uses pin 2 to transmit data and pin 3 to receive it, and DCE does the reverse, connecting a terminal or computer to a modem or printer (DTE to DCE) requires a straight-through connection, as shown here.

Figure A-1 DTE to DCE Connection



To make a connection between two computers (DTE to DTE), you need a cable with lines 2 and 3 crossed; this is called a null modem or modem eliminator cable.

Figure A-2 DTE to DTE Connection



Pin 1 is a safety ground, and should be connected at one end (the host end of a computer-modem connection, or either end of a direct link between two computers) and left unconnected at the opposite end of the cable. In a proper RS-232 implementation, pin 1 of the port is connected internally to the frame ground of the system.

Pin 7 is the signal ground. It provides the reference voltage against which other signals are measured. It should be connected straight through.

A pin is said to be asserted when a voltage greater than ± 3 volts (relative to signal ground) is present on the pin. On the data lines, a voltage more negative than -3 volts is considered a binary 1, and a voltage more positive than +3 volts is considered a binary 0. (Serial drivers usually assert voltages of ± 5 volts to allow 2 volts of noise margin.)

On the control lines, a positive voltage is considered the on state, and a negative voltage is considered off. This is the direct opposite of the case for the data lines.

If you don't know whether a device is DTE or DCE, you can always tell by measuring the voltage on pins 2 and 3. The transmitter should always have a negative voltage, even when idle. If pin 2 is negative, the device is DTE. If pin 3 is negative, the device is DCE.

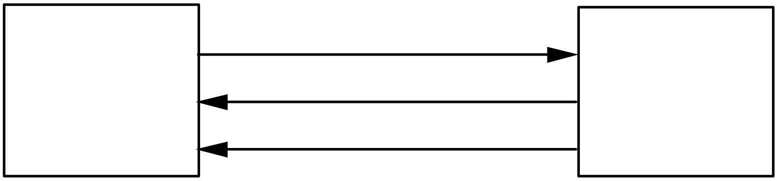
Hardware handshaking

The remainder of the RS-232 lines are control lines. Some types of equipment (including modems) aren't happy just to receive a stream of data. They need to feel more in control through a process called handshaking. In handshaking, some preliminary communication between the two pieces of equipment must take place before data can be sent.

Let's consider what type of handshaking might be necessary between a computer and a modem in order to dial up another computer system. First of all, on an outgoing call, the computer needs to know that the modem is available to make the call. Then the modem needs to tell the computer that it has made a connection.

A computer (DTE) asserts pin 20 (Data Terminal Ready or DTR) to show that it is ready. A modem (DCE) asserts pin 6 (Data Set Ready or DSR). When the modem makes a connection with another modem on the other end, it asserts pin 8 (Data Carrier Detect or DCD) to let the computer know that a connection has been established. These voltages usually remain high during the entire transmission.

Figure A-3 Usage of DTR, DSR and DCD



If the voltage on pin 20 drops, it tells the modem that the computer is unable to continue transmission, perhaps because it is down. The modem will hang up the phone if a call is in progress. If the voltage on pin 8 drops, it tells the computer that the modem no longer has a connection. In both cases, these pins give a simple yes/no report on the state of the transmission. This form of handshaking is sometimes referred to as modem control.

There is a further level of handshaking that is used to control the rate of data transmission. When transmitting large amounts of data at high speed, it is possible that one end of a link may try to send data faster than the other can receive it. To keep this from happening, there is a flow-control handshake that allows either end to prevent the other from sending any more data until it gets the go-ahead.

When a DTE device is ready to send data, it asserts pin 4 (Request to Send or RTS). If the DCE is ready to receive it, it gives the go ahead by asserting pin 5 (Clear to Send or CTS). Data transmission then begins. If the voltage on CTS drops at any time, this tells the sending system that the receiver isn't ready for more data. Since this flow control handshake is implemented in the serial port hardware, it is considerably more efficient and reliable than the CTRL S/CTRL Q (XON/XOFF) handshake that can be performed in software.

If both types of handshaking are used, the entire conversation between computer and modem might look like this (where a plus sign signifies raising the voltage on the line, and a minus sign signifies dropping the voltage):

Table A-4 Conversation Between Computer and Modem

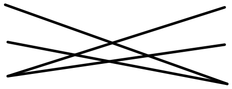
Device	Signal	Meaning
Computer	DTR+	I want to call another system. Are you ready?
Modem	DSR+	Yes, I'm ready. Go ahead and dial
Modem	DCD+	I've got your party, sir.
Computer	RTS+	Can I send data now?
Modem	CTS+	Sure. Go ahead.
Computer	TxD...	Data sent out.
Modem	...RxD	Data Received. Previous four steps may be repeated, with either device in the sending role.
Computer	DTR-	I'm done. Please hang up.
Modem	DCD-	Whatever you say.

All of the above sounds good in theory, but in practice it will not always work. Connecting a computer to a modem is generally easy, since a DTE to DCE connection is what RS-232 was made for. A straight-through cable connecting pins 1 through 8 and 20 (or all 25 pins) will usually do the trick.

Things can get quite a bit more complicated for a direct connection between two computers. Just as the function of pins 2 and 3 is asymmetrical between DTE and DCE devices, so too is the function of pins 6, 8 and 20. A DTE device (a computer or terminal) asserts DTR (pin 20) and expects to receive DSR (pin 6) and DCD (Data Carrier Detect). A DCE device (a modem) asserts DSR and DCD and expects to receive DTR. If you connect two DTE devices with a straight-through cable, no handshaking can occur.

To get around the handshaking problem, a null modem cable can cross some of the control lines as well as the data lines.

Figure A-4 Basic DTE Null Modem Handshaking

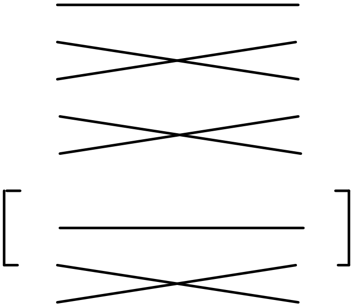


This allows DTR (pin 20) on each DTE interface to drive both DSR (pin 6) and pin 8 (DCD) on the other. Whenever either side asserts DTR, the other side thinks it's getting DSR and DCD.

Some publications suggest that you can "fake out" pins 4 and 5 by tying them together at each end of the cable. As a result, whenever the computer looks for a go-ahead signal, it gets it—from itself. This is really a poor practice. It will generally work if you are simply connecting terminals, since people can't type fast enough to ever overload the computer.

For direct connections with dependable flow control, you should always connect pins 4 and 5, crossed so that the two DTE interfaces will converse correctly (unless, of course, one of the two computers has a DCE interface, in which case the cable should be straight through). Here's the pinning for a full null modem cable.

Figure A-5 25-Pin Null Modem Cable



You should only do this for a null modem cable, since a modem really does require the DTR/DCD handshaking signals. If you use a cable like this with a modem, it will not know to hang up when the computer closes the port and drops (de-asserts) DTR.

Like all generalities, the advice given above may be insufficient. Finding the right cable can be simple and straightforward. Or it can be a seemingly hopeless task for which no one has the right advice. You should be sure to read the documentation for the devices you are trying to connect. It may be difficult to translate the raw description given for each device into the information necessary to connect them to one another, but you will succeed if you persevere.

The use of a device called a breakout box can be invaluable if you are trying to build your own cable. (You can usually pick one up at any electronics supply store. A good breakout box is expensive, but worth the investment if you plan to build many cables.) The breakout box allows you to easily rearrange the wires in a cable for testing purposes, and includes LEDs that display which signals are actually active at any point.

9-pin connectors

9-pin connectors are becoming increasingly common on many computers. The pins on these connectors have the same function as those on the 25-pin connector, but of course they fall in different positions. Table A-5 shows the pinouts for the 9-pin connector on the IBM PC/AT. This is a DTE connector.

Table A-5 9-Pin DTE Connector

Pin #	Function
1	Data Carrier Detect (DCD)
2	Receive Data (RD)
3	Transmit Data (TD)
4	Data Terminal Ready (DTR)
5	Signal Ground (GND)
6	Data Set Ready (DSR)
7	Request to Send (RTS)
8	Clear to Send (CTS)
9	Ring Indicator (RI)

Distance limits for RS-232 cables

Although the RS-232 standard imposes an official limit of 50 feet on RS-232 cables, in practice, they can be much longer. The maximum workable length is dependent on baud rate. According to McNamara (*Technical Aspects of Data Communications*, Digital Press, 1982), the following distances have been determined, as shown in Table A-6:

Table A-6 RS-232 Cable Distance Limits

Baud Rate	Shielded Cable	Unshielded Cable
110	5000 ft.	3000 ft
300	5000 ft.	3000 ft
1200	3000 ft.	3000 ft
2400	1000 ft.	500 ft
4800	1000 ft.	250 ft
9600	250 ft.	250 ft

Appendix B
Network Connections

In This Appendix:

TinyTERM provides direct network support for:

- 3Com TCP
- Beame and Whiteside BW-TCP
- FTP Software PC/TCP
- Intel OpenNET
- Novell LAN WorkPlace for DOS
- Locus PC-Interface
- Microsoft LAN Manager
- Microsoft Networks
- Novell NetWare for UNIX
- SCO IPX/SPX
- SCO XENIX-NET
- Sun PC-NFS
- Ungermann Bass (DOS only)
- Wollongong Pathway

In addition to direct support, TinyTERM supports three standard network application interfaces:

- INT14h
- NetBIOS
- Windows Socket API

By supporting these standard interfaces, TinyTERM can be used with many other networks including:

- Atlantix Axcess
- Atlantix CocoNet
- Eicon X.25
- IBM TCP/IP
- InterConnections TES
- NetManage ChameleonNFS
- Racal Interlan
- Wollongong WIN/TCP

In the sections that follow, you will find information which may be helpful in getting TinyTERM running over your network.

BAPI (Bridge Application Program Interface)

TinyTERM can connect to networks which support this type of interface. Networks which support BAPI include:

- 3Com TCP v1.2
- Hewlett Packard Arpa Services for DOS v2.0 or higher

DOS

Read your specific network's documentation to determine the required steps to load its BAPI driver. Under DOS, there are no special requirements to get TinyTERM to work over BAPI. Simply select BAPI as the network.

To use TinyTERM with 3Com TCP perform the following steps:

1. Load 3Com’s TCP, telnet and BAPI TSR programs. These must be loaded in the proper order before loading TinyTERM. Commands for executing the proper order are:

1. TCPTSR
2. DNRTSR
3. TN
4. BAPI

When you are finished running TinyTERM, you may unload the 3Com TSR programs by running TCPUNLOD.

Windows

Under Windows, TinyTERM uses the *bapidll.exe* executable to communicate with the network's BAPI driver.

To activate *bapidll.exe*, you must add the following line to the [windows] section of *win.ini*:

```
[windows]
load=bapidll.exe
```

Once you change your *win.ini* file, you must restart Windows for the changes to take effect.

BIOS Interrupt 14h (INT14h) Interfaces

TinyTERM's INT14h driver can be used with any network software package which supports third party emulation programs that access the BIOS Interrupt 14h interface. Examples of network software packages supporting other emulators include:

- Eicon X.25
- Racal Interlan
- InterConnections TES
- Wollongong WIN/TCP for DOS

Using emulation software packages with INT14h networks usually involve running an INT14h redirect program before running the emulator. TinyTERM's INT14h driver has been tested with the networks previously listed. However, TinyTERM should work with any standard BIOS Interrupt 14h interface. See your network documentation for further information on using INT14h.

Eicon X.25

Eicon Technology distributes a software package called 3rd Party Emulation Support which allows third party terminal emulation packages such as TinyTERM to connect to their X.25 network. The 3rd Party Emulation Support software supports TinyTERM using the BIOS Interrupt 14h interface. To run TinyTERM, you must first start the 3rd Party Emulation Support software. This is done by entering the following commands at the DOS prompt:

```
C: NABIOS RDR computername  [/n]↵
C: X25NET USE servername [password]↵
```

This starts the Emulation Support program as a redirector PC on a LAN. Refer to your Eicon reference manual for more information. After the Eicon software is running, start TinyTERM.

To set TinyTERM to use the BIOS Interrupt 14h interface, select INT14h in the Port Selection field.

FTP Software PC/TCP

DOS

If you are having trouble connecting with TinyTERM, make sure your network is set up correctly by using FTP Software’s VT220 emulator. FTP’s VT220 emulator can be started by typing

```
C: tnvt nodename↵
```

If this program fails, your network is not set up correctly.

Locus PC-Interface

Locus PC-Interface networks require software to be installed on your PC and a UNIX server. Once the software is installed, TinyTERM will access the network if you have selected Locus PC-Interface in the Port Selection field.

If you are having problems connecting with TinyTERM, check to see if the network is installed correctly by using Locus' VT220 emulator. This is started by entering the following at the DOS prompt:

```
C: em2↵
```

A logo screen appears. Press ENTER and a list of available network hosts appear. Select a host and you will arrive at a login prompt to that host system. If you do not get a list of hosts or a login prompt, make sure your UNIX host is running the PC-Interface software. This can be done by typing the following command on the UNIX computer:

```
# ps -ef | grep pci
```

Two processes should be listed: *pcimapsvr.eth* and *pciconsvr.eth*. If these processes are not running, check your PC-Interface documentation.

Microsoft LAN Manager

LAN Manager networks require software to be installed on both your PC and a UNIX server. Once the software is installed, TinyTERM will access the network if you have selected LAN Manager in the Port Selection field.

LAN Manager's "full install" modifies your PC's *config.sys* and *autoexec.bat* files. Several items that are installed are not necessary for TinyTERM to connect to LAN Manager, but may be necessary for other LAN Manager functions. The following describes a minimal configuration required for TinyTERM to access LAN Manager:

CONFIG.SYS:

```
device=c:\lanman.dos\drivers\protman.dos /i:c:\lanman.dos
device=c:\lanman.dos\drivers\ethernet\xxxxxx.dos
(Where xxxxxx is the name of your network card, i.e. MACWD)
```

AUTOEXEC.BAT (or from the DOS prompt):

```
load netbeui
```

The Microsoft NetBEUI transport that comes with Microsoft's LAN Manager must be installed and running on the UNIX host before TinyTERM can connect using the LAN Manager option.

SCO's LAN Manager package for UNIX comes with /usr/lib/lm/ dos/vtp.exe, which can be used to test connections (it is a primitive terminal emulator).

NetBIOS and MSNET Interfaces

NetBIOS

NetBIOS is the Network Basic Input Output System considered to be a standard interface on IBM PC and compatible systems. Select NetBIOS or LAN Manager in the Port Selection field. LAN Manager is NetBIOS with a different virtual circuits configuration. See *Virtual Circuits Configuration* for more information.

MSNET

MSNet is Microsoft’s network interface. Select MS Networks, OpenNET A or OpenNET B in the Port Selection field. OpenNET A and OpenNET B are MSNet interfaces with different virtual circuit configurations. See *Virtual Circuits Configuration* for more information.

Virtual Circuits Configuration

Under Windows the following settings can be changed from Main | Configure | Communications | Advanced. Under DOS these settings must be made manually in the *tt.sys* file.

In order to maintain maximum compatibility with NetBIOS and MSNet based networks, TinyTERM supports the ability to change the network port number, the virtual terminal name and the handshaking required for the VT server to grant a virtual terminal line.

While TinyTERM provides transports for the most common NetBIOS and MSNet networks, you may find yourself operating on a network which requires changes to the virtual circuits configuration.

The NETPORT command

The NETPORT command sets the 16th character of the NetBIOS/MSNet name. This is required in order to be granted a terminal server line.

The NETPORT command is used as follows:

NETPORT*number*

number This is the numeric digit equal to the ASCII value of the requested port number.

The NETVTNAME command

The NETVTNAME command controls the creation of the virtual terminal server name from the name passed to TinyTERM. This is required in order to be granted a terminal server line.

The NETVTNAME command is used as follows:

NETVTNAME"*string*"

string This is the coded virtual terminal name. %s is used to match the user specified name. For example, “%s.VT” means take the user specified node name and follow it with a “.VT” to create the virtual terminal server name for the MSNet/NetBIOS call command.

The NETDIALOG command

The NETDIALOG command controls the handshaking required after the MSNet/NetBIOS call command completes in order for the VT server to grant a virtual terminal line.

The NETDIALOG command is used as follows:

NETDIALOG“*string*"

string This is the handshaking string which determines what is sent and what is expected to be received. This string supports the following:

^B Send a break character.

^F Clear the receive character buffer before proceeding.

^K Send the next character as a Control character. For example, if you wish to send a Control B instead of a break character, use "^KB".

^S	TinyTERM waits for the characters between each ^S before continuing with the string.
^W	Wait one second before processing the string.
^Z	Send a null character.

The NETNAME command

The NETNAME command sets the local LAN adapter name for MSNET/NetBIOS. The default value is TN followed by TinyTERM's 6 digit serial number. For example if the your TinyTERM serial number were CSU012345TT, the local LAN adapter name would be TN012345. This does not usually need adjusting.

The NETNAME command is used as follows:

NETNAME "*string*"

string	Is the coded virtual terminal name, handshaking string or local LAN adapter name.

The NETSTIME command

This command is used to set the NetBIOS/MSNET send timeout value. If your connection drops during high network traffic, increasing or setting this value to 0 may solve the problem.

The NETSTIME command is used as follows:

NETSTIME*n*

n	number of 1/2 second intervals to wait for a network response before timing out.	
	2	is the default value (wait 1 second for a response before timing out).
	0	is the value for never time out.

Using NETPORT, NETVTNAME and NETDIALOG

The virtual circuit configuration for the OpenNET transport is as follows:

```
NETPORT 76
NETVTNAME “%s.VT”
NETDIALOG “^SiVTS^S^Fipc1^Z”
```

OpenNET networks uses the character “v” as the 16th character in it’s MSNet name. The ASCII value of “v” is 76.

OpenNET networks require that the virtual terminal server name is equal to the user specified node name with “.VT” appended to it.

In order to get a virtual terminal line with an OpenNET network, the following handshaking occurs:

^SiVTS^S	Search for the string “iVTS”
^F	Flush further input
iPC1^Z	Send the string “iPC1” followed by a null character.

Table B-1. Default Virtual Circuits Configurations

	Interrupt			
Network	**Vector**	**Port**	**VT Name**	**Handshake**
NetBIOS	5c	0	User nodename	None
SCO XENIX-NET	5c	‘s’	User nodename	Send: ‘vtp’ Rcv: ‘\006’
LAN Manager	5c	‘s’	User nodename	Send: ‘vtp’ Rcv: ‘\006’
MSNET	2a	0	User nodename	None
OpenNET A	2a	‘v’	User nodename + ‘.VT’	Rcv: ‘iVTS’ Send: ‘iPC1’ Send: NUL

Novell NetWare for UNIX or SCO IPX/SPX

Novell NetWare for UNIX or SCO IPX/SPX networks require IPX software to be installed on a UNIX server. Only Novell NetWare needs to be installed on the PC. Once the software is installed, TinyTERM will access the network if you have selected NOVELL NVT in the Port Selection field.

DOS

In order to use Novell Virtual Terminal (NVT) services to connect to a UNIX host, it is necessary to have a network daemon, like SCO IPX/SPX running on the host with an available pseudo-tty. The local PC must be running NetWare.

The connection may be tested by loading *nvt.exe* and typing ALT+T, which will list the available NVT servers. If no servers list, then follow your network software documentation for debugging.

Windows

In addition to running NetWare, it is necessary to have the file *nwipxspx.dll* installed in the Windows directory, the file *vipx.386* in the Windows SYSTEM directory, and the following entry in the *system.ini* file:

```
[386 Enh]
network = vipx.386
```

Sun Microsystems PC-NFS

DOS

If you are having trouble connecting with TinyTERM, make sure your network is set up correctly by using Sun PC-NFS' telnet program. Telnet can be started by typing

```
C:\ telnet nodename↵
```

If this program fails, your network is not set up correctly.

Windows Sockets

TinyTERM for Windows supports connecting to a network through the standard Windows Sockets API (Winsock API or Winsock). Use of Winsock requires that the *winsock.dll* of your target network be installed. This usually includes modification of your PATH statement in your *autoexec.bat* file, or installing the *winsock.dll* in your Windows or Windows SYSTEM directory. The install program of the Winsock compatible package should handle this.

Connect to the network from TinyTERM by selecting Winsock from the Port Selection field.

Appendix C
Character Sets

In This Appendix:

DEC Multinational Character Set

The data bits per character (or word length) setting of a connection plays a part in determining the allowable data which can come across that connection. More characters are displayable over an 8-bit connection than a 7-bit connection. In fact, a 1-bit difference doubles the number of allowable characters.

The increased number of allowable characters is ideal for displaying graphic characters, accents, and diacritical marks at the same time. This allows the display of multinational characters. In addition, special symbols such as a pound sign and superscripts can be displayed.

The DEC VT320 and DEC VT220 emulations support the DEC Multinational Character Set which is composed of the ASCII Character Set and the DEC Supplemental Graphic set.

In Table C-1, all characters below hex 80 make up the ASCII Character Set and all characters at and above hex 80 compose the DEC Supplemental Graphic set.

Table C-1 DEC Multinational Character Set

HEX	-0	-1	-2	-3	-4	-5	-6	-7	-8	-9	-A	-B	-C	-D	-E	-F
0-	NUL	SOH	STX	ETX	EOT	ENQ	ACK	BEL	BS	HT	LF	VT	FF	CR	SO	SI
1-	DLE	DC1	DC2	DC3	DC4	NAK	SYN	ETB	CAN	EM	SUB	ESC	FS	GS	RS	US
2-	SP	!	"	#	$	%	&	'	(	)	*	+	,	-	.	/
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	{	|	}	~	DEL
8-					IND	NEL	SSA	ESA	HTS	HTJ	VTS	PLD	PLU	RI	SS2	SS3
9-	DCS	PU1	PU2	STS	CCH	MW	SPA	EPA				CSI	ST	OSC	PM	APC
A-		¡	¢	£		¥		§	☼	©	ª	«				
B-	°	±	²	³		µ	¶	·		¹	º	»	¼	½		¿
C-	À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï
D-		Ñ	Ò	Ó	Ô	Õ	Ö	Œ	Ø	Ù	Ú	Û	Ü	Ÿ		ß
E-	à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï
F-		ñ	ò	ó	ô	õ	ö	œ	ø	ù	ú	û	ü	ÿ		

National Replacement Character Set

While 8-bit connections allow the display of multinational characters and special symbols, 7-bit connections cannot because there are fewer characters to display. To allow multinational characters over a 7-bit connection, use the National Replacement Character (NRC) sets. This applies to the DEC VT320-7 and DEC VT220-7 emulations.

An NRC set replaces specific characters from the ASCII table with needed characters for a specific language. TinyTERM supports 14 NRC sets.

American
British
Canadian
Danish
Dutch
Finnish
French
German
Italian
Norwegian
Portuguese
Spanish
Swedish
Swiss

As an example of how the NRC set works, assume you have selected British as your character set. If you notice, the only difference between the American character set and the British character set is the hex value 23. The American character set uses a cross-hatch (#) and the British character set uses a pound sign (£).

Look at the IBM PC Character Set chart. A “#” is displayed in the hex 23 location. If you select the British character set, this would be changed to “£.” Therefore, whenever a hex 23 is sent or received, a pound sign is displayed. See Table C-2.

Table C-2 National Replacement Character Set

Character Set	23	40	5B	5C	5D	5E	5F	60	7B	7C	7D	7E
AMERICAN	#	@	[	\	]	^	_	`	{	|	}	~
BRITISH	£	@	[	\	]	^	_	`	{	|	}	~
CANADIAN	#	à	â	ç	ê	î	_	ô	é	ù	è	û
DANISH	#	@	Æ	Ø	Å	^	_	`	¨	ƒ	¼	'
FINNISH	#	@	Ä	Ö	Å	Ü	_	é	ä	ö	å	ü
FRENCH	£	à	°	ç	§	^	_	`	é	ù	è	¨
GERMAN	#	§	Ä	Ö	Ü	^	_	`	ä	ö	ü	ß
ITALIAN	£	§	°	ç	é	^	_	ù	à	ò	è	ì
NORWEGIAN	#	@	Æ	Ø	Å	^	_	`	æ	ø	å	~
PORTUGUESE	#	@	Ã	Ç	Õ	^	_	`	ã	ç	õ	~
SPANISH	£	§	¡	Ñ	¿	^	_	`	`	°	ñ	ç
SWEDISH	#	É	Ä	Ö	Å	Ü	_	é	ä	ö	å	ü
SWISS	ù	à	é	ç	ê	î	è	ô	ä	ö	ü	û

IBM PC Character Set

Table C-3 IBM PC Character Set

HEX	-0	-1	-2	-3	-4	-5	-6	-7	-8	-9	-A	-B	-C	-D	-E	-F
0-	0 NUL ^@	1 SOH ☺ ^A	2 STX ☻ ^B	3 ETX ♥ ^C	4 EOT ♦ ^D	5 ENQ ♣ ^E	6 ACK ♠ ^F	7 BEL • ^G	8 BS ◘ ^H	9 HT ○ ^I	10 LF ◙ ^J	11 VT ♂ ^K	12 FF ♀ ^L	13 CR ♪ ^M	14 SO ♫ ^N	15 SI ☼ ^O
1-	16 DLE ► ^P	17 DC1 ◄ ^Q	18 DC2 ↕ ^R	19 DC3 ‼ ^S	20 DC4 ¶ ^T	21 NAK § ^U	22 SYN ▬ ^V	23 ETB ↨ ^W	24 CAN ↑ ^X	25 EM ↓ ^Y	26 SUB → ^Z	27 ESC ← ^[	28 FS ∟ ^\	29 GS ↔ ^]	30 RS ▲ ^^	31 US ▼ ^_
2-	32	33 !	34 "	35 #	36 $	37 %	38 &	39 '	40 (	41)	42 *	43 +	44 ,	45 -	46 .	47 /
3-	48 0	49 1	50 2	51 3	52 4	53 5	54 6	55 7	56 8	57 9	58 :	59 ;	60 <	61 =	62 >	63 ?
4-	64 @	65 A	66 B	67 C	68 D	69 E	70 F	71 G	72 H	73 I	74 J	75 K	76 L	77 M	78 N	79 O
5-	80 P	81 Q	82 R	83 S	84 T	85 U	86 V	87 W	88 X	89 Y	90 Z	91 [	92 \	93]	94 ^	95 _
6-	96 `	97 a	98 b	99 c	100 d	101 e	102 f	103 g	104 h	105 i	106 j	107 k	108 l	109 m	110 n	111 o
7-	112 p	113 q	114 r	115 s	116 t	117 u	118 v	119 w	120 x	121 y	122 z	123 {	124 |	125 }	126 ~	127 ⌂
8-	128 Ç	129 ü	130 é	131 â	132 ä	133 à	134 å	135 ç	136 ê	137 ë	138 è	139 ï	140 î	141 ì	142 Ä	143 Å
9-	144 É	145 æ	146 Æ	147 ô	148 ö	149 ò	150 û	151 ù	152 ÿ	153 Ö	154 Ü	155 ¢	156 £	157 ¥	158 ₧	159 ƒ
A-	160 á	161 í	162 ó	163 ú	164 ñ	165 Ñ	166 ª	167 º	168 ¿	169 ⌐	170 ¬	171 ½	172 ¼	173 ¡	174 «	175 »
B-	176 ░	177 ▒	178 ▓	179 │	180 ┤	181 ╡	182 ╢	183 ╖	184 ╕	185 ╣	186 ║	187 ╗	188 ╝	189 ╜	190 ╛	191 ┐
C-	192 └	193 ┴	194 ┬	195 ├	196 ─	197 ┼	198 ╞	199 ╟	200 ╚	201 ╔	202 ╩	203 ╦	204 ╠	205 ═	206 ╬	207 ╧
D-	208 ╨	209 ╤	210 ╥	211 ╙	212 ╘	213 ╒	214 ╓	215 ╫	216 ╪	217 ┘	218 ┌	219 █	220 ▄	221 ▌	222 ▐	223 ▀
E-	224 α	225 ß	226 Γ	227 π	228 Σ	229 σ	230 µ	231 τ	232 Φ	233 Θ	234 Ω	235 δ	236 ∞	237 φ	238 ε	239 ∩
F-	240 ≡	241 ±	242 ≥	243 ≤	244 ⌠	245 ⌡	246 ÷	247 ≈	248 °	249 ∙	250 ·	251 √	252 ⁿ	253 ²	254 ■	255

Appendix D
Terminal Emulation Reference

In This Appendix:

This section lists the keyboard mappings and local print sequences for the various emulations supported by TinyTERM.

For the following tables:

\E	=	Escape
^	=	Control
\x##	=	hex string

AT386 Console Emulation

Description

The AT386 Console emulation is a full-screen, 25 line color emulation of the console on AT&T and Interactive UNIX System V/386 and System V.4.

Keyboard Layout

Table D-1 AT386 Console Keyboard Layout

AT386	IBM PC Keyboard	AT386 Keyboard Byte Sequence
F1..F10	F1..F10	\EOP..\EOY
F11..F12	F11..F12 (*)	\EOZ..\EOA
Shift+F1..Shift+F10	Shift+F1..Shift+F10	\EOp..\EOy
Shift+F11..Shift+F12	Shift+F11..Shift+F12 (*)	\EOz..\EOa
↑	↑	\E[A
↓	↓	\E[B
→	→	\E[C
←	←	\E[D
Home	Home	\E[H
Page Up	Page Up	\E[V
End	End	\E[Y
Page Down	Page Down	\E[U
Ctrl+Keypad 5	Ctrl+Keypad 5	\E[G
Insert	Insert	\E[@
Ctrl+Delete	Ctrl+Delete	\127
Tab	Tab	\x09
Ctrl+Tab	Ctrl+Tab	\x09
Esc	Esc	\E

Ctrl+Esc	Ctrl+Esc\ E

Table D-1. AT386 Console Keyboard Layout **(Continued)**

AT386	IBM PC Keyboard	AT386 Keyboard Byte Sequence
Enter	Enter	\x0D
Ctrl+Enter	Ctrl+Enter	\x81
Ctrl+Backspace	Ctrl+Backspace	\x84
Keypad 0..Keypad 9	Keypad 0..Keypad 9	0..9
Keypad -	Keypad –	–
Keypad +	Keypad +	+
Keypad *	Keypad *	*
Keypad ,	Keypad ,	,
Keypad .	Keypad .	.
Keypad Enter	Keypad Enter	^M
Ctrl+Keypad -	Ctrl+Keypad - (**)	-
Ctrl+Keypad +	Ctrl+Keypad + (**)	+
Ctrl+↑	Ctrl+↑	\E[A
Ctrl+↓	Ctrl+↓	\E[B
Backspace	Backspace	^H

* Requires KEYBOARD EXTBIOS or INT9 under DOS

** Requires KEYBOARDINT9 under DOS

Local Print Sequences

Although the actual AT386 Console doesn't support local print, TinyTERM's emulation does through the following sequences:

On	\E[5i
Off	\E[4i

DEC VT52 Emulation

Description

The DEC VT52 emulation is the VT52 subset of the VT100 terminal emulation. All VT52 escape sequences are processed, including graphics characters, transparent print, and numeric keypad support.

Keyboard Layout

Table D-2 DEC VT52 Keyboard Layout

VT52	IBM PC Keyboard	VT52 Keyboard	Byte Sequence
PF1..PF4	F1..F4		\EP..\ES
Keypad 0..Keypad 9	Keypad 0..Keypad 9		0..9
↑	↑		\EA
↓	↓		\EB
→	→		\EC
←	←		\ED

Application Mode

Keypad 0..Keypad 9	Keypad 0..Keypad 9	\E?p..\E?y
Keypad -	Keypad -	\E?m
Keypad ,	Keypad *	\E?l
Keypad .	Keypad .	\E?n
Keypad Enter	Keypad Enter	\E?M

Local Print Sequences

The DEC VT52 uses the following sequences:

On	\EW

Off	\EX

DEC VT100 Emulation

Description

The DEC VT100 emulation is a full featured DEC-compatible VT102/VT100 terminal emulation. All VT102 escape sequences are processed, including graphics characters and transparent print.

Keyboard Layout

Table D-3 DEC VT100 Keyboard Layout

VT100	IBM PC Keyboard	VT100 Keyboard Byte Sequence
PF1..PF4	F1..F4	\EOP..\EOS
Keypad 0..Keypad 9	Keypad 0..Keypad 9	0..9
↑	↑	\EA
↓	↓	\EB
→	→	\EC
←	←	\ED

Application Mode

Keypad 0..Keypad 9	Keypad 0..Keypad 9	\EOp..\EOy
Keypad -	Keypad -	\EOm
Keypad ,	Keypad *	\EOl
Keypad .	Keypad .	\EOn
Keypad Enter	Keypad Enter	\EOM

Local Print Sequences

The DEC VT100 uses the following sequences:

On	\E[5i

Off	\E[4i

DEC VT320/VT220 Emulations

Description

The DEC VT320 and DEC VT220 emulations are full-featured DEC-compatible emulations with Multinational Character Set support. All VT320 and VT220 escape sequences are processed, including graphics characters, transparent print, and numeric keypad support.

Each emulation has a -7 emulation option as well. This selects the appropriate terminal emulation with National Replacement Character Set support. The NRCS is determined by the Character Set field in the emulation setup screen. This option should be used over 7 data bit connections.

Keyboard Layout

The following keys perform specific hardware functions and cannot be emulated:

- Hold Screen (use Ctrl+S/Ctrl+Q)
- Print Screen (use the Print key)
- Set-Up
- Data/Talk
- Break (use the Break key)

Table D-4 DEC VT320/VT220 Keyboard Layout

VT320/VT220	IBM PC	VT320/VT220
	Keyboard	Keyboard Byte Sequence
PF1..PF4	F1..F4	\EOP..\EOS
F6..F10	F6..F10	\E[17~..\E[21~
F11	F11 (*) or Ctrl+F1	\E[23~
F12	F12 (*) or Ctrl+F2	\E[24~
F13..F14	Ctrl+F3..Ctrl+F4	\E[25~..\E[26~
Help	Ctrl+F5	\E[28~
Do	Ctrl+F6	\E[29~
F17..F20	Ctrl+F7..Ctrl+F10	\E[31~..\E[34~
↑	↑	\E[A

Table D-5 DEC VT320/VT220 Keyboard Layout **(continued)**

VT320/VT220	IBM PC Keyboard	VT320/VT220 Keyboard Byte Sequence
↓	↓	\E[B
→	→	\E[C
←	←	\E[D
Find	Home	\E[1~
Insert Here	Insert	\E[2~
Remove	Delete	\E[3~
Select	End	\E[4~
Prev Screen	Page Up	\E[5~
Next Screen	Page Down	\E[6~
Keypad 0.. Keypad 9	Keypad 0.. Keypad 9	0..9
Backspace	Backspace	\177

Application Mode

↑	↑	\EOA
↓	↓	\EOB
→	→	\EOC
←	←	\EOD
Keypad 0..Keypad 9	Keypad 0..Keypad 9	\EOp..\EOy
Keypad -	Keypad -	\EOm
Keypad ,	Keypad *	\EOl
Keypad .	Keypad .	\EOn
Keypad Enter	Keypad Enter	\EOM

* Requires KEYBOARD EXTBIOS or INT9 under DOS

DEC Compose Key

The Compose key is used with the VT220/VT220-7 and VT320/VT320-7 emulations to create multinational characters that do not exist on the keyboard. By pressing the Compose key and a two-stroke key sequence, you can create characters such as a British pound sign (£) or an a-umlaut (Ä).

Press the Compose key before the two-character sequence; the order of the two-character sequence is irrelevant.

When you send a valid two-stroke sequence after the Compose key, the Compose sequence is turned off, and the special character is sent to the computer. If you enter an improper sequence, the Compose sequence aborts, a warning bell sounds, and no characters are sent to the computer.

The following table lists the keystrokes required to create nonstandard characters. The first column describes the desired character. The second column describes the necessary keystrokes.

Table D-6 DEC Compose Key Sequences

Composite Character	Key Sequence
“	(quotation mark) " (space)
#	(number sign) ++
’	(apostrophe) ' (space)
@	(commercial at) aa or AA
[	(opening bracket) ((
\	(backslash) // or /<
]	(closing bracket)))
^	(circumflex accent) ^ (space)
’	(single quote) ' (space)
{	(opening brace) (-
|	(vertical line) /^
}	(closing brace))-
~	(tilde) ~ (space)
¡	(inverted !) !!
¢	(cent sign) c/ or C/ or c| or C|
£	(pound sign) l- or L- or l= or L=
¥	(yen sign) y- or Y- or y= or Y=
§	(section sign) so or SO or s! or S!
¤ (\x0F)	(currency sign) xo or XO or x0 or X0
© (\xE8)	(copyright sign) co or CO or c0 or C0
ª	(feminine ordinal indicator) a- or A-
«	(angle quotation mark left) <<

Table D-5. DEC Compose Key Sequences **(Continued)**

Composite Character	Key Sequence
°	(degree sign) 0^
±	(plus/minus sign) +-
µ (\x75)	(micro sign) /u or /U
¶	(paragraph sign) p! or P!
·	(middle dot) .^
º	(masculine ordinal indicator) o- or O-
»	(angle quotation mark right) >>
¿	(inverted ?) ??
À (\x85)	(A grave) A`
Â (\x83)	(A circumflex) A^
Ã (\x41)	(A tilde) A~
Ä	(A umlaut) “A
Å	(A ring) A*
Æ	(A E ligature) AE
Ç	(C cedilla) C,
È (\x8A)	(E grave) E`
É	(E acute) E’
Ê (\x88)	(E circumflex) E^
Ë (\x89)	(E umlaut) E”
Ì (\x8D)	(I grave) I`
Í (\xA1)	(I acute) I’
Î (\x8C)	(I circumflex) I^
Ï (\x8B)	(I umlaut) I”
Ñ	(N tilde) N~
Ò (\x95)	(O grave) O`
Ó (\xA2)	(O acute) O’

Table D-5. DEC Compose Key Sequences (Continued)

Composite Character	Key Sequence
Ô (\x93)	(O circumflex)O^
Õ (\x4F)	(O tilde)O~
Ö	(O umlaut)O”
Œ (\x4F)	(O E ligature)OE
Ù (\x97)	(U grave)U`
Ú (\xA3)	(U acute)U’
Û (\x96)	(U circumflex)U^
Ÿ (\x9B)	(Y umlaut)Y”
ß	(German small sharp s)ss
à	(a grave)a`
á	(a acute)a’
â	(a circumflex)a^
ã (\x61)	(a tilde)a~
ä	(a umlaut)a”
å	(a ring)a*
æ	(a e ligature)ae
ç	(c cedilla)c,
è	(e grave)e`
é	(e acute)e’
ê	(e circumflex)e^
ë	(e umlaut)e”
ì	(i grave)i`
í	(i acute)i’
î	(i circumflex)i^
ï	(i umlaut)i”
ñ	(n tilde)n~

Table D-5. DEC Compose Key Sequences **(Continued)**

Composite Character	Key Sequence
ò	(o grave)o`
ó	(o acute)c’
ô	(o circumflex)o^
õ (\x6F)	(o tilde)o~
ö	(o umlaut)o”
œ (\x6F)	(o e ligature)oe
ø (\x9B)	(o slash)o/
ù	(u grave)u`
ú	(u acute)u’
û	(u circumflex)u^
ü	(u umlaut)u”
ÿ	(y umlaut)y”

Local Print Sequences

The DEC VT320/220 emulations use the following sequences:

On	\E[5i
Off	\E[4i

SCO Console Emulation

Description

The SCO Console emulation is a full-screen, 25 line color emulation of the console for SCO UNIX/XENIX systems.

Keyboard Layout

Table D-7 SCO Console Keyboard Layout

SCO Console	IBM PC Keyboard	SCO Console Keyboard Byte Sequence
F1..F12	F1..F12 (*)	\E[M..\E[X
Shift+F1..Shift+F12	Shift+F1..Shift+F12 (*)	\E[Y..\E[j
Ctrl+F1..Ctrl+F12	Ctrl+F1..Ctrl+F12 (*)	\E[k..\E[v
Ctrl+Shift+F1.. Ctrl+Shift+F12	Ctrl+Shift+F1.. Ctrl+Shift+F12 (*)	\E[w..\E[{
↑	↑	\E[A
↓	↓	\E[B
→	→	\E[C
←	←	\E[D
Keypad 0..Keypad 9	Keypad 0..Keypad 9	0..9
Home	Home	\E[H
Page Up	Page Up	\E[I
End	End	\E[F
Page Down	Page Down	\E[G
Insert	Insert	\E[L
Delete	Delete	\x7F
Shift+Tab	Shift+Tab	\E[Z

Table D-6. SCO Console Keyboard Layout (Continued)

SCO Console	IBM PC Keyboard	SCO Console Keyboard Byte Sequence
Ctrl+Esc	Ctrl+Esc	\x80
Ctrl+Enter	Ctrl+Enter	\x81
Ctrl+Home	Ctrl+Home	\x82
Ctrl+Page Up	Ctrl+Page Up	\x83
Ctrl+Backspace	Ctrl+Backspace	\x84
Ctrl+End	Ctrl+End	\x85
Ctrl+Page Down	Ctrl+Page Down	\x86
Ctrl+Keypad -	Ctrl+Keypad - (**)	\x87
Ctrl+Keypad +	Ctrl+Keypad + (**)	\x88
Ctrl+←	Ctrl+←	\x89
Ctrl+→	Ctrl+→	\x8A

* F11 and F12 Require KEYBOARD EXTBIOS or INT9 under DOS

** Requires KEYBOARDINT9 under DOS

Local Print Sequences

Although the actual SCO Console doesn't support local print, TERM Pro's emulation does through the following sequences:

On	\E[5i
Off	\E[4i

WYSE WY-50 Emulation

Description

The WYSE WY-50 is a full featured Wyse 50 emulation. This emulation supports most sequences, with the exception of protected mode on/off processing.

Keyboard Layout

Table D-8 WYSE WY-50 Keyboard Layout

Wyse50	IBM PC	Wyse50	
	Keyboard	Keyboard	Byte Sequence
F1	F1		^A@\r
F2..F10	F2..F10		^AA\r..^AI\r
F11	F11 (*)or Ctrl+F1		^AJ\r
F12	F12 (*) or Ctrl+F2		^AK\r
F13..F16	Ctrl+F3..Ctrl+F6		^AL\r-^AO\r
Shift+F1	Shift+F1		^A`\r
Shift+F2..Shift+F10	Shift+F2..Shift+F10		^Aa\r..^Ai\r
Shift+F11	Shift+F11 (*) or Ctrl+Shift+F1		^Aj\r
Shift+F12	Shift+F12 (*) or Ctrl+Shift+F2		^Ak\r
Shift+F13..Shift+F16	Ctrl+Shift+F3.. Ctrl+Shift+F6		^Aj\r-^Ao\r
↑	↑		^K
↓	↓		^J
→	→		^L
←	←		^H
Home	Home		^^ (\x1E)
Shift+Home	Ctrl+Home		\E{

PAGE Next	Page Down\EK

Table D-7. WYSE WY-50 Keyboard Layout **(Continued)**

Wyse50	IBM PC Keyboard	Wyse50 Keyboard Byte Sequence
PAGE Prev	Page Up	\EJ
Tab	Tab	^I
Shift+Tab	Shift+Tab	\EI
Back Space	Backspace	^H
Ins	Insert	\Eq
Del	Delete	\177
Repl	End	\Er
INS Char	Ctrl+Page Down	\EQ
INS Line	Ctrl+→	\EE
DEL Char	Ctrl+Page Up	\EW
DEL Line	Ctrl+←	\ER
Send	Ctrl+Enter	\E7
Keypad Enter	Keypad Enter	^M

* Requires KEYBOARD EXTBIOS or INT9 under DOS

Local Print Sequences

The WYSE WY-50 uses the following sequences:

On	^X
Off	^T

WYSE WY-60 Emulation

Description

The WYSE WY-60 is a full-featured native-mode Wyse 60 emulation. This emulation supports scan code mode on/off sequences and extended keyboard support.

Keyboard Layout

Table D-9 WYSE WY-60 Keyboard Layout

Wyse60	IBM PC Keyboard	Wyse60 Keyboard Byte Sequence
F1	F1	^A@\r
F2..F10	F2..F10	^AA\r..^AI\r
F11	F11 (*)or Ctrl+F1	^AJ\r
F12	F12 (*) or Ctrl+F2	^AK\r
F13..F16	Ctrl+F3..Ctrl+F6	^AL\r-^AO\r
Shift+F1	Shift+F1	^A`\r
Shift+F2..Shift+F10	Shift+F2..Shift+F10	^Aa\r..^Ai\r
Shift+F11	Shift+F11 (*) or Ctrl+Shift+F1	^Aj\r
Shift+F12	Shift+F12 (*) or Ctrl+Shift+F2	^Ak\r
Shift+F13..Shift+F16	Ctrl+Shift+F3.. Ctrl+Shift+F6	^Aj\r-^Ao\r
↑	↑	^K
↓	↓	^J
→	→	^L
←	←	^H
Home	Home	^^ (\x1E)
Shift+Home	Ctrl+Home	\E{

PAGE Next	Page Down\EK

Table D-8. WYSE WY-60 Keyboard Layout **(Continued)**

Wyse60	IBM PC Keyboard	Wyse60 Keyboard Byte Sequence
PAGE Prev	Page Up\EJ	
Tab	Tab ^I	
Shift+Tab	Shift+Tab\EI	
Back Space	Backspace^H	
Ins	Insert \Eq	
Del	Delete \177	
Repl	End \Er	
INS Char	Ctrl+Page Down\EQ	
INS Line	Ctrl+→ \EE	
DEL Char	Ctrl+Page Up\EW	
DEL Line	Ctrl+← \ER	
Send	Ctrl+Enter\E7	
Keypad Enter	Keypad Enter^M	
Esc	Esc \E	
Print	Print Screen\EP	

* Requires KEYBOARD EXTBIOS or INT9 under DOS

Local Print Sequences

The WYSE WY-60 uses the following sequences:

On	\Ed#
Off	^T

IBM 3151 Emulation

Description

The IBM 3151 emulation is a full-screen, 24 or 25 line emulation of the IBM 3151 terminal. All IBM 3151 control sequences are processed, including transparent print. An extended keyboard is required to access the following IBM 3151 function keys: F11, F12, F23, F24, F35, F36.

Keyboard Layout

The IBM 3151 uses a Line Turnaround Character in many of its control sequences. This is represented in the following table through the use of <LTA>. This character is chosen within the emulation setup dialog.

Table D-9 IBM 3151 Keyboard Layout

IBM 3151	IBM PC Keyboard	IBM 3151 Keyboard Byte Sequence
F1..F12	F1..F12	\Ea<LTA>..\El<LTA>
F13..F24	Shift+F1..Shift+F12	\E!a<LTA>.. \E!l<LTA>
F25..F36	Ctrl+Shift+F1.. Ctrl+Shift+F12	\E"a<LTA>.. \E"l<LTA>
↑	↑	\EA
↓	↓	\EB
→	→	\EC
←	←	\ED
Home	Home	\EH
Clear	Ctrl+Home	\EL<LTA>
Erase Input	Ctrl+Page Up	\EK
Erase EOF	Page Down	\EI
Erase EOP	Ctrl+Page Down	\EJ
Insert Character	Insert	\EP

Insert Line	Ctrl+Insert\EN

Table D-9. IBM 3151 Keyboard Layout (Continued)

IBM 3151	IBM PC Keyboard	IBM 3151 Keyboard Byte Sequence
Delete Character	Delete	\EQ
Delete Line	Ctrl+←	\EO
DEL	Ctrl+Delete	\xFF
Tab	Tab	\x09
Backtab	Shift+Tab	\E2
Esc	Esc	\E
Return	Enter	\x0D
LF	Ctrl+Enter	\x0A
Enter	Keypad Enter	
Backspace	Backspace	\x08
Break	Ctrl+B	Break
Keypad 0..Keypad 9	Keypad 0..Keypad 9	0..9
Keypad -	Keypad –	–
Keypad +	Keypad +	+
Keypad *	Keypad *	*
Keypad ,	Keypad ,	,
Keypad .	Keypad .	.

Local Print Sequences

The IBM 3151 emulation uses the following sequences:

On	^P^R
Off	^P^T