Intermec
Technologies Corporation

TE 2000 ™ *3270 Terminal Emulation*

PROGRAMMER'S GUIDE

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Acknowledgments

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About This Manual

This manual contains information necessary to configure, operate, and troubleshoot TE 2000™ terminal emulation applications for INTERMEC® terminals. This manual is intended for these audiences:

▶ All users who need to know how to use terminal emulation.

▶ Information systems personnel, operations personnel, analysts, and programmers who need to know how to configure, test, and use the terminal emulation application to operate in a network. You should have a good knowledge of your company's network and data collection software. You should be familiar with data communications and network protocols.

Organization of This Manual

The following chart summarizes the information in each section.

To	See Section
Get started with 3270 terminal emulation	1
Use 3270 terminal emulation applications	2
Use your terminal's keyboard	3
Use the terminal emulation configuration menus for your Trakker Antares® terminal*	4
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Use extended commands to send commands over the terminal's RS-232 port	7

* *For information about the terminal emulation menus for the 6400 or 5055 computer, refer to the computer's user manual. For a list of manuals, see "Related Manuals" later in this section.*

In addition:

▶ Appendix A contains bar codes for 3270 terminal emulation commands.

▶ Appendix B contains decimal-to-hexadecimal and binary-to-EBCDIC conversion tables.

▶ Appendix C contains the Terminal Font Set table for 6400 and 5055 computers.

Terminology

Term	Description
248X	Indicates the 2480, 2481, 2485, and 2486 terminals.
Host	Refers to a personal computer or other computer that communicates with the terminal.
TE	Stands for terminal emulation.
Terminal	Generic term that indicates any INTERMEC terminal that supports terminal emulation.

Conventions for Input From a Keyboard

To help you quickly locate and interpret information, this manual uses the conventions in the following chart.

Convention	Meaning
`Monospace text`	Shows the command as you should enter it.
Italic text	Indicates a variable that you must replace with a real value, such as a number, filename, or command.
⏎	Shows the key you must press on the terminal's keyboard. For example, "press ⏎" directs you to press the Enter key.
ⓕ Ⓕⁱ	Shows a series of keys you must press and release in the order shown. For example, "Press ⓕ Ⓕⁱ to open the TE configuration menus on the 2425."

Bar Code Conventions

You can scan the bar codes listed in this manual to enter data or perform a command. The bar codes are in the Code 39 symbology. Each bar code includes the name and human-readable interpretation.

For example:

‖‖‖ ‖ ‖‖ ‖‖‖ ‖‖ ‖ ‖‖‖ ‖‖‖ —— **Bar code (Code 39)**

%EOF ——————— **Human-readable interpretation**

The asterisks (*) at the beginning and end of the human-readable interpretation are the start and stop codes for a Code 39 bar code label. If you are using a bar code printing utility, it may automatically supply the asterisks as the start and stop codes, so that you only need to type the actual text of the command. You can also create and print configuration labels and reader command labels in Code 93, which has its own start and stop codes.

Related Manuals

To order a printed manual, contact your Sales Representative. Several online manuals are also available in Portable Document Format (PDF) on the Intermec web site. The list of online manuals is at:

http://corp.intermec.com/manuals/english.htm

Or, choose "Products" then "Manuals" and "English" from the opening page.

You must download the free Adobe Acrobat Reader to view the PDF manuals. Instructions are at:

http://corp.intermec.com/manuals/manuals.htm#reader

Following are related INTERMEC manuals and part numbers (P/N).

Manual	P/N
2100 Universal Access Point User's Manual	067150
5055 Data Collection PC User's Guide	961-054-017
The Bar Code Book	051241
DCS 300 System Manual	067296
DCS 300 Technical Reference Manual	067717
EZBuilder Getting Started Guide	066450
EZBuilder Tutorial	066449
PEN*KEY Model 6400 User's Guide	961-047-093
TE 2000 5250 Terminal Emulation Programmer's Guide	977-055-004
TE 2000 VT/ANSI Terminal Emulation Programmer's Guide	977-055-005
TRAKKER Antares 241X Hand-Held Terminal User's Manual	069538
TRAKKER Antares 2420 and 2425 Hand-Held Terminal User's Manual	064024
TRAKKER Antares 242X Serial Interface Module Instruction Sheet	067690
TRAKKER Antares 2455 Vehicle-Mount Terminal User's Manual	067358
TRAKKER Antares 248X Stationary Terminal User's Manual	066960
TRAKKER Antares 248X COM4 Adapter Cable Installation Instruction Sheet	068251
TRAKKER Antares Application Development Tools System Manual	064433
TRAKKER Antares Optical Link Adapter Quick Reference Guide	065826
TRAKKER Antares TD2400 Communications Dock Quick Reference Guide	065555

Customer Support

Customer Support's on-going objective is to provide quality support to all of our customers worldwide.

Factory Service

If your unit is faulty, you can ship it to the nearest authorized Service Center for factory-quality service. The addresses and telephone numbers are included in the Warranty Card shipped with your product.

Customer Response Center

The Customer Response Center (technical support) telephone number is 800-755-5505 (U.S.A. or Canada) or 425-356-1799. The facsimile number is 425-356-1688. Email is *support@intermec.com*.

If you email or fax a problem or question include the following information in your message: your name, your company name and address, phone number and email to respond to, and problem description or question (the more specific, the better). If the equipment was purchased through a Premier Solution Partner, please include that information.

Web Site

The Customer Support File Libraries, including Hot Tips and Product Awareness Bulletins, are available via the Intermec Product Support page at this URL: *http://norbbs.norand.com/index.htm*. New users can sign up for a new account on this page.

PDF versions of Intermec manuals can be found at this URL: *http://corp.intermec.com/manuals/english.htm*.

Bulletin Board Service

The Customer Support Bulletin Board (BBS) provides software and documentation:

▶ **Phone number:** 319-369-3515 (14.4 Kbps modem)
                        319-369-3516 (28.8 Kbps modem)

▶ **Protocol:** Full duplex, ANSI or ANSI-BBS; 300 to 28,800 bps; v.32bis; 8 bits, no parity, 1 stop bit. *For high-speed modems, disable XON/XOFF and enable RTS/CTS.*

This is the same location available via the web site. If your web access uses high-speed phone lines, the web interface provides a faster response.

Getting Started

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Understanding Network Protocol Options

TE 2000™ applications for the Enterprise Wireless LAN™ system use one of the following network protocol options:

► UDP Plus — the terminal communicates with the host computer through the INTERMEC® data collection server and access point.

► TCP/IP — the terminal communicates through an INTERMEC access point, which is directly connected to the host computer on an Ethernet or a token ring network.

► WTP — the terminal communicates with the host computer through the data collection server or other INTERMEC gateway.

For network configuration options, refer to your terminal's user manual.

Setting Up the Terminal and the Network

Before you can start using the TE 2000 application on your terminal, you need to do the following:

1. Set up your terminal.

   Set-up includes charging and installing the battery pack and turning on the terminal for the first time. For instructions, refer to your terminal's user manual.

2. Configure your terminal and the network.

   To use RF communications on the terminal, you need to:

   a. Configure the data collection server (UDP Plus or WTP), other INTERMEC gateway (WTP), or host (TCP/IP).

   b. Configure the access point.

   c. Configure the network parameters on the terminal.

   For instructions, refer to your terminal's user manual.

3. Verify that your terminal is communicating correctly with the access point and data collection server or the host.

   To verify that your terminal is communicating correctly, refer to the terminal's user manual for instructions.
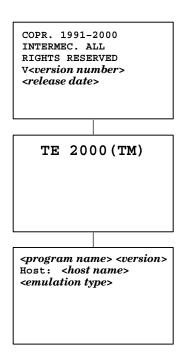
Starting the TE 2000 Application

You are ready to start your application once the terminal has been set up, the terminal and the network have been configured, and communications have been established with the gateway and access point or host.

To start your application:

Turn on the terminal. Wait a few seconds while the initialization screens (below) clear and the application starts.

```
COPR. 1991-2000
INTERMEC. ALL
RIGHTS RESERVED
V<version number>
<release date>
```

```
   TE 2000(TM)
```

```
<program name> <version>
Host:  <host name>
<emulation type>
```

▶ **NOTE:**   *If your application does not start after a few seconds, you may not have configured the terminal correctly. For help, refer to your terminal's user manual.*

You can now do one of the following:

▶ Become familiar with 3270 TE if you have not previously used it
▶ Perform a quick configuration
▶ Configure your TE 2000 application
▶ Customize your TE 2000 application

Becoming Familiar With 3270 Terminal Emulation

If you have not previously used 3270 TE, see Section 2, "Using Terminal Emulation Applications," to understand 3270 commands. See Section 3, "Using the Terminal's Keyboard," to become familiar with your terminal's keyboard and the keys you need to press to perform 3270 commands.

Performing a Quick Configuration

1. If necessary, change the data stream. The default data stream is 3270 for Trakker Antares® terminals and for 6400 and 5055 computers running IP. The default data stream is Native for 6400 and 5055 computers running WTP.

   a. Access the terminal emulation configuration menus by pressing the keys in the following chart.

2415:	ⓕ Ⓕⁱ (55-key keyboard)
	ⓕ ⑤ (37-key keyboard)
2425:	▢f Ⓕⁱ
2455:	▢f ▢F1
248X:	▢f ▢F1
6400:	[GOLD] [BLUE]
5055:	[GOLD] [M] (keyboard with color-coded keys)
	[ALT] [M] (keyboard with black keys)

   b. From the Main Menu, choose **1) Set-up Parms**.

   ▶ **NOTE:**   *To select a menu option, press the number of the option. To return to a previous menu, press Enter.*

   c. At the **Enter Password** prompt, enter **cr52401**.

   d. From the Set-up Parms menu, choose **3) Protocol Opts**.

   e. From the Protocol Opts menu, choose **2) Data Stream**.

   f. From the Data Stream menu, choose **2) 3270**.

2. Extended commands govern abilities unique to terminals. Enable the Extended Commands option if your host computer is configured to send extended commands to the terminal. It is disabled by default.

   a. From the Protocol Opts menu, choose **3) Extended Cmds**.

   b. From the Extended Cmds menu, choose **1) Enabled**.

3. Save your changes.

   a. From the Main Menu, choose **6) Exit Menus**.

   b. At the **Enter 'Y' to Save Parms** prompt, press **Y**.

   c. At the **Enter Password** prompt, enter **cr52401**.

4. Login to a TE session.

5. Start using the terminal to collect and transmit data.

Configuring the TE 2000 Application

You can use the terminal's TE configuration menus to configure site-specific operational parameters, including:

▶ UDP Plus, WTP, or TCP/IP communications

▶ Terminal emulation options

▶ Main Menu password

For information about configuring the 2415, 2425, 2455, or 248X terminal, see Section 4, "Using the Trakker Antares' Terminal Emulation Menus." For information about configuring the 6400 or 5055 computer, refer to the terminal's user manual.

Using Advanced Features

You can customize the standard TE 2000 program to do the following:

▶ Use the auto-login feature to send the same login information each time you login to the host.

▶ Create a custom parameter set-up file.

▶ Change the text of TE configuration menus or system messages.

▶ Preinitialize the 3270 TE program

For more information, see Section 5, "Customizing Your Configuration."

Program Names

This manual covers TE 2000 version 6.32 or greater. The following chart lists TE options and program names.

Model	Option	Program Name
2415, 2425, 2455, 248X	TE/UDP Plus/2.4 GHz OpenAir TE/UDP Plus/802.11 TE/IP/2.4 GHz OpenAir TE/IP/802.11	FWP240H0
6400	TE/WTP/2.4 GHz OpenAir TE/WTP/802.11 TE/WTP/900 MHz Falcon TE/IP/2.4 GHz OpenAir TE/IP/802.11	FWP640H0/H4* FWP640H0/H4 FWP640H0/H4 FWP64TH0/H4 FWP64TH0/H4
5055	TE/WTP/2.4 GHz OpenAir TE/WTP/802.11 TE/WTP/900 MHz Falcon TE/IP/2.4 GHz OpenAir TE/IP/802.11	FWP650H0 FWP650H0 FWP650H0 FWP65TH0 FWP65TH0

* FWP640H0 is the 51-key keyboard. FWP640H4 is the 41-key keyboard.

Unsupported Commands and Functions for Trakker Antares Terminals

TE 2000 terminal emulation for the 2415, 2425, 2455, and 248X does not support the commands and functions in the following chart.

Command or Function	Description
End (viewport)	Moves the window/viewport to the end of the last line displayed on the TE screen.
Erase Field	Erases all characters in the field where the cursor was positioned.
Erase Last Word	Erases all characters from the cursor back to the start of a word or a space on the screen.
Fast Cursor Right or Left	Moves the cursor two positions to the right or left rather than one.
Home (viewport)	Moves the window/viewport to the top left corner of the TE screen.
Reshow	Resends a screen image from the locally maintained host buffer to refresh the terminal screen.
Status	Toggles the terminal's screen between the status line display and the normal field input display.
Status line messages	Reports the operating status of the terminal and host system.
#H extended command	Sets TE configuration parameters that you would otherwise set at the terminal.

If you scan the bar code for an unsupported command, the bar code data is read into the terminal. If you press the key sequence for the command, the sequence is ignored.

Also note that Trakker Antares terminals with UDP Plus allow only one session per terminal.

Section 2

Using Terminal Emulation Applications

▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶

Annunciators

The terminal's display reserves a location for annunciators (icons) that help you monitor RF and network communications, or alert you of a condition that requires action. Following are 3270 TE annunciators.

X   Input inhibited. The keyboard has accepted enough information for the defined input field. The "key-ahead" feature stores keystrokes after the "input inhibited" annunciator appears. These are saved for the next field.

⌃   Insert mode. The keyboard inserts characters instead of overwriting them.

For information about annunciators that indicate battery condition and general operational status, refer to the terminal's user manual.

3278 SNA Keys

The following chart describes 3278 SNA keys.

3278 SNA Key	Description
Clear	Erases from the cursor to the current unprotected end-of-field.
Clr	Erases the current unprotected field. Also sets the MDT bit and does a reverse tab. A beep means the field is protected and cannot be erased.
Del	Deletes the character over the cursor in the current unprotected field. Data to the right of the cursor shifts left one position. A beep indicates the character is in a protected field and cannot be erased.
Delete	Deletes the character to the left of the cursor. Data to the right of the cursor shifts left one position.
Enter	Transmits all modified data fields to the host.
EOF	Erases all data from the position of the cursor to the end of the unprotected field. The cursor remains in the same location. A beep indicates that the field is protected.
Home	Sends the cursor to the unprotected field in the display buffer. The first unprotected field is determined by the Insert Cursor order.
Insert	Toggles between insert mode and normal mode. In insert mode characters are inserted instead of overwritten.
Reset	Resets from an error condition.
Return	Moves cursor to first position on the next line.

To enter an SNA key:

Press the key(s) listed in the section for the terminal. Or, scan the bar code in Appendix A.

AID-Generating Keys

The terminal emulates all of the Attention Identification (AID) keys on the IBM terminal, as listed in the following chart.

AID-Generating Key	Description
Clear	This key clears the data buffer but leaves the keyboard unlocked. It sends the Clear AID key value to the host.
Programmable function keys F1–F24	These keys send modified input fields and AID key values to the host. The keys lock the keyboard until the host unlocks it. The function keys are used exclusively for 3270 AID key emulation.
	When you press a programmable function key or scan its bar code, you send the data on the screen to the host, and the function you specified is performed on this data. Each function is determined by the application you use with your system. Refer to your application's user manual for details on the functions.
Program Access (PA) keys 1–3	PA1, PA2, and PA3 send the AID key value to the host but leave the keyboard unlocked. When an operator presses a PA key, one of the following AID codes is returned along with the current cursor address on the normal LU-LU (logical unit) flow: ▶ PA1-AID X6C ▶ PA2-AID X6E ▶ PA3-AID X6B No data is returned to the AS/400 system with any PA key.

To enter an AID key:

Press the key(s) listed in the section for the terminal. Or, scan the bar code in Appendix A.

Section 3

Using the Terminal's Keyboard

▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶

Your terminal has a special keyboard that contains most of the keys available on your 3270 terminal keyboard. Use the keyboard to enter data in the TE screens.

The keys on the keyboard have their main character or operation marked directly on the key itself. To access that character or operation, just press the key.

You can access TE commands and functions printed above the keys by pressing key combinations. For example, you can use the Function Left (⟨_f⟩), Function Right (⟨_f⟩), Shift (⟨⇧⟩), and Control (⟨△⟩) keys on your Trakker Antares® terminal to access characters or functions listed above the keys.

2415 Terminal

Your 2415 terminal has either a 55-key keyboard (Figure 3-1) or a 37-key keyboard (Figure 3-2).
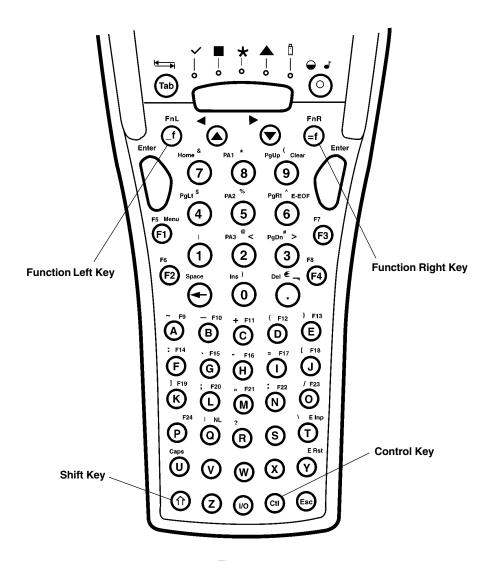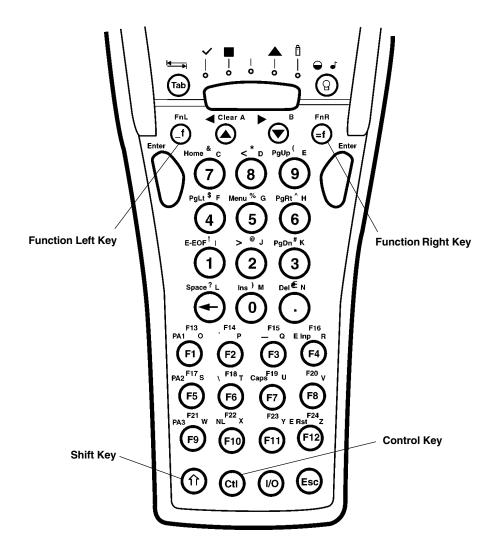
Figure 3-1
2415 Terminal 55-Key Keyboard

Figure 3-2
2415 Terminal 37-Key Keyboard

For help with using the keyboard, refer to the *TRAKKER Antares 241X Hand-Held Terminal User's Manual* (P/N 069538).

2415 Cursor Keys

To Enter	Press the Keys
Window/viewport up	▲
Window/viewport down	▼
Window/viewport right	(f) ▼
Window/viewport left	(f) ▲

2415 Paging Keys

To Enter	Press the Keys
Page up	(f) (9)
Page down	(f) (3)
Page right	(f) (6)
Page left	(f) (4)

2415 Tab Keys

To Enter	Press the Keys
Back Tab	(f) (Tab)
Forward Tab	(Tab)

2415 3278 SNA Keys

To Enter	Press the Key(s)	
	55-Key Keyboard	**37-Key Keyboard**
Clr (E-Inp)	(f) (T)	(f) (F4)
Del	(f) (.)	(f) (.)
Enter	◌ *or* ◌	◌ *or* ◌
EOF	(f) (6)	(f) (1)
Home	(f) (7)	(f) (7)
Insert	(f) (0)	(f) (0)
New Line (Return)	(f) (Q)	(f) (F10)
Reset	(f) (Y)	(f) (F12)

2415 AID-Generating Keys

To Enter	Press the Key(s)	
	55-Key Keyboard	**37-Key Keyboard**
Clear	(f) (9)	(⌂) (▲)
F1	(F1)	(F1)
F2	(F2)	(F2)
F3	(F3)	(F3)
F4	(F4)	(F4)
F5	(f) (F1)	(F5)
F6	(f) (F2)	(F6)
F7	(f) (F3)	(F7)
F8	(f) (F4)	(F8)
F9	(f) (A)	(F9)
F10	(f) (B)	(F10)
F11	(f) (C)	(F11)
F12	(f) (D)	(F12)
F13	(f) (E)	(⌂) (F1)
F14	(f) (F)	(⌂) (F2)
F15	(f) (G)	(⌂) (F3)
F16	(f) (H)	(⌂) (F4)
F17	(f) (I)	(⌂) (F5)
F18	(f) (J)	(⌂) (F6)
F19	(f) (K)	(⌂) (F7)
F20	(f) (L)	(⌂) (F8)
F21	(f) (M)	(⌂) (F9)
F22	(f) (N)	(⌂) (F10)
F23	(f) (O)	(⌂) (F11)
F24	(f) (P)	(⌂) (F12)
PA1	(f) (8)	(f) (F1)
PA2	(f) (5)	(f) (F2)
PA3	(f) (2)	(f) (F3)

2415 Auto-Login Restart

To enter Auto-Login Restart, scan the bar code in Appendix A.

2425 Terminal

Figure 3-3 shows the keyboard for the 2425 terminal.
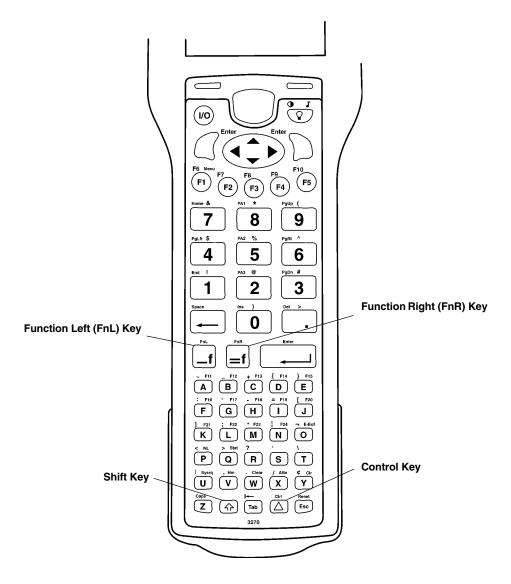
Figure 3-3
2425 Terminal Keyboard

For help with using the keyboard, refer to the *TRAKKER Antares 2420 and 2425 Hand-Held Terminal User's Manual* (P/N 064024).

2425 Cursor Keys

To Enter	Press the Keys
Window/viewport up	[f] ▲
Window/viewport down	[f] ▼
Window/viewport right	[f] ▶
Window/viewport left	[f] ◀

2425 Paging Keys

To Enter	Press the Keys
Page up	[f] [9]
Page down	[f] [3]
Page right	[f] [6]
Page left	[f] [4]

2425 Tab Keys

To Enter	Press the Key(s)
Back Tab	[f] [Tab]
Forward Tab	[Tab]

2425 3278 SNA Keys

To Enter	Press the Key(s)
Clr (E-Inp)	[f] [Y]
Del	[f] [.]
Enter	[↵] *or* (͡ *or*)͡
EOF	[f] [O]
Home	[f] [V]
Insert	[f] [0]
New Line (Return)	[f] [P]
Reset	[f] [Esc]

2425 AID-Generating Keys

To Enter	Press the Key(s)
Clear	⌐f W
F1	F1
F2	F2
F3	F3
F4	F4
F5	F5
F6	f F1
F7	f F2
F8	f F3
F9	f F4
F10	f F5
F11	⌐f A
F12	⌐f B
F13	⌐f C
F14	⌐f D
F15	⌐f E
F16	⌐f F
F17	⌐f G
F18	⌐f H
F19	⌐f I
F20	⌐f J
F21	⌐f K
F22	⌐f L
F23	⌐f M
F24	⌐f N
PA1	f 8
PA2	f 5
PA3	f 2

2425 Auto-Login Restart

To enter Auto-Login Restart, press ⌐f F5 or scan the bar code in Appendix A.

2455 Terminal

Figure 3-4 shows the keyboard for the 2455 terminal.

▶ **NOTE:**   *You must use the 2455 keyboard (P/N 067028) with the TE applications.*
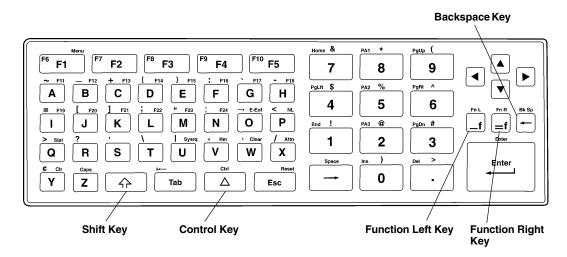
Figure 3-4
2455 Terminal Keyboard

For help with using the keyboard, refer to the *TRAKKER Antares 2455 Vehicle-Mount Terminal User's Manual* (P/N 067358).

2455 Cursor Keys

To Enter	Press the Keys
Window/viewport up	_f ▲
Window/viewport down	_f ▼
Window/viewport right	_f ▶
Window/viewport left	_f ◀

2455 Paging Keys

To Enter	Press the Keys
Page up	_f 9
Page down	_f 3
Page right	_f 6
Page left	_f 4

2455 Tab Keys

To Enter	Press the Key(s)
Back Tab	_f Tab
Forward Tab	Tab

2455 3278 SNA Keys

To Enter	Press the Key(s)
Clr (E-Inp)	[=f] [Y]
Del	[=f] [.]
Enter	[↵]
EOF	[=f] [O]
Home	[=f] [V]
Insert	[=f] [0]
New Line (Return)	[=f] [P]
Reset	[=f] [Esc]

2455 AID-Generating Keys

To Enter	Press the Key(s)
Clear	[=f] [W]
F1	[F1]
F2	[F2]
F3	[F3]
F4	[F4]
F5	[F5]
F6	[=f] [F1]
F7	[=f] [F2]
F8	[=f] [F3]
F9	[=f] [F4]
F10	[=f] [F5]
F11	[=f] [A]
F12	[=f] [B]
F13	[=f] [C]
F14	[=f] [D]
F15	[=f] [E]
F16	[=f] [F]
F17	[=f] [G]
F18	[=f] [H]
F19	[=f] [I]
F20	[=f] [J]
F21	[=f] [K]
F22	[=f] [L]
F23	[=f] [M]
F24	[=f] [N]
PA1	[=f] [8]
PA2	[=f] [5]
PA3	[=f] [2]

2455 Auto-Login Restart

To enter Auto-Login Restart, press [=f] [F5] or scan the bar code in Appendix A.

248X Terminal

Figure 3-5 shows the keyboard for the 248X terminal.
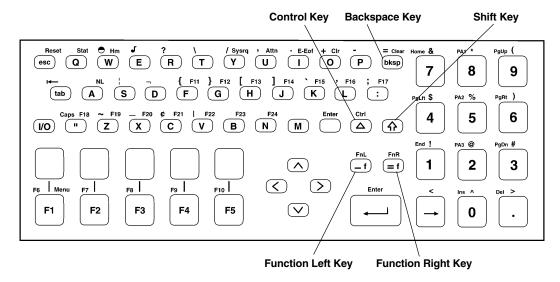
Figure 3-5
248X Terminal Keyboard

For help with using the keyboard, refer to the *TRAKKER Antares 248X Stationary Terminal User's Manual* (P/N 066960).

248X Cursor Keys

To Enter	Press the Keys
Window/viewport up	_f ∧
Window/viewport down	_f ∨
Window/viewport right	_f >
Window/viewport left	_f <

248X Paging Keys

To Enter	Press the Keys
Page up	_f 9
Page down	_f 3
Page right	_f 6
Page left	_f 4

248X Tab Keys

To Enter	Press the Key(s)
Back Tab	_f tab
Forward Tab	tab

248X 3278 SNA Keys

To Enter	Press the Key(s)
Clr (E-Inp)	⌐f O
Del	⌐f .
Enter	↵ *or* Enter
EOF	⌐f I
Home	⌐f W
Insert	⌐f 0
New Line (Return)	⌐f A
Reset	⌐f Esc

248X AID-Generating Keys

To Enter	Press the Key(s)
Clear	⌐f bksp
F1	F1
F2	F2
F3	F3
F4	F4
F5	F5
F6	⌐f F1
F7	⌐f F2
F8	⌐f F3
F9	⌐f F4
F10	⌐f F5
F11	⌐f F
F12	⌐f G
F13	⌐f H
F14	⌐f J
F15	⌐f K
F16	⌐f L
F17	⌐f :
F18	⌐f "
F19	⌐f Z
F20	⌐f X
F21	⌐f C
F22	⌐f V
F23	⌐f B
F24	⌐f N
PA1	⌐f 8
PA2	⌐f 5
PA3	⌐f 2

248X Auto-Login Restart

To enter Auto-Login Restart, press ⌐f F5 or scan the bar code in Appendix A.

6400 Computer

Your 6400 computer has either a 51-key keyboard (Figure 3-1) or a 41-key keyboard (Figure 3-2).
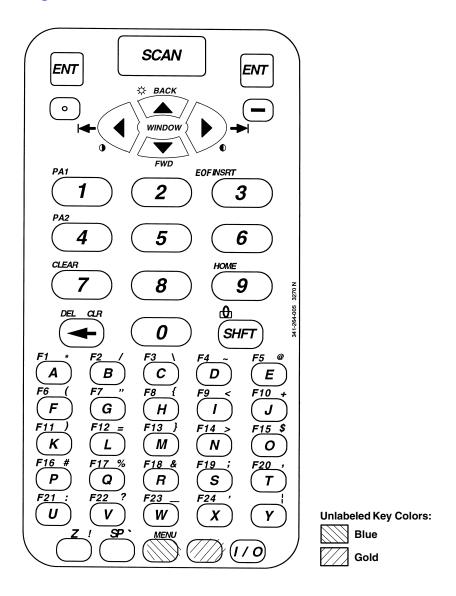
Figure 3-1
6400 Computer 51-Key Keyboard
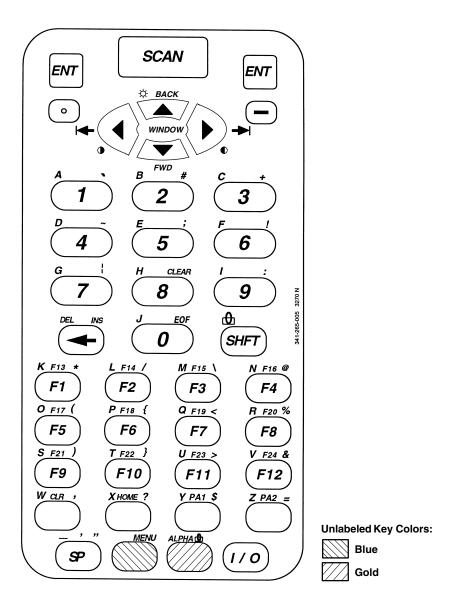
Figure 3-2
6400 Computer 41-Key Keyboard

The special characters and functions printed above the keys are color-coded to correspond with the matching shift keys. The shift keys are as follows.

[GREEN]   The green [SHFT] puts the keyboard into green shift mode.
[GOLD]   The gold key puts the keyboard into gold shift mode. Press [GOLD] plus a keyboard key to type a character or do an operation printed in gold on the overlay.
[BLUE]   The blue key puts the keyboard into blue shift mode. Press [BLUE] plus a keyboard key to do an operation printed in blue on the overlay.

The 51-key keyboard has two white, unlabeled keys in the bottom row of the keyboard. Following are the keys' functions when they are unshifted (in the primary plane):

The 51-key keyboard has two white, unlabeled keys in the bottom row of the keyboard. Following are the keys' functions when they are unshifted (in the primary plane):

- ▶ The key with "Z" printed above it is the letter Z.
- ▶ The key with "SP" printed above it is the Space key.

The 41-key keyboard has four white, unlabeled keys near the bottom row of the keyboard. Following are the key's functions when they are in the primary plane:

- ▶ The key with "CLR" printed above it is the Clear key.
- ▶ The key with "HOME" printed above it is the Home key.
- ▶ The key with "PA1" printed above it is the PA1 key.
- ▶ The key with "PA2" printed above it is the PA2 key.

▶**NOTE:**   *The keyboard does not have keys for the "Not" symbol (¬) and the "cent" symbol (¢). To enter these symbols, scan the bar codes in Appendix A.*

For help with using the keyboard, refer to the *PEN*KEY Model 6400 User's Guide* (P/N 961-047-093).

Using the 41-Key Keyboard

The 41-key keyboard (Figure 3-2) has numeric keys and user-defined PF AID keys in its primary plane. It has alphabetic keys, special characters, and function keys in its secondary plane. Because a 6400 computer with a 41-key keyboard does not have alphabetic keys, follow these procedures to change passwords and cold-start the computer:

- ▶ To enter the password for the Set-up Parms firmware menu, press [BLUE]+[3] (a "C") and then [BLUE]+ [F8] (an "R"). Then press the correct numbers, which are 52401.
- ▶ To initiate the COLD START? menu option, press [BLUE]+ [PA1] to answer "yes."

You can use one of two methods to type letters on the 41-key keyboard: standard mode or alpha lock mode. When engaged, alpha lock switches the alphabetic keys with the function keys. That is, it moves lowercase alphabetic keys from their normal [BLUE] plane to the primary plane. It moves uppercase alphabetic keys from their standard [SHFT]+[BLUE] plane to the [SHFT] plane. Alpha lock provides a faster way to type a series of letters because it reduces the number of key combinations.

▶**NOTE:**   *Alpha lock mode moves only the alpha keys to the primary plane.*

To engage alpha lock mode press [BLUE]+[GOLD]. Then, to type a series of letters, press the correct key combination. The keyboard stays in alpha lock mode until you press [BLUE]+[GOLD] to unlock it.

6400 Cursor Keys

To Enter	Press the Keys
Window/viewport up	[GOLD]+[▲]
Window/viewport down	[GOLD]+[▼]
Window/viewport right	[GOLD]+[▶]
Window/viewport left	[GOLD]+[◀]

6400 Paging Keys

To Enter	Press the Keys
Page up	[BLUE]+[▲]
Page down	[BLUE]+[▼]
Page right	[BLUE]+[▶]
Page left	[BLUE]+[◀]

6400 Tab Keys

To Enter	Press the Keys
Back Tab	[GOLD]+[▼]
Forward Tab	[GOLD]+[▲]

6400 3278 SNA Keys

The following chart describes 3278 SNA keys in standard (nonalpha-lock mode).

	Press the Key(s)	
To Enter	51-Key Keyboard	41-Key Keyboard
Clear	[BLUE]+[7]	[GOLD]+[8]
Clr	[GOLD]+[◀—]	[CLR]
Home	[BLUE]+[9]	[HOME]
Delete	[◀—]	[◀—]
Del	[BLUE]+[◀—]	[BLUE]+[◀—]
Enter	[ENT]	[ENT]
EOF	[BLUE]+[2]	[GOLD]+[J]
Insert	[BLUE]+[3]	[GOLD]+[◀—]
Reset	➡│ (Forward tab)	➡│ (Forward tab)

6400 AID-Generating Keys

To Enter	Press the Keys
Clear	[BLUE]+[7]
F1–F24	[BLUE]+[A] – [BLUE]+[X]
PA1	[BLUE]+[1]
PA2	[BLUE]+[4]
PA3	No key available. Scan the bar code in Appendix A.

When alpha lock mode is engaged on the 41-key keyboard, it switches the function keys with the alphabetic keys. That is, function keys normally in the primary plane ([F1 through [F12]) move to the [BLUE] plane. Function keys normally in the [SHFT] plane ([F13] through [F24]) move to the [SHFT]+[BLUE] plane.

The following chart describes how to do function operations when the 41-key keyboard is in standard mode or alpha lock mode.

To Enter	Press the Keys	
	Standard Mode	**Alpha Lock Mode**
F1–F12	[F1] – [F12]	[BLUE]+[F1] – [BLUE]+[F12]
F13–F24	[SHFT]+[F1] – [SHFT]+[F12]	[SHFT]+[BLUE]+[F1] – [SHFT]+[BLUE]+[F12]

To engage alpha lock mode, press [BLUE]+[GOLD]. Then press the correct key combinations in the chart. The keyboard stays in alpha lock mode until you press [BLUE]+[GOLD] again to unlock it.

6400 Auto-Login Restart

To enter Auto-Login Restart, scan the bar code in Appendix A.

5055 Computer

Figure 3-3 shows the keyboard for the 5055 computer.
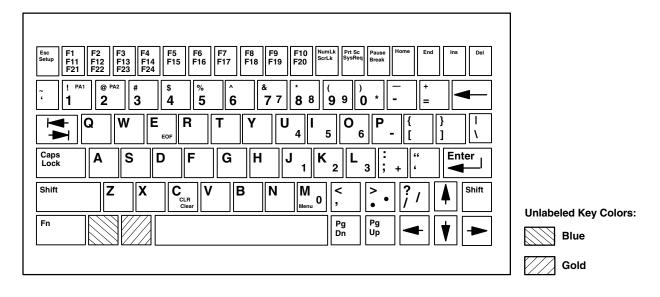
Figure 3-3
5055 Computer Keyboard

The special characters and functions printed on the overlay are color-coded to correspond with the matching shift keys. The shift keys are as follows.

[Shift]	Press [Shift] plus a letter to type the letter in uppercase.
[BLUE]	The blue (Ctrl) key puts the keyboard into blue shift mode. Press the [BLUE] key plus a keyboard key to do an operation printed in blue, or to send a control character.
[GOLD]	The gold (Alt) key puts the keyboard into gold shift mode. Press the [GOLD] key plus a keyboard key to do an operation printed in gold.
[NumLk]	The green (number lock) key puts the keyboard into [NumLk] mode. Press [NumLk] plus a keyboard key to type a number or character printed in green.

▶**NOTE:**   *These keys are not supported: Fn, Setup, SysReq, Pause, Break, End, ScrLk, PgDn, and PgUp. The keyboard does not have keys for the "Not" symbol (¬) and the "cent" symbol (¢). To enter these symbols, scan the bar codes in* Appendix A.

For help with using the keyboard, refer to the *5055 Data Collection PC User's Guide* (P/N 961-054-017).

5055 Cursor Keys

To Enter	Press the Keys
Window/viewport up	[BLUE]+ ↑
Window/viewport down	[BLUE]+ ↓
Window/viewport right	[BLUE]+ →
Window/viewport left	[BLUE]+ ←

5055 Paging Keys

To	Press the Keys
Page up	[GOLD]+ ↑
Page down	[GOLD]+ ↓
Page right	[GOLD]+ →
Page left	[GOLD]+ ←

5055 Tab Keys

To Enter	Press the Key
Back Tab	↤
Forward Tab	↦

5055 3278 SNA Keys

To Enter	Press the Key(s)
Clear	[GOLD]+[C]
CLR	[BLUE]+[C]
Home	[Home]
Delete	[←]
Del	[Del]
Enter	[Enter]
EOF	[GOLD]+[F]
Insert	[Ins]
Reset	↦ (Forward tab)

5055 AID-Generating Keys

To Enter	Press the Keys
Clear	[GOLD]+[C]
F1–F10	F1–F10
F11–F20	[BLUE]+[F1] – [BLUE]+[F10]
F21–F24	[GOLD]+[F1] – [GOLD]+[F4]
PA1	[GOLD]+[1]
PA2	[GOLD]+[2]
PA3	No key available. Scan the bar code in Appendix A.

5055 Auto-Login Restart

To enter Auto-Login Restart, scan the bar code in Appendix A.

Using the Trakker Antares' Terminal Emulation Menus

▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶

▶**NOTE:**   *This section contains the TE configuration menus for the 2415, 2425, 2455, and 248X terminal. For information about the configuration menus for the 6400 or 5055 computer, refer to the terminal's user manual.*

You can configure several options for 3270 TE on your Trakker Antares® terminal, including:

▶ UDP Plus or TCP/IP communications
▶ 3270 options
▶ Main Menu password

This section lists ALL TE parameters. If a certain parameter does not apply to your terminal, the parameter will NOT appear in the TE configuration menus.

The CFGLIT.DAT file specifies the text of the TE configuration menus. This section assumes you are using the default settings in CFGLIT.DAT. To customize CFGLIT.DAT, see Section 5, "Customizing Your Configuration."

Navigating Through the Menus

The following paragraphs describe how to navigate through the TE configuration menus.

Using the Enter Key

Press the terminal's [Enter] key to return to a previous TE configuration menu. Press [Enter] several times to return to the Main Menu from a submenu. This key also accepts the displayed or keyed input.

Using the Numeric Keys

Several menus have numbered options. Press the corresponding numeric key to make a selection.

Pressing a number may bring up a submenu. Use the submenu to further modify the choice you made in the parent menu. After the modifications, you may return to the parent menu to make additional selections. (This depends on the menu and function.) Also, you may press a numeric key to exit a menu or cold start the terminal. These situations are covered later in this section.

Some menus require you to enter a number, but do not necessarily have simple choices such as 1, 2, 3, 4, etc. Instead, you may have to enter a number within a range of numbers.

Enabling or Disabling Options

You can enable or disable some numbered menu options. If the number for an option is highlighted (appears in reverse video), that option is ON or enabled. If an option is not highlighted, the option is disabled. After you enable or disable an option, you can make additional selections from the same menu.

Using the Y ("Yes") Key

Several displays provide warning that a certain action can cause your terminal to lose data stored in memory. Press the Y ("yes") key to indicate that you understand the consequences of your action and the terminal should proceed as instructed. Press any other key to exit the menu without executing your original choice.

Configuring TE Parameters

You can access the TE configuration menus when the initialization screens appear or once you establish a TE session. The TE initialization screens appear each time you reboot the terminal or restart your application.

▶ **NOTE:**   *If you are using a terminal with TCP/IP, you cannot enter the TE configuration menus when the terminal is trying to connect to the host.*

To configure TE parameters:
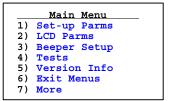
At the initialization screens or anywhere in a TE session, access the Main Menu by pressing the keys in the following chart.

Terminal	Key Sequence
2415	ⓕ Ⓕ¹ (55-key keyboard)
	ⓕ ⑤ (37-key keyboard)
2425	⊟f Ⓕ¹
2455 and 248X	⊟f F1

▶ **NOTE:**   *You can also access the Main Menu by scanning the bar code label in Appendix A, "Bar Code Scanning."*

The Main Menu appears:

```
        Main Menu
1) Set-up Parms
2) LCD Parms
3) Beeper Setup
4) Tests
5) Version Info
6) Exit Menus
7) More
```
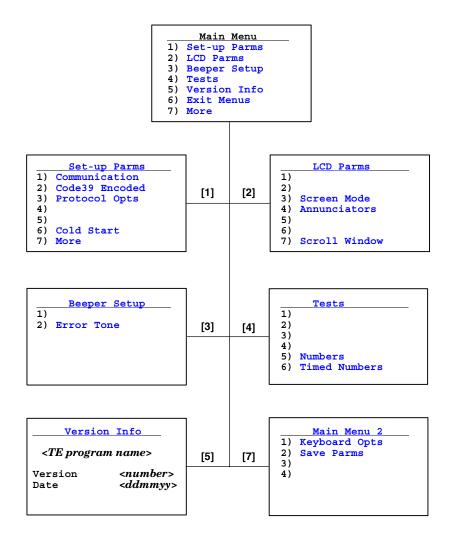
The following figure shows the structure of the TE configuration menus.

▶ **NOTE:**   *Some parameters for 2415, 2425, 2455, and 248X terminals are available through the TRAKKER Antares 2400 Menu System. They are not reproduced in the TE configuration menus. For more information about the menu system, refer to the terminal's user manual.*

```
        Main Menu
1) Set-up Parms
2) LCD Parms
3) Beeper Setup
4) Tests
5) Version Info
6) Exit Menus
7) More
```

```
       Set-up Parms
1) Communication
2) Code39 Encoded
3) Protocol Opts
4)
5)
6) Cold Start
7) More
```
[1]   [2]
```
         LCD Parms
1)
2)
3) Screen Mode
4) Annunciators
5)
6)
7) Scroll Window
```

```
       Beeper Setup
1)
2) Error Tone
```
[3]   [4]
```
          Tests
1)
2)
3)
4)
5) Numbers
6) Timed Numbers
```

```
       Version Info

  <TE program name>

Version      <number>
Date         <ddmmyy>
```
[5]   [7]
```
        Main Menu 2
1) Keyboard Opts
2) Save Parms
3)
4)
```

Set-Up Parms Menu

The Set-up Parms menu (option 1 on the Main Menu) is password-protected to prevent unauthorized users from changing parameters. You can change the password by customizing the parameter's set-up file (CONFIG.DAT). For more information about changing the password, see Section 5, "Customizing Your Configuration."
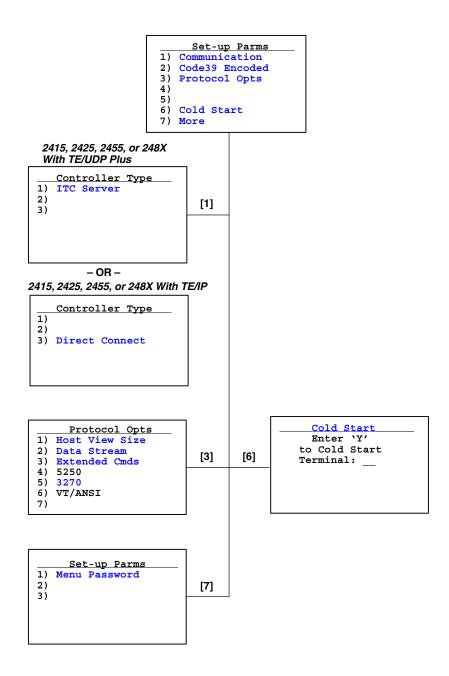
▶**NOTE:**   *You can also set the password for UDP Plus terminals from the DCS 300.*

To use the Set-up Parms menu:

1. Press [1] on the Main Menu.
2. At the Enter Password prompt, enter the password. (You should not press [Enter] here.) The default password is:

    `cr52401`

The following figure shows the Set-up Parms menus and submenus.

```
        Set-up Parms
1) Communication
2) Code39 Encoded
3) Protocol Opts
4)
5)
6) Cold Start
7) More
```

2415, 2425, 2455, or 248X
With TE/UDP Plus

```
      Controller Type
1) ITC Server
2)
3)
```

[1]

– OR –
2415, 2425, 2455, or 248X With TE/IP

```
      Controller Type
1)
2)
3) Direct Connect
```

```
       Protocol Opts
1) Host View Size
2) Data Stream
3) Extended Cmds
4) 5250
5) 3270
6) VT/ANSI
7)
```

[3]   **[6]**

```
       Cold Start
    Enter 'Y'
    to Cold Start
    Terminal: __
```

```
        Set-up Parms
1) Menu Password
2)
3)
```

[7]

Communication

The communication option for the 2415, 2425, 2455, and 248X with UDP Plus is ITC Server. The communication option for TCP/IP is Direct Connect.

ITC Server

ITC Server options are as follows:

```
    Controller Type
1) ITC Server
2)
3)



```
                              [1]
```
       ITC Server
1)
2) Host/Srvr


```
                              [2]
```
       Server Setup
1) Server A
2) Server B
3) Server C


```
```
  Server <A, B, or C>
Server IP

   <IP address>


```
```
Host Setup<A, B, or C>
1) Host Name
2) Upline Prot
3) Port Number
4) Emulation
```

To set the options, select ITC Server, Host/Srvr Setup, and then the Server Setup option (Server A, B, or C).

Server IP <A, B, or C>
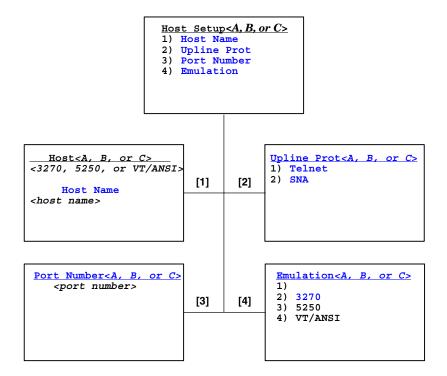
When the terminal boots, the TE program should enter the Server <A> IP address as follows:

▶ If a nonzero IP address exists for the Host A.Server IP parameter in CONFIG.DAT, the TE program automatically enters that address.

▶ If the Host A.Server IP parameter in CONFIG.DAT is blank or zero, the TE program automatically enters the IP address set for the DCS 300 in the terminal's firmware.

If you are using the Server <B> or Server <C> option as a fallback DCS 300, enter the server's IP address or DNS name.

Host Setup <A, B, or C>

Menu options are as follows:

```
Host Setup<A, B, or C>
1) Host Name
2) Upline Prot
3) Port Number
4) Emulation
```

```
    Host<A, B, or C>
<3270, 5250, or VT/ANSI>

     Host Name
<host name>
```

[1]   **[2]**

```
Upline Prot<A, B, or C>
1) Telnet
2) SNA
```

```
Port Number<A, B, or C>
   <port number>
```

[3]   **[4]**

```
Emulation<A, B, or C>
1)
2) 3270
3) 5250
4) VT/ANSI
```

Host Name

The host name can be 16 or fewer characters in length (with no spaces). It is case-sensitive and must match a host name in the list of available hosts defined on the DCS 300, or remain blank. The name can also be the IP address of the host to which you want to connect. Enter the IP address as four decimal numbers separated by periods.

If you have linked a terminal with a host name on the DCS 300, or configured a default host on this DCS 300, you do not need to enter a host name on this screen.

The terminal displays a list of available hosts if these conditions are met:

▶ The DCS 300 contains multiple hosts

▶ The terminal is not linked with a host name on the DCS 300

▶ The host name is blank

The user can then select the host from the list.

Upline Protocol

When enabled, upline protocol options do the following:

Telnet *(Default)*	Forces the DCS 300 to create a Telnet connection to the host.
SNA	Forces the DCS 300 to create an SNA connection to the host.

Port Number

This option overrides the port number set for the upline if you have entered a host name and selected Telnet as your upline protocol. The default port number is 0. The maximum port number is 65535.

Emulation
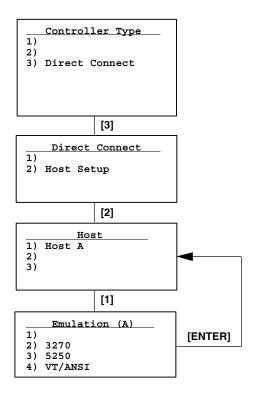
Use this option to tell the terminal the type of each host computer. The default is 3270.

▶ **NOTE:**   *You can also set the type through the Data Stream option on the Protocol Opts menu.*

Direct Connect

Direct Connect options are as follows:

```
     Controller Type
1)
2)
3) Direct Connect


```
                         [3]
```
     Direct Connect
1)
2) Host Setup


```
                         [2]
```
         Host
1) Host A
2)
3)

```
                         [1]
```
     Emulation (A)
1)
2) 3270          [ENTER]
3) 5250
4) VT/ANSI
```

To set the options, select Direct Connect, Host Setup, and then Host A. Use the Emulation (A) option to tell the terminal the type of each host computer. The default is 3270.

▶ **NOTE:**   *You can also set the emulation type through the Data Stream option on the Protocol Opts menu.*

Code 39 Encoded

By default, Encoded Code 39 is disabled. When you enable this option, the key press sequences for Encoded Code 39 are used. For more information, see Appendix A, "Bar Code Scanning."

Protocol Opts Menu
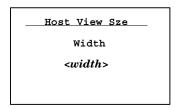
Use the Protocol Opts menu to designate the type of terminal emulation the host supports. You can also use it to designate additional commands and command sets. The menu is as follows:

```
          Protocol Opts
1) Host View Sze
2) Data Stream
3) Extended Cmds
4) 5250
5) 3270
6) VT/ANSI
7)
```

Host View Size
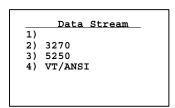
Use Host View Sze to set the format of display information sent from the host computer:

```
        Host View Sze

            Width

          <width>


```

For 3270 TE, the range is 1 through 80 *(default: 80)*.

Data Stream

Use this option to specify the data stream the host uses:

```
          Data Stream
1)
2) 3270
3) 5250
4) VT/ANSI


```
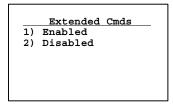
▶ **NOTE:**   *You can also set the emulation type through the ITC Server or Direct Connect menu.*

For information about 5250 or VT/ANSI TE, refer to the following manuals:

▶ *TE 2000 5250 Terminal Emulation Programmer's Guide* (P/N 977-055-004)

▶ *TE 2000 VT/ANSI Terminal Emulation Programmer's Guide* (P/N 977-055-005)

Extended Commands

Use the Extended Commands option to enable or disable extended commands:

```
         Extended Cmds
1) Enabled
2) Disabled
```

By default, extended commands are disabled. For more information about extended commands, see Section 7.

3270

Following are 3270 menu options:

```
            3270
1) Keybrd Unlock
2) Auto Tab Scan
3) Auto Entr Scn
4)
5)
6) Origin Set
7) More
```

When enabled, options do the following:

Keybrd Unlock
(Default: disabled)

Unlocks the keyboard after the PA1, PA2, or Clear key is pressed. Normally, the keyboard remains locked—until unlocked or the terminal is reset by the host—after any of these keys are pressed. When using Token Ring on your host, the Tab key also unlocks the keyboard.

Auto Tab Scan
(Default: disabled)

Causes the cursor to tab forward to the next input field when a good scan is obtained.

▶ **NOTE:**　*You cannot enable Auto Tab Scan and Auto Enter Scan at the same time.*

Auto Entr Scn
(Default: disabled)
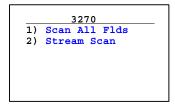
Appends the Enter key at the end of a good scan.

Origin Set
(Default: disabled)

Sets the screen origin to the current location when an exclamation mark (!) is found in the data stream. This modifies the window display area. In previous versions, this option was always allowed, but now it is allowed only when you enable this menu option.

Following is the submenu for the More option:

```
          3270
1) Scan All Flds
2) Stream Scan
```

When enabled the options do the following:

Scan All Flds *(Default: disabled)*	Enables the scanner whenever the cursor is in an input field. When this option is disabled, the host computer must enable the scanner for each input field that requires scanned data.
	Enable the Scan All Flds option if the scanner needs to be enabled all the time.
Stream Scan *(Default: disabled)*	If this option is enabled, data remaining after the first field is filled is written to the next input field or fields. If a nonscannable field is encountered, remaining bar code data is ignored. When an auto-enter field is encountered, an [Enter] key is simulated when the field is full. Remaining bar code data is ignored.
	If this option is disabled, data remaining after the field is filled is ignored.
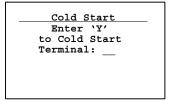
Cold Start Option

Use the Cold Start option to reset all TE values to the stored configuration in CONFIG.DAT.

```
       Cold Start
       Enter 'Y'
     to Cold Start
     Terminal: __
```

To cold start the terminal:

1. Press [Y]. The terminal reboots.

2. Open the TRAKKER Antares 2400 Menu System.

3. Use the File Manager option to restart the TE program. For help, refer to the terminal's user manual.
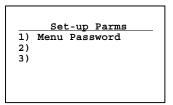
To return to the Set-up Parms menu without cold-starting the terminal, press an alphabetic key other than [Y].

More Menu

Use the Menu Password option to enable password protection for the TE configuration menus. When you enable the password, the terminal prompts the user for a password before it displays the Main Menu. The password is disabled by default.

To enable the Menu Password:

1. Press [7] (More) on the Set-up Parms menu. The following screen appears:

```
        Set-up Parms
1) Menu Password
2)
3)
```

2. Press [1].
3. At the Enter Password prompt, type the following password: **3193693**
   This is a fixed password set by Intermec®.

▶ **NOTE:**   *The Menu Password is now enabled, as indicated by the highlighted "1)."*

4. Press [ENTER] twice to return to the Main Menu.
5. Press [6] (Exit Menus) on the Main Menu to exit the TE configuration menus.

If the Menu Password is enabled when you try to enter the Main Menu, you are prompted for a password. If you enter an incorrect password, you exit to where the display was at previously. If you enter the correct password, the Main Menu appears. Note that if you select the Set-up Parms option on the Main Menu, you must still enter the password for Set-up Parms.

To disable the menu password, press [1] on the Set-up Parms More menu. The "1)" changes to normal video, which indicates that the Menu Password is disabled. You do not need the password to disable the Menu Password.

LCD Parms Menu

Use the LCD Parms menu (option 2 on the Main Menu) to configure liquid crystal display parameters for the terminal:

```
      LCD Parms
1)
2)
3) Screen Mode
4) Annunciators
5)
6)
7) Scroll Window
```

Screen Mode

The terminal has several screen modes that present a window/viewport onto the IBM terminal's 80x24 display buffer. Screen modes govern which portion of the larger IBM terminal's screen the terminal initially presents, and how the window/viewport moves as the cursor moves.

Modes are as follows:

```
            Screen Mode
1) Center Cursor
2) Corner Mode
3) Page Mode
4) Lazy Mode
5) Locked Mode
```

Center Cursor Mode

Center mode works best for applications that use the entire data stream's 80x24 logical display. In this mode, the cursor remains in the center of the terminal's window. As the cursor moves within the window, the terminal's display window moves to keep it centered. When the cursor moves off the right, left, top, or bottom edge of the IBM display station, the window remains fixed despite the cursor's movement.

Corner Mode

Corner mode is the default mode. It begins with the window in the upper left corner of the larger IBM display station. It keeps the cursor in the lower right corner of the display. Corner mode works best for applications that use the upper left corner of the logical screen. As the cursor moves off the right or bottom edge of the terminal's display, the window moves to show the cursor. You can move the cursor a predetermined number of key presses in all four directions.

Page Mode

Page mode provides predefined pages within the larger IBM display station. The size of these pages depends on the number of rows and columns selected for display. The terminal moves the window by a multiple of the page size. As the cursor moves off the edge of the terminal's display, the window changes to the next page.

Note that some "pages" in page mode overlap each other; the same information is shown on both pages. This overlap occurs because the 24-row by 80-column CRT screen cannot be divided equally.

Lazy Mode

In lazy mode, the window does not move in respect to the 80x24 screen as long as the cursor stays inside the current display window (similar to page mode). When the cursor moves outside of the display window in lazy mode, however, the window moves as little as possible until the cursor is back inside the window.

Locked Mode

In Locked mode, the view window locks to the upper left-hand corner of the display. The screen does not window around, and only the area that has been selected to be the screen size is visible. Locked mode disables the windowing keys, or only allows you to window around the physical display size set in the configuration menus.

Annunciators

Use the Annunciators option to position the annunciators:

```
┌─────────────────────────────┐
│       Annunciators          │
│     Use Cursor Up           │
│     and Down Keys           │
│        To Adjust.           │
│                             │
│                             │
│                             │
└─────────────────────────────┘
```

Press ▲ or ▼ to position the annunciators around each of the four display corners, once as a line and once as a box *(default: lower left corner)*. The position where they disappear is the "stealth" mode. In stealth mode, annunciators appear during normal operation, but disappear when you press a key.

Scroll Window

Use Scroll Window to define the size (tab size or screen size) of the cursor movement, or to customize the screen size:

```
┌─────────────────────────────┐
│      Scroll Window          │
│  1) Tab Size                │
│  2) Screen Size             │
│  3) Define Width            │
│  4) Define Height           │
│                             │
│                             │
└─────────────────────────────┘
```

When enabled, menu options do the following:
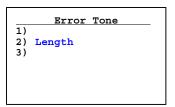
Tab Size *(Default)*	Moves the cursor by the amount configured for Define Width and Define Height.
Screen Size	Causes the cursor to move by the virtual screen size.
Define Width and Define Height *(Default for both: 8)*	Manually defines the x-axis and y-axis (up and down) movement of the cursor when you select Tab Size. The width is 1–80. The height is 1–24.

Beeper Setup Menu
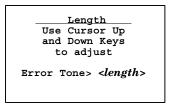
Use the Beeper Setup menu (option 3 on the Main Menu) to configure the error tone:

```
        Beeper Setup
1)
2) Error Tone
```

The error tone option is as follows:

```
         Error Tone
1)
2) Length
3)
```

Press [2] to set the length:

```
          Length
     Use Cursor Up
     and Down Keys
        to adjust

   Error Tone> <length>
```
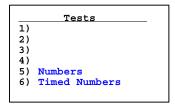
The range is 1 through 10, which equates to a 50 ms to 500 ms beep for all errors. The default is 3 ms.

Tests Menu

Intermec Systems Engineers use the Tests menu (option 4 on the Main Menu) to verify terminal operation during environmental stress tests. Tests are as follows:

```
          Tests
1)
2)
3)
4)
5)  Numbers
6)  Timed Numbers
```

Numbers
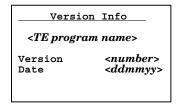
The Numbers test helps detect lockups during severe operating conditions. During the test, the terminal's display is filled with hexadecimal numbers that move across the screen horizontally and scroll vertically. Character movement indicates the processor is still running. To stop the test, press any key.

Timed Numbers

The Timed Numbers test is similar to the Numbers test, but it it also displays the number of seconds the test took. The test terminates when you press a key or when 65,536 numbers have been displayed.

Version Info Option

Use Version Info (option 5 on the Main Menu) to display the following information:

```
        Version Info

   <TE program name>

Version        <number>
Date           <ddmmyy>
```

For TE program names, see , "Getting Started."

Exit Menus Option

Use Exit Menus (option 6 on the Main Menu) to exit the TE configuration
menus. If you changed any parameter settings, the terminal displays the
following message when you exit the menus:

SAVE PARMS?
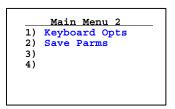
If you press [Y] ("yes"), you are prompted for a password. After you enter the
correct password, your settings are saved to Flash, and the terminal may reboot.
(Some changes automatically reboot the terminal.) If you press a key other than
[Y], you exit the menus and the new settings are NOT saved. In this case, the
new settings are lost when you reboot your terminal.

When you exit the TE configuration menus, the following information appears:

```
<TE program name> <version>
Session:     <number>
Host:
<data stream>
```

More Option (Main Menu 2)

Use More (option 7 on the Main Menu) to open the Main Menu 2:

```
        Main Menu 2
1) Keyboard Opts
2) Save Parms
3)
4)
```

Keyboard Opts

Use Keyboard Opts to set the type-ahead feature:

```
        Keyboard Opts
1) Type-Ahead
```

Type-ahead lets you enter information when the terminal cannot immediately send data to the host. Type-ahead stores keystrokes after the Input Inhibited annunciator (below) appears on the status line, and then saves them for the next input field.

X   **Input Inhibited annunciator**

Type-ahead is enabled by default.
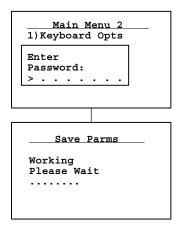
Save Parms

Use Save Parms to retain the changes you made to TE configuration settings. When you save the changes, they become the default settings for the terminal.

▶**NOTE:**   *Use this option sparingly. Each time you use it, additional memory space is occupied because previously saved changes are not erased. The memory cannot be recovered.*

Ensure the parameters are correct before you choose Save Parms. When you select Save Parms, you are prompted to enter a seven-character password:

```
     Main Menu 2
 1)Keyboard Opts

 Enter
 Password:
 > . . . . . . .
```

```
     Save Parms

 Working
 Please Wait
 ........
```

The password is **CR52401**. After you enter the correct password, your changes are written to Flash.

Restarting Terminal Emulation

You need to restart your TE application if you are having problems or if you want to reconnect to the host with a new configuration. Restarting your TE application also clears the auto-login information, preventing another user from establishing a TE session using your login information.

You can restart your TE application by either scanning Reset Firmware or by using the Exit Menus option in the TE configuration menus (option 6 on the Main Menu). Both methods reset all terminal firmware and the application and run the application in a new session.

To restart TE:

Scan this bar code label:
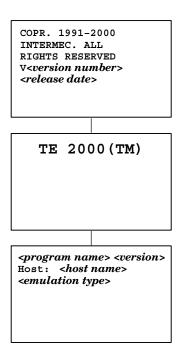
Reset Firmware

||||||||| || ||||||| || ||||| |||

–.

The terminal restarts your TE application using the configuration saved in CONFIG.DAT.

Or follow this procedure:

1. At the third initialization screen (below) or anywhere in a TE session, access the Main Menu by pressing the appropriate key combination (see page 4-2).

```
┌──────────────────────┐
│ COPR. 1991-2000      │
│ INTERMEC. ALL        │
│ RIGHTS RESERVED      │
│ V<version number>    │
│ <release date>       │
│                      │
│                      │
└──────────┬───────────┘
           │
┌──────────┴───────────┐
│                      │
│   TE 2000(TM)        │
│                      │
│                      │
│                      │
└──────────┬───────────┘
           │
┌──────────┴───────────┐
│ <program name> <version>│
│ Host:  <host name>   │
│ <emulation type>     │
│                      │
│                      │
│                      │
└──────────────────────┘
```

▶ **NOTE:**   *If you are not connected to the DCS 300 or host, or have problems accessing the Main Menu, reset your terminal to go to the initialization screens.*

The Main Menu appears:

```
        Main Menu
1) Set-up Parms
2) LCD Parms
3) Beeper Setup
4) Tests
5) Version Info
6) Exit Menus
7) More
```

2. Select Exit Menus.

    The Exit Menus option quits the TE configuration menus and returns the terminal to the initialization screens. The terminal restarts your TE application using the configuration saved in CONFIG.DAT.

3. Start using the application or change the TE configuration.

Section 5

Customizing Your Configuration

▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶

This section describes the procedures you can use to customize the standard 3270 TE program by Intermec®. You customize the TE program by creating or modifying configuration files, and then downloading them to your terminal to do the following:

▶ Use the auto-login feature to send the same login information each time you login to the host. *Page 5-1*

▶ Create a custom parameter set-up file to preset any of the configuration parameters you can set from the TE configuration menus. *Page 5-9*

▶ Change the text of TE configuration menus or system messages. *Page 5-32*

▶ Preinitialize the 3270 TE program by providing an initial input data stream as if it were received over the radio. *Page 5-33*

▶ Remap characters. *Page 5-34*

▶ Substitute national characters. *Page 5-35*

Using the Auto-Login Feature

Use the auto-login feature to send the same login information each time you login to the host. When you start the TE application, the terminal checks for an auto-login script file. If a script file exists, the terminal runs the login commands from the auto-login script file before the TE program starts.

To use the auto-login feature, you need to:

▶ Develop an auto-login script file.

▶ Load the auto-login script file on the terminal.

These steps are covered on the following pages along with a list of the necessary control characters and the procedure for disabling the auto-login feature.

Developing Auto-Login Script Files

A typical auto-login script file consists of Input and InputHidden commands followed by a HostName command, followed by a series of WaitFor and Send commands. A very simple script file may not have any input commands if all of the terminals are using the same account.

Commands

You can use several commands to create auto-login script files. All commands are case-sensitive. For example, WaitFor is a command, but Waitfor is not a valid command. For examples of script files, see "Sample Auto-Login Script Files" later in this section.

The following chart describes the commands.

Command	Description
Input	Input is called with two parameters. The first one is a character string enclosed in quotes that is used as a prompt to the user. The second one is a string variable name indicating where the text string will be stored.
InputHidden	Same as the Input script command except that user input is echoed as a string of asterisks.
HostName	HostName is followed by a character string enclosed in quotes. The character string can be a host name or an asterisk. The host name command acts as an IF clause. If the host name matches, the following section of the script file is executed up to the next host name command. If an asterisk is used, it matches any host name.
WaitFor	Wait for a list of up to 10 strings. The strings must be enclosed in quotes and must be separated by a comma. The strings cannot exceed 20 characters in length.
Send	This command sends a character string enclosed in quotes or a string variable to the host. The character string enclosed in quotes can have embedded IBM mnemonics in 3270 TE.
Pause "xxxxx"	Delays the terminal for x milliseconds.
PromptSessionStart	This command is a predefined variable. If this variable is defined and set to any value other than 0, the application prompts the user to press [Enter] before starting a Telnet session with the host. Do not put quotes around the variable.
Restart "x"	Restarts the autologin script file. The "x" is a dummy argument.
Keyboard "0"	Disables the keyboard. Key presses are ignored. For additional information, see Note below.
Keyboard "1"	Enables the keyboard. Key presses are processed. The keyboard is enabled by default. For additional information, see Note below.

▶**NOTE:**   *The Keyboard "0" or Keyboard "1" command must be input into the autologin script file after the PromptSessionStart command (if present) and the HostName command (if present). The keyboard command must also be turned on before another HostName command is found in the file.*

Search Strings

Some auto-login search string limitations are as follows:

- ▶ The searches are case sensitive.
- ▶ The maximum search string length is 20 characters.
- ▶ Each WaitFor command searches the entire screen from the top.

You can use line wrapping to look for unique strings.

If a screen from the host has multiples of the word you are looking for, you can use the preceding spaces to identify a unique string.

EXAMPLE: If the screen sent to the terminal is:

    Linux rlogin 2.4.6
    login

The autologin script would be:

    PromptSessionStart=1
    HostName "*"
    #wait for host login screen and send login and password
    WaitFor " login"
    Send "billy<ENTER>"
    WaitFor "password"
    Send "letmein<ENTER>"

In this example, you can search for the three leading spaces from the end of the previous line to make a unique search string.

Control Characters

You can include control characters in your auto-login script file. The control character must be enclosed by < > (angle brackets) in AUTOLOG.SCR. Table 5-1 lists control characters for 3270 TE.

Table 5-1
Control Characters for Auto-Login Script File

Control Character	Definition
<CLEAR>	Clear
<CR>	Carriage return
<CUR_DN>	Cursor Down
<CUR_LF>	Cursor Left
<CUR_RT>	Cursor Right
<CUR_UP>	Cursor Up
<DEL>	Delete
<ERS_EOF>	Erase EOF
<F1> – <F24>	Function keys
<HOME>	Home
<INS>	Insert
<LTAB>	Left Tab
<NEWLN>	New Line
<PA1>	PA1
<PA2>	PA2
<PA3>	PA3
<RESET>	Error reset
<RTAB>	Right Tab
<SPACE>	Space

Loading the Auto-Login Script File

Follow these procedures to download an auto-login script file to your terminal. The method depends on the type of terminal you are using.

2415, 2425, 2455, or 248X Terminal

You can download more than one script file to a 2415, 2425, 2455, or 248X terminal, but name the file you want to use immediately as AUTOLOG.SCR and name any other script files with different names ending with .SCR. To learn more about transferring files, refer to your terminal's user manual.

To use the serial port to download the file:

1. Create your auto-login script file using any text editor. Or, copy and modify one of the sample script files later in this section.

2. Save the file you create as AUTOLOG.SCR.

3. Connect the terminal to the development personal computer or host. For help, refer to your terminal's user manual or your accessory documentation.

4. Download the AUTOLOG.SCR file to the terminal. You must load the AUTOLOG.SCR file into drive C, where the TE application is stored. For help, refer to your terminal's user manual.

To use RF communications to download the file:

1. Create the auto-login script file using any text editor. Or, copy and modify one of the sample script files later in this section.
2. Save the file you create as AUTOLOG.SCR.
3. Copy the AUTOLOG.SCR file to the DCS 300 in a UDP Plus network, or copy the AUTOLOG.SCR file to a host in a TCP/IP direct connect network.
4. Use the Download Server option on the DCS 300 to download the file to the terminal.

   Or, use your TFTP application on the host to download the file to the terminal.

When you reset your terminal, it clears the auto-login information, such as the password and user's name. You can cancel the auto-login process by pressing any key during the auto-login sequence. When a host session is broken, you can restart the auto-login sequence by rebooting your terminal.

6400 or 5055 Computer

1. Create your auto-login script file using any text editor, or copy and modify one of the sample script files later in this section.
2. Save the file you create as AUTOLOG.SCR.
3. Use INTERLNK/INTERSVR communications to connect your terminal to a personal computer. For help, see "Downloading Files" later in this section.

   You must load AUTOLOG.SCR into drive C, where the TE application is stored.

Disabling the Auto-Login Feature

To disable auto-login, you must rename the AUTOLOG.SCR file. Renaming AUTOLOG.SCR forces your TE application to use the default login. Renaming also ensures that you can use the same auto-login script file later by changing the name back to AUTOLOG.SCR. If you want to enable a new script file, you can use the instructions in this section to rename a different script file to AUTOLOG.SCR.

Follow these procedures to disable or delete the auto-login script file. The method depends on the type of terminal you are using.

2415, 2425, 2455, or 248X Terminal

1. Press the appropriate key sequence or scan the following bar code to access the TRAKKER Antares® 2400 Menu System:

    Enter Test and Service Mode

    ..–.

    The Main Menu appears.

2. Choose System Menu and then choose File Manager.
3. Select drive C.
4. Press ▲ or ▼ to highlight AUTOLOG.SCR and press the [F7] key.
5. Type a new name for the auto-login script file and press [Enter] or choose OK.
6. Exit the TRAKKER Antares 2400 Menu System to return to your current TE session. Restart your TE application to use TE without the auto-login feature.

You can also rename the auto-login script file from your host. For help, refer to your terminal's user manual.

6400 or 5055 Computer

1. Exit your TE application.
2. Use INTERLNK/INTERSVR communications to connect your terminal to a personal computer. For help, see "Downloading Files" later in this section.
3. Go to the 6400 or 5055 computer's DOS prompt.
4. Rename AUTOLOG.SCR.

Sample Auto-Login Script Files

You can use these sample script files as they are or as the starting point for creating your own auto-login script files.

EXAMPLE 1:   Auto-Login With All Terminals Using the Same Account

```
PromptSessionStart=1                    #Ask user to press <Enter> to start auto-login
HostName "*"                            #Use this to log into any host
Keyboard "0"                            #Disable the keyboard
WaitFor "login:"                        #Wait for the login prompt
Send "user_name<CR>"                    #Send the user name
WaitFor "Password:"                     #Wait for the password prompt
Send "users_password<CR>"               #Send the users password
Pause "1000"                            #Pause 1 second
Keyboard "1"                            #Enable the keyboard
Restart "1"                             #Restart the auto-login script file
```

In Example 1:

- ► The Hostname command matches the host the user accesses.
- ► The # symbol starts a comment that continues to the end of the line.
- ► The WaitFor command waits for a string to be displayed by the host. WaitFor takes up to 10 strings, 20 characters long. The strings must be enclosed in quotes and separated by a comma.
- ► The first Send command sends a fixed user name. The second Send command sends a fixed password.
- ► Angle brackets < and > can enclose uppercase mnemonics or hexadecimal values.

EXAMPLE 2:   Auto-Login With Different User Names and Passwords

```
Input "Enter user name", username       #Prompt for user name
InputHidden "Enter password", password  #Prompt for password
HostName "*"
WaitFor "login:"                        #Wait for the login prompt
Send user_name                          #Send the user name
Send "<CR>"                             #Send a carriage return
WaitFor "Password:"                     #Wait for the password prompt
Send password                           #Send the users password
Send "<CR>"                             #Send a carriage return
```

In Example 2:

- ► The Input and Send commands use input variables. Input commands require a prompt string followed by a comma and a variable name to store the string in.
- ► The InputHidden command will display "*" in place of any characters the user types. All input commands must be before the first HostName command.
- ► The Send command only accepts a single argument, so you need two Send commands to send the user name and a carriage return.

EXAMPLE 3:   Auto-Login to an Application

```
Input "Enter user name", username          # prompt for user name
InputHidden "Enter Password", password     #Prompt for password
HostName "*"
WaitFor "login:"                           #Wait for the login prompt
Send username                              #Send the user name
WaitFor "<CR>"                             #Send a carriage return
WaitFor "Password:"                        #Wait for password prompt
Send password                              #Send the users password
Send "<CR>"                                #Send a carriage return
WaitFor "Main Menu"                        #Wait for the main menu
Send "3"
Send "<CR>"                                #Pick option 3 from the menu
WaitFor "Wip Menu"                         #Wait for work in process menu
Send "1"
Send "<CR>"                                #Pick option 1 from the menu
```

Example 3 modifies the script file in Example 2. The additional modification (which starts with `WaitFor "Main Menu"`) allows you to move automatically to an application after logging in.

EXAMPLE 4:   Auto-Login With Variable Processing

```
Input "Enter user name", username          # Prompt for user name
InputHidden "Enter Password", password     #Prompt for password
HostName "BigHost"                         #Use this portion of script for BigHost
WaitFor "User:"                            #Wait for the user prompt
Send username                              #Send the user name
Send "<CR>"                                #Send a carriage return
WaitFor "Password:"                        #Wait for the password prompt
Send password                              #Send the users password
Send "<CR>"                                #Send a carriage return
HostName "*"                               #Match any other host name
WaitFor "login:"                           #Wait for the login prompt
Send username                              #Send the user name
WaitFor "<CR>"                             #Send a carriage return
WaitFor "Password:"                        #Wait for password prompt
Send password                              #Send the users password
Send "<CR>"                                #Send a carriage return
WaitFor "Main Menu"                        #Wait for the main  menu
Send "3"
Send "<CR>"                                #Pick option 3 from the menu
WaitFor "Wip Menu"                         #Wait for work in process menu
Send "1"
Send "<CR>"                                #Pick option 1 from the menu
```

A section for the host name BigHost is added to the beginning of the script file. If you log into any host other than BigHost, the script file starts at the HostName "*" line. This allows for different processing on each host.

Auto-Login Restart

The Auto-Login Restart command starts the auto-login script file from the correct host name statement in the script file when a host session is broken. For this command to work, the WaitFor string must match the last data sent from the host. For example, if the WaitFor string is the login prompt "login:" with a space after the colon, the WaitFor string must include a space for the auto-login restart to work.

To use the Auto-Login Restart command, press the keys listed in Section 3, "Using the Terminal's Keyboard." Or, scan the bar code in Appendix A.

Creating a Custom Parameter Set-Up File

You can create a custom 3270 TE set-up file to preset almost any parameter you can set from the TE configuration menus. These parameter settings become the default (cold start) configuration for the terminal.

Syntax

The parameter set-up file is an ASCII text file that contains one item per line. You can name the input file as you choose. When you use the CHECKCFG utility later to verify the file, you must change the output file name to CONFIG.DAT.

The syntax of a line is:

FieldName = Value;

– OR –

Qualifier.FieldName = Value;

- ▶ FieldName is the name of the parameter you want to modify.
- ▶ Value is the new value for the field.
- ▶ Qualifier and FieldName must be ASCII strings that match one of the configuration parameters.
- ▶ Value can be an ASCII string or a numeric value, depending on the type of the parameter FieldName specifies. The parameters along with their types and allowable values are listed under "Parameters and Qualifiers" later in this section.

A field may have zero or more qualifiers.

The set-up files ignores the following:

- ▶ Blank lines
- ▶ Leading white space (spaces and tabs)
- ▶ White space on either side of any delimiter (a period, an equal sign, or a semicolon)

In addition, the set-up file converts consecutive white space characters within strings to one space. For example, this line:

```
Screen      Mode       =      Page Mode    ;
```

is the same as:

```
Screen Mode=Page Mode;
```

You can set the Value field of any configuration parameter to "?", which indicates that the TE configuration program should prompt the user for the appropriate value. For example, this parameter causes the terminal to prompt the user to select a screen mode from the list of values:

```
Screen Mode = ?;
```

Following is a sample set-up file.

```
Program Name = CUSTOM;

Screen Mode = Page Mode;

Port Number = 1;

Data Stream = 3270;
Code 39.Encoded = Enabled;
Extended Cmds = Enabled;
```

Parameter Formats

Each parameter in the set-up file is followed by one of three different formats that indicates the type of parameter and the values it can contain. Formats are as follows:

▶ **Literal strings.** For example:

[Session 1].Screen Mode
Session 2.Screen Mode
    Center Cursor
    Corner Mode
    Page Mode
    Lazy Mode
    Locked Mode

Screen Mode may be qualified by Session 1 or 2. It may take the value Center Cursor, Corner Mode, Page Mode, Lazy Mode, or Locked Mode. Session 1 is the default qualifier. These configuration lines are valid:

```
Screen Mode = Lazy Mode;
Session 1.Screen Mode = Lazy Mode;
Session 2.Screen Mode = Lazy Mode;
```

▶ **Numeric parameters.** Numeric parameters have minimum and maximum values. Parameters can be either decimal or hexadecimal:

- ▶ Decimal parameters consist of digits 0 through 9.
- ▶ Hexadecimal parameters consist of 0x or 0X, followed by 1 to 4 digits of 0 through 9, a through f, or A through F. These are equivalent: 160, 0xA0, and 0Xa0.

For example:

[Session 1].[Host A].Port Number
Session 2.Host A.Port Number
[Session 1].Host B.Port Number
Session 2.Host B.Port Number
[Session 1].Host C.Port Number
Session 2.Host C.Port Number
    Numeric, minimum = 0, maximum = 65535

Port Number is a variable with a minimum value of 0 and a maximum of 65535. These lines are valid:

```
Port Number = 1;
Session 1.Host A.Port Number = 1;
Session 2.Host A.Port Number = 1;
```

▶ **String parameters.** String parameters are variables with minimum and maximum lengths. For example:

Program Name
    String, minimum length = 8, maximum length = 8

Program Name is unqualified. It must have eight characters. These configuration lines are valid:

```
Program Name = ABCDEFGH;
Program Name = FWP248H0;
```

Verifying Your Configuration

Use the CHECKCFG utility to verify that you properly configured your set-up file. CHECKCFG reads your configuration and reports any syntax errors. To get the utility, contact your Systems Engineer.

To verify your configuration:

Type:

checkcfg *<input config file>* cfglit.dat config.dat

- ▶ *<input config file>* is the name of your parameter set-up file.
- ▶ CFGLIT.DAT contains the strings that appear in the configuration menus, parameter files, and system messages.
- ▶ CONFIG.DAT is the name of the output file you will download to the terminal. This file must be named CONFIG.DAT.

You are ready to download CONFIG.DAT to the terminal when CHECKCFG reports no errors. For download instructions, see "Downloading Files" later in this section.

If CHECKCFG reports an error, use a text editor to open your set-up file and correct it. The following chart lists the system messages CHECKCFG may display.

Default String	Description	ID Number
Can't open file	CONFIG.DAT could not be located.	F000
Bad option name	The right side of an expression in CONFIG.DAT is an invalid name.	F001
Syntax error	CONFIG.DAT contains a syntax error.	F002
Bad string length	The right side of an expression in CONFIG.DAT is a string that is too long for the specified parameter.	F003
Unknown type	The parameter table in the configuration program contains a bad value. This error is for testing purposes only and should never occur.	F004
Value out of range	The right side of an expression in CONFIG.DAT is a number that is out of range for the specified parameter.	F005
Bad value	The right side of an expression in CONFIG.DAT is a string that is invalid for the specified parameter.	F006
Expected numeric	The right side of an expression in CONFIG.DAT should be a numeric value but contains nonnumeric data.	F007
Missing '='	A line in CONFIG.DAT does not contain the required "=" (equal sign).	F008
Missing ';'	A line in CONFIG.DAT is not terminated by a ";" (semicolon).	F009

Parameters and Qualifiers

Parameters in the set-up file apply to all model numbers unless otherwise noted here. The following pages list each parameter and its qualifiers. Some qualifiers have default values. If you want to use the default value, you can omit the qualifier from the parameter set-up file. Default qualifiers are listed between square brackets "[ ]" in this section.

The CFGLIT.DAT file specifies the text of set-up menus or system messages. Parameters and qualifier strings in the set-up file assume you are using the default CFGLIT.DAT file. To customize CFGLIT.DAT, see "Changing Text" later in this section.

▶ **NOTE:**   *Only WTP terminals support dual sessions ("Session 2"). For a list of terminals with WTP, see "Program Names" in Section 1.*

Set-Up Parameters Options

▸ **Channel** *(900 MHz radio)*

[Session 1].[Host A].Channel
Session 2.Host A.Channel
[Session 1].Host B.Channel
Session 2.Host B.Channel
[Session 1].Host C.Channel
Session 2.Host C.Channel
    10
    25
    30
    25
    30
    35
    40

▸ **Data Stream**

[Session 1].[Host A].Data Stream
Session 2.Host A.Data Stream
[Session 1].Host B.Data Stream
Session 2.Host B.Data Stream
[Session 1].Host C.Data Stream
Session 2.Host C.Data Stream
    [Native] *6400 and 5055 computers with WTP*
    [3270] *2415, 2425, 2455, and 248X terminals; and 6400 and 5055*
           computers with IP
    5250
    VT220

▸ **Frequency** (*S-UHF radio*)

[Session 1].[Host A].Frequency
Session 2.Host A.Frequency
[Session 1].Host B.Frequency
Session 2.Host B.Frequency
[Session 1].Host C.Frequency
Session 2.Host C.Frequency
    Numeric, minimum=0, maximum=0

▸ **Host Name** *(6400 and 5055 computers)*

[Session 1].[Host A].Host
Session 2.Host A.Host
[Session 1].Host B.Host
Session 2.Host B.Host
[Session 1].Host C.Host
[Session 1].Host C.Host
    String, minimum length = 0, maximum length = 16 [null string]

▸ **Lan ID**

[Session 1].[Host A].Lan
Session 2.Host A.Lan
[Session 1].Host B.Lan
Session 2.Host B.Lan
[Session 1].Host C.Lan
Session 2.Host C.Lan
    Numeric, minimum = 0, maximum = 254 [0] *900 MHz*
    Numeric, minimum = 0, maximum = 15 [0] *2.4 GHz OpenAir*

▶ **Mode**

[Session 1].[Host A].Mode
Session 2.Host A.Mode
[Session 1].Host B.Mode
Session 2.Host B.Mode
[Session 1].Host C.Mode
Session 2.Host C.Mode
  900 MHz radio:
  DS 225K
  DS 090K
  DS 450K
  S-UHF radio:
  Freq Agility
  Single Freq

▶ **Port Number**

[Session 1].[Host A].Port Number
Session 2.Host A.Port Number
[Session 1].Host B.Port Number
Session 2.Host B.Port Number
[Session 1].Host C.Port Number
Session 2.Host C.Port Number
  Numeric, minimum = 0, maximum = 65535 [0]

▶ **Radio Configuration Number**

[Session 1].[Host A].Radio Config#
Session 2.Host A.Radio Config#
[Session 1].Host B.Radio Config#
Session 2.Host B.Radio Config#
[Session 1].Host C.Radio Config#
Session 2.Host C.Radio Config#
  Numeric, minimum = 0, maximum = 255 [0]

▶ **Radio Number** (*same as unit number*)

[Session 1].[Host A].Radio #
Session 2.Host A.Radio #
[Session 1].Host B.Radio #
Session 2.Host B.Radio #
[Session 1].Host C.Radio #
Session 2.Host C.Radio #
  Numeric, minimum = 0, maximum = 127 [127]

▶ **Server IP**

[Session 1].[Host A].Server IP
Session 2.Host A.Server IP
[Session 1].Host B.Server IP
Session 2.Host B.Server IP
[Session 1].Host C.Server IP
Session 2.Host C.Server IP
  Numeric, minimum = 1, maximum = 16

▶ **SNA**

[Session 1].SNA
Session 2.SNA
  Enabled
  [Disabled]

▶ **Telnet**

[Session 1].Telnet
Session 2.Telnet
   [Enabled] *2415, 2425, 2455, and 248X terminals; and 6400 and 5055*
               computers with IP
   [Disabled] *6400 and 5055 computers with WTP*

▶ **Terminal Type**

[Session 1].[Host A].Terminal Type
Session 2.Host A.Terminal Type
[Session 1].Host B.Terminal Type
Session 2.Host B.Terminal Type
[Session 1].Host C.Terminal Type
Session 2.Host C.Terminal Type
   Numeric, minimum = 0, maximum = 255

▶ **Unit Number** *(same as radio number)*

[Session 1].[Host A].Unit #
Session 2.Host A.Unit #
[Session 1].Host B.Unit #
Session 2.Host B.Unit #
[Session 1].Host C.Unit #
Session 2.Host C.Unit #
   Numeric, minimum = 0, maximum = 127 [127]

Bar Code Parameters

▶ **NOTE:**   *Bar code parameters apply to the 6400 and 5055 computers unless otherwise noted. 2415,*
2425, 2455, and 248X terminals support only the "Code 39.Encoded" parameter.

▶ **BC Type Character** *(not supported on the 5055 computer)*

[Session 1].BC Type Char
Session 2.BC Type Char
   Enabled
   [Disabled]

▶ **Concatenate**

[Session 1].Concatenate
Session 2].Concatenate
   Enabled
   [Disabled]

▶ **MOD 10 Check**

[Session 1].MOD 10 Check
Session 2.MOD 10 Check
   Enabled
   [Disabled]

▶ **Redundancy** *(not supported on the 5055 computer)*

[Session 1].Redundancy
Session 2.Redundancy
   Enabled
   [Disabled]

▶ **Scan All Fields**

[Session 1].Scan All Flds
Session 2.Scan All Flds
   Enabled
   [Disabled]

▶ **Scan Postamble Character**

[Session 1].Scan PostChar
Session 2.Scan PostChar
   Numeric, minimum = 0, maximum = 255 [space]

▶ **Scan Preamble Character**

[Session 1].Scan PreChar
Session 2.Scan PreChar
   Numeric, minimum = 0, maximum = 255 [space]

▶ **Scan Timeout** (*not supported on the 6400 and 5055 computers*)

[Session 1].Scan Timeout
Session 2.Scan Timeout
   Numeric, minimum = 1, maximum = 200 [30]

▶ **Scanner Type** (*6400 and 5055 computers support Laser only*)

[Session 1].Scanner Type
Session 2.Scanner Type
   [No Scanner]
   Wand
   Laser
   Wand Emulate
   Auto Detect

▶ **Stream Scan**

[Session 1].Stream Scan
Session 2.Stream Scan
   Enabled
   [Disabled]

Bar Code Symbologies

▶ **ABC Codabar**

[Session 1].ABC Codabar
Session 2.ABC Codabar
   Enabled
   [Disabled]

▶ **Codabar**

[Session 1].Codabar
Session 2.Codabar
   Enabled
   [Disabled]

▶ **Code 11** (*not supported on the 6400 and 5055 computers*)

[Session 1].Code 11
Session 2.Code 11
   Enabled
   [Disabled]

▶ **Code 93**

[Session 1].Code 93
Session 2.Code 93
   Enabled
   [Disabled]

▶ **Code 39**

[Session 1].Code 39
Session 2.Code 39
   Enabled
   [Disabled]

▶ **Code 128**

[Session 1].Code 128
Session 2.Code 128
   Enabled
   [Disabled]

▶ **Computer Identics 2 of 5**

[Session 1].CI 2of5
Session 2.CI 2of5
   Enabled
   [Disabled]

▶ **EAN**

[Session 1].EAN
Session 2.EAN
   Enabled
   [Disabled]

▶ **Interleaved 2 of 5**

[Session 1].Int 2of5
Session 2.Int 2of5
   Enabled
   [Disabled]

▶ **Plessey** *(6400 computer does not support Plessey alpha characters)*

[Session 1].Plessey
Session 2.Plessey
   Enabled
   [Disabled]

▶ **Straight 2 of 5**

[Session 1].Str 2of5
Session 2.Str 2of5
   Enabled
   [Disabled]

▶ **UPC**

[Session 1].UPC
Session 2.UPC
   Enabled
   [Disabled]

Generic Bar Code Options

▶**NOTE:** *Generic bar code options must be qualified by one of the bar code symbology strings. For example: "Session 1.UPC.Max Length = 13;"*

▶ **Drop Leading**

[Session 1].UPC.Drop Leading
Session 2.UPC.Drop Leading
[Session 1].EAN.Drop Leading
Session 2.EAN.Drop Leading
[Session 1].Code 128.Drop Leading
Session 2.Code 128.Drop Leading
[Session 1].Code 39.Drop Leading
Session 2.Code 39.Drop Leading
[Session 1].Codabar.Drop Leading
Session 2.Codabar.Drop Leading
[Session 1].ABC Codabar.Drop Leading
Session 2.ABC Codabar.Drop Leading
[Session 1].Str 2of5.Drop Leading
Session 2.Str 2of5.Drop Leading
[Session 1].Int 2of5.Drop Leading
Session 2.Int 2of5.Drop Leading
[Session 1].CI 2of5.Drop Leading
Session 2.CI 2of5.Drop Leading
[Session 1].Code 11.Drop Leading
Session 2.Code 11.Drop Leading
[Session 1].Code 93.Drop Leading
Session 2.Code 93.Drop Leading
[Session 1].Plessey.Drop Leading
Session 2.Plessey.Drop Leading
    Numeric, minimum = 0 [0], maximum = 15 [0]

▶ **Drop Trailing**

[Session 1].UPC.Drop Trailing
Session 2.UPC.Drop Trailing
[Session 1].EAN.Drop Trailing
Session 2.EAN.Drop Trailing
[Session 1].Code 128.Drop Trailing
Session 2.Code 128.Drop Trailing
[Session 1].Code 39.Drop Trailing
Session 2.Code 39.Drop Trailing
[Session 1].Codabar.Drop Trailing
Session 2.Codabar.Drop Trailing
[Session 1].ABC Codabar.Drop Trailing
Session 2.ABC Codabar.Drop Trailing
[Session 1].Str 2of5.Drop Trailing
Session 2.Str 2of5.Drop Trailing
[Session 1].Int 2of5.Drop Trailing
Session 2.Int 2of5.Drop Trailing
[Session 1].CI 2of5.Drop Trailing
Session 2.CI 2of5.Drop Trailing
[Session 1].Code 11.Drop Trailing
Session 2.Code 11.Drop Trailing
[Session 1].Code 93.Drop Trailing
Session 2.Code 93.Drop Trailing
[Session 1].Plessey.Drop Trailing
Session 2.Plessey.Drop Trailing
    Numeric, minimum = 0 [0], maximum = 15 [0]

► **Fix Length 1**

[Session 1].UPC.Fix Length 1
Session 2.UPC.Fix Length 1
[Session 1].EAN.Fix Length 1
Session 2.EAN.Fix Length 1
[Session 1].Code 128.Fix Length 1
Session 2.Code 128.Fix Length 1
[Session 1].Code 39.Fix Length 1
Session 2.Code 39.Fix Length 1
[Session 1].Codabar.Fix Length 1
Session 2.Codabar.Fix Length 1
[Session 1].ABC Codabar.Fix Length 1
Session 2.ABC Codabar.Fix Length 1
[Session 1].Str 2of5.Fix Length 1
Session 2.Str 2of5.Fix Length 1
[Session 1].Int 2of5.Fix Length 1
Session 2.Int 2of5.Fix Length 1
[Session 1].CI 2of5.Fix Length 1
Session 2.CI 2of5.Fix Length 1
[Session 1].Code 11.Fix Length 1
Session 2.Code 11.Fix Length 1
[Session 1].Code 93.Fix Length 1
Session 2.Code 93.Fix Length 1
[Session 1].Plessey.Fix Length 1
Session 2.Plessey.Fix Length 1
    Numeric, minimum = 0 [0], maximum = 99 [0]

► **Fixed Length 2**

[Session 1].UPC.Fix Length 2
Session 2.UPC.Fix Length 2
[Session 1].EAN.Fix Length 2
Session 2.EAN.Fix Length 2
[Session 1].Code 128.Fix Length 2
Session 2.Code 128.Fix Length 2
[Session 1].Code 39.Fix Length 2
Session 2.Code 39.Fix Length 2
[Session 1].Codabar.Fix Length 2
Session 2.Codabar.Fix Length 2
[Session 1].ABC Codabar.Fix Length 2
Session 2.ABC Codabar.Fix Length 2
[Session 1].Str 2of5.Fix Length 2
Session 2.Str 2of5.Fix Length 2
[Session 1].Int 2of5.Fix Length 2
Session 2.Int 2of5.Fix Length 2
[Session 1].CI 2of5.Fix Length 2
Session 2.CI 2of5.Fix Length 2
[Session 1].Code 11.Fix Length 2
Session 2.Code 11.Fix Length 2
[Session 1].Code 93.Fix Length 2
Session 2.Code 93.Fix Length 2
[Session 1].Plessey.Fix Length 2
Session 2.Plessey.Fix Length 2
    Numeric, minimum = 0 [0], maximum = 99 [0]

▶ **Fixed Length 3**

[Session 1].UPC.Fix Length 3
Session 2.UPC.Fix Length 3
[Session 1].EAN.Fix Length 3
Session 2.EAN.Fix Length 3
[Session 1].Code 128.Fix Length 3
Session 2.Code 128.Fix Length 3
[Session 1].Code 39.Fix Length 3
Session 2.Code 39.Fix Length 3
[Session 1].Codabar.Fix Length 3
Session 2.Codabar.Fix Length 3
[Session 1].ABC Codabar.Fix Length 3
Session 2.ABC Codabar.Fix Length 3
[Session 1].Str 2of5.Fix Length 3
Session 2.Str 2of5.Fix Length 3
[Session 1].Int 2of5.Fix Length 3
Session 2.Int 2of5.Fix Length 3
[Session 1].CI 2of5.Fix Length 3
Session 2.CI 2of5.Fix Length 3
[Session 1].Code 11.Fix Length 3
Session 2.Code 11.Fix Length 3
[Session 1].Code 93.Fix Length 3
Session 2.Code 93.Fix Length 3
[Session 1].Plessey.Fix Length 3
Session 2.Plessey.Fix Length 3
    Numeric, minimum = 0 [0], maximum = 99 [0]

▶ **Fixed Length 4**

[Session 1].UPC.Fix Length 4
Session 2.UPC.Fix Length 4
[Session 1].EAN.Fix Length 4
Session 2.EAN.Fix Length 4
[Session 1].Code 128.Fix Length 4
Session 2.Code 128.Fix Length 4
[Session 1].Code 39.Fix Length 4
Session 2.Code 39.Fix Length 4
[Session 1].Codabar.Fix Length 4
Session 2.Codabar.Fix Length 4
[Session 1].ABC Codabar.Fix Length 4
Session 2.ABC Codabar.Fix Length 4
[Session 1].Str 2of5.Fix Length 4
Session 2.Str 2of5.Fix Length 4
[Session 1].Int 2of5.Fix Length 4
Session 2.Int 2of5.Fix Length 4
[Session 1].CI 2of5.Fix Length 4
Session 2.CI 2of5.Fix Length 4
[Session 1].Code 11.Fix Length 4
Session 2.Code 11.Fix Length 4
[Session 1].Code 93.Fix Length 4
Session 2.Code 93.Fix Length 4
[Session 1].Plessey.Fix Length 4
Session 2.Plessey.Fix Length 4
    Numeric, minimum = 0 [0], maximum = 99 [0]

▶ **Maximum Length**

[Session 1].UPC.Max Length
Session 2.UPC.Max Length
[Session 1].EAN.Max Length
Session 2.EAN.Max Length
[Session 1].Code 128.Max Length
Session 2.Code 128.Max Length
[Session 1].Code 39.Max Length
Session 2.Code 39.Max Length
[Session 1].Codabar.Max Length
Session 2.Codabar.Max Length
[Session 1].ABC Codabar.Max Length
Session 2.ABC Codabar.Max Length
[Session 1].Str 2of5.Max Length
Session 2.Str 2of5.Max Length
[Session 1].Int 2of5.Max Length
Session 2.Int 2of5.Max Length
[Session 1].CI 2of5.Max Length
Session 2.CI 2of5.Max Length
[Session 1].Code 11.Max Length
Session 2.Code 11.Max Length
[Session 1].Code 93.Max Length
Session 2.Code 93.Max Length
[Session 1].Plessey.Max Length
Session 2.Plessey.Max Length
    Numeric, minimum = 0 [0], maximum = 99 [0]

▶ **Minimum Length**

[Session 1].UPC.Min Length
Session 2.UPC.Min Length
[Session 1].EAN.Min Length
Session 2.EAN.Min Length
[Session 1].Code 128.Min Length
Session 2.Code 128.Min Length
[Session 1].Code 39.Min Length
Session 2.Code 39.Min Length
[Session 1].Codabar.Min Length
Session 2.Codabar.Min Length
[Session 1].ABC Codabar.Min Length
Session 2.ABC Codabar.Min Length
[Session 1].Str 2of5.Min Length
Session 2.Str 2of5.Min Length
[Session 1].Int 2of5.Min Length
Session 2.Int 2of5.Min Length
[Session 1].CI 2of5.Min Length
Session 2.CI 2of5.Min Length
[Session 1].Code 11.Min Length
Session 2.Code 11.Min Length
[Session 1].Code 93.Min Length
Session 2.Code 93.Min Length
[Session 1].Plessey.Min Length
Session 2.Plessey.Min Length
    Numeric, minimum = 0 [0], maximum = 99 [0]

UPC Options

▶ **Add-On 2**

[Session 1].UPC.Add-On 2
Session 2.UPC.Add-On 2
   Enabled
   [Disabled]

▶ **Add-On 5**

[Session 1].UPC.Add-On 5
Session 2.UPC.Add-On 5
   Enabled
   [Disabled]

▶ **Expand E to A**

[Session 1].UPC.Expand E to A
Session 2.UPC.Expand E to A
   Enabled
   [Disabled]

▶ **System 0 UPCE**

[Session 1].UPC.Sys 0 UPCE
Session 2.UPC.Sys 0 UPCE
   Enabled
   [Disabled]

▶ **System 1 UPCE** *(not supported on the 6400 computer)*

[Session 1].UPC.Sys 1 UPCE
Session 2.UPC.Sys 1 UPCE
   Enabled
   [Disabled]

EAN Options

▶ **Add-On 2**

[Session 1].EAN.Add-On 2
Session 2.EAN.Add-On 2
   Enabled
   [Disabled]

▶ **Add-On 5**

[Session 1].EAN.Add-On 5
Session 2.EAN.Add-On 5
   Enabled
   [Disabled]

▶ **Expand 8 to 13**

[Session 1].EAN.Expand 8to13
Session 2.EAN.Expand 8to13
   Enabled
   [Disabled]

Code 39 Options

► **Auto-Encoded**

[Session 1].Code 39.Auto-Encoded
Session 2.Code 39.Auto-Encoded
     Enabled
     [Disabled]

► **Check Digit**

[Session 1].Code 39.Chk Digit
Session 2.Code 39.Chk Digit
     Enabled
     [Disabled]

► **Data Decode**

[Session 1].Code 39.Data decode
Session 2.Code 39.Data decode
     Enabled
     [Disabled]

► **Element Decode**

[Session 1].Code 39.Element decod
Session 2.Code 39.Element decod
     Enabled
     [Disabled]

► **Encoded**

[Session 1].Code 39.Encoded
Session 2.Code 39.Encoded
     Enabled
     [Disabled]

► **Extended**

[Session 1].Code 39.Extended
Session 2.Code 39.Extended
     Enabled
     [Disabled]

► **Full ASCII**

[Session 1].Code 39.Full ASCII
Session 2.Code 39.Full ASCII
     Enabled
     [Disabled]

► **Quiet Zone**

[Session 1].Code 39.Quiet zone
Session 2.Code 39.Quiet zone
     Enabled
     [Disabled]

► **START Decode**

[Session 1].Code 39.START decode
Session 2.Code 39.START decode
     Enabled
     [Disabled]

Interleaved 2 of 5 Option

► **Interleaved 2 of 5 Chk Digit**

[Session 1].Int 2of5.Chk Digit
Session 2.Int 2of5.Chk Digit
   Enabled
   [Disabled]

Code 11 Options

► **Check Digit 1** (*not supported on the 6400 computer*)

[Session 1].Code 11.Chk Dig 1
Session 2.Code 11.Chk Dig 1
   Enabled
   [Disabled]

► **Check Digit 2** *(not supported on the 6400 computer)*

[Session 1].Code 11.Chk Dig 2
Session 2.Code 11.Chk Dig 2
   Enabled
   [Disabled]

Plessey Options

► **Allow Alpha**

[Session 1].Plessey.Allow Alpha
Session 2.Plessey.Allow Alpha
   Enabled
   [Disabled]

► **MOD 10 Check**

[Session 1].Plessey.MOD10 Chk
Session 2.Plessey.MOD10 Chk
   Enabled
   [Disabled]

► **MOD 11 Check**

[Session 1].Plessey.MOD11 Chk
Session 2.Plessey.MOD11 Chk
   Enabled
   [Disabled]

Code 128 Options

▶ **UCC/EAN**

[Session 1].Code 128.UCC/EAN
Session 2.Code 128.UCC/EAN
   Enabled
   [Disabled]

▶ **No UCC Type**

[Session 1].Code 128.NO UCC Type
Session 2.Code 128.NO UCC Type
   Enabled
   Disabled

▶ **UCC F1 Value**

[Session 1].UPC.UCC F1 Value
Session 2.UPC.UCC F1 Value
[Session 1].EAN.UCC F1 Value
Session 2.EAN.UCC F1 Value
[Session 1].Code 128.UCC F1 Value
Session 2.Code 128.UCC F1 Value
[Session 1].Code 39.UCC F1 Value
Session 2.Code 39.UCC F1 Value
[Session 1].Codabar.UCC F1 Value
Session 2.Codabar.UCC F1 Value
[Session 1].ABC Codabar.UCC F1 Value
Session 2.ABC Codabar.UCC F1 Value
[Session 1].Str 2of5.UCC F1 Value
Session 2.Str 2of5.UCC F1 Value
[Session 1].Int 2of5.UCC F1 Value
Session 2.Int 2of5.UCC F1 Value
[Session 1].CI 2of5.UCC F1 Value
Session 2.CI 2of5.UCC F1 Value
[Session 1].Code 11.UCC F1 Value
Session 2.Code 11.UCC F1 Value
[Session 1].Code 93.UCC F1 Value
Session 2.Code 93.UCC F1 Value
[Session 1].Plessey.UCC F1 Value
Session 2.Plessey.UCC F1 Value
   Numeric, minimum = 0 [0], maximum = 255

3270 Protocol Options

▶ **Auto Enter Scan**

[Session 1].Auto Entr Scn
Session 2.Auto Entr Scn
   Enabled
   [Disabled]

▶ **Auto Tab Scan**

[Session 1].Auto Tab Scan
Session 2.Auto Tab Scan
   Enabled
   [Disabled]

▶ **Emulate 3210** *(6400 and 5055 computers)*

[Session 1].Emulate 3210
Session 2.Emulate 3210
   Enabled
   [Disabled]

▶ **Extended Commands**

[Session 1].Extended Cmds
Session 2.Extended Cmds
   Enabled
   [Disabled]

▶ **Host View Columns**

[Session 1].Host View Cols
Session 2.Host View Cols
   Numeric, minimum = 1, maximum = 255 [24]

▶ **Host View Rows**

[Session 1].Host View Rows
Session 2.Host View Rows
   Numeric, minimum = 1, maximum = 255 [80]

▶ **Keyboard Unlock**

[Session 1].Keybrd Unlock
Session 2.Keybrd Unlock
   Enabled
   [Disabled]

▶ **Origin Set**

[Session 1].Origin Set
Session 2.Origin Set
   Enabled
   [Disabled]

▶ **Scan All Fields**

[Session 1].Scan All Flds
Session 2.Scan All Flds
   Enabled
   [Disabled]

▸ **Stream Scan**

[Session 1].Stream Scan
Session 2.Stream Scan
   Enabled
   [Disabled]

Display Options

Display options apply only to the 6400 and 5055 computers.

▸ **Backlight State**

[Session 1].Backlight State
Session 2.Backlight State
   Enabled
   [Disabled]

▸ **Backlight Timer** *(6400 computer)*

[Session 1].Backlight Timer
Session 2.Backlight Timer
   Numeric, minimum = 0, maximum = 255 [0]

▸ **Cursor Mode**

[Session 1].Cursor Mode
Session 2.Cursor Mode
   Underln Blink
   Block Blink
   Underline
   [Block]

Radio Communications Options

▶**NOTE:**   *Radio Communications options do not apply to 2415, 2425, 2455, and 248X terminals. For*
          these terminals, set the Security ID through the TRAKKER Antares 2400 Menu System.

▸ **Baud Rate** *(UHF radio)*

Radio Baud Rate
   4800
   4800/9600
   9600
   The default depends on the type of radio in the terminal.

▸ **Protocol** *(6400 and 5055 computers)*

Radio Protocol
   SST
   SST-Diag Mode

▸ **Security ID**

[Session 1].Security ID
Session 2.Security ID
   String, minimum length=0, maximum length=16 [null string]

More Options

► **Change Menu Password**

*The password must be **enabled** and **set** for access to the Main Menu before you can change it. To set the password:*

[Session 1].Change Menu Password
Session 2.Change Menu Password
  String, minimum length = 1, maximum length = 10 [3193693]

To enable the password, see "Main Menu password."

► **COM Select** *(5055 computer)*

[Session 1].Com Select
Session 2.Com Select
  [COM 1]
  COM 2

► **Main Menu Password**

*The password must be **enabled** and **set** for access to the Main Menu. To enable or disable the password:*

[Session 1].Menu Password
Session 2.Menu Password
  Enabled
  [Disabled]

To set the password, see "Change menu password".

► **Print Device** *(6400 computer)*

[Session 1].Print Device
Session 2.Print Device
  [RS232 Print]
  IRDA Print

LCD Options

► **Annunciator Format**

[Session 1].Annun Format
Session 2.Annun Format
  [Vertical] *2455 and 248X terminals, and 5055 computer*
  [Horizontal] *2415 and 2425 terminals, and 6400 computer*

► **Annunciator Position**

[Session 1].Annun Position
Session 2.Annun Position
  Upper Right
  Upper Left
  Lower Right
  [Lower Left]
  Stealth

▶ **Define Height (Scroll Window)**

[Session 1].Define Height
Session 2.Define Height
    Numeric, minimum = 1, maximum = 24 [8]

▶ **Define Width (Scroll Window)**

[Session 1].Define Width
Session 2.Define Width
    Numeric, minimum = 1, maximum = 80 [8]

▶ **Key Uppercase** *(6400 and 5055 computers)*

[Session 1].Key Uppercase
Session 2.Key Uppercase
    [Enabled]
    Disabled

▶ **Screen Mode**

[Session 1].Screen Mode
Session 2.Screen Mode
    Center Cursor
    [Corner Mode]
    Page Mode
    Lazy Mode
    Locked Mode

▶ **Screen Columns** *(6400 and 5055 computers)*

[Session 1].Screen Cols
Session 2.Screen Cols
    Numeric, minimum = 1, maximum = 255
    16
    17
    40
    [80] *5055 computer*
    [20] *6400 computer standard and wide displays*

▶ **Screen Rows** *(6400 and 5055 computers)*

[Session 1].Screen Rows
Session 2.Screen Rows
    Numeric, minimum = 1, maximum = 255
    8
    8
    10
    [25] *5055 computer*
    [18] *6400 computer standard display and [16] for wide display*

▶ **Scroll Window**

[Session 1].Scroll Window
Session 2.Scroll Window
    Screen Size
    Scroll Setting
    [Tab Size]

Beeper Setup Options

▸ **Beep Internal**

[Session 1].Beep Internal
Session 2.Beep Internal
   [Enabled]
   Disabled

▸ **Beeper (Error Tone) Frequency** *(6400 computer)*

[Session 1].Beep Frequency
Session 2.Beep Frequency
   Numeric, minimum = 0, maximum = 30 [6]

▸ **Beeper (Error Tone) Length**

[Session 1].Beep Length
Session 2.Beep Length
   Numeric, minimum= 1 , maximum= 10 [3]

▸ **Key Click Frequency** *(6400 computer)*

[Session 1].KeyClick Freq
Session 2.KeyClick Freq
   Numeric, minimum = 0, maximum = 30 [6]

▸ **Key Click Length** *(6400 and 5055 computers)*

[Session 1].KeyClick Length
Session 2.KeyClick Length
   Numeric, minimum = 1, maximum = 10 [6]

More (Main Menu 2) Options

▸ **Foreground Session** *(6400 and 5055 computers)*

Foreground Sess
   [Session 1]
   Session 2

▸ **Set Hot Key** *(6400 and 5055 computers)*

[Session 1].Set Hot Key
Session 2.Set Hot Key
   F1
   through
   F24

▸ **Type-Ahead**

[Session 1].Type-Ahead
Session 2.Type-Ahead
   [Enabled]
   Disabled

Additional Parameters

The following parameters do not have equivalent TE configuration menu options.

▶ **Alternate Screen Columns** (*6400 and 5055 computers)*

[Session 1].Alt Screen Cols
Session 2.Alt Screen Cols
  Numeric, minimum = 1, maximum = 255
  17
  [40] *5055 computer*
  [20] *6400 computer*

▶ **Alternate Screen Rows** (*6400 and 5055 computers)*

[Session 1].Alt Screen Rows
Session 2.Alt Screen Rows
  Numeric, minimum = 1, maximum = 255
  8
  [12] *5055 computer*
  [18] *6400 computer standard display and [16] for wide display*

▶ **Contrast Mode**

[Session 1].Contrast Mode
Session 2.Contrast Mode
  Compensated
  Absolute

▶ **Program Name** *(appears on the initialization and version screens)*

Program Name
  String, minimum length = 8, maximum length = 8 *[the default program names are the "FWP" names listed under "Program Names" in the Getting Started section]*

▶ **Program Version** *(appears on the initialization and version screens)*

Program Version
  String, minimum length = 4, maximum length = 4 [?.??]

▶ **Set-Up Parms Menu Password** *(the password is case sensitive for 6400 and 5055 computers; it is case insensitive for 2415, 2425, 2455, and 248X terminals)*

[Session 1].Password
Session 2.Password
  String, minimum length = 1, maximum length = 10 [CR52401]

Changing Text

You can change the text of TE configuration menus, configuration parameters, or system messages by modifying file CFGLIT.DAT. This file contains the strings that appear in the configuration menus, parameter set-up files, and system messages.

An identification (ID) number identifies each literal string. To create your own literal file, you create a text file that associates these numbers with the actual literal strings. You then use MAKELIT.EXE to convert the text file to a format the configuration program can use.

Each line in the literal text file begins with the literal ID number. After the ID number, you type the quoted string that is used when that ID number is referenced. If you omit an ID number, its string appears as "Bad Literal File" when you run the program in the terminal.

Literal ID numbers are available upon request from Intermec. Contact your Intermec representative for more information about ID numbers.

You can create a sample file containing the default literal strings by using the MAKELIT.EXE program to "reverse engineer" the standard CFGLIT.DAT file. To do this, type the following command line to unpack CFGLIT.DAT into a file named CFGLIT.TXT:

```
makelit –r cfglit.dat cfglit.txt
```

The CFGLIT.TXT file this command creates contains all the default strings the configuration program uses.

One line in CFGLIT.TXT looks like this:

```
0x2f10 "RS232 PORT\nIN USE\n\nPLEASE WAIT!"
```

"0x2f10" is the literal ID number for the RS-232 port-in-use message that appears when a host computer sends an RS-232 command to the TE program. The text of the message follows the ID number in a quoted string. The embedded "\n" sequence within the quoted string indicates a "new line" character and outputs a carriage return/line feed.

To change the text of the message that appears, change the quoted string. For example, you could change the above line to look like this:

```
0x2f10 "Printing\nPlease Wait!"
```

When you have a text file with one line for every ID number, use MAKELIT.EXE to convert the file to an indexed literal file. If your text file is named CFGLIT.TXT, you would type the following command:

```
makelit cfglit.txt cfglit.dat
```

This command creates the new literal file CFGLIT.DAT. For instructions on how to download the file, see "Downloading Files" later in this section.

Preinitializing the 3270 TE Program

You can preinitialize the 3270 TE program. You must name the 3270 initialization file as 3270.INI. The file is processed when you reset or warm start the terminal. The file is processed as if the radio had received the data, and must be in the "on-air" format. For instructions on how to download the file, see "Downloading Files" later in this section.

Data is encoded in binary format. To create 3270.INI, you may need a HEX editor or other special program.

3270.INI contains 3270 data stream commands and orders. It contains ASCII data because INTERMEC® controllers perform EBCDIC to ASCII translation for the data stream.

Following is the format for the 3270 data stream. The information assumes you have a working knowledge of the data stream command formats or escape sequences, or both.

The following 3270 commands are supported:

0x31	Write
0x32	Read buffer
0x34	Toggle SSCP command mode
0x35	Erase write
0x36	Read modified
0x3d	Erase write alternate
0x3e	Read modified all
0x3f	Erase all unprotected

The following 3270 orders are supported:

0x07	Beep (INTERMEC extension)
0x09	Program tab
0x11	Set buffer address
0x12	Erase unprotected to address
0x13	Insert cursor
0x14	Repeat to address
0x1d	Start of field
0x1f	Scanner (INTERMEC extension)

The following example shows how to display "HELLO WORLD" and beep the beeper from within a data stream initialization file. The line of hexadecimal digits represent the binary values that must be stored in initialization files.

```
35 04 48 45 4c 4c 4f 20 57 4f 52 4c 44
 | | H  E  L  L  O     W  O  R  L  D
 | |
 | |
 | |
-|-|- - - - - - - -  Write control character with alarm bit
   | - - - - - - - -  3270 erase/write command
```

Remapping Characters

You can use display character translation files to remap characters as they are written to the display. The translation file name for 3270 TE must be 3270.XLT. For instructions on how to download the file to the terminal, see "Downloading Files" later in this section.

Display character translation files are binary files consisting of ordered pairs of eight bit values. Each pair of values remaps a displayable character to a different displayable character.

► The first byte of a pair is the ASCII value of the character to be replaced.

► The second byte of a pair is the ASCII value that replaces the first.

These translations are only made when a character is written to a display device. If the character is sent to the host (keystroke or scan data for example) or sent to an external device (such as a printer), it is sent as the original, untranslated value.

Suppose you want a terminal running 3270 emulation to replace the uppercase B with the Greek letter beta, and replace the uppercase Z with the Greek letter omega. Create a file named 3270.XLT that is four bytes long (two ordered pairs of two bytes each). The file should contain the following four bytes in this order:

0x42
0xE1
0x5A
0xEA

These represent the ASCII display character set values for B, beta, Z, and omega, respectively.

Substituting National Characters

This topic tells how to create a file that remaps one character in the terminal's Terminal Font Set for another character in the set. Use this information to provide characters on the terminal in the local language.

Intermec provides a table for converting from characters used in English (U.S.) to German, Danish, Finnish, Italian, Spanish, French, Belgian, and English (UK). The procedure for converting the characters appears first. Then two slightly longer procedures show how to remap any character to another. One procedure describes the steps with the symbol's EBCDIC value. The other one describes the steps without a value. Finally, examples show the remap files for German characters and a few English symbols.

For all procedures, you need the terminal's Terminal Font Set table. The table lists characters and their decimal and hexadecimal values. For the font set table for 2415, 2425, 2455, and 248X terminals, refer to the terminal's user manual. For the font set table for the 6400 or 5055 computer, see Appendix C.

Creating the File

Follow these steps to create a table that substitutes characters in the local language for characters normally used in U.S. English. These steps apply *if the EBCDIC value is one of the following:* 4A, 4F, 5A, 5B, 5F, 6A, 79, 7B, 7C, 7F, A1, C0, D0, E0.

1. Find the character to replace in Table 5-2 and determine its EBCDIC value.

2. Find the default translation value in Table 5-3 (2415, 2425, 2455, or 248X terminal) or Table 5-4 (6400 or 5055 computer).

3. Using the default value from step 2, search the terminal's Terminal Font Set for the character. If the default character is correct, you are done.

    If the default character is incorrect, go to step 4.

4. Search the terminal's Terminal Font Set for the character you want.

5. Create file 3270.XLT. Put the default value of the font character (found in step 2) as the first byte in the file. Put the replacement value (found in step 4) as the second byte in the file.

6. Repeat steps 1 through 5 until all replacement characters have been completed.

7. Download 3270.XLT to your terminal and restart the terminal emulation program for the changes to take effect. For downloading information, see "Downloading Files" later in this section.

Table 5-2
EBCDIC Values

EBCDIC Character Set	4A	4F	5A	5B	5F	6A	79	7B	7C	7F	A1	C0	D0	E0
English (US)	¢	|	!	$	¬	¦	'	#	@	"	~	{	}	\
Austrian/German	Ä	!	Ü	$	^	ö	'	#	§	"	b	ä	ü	Ö
Austrian/German (alternate)	ö	|	ü	Ü	¬	b		Ä	Ö	ä				
Danish/Norwegian	#	!	¤	Å	^	ø	'	Æ	Ø	"	ü	æ	å	\
Danish/Norwegian (alternate)	ø	|	å	Å	¬	¦		Æ	Ø	æ				
Finnish/Swedish	§	!	¤	Å	^	ö	é	Ä	Ö	"	ü	ä	å	É
Finnish/Swedish (alternate)	ö	|	å	Å	¬	¦		Ä	Ö	ä				
French	°	!	§	$	^	ù	'	£	à	"	··	é	è	ç
Italian	°	!	é	$	^	ò	ù	£	§	"	ì	à	è	ç
Portuguese	[	!	]	$	^	õ	'	Ã	Õ	"	ç	ã	'	Ç
Spanish	[	|	]	Pts	¬	ñ	'	Ñ	@	"	··	{	}	\
Spanish (alternate)	¢	|	!	Pts	¬	¦		Ñ	@	ñ				
English (UK)	$	|	!	£	—	¦	'	#	@	"	—	{	}	\
Belgian	[	!	]	$	^	ù	'	#	à	"	··	é	è	ç
Brazilian/Portuguese	É	!	$	Ç	^	ç	ã	Õ	Ã	"	~	õ	é	\
Japanese (English)	£	|	!	¥	¬	¦	'	#	@	"	—	{	}	$
Spanish Speaking	[	|	]	$	¬	ñ	'	Ñ	@	"	··	{	}	\
Canadian (French)	à	!	'	$	^	ù	'	#	@	"	··	é	è	ↄ
International	[	!	]	$	^	¦	'	#	@	"	~	{	}	\

Table 5-3
ASCII Equivalents for EBCDIC Values (2415, 2425, 2455, or 248X Terminal)

	ASCII													
	4A	4F	5A	5B	5F	6A	79	7B	7C	7F	A1	C0	D0	E0
English (US)	BD	7C	21	24	AA	DD	60	23	40	22	7E	7B	7D	5C
German	8E	21	9A	24	5E	94	60	23	F5	22	E1	84	81	99
Danish/Norwegian	23	21	0F	8F	5E	9B	60	92	90	22	81	91	86	5C
Finnish/Swedish	F5	21	0F	8F	5E	94	82	8E	99	22	81	84	86	90
Italian	F8	21	82	24	5E	95	97	9C	F5	22	8D	85	8A	87
Spanish	5B	7C	5D	—	AA	A4	60	A5	40	22	F9	7B	7D	5C
French	F8	21	F5	24	5E	97	60	9C	85	22	F9	82	8A	87
Belgian	5B	21	5D	24	5E	97	60	23	85	22	F9	82	8A	87
English (UK)	24	7C	21	9C	AA	DD	60	23	40	22	16	7B	7D	5C

Table 5-4
ASCII Equivalents for EBCDIC Values (6400 or 5055 Computer)

								ASCII						
	4A	**4F**	**5A**	**5B**	**5F**	**6A**	**79**	**7B**	**7C**	**7F**	**A1**	**C0**	**D0**	**E0**
English (US)	9B	0E	21	24	AA	7C	60	23	40	22	7E	7B	7D	5C
German	8E	21	9A	24	5E	94	60	23	15	22	E1	84	81	99
Danish/ Norwegian	23	21	0F	8F	5E	ED	60	92	05	22	81	91	86	5C
Finnish/ Swedish	15	21	0F	8F	5E	7C	82	8E	99	22	81	84	86	90
Italian	F8	21	82	24	5E	95	97	9C	15	22	8D	85	8A	87
Spanish	5B	OE	5D	—	AA	A4	60	A5	40	22	06	7B	7D	5C
French	F8	21	15	24	5E	97	60	9C	85	22	06	82	8A	87
Belgian	5B	21	50	24	5E	97	60	23	85	22	06	82	8A	87
English (UK)	24	OE	21	9C	AA	7C	60	23	40	22	5F	7B	7D	5C

For characters other than those in Table 5-3, refer to the appropriate IBM character set. Languages and set numbers are in Table 5-5.

Table 5-5
IBM Character Sets

Number	**Language**	**IBM Set**
1	English (U.S.)	037–850
2	German	273–850
3	Danish/Norwegian	277–850
4	Swedish/Finnish	278–850
5	Italian	280–850
6	Spanish	284–850
7	French	297–850
8	Belgian	500–850

EBCDIC to ASCII Table

0x00

0x00	0x01	0x02	0x03	0x00	0x09	0x00	0x7F
0x00	0x00	0x00	0x0B	0x0C	0x0D	0x0E	0x0F
0x10	0x11	0x12	0x13	0x00	0x00	0x08	0x00
0x18	0x19	0x00	0x00	A_DUP	0x00	0x00	0x00

0x20

0x00	0x00	0x1C	0x00	0x00	0x0A	0x17	0x1B
0x00	0x00	0x00	0x00	0x00	0x05	0x06	0x07
0x00	0x00	0x16	0x00	0x00	0x1E	0x00	0x04
0x00	0x00	0x00	0x00	0x14	0x16	0x00	0x1A

0x40

0x20	0x00	0x00	0x00	0x00	0x00	0x00	0x00
0x00	0x00	0x9b	0x2E	0x3C	0x28	0x2B	0x0e
0x26	0x00	0x00	0x00	0x00	0x00	0x00	0x00
0x00	0x00	0x21	0x24	0x2A	0x29	0x3B	0xaa

0x60

0x2D	0x2F	0x00	0x00	0x00	0x00	0x00	0x00
0x00	0x00	0x7C	0x2C	0x25	0x5F	0x3E	0x3F
0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00
0x00	0x60	0x3A	0x23	0x40	0x27	0x3D	0x22

0x80

0x00	0x61	0x62	0x63	0x64	0x65	0x66	0x67
0x68	0x69	0x00	0xc2	0xc1	0xc3	0xc5	0x00
0x00	0x6A	0x6B	0x6C	0x6D	0x6E	0x6F	0x70
0x71	0x72	0x00	0x00	0x00	0xb4	0x00	0x00

0xa0

0x00	0x7E	0x73	0x74	0x75	0x76	0x77	0x78
0x79	0x7A	0x00	0xc0	0xda	0xb3	0x00	0x00
0x00	0x00	0x00	0x00	0x00	0x00	0x00	0x00
0x00	0x00	0x00	0xd9	0xbf	0x00	0x00	0xc4

0xc0

0x7B	0x41	0x42	0x43	0x44	0x45	0x46	0x47
0x48	0x49	0x00	0x00	0x00	0x00	0x00	0x00
0x7D	0x4A	0x4B	0x4C	0x4D	0x4E	0x4F	0x50
0x51	0x52	0x00	0x00	0x00	0x00	0x00	0x00

0xe0

0x5c	0x00	0x53	0x54	0x55	0x56	0x57	0x58
0x59	0x5A	0x00	0x00	0x00	0x00	0x00	0x00
0x30	0x31	0x32	0x33	0x34	0x35	0x36	0x37
0x38	0x39	0x00	0x00	x00	0x00	0x00	0x00

Examples

▶ The first example remaps three characters. It applies only to the 2415, 2425, 2455, or 248X terminal. It does not apply to the 6400 or 5055 computer because U.S. English values are correct in these terminals.

▶ The second example applies to the 2415, 2425, 2455, or 248X terminal. This example remaps 14 characters appropriate to U.S. English to 14 characters more appropriate to Austrian/German.

▶ The third example applies to the 6400 or 5055 computer. This example also remaps 14 characters appropriate to U.S. English to 14 characters more appropriate to Austrian/German.

EXAMPLE 1:   **ASCII hexadecimal file 3270.XLT remaps 3 characters**

0x9B 0xBD
0x0E 0x7C
0x7C 0xDD

EBCDIC Hex Value	Original to be Replaced	Replacement for Display
4A	ø	¢
4F	∓	|
7C	|	¦

EXAMPLE 2:   **ASCII hexadecimal file 3270.XLT remaps for German (2415, 2425, 2455, or 284X terminal)**

0x9B 0x8E
0x0E 0x21
0x21 0x9A
0x24 0x24
0xAA 0x5E
0x7C 0x94
0x60 0x60
0x23 0x23
0x40 0xF5
0x22 0x22
0x7E 0xE1
0x7B 0x84
0x7D 0x81
0x5C 0x99

EBCDIC Hex Value	Original to be Replaced	Replacement for Display
4A	¢	Ä
4F	|	!
5A	!	Ü
5B	$	$
5F	¬	^
6A	¦	ö
79	`	`
7B	#	#
7C	@	§
7F	"	"
A1	~	b
C0	{	ä
D0	}	ü
E0	\	Ö

EXAMPLE 3: **ASCII hexadecimal file 5250.XLT remaps for German (6400 or 5055 computer)**

```
0x9B 0x8E
0x0E 0x21
0x21 0x9A
0x24 0x24
0xAA 0x5E
0x7C 0x94
0x60 0x60
0x23 0x23
0x40 0x15
0x22 0x22
0x7E 0xE1
0x7B 0x84
0x7D 0x81
0x5C 0x99
```

EBCDIC Hex Value	Original to be Replaced	Replacement for Display
4A	¢	Ä
4F	|	!
5A	!	Ü
5B	$	$
5F	¬	^
6A	¦	ö
79	`	`
7B	#	#
7C	@	§
7F	"	"
A1	~	b
C0	{	ä
D0	}	ü
E0	\	Ö

Downloading Files

2415, 2425, 2455, or 248X Terminal

You can use one of several methods to download a file to a 2415, 2425, 2455, or 248X terminal, including:

- ▶ FileCopy through a serial connection from your terminal to your personal computer

▶ **NOTE:**   *You must use the latest version of the T24FCOPY FileCopy utility and do a Ymodem transfer of the data. Do not do an Xmodem transfer.*

- ▶ The Download Server feature on the DCS 300 to a terminal loaded with UDP Plus protocol
- ▶ The Receive File reader command
- ▶ The TFTP application on a personal computer or host to a terminal loaded with the TCP/IP protocol

To use these methods, refer to your terminal's user manual for help.

To restart your TE application, do one of the following:

- ▶ Scan this bar code label:

Reset Firmware

–.

You can also send the Reset Firmware command over the network. For help, refer to your terminal's user manual.

- ▶ Use the TRAKKER Antares 2400 Menu System to configure the Resume Execution command to resume "not allowed." Choose Terminal Menu from the Configuration Menu and then choose Power Management. Each time you press $\boxed{I/o}$ to turn on the terminal, it boots and restarts your application. For more information, refer to your terminal's user manual.
- ▶ Access the TRAKKER Antares 2400 Menu System and select the TE application through the File Manager option. For help, refer to your terminal's user manual.

The terminal restarts your TE application using the configuration saved in CONFIG.DAT.

6400 or 5055 Computer

Before you can download a file to a 6400 or 5055 computer, you must configure INTERLNK on a desktop or laptop. INTERLNK, a part of MS-DOS, is a device driver that connects your 6400 or 5055 computer and personal computer through their serial ports. This connection enables you to exchange files. It also enables you to edit the 6400 or 5055 computer's configuration files, such as CONFIG.DAT.

INTERSVR is the INTERLNK server and is a communications option on your 6400 or 5055 computer. INTERLNK and INTERSVR are provided with DOS and shipped with your 6400 or 5055 computer toolkit.

For complete installation instructions, refer to the README.TXT file provided with 6400 and 5055 computers.

Data Stream Commands

► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ► ►

Overview

This section describes 3270 SNA/SDLC and asynchronous display data stream commands and orders that the host application can send to the terminals. Orders govern format and data expectations within a data stream command. Also included in this section is information on formatting data to be displayed on the terminals.

This section is not intended as a specific guide for programming, but a comparison with your existing system. The information helps identify differences between your screen-generating utilities and features supported by the terminals.

Screen Design Aid

This section, along with your Screen Design Aid (SDA) documentation, can help you resolve occasional questions concerning discrepancies that may arise regarding attribute selection and the capabilities of the terminals. This section includes information you may not need, because you can use your SDA to do much, if not all, of the programming to handle commands and orders for the network.

This information is provided to assure you have the most accurate and detailed information available and to describe variations from the 3270 data stream where they occur.

If you are comfortable using the SDA on your host computer, you can flip through this section to find out which commands and orders the terminals support. You can then read Section 7, which describes the extended commands you can use to do operations beyond the capability of the 3278 Model 2 terminal.

Applications

If you need to write applications specifically for the terminal, it is recommended that you use the corner mode window onto the 3278 Model 2 terminal and write programs using the portion of the display available without moving the window. This is the most efficient method for developing custom applications for the terminal.

3270 Data Stream Commands

The 3270 data stream consists of application data, commands and structured field functions, and orders which are transmitted between the controller and the host system. The terminals support a subset of the IBM 3270 command structure to display and accept keyboard or scanner input. The following chart lists the SNA/SDLC and asynchronous commands that the terminals support.

	Syntax	
Command	**SNA/SDLC (Hex)**	**Asynchronous**
Erase All Unprotected	6F	?
Erase/Write	F5	5
Erase/Write Alternate	7E	=
Read Buffer	F2	2
Read Modified	F6	6
Read Modified All	6E	>
Reset Terminal	Not applicable	G
System Services Control Point		4
Write	F1	1

Erase All Unprotected Command

The Erase All Unprotected command performs the following functions at the selected terminals:

► Clears unprotected buffer locations to nulls.

► Resets to 0 the MDT bit for each unprotected field.

► Positions cursor address to the first location of the buffer.

Erase/Write Command

The Erase/Write command performs both an erase operation and a write operation, as follows:

1. The erase operation clears the device buffer to nulls, positions the cursor address at the first location in the buffer, and resets the buffer address to its first location.

2. The Erase/Write command performs the write and write control character (WCC) operations in the same manner as the Write command. If no WCC is sent, the Erase/Write command will not erase the buffer.

Erase/Write Alternate Command

The Erase/Write Alternate command performs the same function in the terminal as the Erase/Write command, and allows both the erase and write operations to take place.

Read Buffer (RB) Command

The RB command causes buffer data from the terminal to be transmitted to the main storage in the central processing unit. All buffer data and nulls from the beginning to the end of the buffer location are included in the transfer. The default setting for the beginning of buffer data transfer is 0. If the RB command is chained from the Write or Erase/Write command, data transfer will begin from the current buffer address with all nulls suppressed.

The RB response starts with a 3-byte heading that includes the AID character and a 2-character cursor address. The controller inserts a Start Field order to identify the beginning of each field. Alphanumeric data for each field then follows the RB command header.

The RB command data stream uses the following format:

<AID code> <cursor address> <SF order> <attribute byte> <first data field> <second data field>

▶**NOTE:**   *Response times increase for the Read Buffer command because of the large quantity of data processed during the read buffer operation.*

Read Modified Command

A major feature of the Read Modified command is null suppression. During read modified command operations, null codes are not sent.

During a Read Modified command, all fields that have been modified are transferred to the program. All nulls are suppressed during data transfer and thus are not included in the read data stream. As a field is modified by the operator, the MDT bit is set in the attribute byte for that field. Then, when a read-modified operation is performed, successive attribute bytes are examined for a set MDT bit. When the bit is found, the data in the associated field is read (with nulls suppressed) before the next attribute byte is examined. If the screen is unformatted the entire screen (with nulls suppressed) is sent.

Read Modified All Command

The Read Modified All command is the same as the Read Modified command.

Reset Terminal

The Reset Terminal command is an asynchronous command that returns the terminal to its first "state," a known condition. All terminals are reset when "t" is omitted. Terminals respond to a poll with their power-up message.

Function	Syntax	Controller	R Response
Resets terminal(s)	Gt<cr> [t only] G<cr> [all]	OK<cr>	tP,x<cr>

Variables: t = terminal number (network address)
              x= terminal type code (071 for 3270)

EXAMPLE: Command: G002<cr>
               Response: Controller resets terminal 002

System Services Control Point (SSCP) Command

The SSCP command reads in new data from the host and places it at the current cursor position. If a 0x15 new line character is among the data, the terminal performs a newline function. The SSCP command has no orders or WCC character associated with it. The command generates an unformatted screen.

Write Command

A Write command from the host computer consists of a command code, a WCC, and any orders or new buffer data (or both) required to modify the existing buffer contents.

Execution of the Write command is in two steps:

1. The WCC is processed.
2. Buffer data and orders are processed.

Data may be any ASCII character in the range of 0x20 to 0x7E, and must define the character content of a field.

Buffer data characters may be written into any location of the buffer without erasing or modifying the data in other locations. Data is stored in successive buffer locations until an order alters the buffer address, or until all data has been entered.

During the write operation, the buffer address advances one location as each character is stored. If the Set Buffer Address order does not immediately follow the WCC command, the terminal will start writing data from the first location of the buffer.

Write Control Character

Bits 0, 1, and 2 of the WCC cause action in the terminal. The following chart describes the format of the WCC byte.

Bit #	Description
0	Reset MDT bits. When set to 1, all MDT bits in the selected buffer are reset before any data is written or orders are executed.
1	Keyboard restore bit. When set to 1, the terminal allows input. The station locks out all data when it sends data to the host and will not accept input until it receives a command with this bit set.
2	Sound alarm bit. When set to 1, the selected terminal's alarm sounds three short beeps after operation.
3–7	Unused ("do not care") bits.

▶ **NOTE:**   *Bit numbers are in the opposite order of those described in the IBM 3270 Information Display System Component Description manual.*

The terminal ignores all WCC bits defined as "unused." Only the three least significant bits of the WCC byte cause action in the terminal. These are converted to ASCII characters. Appendix B contains a binary to ASCII conversion table.

Orders and buffer data follow the WCC. Data characters are any of the displayable ASCII characters in the range hexadecimal 20 through 7E. They define the character content of a protected or unprotected field.

Buffer data characters may be written into any specific location of the buffer without erasing or modifying the data in other buffer locations. Data characters are stored in successive buffer locations until an order alters the buffer address, or until all data has been entered.

During the write operation, the buffer address is advanced one location as each character is stored. If the Set Buffer Address order does not immediately follow WCC, the terminal starts writing data from the first location of the buffer.

3270 Data Stream Format

The 3270 data stream terminal command format (WtDxyz) is an asynchronous format that an asynchronous host uses to send data to the terminal.

Syntax	Controller Response	R Response
WtDxyz<cr>	None	tKas{Atu.../Atu}<cr>

Variables: t = Terminal number

    x = 3270 data stream command:
       ? Erase All Unprotected
       5 Erase/Write
       = Erase Write Alternate
       2 Read Buffer
       6 Read Modified
       > Read modified all
       G Reset terminal
       4 SSCP
       1 Write

    y = 3270 write control character (WCC)
       Bit 0 Reset MDT bits
       Bit 1 Keyboard restore
       Bit 2 Sound alarm

    z = Terminal orders or ≤1024 characters

    a = AID key code

    s = 4-byte right-justified, zero-filled address of the current cursor position when the AID key was pressed (values 0–1919)

   /At = Set Buffer order followed by a 4-byte right-justified, zero-filled address of the field from where the data is returned

    u = Data entered or modified for this field

   {} = Optional

EXAMPLE: Command: W000D5G/A0000/F'ID:/F@%/A0017/F'/A0081/
                                         DESCRIPTION:/A0160/F@%/A0177/F'/A0241/
                                         QUANTITY:/F@&/A0253/F'<cr>

This command is for a terminal in the window and 16x9 display mode. The command displays the following on the terminal:

```
ID:%
DESCRIPTION:
%
QUANTITY:&
```

If the user enters "210458236" for the ID field, "PEACH CRATES" for the description field, and "85" for the quantity field, the screen displays:

```
ID:210458236
DESCRIPTION:
PEACH CRATES
QUANTITY: 85
```

When the terminal operator presses [ENTER], the host receives the following response:

```
000K'0252/A0004210458236/A0161PEACH CRATES/A025085
```

Orders

Terminal orders may be included in each 3270 data stream command, either alone or intermixed with display data. Terminal orders are executed sequentially, and only after the complete data stream has been received by the terminal and checked for errors. Orders are not stored in the display buffer with other data in the data stream. For the asynchronous data stream, they are added to the data stream following a "/" character.

Buffer control orders position, define, and format data being written into the buffer. They also erase selected unprotected data in the buffer and reposition the cursor address. Table 6-1 lists the orders.

Table 6-1
3270 Data Stream Orders

Order	Code SNA/ SDLC	Asynch.*	Byte 2	Byte 3	Byte 4
Erase Unprotected to Address	12	/Exxxx	1st address byte	2nd address byte	Not used
Insert Cursor	13	/C	Not used	Not used	Not used
Program Tab	05	/P	Not used	Not used	Not used
Repeat to Address	3C	/Rxxxxy	1st address byte	2nd address byte	Character to be repeated
Scanner	1F	/Sttt**	Bar code control byte	1st option byte	2nd option byte
Set Buffer Address	11	/Axxxx	1st address byte	2nd address byte	Not used
Start Field	1D	/Fa	Attribute character	Not used	Not used

*   xxxx = a 4-byte buffer address, 0 to 1919, right-adjusted, zero-filled

    y = character to be repeated

    ttt = scanner order designator

    a = an attribute byte

**   /Sttt applies only to the 6400 and 5055 computers.

The following pages describe buffer control orders, which are executed sequentially at the selected terminal, after the complete data stream has been received by the station and checked for data integrity. These orders are not stored in the display buffer.

Most of the buffer control orders position, define, and format data being written into the buffer, erase selected unprotected data in the buffer, and reposition the cursor address. The Scanner order is an extension of the 3270 data stream and is not supported by the 3278 Model 2.

Erase Unprotected to Address (EUA) Order

The EUA order inserts nulls in all unprotected buffer locations, starting at the current buffer address and ending at (but not including) the specified stop address. For the asynchronous data stream, the stop address is specified by address bytes "xxxx" which immediately follow the EUA order in the write data stream. For SNA/SDLC (non-Telnet), the stop address is specified by the two address bytes which immediately follow the EUA in the write data stream.

If an invalid stop address is specified (that is, an address outside the range of the terminal's display buffer) the following occur (not necessarily in the order listed):

▶ The write operation is terminated at this point.

▶ The character is not stored.

▶ The terminal recognizes this as an error condition and performs a clear memory operation.

▶ The display buffer is set to nulls.

▶ A clear AID character is transmitted to the terminal control unit for forwarding to the host computer.

When the stop address is lower than the current buffer address, the EUA order wraps from the end of the buffer to the beginning of the buffer and continues. When the stop address equals the current buffer address, all unprotected character locations in the buffer are erased (set to nulls).

Insert Cursor (IC) Order

The IC order changes the stored cursor address to the location specified by the current buffer address. The current buffer address does not change.

For example, if the IC order is issued when the current buffer address is 320 and the present stored cursor address is 0 (zero), the cursor address changes from 0 to 320. The current buffer address at the end of this operation remains at address 320. If multiple IC orders appear in the write data stream, the last one encountered is used in subsequent operations.

If the IC order is placed at a location past the end of display on the terminal, the current buffer address will be updated so that the cursor address will be located on the display.

At the end of write data stream, after all orders have been executed by the terminal and all required data has been entered into the buffer, the stored cursor address determines which unprotected field should be displayed to the user first. The following algorithm is used:

1. The terminal searches the buffer backward to find the first protected field attribute before the stored cursor address. Unprotected attributes are not considered.
2. The terminal then executes a forward tab (or equivalent) to an unprotected field.
3. If a protected field attribute is not found before the first location of the display buffer is found (location 0), then an unconditional forward tab equivalent will be executed, causing the first unprotected field in the buffer to be displayed.

Program Tab (PT) Order

The PT order advances the current buffer address of the first character position to the next unprotected field. Special conditions are as follows:

▶ If the PT order is issued when the current buffer address is the location of an attribute byte of an unprotected field, the buffer address is set to the next location of that field (location 1).

▶ If a PT order follows data, the rest of the field is null-filled.

▶ If a PT order in the write data stream does not follow a control command, order (or order sequence such as WCC), Insert Cursor order, or Repeat to Address order (4-character sequence), nulls are inserted from the current buffer address to the end of the field.

▶ When the PT order follows a control command, order, or sequence order, the buffer content is not modified for that field.

The PT order stops its search at the last location in the buffer. If an attribute character for an unprotected field is not found by this point, the buffer address is set to 0 (first location of the buffer). If the PT order finds an unprotected attribute in the last location of the buffer, the buffer address is still set to location 0.

To continue the search for an unprotected attribute, a second PT order must be issued immediately following the first one. Since the current buffer address was set to 0 by the first PT order, the second PT order begins its search starting at location 0. If the previous PT order was inserting nulls in each character location when it was terminated at the last buffer location, the new PT order will continue to insert nulls from buffer location 0 to the end of the current field.

Repeat to Address (RA) Order

The RA order stores a character "y" in all buffer locations starting at the current buffer address and ending at (but not including) the specified stop address. For the asynchronous protocol, the stop address is "xxxx." The stop address and the character to be repeated are identified by the five bytes immediately following the RA order in the write data stream.

For the SNA/SDLC protocol, the third character following the RA order is always interpreted as the character to be repeated. If an invalid stop address is specified (such as an address outside the range of the terminal's display buffer), the following occur (not necessarily in the order listed):

- ▶ The write operation is terminated at that point.
- ▶ The character is not stored.
- ▶ The terminal recognizes this as an error condition.
- ▶ The terminal automatically performs a clear memory operation.
- ▶ The entire display buffer is set to nulls.
- ▶ A clear AID character is transmitted to the terminal control unit for forwarding to the host.

When the stop address is lower than the current buffer address, the RA operation wraps from the end of the buffer to the beginning of the buffer and continues. When the stop address equals the current buffer address, the specified character is stored in all buffer locations.

Attribute characters will be overwritten by the RA order if they occur before the RA order stop address.

/Sttt
Scanner (SCN) Order

▶ **NOTE:**   */Sttt applies only to the 6400 and 5055 computers.*

The SCN order is an extension to the 3270 data stream and is not supported by IBM display terminal. The order tells the terminal which bar code algorithm to apply to the bar code data read by the bar code reading device, and what the minimum and maximum length range of a valid decode is.

When auto-discriminating bar codes, the probability of a cross-substitution increases. To reduce this probability, the application can enable only certain algorithms and specify the minimum and maximum number of characters needed for a good decode.

The SCN parameters are stored in the terminal and do not need to be sent with every Write command. These parameters are in effect for all data fields (that is, they are not specific to any one field). If the decoded data is not within the bounds of the SCN parameters, then the decode is considered to be bad. If the decode meets the SCN parameters, then the data is passed to the keyboard handler which may reject the data if it does not fit the target field attributes.

The SCN order has the following format:

Syntax: (/Sttt)

- ▶ S = SCN order
- ▶ First t = bar code control
- ▶ Second t = option byte 1
- ▶ Third t = option byte 2

The "bar code control" byte indicates the method by which the option bytes are to be decoded. You may need to send multiple SCN orders to handle all parameters and bar codes that may be used. The terminal contains the bar code algorithms for those bar codes listed in Table 6-2. For additional bar code scanning options for the terminal using the 3270 extended command set, see "Scan (#S)" in Section 7, "Extended Commands."

Table 6-2
Scanner Order Byte Definitions

Parameter	Bar Code Control Byte (Hex)	Option Byte 1	Option Byte 2 Bit Definitions
Bar code length [1]	00	Maximum length	Minimum length
UPC bar codes	01	00	Bit 5 = enable UPC Bit 4 = enable UPC with add-ons Bit 3 = expand UPC-E to UPC-A Bit 2 = UPC-E System 1
EAN bar codes	02	00	Bit 5 = enable EAN Bit 4 = enable EAN with add ons
CODE 39 bar codes	03	00	Bit 5 = enable CODE 39 Bit 4 = enable Extended CODE 39
PLESSEY bar codes	04	00	Bit 5 = enable PLESSEY Bit 4 = retain 2nd check digit Bit 3 = validate 1st check digit Bit 2 = retain 1st check digit Bit 1 = MOD 10 1st check digit Bit 0 = MOD 11 1st check digit
CODABAR bar codes	05	00	Bit 5 = enable ABC CODABAR Bit 4 = enable CODABAR
CODE 93 bar codes	07	00	Bit 5 = enable CODE 93
2 OF 5 bar codes [2]	09	00	Bit 5 = enable Straight 2 of 5 Bit 4 = enable Computer Identics 2 of 5 Bit 3 = enable Interleaved 2 of 5
Redundancy	11	00	Bit 3 = enable CCD 20/20 scanning Bit 2 = enable HP wand scanning Bit1 = enable CCD 20/20 redundancy Bit 0 = enable laser beam redundancy
Scanning options [3]	12	00	Bit 6 = enable use of bits 1 & 2 Bit 5 = enable bar code type character Bit 4 = enable scanning concatenation Bit 3 = enable auto scan/forward tab Bit 2 = enable auto scan/enter Bit 1 = Laser Scanner voltage: 0–5 volts, 1–12 volts (RT3210 Radio Terminal) Bit 0 = enable MOD 10 check digit

[1] The maximum and minimum values for bar code lengths must be a value between hexadecimal 01 and hexadecimal 20 (decimals 1 and 31). If a Length Scanner order (bar code control byte hexadecimal 00) is not sent to the terminal, the default setting is a minimum length of 1 and maximum length of 32.

All values above (hexadecimal yy) are hex values for the lower six bits of the bytes. With the 3270 data stream, these values need to be converted into EBCDIC display characters. An EBCDIC conversion chart is provided in Appendix B.

[2] The bar code control byte for 2 OF 5 (hexadecimal 09) requires four additional bytes of information, which directly follow option byte 2. These fields must have a value in the lower 6 bits between hexadecimal 01and 20 (decimals 1 and 32), and be converted to display characters by using the EBCDIC conversion chart in Appendix B. The required extra fields are:

<maximum length> <minimum length> <Fix 1 length> <Fix 2 length>

[3] Scanning options may also be set through the terminal's firmware menus or TE configuration menus.

The following chart shows an example of an SCN order in a write data stream. In this example Code 39 and Extended Code 39 are enabled with a maximum length of 24 and a minimum length of 8. CCD redundancy is also enabled.

Byte Value (Hex)	Meaning
1F	Scanner order (SCN)
03	Bar code control byte, Code 39
00	Option byte 1
60	Option byte 2, enable Code 39 and Extended Code 39
1F	Scanner order (SCN)
00	Bar code control byte, bar code lengths
18	Option byte 1, maximum length of 24 (decimal)
08	Option byte 2, minimum length of 8 (decimal)
1F	Scanner order (SCN)
11	Bar code control byte, redundancy
00	Option byte 1

Set Buffer Address (SBA) Order

The 3-byte SBA order specifies a new buffer address from which operations are to start or continue. Operations start at address 0 (zero) by default.

The SBA order may be used to write data into various areas of the buffer. An SBA order may also do the following:

► Precede another order in the data stream to specify the starting address for a Program Tab, Repeat to Address, or Erase Unprotected to Address order.

► Specify the address at which an attribute byte is stored by a Start Field order.

► Specify the cursor address for an Insert Cursor order.

If the SBA order specifies an invalid address (that is, an address outside the range of the terminal's display buffer) the following occur:

1. The write operation is terminated at that point.
2. The terminal recognizes this as an error condition.
3. The terminal automatically performs a clear memory operation.
4. The entire display buffer is set to nulls.
5. A clear AID character is transmitted to the terminal control unit for forwarding to the host.

The result of this action is the same as if the user had selected Function 7 (clear memory).

Start Field (SF) Order

The SF order notifies the terminal that the next byte in the write data stream is an attribute character. The terminal stores the next byte and attribute character at the current buffer address. As the attribute character is stored, the terminal sets a control bit at the address. This bit identifies the byte as an attribute character during subsequent program or device operations with the buffer data.

▶ **NOTE:**   *The byte immediately following the SF order in the data stream is always stored as an attribute character, even when the byte is intended as an order or an alphanumeric data character.*

The byte following the SF order defines the characteristics or "attributes" of the data that follows. Each attribute character, plus all the data following it up to the next attribute character (or the last location of the buffer) is called a field.

In addition to defining the start of a field, attribute characters define these characteristics for all character locations contained within the field:

  ▶ Protected from modification by the user, or unprotected (available for the operator to modify or enter data). The unprotected definition classifies the field as an input field.

  ▶ Alphanumeric (an input field in which the operator can enter alphabetic, numeric, or symbol characters) or numeric (an input field in which the period, dash, and numbers 0–9 may be used).

  ▶ Field displayed or not displayed to the user.

Each character occupies one of the character locations in the buffer, but cannot display. Table 6-3 lists attribute character bit assignments. During display operations, attribute characters appear as blanks.

Table 6-3
3270 Attribute Character Bit Assignments

Bit #	Description
7	Not used
6	Not used
5*	0 = Unprotected 1 = Protected
4*	0 = Alphanumeric 1 = Numeric only
3, 2	00 = Field is displayable, normal video mode 01 = Field is displayable, normal video mode 10 = Field is displayable, reverse video mode 11 = Field is nondisplayable
1	1 = Keyboard only data 0 = Keyboard or bar code reader input allowed
0	MDT bit identifies modified fields which must be sent to the controller when transmission begins: 0 = Field has not been modified. 1 = Field has been modified; may also be set by the application program in the data stream to force transmission of a particular field.

* Bits 5 and 4 equal to 11 cause an automatic skip.

Attribute characters are treated as characters that are protected from user intervention. They cannot be replaced by alphanumeric characters entered from the keyboard or scanner. However, the MDT of the attribute can be changed by the operator by using Table 6-3. Also, attribute characters are not protected from being overwritten by alphanumeric data that is included in a Write, Erase/Write, or Erase All Unprotected command data stream.

Additional SF features include automatic skip, auto-forward tab, and auto enter.

Automatic Skip

Automatic skip automatically forward tabs to the next input field when the current input field is full. This is done by setting the attribute byte of the next field to be protected and numeric (bits 5 and 4 of the attribute character are equal to 11). This indicates to the terminal that when the last byte in the input field is filled, the terminal should advance to the next input field.

Auto-Forward Tab

The auto-forward tab on a good bar code scan is used for unprotected (input) fields to allow keystroke operations to be emulated upon the detection of a good scan. The auto-forward tab will automatically advance to the next input field after processing bar code data.

For asynchronous communications, initiate this feature by inserting a "%" character in the first byte of an unprotected (input) field after the attribute byte of a Start Field order (/Fa%).

Auto Enter

The auto enter feature is also used for unprotected input fields to allow emulation of keystroke operations when a good scan is detected. Auto enter on a good bar code scan will automatically emulate the pressing of the Enter key after processing bar code data. This sends the data to the host system.

For asynchronous communications, initiate this feature by inserting an "&" character in the first byte of an unprotected input field after the attribute byte of a Start Field order (/Fa&).

Sending Data to the Host

Data is returned to the host computer when the operator presses the [ENTER] key on the terminal's keyboard. When this happens, the station transmits all modified data fields back to the host computer. Data is returned to the host computer in the following format:

<AID> <cursor address> <SBA> <attribute> <address +1> <data> <SBA> <attribute> <address +1> <alphanumeric data>

3270 AID Keys

The 3270 AID keys request an application program from the host computer. Enter [ENTER], [F1] through [F24], [PA1], [PA2], [PA3], or the [CLEAR] key for the desired program. The AID key sends the AID code (an ASCII value) and any modified data. The [CLEAR], [PA1], [PA2], and [PA3] keys send only the AID code. Table 6-4 lists AID keys and values.

Table 6-4
3270 Function Key Conversions

AID Key	Hexadecimal	ASCII	AID Key	Hexadecimal	ASCII
F1	41	A	F16	50	P
F2	42	B	F17	51	Q
F3	43	C	F18	52	R
F4	44	D	F19	53	S
F5	45	E	F20	54	T
F6	46	F	F21	55	U
F7	47	G	F22	56	V
F8	48	H	F23	57	W
F9	49	I	F24	58	X
F10	4A	J	Enter	27	'
F11	4B	K	Clear	37	7
F12	4C	L	PA1	59	Y
F13	4D	M	PA2	5A	Z
F14	4E	N	PA3	2C	,
F15	4F	O			

Extended Commands

▶　▶　▶　▶　▶　▶　▶　▶　▶　▶　▶　▶　▶　▶　▶　▶　▶　▶　▶　▶

Overview

Extended commands govern abilities unique to terminals. You can use extended commands to transmit or receive data over the terminal's RS-232 port, send information to an RS-232 device (such as a printer or bar code printer), or collect data. The following chart lists the commands.

Name	Characters
Transmit and Receive On RS-232 Port	#F
Transmit Only On RS-232 Port	#P
Receive Only On RS-232 Port	#G
Set Parameters *(supported only on 6400 and 5055 computers)*	#H
Return Version	#V
Tone	#T
Scan	#S

To use extended commands, you must enable the extended command option through the TE configuration menus. See Section 4 for information about enabling the command on a 2415, 2425, 2455, or 248X terminal. For a 6400 or 5055 computer, refer to the terminal's user manual.

Transmit and Receive On RS-232 Port (#F)

Use the Transmit and Receive On RS-232 Port extended command to transmit and receive data on the terminal's RS-232 port. The command uses "#F" characters to request communication on the port.

When constructing a Transmit and Receive command, the data to be sent to the port should be placed at Line 2, Column 1. The data must be less than 1840 bytes in length (after "=yy" compression). The last character must be a "#" (pound). The terminal sends the data to the RS-232 port until it detects a "#" character.

Line 2, Column 1 begins the start of transmit data. The host application must set up the screen with a transmit field to locate the RS-232 port I/O data. The field can be anywhere on the screen, beginning at position 80. The host application must supply the receive field (for response from the RS-232 port to the host). The receive field can be anywhere on the screen except for the position allocated for the return status field.

The output stream appears in ASCII character format. For bytes that are not displayable ASCII characters, you may insert the characters "=yy," where "yy" is the hexadecimal representation of the output byte. For example, if your printer requires a carriage return, you would insert "=0D." You would insert "=0A" for a line feed. Appendix B contains other hexadecimal values.

Table 7-1 describes the line and columns where characters must appear, and their meanings.

Table 7-1
Transmit and Receive Characters

Line 1, Columns 2-24

Column	Description	Character
2	Extended command	#
3	Transmit and Receive On RS-232 Port command	F
4	Speed (bits per second)	1=1200 2=2400 3=4800 4=9600 5=19200 6=38400
5	Data parity	N=None 0 (zero)=None (Space)=None E=Even O=Odd
6	Data bits	7=Seven 8=Eight
7	Stop bits	1=One 2=Two
8	*For 6400 and 5055 computers:* CTS flow control *For 2415, 2425, 2455, and 248X terminals:* Reserved	0=Disable 1=Enable (Space)

Table 7-1 (Continued)
Transmit and Receive Characters

Line 1, Columns 2-24

Column	Description	Character
9	*For 6400 and 5055 computers:* DTR flow control	0=Disable 1=Enable
	For 2415, 2425, 2455, and 248X terminals: Reserved	(Space)
10	XON/XOFF flow control	0=Disable 1=Enable
11–12	Flow control timeout value	XX=Number of seconds
13	Return AID key	(Space)=AID key is Enter (default). X=AID key character. See Table 7-2 (page 7-4) for return AID key characters.
14–15	Maximum characters to receive	(Space)=Default dd *or* Xd…dX, where: dd=00–99. Default: 99. X=An uppercase literal d…d=Any number of decimal digits from 0–2000, inclusive. Default: 99.
16–17	Delimiter character	AA=Hexadecimal ASCII code that marks the end of data to be received. Range: 00–7E. Default of 00 implies no start character.
18–19	Number of delimiter characters	XX=Number of characters accepted before sending return code to host. Range: 00–99. Default of 00 implies no start character.
20–21	Start character	AA=Hexadecimal ASCII code. Range: 00–99. Default of 00 implies no start character.
22	Return start character to host	F=Return character (Space)=Do not return character
23	Flag parity errors	P=Flag (Space)=Do not flag
24–25	Receive timeout length	XX=Number of seconds the terminal waits for input from the RS-232 port before it sends a timeout error. Uses a default of 5 seconds when field is filled with spaces.

Flow Control

The Transmit command supports these types of flow control:

▸ RTS/CTS *(6400 and 5055 computers)*

▸ XON/XOFF

Use CTS and DSR flow control lines to show XON/XOFF conditions from the output device. Also use them to prevent output when the terminal has no output device. The DTR of the output device should connect to either the DSR or CTS lines.

XON/XOFF flow is the same XON/XOFF flow control most devices support. The timeout value tells the terminal how long to wait for the flow control handshake before returning a one-byte error value.

Return AID Key Characters

Table 7-2 lists the extended command AID keys and characters returned to the host. For example, if you want an F1 AID key, you would use "A" as the character.

Table 7-2
Return AID Keys

AID Key	Character	AID Key	Character
Enter	(Space)	F14	N
Clear	7	F15	O
F1	A	F16	P
F2	B	F17	Q
F3	C	F18	R
F4	D	F19	S
F5	E	F20	T
F6	F	F21	U
F7	G	F22	V
F8	H	F23	W
F9	I	F24	X
F10	J	PA1	Y
F11	K	PA2	Z
F12	L	PA3	,
F13	M		

Return Codes for Transmit and Receive Command
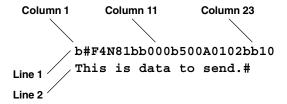
Line 24, Column 1 has the return status field. The code returned in this position tells the host the status of the extended command. The following chart lists the codes.

Code	Description	Column
0	Good status, transaction complete.	(None)
1	Not enough memory. Or, incorrect setting for speed, number of data bits, number of stop bits, or flow control timeout.	4, 6, 7, 11–12
2	No delimiter (#) on data stream.	(None)
3	Timeout while using CTS flow control *(6400 and 5055 computers only)*.	(None)
4	Timeout while using DTR flow control *(6400 and 5055 computers only)*.	(None)
5	Timeout while using XON/XOFF flow control.	(None)
6	Improper return field.	(None)
7	Hexadecimal value is outside the range of 00–0F.	15–16, 19–20
8	Error in AID code.	(None)
9	Incorrect setting for maximum characters to receive.	13–14
A	Incorrect setting for delimiter character.	15–16
B	Incorrect setting for number of delimiter characters.	17–18
C	Incorrect setting for CTS, DTR, or XON/OFF flow control.	8, 9, 10
D	Incorrect setting for start character.	19–20
E	Incorrect setting for data parity.	5, 22
F	Timeout.	(None)
O	Overrun of UART receive register; an error from the RS-232 device.	(None)
P	Data parity or framing error.	(None)

Example of Transmit and Receive Command

The following example and chart show what would be sent to a 6400 or 5055 computer to cause data to be transmitted and received. A "b" indicates a space.

Column 1   **Column 11**   **Column 23**

```
b#F4N81bb000b500A0102bb10
This is data to send.#
```

Line 1

Line 2

Column	Character	Description
1	(Space)	This column typically contains a space.
2	#	Extended command.
3	F	Transmit and Receive command.
4	4	9600 baud.
5	N	No parity.
6	8	Eight data bits.
7	1	One stop bit.
8	0	No CTS flow control.
9	0	No DTR flow control.
10	0	No XON/OFF flow control.
11–12	00	No flow control timeout value.
13	(Space)	AID key is Enter.
14–15	50	Receive a maximum of 50 characters.
16–17	0A	Delimiter character is 0A hexadecimal (line feed).
18–19	01	Data will be sent to host after one delimiter character has been received.
20–21	02	Start character is 02 hexadecimal (STX).
22	(Space)	Start character will not be returned.
23	(Space)	Do not flag parity errors.
24–25	10	Receive timeout length is 10 seconds.

Transmit Only On RS-232 Port (#P)

Use the Transmit Only On RS-232 Port extended command to send information to a slaved RS-232 device, such as a receipt printer or bar code printer. The command uses the RS-232 communications port to send data to the device. The terminal checks data from the host computer for a transmit sequence, then sends the requested data. The host computer signals the terminal for a transmit command by inserting the characters "#P" into the display at Line 1, Columns 2 and 3. Characteristics of the transmission immediately follow the #P command.

When constructing a Transmit Only command, the data to be sent should be placed at Line 2, Column 1. The data must be less than 1840 bytes in length (after "=yy" compression). The last character must be "#." The terminal sends the data to the RS-232 port until it detects a "#" character.

Line 2, Column 1 begins the start of transmit data. The host application must set up the screen with a transmit field to locate the RS-232 port I/O data. The field can be anywhere on the screen, beginning at position 80.

The output stream takes the form of ASCII characters. For nondisplayable ASCII characters, you may insert the characters "=yy," where "yy" is the hexadecimal representation of the output byte. For example, if your printer requires a carriage return, you would insert "=0D." You would insert "=0A" for a line feed. Appendix B contains other hexadecimal values.

Table 7-3 describes the line and columns where characters must appear, and their meanings. Note that the line and column information refers to a 3278 unit with a 24-line by 80-column display. The display buffer position refers to the same buffer but with a linear array ranging from 0–1919.

Table 7-3
Transmit Only Characters

Line 1, Columns 2-12

Column	Description	Character
2	Extended command	#
3	Transmit Only On RS-232 Port command	P
4	Speed (bits per second)	1=1200 2=2400 3=4800 4=9600 5=19200 6=38400
5	Data parity	N=None 0 (zero)=None (Space)=None O=Even E=Odd
6	Data bits	7=Seven 8=Eight
7	Stop bits	1=One 2=Two
8	CTS flow control *(6400 and 5055 computers only)*	0=Disable 1=Enable
9	DTR flow control *(6400 and 5055 computers only)*	0=Disable 1=Enable
10	XON/XOFF flow control	0=Disable 1=Enable
11–12	Flow control timeout value	XX=Number of seconds
13	Return AID key	(Space)=AID key is Enter (default). X=AID key character. See Table 7-2 (page 7-4) for return AID key characters.

Flow Control

Transmit Only supports RTS/CTS, DTR/DSR, and XON/XOFF. For descriptions, see page 7-4.

Return Codes for Transmit Only Command

The terminal puts the return code response in an input field in the display buffer at Line 24, Column 1. It simulates the [ENTER] key to return the value to the host.

Use the Start Field order to return a code for this operation. The following chart lists return codes.
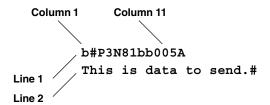
Code	Description	Column
0	Good status, transaction complete.	(None)
1	Not enough memory. Or, incorrect setting for speed, number of data bits, number of stop bits, or flow control timeout.	4, 6, 7, 11–12
2	No delimiter (#) on data stream.	(None)
3	Timeout while using CTS flow control *(6400 and 5055 computers only)*.	(None)
4	Timeout while using DTR flow control *(6400 and 5055 computers only)*.	(None)
5	Timeout while using XON/XOFF flow control.	(None)
6	Improper return field.	(None)
8	Error in AID code.	(None)
C	Incorrect setting for CTS, DTR, or XON/OFF flow control.	8, 9, 10
E	Incorrect setting for data parity.	5
O	Overrun of UART receive register.	(None)
P	Data parity or framing error.	(None)

Example of Transmit Only Command

The following example and chart show what would be sent to a 6400 or 5055 computer to cause data to be transmitted. A "b" indicates a space.

Following the example is an explanation of Line 1.

```
Column 1        Column 11



        b#P3N81bb005A
Line 1  This is data to send.#

Line 2
```

Column	Character	Description
1	(Space)	This column typically contains a space.
2	#	Extended command.
3	P	Transmit Only command.
4	3	4800 baud.
5	N	No data parity.
6	8	Eight data bits.
7	1	One stop bit.
8	0	No CTS flow control.
9	0	No DTR flow control.
10	0	No XON/XOFF flow control.
11–12	05	Flow control timeout is 5 seconds.
13	A	AID key is [F1].

Receive Only On RS-232 Port (#G)

The Receive Only On RS-232 Port extended command provides a way to use the RS-232 port on the terminal to collect data. A scale is one example of a use for this command. The host computer sends "#G" characters to alert the terminal for activity on the port.

Line 2, Column 1 is the start of the area on the screen where an input field may be placed for receive data. The host application must supply the input field for the data received on the RS-232 port. The host can place the input field anywhere on the screen except the position for the return status field.

Table 7-4 describes the line and columns where characters must appear, and their meanings.

Table 7-4
Receive Only Characters

Line 1, Columns 2-24

Column	Description	Character
2	Extended command	#
3	Receive Only On RS-232 Port command	G
4	Speed (bits per second)	1=1200 2=2400 3=4800 4=9600 5=19200 6=38400
5	Data parity	N=None 0 (zero)=None (Space)=None O=Odd E=Even
6	Data bits	7=Seven 8=Eight
7	Stop bits	1=One 2=Two
8–12	Reserved	(Space)
13	Return AID key	(Space)=AID key is Enter (default) X=AID key character. See Table 7-2 (page 7-4) for return AID key characters.
14–15	Maximum characters to receive	(Space)=default dd *or* Xd…dX, where: dd=00–99. Default: 99. X=An uppercase literal d…d=Any number of decimal digits from 0–2000, inclusive. Default: 99.
16–17	Delimiter character	AA=Hexadecimal ASCII code which marks the end of valid data to be received. Range: 00–7E. Default: 00.
18–19	Number of delimiter characters	XX=Delimiter characters received before transmitting return code to host. Range: 00–99. Default: 00.
20–21	Start character	AA=Hexadecimal ASCII code for start character. Range: 00–99. Default of 00 implies no start character.
22	Return start character to host	F=Return character (Space)=Do not return character
23	Flag parity errors	P=Flag (Space)=Do not flag
24–25	Receive timeout length	XX=Number of seconds the terminal waits for input from the RS-232 port before it sends a timeout error. Uses a default of 5 seconds when this field is filled with spaces.

Return Codes for Receive Only Command

Line 24, Column 1 is the return status byte. The host application defines the 1-byte return status field location. The following chart lists return status codes.

Code	Description	Column
0	Good status, transaction complete.	(None)
1	Not enough memory. Or, incorrect setting for speed, number of data bits, or number of stop bits.	4, 6, 7
2	No delimiter (#) on data stream.	(None)
6	Improper return field.	(None)
7	Hexadecimal value is outside the range of 00–0F.	15–16, 19–20
8	Error in AID code.	(None)
9	Incorrect setting for maximum characters to receive.	13–14
A	Incorrect setting for delimiter character.	15–16
B	Incorrect setting for number of delimiter characters.	17–18
D	Incorrect setting for start character.	19–20
E	Incorrect setting for data parity.	5, 22
F	Timeout.	(None)
O	Overrun of UART receive register.	(None)
P	Data parity or framing error.	(None)

Example of Receive Only Command

The following example and chart show what would be sent to the terminal to cause data to be received. A "b" indicates a space. The following chart describes the data.

```
Column 1      Column 11      Column 23



      b#G3N81bbbbbb500A0102FP10
```

Column	Character	Description
1	(Space)	This column typically contains a space.
2	#	Extended command.
3	G	Receive Only command.
4	3	4800 baud.
5	N	No data parity.
6	8	Eight data bits.
7	1	One stop bit.
8–12	(Space)	Reserved.
13	(Space)	AID key is Enter.
14–15	50	Receive a maximum of 50 characters.
16–17	0A	Delimiter character is 0A hexadecimal (line feed).
18–19	01	Data will be sent to host after one delimiter character has been received.
20–21	02	Start character is 02 hexadecimal (STX).
22	F	Start character will be returned to host.
23	P	Parity errors will be flagged
24–25	10	Receive timeout length is 10 seconds.

Set Parameters (#H)

▶ **NOTE:**   *Only the 6400 and 5055 computers support the #H extended command.*

Use Set Parameters to set TE configuration parameters that you would otherwise set at the terminal. The parameters are part of the configuration menus.

Set most of the parameters once per terminal. You can set them when you install a network or when you add terminals to the network. Unless the terminal fails (perhaps a dead battery) or a user does something destructive (such as a RAM test), you probably will not need to set them again.

Table 7-5 lists columns in which characters must appear.

▶ **NOTE:**   *Some parameters do not apply to all terminal models. Refer to the terminal's user manual for applicable parameters.*

Table 7-5
Set Parameters Characters

Line 1, Columns 2-36

Column	Description	Character
2	Extended command	#
3	Set Parameters command	H
4–6	Backlight timer	(Spaces)=No change from current setting 000=On continuously 001–255=Seconds to remain on
7–9	Reserved	(Spaces)
10	Cursor mode	(Space)=No change from current setting 1=Underline (default) 2=Underline blink 3=Block 4=Block blink
11	Screen mode *(a screen mode value must be sent, but it is ignored)*	(Space)=No change from current setting 1=Center cursor 2=Corner 3=Page
12	Reserved	(Space)
13	Shift key unlock *(a shift lock value must be sent, but it is ignored)*	(Space)=No change from current setting 0=Disable (default) 1=Enable

Table 7-5 (Continued)
Set Parameters Characters

Line 1, Columns 2-36

Column	Description	Character
14	Keyboard lock	(Space)=No change from current setting 0=Disable (default) 1=Enable
15–17	Beeper volume	(Space)=No change from current setting 000–255=Range in seconds
18–20	Beeper frequency	(Spaces)=No change from current setting 000–030=Range (larger is higher)
21–23	Beeper length	(Spaces)=No change from current setting 000–010=Duration in seconds
24	Stream scan	(Spaces)=No change from current setting 0=Disable 1=Enable
25–27	Primary screen size (rows)	(Spaces)=No change from current setting 000–255=Number of rows per display screen
28–30	Primary screen size (columns)	(Spaces)=No change from current setting 000–255=Number of columns per display screen
31–33	Reserved	(Spaces)
34–36	Reserved	(Spaces)
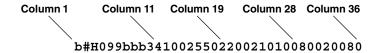
Return Codes for Set Parameters Command

Line 24, Column 1 has the return status field. The code returned in this position tells the host the status of the extended command. The Set Parameters return code is the status sent to the host computer. The following chart lists return codes.

Code	Description	Column
0	Good status, transaction complete.	(None)
1	Backlight timer parameter invalid.	4–6
2	Sleep mode timer parameter invalid.	7–9
3	Normal cursor set parameter invalid.	10
4	Insert cursor set parameter invalid.	11
5	Remote display parameter invalid.	12
6	Shift key unlock parameter invalid.	13
7	Keyboard lock parameter invalid.	14
8	Beeper volume parameter invalid.	15–17
9	Beeper frequency parameter invalid.	18–20
A	Beeper length parameter invalid.	21–23
B	Stream scan parameter invalid.	24
E	Incorrect setting for number of rows.	25–27
F	Incorrect setting for number of columns.	28–30

Example of Set Parameters Command

The following example and chart show data for Set Parameters. A "b" indicates a space.

Column 1   Column 11   Column 19   Column 28   Column 36

```
b#H099bbb341002550220021010080020080
```

Column	Character	Description
1	(Space)	This column typically contains a space.
2	#	Extended command.
3	H	Set Parameters command.
4–6	099	Backlight stays on for 99 seconds.
7–9	(Spaces)	Reserved.
10	3	Cursor is in block mode.
11	(Space)	No change from current setting.
12	(Space)	Reserved.
13	0	Shift key unlock is disabled (ignored).
14	0	Keyboard lock is disabled.
15–17	255	Beeper volume is set at 255.
18–20	022	Beeper frequency setting is set at 22.
21–23	002	Beeper length is 2 seconds.
24	1	Stream scan setting is enabled.
25–27	010	Number of rows in primary screen size is 10.
28–30	080	Number of columns in primary screen size is 80.
31–33	(Spaces)	Reserved.
34–36	(Spaces)	Reserved.

Return Version (#V)

The Return Version extended command returns the current TE program name and version to the host computer. Table 7-6 lists columns in which characters must appear.

Table 7-6
Return Version Characters

Line 1, Columns 2-3

Column	Description	Character
2	Extended command	#
3	Return Version command	V

Line 2, Column 1 is the input field large enough to hold the program name and version number followed by the # sign, as shown below:

```
tttK'0000/A0080 "<program name><version>#"/A1841s
```

"ttt" is the terminal number and "s" is the status.

Line 24, Column 1 has the return status field. The code returned in this position tells the host the status of the extended command. The code is 0, which means good status or transaction complete.

Tone (#T)

The Tone extended command causes the terminal to make a tone of a specified volume, frequency, and length (Table 7-7).

Table 7-7
Tone Characters

Line 1, Columns 2-12

Column	Description	Character
2	Extended command	#
3	Tone command	T
4–6	Volume	(Spaces)=No change from current setting 000–255=Range. The larger the number, the louder the volume.
7–9	Frequency	(Spaces)=No change from current setting 000–030=Range. The larger the number, the higher the frequency.
10–12	Length	(Spaces)=No change from current setting 001–010=Duration in seconds. The larger the number, the longer the beep and the slower the keyboard response time.

The return code is the status sent to the host computer; the code indicates if the extended command was successful. The terminal returns data and the extended command's status to the host computer in the following format:

`\\X<CR>`

"X" is the return code listed in the following chart.

Code	Description	Column
0	Good status, transaction complete	(None)
8	Incorrect setting for volume	4–6
9	Incorrect setting for frequency	7–9
A	Incorrect setting for length	10–12

Scan (#S)

The Scan extended command allows host systems to have the same capabilities as terminals using the Native data stream to set bar code parameters and scan.

By inserting characters "#S" in the display buffer at Line 1, Columns 2 and 3, the host computer tells the terminal to expect a Scan extended command. Appropriate descriptive characteristics should follow the "#S" characters. The terminal returns a code that indicates if the command was successful. Then it simulates the [Enter] key to return a value to the host computer.

Due to possible system fragmentation of a data stream, the "#" in Line 1, Column 2 should be the last character placed on the screen. This will ensure that all data is present before the extended command is parsed (removed).

Table 7-8 lists the command. Tables on the following pages list options.

Table 7-8
Scan Characters

Line 1, Columns 2-3

Column	Description	Character
2	Extended command	#
3	Scan command	S

CC Byte 1

Control Character Byte 1 (CC Byte 1) implementation differs among the types of terminals.

2415, 2425, 2455, or 248X Terminal

Table 7-9 shows the CC Byte 1 options for scanning.

Table 7-9
CC Byte 1

Line 1, Column 4

CC Byte 1	Laser	Disable Scanner	No Change From Current Setting
0	•		
1	•		
2			
3	•		
4			
5	•		
6			
7	•		
8			
9	•		
A			
B	•		
C			
D	•		
E			
F		•	
(Space)			•

6400 or 5055 Computer

Table 7-10 shows the CC Byte 1 options for scanning.

▶ **NOTE:**   *The 6400 computer does not support HP Wand Select.*

Table 7-10
CC Byte 1

Line 1, Column 4

CC Byte 1	HP Wand Select	Redundancy	Laser	No Redundancy
0			•	•
1		•	•	
2		•		
3		•	•	
4	•			•
5	•	•	•	
6	•	•		
7	•	•	•	
8				•
9		•	•	
A		•		
B		•	•	
C	•			•
D	•	•	•	
E	•	•		
F		Disable scanner.		
(Space)		No change from current setting.		

CC Byte 2

CC Byte 2 implementation differs among the types of terminals.

2415, 2425, 2455, or 248X Terminal

Table 7-11 shows CC Byte 2 options.

Table 7-11
CC Byte 2

Line 1, Column 5

CC Byte 2	Scan Termination Character
0–3	None
4–7	Auto Enter Scan
8–F	Auto Tab Scan
(Space)	No change from current setting

6400 or 5055 Computer

Table 7-11 shows the CC Byte 2 options the characters support.

Table 7-12
CC Byte 2

Line 1, Column 5

CC Byte 2	Scan Termination Character	Modulo 10 Check Digit
0	None	
1		•
2		
3		•
4	[Enter] key	
5		•
6		
7		•
8	[Tab] key	
9		•
A		
B		•
C		
D		•
E		
F		•

CC Byte 3

▶ **NOTE:**   *Not available for 2415, 2425, 2455, and 248X terminals.*

Table 7-13 shows CC Byte 3 options for 6400 or 5055 computer.

Table 7-13
CC Byte 3

Line 1, Column 6

CC Byte 3	Enable Stream Scanning	Reserved	Return Bar Code Type	Bar Code Concatenated
0				
1				•
2			•	
3			•	•
4		•		
5		•		•
6		•	•	
7		•	•	•
8	•			
9	•			•
A	•		•	
B	•		•	•
C	•	•		
D	•	•		•
E	•	•	•	
F	•	•	•	•
(Space)		No change from current setting		

Bar Code Length

▶ **NOTE:**   *Not available for 2415, 2425, 2455, and 248X terminals.*

Bar Code Length sets the minimum and maximum character lengths for all types of bar codes scanned (Table 7-14). Setting the minimum and maximum values to their optimum can increase scanning performance. If the terminal scans bar codes that are outside the minimum and maximum value, the terminal ignores the bar code.

Table 7-14
Bar Code Length

Line 1, Columns 7–10

Column	Character and Description
7–8	XX=Bar code length. Maximum length: 99. (Spaces)=No change from current setting
9–10	XX=Bar code length. Minimum length: 00. (Spaces)=No change from current setting

UPC

▶ **NOTE:** *Not available for 2415, 2425, 2455, and 248X terminals. The 6400 computer does not support UPC-E Number System 1.*

Use the UPC command to select the combinations of characters listed in Table 7-15.

Table 7-15
UPC Bar Code Characters

Character	UPC-E # System 1	Expand UPC-E to UPC-A	UPC-E # System 0	Add-ons	UPC-A
0			Disables all.		
1				●	●
2			●		●
3			●	●	●
4		●			●
5		●		●	●
6		●	●		●
7		●	●	●	●
8	●				●
9	●			●	●
10	●		●		●
11	●		●	●	●
12	●	●			●
13	●	●		●	●
14	●	●	●		●
15	●	●	●	●	●
(Space)			No change from current setting		

EAN Algorithms

▶ **NOTE:**   *Not available for 2415, 2425, 2455, and 248X terminals.*

Use EAN Algorithms to select combinations of EAN options (Table 7-16).

Table 7-16
EAN Algorithms

Line 1, Column 12

Character	Description
0	EAN disabled
1	EAN with Add-ons enabled
2	EAN enabled
3	EAN and EAN with Add-ons enabled
(Space)	No change from current setting

Code 39

▶ **NOTE:**   *Not available for 2415, 2425, 2455, and 248X terminals.*

Code 39 (Table 7-17) sets the scanner to read simple Code 39 bar codes that do not include extended or encoded sequences.

Table 7-17
Code 39 Algorithms Characters

Line 1, Column 13

Character	Description
0	Code 39 disabled
1	Encoded Code 39 enabled
2	Extended Code 39 enabled
3	Code 39 enabled
(Space)	No change from current setting

Extended Code 39 is a superset of Code 39 and scans all regular Code 39 bar codes. You cannot select both Code 39 and Extended Code 39. Encoded Code 39 combines key presses with normal bar code data.

Appendix A contains Encoded Code 39 sequences.

Plessey

▶ **NOTE:**   *Not available for 2415, 2425, 2455, and 248X terminals. The 6400 computer does not support Plessey alpha characters.*

If the Plessey bar code scanning algorithm is enabled, set its check digits (Table 7-18) according to your requirements. Refer to the manufacturer's bar code specifications for more information on check digits.

Table 7-18
Plessey Characters

Line 1, Column 14

Character	Description
0	Plessey disabled
1	Plessey enabled
(Space)	No change from current setting

The dots in Table 7-19 indicate the Plessey check digits the characters support.

Table 7-19
Plessey Check Digit Characters

Line 1, Column 15

Character	Keep 2nd Digit Check	Do Not Validate 1st Check Digit	Keep 1st Check Digit	Mod 10 1st Check Digit	Mod 11 1st Check Digit
0					•
1				•	
2			•		•
3			•	•	
4		•			•
5		•		•	
6		•	•		•
7		•	•	•	
8			•		•
9			•	•	
A	•		•		•
B	•		•	•	
C		•	•		•
D		•	•	•	
E	•	•	•		•
F	•	•	•	•	
(Space)	No change from current setting				

Codabar

▶ **NOTE:**   *Not available for 2415, 2425, 2455, and 248X terminals.*

The Codabar options (Codabar and ABC Codabar) are mutually exclusive coding algorithms and cannot be selected at the same time.

Table 7-20
Codabar Characters

Line 1, Column 16

Character	Description
0	Codabar disabled
1	Codabar enabled
2	ABC Codabar enabled
(Space)	No change from current setting

Code 11

▶ **NOTE:**   *Not available for 2415, 2425, 2455, and 248X terminals. Not supported on the 6400 and 5055 computers.*

Table 7-21 lists Code 11 characters.

Table 7-21
Code 11 Characters

Line 1, Column 17

Character	Description
0	Code 11 disabled
1	Code 11 enabled
(Space)	No change from current setting

Code 93

▶ **NOTE:**   *Not available for 2415, 2425, 2455, and 248X terminals.*

Code 93 and Code 128 options can be enabled.

Table 7-22
Code 93 Characters

Line 1, Column 18

Character	Description
0	Code 93 disabled
1	Code 93 enabled
(Space)	No change from current setting

Code 128

▶**NOTE:**   *Not available for 2415, 2425, 2455, and 248X terminals.*

Table 7-23 lists Code 128 characters.

Table 7-23
Code 128 Characters

Line 1, Column 19

Character	Description
0	Code 128 disabled
1	Code 128 enabled
(Space)	No change from current setting

Straight or Computer Identics 2 of 5

▶**NOTE:**   *Not available for 2415, 2425, 2455, and 248X terminals.*

If the Straight or Computer Identics bar code is enabled, select the maximum and minimum lengths and the 1st and 2nd fixed bar code lengths according to your requirements (Table 7-24).

Table 7-24
2 of 5 Characters

Line 1, Columns 20-28

Column	Character
20	0=Straight and Computer Identics 2 of 5 disabled 1=Computer Identics 2 of 5 enabled 2=Straight 2 of 5 enabled (Space)=No change from current setting
21–22	XX=maximum length Straight or Computer Identics 2 of 5. Refer to the manufacturer's bar code specifications for more information. (Spaces)=No change from current setting
23–24	XX=minimum length Straight or Computer Identics 2 of 5. Refer to the manufacturer's bar code specifications for more information. (Spaces)=No change from current setting
25–26	XX=1st fixed bar code length for Straight or Computer Identics 2 of 5. Refer to the manufacturer's bar code specifications for more information. (Spaces)=No change from current setting
27–28	XX=2nd fixed bar code length for Straight or Computer Identics 2 of 5. Refer to the manufacturer's bar code specifications for more information. (Spaces)=No change from current setting

Interleaved 2 of 5

▶ **NOTE:** *Not available for 2415, 2425, 2455, and 248X terminals.*

If Interleaved 2 of 5 is enabled, select the maximum and minimum lengths and the 1st and 2nd fixed bar code lengths according to your requirements (Table 7-25).

Table 7-25
Interleaved 2 of 5 Characters

Line 1, Columns 29–37

Column	Character
29	0=Interleaved 2 of 5 disabled 1=Interleaved 2 of 5 enabled (Space)=No change from current setting
30–31	XX=Maximum length Interleaved 2 of 5. Refer to the manufacturer's bar code specifications for more information. (Spaces)=No change from current setting
32–33	XX=Minimum length Interleaved 2 of 5. Refer to the manufacturer's bar code specifications for more information. (Spaces)=No change from current setting
34–35	XX=1st fixed length for Interleaved 2 of 5 Bar Code. Refer to the manufacturer's bar code specifications for more information. (Spaces)=No change from current setting
36–37	XX=2nd fixed length for Interleaved 2 of 5 Bar Code. Refer to the manufacturer's bar code specifications for more information. (Spaces)=No change from current setting

Return Codes for Scan Command

The Scan command's return code is the status sent to the host computer; the code indicates if the extended command was successful. The terminal returns data and the extended command's status to the host computer in the following format:

`\\X<CR>`

where "X" is the return code listed in the following chart.
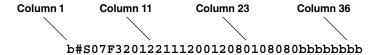
Code	Description
0	Good status, transaction complete
1	Bad status, transaction incomplete

The terminal simulates the [ENTER] key to return a value to the host computer. If a hexadecimal number is entered wrong, the return code defaults to "0."

Example of Scan Command

The following example and chart show data for the Scan command. A "b" indicates a space.

Column 1   **Column 11**   **Column 23**   **Column 36**

```
b#S07F3201221112001208010808 0bbbbbbbb
```

Column	Character	Description
1	(Space)	This column typically contains a space.
2	#	Extended command.
3	S	Scan command.
4	0	No Control Byte 1 options are returned.
5	7	[ENTER] key terminates all scans, 12-volt laser is enabled, Modulo 10 Check Digit.
6	F	Barcode type is returned and concatenated.
7–8	32	Maximum length is 32 characters.
9–10	01	Minimum length is 1 character.
11	2	Decode UPC System 0.
12	2	EAN is enabled.
13	1	Encoded code 39 is enabled.
14	1	Plessey is enabled.
15	1	Mod 10 first digit is checked.
16	2	ABC Codabar is enabled.
17	0	Code 11 is disabled.
18	0	Code 93 is disabled.
19	1	Code 128 is enabled.
20	2	Straight 2 of 5 is enabled.
21–22	08	Straight 2 of 5 maximum length is 8.
23–24	01	Straight 2 of 5 minimum length is 1.
25–26	08	Straight 2 of 5 1st fixed length is 8.
27–28	08	Straight 2 of 5 2nd fixed length is 8.
29	0	Interleaved 2 of 5 is disabled.
30–31	(Spaces)	No change from current setting.
32–33	(Spaces)	No change from current setting.
34–35	(Spaces)	No change from current setting.
36–37	(Spaces)	No change from current setting.

Bar Code Scanning

▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶

This appendix lists bar code labels for 3270 TE commands and functions. It also contains Encoded Code 39 key press sequences.

▶**NOTE:**   *To scan the bar code labels, you must configure the terminal to use Code 39 in Full ASCII mode (the default mode of operation).*

▶ *For the 2415, 2425, 2455, or 248X terminal, configure the mode through the TRAKKER Antares® 2400 Menu System. For help, refer to the terminal's user manual.*

▶ *For the 6400 or 5055 computer, configure the mode through the terminal emulation configuration menus. For help, refer to the computer's user manual.*

Cursor Keys

Window/Viewport up
(up one line)

%UP

Window/Viewport down
(down one line)

%DN

Window/Viewport right
(right one character)

%RT

Window/Viewport left
(left one character)

%LF

Paging Keys

Page up

%PGUP

Page down

%PGDN

Page right

%PGRT

Page left

%PGLT

Tab Keys

Back Tab

|||||||||||||||||||||||||||||||
%BTAB

Forward Tab

||||||||||||||
 %TAB

3278 SNA Keys

Cursor Home (Home)

|||||||||||||||||||||||||||||
%Hm

Delete (Del)

|||||||||||||||||||||||||||||
%DEL

EOF

|||||||||||||||||||||||||||
%EOF

Erase Input (Clr)

|||||||||||||||||||||||||||||||
%EINP

Insert

|||||||||||||||||||||||||||
%INS

New Line (Return)

|||||||||||||||||||||
%NL

Reset

|||||||||||||||||||||||||||
%RST

AID–Generating Keys

Clear

|||||||||||||||||||||||||
%CLR

Enter

||||||||||||||||
 %CR

F1

‖‖‖‖‖ ‖ ‖‖‖ ‖‖‖‖ ‖‖‖ ‖‖‖ ‖‖‖
%F1

F2

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%F2

F3

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%F3

F4

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%F4

F5

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%F5

F6

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%F6

F7

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%F7

F8

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%F8

F9

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%F9

F10

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%F10

F11

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%F11

F12

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%F12

F13

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%F13

F14

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%F14

F15

||||||||||||||||||||||||||||||
%F15

F16

||||||||||||||||||||||||||||||
%F16

F17

||||||||||||||||||||||||||||||
%F17

F18

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%F18

F19

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%F19

F20

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%F20

F21

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%F21

F22

||||||||||||||||||||||||||||||
%F22

F23

||||||||||||||||||||||||||||||
%F23

F24

||||||||||||||||||||||||||||||
%F24

PA1

||||||||||||||||||||||||||||||
/PA1

PA2

||||||||||||||||||||||||||||||
/PA2

PA3

||||||||||||||||||||||||||||||
/PA3
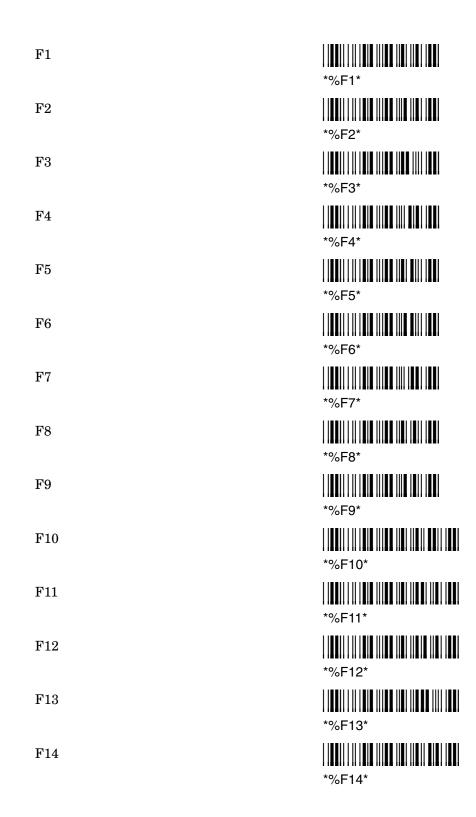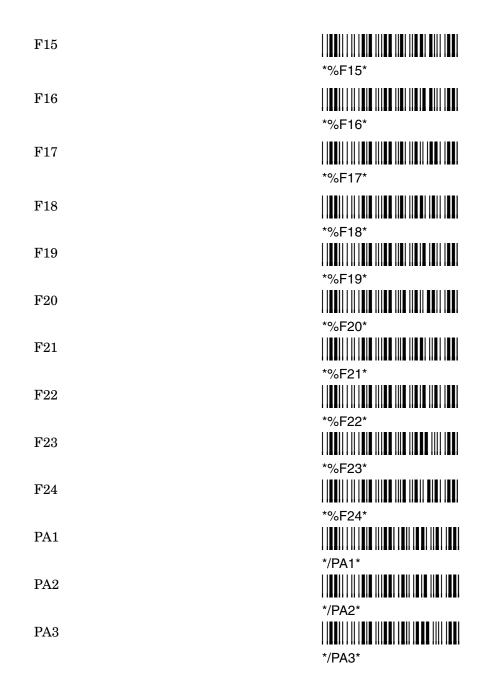
Auto-Login Restart

Auto-Login Restart

||||||||||||||||||||||||||||||
%ALRS

3270 Additional Functions

TE configuration menus

||||||||||||||||||||||||||||||
%TECFG

Encoded Code 39

Table A-1 lists escape characters and key press sequences for Encoded Code 39. The "(t)" in the table indicates a terminating key. Any bar code data following this key code is ignored. The "t" sequences, therefore, should be located only at the end of the bar code. If you attempt to use an invalid sequence (termed "reserved" in the table) the terminal will beep and the data stream will be flushed.

Table A-1
Key Press Sequences for Encoded Code 39

Sequence	Key
$A	Reserved
$B	Del
$C	Forward Tab
$D	Forward Tab
$E	Back Tab
$F	Reserved
$G	Reserved
$H	Backspace
$I	Reserved
$J	Reserved
$K	Insert
$L	Home
$M	Enter (t)
$N	End of Field
$O	Clear
$P	Reserved
$Q	PF1 (t)
$R	PF2 (t)
$S	PF3 (t)
$T	PF4 (t)
$U	PF5 (t)
$V	PF6 (t)
$W	PF7 (t)
$X	PF8 (t)
$Y	PF9 (t)
$Z	PF10 (t)

Table A-1 (Continued)
Key Press Sequences for Encoded Code 39

Sequence	Key
%A	Clear AID (t)
%B	PF11 (t)
%C	PF12 (t)
%D	PA1
%E	PA2
(None)	PA3
%F	; (semicolon)
%G	< (less than)
%H	= (equal)
%I	> (greater than)
%J	? (question mark)
%K	[(left bracket)
%L	\ (backslash)
%M	] (right bracket)
%N	^ (circumflex)
%O	_ (underscore)
%P	{ (left brace)
%Q	¦ (piping symbol)
%R	} (right brace)
%S	~ (tilde)
%T	Delete
%U	Reserved
%V	@ (at)
%W	'
%X	Reserved
%Y	Reserved
%Z	Reserved

Table A-1 (Continued)
Key Press Sequences for Encoded Code 39

Sequence	Key
+A	a
+B	b
+C	c
+D	d
+E	e
+F	f
+G	g
+H	h
+I	i
+J	j
+K	k
+L	l
+M	m
+N	n
+O	o
+P	p
+Q	q
+R	r
+S	s
+T	t
+U	u
+V	v
+W	w
+X	x
+Y	y
+Z	z

Table A-1 (Continued)
Key Press Sequences for Encoded Code 39

Sequence	Key
/A	! (exclamation mark)
/B	" (double quote)
/C	# (pound)
/D	$ (dollar)
/E	% (percent)
/F	& (ampersand)
/G	' (single quote)
/H	((left parenthesis)
/I	) (right parenthesis)
/J	* (asterisk)
/K	+ (plus)
/L	, (comma)
/M	– (minus)
/N	F14
/O	/ (forward slash)
/P	F15
/Q	F16
/R	F17
/S	F18
/T	F19
/U	F20
/V	F21
/W	F22
/X	F23
/Y	F24
/Z	: (colon)

Terminating Keys

Terminating keys are the nonprintable ASCII sequences and action keys. When the terminal encounters them in a bar code, an action is taken, and the terminal sends the data in the buffer to the host. Terminating keys should appear only at the end of the bar code. If they are located in the middle of a bar code they are executed normally, but the data following them in the bar code is ignored.

Terminating keys cause a terminal-to-base radio transmission. The terminal ignores data in the bar code buffer following these keys once a transmission takes place.

For example, the terminal interprets this sequence:

123$V456

as

123F6

The terminal does not send "456" to the host, because it follows terminating key F6.

ASCII sequences can be used any time before a terminating key. For example, the terminal interprets

+H+E+L+L+O$M

as

hello<Enter>

Concatenation

When Encoded Code 39 is enabled, all bar codes are concatenated. This allows several separate bar code scans to be strung together into one input field. This feature is especially useful when using separate Encoded Code 39 bar codes to replace operator key presses.

For example, if the bar code "1234" is scanned followed by the scanning of a separate "$C" bar code, the terminal keeps the "1234" in the starting field and tabs to the next unprotected field. If concatenation was not automatically enabled, the "1234" bar code would be cleared out due to the second scan. Then the terminal would tab to the next unprotected field.

Enabling Encoded Code 39 also allows scanning to occur when the cursor is in a protected field. This feature is provided to allow scanning of cursor movement functions (such as Forward Tab and Back Tab) while in a protected location on the screen. Scanning alphanumeric codes in a protected field causes an error tone for each character scanned.

Escape Characters

The four escape characters in Table A-1 yield a 3270 data stream key press equivalent when followed by another character. The escape characters are:

$ (dollar)
% (percent)
+ (plus)
/ (forward slash)

For example:

► If a bar code contains the sequence "%M" somewhere within it, the terminal converts this sequence to an Enter key and processes it as soon as encountered in the scanning buffer.

► "+B" is converted to the lower case "b."

► "%B" is converted to an F11 key press.

If you want the Encoded Code 39 option but the bar codes to be scanned already contain the "$," "%," "+," or "/" character, then each place where these characters occur must be expanded to a special "/" sequence:

► Every bar code where the "$" is maintained must be expanded to a "/D" sequence.

► Percent signs (%) must be expanded to "/E".

► Forward slashes (/) must be expanded to the letter "/O".

► Plus signs (+) must be expanded to "/K".

Overriding Auto Tab Scan and Auto Enter Scan

When the terminal is in Auto Enter Scan or Auto Tab Scan mode, eight Encoded Code 39 functions will override these modes when they are scanned. They are:

Forward Tab
Back Tab
Home
Clear
End of Field
Backspace
Insert
Delete

These codes are all of the screen editing type, where an automatic Enter would not be desired. The encoded operations listed will never allow an Auto Enter Scan to occur. For example, suppose Auto Enter Scan has been enabled (through the TE configuration menus) and a "$C" (Forward Tab) is scanned. The terminal will forward tab to the next field but NOT cause an Enter operation, even though the Auto Enter Scan feature has been enabled. The encoded forward tab overrides the Auto Enter Scan mode in this case. However, if a "+D" (d) is scanned, the terminal places a "d" at the current cursor location. The Auto Enter Scan mode then causes an Enter to be executed.

Appendix B

Conversion Tables

▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶   ▶

Decimal to Hexadecimal

Following are decimal and hexadecimal values for nondisplayable ASCII and displayable graphic characters.

Decimal	Hex	Char.	Decimal	Hex	Char.	Decimal	Hex	Char.
0	00	NUL	38	26	&	76	4C	L
1	01	SOH	39	27	'	77	4D	M
2	02	STX	40	28	(	78	4E	N
3	03	ETX	41	29	)	79	4F	O
4	04	EOT	42	2A	*	80	50	P
5	05	ENQ	43	2B	+	81	51	Q
6	06	ACK	44	2C	,	82	52	R
7	07	BEL	45	2D	–	83	53	S
8	08	BS	46	2E	.	84	54	T
9	09	HT	47	2F	/	85	55	U
10	0A	LF	48	30	0	86	56	V
11	0B	VT	49	311	1	87	57	W
12	0C	FF	50	32	2	88	58	X
13	0D	CR	51	33	3	89	59	Y
14	0E	SO	52	34	4	90	5A	Z
15	0F	SI	53	35	5	91	5B	[
16	10	DLE	54	36	6	92	5C	\
17	11	DC1	55	37	7	93	5D	]
18	12	DC2	56	38	8	94	5E	^
19	13	DC3	57	39	9	95	5F	_
20	14	DC4	58	3A	:	96	60	`
21	15	NAK	59	3B	;	97	61	a
22	16	SYN	60	3C	<	98	62	b
23	17	ETB	61	3D	=	99	63	c
24	18	CAN	62	3E	>	100	64	d
25	19	EM	63	3F	?	101	65	e
26	1A	SUB	64	40	@	102	66	f
27	1B	ESC	65	41	A	103	67	g
28	1C	FS	66	42	B	104	68	h
29	1D	GS	67	43	C	105	69	i
30	1E	RS	68	44	D	106	6A	j
31	1F	US	69	45	E	107	6B	k
32	20	DP	70	46	F	108	6C	l
33	21	!	71	47	G	109	6D	m
34	22	"	72	48	H	110	6E	n
35	23	#	73	49	I	111	6F	o
36	24	$	74	4A	J	112	70	p
37	25	%	75	4B	K	113	71	q

Decimal	Hex	Char.	Decimal	Hex	Char.	Decimal	Hex	Char.
114	72	r	173	AD		232	E8	è
115	74	s	174	AE		233	E9	é
116	74	t	175	AF		234	EA	ê
117	75	u	176	B0	°	235	EB	ë
118	76	v	177	B1	±	236	EC	ì
119	77	w	178	B2	²	237	ED	í
120	78	x	179	B3	³	238	EE	î
121	79	y	180	B4		239	EF	ï
122	7A	z	181	B5	µ	240	F0	
123	7B	{	182	B6	¶	241	F1	ñ
124	7C	|	183	B7	·	242	F2	ò
125	7D	}	184	B8		243	F3	ó
126	7E	~	185	B9	¹	244	F4	ô
127	7F	DEL	186	BA	º	245	F5	õ
128	80		187	BB	»	246	F6	ö
129	81		188	BC	¼	247	F7	Œ
130	82		189	BD	½	248	F8	ø
131	83		190	BE		249	F9	ù
132	84	IND	191	BF	¿	250	FA	ú
133	85	NEL	192	C0	À	251	FB	û
134	86	SSA	193	C1	Á	252	FC	ü
135	87	ESA	194	C2	Â	253	FD	ÿ
136	88	HTS	195	C3	Ã	254	FE	
137	89	HTJ	196	C4	Ä	255	FF	
138	8A	VTS	197	C5	Å			
139	8B	PLD	198	C6	Æ			
140	8C	PLU	199	C7	Ç			
141	8D	RI	200	C8	È			
142	8E	SS2	201	C9	É			
143	8F	SS3	202	CA	Ê			
144	90	DCS	203	CB	Ë			
145	91	PU1	204	CC	ì			
146	92	PU2	205	CD	í			
147	93	STS	206	CE	î			
148	94	CCH	207	CF	ï			
149	95	MW	208	D0				
150	96	SPA	209	D1	Ñ			
151	97	EPA	210	D2	Ò			
152	98		211	D3	Ó			
153	99		212	D4	Ô			
154	9A		213	D5	Õ			
155	9B	CSI	214	D6	Ö			
156	9C	ST	215	D7	Œ			
157	9D	OSC	216	D8	Ø			
158	9E	PM	217	D9	ù			
159	9F	APC	218	DA	ú			
160	A0		219	DB	û			
161	A1	¡	220	DC	Ü			
162	A2	¢	221	DD	ÿ			
163	A3	£	222	DE				
164	A4		223	DF	ß			
165	A5	¥	224	E0	à			
166	A6	¦	225	E1	á			
167	A7	§	226	E2	â			
168	A8	¤	227	E3	ã			
169	A9	©	228	E4	ä			
170	AA	ª	229	E5	å			
171	AB	«	230	E6	æ			
172	AC		231	E7	ç			

Binary to EBCDIC

Following are binary to EBCDIC conversion values.

Bits 0–5	EBCDIC Code	Display Graphic	Bits 0–5	EBCDIC Code	Display Graphic
00 0000	40	<space>	10 0000	60	—
00 0001	C1	A	10 0001	61	/
00 0010	C2	B	10 0010	E2	S
00 0011	C3	C	10 0011	E3	T
00 0100	C4	D	10 0100	E4	U
00 0101	C5	E	10 0101	E5	V
00 0110	C6	F	10 0110	E6	W
00 0111	C7	G	10 0111	E7	X
00 1000	C8	H	10 1000	E8	Y
00 1001	C9	I	10 1001	E9	Z
00 1010	4A	¢	10 1010	6A	EBCDIC
00 1011	4B	.	10 1011	6B	,
00 1100	4C	<	10 1100	6C	%
00 1101	4D	(	10 1101	6D	-
00 1110	4E	+	10 1110	6E	>
00 1111	4F	|	10 1111	6F	?
01 0000	50	&	11 0000	F0	0
01 0001	D1	J	11 0001	F1	1
01 0010	D2	K	11 0010	F2	2
01 0011	D3	L	11 0011	F3	3
01 0100	D4	M	11 0100	F4	4
01 0101	D5	N	11 0101	F5	5
01 0110	D6	O	11 0110	F6	6
01 0111	D7	P	11 0111	F7	7
01 1000	D8	Q	11 1000	F8	8
01 1001	D9	R	11 1001	F9	9
01 1010	5A	!	11 1010	7A	:
01 1011	5B	$	11 1011	7B	#
01 1100	5C	*	11 1100	7C	@
01 1101	5D	)	11 1101	7D	'
01 1110	5E	;	11 1110	7E	=
01 1111	5F	¬	11 1111	7F	"

Appendix C

Terminal Font Set Table

▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶

▶**NOTE:**   *The Terminal Font Set table in this appendix applies to a 6400 or 5055 computer. For the Terminal Font Set table for a 2415, 2425, 2455, or 248X terminal, refer to the terminal's user manual.*

6400 and 5055 computers use a font set that supports English and Western European languages, such as French, German, Italian, Portuguese, Spanish, and others. You can develop applications that display any character in the terminal font set. Depending on the type of keyboard, you can also enter many of the characters. For help, see Section 3, "Using the Terminal's Keyboard."

Table C-1 lists the characters you can display on the terminal. It also lists the decimal and hexadecimal index values.

Table C-1
Terminal Font Set (6400 or 5055 Computer)

Character	Decimal	Hexadecimal
Space	0	00
Ã	1	01
ã	2	02
Õ	3	03
õ	4	04
Ø	5	05
¨	6	06
—	7	07
‿	8	08
⁊	9	09
∩	10	0A
≡	11	0B
Ψ	12	0C
Δ	13	0D
		14	0E
¤	15	0F

Table C-1 (continued)
Terminal Font Set (6400 or 5055 Computer)

Character	Decimal	Hexadecimal
▶	16	10
◀	17	11
⚡ ("communications loss" annunciator)	18	12
⚹ (5250 dup character)	19	13
X ("input inhibited" annunciator)	20	14
§	21	15
⬚ ("message waiting" annunciator)	22	16
⬚ ("radio" annunciator)	23	17
Unused	24	18
Unused	25	19
→ ("transmit" annunciator)	26	1A
← ("receive" annunciator)	27	1B
▮ ("battery" annunciator)	28	1C
Space	29	1D
▲	30	1E
Ý	31	1F
Space	32	20
!	33	21
‖	34	22
#	35	23
$	36	24
%	37	25
&	38	26
,	39	27
(	40	28
)	41	29
*	42	2A
+	43	2B
, (comma)	44	2C
– (dash)	45	2D
. (period)	46	2E
/	47	2F
0	48	30
1	49	31
2	50	32
3	51	33
4	52	34
5	53	35

Table C-1 (continued)
Terminal Font Set (6400 or 5055 Computer)

Character	Decimal	Hexadecimal
6	54	36
7	55	37
8	56	38
9	57	39
:	58	3A
;	59	3B
<	60	3C
=	61	3D
>	62	3E
?	63	3F
@	64	40
A	65	41
B	66	42
C	67	43
D	68	44
E	69	45
F	70	46
G	71	47
H	72	48
I	73	49
J	74	4A
K	75	4B
L	76	4C
M	77	4D
N	78	4E
O	79	4F
P	80	50
Q	81	51
R	82	52
S	83	53
T	84	54
U	85	55
V	86	56
W	87	57
X	88	58
Y	89	59
Z	90	5A

Table C-1 (continued)
Terminal Font Set (6400 or 5055 Computer)

Character	Decimal	Hexadecimal
[	91	5B
\	92	5C
]	93	5D
^	94	5E
_	95	5F
'	96	60
a	97	61
b	98	62
c	99	63
d	100	64
e	101	65
f	102	66
g	103	67
h	104	68
i	105	69
j	106	6A
k	107	6B
l	108	6C
m	109	6D
n	110	6E
o	111	6F
p	112	70
q	113	71
r	114	72
s	115	73
t	116	74
u	117	75
v	118	76
w	119	77
x	120	78
y	121	79
z	122	7A
{	123	7B
¦	124	7C
}	125	7D
~	126	7E

Table C-1 (continued)
Terminal Font Set (6400 or 5055 Computer)

Character	Decimal	Hexadecimal
⌂	127	7F
Ç	128	80
ü	129	81
é	130	82
â	131	83
ä	132	84
à	133	85
å	134	86
ç	135	87
ê	136	88
ë	137	89
è	138	8A
ï	139	8B
î	140	8C
ì	141	8D
Ä	142	8E
Å	143	8F
É	144	90
æ	145	91
Æ	146	92
ô	147	93
ö	148	94
ò	149	95
û	150	96
ù	151	97
ÿ	152	98
Ö	153	99
Ü	154	9A
¢	155	9B
£	156	9C
¥	157	9D
₨	158	9E
ƒ	159	9F
á	160	A0
í	161	A1

Table C-1 (continued)
Terminal Font Set (6400 or 5055 Computer)

Character	Decimal	Hexadecimal
ó	162	A2
ú	163	A3
ñ	164	A4
Ñ	165	A5
ª	166	A6
º	167	A7
¿	168	A8
⌐ (not symbol)	169	A9
¬	170	AA
½	171	AB
¼	172	AC
¡	173	AD
«	174	AE
»	175	AF
░	176	B0
▒	177	B1
▓	178	B2
│	179	B3
┤	180	B4
╡	181	B5
╢	182	B6
╖	183	B7
╕	184	B8
╣	185	B9
║	186	BA
╗	187	BB
╝	188	BC
╜	189	BD
╛	190	BE
┐	191	BF
└	192	C0
┴	193	C1
┬	194	C2
├	195	C3
─	196	C4
┼	197	C5

Table C-1 (continued)
Terminal Font Set (6400 or 5055 Computer)

Character	Decimal	Hexadecimal
╞	198	C6
‖	199	C7
╚	200	C8
╥	210	C9
╩	202	CA
╠	203	CB
╠	204	CC
═	205	CD
╬	206	CE
╧	207	CF
╨	208	D0
╤	209	D1
╥	210	D2
╙	211	D3
╘	212	D4
╒	213	D5
╓	214	D6
╫	215	D7
╪	216	D8
┘	217	D9
┌	218	DA
■	219	DB
▬	220	DC
▮	221	DD
▮	222	DE
▬	223	DF
∝	224	E0
β	225	E1
ρ	226	E2
Π	227	E3
Σ	228	E4
σ	229	E5
μ	230	E6

Table C-1 (continued)
Terminal Font Set (6400 or 5055 Computer)

Character	Decimal	Hexadecimal
γ	231	E7
σ	232	E8
θ	233	E9
Ω	234	EA
δ	235	EB
∞	236	EC
ø	237	ED
∈	238	EE
∩	239	EF
≡	240	F0
±	241	F1
≥	242	F2
≤	243	F3
⌠	244	F4
⌡	245	F5
÷	246	F6
≈	247	F7
°	248	F8
○	249	F9
∙	250	FA
√	251	FB
n	252	FC
2	253	FD
■	254	FE
Space	255	FF

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