
teemX
User's Guide

Contents

Introduction	1-1
<i>teemX & The X Window System.....</i>	<i>1-1</i>
<i>User Guide Overview</i>	<i>1-2</i>
<i>Terms & Conventions.....</i>	<i>1-3</i>
Getting Started.....	2-1
<i>Selecting The Terminal Emulation.....</i>	<i>2-1</i>
<i>Initiating A Telnet Session.....</i>	<i>2-3</i>
<i>Selecting & Using Window Elements.....</i>	<i>2-4</i>
Keyboard Configuration.....	3-1
<i>Introduction</i>	<i>3-1</i>
<i>Keyboard Nationality.....</i>	<i>3-1</i>
<i>Remapping The Keyboard</i>	<i>3-1</i>
<i>Programming Keys.....</i>	<i>3-4</i>
<i>Compose Character Sequences.....</i>	<i>3-7</i>
Mouse Functions	4-1
<i>Introduction</i>	<i>4-1</i>
<i>Selecting & Copying Text.....</i>	<i>4-1</i>
<i>Graphic Copy & Paste</i>	<i>4-2</i>
<i>Moving The Cursor In Block Mode.....</i>	<i>4-2</i>
<i>Show & Action Hotspots.....</i>	<i>4-2</i>
<i>Send Keyword</i>	<i>4-3</i>
<i>Redefining The Mouse Buttons</i>	<i>4-3</i>

Hotspots.....	5-1
<i>Using Hotspots.....</i>	5-1
<i>Defining Hotspots</i>	5-2
Setup Menus.....	6-1
<i>Selecting & Closing Menus</i>	6-1
<i>Using The Menus</i>	6-1
<i>Dialog Boxes.....</i>	6-2
<i>Default Settings.....</i>	6-3
<i>Saving The Setup.....</i>	6-4
<i>Menu Descriptions</i>	6-4
File Menu.....	6-5
Telnet Options.....	6-8
3270 Options.....	6-10
5250 Options.....	6-11
Settings Menu.....	6-12
Emulation Settings	6-13
Terminal Settings	6-17
VT Block Mode Settings	6-23
IBM 5250 Settings.....	6-28
Macro Settings	6-29
Attribute Settings.....	6-32
Mouse Button Actions	6-35
Help Menu	6-37
DEC VT Emulations	7-1
<i>Introduction</i>	7-1
<i>The Status Bar.....</i>	7-1
<i>Keyboard Mapping.....</i>	7-3
IBM 3270 Emulation	8-1
<i>Introduction</i>	8-1
<i>Running The Emulation.....</i>	8-1
<i>Keyboard Mapping.....</i>	8-2
<i>IBM 3287-1 Printer Support.....</i>	8-4
<i>Network Virtual Terminal Mode.....</i>	8-4

<i>SysReq Key Support</i>	8-4
<i>The Status Line</i>	8-5
IBM 5250 Emulation	9-1
<i>Introduction</i>	9-1
<i>Running The Emulation</i>	9-1
<i>Network Virtual Terminal Mode</i>	9-2
<i>The Status Line</i>	9-3
<i>Keyboard Mapping</i>	9-3
Resources & Command Line Options	10-1
<i>Introduction</i>	10-1
<i>Resource Format</i>	10-2
<i>Command Line Option Format</i>	10-2
<i>Command Summary</i>	10-3
<i>General Operation & Setup</i>	10-5
<i>Telnet Session</i>	10-10
<i>Display Format</i>	10-12
<i>Window Elements</i>	10-15
<i>Colour Selection</i>	10-18
<i>Font Selection</i>	10-20
<i>Understanding X Resources</i>	10-24
Virtual Key Names	A-1
<i>Introduction</i>	A-1
<i>Standard Virtual Key Names</i>	A-1
<i>DEC VT400 Virtual Key Names</i>	A-2
<i>IBM 3270 Virtual Key Names</i>	A-2
<i>IBM 5250 Virtual Key Names</i>	A-3
Keysyms	B-1
<i>Virtual Keysyms</i>	B-1
<i>Keysyms & Functions</i>	B-2

Key Reference NumbersC-1
Character Sets.....D-1
Host Command Summary.....E-1
 VT52 Emulation E-1
 ANSI VT100 Emulation E-2
 ANSI VT400 Emulation E-6
 ANSI VT420 Emulation E-8
 teemX Additional CommandsE-11

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1

Introduction

This chapter introduces Pericom's *teemX* terminal emulation software and describes the scope of this User's Guide.

teemX & The X Window System

teemX is the essential connectivity tool for enabling non-X based applications to be run in the X environment. *teemX* provides precise emulation of a wide range of industry standard terminals with impressive additional features formulated to increase productivity and reduce network loading. These include dynamic window sizing, hotspots, soft buttons, keyboard mapping, mouse button definition and customising capabilities. *teemX* integrates seamlessly into the X Window system with the same look and feel as other applications.

The X Window System is a network-based windowing system that provides a common graphical interface for application programs. It defines how applications create windows and the graphics displayed in them.

X is based on a *client-server* model in which the *client* is the application program and the *server* controls the display and keeps track of user input. Communication between client and server can be achieved via networks, serial interfaces or internal operating system streams using standard X protocols. Since X is both window based and network oriented there can be multiple applications on the network creating individual windows on an individual display. The display is therefore providing a service to each application and hence is known as the X *display server*.

The basic function of *teemX* is to accept DEC, IBM, etc., command sequences from a host application (client) and convert them into equivalent X functions which can then be passed on to the X display server. This means that current investment in host application software can be retained in the X Windows environment.

Each window displayed by *teemX* is, in effect, a separate 'terminal'. Several terminal emulation windows may be displayed simultaneously on the same display server, all running different programs, but only one window may be active at any one time.

User Guide Overview

Chapter 1: Introduction

Introduces *teemX* and describes various conventions used.

Chapter 2: Getting Started

Describes how to use *teemX* and configure it for compatibility with your hardware and the application.

Chapter 3: Keyboard Configuration

Describes how to configure the keyboard, remap key functions and compose special characters.

Chapter 4: Mouse Functions

Describes the special functions assigned to the mouse buttons by *teemX* and how to redefine the buttons.

Chapter 5: Hotspots

Describes the hotspot facility which enables functions to be performed by clicking on keywords displayed on the screen.

Chapter 6: Setup Menus

Describes all the commands and setup dialog boxes that can be accessed via pop-up menus in the menu bar.

Chapter 7: DEC VT Emulations

Describes features of the DEC VT emulations.

Chapter 8: IBM 3270 Emulation

Describes features of the IBM 3270 emulation.

Chapter 9: IBM 5250 Emulation

Describes features of the IBM 5250 emulation.

Chapter 10: Resources & Command Line Options

Describes how to use resources and command line options to specify the loading configuration of *teemX*.

Appendix A: Virtual Key Names

Lists all the virtual key names that enable you to include a specific key function in a user definition for key macros, soft buttons, hotspots, etc.

Appendix B: Keysyms

Describes the use of virtual keysyms and lists all the valid keysyms that may be used to define the function of keys.

Appendix C: Key Reference Numbers

Lists the reference numbers assigned to keys on the British keyboard.

Appendix D: Character Sets

Shows the supported character set code tables.

Appendix E: Host Command Summary

Lists the host commands that are supported in each terminal emulation mode.

Terms & Conventions

This *User's Guide* uses the following terms and conventions.

1. When referring to mouse buttons, it will be assumed that the **Left** button is configured as button 1, the **Middle** button is configured as button 2, and the **Right** button is configured as button 3.
2. 'Click' means quickly press then release the specified mouse button.
3. 'Double click' means quickly press then release the specified mouse button twice in quick succession.
4. 'Drag the pointer' means hold down the left mouse button (or button assigned with the select function) and slide the mouse so that a selection box is displayed.
5. When references to keys are shown linked by a + (plus sign), this means that two or more keys have to be pressed at the same time. For example, 'press **Ctrl + M**' means press and hold down the **Ctrl** key, press the **M** key then release both keys.

Notes

2

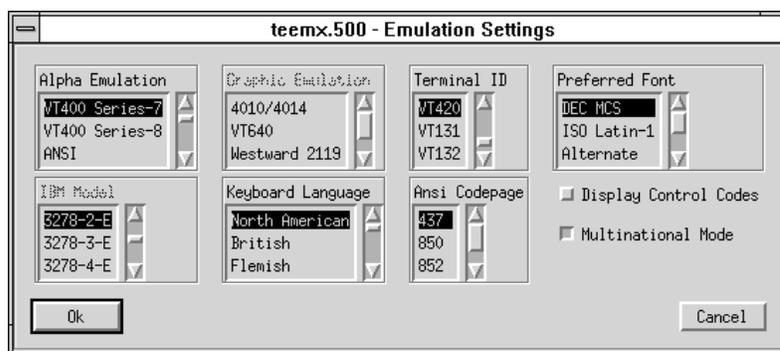
Getting Started

This chapter describes how to configure *teemX* for compatibility with your hardware and the application.

Selecting The Terminal Emulation

When you load *teemX* for the first time, the DEC VT400 (7-bit) emulation will be running by default. The current emulation can be changed in one of two ways, either from the status line or by using a setup dialog box. When an indicator status line with six buttons is displayed at the bottom of the window, you can change the current DEC VT terminal emulation to any other DEC VT terminal emulation (VT52, VT100, VT400 7-Bit or VT400 8-Bit) by clicking the button indicating the current emulation.

All the terminal emulations supported by *teemX* can be accessed from the **Emulation Settings** dialog box. This is displayed by selecting **Settings** in the menu bar then **Emulation...** The emulations available are listed in the **Alpha Emulation** box. To change the current emulation mode, click the pointer on the name of the emulation required then click **Ok**. The new setting may be saved so that *teemX* will automatically run it when loaded or reset by selecting the **Save Settings** option in the **File** menu.



Alpha Emulations

The **VT52** and **VT100** emulations enable you to run applications written for the DEC VT52 and VT100 terminals, respectively.

The **VT400 Series-7** and **VT400 Series-8** emulations are emulations of the DEC VT320 terminal, the difference is in their treatment of 8-bit control codes. When **VT400 Series-7** is selected, all 8-bit codes are converted to their 7-bit equivalents, whereas **VT400 Series-8** leaves 8-bit codes unchanged. If you are using VT200 applications, select **VT400 Series-7**.

The **ANSI-BBS** emulation is a derivative of the ANSI device driver **ANSI.SYS** supplied with all DOS based PCs and which provides the screen management for the DOS console screen. PC based UNIX systems and Bulletin Board Systems (BBS) often rely on the ANSI emulation when being accessed by a PC. In ANSI-BBS mode the screen size is adjusted to 25 lines and the **Preferred Font** is automatically set to ANSI-BBS. The setting of the **ANSI-386 Codepage** option in this dialog box determines the characters available in the ANSI BBS set. Refer to the *Setup Menus* chapter for details.

The **IBM 3270** emulation provides compatibility with software designed to drive the IBM 3270 terminal. Note that the initial display will be an ASCII text screen known as the Network Virtual Terminal Mode. You are required to make a host connection using the Telnet facility supplied with *teemX* in order to display the IBM 3270 screen and enable the emulation to function correctly. The setting of the **IBM Model** option in this dialog box determines the size of the display and whether or not extended attributes are supported (this must only be changed while running the IBM 3270 emulation and the new setting will not take effect until you save it and restart *teemX*). Refer to the *IBM 3270 Emulation* chapter for more information on this emulation.

The **IBM 5250** emulation provides compatibility with software designed to drive IBM 5250 type alphanumeric terminals. This emulation can be used for connection to an IBM AS/400, System/36 or System/38. Note that the initial display will be an ASCII text screen known as the Network Virtual Terminal Mode. You are required to make a host connection using the Telnet facility supplied with *teemX* in order to display the IBM 5250 screen and enable the emulation to function correctly. Refer to the *IBM 5250 Emulation* chapter for more information on this emulation.

SCO Console is an emulation of the SCO UNIX box.

Initiating A Telnet Session

teemX has its own inbuilt telnet driver so that precise control can be exercised over the information that *teemX* receives and transmits. You must use the telnet facility provided by *teemX* when using block mode emulations such as the IBM 3270.

A telnet session can be initiated from a dialog box while *teemX* is running or by using resources or command line options. Note that *teemX* must be configured so that it is running the required terminal emulation before initiating a telnet session.

You can initiate a telnet session while *teemX* is running by displaying the **File** menu and selecting the **Open Telnet** option.



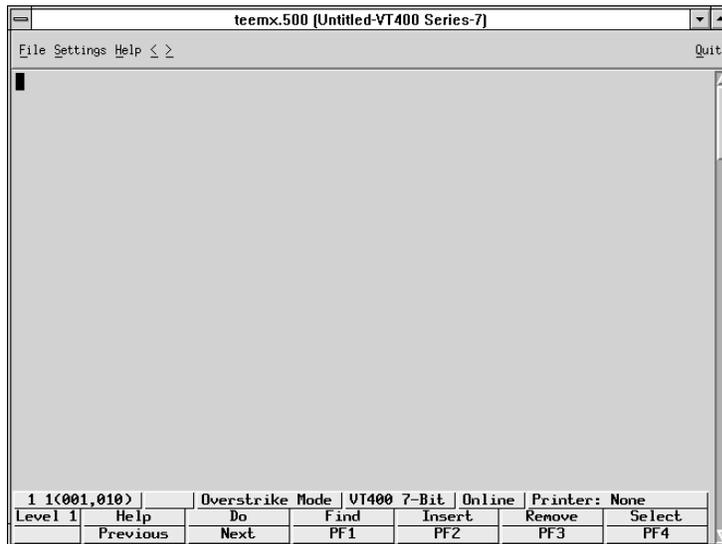
A list of hosts currently available for connection will be displayed in the **Telnet Hosts Available** list box.

Clicking the **Options** button will display another dialog box with additional telnet options. These are described in the *Setup Menus* chapter.

To make a connection, either click on the name in the list box or type it in the **Hostname** text box or line, then click **Ok**. To save the settings so that they will be automatically reasserted when *teemX* is subsequently reset or loaded, display the **File** menu and select the **Save Settings** option.

Selecting & Using Window Elements

The *teemX* window consists of various elements which are described in the following sections.



The Title Bar

The title bar displays the name of your version of *teemX* software by default. You may change the title displayed by using the **title** resource or **-title** command line option followed by a space then the title to be assigned. This is useful for identifying each window when more than one instance of *teemX* is being run. Refer to the *Resources & Command Line Options* chapter for more details.

The Menu Bar

The menu bar provides access to a series of commands and dialog boxes which enable you to perform various functions and configure *teemX* for compatibility with your hardware and the application. Three menus may be displayed from the menu bar. To display a menu, click on its title.

To select an option in the menu, just click the pointer over it. To close the menu without selecting an option, move the pointer outside the menu and click the left mouse button. All the options listed in the menus are described in the *Setup Menus* chapter. Window Resize Commands

The menu bar includes two commands labelled < and > which enable the window size to be decreased or increased, respectively.

When the < command is clicked, *teemX* will scan a list of known fonts and select the next smallest font to that currently being used. The window size is then decreased so that it contains exactly the same number of rows and columns as before.

When the > command is clicked, *teemX* will scan a list of known fonts and select the next largest font to that currently being used. The window size is then increased so that it contains exactly the same number of rows and columns as before.

You can achieve the same effect using the keyboard by pressing the **Meta** and < keys together to decrease the window size, or **Meta** and > to increase the window size.

*Note: The action names for these functions are **decrease-font()** and **increase-font()**. They can be reassigned using the Translation tables as described in the Keyboard Operation chapter.*

The window resize commands may be disabled using resources as described in the *Resources & Command Line Options* chapter.

The Scroll Bar

Displayable data is stored in a buffer which may be larger than the window. The scroll bar down the right edge of the window represents the entire buffer and enables you to display data that is above or below the current view of the window.

The number of text lines displayed in the window is specified by the **defaultLines** resource or **-dl** command line option (default 24 lines), and the number of lines stored off-screen in the buffer is specified by the **saveLines** resource or the **-sl** command line option (default 24 lines).

The scroll bar represents the entire buffer and the scroll thumb represents the portion of the buffer currently displayed in the window, consequently the size of the scroll thumb will vary.

The window contents can be moved up or down by placing the pointer over the scroll thumb, holding down the middle mouse button then moving the mouse up or down.

Placing the pointer anywhere in the scroll bar then clicking the left mouse button will scroll the window contents up the number of lines equal to that from the pointer position to the top of the window. Clicking the right mouse button will scroll the window contents down the number of lines equal to that from the pointer position to the bottom of the window.

Scrolling Using The Keyboard

When you are running one of the DEC 'VT' terminal emulations, you can scroll vertically by holding down the **Ctrl** key and pressing the **Up** or **Down Cursor** keys.

When you are running one of the DEC 'VT' terminal emulations, it is possible to make the width of display memory larger than the width of the window by using the **Page Width** option in the **Terminal Settings** dialog box. When you want to view columns stored off-screen, you can scroll horizontally by holding down the **Ctrl** key and pressing the **Left** or **Right Cursor** keys.

The Status Bar

A status bar can be displayed on the last line in the window when running any of the DEC VT, ANSI or SCO-Console emulations.

You may choose not to display a status bar, or enable a host-writable status line to be displayed instead. The type of DEC status line displayed is determined by the setting of the **Status Line** option in the **Terminal Settings** dialog box. (Refer to the *Setup Menus* chapter for details.)

The indicator status bar consists of six buttons which show the status of various operations and enable you to make selections. Some buttons can be clicked using the mouse pointer to change their state.

1 1(001,010)		Overstrike Mode	VT400 7-Bit	Online	Printer: None
1	2	3	4	5	6

Button 1: This button displays the active session (always 1), the current page number (always 1), and the **line,column** location of the text cursor.

Clicking the button will activate the **Hold Screen** function, stopping data from scrolling in the window. To resume scrolling, click the button again.

Button 2: This button toggles the visibility of the soft buttons displayed at the bottom of the window on and off.

Button 3: This button indicates whether **Overstrike Mode** or **Insert Mode** is currently selected.

In **Overstrike Mode** (default), new characters will replace already existing characters at the cursor position. When **Insert Mode** is selected, new characters will be inserted at the cursor position without deleting existing characters, which will move to the right.

Button 4: Indicates the current DEC VT alpha terminal emulation (VT52, VT100, VT400 7-Bit or 8-Bit). Clicking the button enables you to select a different DEC VT alpha terminal emulation mode without having to

display the **Emulation Settings** dialog box, which will be updated automatically with the new setting.

- Button 5:** Indicates whether you are **Online** to the host or in **Local** mode. Clicking the button will toggle between the two modes.
- Button 6:** Indicates the status of the printer as follows:
- None** signifies that the printer is not turned on or not connected.
 - Not Ready** signifies that the printer is not ready to receive data for printing.
 - Ready** signifies that the printer is ready to receive data for printing.
 - Auto** signifies that the emulation is in Auto Print mode in which the current cursor line is sent to the printer when a command for the cursor to move to the next line is issued.
 - Controller** signifies that the emulation is in Printer Controller mode in which the host has direct control over the printer. Print screen commands issued from the keyboard or mouse will be ignored.
- This button does not perform any function when clicked.

The Soft Buttons

A series of buttons is displayed below the status line at the bottom of the window by default when *teemX* is loaded. These can be programmed so that they perform various functions when clicked. The buttons have default definitions in some emulations. The following illustration shows the default definitions when running the VT400 emulation, in which the buttons on level 1 are programmed to perform DEC VT320 keyboard functions.

Level 1	Help	Do	Find	Insert	Remove	Select
	Previous	Next	PF1	PF2	PF3	PF4

There are four levels of soft buttons. Each level consists of two rows with six programmable buttons on each row. This provides a combined total of 48 programmable buttons. All levels are accessible even if not all are displayed. Levels stored off-screen can be 'scrolled' into view by clicking the **Level** button. You can specify how many levels of soft buttons are actually displayed by using a resource or command line option.

The soft buttons are programmed using the **Macro Settings** dialog box, which is displayed by selecting **Settings** in the menu bar then **Macros...** Refer to the *Setup Menus* chapter for information.

You can toggle the visibility of the soft buttons on and off by clicking the second button in the DEC indicator status line.

The Emulation Workspace

The emulation workspace is the area which emulates the display of the terminal specified in setup (the DEC VT400 terminal by default) and where work is carried out with an application.

The number of text lines displayed in the emulation workspace is set to 24 lines with an indicator status line on the 25th line by default. You can specify the number of lines displayed by using a resource or command line option. The number of columns that are displayed and stored in memory can be specified by options in the **Terminal Settings** dialog box.

Refer to the section describing the **Scroll Bar** earlier for information on scrolling lines and columns stored off-screen into view.

3

Keyboard Configuration

This chapter describes how to configure *teemX* for your particular keyboard, remap key functions and compose special characters.

Introduction

teemX maps the keyboard to be as near as possible to the terminal being emulated. Illustrations showing the mapping of functions are shown in each terminal emulation chapter. You can remap the keyboard as required and functions that may not be represented on the keyboard (Compose Character for example) can be assigned to specific keys.

Keyboard Nationality

The keyboard nationality is set to North American by default. You can specify a different nationality in the **Emulation Settings** dialog box which is displayed by selecting **Settings** in the menu bar then **Emulation...**

It is important that the setting of the **Keyboard Language** option matches that of the keyboard being used, otherwise the characters displayed may not match the legends on the key caps. Unlike the original terminals, the keyboard nationality does not directly affect the keyboard, which is defined instead by the X server configuration. The setting may be saved so that *teemX* automatically asserts it when loaded or reset by clicking the **Save Settings** option in the **File** menu.

Remapping The Keyboard

As the legends on the keycaps may not correspond to the actual functions of the keys, and the legends themselves may change from keyboard to keyboard, the X Window System uses '**keysyms**' to identify the function of keys. Each key has its

own unique keysym label which generally matches the function indicated by the legend on the keycap. For example, the keysym for the **Return** key is **Return**.

When more than one key share the same function, the keysym includes an indication of the location of each key on the keyboard. For example, the leftmost **Shift** key has the keysym **Shift_L**, and the rightmost **Shift** key has the keysym **Shift_R**.

A list of valid keysyms defined by the X Window System can be found in the *Keysyms* appendix. The keysym of a key is used to identify it for reconfiguration. To find out the keysym for a particular key you should consult the documentation supplied with the workstation. On some workstations a program called **xev** is provided which enables interactive interrogation of a key's keysym.

You can find the keysym value of a key by placing *teemX* in debug mode using the **-debug** command line option or **debugMode** resource, then pressing a key or key combination. The following information will be displayed when the **F2** key on a Sun 4 keyboard is pressed:

Keycode = 13, State = 0, Keysym = 65471

The **Keysym** value can be directly used in Translation tables as shown in the following example:

```
*xteemx320*vt220.Translations: #override \n\  
<Key>65471: string("This is the F2 key")
```

Changing The Function Of A Key

Once the keysym of a particular key is known, you can change the function of that key by using the **Translations** resource. This modifies a specified translation table within the *teemX* program which is used to assign events to actions. This table should be placed in the **.Xdefaults** or application defaults file as described in the *Resources & Command Line Options* chapter.

teemX supports two action functions related to keyboard mapping: **string** and **value**.

string("string")

This command will cause the specified string to be sent when the key specified in the translation table is activated. For example:

```
string("This is a string action")
```

value(decimal value of ASCII character)

This command will map the specified key to send the character corresponding to the ASCII decimal equivalent (ADE) of the value specified. For example:

value(27) will send the '**Escape**' character (**ESC** is ASCII decimal 27).

Some of the values that can be specified do not directly cause characters to be transmitted but invoke functions within *teemX* instead. For example:

value(128) will cause *teemX* to treat the activated key as **F1** (function key 1), and

value(-166) will cause *teemX* to treat the activated key as the **Compose Character** key.

These values are either undefined ADE (ASCII decimal equivalent) codes or values outside the range of ADE values. The values that *teemX* expects for various keys and functions can be ascertained from the *Key Reference Numbers* appendix.

Translation Resource Examples

The following example shows how to use the **Translations** resource to modify the translation table so that the **Compose Character** function is assigned to the key that has the keysym **Meta_R**.

```
xteemx320*vt220.Translations: #override \n\  
    <Key>Meta_R: value(-166)
```

This will cause the line **<Key>Meta_R: value(-166)** to be added to the beginning of the standard translation table. The effect is to define the keyboard's rightmost **Meta** key as the **Compose Character** key.

Note: The #override directive following the Translations resource name ensures that if the translation table already assigns a function to a keysym specified by the resource, the new function will replace the old.

More than one key definition can be included in the **Translations** resource, as shown in the following example:

```
xteemx320*vt220.Translations: #override \n\  
    <Key>F1:      string("This is the F1 key") \n\  
    <Key>KP_4:    string("This is the keypad 4 key") \n\  
    <Key>Backspace: value(127)
```

Note: By convention each translation is specified on a separate line. The \n at the end of each line except the last causes the program to interpret the next line as a continuation of the same string.

Redefining the shifted function of a key can be achieved by inserting the word **Shift** at the beginning of the key translation line, as shown in the following example:

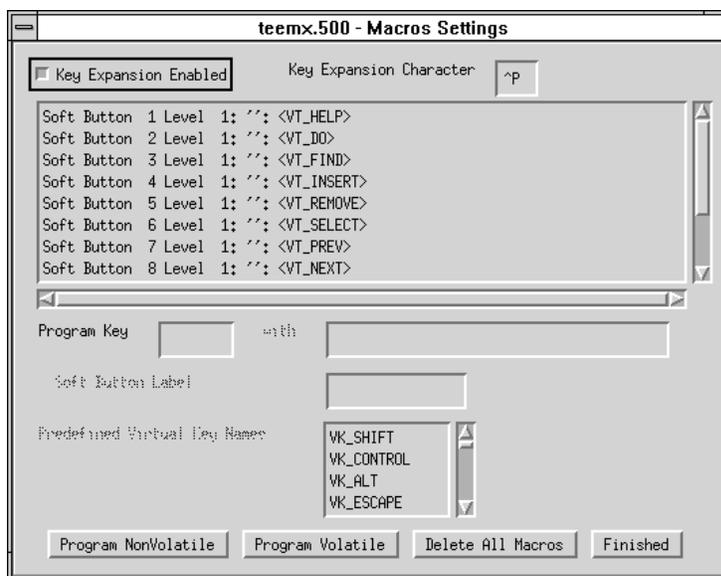
```
xteemx320*vt220.Translations: #override \n\  
Shift <Key>keysym: value(reference number)
```

Actions can also be mixed. The following example will cause **ESC H** to be sent when the **F7** key is pressed:

```
xteemx320*vt220.Translations: #override \n\  
<Key>F7: value(27) string("H")
```

Programming Keys

The **Macros Settings** dialog box is displayed by selecting **Macros** in the **Settings** menu. This enables you to program most keys with up to four definitions (macros) each. Keys that cannot be redefined include **Shift**, **Caps Lock** and **Print Screen**. The programmed contents of a key or key combination can be transmitted to the host when pressed by selecting the **Key Expansion Enabled** option in this dialog box.



To program a key, click the pointer in the **Program Key** text box then press the key or key combination that is to be programmed. The key combination can be any of the following:

Key
Ctrl + Key
Shift + Key
Ctrl + Shift + Key

Pressing a key will cause the key legend or a reference number that uniquely identifies the key to be displayed.

Press **Tab** or click the pointer in the **with** text box and enter the new definition. This can include specific functions associated with a particular terminal emulation as listed in the **Predefined Virtual Key Names** list box. The *Virtual Key Names* appendix provides a complete list of virtual key names and their associated functions. Clicking a key name in this list box will cause it to appear on the key definition line. The function associated with the key name will be attributed to the key being defined.

Note: An escape sequence will be sent across a network as a single packet.

The **Key Expansion Character** is a special toggle character that can be inserted into key macro strings to cause subsequent characters to be redirected from the host to the terminal and vice versa. By default all characters in the macro are directed to the host. When a key expansion character is detected for the first time, characters will be redirected to the terminal until the character is detected a second time in the current or another string. The key execute character is specified as the control key character equivalent. For example, the default value **^P** represents the keys **Ctrl + P**, which would generate the ASCII control character **DLE** when pressed.

When the definition is complete, decide if you wish the key contents to be saved so that it will be asserted each time *teemX* is reset or loaded, then click the **Program Volatile** or **Program NonVolatile** button.

Clicking the **Program Volatile** button will cause *teemX* to only remember the definition until it is reset or exited. Clicking the **Program NonVolatile** button will enable the definition to be saved *when you select the Save Settings option in the File menu.*

The large text box will display the reference numbers of all the currently programmed keys and their definitions, and soft button labels and definitions.

All volatile and non-volatile key and soft button definitions can be deleted by clicking the **Delete All Macros** button. Each key will then revert back to sending its default value as shown by the legend on the keycap. Note that non-volatile macro definitions will be reasserted the next time *teemX* is started unless you issue a **Save Settings** command after deleting the definitions.

When you have finished, click the **Finished** button and the dialog box will close. If you have specified that definitions are to be programmed as non-volatile, display the **File** menu and select the **Save Settings** option.

Entering Control Characters

You can enter a control character in a definition either as the control key character equivalent or the decimal value of the ASCII or 8-bit character. For example, the control character for the **Return** key function, **CR** (carriage return), can be entered by typing the characters **^** and **M** (without a space in-between) representing the keys **Ctrl + M** which, when pressed together would generate the **CR** code.

Decimal values are entered as three-digit numbers immediately preceded by an underscore character. Values with only two digits must be preceded by a zero. For example, the decimal value of **CR** is 13, so this would be entered as **_013**.

Refer to the ASCII and 8-bit character tables in the *Character Sets* appendix for code and decimal references.

Compose Character Sequences

Compose character sequences can be used to generate codes for characters not shown on your keyboard when you are in VT400 mode.

The characters that can be composed depend on the setting of the **Multinational Mode** and **Preferred Fonts** options in the **Emulation Settings** dialog box.

When the **Multinational Mode** option is not selected, only characters found in the character set that corresponds to the selected keyboard nationality can be composed. When this option is selected, the emulation is in Multinational mode and characters from all national keyboard layouts may be composed.

The tables of characters that are used in Multinational mode depend on the setting of the **Preferred Font** option. (This option only takes effect when the **Multinational Mode** option is selected.)

When the **Preferred Font** option is set to **DEC MCS**, the ASCII (7-bit) and DEC Additional (8-bit) character sets are used. When this option is set to **ISO Latin-1**, the ASCII (7-bit) and ISO Latin-1 Additional (8-bit) character sets are used. The *Character Sets* appendix shows all the tables of characters that may be selected.

If a character is a diacritical symbol (e.g. ´ or ¨) and this symbol does not appear on the keyboard, an equivalent character can be used in some cases. The diacritical symbols and the possible substitutes are shown below. There are no equivalents for the circumflex accent and tilde mark.

Diacritical Mark	Equivalent Character
´ Acute accent	' Apostrophe
¨ Umlaut	" Double quote
` Grave accent	' Single quote
◊ Ring mark	* Asterisk or degree sign

To compose a character, first find the character you wish to compose in the left hand column of the following tables. The two characters shown in the right hand column are the keys that are used to create it. Several alternatives may be given for generating the same character. A compose sequence is initiated by pressing the key mapped as the **Compose Character** key, followed by the key bearing the first character then the key bearing the second character.

A compose character sequence may be abandoned before completion by pressing the **Delete** key. Pressing **Compose Character** again before completing a compose character sequence will cause it to be abandoned and a second sequence to be started. An invalid compose character sequence will cause the bell to sound.

The following tables use several conventions:

The keys bearing the characters used to compose a special character may be pressed in any order unless **(in order)** is specified.

(DEC Multinat.) indicates that the character can only be composed if the **Multinational Mode** option in the **Emulation Settings** dialog box is selected and the **DEC MCS** option is unselected.

(Latin-1) indicates that the character can only be composed if both the **Multinational Mode** and **ISO Latin-1** options in the **Emulation Settings** dialog box are selected.

If a nationality is specified with the character description, for example **(Dutch)**, then the character can only be composed when the **Multinational Mode** option in the **Emulation Settings** dialog box is unselected.

COMPOSE CHARACTER SEQUENCES

"	quotation mark	" space	♀	feminine ordinal indicator	a - or A _
#	number sign	+ +	«	double open angle brackets	< <
'	apostrophe	' space	°	degree sign	0 ^ (Multinational) ° space (National)
@	commercial at	a a or A A (Multinational) a a or A A or a A (National)	±	plus or minus sign	+ -
[	opening bracket	((	2	superscript 2	2 ^
\	back slash	// or / <	3	superscript 3	3 ^
]	closing bracket	))	μ	micro sign	/ u or / U (in order)
^	circumflex accent	^ space	¶	paragraph sign	p ! or P !
`	grave accent	` space	•	centred period	. ^
{	opening brace	(-	1	superscript 1	1 ^
|	vertical line	/ ^	♂	masculine ordinal indicator	o _ or O _
}	closing brace	) -	»	double closed angle brackets	> >
~	tilde	~ space	¼	fraction one quarter	1 4 (in order)
!	inverted !	!!	½	fraction one half	1 2 (in order)
¢	cent sign	c / or C / c l or C l	¾	fraction three-quarters (Dutch)	3 4 (in order)
£	pound sign	l - or L - l = or L =	fl	Florin (Dutch)	f l (in order)
¥	yen sign	y - or Y - y = or Y =	ij	i j sign (Dutch)	i j (in order)
§	section sign	s o or S O or s ! S ! or s o or S O (National & Multinational) National includes s O or S o	¿	inverted ?	? ?
¤	currency sign	x o or X O x 0 or X 0	À	A grave	A `
©	copyright sign	c o or C O c 0 or C 0	Á	A acute	A '
			Â	A circumflex	A ^
			Ã	A tilde	A ~

COMPOSE CHARACTER SEQUENCES (continued)

Ä	A umlaut	A " or " A	Û	U circumflex	U ^
Å	A ring	A * or A ° (degree sign)	Ü	U umlaut	U " or " U
Æ	A E diphthong	A E (in order)	ÿ	Y umlaut (DEC Multinat.)	Y " or " Y
Ç	C cedilla	/ u or / U (in order)	ß	German small sharp s	s s
È	E grave	E `	à	a grave	a `
É	E acute	E '	á	a acute	a '
Ê	E circumflex	E ^	â	a circumflex	a ^
Ë	E umlaut	E " or " E	ã	a tilde	a ~
Ì	I grave	I `	ä	a umlaut	a " or " a
Í	I acute	I '	å	a ring	a * or a ° (degree sign)
Î	I circumflex	I ^	æ	a e diphthong	a e (in order)
Ï	I umlaut	I " or " I	ç	c cedilla	c, (comma)
Ñ	N tilde	N ~	è	e grave	e `
Ò	O grave	O `	é	e acute	e '
Ó	O acute	O '	ê	e circumflex	e ^
Ô	O circumflex	O ^	ë	e umlaut	e " or " e
Õ	O tilde	O ~	ì	i grave	i `
Ö	O umlaut	O " or " O	í	i acute	i '
Œ	O E diphthong (DEC Multinat.)	O E (in order)	î	i circumflex	i ^
Ø	O slash	O /	ï	i umlaut	i " or " i
Ù	U grave	U `	ñ	n tilde	n ~
Ú	U acute	U '	ò	o grave	o `

COMPOSE CHARACTER SEQUENCES (continued)

ó	o acute	o'	—	soft (syllable) hyphen (Latin-1)	--
ô	o circumflex	o^	®	registered trade- mark (Latin-1)	RO
õ	o tilde	o~	—	macron (Latin-1)	- ^ or _ ^
ö	o umlaut	o" or "o	¾	three quarters (Latin-1)	3 4 (in order)
œ	o e diphthong (DEC Multinat.)	oe (in order)	÷	division sign (Latin-1)	- :
ø	o slash	o/	×	multiplication sign (Latin-1)	x x
ù	u grave	u`	´	acute accent (Latin-1)	´´
ú	u acute	u'	¨	dieresis (umlaut) (Latin-1)	" " or " space
û	u circumflex	u^	Ý	Y acute (Latin-1)	Y'
ü	u umlaut	u" or "u	ý	y acute (Latin-1)	y'
ÿ	y umlaut	y" or "y	þ	capital Icelandic thorn (Latin-1)	TH (in order)
^N _S _P	no break space (Latin-1)	space space	þ	small Icelandic thorn (Latin-1)	th (in order)
¡	broken vertical bar (Latin-1)	!! or !^	Ð	capital Icelandic Eth (Latin-1)	- D
¬	logical not (Latin-1)	¬, (in order)	ð	small Icelandic Eth (Latin-1)	- d

Notes

4

Mouse Functions

This chapter describes the special functions assigned to the mouse buttons by *teemX* and how to redefine the buttons.

Introduction

teemX assigns a variety of special functions to the mouse buttons. Each button can be used to action up to five functions when pressed in conjunction with modifier keys. The following table lists the functions assigned to each button and key combination by default.

	Button 1	Button 2	Button 3
Normal	Select Text	Edit Paste	Extend Selection
Shift	Rect Select Text	Edit Paste	Extend Selection
Control	Move Cursor	Action Hotspots	Show Hotspots
Control + Shift	Graphic Select	Graphic Paste	Send Keyword
Alt	Unassigned	Unassigned	Unassigned

Note that usually **Button 1** is the leftmost button, **Button 2** is the middle button, and **Button 3** is the rightmost button. References to mouse buttons throughout this User's Guide will assume that they are configured in this way.

Selecting & Copying Text

You can use the mouse buttons to copy and paste text. The region of the display that will be selected for copying depends on whether you use the **Select Text** or **Rect Select Text** function. The **Select Text** function will select all text from the start position to the finish position, working left to right across the entire width of the display, whereas the **Rect Select Text** function will only select text contained within the rectangular area defined by the start position (top left corner) and the finish position (bottom right corner).

The default method for selecting text is as follows. Place the cursor at the start of the text to be copied, hold down the **Left** mouse button (with **Shift** if a rectangular area is to be selected) then drag the cursor across to the end of the required text. Releasing the mouse button will cause the selected text to be saved in the global cut buffer.

Another method of selecting text is to quickly click the **Left** mouse button twice to select the word at the current cursor position, or three times to select the entire line. Clicking four times will revert back to single character selection. To extend the selection, click the **Right** mouse button.

Text that has been saved in the global cut buffer may be pasted at the current cursor position by clicking the **Middle** mouse button.

Graphic Copy & Paste

teemX provides a graphic copy facility which enables you to copy text and graphics and paste the information in any *teemX* window. The area to be copied is selected by positioning the mouse cursor at the top left corner of the required area, holding down the keys **Control + Shift** and the **Left** mouse button, then dragging the mouse cursor down to the bottom right corner of the required area. Releasing the keys will cause the currently selected area to be copied. To paste the data, position the mouse cursor where you wish the top left corner of the copied data to be positioned, then hold down the keys **Control + Shift** and click the **Middle** mouse button.

Moving The Cursor In Block Mode

When *teemX* is in any of the local block modes, you can use the mouse instead of the cursor keys to position the text cursor. Move the mouse cursor to the required position then hold down the **Control** key and click the **Left** mouse button. The text cursor will then jump to that position.

Show & Action Hotspots

teemX incorporates a user-definable hotspot facility which enables you to invoke a function by clicking the mouse cursor over a keyword displayed on the screen. For example, an application may display information relating to keys you can press to perform a particular function. Instead of pressing the key on the keyboard, you could invoke the function by moving the mouse cursor over the displayed key name, holding down the **Control** key and clicking the **Middle** mouse button.

Hotspots are supported in ALL terminal emulation modes. *teemX* provides a set of default hotspot keywords for each mode. These relate to key functions specific to the emulation. For example, in VT400 mode you can click on the word **Help** displayed on the screen and *teemX* will execute the function associated with the **Help** key.

You can identify hotspots that are currently present in display memory by holding down the **Control** key and the **Right** mouse button. All colour attributes will be temporarily removed from the display and the hotspots will be highlighted with a red background. Releasing the keys will return the display to its original state.

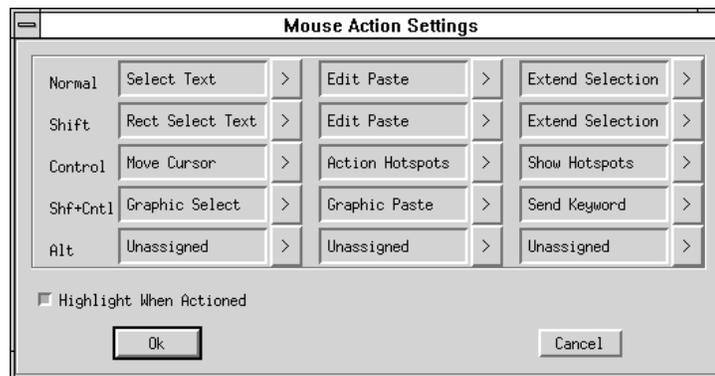
For information on defining hotspots, refer to the *Hotspots* chapter.

Send Keyword

The **Send Keyword** function enables you to click on any delimited word displayed on the screen and it will be sent to the host, as long as the word is not already defined as a hotspot. Keyword delimiters are the same as for hotspots, that is: space, NULL, /, :, = () [and].

Redefining The Mouse Buttons

teemX enables you to redefine the functions assigned to the mouse buttons via the **Mouse Button Actions** dialog box, which is displayed from the **Settings** menu.



This enables you to specify the function of mouse buttons 1, 2 and 3 when they are pressed on their own or in conjunction with modifier keys. You can assign up to five functions to each button. Clicking one of the arrow buttons will display a drop-down list box which lists all the standard functions that can be assigned:



You can also enter a definition of your own in the text box associated with each button and key combination. Definitions are entered in the same way as for keyboard macros and soft buttons, as described in the *Setup Menus* chapter.

The setting of the **Highlight When Actioned** option determines whether or not a visual indication is given that a function has been actioned when a hotspot is clicked.

5

Hotspots

This chapter describes the hotspot facility which enables functions to be performed by clicking on keywords displayed on the screen.

Using Hotspots

teemX incorporates a user-definable hotspot facility which enables you to invoke a function by clicking the mouse pointer over a keyword displayed on the screen. For example, an application may display information relating to keys you can press to perform a particular function. Instead of pressing the key on the keyboard, you could invoke the function by moving the mouse pointer over the displayed key name, holding down the **Control** key and clicking the **Middle** mouse button.

Hotspots are supported in ALL terminal emulation modes. *teemX* provides a set of default keywords for each mode. These keywords relate to key functions specific to the emulation. For example, in VT400 mode you can click on the word **Help** displayed on the screen and *teemX* will execute the function associated with the **Help** key.

You can identify hotspots that are currently present in display memory by holding down the **Control** key and the **Right** mouse button (assuming default mouse configuration). All colour attributes will be temporarily removed from the display and the hotspots will be highlighted with a red background. Releasing the keys will return the display to its original state.

In summary, the following key and mouse button combinations are used to identify and action hotspot functions by default:

Identify hotspots: **Control + Right Mouse Button**
Action hotspot function: **Control + Middle Mouse Button**

Note: These functions may be assigned to different mouse button and key combinations. Refer to the Mouse Functions chapter for details.

Defining Hotspots

Hotspot keywords and associated functions are specified in a text file which has the same name (and is in the same directory) as the current save settings file but with the extension **.hot** instead of **.nv**. For example, the default hotspot definitions supplied with *teemX* are stored in the file **teemx320.hot**.

The format of entries in the hotspot definition file is as follows. Each hotspot definition is entered on a separate line and definition lines are grouped under headings which specify the terminal emulation mode in which they will take effect.

[Separators]

Separators= /,:=()[]

[Definitions]

F1=<VK_F1>

F2=<VK_F2>

[Definitions,VT52]

[Definitions,VT400 7-Bit]

F6=<VT_F6>

F7=<VT_F7>

The first command group, headed **[Separators]**, specifies the displayed characters which delimit the hotspot keyword. Delimiters include **SPACE** and **NULL** as well as the characters shown in the example by default. The end delimiter does not need to be the same as the first. Delimiters are necessary to prevent hotspots occurring within words that happen to contain the same formation of characters as the keywords.

The following command groups specify the keywords used in each terminal emulation mode. Keyword definitions that can apply to all modes are specified under the heading **[Definitions]**. Keyword definitions that apply to a specific mode are specified under the heading **[Definitions,<emulation>]**, where **<emulation>** must be the name of the terminal emulation mode as already specified in the default hotspot definitions file. Note that a keyword definition under a **[Definitions,<emulation>]** heading will override the definition given to the same keyword in any other definitions group when that particular emulation is running.

Each keyword definition line consists of the keyword immediately followed by an equals (=) sign, then the function that it will perform. The keyword can consist of any characters except those specified as delimiters in the **Separators=** line. *teemX* will search for the keyword on a case insensitive basis.

The function that will be performed when the keyword is selected is specified in the same way as for key macros, soft buttons and script language programming.

Entering Control Characters

You can enter a control character in a keyword definition either as the control key character equivalent or the decimal value of the ASCII character.

For example, the control character for the **Return** key function, **CR** (carriage return), can be entered by typing the characters **^** and **M**, representing the keys **Ctrl + M** which, when pressed together would generate the **CR** code. This could be used to define the keyword **Login** to enable you to log on to a host:

Login=hostname^M

Decimal values are entered as three-digit numbers immediately preceded by an underscore character. Values with only two digits must be preceded by a zero. For example, the decimal value of **CR** is 13, so this would be entered as **_013**.

Refer to the ASCII character table in the *Character Sets* appendix for code and decimal references.

Key Combinations & Sequences

You can define a keyword to perform the function of a particular key, a combination of keys, or a sequence of keys. For example, you can define a keyword to perform the same function as pressing the key **F4**, or pressing the keys **Alt + F4** together, or pressing the keys **F2** then **F3** then **F4**. Keys are identified by their virtual key names as listed in the *Virtual Key Names* appendix. You may omit the **VK_**, **VT_** (etc.) parts of the name.

To define a keyword so that it will perform the function of a particular key, type the **<** character followed by the virtual key name then the **>** character. For example, to define the keyword **Insert** so that it will perform the same function as the **Insert** key found on the DEC VT320 keyboard, enter the following line in the relevant Definitions command group:

Insert=<VT_INSERT>

To define a keyword so that it will perform the same function as pressing two or more other keys together, type the **<** character followed by the virtual key names linked together with **+** characters and ending with the **>** character.

For example, to define the keyword **Help** so that when it is clicked it performs the same function as pressing the keys **Alt + F4** together, enter the following line in the relevant Definitions command group:

Help=<ALT+F4>

To define a keyword so that it will perform the same function as pressing a sequence of keys one after the other, enter each virtual key name in the order required, enclosing each name with the **<** and **>** characters. Each enclosed virtual

key name must immediately follow the previous enclosed virtual key name with no spaces.

For example, to define the keyword **Command** so that when it is clicked it performs the same function as pressing the keys **F2** then **F3** then **F4**, enter the following line in the relevant Definitions command group:

Command=<F2><F3><F4>

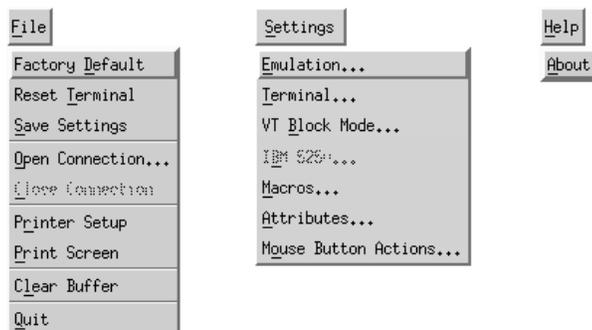
6

Setup Menus

This chapter describes the options available in the setup menus and dialog boxes.

Selecting & Closing Menus

To display a menu, place the pointer over the **F**ile, **S**ettings or **H**elp button in the menu bar and click the left mouse button. A menu is closed by moving the pointer away from the menu then clicking the left mouse button.



Using The Menus

Option Selection

There are several ways of selecting or actioning the various options displayed in the menus.

The quickest way is to click the option required. Another way is to place the pointer over the button on the first option, hold down the left mouse button then

move the pointer up or down the menu until the button rests over the option required then release the left mouse button.

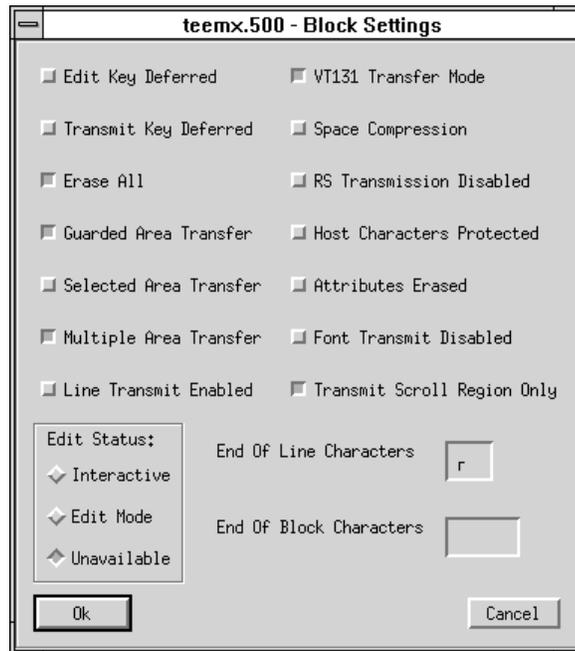
Options that are displayed dimmed are not applicable to the current mode of operation and cannot be selected. An example of this is the **Close Connection** option in the **File** menu. This can only be selected after a host connection has been made.

Options that are *not* followed by an ellipsis (...) perform a particular function when selected. For example, selecting **Factory Default** in the **File** menu will cause *teemX* to assert the factory default settings.

Options that *are* followed by an ellipsis indicate that a dialog box will be displayed with all the selections applicable to that option. For example, selecting **Emulation...** in the **Settings** menu will display a dialog box in which you can select the terminal emulation mode.

Dialog Boxes

Selecting an option which is followed by an ellipsis (...) will cause a dialog box to be displayed. The example shown below is displayed by selecting the **VT Block Mode...** option in the **Settings** menu. The dialog box will remain on the display until the **Ok** or **Cancel** button at the bottom of the dialog box is clicked.



Option Selection

There are several methods for making selections within the dialog boxes. Most options have a small square or diamond button next to them. An option is selected or true when the button is pressed in, and false or unselected when the button is popped out. Buttons are toggled in and out by clicking the pointer on them.

Some options have all their applicable settings listed in a box with diamond buttons next to them, such as the **Edit Status** option in the **VT Block Mode Settings** dialog box shown on the next page. In this case the buttons behave just like radio buttons in that clicking one will cause the previously depressed button to pop out.

Some options require you to enter information in a text box, such as the **End Of Line Characters** option in the dialog box shown above. To do this, click the pointer in the text box, delete the previous value then enter the new value from the keyboard.

When there are more options that can be comfortably displayed in the dialog box, these will be shown in a list box with a scroll bar. Examples of this can be found in the **Emulation Settings** dialog box. The scroll bar functions in the same way as the scroll bar in the main window. To make a selection, display the required option in the list box then click the pointer on it so that it is highlighted.

Closing A Dialog Box

To close a dialog box without actioning any changes that have been made to the settings, click the **Cancel** button. This will cause all the settings in that dialog box to revert back to the state they were in when it was first displayed.

To close a dialog box and cause *teemX* to assert the new settings, click the **Ok** button.

Default Settings

teemX is supplied with the setup options set to factory default. If these have been altered since and you wish to reassert the original settings of all the options, display the **File** menu and select the **Factory Default** option.

If you have modified any setup settings since you last saved the setup, you can cause *teemX* to reassert the last saved settings by selecting the **Reset Terminal** option in the **File** menu.

Saving The Setup

The current setup configuration can be saved so that *teemX* will automatically reassert the settings when it is subsequently reset or loaded.

To save the current setup configuration, display the **File** menu and select the **Save Settings** option.

Settings are saved in the file **teemx320.nv** by default. You can specify a different file for saving and loading settings by using the following resource or command line option:

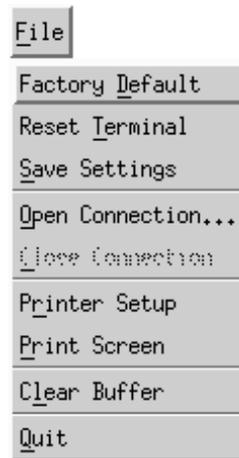
Resource: **xteemx320*settingsFile:** *filename*
Command Line: **-sf** *filename*

Refer to the *Resources & Command Line Options* chapter for more details.

Menu Descriptions

The following pages describe the options available in all the menus and associated dialog boxes. The descriptions begin by showing the menu or dialog box as it is displayed on the screen. The factory default setting is shown below each option title where applicable.

File Menu



Factory Default

This will cause *teemX* to reassert all the original settings that it had when you first installed it.

Reset Terminal

This will reset the current terminal emulation mode.

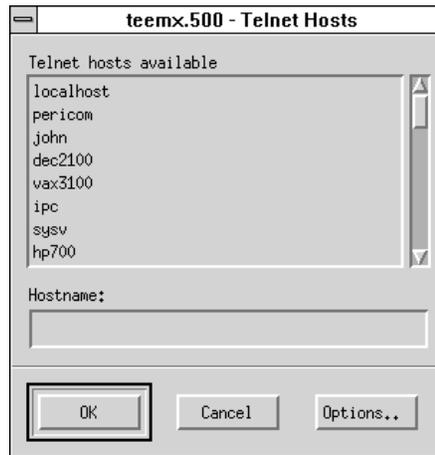
Save Settings

This will save the current setup configuration so that it is reasserted when *teemX* is subsequently reset or loaded, overriding any changes which have been made but not saved.

Open Connection...

This will display a dialog box (shown on the next page) which enables you to make a connection to a remote host.

Most emulations work quite well in the standard *teemX* environment when the telnet process provided with the workstation is used to make the connection to the remote host. However, in some block mode emulations, especially the IBM 3270, the telnet process does not pass all the necessary information to *teemX*. To overcome this, *teemX* has its own inbuilt telnet driver so that precise control can be exercised over the information that *teemX* receives and transmits. You must use the telnet facility provided by *teemX* when using block mode emulations such as IBM 3270. Note that *teemX* must be configured so that it is running the required terminal emulation before initiating a telnet session.



A list of hosts currently available for connection will be displayed in the **Telnet Hosts Available** list box. To make a connection, either click on the name in the list box or type it in the **Hostname** text box, then click **Ok**.

Clicking the **Options** button will display another dialog box with additional telnet options. These are described in the next section.

Note that you can use resources or command line options to initiate a telnet session, specify the telnet port number, and force *teemX* to exit when the connection closes. Refer to the *Resources & Command Line Options* chapter for details.

Close Connection

This will close the current telnet connection.

Printer Setup...

This option will display the **Text Printer Settings** dialog box which enables you to specify the destination of print data.

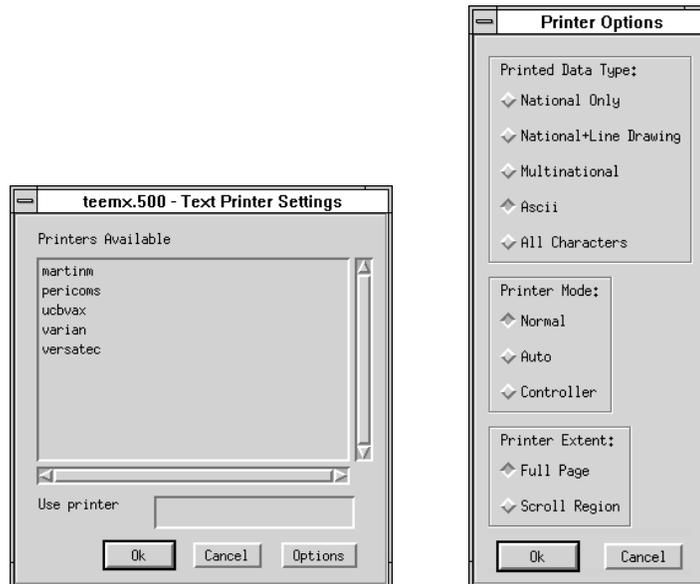
To select a printer, just click on the name in the **Printers Available** list box then click the **Ok** button. Further print requests (e.g. Autoprint or Print Screen) will be directed towards that printer.

Clicking the **Options** button will display another dialog box with additional print options.

The **Printed Data Type** options enable you to restrict the character sets used for printing so that they match those supported by your printer.

You can select from one of three different **Printer Modes**. Selecting **Normal** (default) will enable you to print a page of text or text in the scrolling region,

depending on the **Printer Extent** selection. Selecting **Auto** will cause the current display line to be sent to the printer when the cursor moves to the next line. Auto print mode lets you print each line as it is received from the host. Selecting **Controller** will enable the host to send text directly to the printer, without displaying it on the screen.



Print Screen

Clicking this option cause a fast print of text displayed in the *teemX* window using ASCII text codes.

Clear Buffer

This will cause the contents of the window and scroll buffer to be erased.

Quit

This will cause *teemX* to shut down.

Telnet Options

The screenshot shows a dialog box titled "Telnet Options". At the top, there are two input fields: "Port Number:" containing the value "23" and "Telnet Name:" containing "IBM-3278-2-E". Below these are two main sections. The "Suppress:" section contains four checkboxes: "Echo", "3270 Regime", "TN3270E", and "TN5250E". To the right of "TN3270E" is a button labeled "3270 Options", and to the right of "TN5250E" is a button labeled "5250 Options". The "Force Negotiation:" section contains two sub-sections: "Binary" and "EOR", each with a "no" button and a "+" button. The "Break Settings:" section contains two checkboxes: "TM with Break" and "CR with Break". At the bottom of the dialog are "Ok" and "Cancel" buttons.

This dialog box is displayed when you click the **Options** button in the **Telnet Hosts** dialog box. Note that the options available and the default settings depend on the current terminal emulation. The '**3270**' and '**5250**' options are only applicable when running the IBM 3270 or IBM 5250 emulations, respectively. The example illustration above shows the options available by default when you are running the IBM 3270 emulation.

Port Number

This enables you to specify the Telnet port number. The default Telnet port number, **23**, can be substituted with any valid 16 bit port number. Specifying a number outside the valid range will cause the setting to default to 1.

Telnet Name

This enables you to override the name that will be reported for the terminal type over Telnet.

Suppress Echo

When selected, this will prevent the emulator from generating the Telnet echo option on connection.

Suppress 3270 Regime

When running the IBM 3270 emulation, the setting of this option determines whether or not support for the Telnet "3270 regime" option is suppressed.

Suppress TN3270E

When running the IBM 3270 emulation, the setting of this option determines whether or not support of TN3270E is suppressed. When this option is not selected (i.e. TN3270E is not suppressed), additional options are available by clicking the **3270 Options** button. These are described in the *3270 Options* section.

Suppress TN5250E

When running the IBM 5250 emulation, the setting of this option determines whether or not support of TN5250E is suppressed. When this option is not selected (i.e. TN5250E is not suppressed), additional options are available by clicking the **5250 Options** button. These are described in the *5250 Options* section.

Force Negotiation

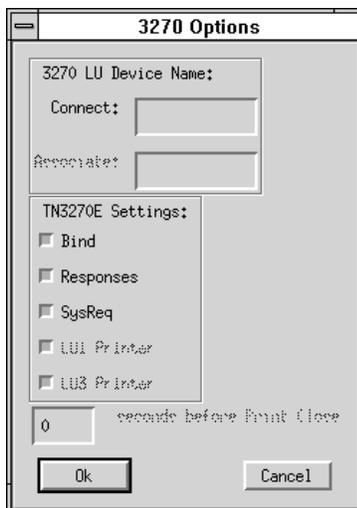
These settings determine whether or not the Telnet Binary or EOR options are supported. Both are set to **no** by default.

- No** Will not force any negotiations. It will leave it up to the host to decide what to do.
- DO** Will force negotiation. The host will be informed that the option is supported.
- DONT** Will force negotiation. A negotiation packet will be sent to the host telling it that the option is not supported.

Break Settings

The setting of these options determine whether or not a timing mark (**TM**) and/or carriage return (**CR**) is sent with a Telnet break packet. A timing mark is sent by default.

3270 Options



This dialog box is displayed by clicking the **3270 Options** button in the **Telnet Options** dialog box when TN3270 is not suppressed.

3270 LU Device Name

The **Connect** box is used to enter the name of the device which the server will be requested to assign to this Telnet session; it may be used when requesting either a terminal or a printer session. (This is implemented as described in RFC 1646 and RFC 1647.)

The **Associate** box is available when the **IBM 3270 Model** option is set to **3287-1** (a printer). It is used to request that the device name of the printer associated with a particular terminal is assigned to this Telnet session. The name of the terminal is specified here. (This is implemented as described in RFC 1647.)

When you achieve a TN3270E connection, the LU device name that you are connected as will be displayed on the status line. If the specified device is rejected by the server or host, then an error message box will be displayed indicating the reason.

TN3270E Options

TN3270E is implemented as described in RFC 1647. These options should not be changed unless required by your System Administrator.

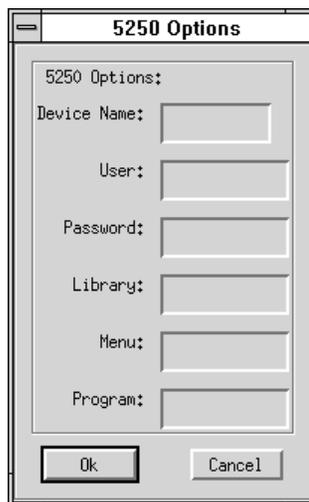
The **Bind** setting determines whether or not the server is allowed to send the SNA Bind image and Unbind notification to the emulator.

When **Responses** is selected, positive and negative response handling is supported. It allows the server to reflect to the emulator any and all definite, exception, and no response requests sent by the host application.

When **SysReq** is selected, some (or all, depending on the server) of the functions of the **SysReq** key will be emulated and the server in an SNA environment.

The **LU1** and **LU3 Printer** options are available when the **IBM 3270 Model** option is set to **3287-1** (a printer). They enable you to specify which printer type(s) to support.

5250 Options

A dialog box titled "5250 Options" with a standard Windows-style title bar. The dialog contains a label "5250 Options:" followed by six input fields: "Device Name:", "User:", "Password:", "Library:", "Menu:", and "Program:". Each field is a simple rectangular text box. At the bottom of the dialog are two buttons: "Ok" and "Cancel".

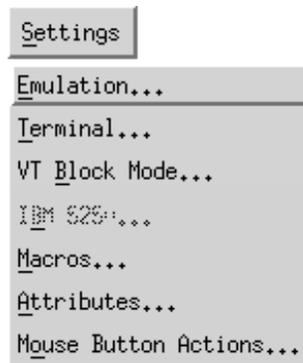
This dialog box is displayed by clicking the **5250 Options** button in the **Telnet Options** dialog box when TN5250 is not suppressed.

The **Device Name** option enables you to enter the name of the device (up to ten characters) which the server will be requested to assign to this Telnet session.

The **User**, **Password**, **Library** and **Menu** options enable you to specify the initial entries required on the standard startup screen so that it can be bypassed. Each entry can be a maximum of ten characters.

The **Program** option enables you to specify the name of the initial program to run. The entry can be a maximum of ten characters.

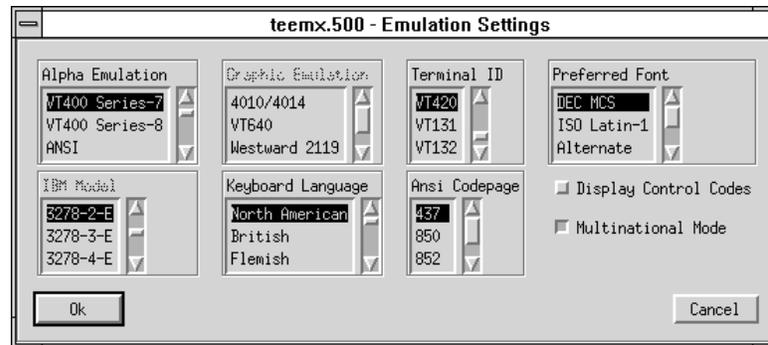
Settings Menu



The following dialog boxes can be displayed from this menu. Note that the dialog boxes used to configure specific emulations can only be displayed when the relevant emulation is running.

- Emulation Settings** - for specifying the terminal emulation, keyboard nationality and displayable characters.
- Terminal Settings** - for specifying terminal and display settings.
- VT Block Mode Settings** - for specifying DEC VT Block (Edit) mode text formatting and transmission.
- IBM 5250 Settings** - for configuring the IBM 5250 emulation.
- Macros Settings** - for defining the function of keys and soft buttons.
- Attribute Settings** - for assigning colours and specifying how characters with attributes are displayed.
- Mouse Button Actions** - for specifying mouse button functions.

Emulation Settings



This dialog box is displayed by selecting **Emulation** in the **Settings** menu.

Alpha Emulation

Factory default: VT400 Series-7

The setting of this option determines the current alpha emulation mode.

The **VT52** and **VT100** emulations enable you to run applications written for the DEC VT52 and VT100 terminals, respectively.

The **VT400 Series-7** and **VT400 Series-8** emulations are emulations of the DEC VT320 terminal, the difference is in their treatment of 8-bit control codes. When **VT400 Series-7** is selected, all 8-bit codes are converted to their 7-bit equivalents, whereas **VT400 Series-8** leaves 8-bit codes unchanged. If you are using VT200 applications, select **VT400 Series-7**.

The **ANSI** emulation is a derivative of the ANSI device driver **ANSI.SYS** supplied with all DOS based PCs and which provides the screen management for the DOS console screen. PC based UNIX systems and Bulletin Board Systems (BBS) often rely on the ANSI emulation when being accessed by a PC. In ANSI-BBS mode the screen size is adjusted to 25 lines and the **Preferred Font** is automatically set to ANSI-BBS. The setting of the **ANSI Codepage** option in this dialog box determines the characters available in the ANSI BBS set.

The **IBM 3270** emulation provides compatibility with software designed to drive the IBM 3270 terminal. Note that the initial display will be an ASCII text screen known as the Network Virtual Terminal Mode.

You are required to make a host connection using the Telnet facility supplied with *teemX* in order to display the IBM 3270 screen and enable the emulation to function correctly. The setting of the **IBM Model** option in this dialog box determines the size of the display and whether or not extended attributes are supported (this must only be changed while running the IBM 3270 emulation and

the new setting will not take effect until you save it and restart *teemX*). Refer to the *IBM 3270 Emulation* chapter for more information on this emulation.

The **IBM 5250** emulation provides compatibility with software designed to drive IBM 5250 type alphanumeric terminals. This emulation can be used for connection to an IBM AS/400, System/36 or System/38. Note that the initial display will be an ASCII text screen known as the Network Virtual Terminal Mode. You are required to make a host connection using the Telnet facility supplied with *teemX* in order to display the IBM 5250 screen and enable the emulation to function correctly. Refer to the *IBM 5250 Emulation* chapter for more information on this emulation.

SCO Console is an emulation of the SCO UNIX box.

Graphics Emulation

Factory default: ReGIS

This option does not apply to this version of *teemX*.

Terminal ID

Factory default: VT320

This identifies the particular terminal model emulated by *teemX* in response to a terminal identification request from the host. The **M2200** setting enables *teemX* to be treated as a Microcolour M2200 series terminal. Selecting **VT420** enables the VT420 functions to be supported.

Preferred Font

Factory default: DEC MCS

This enables you to select the type of character sets used for displaying characters.

The **DEC MCS**, **ISO Latin-1** and **ISO Latin-2** settings enable you to specify the 8-bit character set that is used within VT320 mode when the **Multinational VT220** option is selected. The DEC MCS and both ISO Latin character sets consist of two tables of characters. The first table, ASCII 7-bit, is common to all three sets and provides standard alphabetic, numeric and symbolic characters, and control codes. The second (8-bit) table differs between the three sets and provides various special and multinational characters and additional control codes. These tables are shown in the *Character Sets* appendix.

The **Alternate** setting is used when emulating a Microcolour M2200 terminal to ensure that the correct character sets are used.

The **ANSI-BBS** setting will use the PC (ANSI) character set specified by the **ANSI Codepage** option. The ANSI-BBS emulation will use this character set by default.

ANSI Codepage

Factory default: 437

This option specifies the character set used for display when the **Preferred Font** option is set to ANSI-BBS.

The four character set mappings (code pages) supported are **437** for normal usage (default) and **850**, **852** or **1250** for multinational usage. Each set consists of two tables of characters. The first table is the standard ASCII character set. The second table contains special characters which differ between the four sets. Refer to the *Character Sets* appendix for details.

IBM Model

Factory default: Model 2-E

This option determines the size of the display and whether or not extended attributes are supported when the current alpha emulation is set to **IBM 3270**. TN3287 printing is supported by selecting **3287-1**.

Before changing and saving the setting of this option, ensure *teemX* is running the IBM 3270 emulation. You must save the setting (using the **File** menu **Save Settings** option) and restart *teemX* before it will take effect.

One of four display sizes can be selected:

3278/9-2	24 rows by 80 columns
3278/9-3	32 rows by 80 columns
3278/9-4	43 rows by 80 columns
3278/9-5	27 rows by 132 columns

Settings with the **-E** extension provide support for the following extended attributes: 3270 field attributes, extended highlighting, foreground colour, query reply inbound structured fields.

Keyboard Language

Factory default: North American

This option enables you to specify the nationality of the keyboard being used. It is important that this is correct otherwise the characters displayed may not match the key legends. Unlike the original terminals, the keyboard nationality does not directly affect the keyboard, which is defined instead by the X server configuration.

Display Control Codes

Factory default: Unselected

When selected, a representation of received control codes will be displayed on the screen instead of actioned.

Multinational Mode

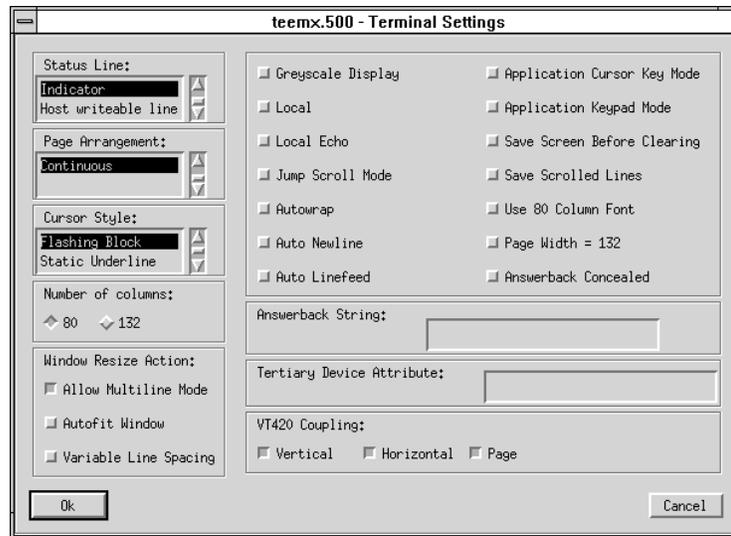
Factory default: Selected

The setting of this option determines the type of character set that is used when *teemX* is in VT400 mode. (All other modes use the national character set for the currently selected keyboard nationality only.)

When this option is unselected, a character set specific to the keyboard nationality specified in this dialog box is used. Only characters found in that particular national character set can be generated.

When this option is selected, characters from any keyboard nationality can be generated. The characters available are determined by the setting of the **Preferred Font** option.

Terminal Settings



This dialog box is displayed by selecting **Terminal** in the **Settings** menu.

Status Line

Factory default: Indicator

The last line in the window can be used to display a status line when running any of the DEC VT terminal emulations. An indicator status line is displayed by default on the 25th line the first time you load *teemX*.

You may choose not to display a status line, or enable a host-writable status line to be displayed instead. The type of status line displayed is determined by the setting of this option.

Page Arrangement

Factory default: Continuous

When *teemX* is in VT420 mode (**Alpha Emulation** set to **VT400** and **Terminal ID** set to **VT420**), the display memory of 144 lines can be divided into several pages, up to a maximum of six pages of 24 lines each. The setting of this option determines the number of lines on a page and therefore how many pages are available. When the workspace is smaller than the page, you can scroll the page up or down in the window by holding down the **Ctrl** key and pressing the **Up** or **Down Cursor** keys. When *teemX* is in any mode other than VT420, the page size is the same as the display memory (**Continuous**).

Number of Columns

Factory default: 80

This option enables you to specify a display width of 80 or 132 columns. When set to 132, the setting of the **Use 80 Column Font** option determines whether all 132 columns are displayed using a narrow font, or only 80 columns at a time using the normal (80 column) font, with the ability to scroll horizontally to view the columns stored off-screen.

Allow Multiline Mode

Factory default: Selected

The setting of this option determines the number of text lines that are displayed when the window is resized.

When the option is selected, resizing the window will cause the number of visible lines to be increased or decreased to fill the new window size without adjusting the character size.

When this option is unselected, resizing the window will cause *teemX* to search a list of known fonts and select the one which allows the same number of rows and columns as before to fill the new window size. The width of the window may be adjusted to ensure that all of the 80 or 132 columns are displayed.

Note: If the font definitions have been overridden by command line options or resources, then teemX will always select the fonts specified by them.

Auto Fit Window

Factory default: Unselected

When this option is selected, resizing the window will cause *teemX* to force the actual window size horizontally and vertically so that it exactly contains the nearest smallest font when the **Allow Multiline Mode** option is unselected.

When **Auto Fit Window** is not selected, resizing the window will not cause the emulation workspace to be resized. The emulation workspace will be aligned centrally within the window with surrounding space to fill in the area to the actual window size.

Variable Line Spacing

Factory default: Unselected

When the **Allow Multiline Mode** option is unselected, this option defines where white (blank) space is inserted. When selected, white space is inserted between adjacent lines. When unselected, adjacent lines butt together and any remaining space is placed at the bottom of the window.

Vertical VT420 Coupling

Factory default: Selected

The setting of this VT420 mode option determines what happens when the application moves the cursor to a line not currently displayed in the window when the number of displayed lines is less than the page size. When selected, the display will automatically scroll vertically to keep the cursor in view. When unselected, the display will remain static and the cursor will move off-screen to the relevant line stored in memory. You can scroll the display to view the lines stored off-screen by holding down the **Ctrl** key and pressing the **Up** or **Down Cursor** keys.

Horizontal VT420 Coupling

Factory default: Unselected

The setting of this DEC VT mode option determines what happens when the cursor moves beyond the last column displayed in the window when there are more columns stored off-screen. When selected, the display will automatically scroll horizontally to keep the cursor in view. When unselected, the display will remain static and the cursor will move off-screen. To scroll horizontally to view the hidden columns, hold down the **Ctrl** key and press the **Left** or **Right Cursor** keys.

Page VT420 Coupling

Factory default: Selected

The setting of this VT420 mode option determines the effect of a remote command to move the cursor to another page. When selected, the page to which the cursor is moved is automatically displayed. When unselected, the display remains unchanged and the cursor moves off-screen to the relevant page stored in memory.

Greyscale Display

Factory default: Unselected

The setting of this option determines how *teemX* interprets and displays colours. It should be set to match the kind of display monitor being used. When selected, *teemX* will convert colour information to the equivalent NTSC grey level. When unselected, *teemX* will display the correct colours.

Local

Factory default: Unselected

When this option is unselected, normal two-way communication between *teemX* and the host is enabled. When selected, data will not be sent to, or received from the host. Data typed on the keyboard will be displayed on the screen or actioned if a control command is typed, as if it had been received from the host.

Local Echo

Factory default: Unselected

The setting of this option determines whether characters sent to the host are displayed at the same time, or only displayed if the host echoes them back.

When local echo is enabled, *teemX* will display each character as it is sent to the host.

Jump Scroll Mode

Factory default: Unselected

The setting of this option determines whether data is scrolled one or several lines at a time when the window becomes full.

Data will scroll up several lines at a time when selected, giving a higher scroll speed.

Autowrap

Factory default: Selected

This option determines whether characters wrap to the next line when the right margin is reached. When selected, on reaching the right margin, the last character position will be overwritten by every new character received.

Auto Newline

Factory default: Unselected

When this option is selected, a carriage return (**CR**) command will be appended to every line feed (**LF**) command received.

Auto Linefeed

Factory default: Unselected

When this option is selected, a line feed (**LF**) command will be appended to every carriage return (**CR**) command received.

Application Cursor Key Mode

Factory default: Unselected

The setting of this option determines the function of the cursor keys. When unselected, the keys will generate normal cursor movement commands. When selected, the keys will generate application program codes when pressed.

*Note: On some keyboards these keys act as both a numeric keypad and a cursor key block depending on the setting of a modifier, for example the **Num Lock** key. The **Application Cursor Key Mode** setting only affects the characters generated when the keys are acting as cursor keys.*

Application Keypad Mode

Factory default: Unselected

The setting of this option determines the function of the keys in the numeric keypad on the right side of the keyboard.

When unselected, the keys will generate characters corresponding to the legends on the keycaps (or their stored strings if they have been programmed).

When this option is selected, the keys will generate control functions when pressed.

*Note: On some keyboards these keys act as both a numeric keypad and a cursor key block depending on the setting of a modifier, for example the **Num Lock** key. The **Application Keypad Mode** setting only affects the characters generated when the keys are acting as a numeric keypad.*

Save Screen Before Clearing

Factory default: Unselected

This applies to all DEC 'VT' emulations except VT340 and VT420. It determines the effect of a clear screen command received from the host. When unselected, the contents of the current page will be cleared. When selected, the contents of the current page will be saved and the display will scroll to the next page.

Save Scrolled Lines

Factory default: Unselected

If a scroll region is set, selecting this option will cause data scrolled out of the region to be stored in a history buffer.

Use 80 Column Font

Factory default: Unselected

This option specifies which font to use when the **Number Of Columns** option is set to **132**. When unselected, a narrow font will be used so that all 132 columns are visible in the window. When selected, only 80 columns will be visible using the normal font, with the remaining columns stored off-screen. You can scroll horizontally to view the hidden columns by holding down the **Ctrl** key and pressing the **Left** or **Right Cursor** keys.

Page Width = 132

Factory default: Unselected

This option specifies the width of display memory for DEC VT modes as 80 columns when unselected or 132 columns when selected. When the **Number Of Columns** setting is less than the page width specified here, you can scroll

horizontally to view the hidden columns by holding down the **Ctrl** key and pressing the **Left** or **Right Cursor** keys.

Answerback String

Factory default: Unspecified

This option enables you to specify the Answerback string that is sent to the host in response to an ANSI mode enquiry command. The string may be up to 30 characters long.

Answerback Concealed

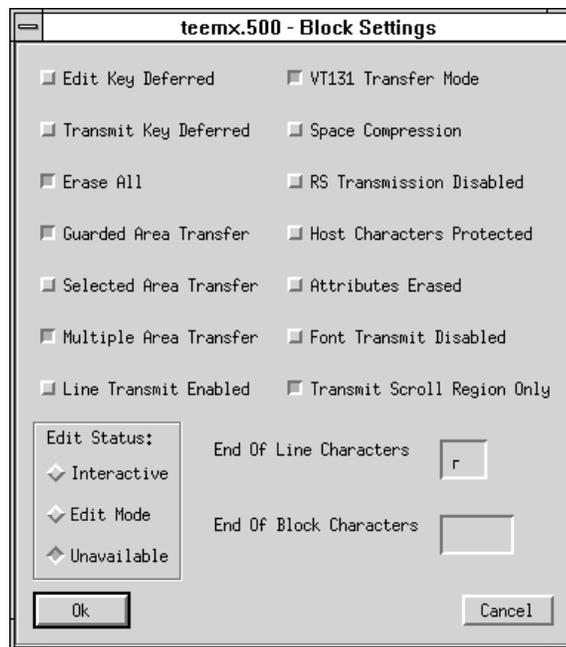
Factory default: Unselected

Selecting this option will cause the Answerback string specified in the text box above to be locked from change and displayed as asterisks. Note that deselecting this option will cause the Answerback string to be deleted.

Tertiary Device Attribute

When *teemX* is in VT420 mode (**Alpha Emulation** set to **VT400** and **Terminal ID** set to **VT420**), this option enables you to specify the tertiary device attribute report that is sent in response to a request from the host.

VT Block Mode Settings



This dialog box is displayed by selecting **VT Block Mode** in the **Settings** menu.

Edit Key Deferred

Factory default: Unselected

When this option is unselected, Edit mode will be entered immediately when the **Shift + Delete** key combination is pressed without waiting for the host to send the command to enter.

When selected, pressing **Shift + Delete** will cause a code to be sent to the host asking permission to enter Edit mode. The host will reply by sending the 'Enter Edit Mode' command.

Transmit Key Deferred

Factory default: Unselected

The setting of this option determines the effect of pressing the **Enter** key when sending data to the host.

When unselected, data will be sent to the host immediately without waiting for permission to transmit.

When selected, a code will be sent to the host notifying it that data is ready for transmission. The keyboard will be locked until the host requests that the data is transmitted.

Erase All

Factory default: Selected

The setting of this option determines which characters can be erased by the host or user.

When unselected, only unprotected characters can be erased, protected characters will be left untouched.

When this option is selected, both protected and unprotected characters can be erased.

Guarded Area Transfer

Factory default: Selected

The setting of this option determines whether protected characters can be sent to the host or not.

When selected, both protected and unprotected characters will be sent to the host when the **Enter** key is pressed.

When this option is unselected, only unprotected characters will be sent to the host when the **Enter** key is pressed.

Selected Area Transfer

Factory default: Unselected

The setting of this option determines whether all characters or only those in selected areas on the current page are sent to the host when the **Enter** key is pressed.

When unselected, all characters on the current page will be sent when the **Enter** key is pressed.

When selected, this option will enable only the characters in selected areas to be sent to the host when the **Enter** key is pressed. The setting of the **Multiple Area Transfer** option determines which selected areas are sent.

Multiple Area Transfer

Factory default: Selected

When the **Selected Area Transfer** option is selected, the setting of this option determines whether all selected areas on a page are sent to the host when the **Enter** key is pressed, or only the area containing the cursor.

When selected, this option will enable all selected areas to be sent to the host.

When this option is unselected, only the selected area containing the cursor will be sent to the host.

Line Transmit Enabled

Factory default: Unselected

The setting of this option determines whether data is sent to the host a single line at a time or a full or partial page at a time when the **Enter** key is pressed.

When selected, a single line of valid characters will be sent to the host. In this mode the **Return** key has the same function as **Enter**.

When this option is unselected, a full or partial page will be sent to the host when the **Enter** key is pressed. The size of the page is determined by the setting of the **VT131 Transfer Mode** and **Transmit Scroll Region Only** options.

When this option is set to **Yes**, the contents of the scrolling region will be sent to the host when the **Enter** key is pressed.

VT131 Transfer Mode

Factory default: Unselected

The setting of this option determines whether a partial page of data is transmitted in ANSI or VT131 format when the **Transmit Scroll Region Only** option is unselected.

When unselected, Local Editing mode will function according to ANSI (American National Standards Institute) rules.

When this option is selected, Local Editing mode will function in the same way as a VT131 terminal. Select this option when running software written for the VT131.

Space Compression

Factory default: Unselected

This option determines how spaces and empty character fields within a block of data are sent to the host.

When unselected, a space character will be sent for each empty character position.

When this option is selected, a record separator code (**RS**) will be sent in place of empty character positions. The last field on a line will contain end of line characters as specified by the **End of Line Characters** option.

RS Transmission Disabled

Factory default: Unselected

The setting of this option determines whether or not a record separator (**RS**) code is appended to each field of data when a block is transmitted to the host. Record separator codes are used as markers between each field when this option is unselected.

Host Characters Protected

Factory default: Unselected

When this option is unselected, protected characters are protected from change by the keyboard only. The host is still able to change them.

When selected, this option causes protected characters to be protected from change by both the host and keyboard.

Attributes Erased

Factory default: Unselected

The setting of this option determines the effect of an erase command on character attributes.

When selected both attributes and characters will be cleared from display memory when an erase command is issued.

When this option is unselected, all video attributes currently used will remain in display memory when an erase command is issued. This will result in new characters being displayed with the video attributes associated with their positions on the display.

Font Transmit Disabled

Factory default: Unselected

The setting of this option determines whether character set selection sequences for all character sets represented in the data block are transmitted to the host, or whether spaces are substituted for characters not contained in the currently selected character set.

When this option is unselected, the character set selection sequences for all character sets represented in the data block will be sent.

When this option is selected, characters which are not contained in the currently selected National or Multinational character set will be substituted with spaces.

Transmit Scroll Region Only

Factory default: Selected

The setting of this option determines whether a partial page or data in the scrolling region is sent to the host when the **Enter** key is pressed and the **Line Transmit Enabled** option is unselected.

When unselected, this option will enable a partial page to be sent to the host. The format of the partial page is determined by the setting of the **VT131 Transfer Mode** option.

Edit Status

Factory default: Unavailable

The setting of this option determines whether or not Local Editing mode can be selected and how editing is performed.

Selecting **Unavailable** will prevent you or the host from entering Edit mode.

Selecting **Edit Mode** will cause text to be stored in page memory so that it can be edited locally. This enables the host to get on with other tasks. A block of data will be transmitted to the host when the **Enter** key is pressed.

Selecting **Interactive** will cause characters to be sent to the host as soon as they are typed at the keyboard. The host will perform editing functions.

End of Line Characters

Factory default: ^M (i.e. CR)

This option is used to specify the characters that are to indicate the end of a line in a data block.

To change the current definition, delete the definition displayed in the text box and type in the new one, either as the control key character equivalent or the decimal value of the ASCII character.

For example, the default ASCII character **CR** can be entered by typing the characters **^** and **M**, representing the keys **Ctrl + M** which, when pressed together would generate the **CR** code. The decimal value would be entered as **13**.

Refer to the ASCII character table in the *Character Sets* appendix for code and decimal references.

End of Block Characters

Factory default: Unspecified

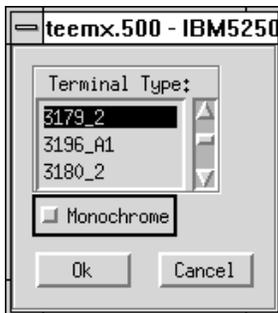
This option is used to specify the characters that are to indicate the end of a block of data.

To change the current definition, delete the definition displayed in the text box and type in the new one, either as the control key character equivalent or the decimal value of the ASCII character.

For example, the ASCII character **CR** can be entered by typing the characters **^** and **M**, representing the keys **Ctrl + M** which, when pressed together would generate the **CR** code. The decimal value would be entered as **13**.

Refer to the ASCII character table in the *Character Sets* appendix for code and decimal references.

IBM 5250 Settings



This dialog box is displayed by selecting **IBM 5250** in the **Settings** menu.

Terminal Type

Factory default: 3179_2

This enables you to specify a particular terminal to emulate. The terminal types supported and their display characteristics are listed below.

Type	Display	Rows x Columns
5291_1	Monochrome	24 x 80
5292_2	Colour	24 x 80
5251_11	Monochrome	24 x 80
3179_2	Colour	24 x 80 (default)
3196_A1	Monochrome	24 x 80
3180_2	Monochrome	24 x 80 and 27 x 132
3477_FC	Colour	24 x 80 and 27 x 132
3477_FG	Monochrome	24 x 80 and 27 x 132
3486_BA	Monochrome	24 x 80
3487_HA	Monochrome	24 x 80
3487_HC	Colour	24 x 80

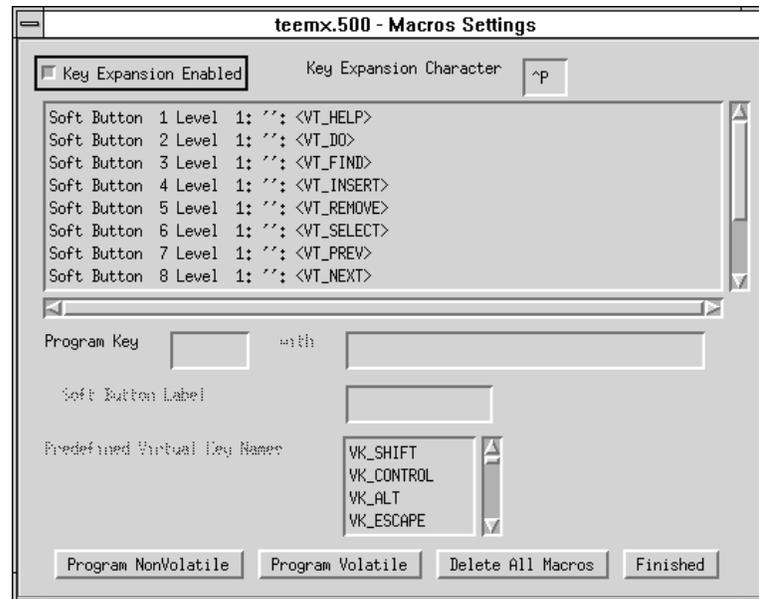
Monochrome

Factory default: Depends on terminal type

By default the setting of this option will match the normal display characteristic of the **Terminal Type** selected, as shown in the list above. In *teemX*, all terminal types support both monochrome and colour display.

When monochrome is selected, characters will be displayed in green and intense fields will be displayed in white. When monochrome is not selected, the settings specified in the **Attributes** dialog box will be used for the display.

Macro Settings



This dialog box is displayed by selecting **Macros** in the **Settings** menu.

Key Expansion Enabled

Factory default: Selected

This option specifies whether programmed keys on the keyboard can be expanded (i.e. transmit their programmed contents to the host) when pressed. When selected, a programmed key will send its programmed string instead of its normal character.

Key Expansion Character

Factory default: ^P (i.e. DLE)

The key execute character is a special toggle character that can be inserted into key macro strings to cause subsequent characters to be redirected from the host to the terminal and vice versa. By default all characters in the macro are directed to the host.

When a key expansion character is detected for the first time, characters will be redirected to the terminal until the character is detected a second time in the current or another string.

The key execute character is specified as the control key character equivalent. For example, the default value **^P** represents the keys **Ctrl + P**, which would generate the ASCII control character **DLE** when pressed.

Program Key With

Factory default: Soft Button Level 1 definitions correspond to functions found on a DEC VT320 keyboard as follows:

Soft Button 1:	Help	Soft Button 7:	Previous
Soft Button 2:	Do	Soft Button 8:	Next
Soft Button 3:	Find	Soft Button 9:	F1
Soft Button 4:	Insert	Soft Button 10:	F2
Soft Button 5:	Remove	Soft Button 11:	F3
Soft Button 6:	Select	Soft Button 12:	F4

These options enable you to program most keys with up to four definitions (macros) each, and the soft buttons with one definition each. Keys that cannot be redefined include **Shift**, **Caps Lock** and **Print Screen**. The programmed contents of a key or key combination can be transmitted to the host when pressed by selecting the **Key Expansion Enabled** option in this dialog box.

To program a key or soft button, click the pointer in the **Program Key** text box then press the key or key combination or click the soft button that is to be programmed. The key combination can be any of the following:

Key
Ctrl + Key
Shift + Key
Ctrl + Shift + Key

Pressing a key or soft button will cause the key legend or a reference number that uniquely identifies the key or soft button used to be displayed.

Press **Tab** or click the pointer in the **with** text box and enter the new definition. This can include specific functions associated with a particular terminal emulation as listed in the **Predefined Virtual Key Names** list box. The *Virtual Key Names* appendix provides a complete list of virtual key names and their associated functions. Clicking a key name in this list box will cause it to appear on the key definition line. The function associated with the key name will be attributed to the key or soft button being defined. You can also enter control characters as described in the following section.

Note: An escape sequence will be sent across a network as a single packet.

If you are defining a soft button, you can give it a label up to ten characters long which is displayed on the soft button in the window by entering it in the **Soft Button Label** text box.

When the definition is complete, decide if you wish the key or soft button contents to be saved so that it will be asserted each time *teemX* is reset or loaded, then click the **Program Volatile** or **Program NonVolatile** button.

Clicking the **Program Volatile** button will cause *teemX* to only remember the definition until it is reset or exited. Clicking the **Program NonVolatile** button will enable the definition to be saved *when you select the Save Settings option in the File menu*.

The large text box will display the reference numbers of all the currently programmed keys and their definitions, and soft button labels and definitions.

All volatile and non-volatile key and soft button definitions can be deleted by clicking the **Delete All Macros** button. Each key will then revert back to sending its default value as shown by the legend on the keycap. Note that non-volatile macro definitions will be reasserted the next time *teemX* is started unless you issue a **Save Settings** command after deleting the definitions.

When you have finished, click the **Finished** button and the dialog box will close. If you have specified that definitions are to be programmed as non-volatile, display the **File** menu and select the **Save Settings** option.

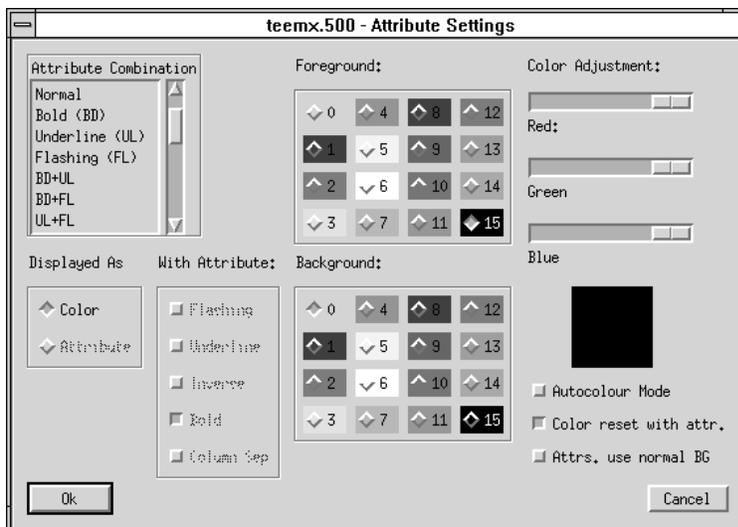
Entering Control Characters

You can enter a control character in a definition either as the control key character equivalent or the decimal value of the ASCII or 8-bit character. For example, the control character for the **Return** key function, **CR** (carriage return), can be entered by typing the characters **^** and **M** (without a space in-between) representing the keys **Ctrl + M** which, when pressed together would generate the **CR** code.

Decimal values are entered as three-digit numbers immediately preceded by an underscore character. Values with only two digits must be preceded by a zero. For example, the decimal value of **CR** is 13, so this would be entered as **_013**.

Refer to the ASCII and 8-bit character tables in the *Character Sets* appendix for code and decimal references.

Attribute Settings



This dialog box is displayed by selecting **Attributes** in the **Settings** menu.

This enables you to specify the colours used in the window and how text with attributes are displayed.

To change the way a screen element is displayed, select the relevant item from the **Attribute Combination** list box, for example, **Bold** for characters with the bold attribute. The settings of the other options in the dialog box will change to reflect the settings currently assigned to the screen element.

Text with attributes can be displayed in various ways. For example, characters with the underline attribute can be displayed as standard (e.g. underlined only), as a particular colour only (e.g. green without the underline), or with both attribute and a specific colour (e.g. underlined and green). The **With Attribute** options allow you to enable or disable any of the attributes normally associated with the currently selected screen element. (The **Column Sep** option for the column separator attribute is only available when running the IBM 5250 emulation.) The setting of the **Displayed As** option determines whether or not a specific colour is assigned to the text attribute.

The colour of the screen element can be changed by setting the **Displayed As** option to **Colour** and clicking on the required colour block in the palette of **Foreground** and/or **Background** colours. The two palettes enable you to specify a different colour for text (foreground) and text cell (background), and dashed and/or dotted graphics line styles (foreground) and the gaps between the dashes or dots (background).

To display the actual attribute assigned to the text in the default text colour, select **Attribute**. To display text assigned with an attribute in a particular colour only, select **Colour** and specify the foreground and background colours on the palettes. To display text assigned with an attribute with both attribute and a particular colour, select **Colour**, specify the foreground and background colours on the palettes and specify the applicable attribute(s) from the **With Attribute** list.

The following sections describe items in the **Attribute Settings** dialog box in more detail.

Attribute Combination

This list box enables you to select a specific attribute, or combination of attributes for defining how they are displayed. The options available depends on the current terminal emulation mode. When running the IBM 5250 emulation, the list of character attributes is extended to include the column separator (CS) attribute.

The **Ansi Palette** option at the top of the list allows you to specify which set of eight **Foreground** and **Background** colour indices are used when ANSI colour escape sequences are received. Either indices **0 to 7** or **8 to 15** can be selected. The unselected set of colours appear greyed. To change the current selection, just click on one of the unselected colour index buttons.

When running the IBM 3270 emulation, the list box will allow selection of the following items:

Unprotected Normal
Unprotected Bold
Protected Normal
Protected Bold
Status BG

Foreground & Background Colour Palettes

The **Foreground** (text) and **Background** (cell) colours for the current **Attribute Combination** selection are defined by clicking one of the 16 coloured buttons in each palette. You can change the colour assigned to any of the colour selection buttons by clicking the button so that the large box to the right displays the current colour for that button, then use the **Red**, **Green** and **Blue** adjustment slides to modify the colour displayed.

Autocolour Mode

Factory default: Unselected

This option is only applicable to the DEC VT terminal emulations. When selected, displayed characters are colour coded according to type. For example, all numeric characters are displayed in one colour while all alphabetic characters are displayed in another. Deselecting this option will display characters according to the settings in this dialog box.

Colours Cleared With Attributes

Factory default: Selected

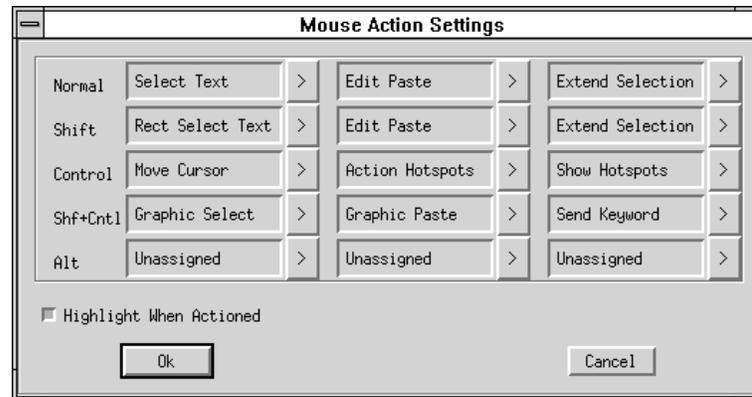
The setting of this option determines whether or not the foreground and background colours are cleared to the default colours when an ANSI clear attributes command is received.

Attributes Use Normal BG

Factory default: Unselected

This option only applies to the IBM 3270 emulation. If attribute indicators take up character positions on the screen, you can force those positions to display the normal background colour instead of the attributes by selecting this option.

Mouse Button Actions



This dialog box is displayed by selecting **Mouse Button Actions** in the **Settings** menu.

This enables you to specify the function of mouse buttons 1, 2 and 3 when they are pressed on their own or in conjunction with modifier keys. You can assign up to five functions for each button. Clicking one of the arrow buttons will display a drop-down list box which lists all the standard functions that can be assigned:



Most of these settings are self explanatory. The **Select Text** function will select all text from the start position to the finish position, working left to right across the entire width of the display, whereas the **Rect Select Text** function will only select text contained within the rectangular area defined by the start position (top left corner) and the finish position (bottom right corner).

The **Show Hotspots** and **Action Hotspots** functions are described in the *Hotspots* chapter. The **Send Keyword** function is very similar to the hotspot feature. It enables you to send delimited text displayed on the screen to the host just by clicking on it. Delimiters are the same as for hotspots.

The **Move Cursor** function can be used in any of the local block modes as a quick way of positioning the text cursor within a block of text. Move the mouse cursor to the position where the text cursor is required then click the mouse button (and key combination) assigned with the **Move Cursor** function to cause the text cursor to jump to that location.

For more information on these special functions, refer to the *Mouse Functions* chapter.

You can also enter a definition of your own in the text box associated with each button and key combination. Definitions are entered in the same way as for keyboard macros and soft buttons.

The setting of the **Highlight When Actioned** option determines whether or not a visual indication is given that a function has been actioned when a hotspot is clicked.

Help Menu



Clicking the **About** button in the **Help** menu will display information on this version of *teamX*.

Notes

7

DEC VT Emulations

This chapter describes features of the DEC VT terminal emulations.

Introduction

To run a DEC VT terminal emulation, display the **Emulation Settings** dialog box from the **Settings** menu and set the **Alpha Emulation** to one of the emulation options described below, then click **OK**.

The **VT52** and **VT100** emulations enable you to run applications written for the DEC VT52 and VT100 terminals, respectively.

The **VT400 Series-7** and **VT400 Series-8** emulations enable you to run applications written for the DEC VT320 or VT340 terminal, the difference is in their treatment of 8-bit control codes. When **VT400 Series-7** is selected, all 8-bit codes are converted to their 7-bit equivalents, whereas **VT400 Series-8** leaves 8-bit codes unchanged. If you are using VT200 applications, select **VT400 Series-7**.

The Status Bar

A status line can be displayed on the last line in the window when running any of the DEC VT terminal emulations. An indicator status line is displayed by default on the 25th line the first time you load *teemX*.

You may choose not to display a status line, or enable a host-writable status line to be displayed instead. The type of DEC status line displayed is determined by the setting of the **Status Line** option in the **Terminal Settings** dialog box. (Refer to the *Setup Menus* chapter for details.)

The indicator status line consists of six buttons which show the status of various operations and enable you to make selections. Some buttons can be clicked using the mouse pointer to change their state.

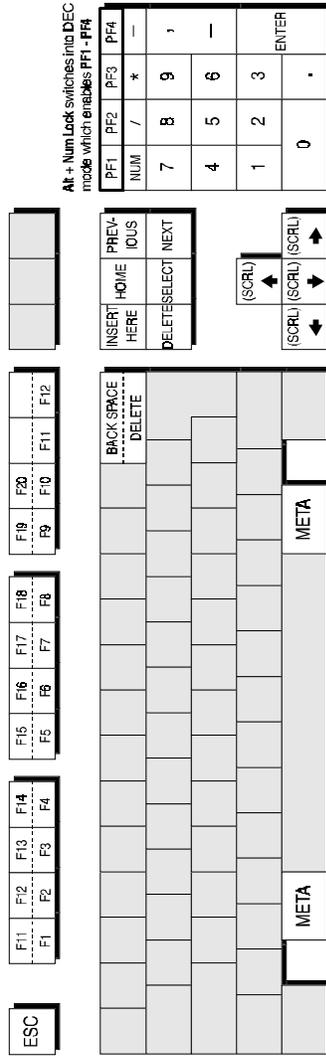
1 1(001,010)		Overstrike Mode	VT400 7-Bit	Online	Printer: None
1	2	3	4	5	6

- Button 1: This button displays the active session (always 1), the current page number (always 1), and the **line,column** location of the text cursor.
- Clicking the button will activate the **Hold Screen** function, stopping data from scrolling in the window. To resume scrolling, click the button again.
- Button 2: This button toggles the visibility of the soft buttons displayed at the bottom of the window on and off.
- Button 3: This button indicates whether **Overstrike Mode** or **Insert Mode** is currently selected.
- In **Overstrike Mode** (default), new characters will replace already existing characters at the cursor position. When **Insert Mode** is selected, new characters will be inserted at the cursor position without deleting existing characters, which will move to the right.
- Button 4: Indicates the current DEC VT alpha terminal emulation (VT52, VT100, VT400 7-Bit or 8-Bit). Clicking the button enables you to select a different DEC VT alpha terminal emulation mode without having to display the **Emulation Settings** dialog box, which will be updated automatically with the new setting.
- Button 5: Indicates whether you are **Online** to the host or in **Local** mode. Clicking the button will toggle between the two modes.
- Button 6: Indicates the status of the printer as follows:
- None** signifies that the printer is not turned on or not connected.
 - Not Ready** signifies that the printer is not ready to receive data for printing.
 - Ready** signifies that the printer is ready to receive data for printing.
 - Auto** signifies that the emulation is in Auto Print mode in which the current cursor line is sent to the printer when a command for the cursor to move to the next line is issued.
 - Controller** signifies that the emulation is in Printer Controller mode in which the host has direct control over the printer. Print screen commands issued from the keyboard or mouse will be ignored.
- This button does not perform any function when clicked.

Keyboard Mapping

The following illustration shows where DEC VT400 keyboard functions are mapped to keys on the Enhanced AT keyboard layout.

Enhanced AT Keyboard Layout



All unmarked keys function as indicated by the legends on the keycaps.
 Bracketed functions are generated when used in conjunction with **Control**.

Notes

8

IBM 3270 Emulation

This chapter describes features of the IBM 3270 terminal emulation.

Introduction

The IBM 3270 emulator provides emulation of all four models of the IBM 3278 alphanumeric terminal and also supports the IBM 3287-1 printer. The terminal emulation supports Extended Attribute mode which allows different representation of highlighted fields and permits host definition of text colours. (Note that you can modify colours using the **Attribute Settings** dialog box but they cannot be saved as colours are mapped differently in this mode.) The emulation also includes typeahead capability so that you can continue to enter data without waiting for a prompt from the host. All communication to the IBM mainframe is achieved over the TCP/IP Telnet interface using the inbuilt telnet interface provided with *teemX*.

Running The Emulation

1. Display the **Emulation Settings** dialog box, set the **Alpha Emulation** option to **IBM 3270**, then click **Ok**. The *teemX* window will now be in Network Virtual Terminal mode.
2. Display the **Emulation Settings** dialog box again if you wish to change the setting of the **IBM Model** option which determines the size of the display and whether or not extended attributes are supported. One of four display sizes can be selected:
 - Model 2** 24 rows by 80 columns
 - Model 3** 32 rows by 80 columns
 - Model 4** 43 rows by 80 columns
 - Model 5** 27 rows by 132 columns

Settings with the **-E** extension provide support for the following extended attributes: 3270 field attributes, extended highlighting (blink,

flash and underscore, but not in combination), foreground colour, and query reply inbound structured fields. These attributes are also supported by the 3279. Click **Ok** to close the dialog box.

3. Select **Save Settings** in the **File** menu.
4. Select **Open Connection** in the **File** menu to display the **Telnet Hosts** dialog box. Specify the name of the host to which connection is to be made then click **Ok**. (Refer to the *Setup Menus* chapter for a description of the **Telnet Hosts** dialog box).
5. If necessary, enter the appropriate information to establish an IBM host session in the Network Virtual Terminal mode screen.
6. When an IBM host session has been established, the screen will switch out of Network Virtual Terminal mode and display the IBM 3270 emulation screen.

Note: You will be returned to the Network Virtual Terminal screen when the connection to the IBM host has been closed.

Keyboard Mapping

The following illustration shows where IBM 3270 keyboard functions are mapped to keys on the Enhanced AT keyboard layout.

IBM 3287-1 Printer Support

TN3287 printing is supported by setting the **IBM Model** option in the **Emulation Settings** dialog box to **3287-1**. When a new Telnet connection is made, the *teemX* window display will change to show a message box which will indicate the current printer status.

When printing commences a Print Abort box will be displayed enabling you to cancel the print job. Note that this will stop print data being sent but will not disconnect you from the host.

Network Virtual Terminal Mode

Network Virtual Terminal (NVT) mode allows the operator to communicate with a network gateway (in ASCII) for routing, logon etc, before the full IBM terminal emulation protocol is established. NVT mode is indicated by the  symbol in the status line along the bottom of the window.

NVT mode displays an unformatted screen for data entry, allowing most of the keyboard functionality for local editing. However, when the **Enter** key is pressed, the line that the cursor is positioned on will be sent over Telnet as an ASCII string with CR/LF terminators. The cursor will then be positioned at the start of the next line. ASCII data received over Telnet will also be displayed at the current cursor position. A **CR** character will be actioned as a 'new line' character, causing the cursor to move to the start of the next line, scrolling the display if necessary. Once the appropriate details have been entered to establish an IBM host session (which may be automatic), the screen is cleared and switched into full IBM 3270 terminal emulation mode, as indicated by the  symbol in the status line.

SysReq Key Support

When the **SysReq** option in the **Telnet Hosts** dialog box is selected, the key mapped with the **SysReq** function enables you to toggle the display and keyboard entries between the host operating system and the application. This enables you to switch to the operating system and issue a LOGOFF command. When communicating with the operating system the status line will display the  symbol.

Note: Not all TN3270E servers provide full support of the SysReq key.

The Status Line

The last line in the window is used to display status information in the form of symbols and alphanumeric characters. A coloured line separates status information from the rest of the display. Information is displayed in any of six regions within the status line as listed below.

1: Readiness & System Connection

Symbol	Colour	Column	Meaning
T	Blue	1	Telnet session running
A	Blue	2	Online (non-SNA)
☒	Blue	3	Network Virtual Terminal mode
■	Blue	3	My job (IBM emulation screen)
☒	Blue	3	Host operating system mode

2: Do Not Enter

Symbol	Colour	Column	Meaning
✘ PROGnnn	Yellow	10-18	Program check (nnn = error code)
✘ ☉	White	10-13	Terminal wait
✘ 𐀀 NUM	Red	10-15	Numeric data only
✘ ← 𐀀 →	Red	10-14	Go elsewhere
✘ SYSTEM	White	10-17	System lock
✘ 𐀀 >	Red	10-13	Too much

3: TN3270E Device Name

Symbol	Colour	Column	Meaning
ddddddd	White	22-29	TN3270E actual device name connected as

4: Shift

Symbol	Colour	Column	Meaning
NUM	Blue	43-45	Numeric lock on

5: Mode Symbol

Symbol	Colour	Column	Meaning
^	Blue	53	Insert mode on

6: Cursor Position

Symbol	Colour	Column	Meaning
rr/cc or rr/cc	White	75-80	Row/column cursor position

Readiness & System Connection

- T** This indicates that a Telnet session is running.
- A** This indicates that the protocol for communication between an application program and the IBM 3270 emulation is not system network architecture (SNA).
-  This indicates that the current screen is a Network Virtual Terminal screen. This screen is displayed when IBM 3270 mode is entered before a telnet session has been initiated with the remote host. This enables you to enter login text. Note that you will be returned to this screen when you log off.
-  This indicates that the current screen is an IBM 3270 screen. This screen will be displayed when you have initiated a Telnet session with the host.
-  This indicates that you are currently communicating with the host operating system, not the application.

Do Not Enter

The Do Not Enter (✘) symbol will appear when input from the keyboard or mouse will not be accepted by the host (except **Reset** and **SysReq**). Symbols to the right of this will indicate the reason. Pressing the **Reset** key will remove some of these symbols from the status line. Note that the emulation includes typeahead capability so that in most cases you can continue to enter data without waiting for the Do Not Enter message to clear as the data will be stored until the host is ready.

- ✘ PROGnnn** Indicates that a programming error in the data from the host has been detected, possibly due to incompatible application software. Press the **Reset** or **SysReq** key to remove this indicator and unlock the keyboard.
- ✘ ** Indicates that you must wait while the requested function is performed.
- ✘  NUM** Indicates that you tried to enter an invalid character into a numeric field when the numeric-lock feature was active. The keyboard numeric-lock feature can be overridden by using a **Shift** key. The keyboard can be unlocked and the indicator removed by pressing the **Reset** key.
- ✘ ** Indicates that you tried to enter data in the wrong location. This will occur when you attempt to do any of the following:
Enter, insert, erase, or delete a character when the cursor is in a protected field or at a field attribute location.

Perform a cursor-select operation when the cursor is not in a valid cursor-select field.

The keyboard can be unlocked and the indicator removed by pressing the **Reset** key.

✕ SYSTEM Indicates that you cannot enter any data because the application program has disabled the keyboard following an entry.

✕ 关 > Indicates that you attempted to insert characters into an unprotected field when the cursor was at the end of the field, or you attempted to word wrap to the next line when there were not enough spaces to enable a word wrap.

The keyboard can be unlocked and the indicator removed by pressing the **Reset** key.

Shift

NUM This indicates that the numeric lock function is enabled and the current cursor is in a numeric field. When the numeric lock function is on, the current cursor is in an unprotected field and the keyboard is in lowercase shift, you can only use the **0** to **9**, decimal sign (**.**), minus (**-**), and **Dup** keys.

Mode Symbol

^ This symbol indicates that the keyboard is in Insert mode. Already existing characters to the right of the cursor will move to make room for new characters that are entered. Insert mode can be disabled by pressing the **Reset** or **SysReq** key, or by performing any action that sends data to the host, such as pressing the **Enter**, **Clear**, **PA**, or **PF** keys.

Notes

9

IBM 5250 Emulation

This chapter describes features of the IBM 5250 terminal emulation.

Introduction

The IBM 5250 emulator provides emulation of 5250 type alphanumeric terminals, both monochrome (green/white plus attributes) and colour. Colours may be modified using the **Attribute Settings** dialog box. This emulation can be used for connection to an IBM AS/400, System/36 or System/38. A typeahead capability is provided so that you can continue to enter data without waiting for a prompt from the host. All communication to the IBM mainframe is achieved over the TCP/IP Telnet interface using the inbuilt telnet interface provided with *teemX*.

Running The Emulation

1. Display the **Emulation Settings** dialog box, set the **Alpha Emulation** option to **IBM5250**, then click the **OK** button. The *teemX* window will now be in Network Virtual Terminal mode until a successful host connection is made.
2. Display the **IBM 5250 Settings** dialog box and select the particular terminal type for *teemX* to emulate. This also allows you to specify whether the display is treated as monochrome (green for normal characters, white for intense attribute) or colour for attributes. The terminal types currently supported and their display characteristics are listed below.

Type	Display	Rows x Columns
5291_1	Monochrome	24 x 80
5292_2	Colour	24 x 80
5251_11	Monochrome	24 x 80
3179_2	Colour	24 x 80 (default)

3196_A1	Monochrome	24 x 80
3180_2	Monochrome	24 x 80 and 27 x 132
3477_FC	Colour	24 x 80 and 27 x 132
3477_FG	Monochrome	24 x 80 and 27 x 132
3486_BA	Monochrome	24 x 80
3487_HA	Monochrome	24 x 80
3487_HC	Colour	24 x 80

3. Select **Open Connection** in the **File** menu to display the **Telnet Hosts** dialog box. Specify the name of the host to which connection is to be made then click **Ok**. (Refer to the *Setup Menus* chapter for a description of the **Telnet Hosts** dialog box).
4. If necessary, enter the appropriate information to establish an IBM host session in the Network Virtual Terminal mode screen.
5. When an IBM host session has been established, the screen will switch out of Network Virtual Terminal mode and display the IBM 5250 emulation screen.

Note: You will be returned to the Network Virtual Terminal screen when the connection to the IBM host has been closed.

Network Virtual Terminal Mode

Network Virtual Terminal (NVT) mode allows the operator to communicate with a network gateway (in ASCII) for routing, logon etc, before the full IBM terminal emulation protocol is established. NVT mode is indicated by the absence of the ■ symbol in the status line along the bottom of the window. NVT mode displays an unformatted screen for data entry, allowing basic keyboard functionality as a simple ASCII terminal. In addition to data keys, other recognized keys are:

Clear	clears the screen
Enter	sends a CR to the host
Newline	sends a CR to the host
Backspace	sends a BS to the host
Tab	sends an HT to the host

Once the appropriate details have been entered to establish an IBM host session (which may be automatic), the screen is cleared and switched into full IBM 5250 terminal emulation mode, as indicated by the ■ symbol in the status line.

The Status Line

The last line in the window is used to display status information in the form of symbols and alphanumeric characters. A coloured line separates status information from the rest of the display. Information is displayed in any of six regions within the status line as listed below.

Region	Symbol	Colour	Column	Meaning
1	T	Blue	1	Telnet session running
2	■	Blue	18	On line (IBM 5250 mode)
3	M	Blue	28	Message waiting
4	^	Blue	48	Insert mode on
5	✘	Red	57	Input inhibited
6	rr/cc or rr/ccc	White	75-80	Row/column cursor position

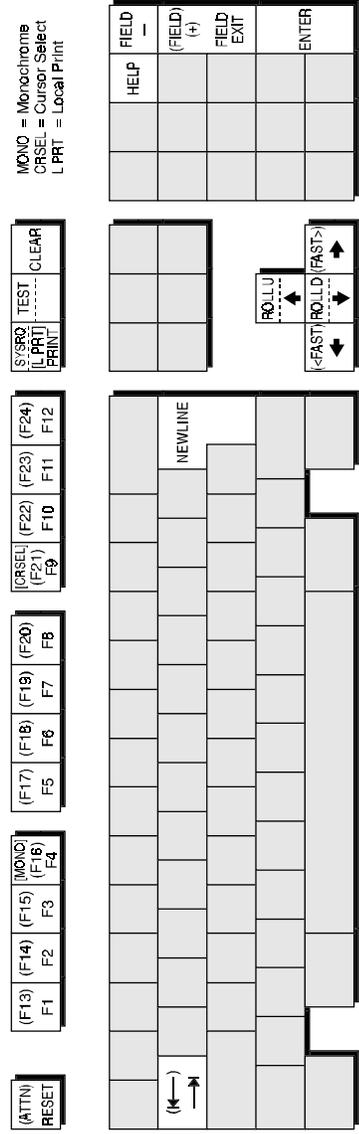
The meaning of the symbols is as follows:

- T** Indicates that a Telnet session is running.
- Indicates that the current screen is an IBM 5250 screen. This screen will be displayed when you have initiated a Telnet session with the host.
- M** Indicates that the system has one or more messages waiting for you.
- ^ Indicates that the keyboard is in Insert mode. Already existing characters to the right of the cursor will move to make room for new characters that are entered. Insert mode can be disabled by pressing the **Insert** key again, pressing the **Reset** key, or by performing any action that sends data to the host, such as pressing the **Enter**, **Clear**, or **PF** keys.
- ✘ Indicates when input from the keyboard or mouse will not be accepted by the host. When this is because an error has occurred, as shown in the error line, pressing the **Reset** key will remove the error. Alternatively, more information can be obtained by pressing the **Help** key. The only other keys available are **Attn**, **SysReq** and **Print**. Note that the emulation includes typeahead capability so that in most cases you can continue to enter data without waiting for the Do Not Enter message to clear as the data will be stored until the host is ready.

Keyboard Mapping

The following illustration shows where IBM 5250 keyboard functions are mapped to keys on the Enhanced AT keyboard layout.

Enhanced AT Keyboard Layout



Meta key usage: 
 Normal key usage: 
 (Meta is **◆** on the Sun 5 keyboard and **Alt** on the Enhanced AT keyboard)

All unmarked keys function as indicated by the legends on the keycaps.
 Functions in round brackets are generated when the keys are shifted.
 Functions in square brackets are generated when used with **Ctrl**.

10

Resources & Command Line Options

This chapter describes how to use resources and command line options to specify how *teemX* is run and displayed by the X Window System.

Introduction

Resources are used to specify how *teemX* is run and displayed by the X Window System. The resource configurations are stored in user preference files which are asserted when *teemX* is loaded. This means, for example, that you do not have to specify how the *teemX* window is to be displayed each time it is loaded. There are so many options which you could specify that including them on the command line for loading *teemX* would be impractical.

Once the normal resource specification for *teemX* has been defined in a user preference file, the resource specifications for a particular instance of *teemX* may be overridden using command line options.

*Note: The default settings of functions relating to terminal emulation are specified via pop-up menus in the *teemX* window. These are described in the Setup Menus chapter.*

The following sections provide a brief introduction to using resources and command line options. For a more detailed discussion and information on resource debugging, refer to the section at the end of this chapter entitled *Understanding X Resources*.

Resource Format

There are a number of files in which resources are specified. Generally they are specified in the user's **.Xdefaults** file or the system wide application defaults file.

The **.Xdefaults** file resides in the user's home directory and resources specified in it only affect invocations of *teemX* made by the owning user.

*Note: Changes made to the .Xdefaults file will not take effect until the X server has been restarted or the database 'freshened' by the program **xrdb**.*

The applications resource file contains resources specified in exactly the same way as those in the **.Xdefaults** file except that they affect all users. The environment variable **XAPPLRESDIR** will normally be set to point to the **app-defaults** directory. The name of the file to create in the **app-defaults** directory is **XTeemx320**, which should be placed in the directory specified by **XAPPLRESDIR**.

Each line in the resource file consists of the name of the client (e.g. **xteemx320**) followed by an asterisk then the name of the resource (e.g. **scrollBar**). The resource name is separated from its definition or value by a colon and whitespace.

Example: **xteemx320*scrollBar: off**
 xteemx320*buttonLevels: 3

Resources are case sensitive on UNIX based systems, so pay particular attention to the upper or lowercase form of characters in the resources described in this chapter.

A backslash (\) at the end of a line enables the current resource definition to continue on the next line. Comment lines can be inserted by starting each line with an exclamation mark (!).

Command Line Option Format

The command line for loading *teemX* can be extended by options that control its display and operation, overriding resource file default settings.

Options and associated values must be separated from the *teemX* loading name and each other by a space. The following command line example will load *teemX-320*, set the window border colour to red and border width to 60 pixels:

xteemx320 -bd red -bw 60

Arguments that include white space (space, tab, etc.) must be quoted.

Command Summary

General Operation & Setup

<i>Command Function</i>	<i>Resource</i>	<i>Command Line</i>
X server for display & input	display: <i>host:server.screen</i>	-display <i>h:sv.sn</i>
Sync signal to X server freq.	pollTime: <i>seconds</i>	-poll <i>seconds</i>
Resource information file	<i>none</i>	-name <i>filename</i>
Resource in command line	<i>none</i>	-xrm <i>"resource"</i>
Setup settings file	settingsFile: <i>filename</i>	-sf <i>filename</i>
Emulation to run on startup	emuLation: <i>emulation#</i>	-em <i>emulation#</i>
Terminal setting keywords etc.	ttyModes: <i>"keyword key"</i>	-ttyModes <i>"kw k"</i>
ZMODEM startup	zmodemStartup: <i>on/off</i>	-zm (on) + zm (off)
Debug mode	debugMode: <i>on/off</i>	-debug (on)
Input queue size	inputQueue: <i>0-4096</i>	-q or -Q <i>0-4096</i>
Prevent message display	quiet: <i>on/off</i>	-qt (on) + qt (off)
Cut & paste EOL character	lineDelimiter: <i>"char"</i>	-ld <i>"character"</i>
Mouse button multi-click time	multiClickTime: <i>ms</i>	-mct <i>milliseconds</i>
3 clicks selects line from cursor	cutToBeginningOfLine: <i>off</i>	-cb
3 clicks selects all cursor line	cutToBeginningOfLine: <i>on</i>	+cb
Bell volume (not all servers)	bellVolume: <i>0-100</i>	-bv <i>0-100</i>
IBM reply field mode only	ibmReplymode: <i>on/off</i>	-ibmreply (on)
String sent to host on exit	exitString: <i>"string"</i>	-es <i>"string"</i>

Telnet Session

<i>Command Function</i>	<i>Resource</i>	<i>Command Line</i>
Initiate telnet session with host	tnHost: <i>hostname</i>	-tnhost <i>name</i>
Host telnet port number	tnPort: <i>number</i>	-tnport <i>number</i>
Telnet keepalive messages	tnKeepalive: <i>on/off</i>	-tnkeepalive (on)
Closed telnet exits <i>teemX</i>	tnExit: <i>on/off</i>	-tnexit (on)
Telnet close option	tnClose: <i>0-3</i>	-tnclose <i>0-3</i>

Display Format

<i>Command Function</i>	<i>Resource</i>	<i>Command Line</i>
Title for window & icon	title: <i>title</i>	-title <i>title</i>
Window border width in pixels	internalBorder: <i>#</i>	-bw <i>#</i>
Text window size & location	geometry: <i>wxh±x±y</i>	-g <i>=wxh±x±y</i>
Text window size in columns	defaultColumns: <i>#</i>	-dc <i>#</i>
Text window size in lines	defaultLines: <i>#</i>	-dl <i>#</i>
Text lines saved in buffer	saveLines: <i>#</i>	-sl <i>#</i>

Window Elements

<i>Command Function</i>	<i>Resource</i>	<i>Command Line</i>
Scroll bar enabled/disabled	scrollBar: <i>on/off</i>	-sb (on) +sb (off)
Menu bar enabled/disabled	topmenuBar: <i>on/off</i>	-mb (on) +mb (off)
Menus enabled/disabled	settingsItem: <i>on/off</i>	-si (on) +si (off)
DEC status line user active	activeStatusline: <i>on/off</i>	-as (on) +as (off)
Soft button levels displayed	buttonLevels: <i>0-4</i>	-bl <i>0-4</i>
Mouse cursor style	mouseCursor: <i>integer/value</i>	-mc <i>integer/value</i>

Colour Selection

<i>Command Function</i>	<i>Resource</i>	<i>Command Line</i>
Text window foreground	foreground: <i>colour</i>	-fg <i>colour</i>
Text window background	background: <i>colour</i>	-bg <i>colour</i>
Text cursor colour	cursorIndex: <i>index</i>	-ci <i>index</i>
Window border colour	<i>none</i>	-bd <i>colour</i>
Reflection 4 colour support	r4Compatibility: <i>on/off</i>	-r4 (on)

Font Selection

<i>Command Function</i>	<i>Resource</i>	<i>Command Line</i>
80 column normal text	80Font: <i>list</i>	-fn80 <i>list</i>
80 column double height text	doubleheight80Font: <i>list</i>	-dhfn80 <i>list</i>
80 column double width text	doublewidth80Font: <i>list</i>	-dwfn80 <i>list</i>
80 column double width & height <i>list</i>	dbfn80 <i>list</i>	double80Font:
132 column normal text	132Font: <i>list</i>	-fn132 <i>list</i>
132 col. double height text	doubleheight132Font: <i>list</i>	-dhfn132 <i>list</i>
132 column double width text	doublewidth132Font: <i>list</i>	-dwfn132 <i>list</i>
132 col. double width & height <i>list</i>	doubled132Font: <i>list</i>	-dbfn132 <i>list</i>
Default font index on startup	defaultFontindex: <i>#</i>	-df <i>#</i>
Load all fonts on startup	preloadFont: <i>on</i>	-fnpreload
Load fonts only as required	preloadFont: <i>off</i>	+fnpreload
IBM 3270 font size fixed	ibmFixedFont: <i>on/off</i>	-ibmfixed (on)

General Operation & Setup

Server For *teemX* Display & Input

Resource: **xteemx320*display:** *host:server.screen*

Command Line: **-display** *host:server.screen*

Default Setting: Determined by the DISPLAY environment variable.

These commands specify which X server is to be used to display data and take input when *teemX* is being run on a remote system.

The *host* argument specifies the machine which will display the *teemX* window. This is immediately followed by a colon then the *server* number, then the *screen* number preceded by a period. The *host* and *.screen* arguments may be omitted, in which case *host* will be the local machine and *.screen* will be *.0* by default. The *server* option must always be preceded by a colon.

Command line example:

xteemx320 -d your_node:0.1

This will select *your_node*, server **0** and screen **1** for *teemX* display and input.

Synchronization Signal Frequency

Resource: **xteemx320*pollTime:** *seconds*

Command Line: **-poll** *seconds*

Default Setting: **5**

These commands determine how often *teemX* sends a synchronization signal to the X server to check that it is still alive.

Resource File Selection

Resource: None

Command Line: **-name** *filename*

Default Setting: **xteemx320**

This command line option specifies the file name that is used when searching the default files for resource information.

Command line examples:

xteemx320 -name teemx1

xteemx320 -name teemx2

These will select the following files from the **.Xdefaults** file:

teemx1*title: johns teemx
teemx2*title: stuarts teemx

Specify Resource On Command Line

Resource: None
Command Line: **-xrm** *resource string*
Default Setting: Not applicable

This allows a resource specification to be included on the command line as an argument. This is especially useful for setting resources that do not have equivalent command line options. The *resource string* can be any valid resource specification. Command line example:

xteemx320 -xrm "*title: New Project"

This uses the **title** resource to specify the text that is to be displayed in the *teemX* window title bar, in this case **New Project**.

Setup File Selection

Resource: **xteemx320*settingsFile:** *filename*
Command Line: **-sf** *filename*
Default Setting: **teemx320.nv**

These commands specify the path and name of the file to be used to load and store saved setup settings.

Emulation To Run On Startup

Resource: **xteemx320*emuLation:** *emulation#*
Command Line: **-em** *emulation#*
Default Setting: **VT400 7-bit**

These commands enable you to specify the terminal emulation that *teemX* runs when it is started, where *emulation#* is a numeric value corresponding to the emulation as indicated below:

0	VT52	9	ANSI BBS
1	VT100	12	IBM 3270
2	VT400 7-bit	25	IBM 5250
3	VT400 8-bit	28	SCO Console

Debug Mode

Resource: **xteemx320*debugMode**

Command Line: **-debug**

Default Setting: Not applicable

In debug mode, *teemX* will print characters received from the host on **stderr** as well as actioning them, and you can display information on particular keys or key combinations when you press them.

The format of the information displayed when a key or key combination is pressed is as follows:

Keycode = 13, State = 0, Keysym = 65471

where the **Keycode** is the hardware code assigned to the physical key, **State** indicates whether the key was pressed in conjunction with a modifier key (e.g. caps lock, shift), and **Keysym** is the unique keysym value assigned to the key or key combination.

This is useful for finding keysym values which can be directly used in Translation tables, as shown in the following example where **65471** is the keysym value for **F2** on the Sun 4 keyboard:

```
*xteemx320*vt220.Translations: #override \n\  
<Key>65471: string ("This is the F2 key")
```

Input Queue Size

Resource: **xteemx320*inputQueue: 0-4096**

Command Line: **-q** or **-Q 0-4096**

Default Setting: **255**

These commands enable you to set the input queue size for network data. The size of the input queue will determine how quickly an interrupt command takes effect.

Prevent Message Display

Resource: **xteemx320*quiet: on/off**

Command Line: **-qt** no messages displayed

+qt messages displayed

Default Setting: **off** (messages displayed)

These commands enable you to stop messages being sent to the console.

Mouse Button Multi-Click Time

Resource: **xteemx320*multiClickTime:** *milliseconds*

Command Line: **-mct** *milliseconds*

Default Setting: 250 milliseconds.

Some functions require a mouse button to be clicked two or more times in quick succession in order for them to be actioned. These commands determine the time delay following a button click during which the next button must be clicked in order for the multi-click function to be actioned, otherwise it is treated as a single button click function.

End Of Line Character For Cut & Paste

Resource: **xteemx320*lineDelimiter:** *"character"*

Command Line: **-ld** *"character"*

Default Setting: **CR** (carriage return)

These commands enable you to specify the character which is used to indicate the end of each line in a block of text during a cut and paste operation.

Cursor Line Selection Extent

Resource: **xteemx320*cutToBeginningOfLine:** *on/off*

Command Line: **-cb** cursor to end of line

+cb entire cursor line

Default Setting: Cursor to end of line.

These commands enable you to specify how much of the cursor line is selected when the mouse button is clicked three times in quick succession. You can specify that the entire cursor line is selected or only characters from the current cursor position to the end of the line (default).

Bell Volume

Resource: **xteemx320*bellVolume:** *0-100*

Command Line: **-bv** *0-100*

Default Setting: Depends on the server

These commands enable you to specify the loudness of the bell (if the X server supports this). The loudness is indicated by a numeric value in the range **0** (off) to **100** (full volume).

IBM Reply Mode

Resource: **xteemx320*ibmReplymode:** *on/off*

Command Line: **-ibmreply** (on)
+ibmreply (off)

Default Setting: Off

When you switch from one application to another the current contents of the screen is saved before the new application is displayed. Enabling IBM reply mode will prevent the colour information from being sent in a reply to the IBM host, forcing the reply mode to be always set to Field mode, not Extended Field or Character mode.

Send String To Host On Exit

Resource: **xteemx320*exitString:** *"string"*

Command Line: **-es** *"string"*

Default Setting: Not applicable

These commands enable you to specify a string which will automatically be sent to the host when the *teemX* window is closed.

Telnet Session

Initiate Telnet Session With Host

Resource: **xteemx320*tnHost:** *hostname*

Command Line: **-tnhost** *hostname*

Default Setting: Not applicable

These commands enable you to cause *teemX* to initiate a telnet session with the specified host.

Most emulations work quite well in the standard *teemX* environment when the telnet process provided with the workstation is used to make the connection to the remote host. However, in some block mode emulations, especially IBM 3270, the telnet process does not pass all the necessary information to *teemX*.

To overcome this, *teemX* has its own inbuilt telnet driver so that precise control can be exercised over the information that *teemX* receives and transmits. You must use the telnet facility provided by *teemX* when using block mode emulations such IBM 3270.

Host Telnet Port Number

Resource: **xteemx320*tnPort:** *number*

Command Line: **-tnport** *number*

Default Setting: **23**

These commands enable you to specify the number of your host's telnet port if it is different from the default port number 23.

Telnet Keepalive Messages

Resource: **xteemx320*tnKeepalive:** *on/off*

Command Line: **-tnkeepalive** *enabled*

+tnkeepalive *disabled*

Default Setting: Enabled

These commands allow you to enable or disable telnet keepalive messages when using the *teemX* telnet driver.

Closed Telnet Session Exits *teemX*

Resource: **xteemx320*tnExit: on**
Command Line: **-tnexit**
Default Setting: **off** (message box displayed)

When a telnet session is closed, *teemX* normally displays a message box giving you the option to reconnect, cancel or exit. These commands enable you to cause *teemX* to be exited immediately when the telnet session is closed. See the *Telnet Close Option* section also.

Telnet Close Option

Resource: **xteemx320*tnClose: 0-3**
Command Line: **-tnclose 0-3**
Default Setting: **0**

This command specifies the action to be taken when a telnet session is closed (if **-tnexit** is not specified). The possible settings are as follows:

- 0** Display message box for option required.
- 1** Exit *teemX*.
- 2** Reconnect automatically to the same host.
- 3** Cancel telnet connection only.

This will also be effective for telnet connection failure.

Display Format

Window & Icon Titles

Resource: **xteemx320*title:** *title*

Command Line: **-title** *title*

Default Setting: **xteemx320**

These commands enable you to specify the title to be displayed by the window manager in the *teemX* window title bar or icon. This is useful for distinguishing each instance of *teemX* when it is being run multiple times.

Window Border Width

Resource: **xteemx320*internalBorder:** *width*

Command Line: **-bw** *width*

Default Setting: **1** (pixel)

These commands enable you to specify the pixel width of the border surrounding the *teemX* window.

Command line example:

xteemx320 -bw 50

This will cause the *teemX* window border to be 50 pixels wide.

Window Size & Location (Pixels)

Resource: **xteemx320*geometry:** *widthxheight±x±y*

Command Line: **-geometry** *=widthxheight±x±y*

Default Setting: **640x400**

This enables the size and location of the *teemX* window to be specified.

The **-geometry** = option may be abbreviated to **-g** =.

Note: The effect of these commands is determined by the window manager which may have its own rules for window size and position on the display.

The command is followed by the size and location arguments, which take the following form:

widthxheight±xoffset±yoffset

The values for each of the four variables are specified as numbers of pixels. A positive offset will position the left or top edge of the window a specified pixel distance from the left or top edge of the display, while a negative offset will position the right or bottom edge of the window a specified pixel distance from the right or bottom edge of the display.

If any of the values are omitted, *teemX* will use the resource manager defaults for the missing values. If no location defaults are specified by the resource manager, the user will have to position the window manually.

The default size of the initial window is 640 x 400 pixels, in which 80 columns by 25 lines (24 text lines and 1 status line) is displayed.

Command line example:

```
xteemx320 -g =320x240-50+75
```

This will cause a window 320 pixels wide and 240 pixels high to be offset 50 pixels from the left of the display and 75 pixels from the bottom of the display.

It is recommended that the window size is specified using the Window Size (Columns/Lines) commands described in the next section rather than **geometry**.

Window Size (Columns/Lines)

Resource: **xteemx320*defaultColumns:** *number of columns*

Command Line: **-dc** *number of columns*

Resource: **xteemx320*defaultLines:** *number of lines*

Command Line: **-dl** *number of lines*

Default Setting: Not applicable (size defined by **geometry**).

These commands allow the default *teemX* window size to be defined by the number of columns and lines. The overall window size is calculated using the default font for *teemX* unless the font is overridden by other font specifications. If the size of the window is attempted to be set by both **geometry** and **-dc** and/or **-dl**, then the **geometry** setting will be used.

Text Lines Displayed When *teemX* Loaded

Resource: **xteemx320*defaultLines:** *number of lines*

Command Line: **-dl** *number of lines*

Default Setting: **24** (with status line on 25th line)

These commands specify the number of text lines displayed in the window when *teemX* is loaded.

Text Lines Saved In Buffer

Resource: **xteemx320*saveLines:** *number of lines*

Command Line: **-sl** *number of lines*

Default Setting: **24** (with status line on 25th line)

These commands specify the number of text lines that are saved in the display buffer. When the number of buffer lines is greater than the number of displayed lines, text which has scrolled out of view can be displayed by using the scroll bar. The maximum buffer size that can be specified is 10,000 lines.

Window Elements

In addition to the following commands, the section entitled *Object Names Available In teemX* towards the end of this chapter lists the names given to various elements of the window which can be used to specify whether or not they are enabled and how they are displayed using standard X resource commands.

Scroll Bar

Resource: **xteemx320*scrollBar:** *on/off*

Command Line: **-sb** enables the scroll bar
+sb disables the scroll bar

Default Setting: **on**

These commands determine whether or not a scroll bar is displayed

Menu Bar

Resource: **xteemx320*topmenuBar:** *on/off*

Command Line: **-mb** enables the menu bar
+mb disables the menu bar

Default Setting: **on**

These commands determine whether or not a menu bar is displayed.

You can enable/disable individual items in the menu bar by using the following resources:

xteemx320*file.sensitive: *true/false*
xteemx320*settings.sensitive: *true/false*
xteemx320*<.sensitive: *true/false*
xteemx320*>.sensitive: *true/false*

Menu Items

Resource: **xteemx320*settingsItem:** *on/off*

Command Line: **-si** enables the **File** and **Settings** menu items
+si disables the **File** and **Settings** menu items

Default Setting: **on**

These commands determine whether or not the **File** and **Settings** menu items are enabled. When disabled, only the window resize buttons will be displayed in the menu bar. You can enable/disable individual menu items by using the following resources:

File Menu:

xteemx320*File*Factory*Sensitive: *true/false*
xteemx320*File*Reset*Sensitive: *true/false*
xteemx320*File*Save*Sensitive: *true/false*
xteemx320*File*Open*Sensitive: *true/false* (Telnet)
xteemx320*File*Close*Sensitive: *true/false* (Telnet)
xteemx320*File*PrinterSettings*Sensitive: *true/false*
xteemx320*File*Print*Sensitive: *true/false*
xteemx320*File*ClearBuffer*Sensitive: *true/false*
xteemx320*File*Quit*Sensitive: *true/false*

Settings Menu:

xteemx320*Settings*Emulation*Sensitive: *true/false*
xteemx320*Settings*Terminal*Sensitive: *true/false*
xteemx320*Settings*Blockmode*Sensitive: *true/false*
xteemx320*Settings*IBM5250*Sensitive: *true/false*
xteemx320*Settings*Macros*Sensitive: *true/false*
xteemx320*Settings*Attributes*Sensitive: *true/false*
xteemx320*Settings*Mouse*Sensitive: *true/false*

Deactivate DEC Status Line

Resource: **xteemx320*activeStatusline:** *on/off*

Command Line: **-as** on
+as off

Default Setting: **on**

These commands enable you to specify whether or not the user can change terminal settings using the DEC status line. The status line is active (i.e. the user can change terminal settings) by default.

Soft Buttons

Resource: **xteemx320*buttonLevels:** *0-4*

Command Line: **-bl** *0-4*

Default Setting: **1**

These commands specify how many levels of soft buttons are displayed at the bottom of the *teemX* window. A level consists of two rows of soft buttons with six programmable buttons on each row. All levels are accessible even if not all are displayed. Levels stored off-screen can be 'scrolled' into view by clicking the **Level**

button. A maximum of 8 rows (48 programmable buttons) can be displayed by specifying **4**. Specifying **0** will cause no soft buttons to be displayed.

Mouse Cursor Style

Resource: **xteemx320*****mouseCursor:** *integer/value*

Command Line: **-mc** *integer/value*

Default Setting: Depends on the UNIX system

These commands enable you to specify the style of the mouse cursor displayed by default in the *teemX* window. The *integer/value* depends on the UNIX system.

Colour Selection

Foreground (Text) Colour

Resource: **xteemx320*foreground:** *colour* (all areas)
 xteemx320*vt220*foreground: *colour* (emulation)

Command Line: **-fg** *colour*

Default Setting: **black**

These commands select the colour of the foreground, which includes all menus, window borders as well as the emulation workspace. In the emulation workspace the foreground is considered to be any colour which is white.

The *colour* value must be a valid colour name, a list of which can be found in the **rgb.txt** file which is supplied with the X server.

When the ***foreground** resource is preceded by ***vt220**, only the foreground colour of the emulation workspace is affected.

Background Colour

Resource: **xteemx320*background:** *colour* (all areas)
 xteemx320*vt220*background: *colour* (emulation)

Command Line: **-bg** *colour*

Default Setting: **white**

These commands select the colour of the background, which includes all menus, window borders as well as the emulation workspace. In the emulation workspace the background is considered to be any colour which is black.

The *colour* value must be a valid colour name, a list of which can be found in the **rgb.txt** file which is supplied with the X server.

When the ***background** resource is preceded by ***vt220**, only the background colour of the emulation workspace is affected.

Text Cursor Colour

Resource: **xteemx320*cursorIndex:** *index*

Command Line: **-ci** *index*

Default Setting: **15** (black)

These commands specify the colour of the text cursor. The *index* value is a number in the range **0** through **15** which relates to the colour indices specified in the **Attribute Settings** dialog box.

Border Colour

Resource: None

Command Line: **-bd** *colour*

Default Setting: **black**

This selects the colour of the border surrounding the *teemX* window. The *colour* value must be a valid colour name, a list of which can be found in the **rgb.txt** file which is supplied with the X server.

Reflection 4 Colour Support

Resource: **xteemx320*r4Compatibility:** *on/off*

Command Line: **-r4**

Default Setting: **off**

These commands will cause the colours displayed by *teemX* to be compatible with Reflection 4 software.

Font Selection

The fonts that are used for displaying text in the *teemX* window are specified by the following resources and command line options.

Each font selection resource and command line option specifies up to ten fonts. This is to support the window sizing function described in the *Getting Started* chapter. If a font list containing less than ten fonts is specified, then the last font name in the list is used for the additionally required fonts. The **7th** entry in the font list (640x400 emulation window) is selected for standard geometry settings by default.

If the default font is not available in the server font library, *teemX* will search for other fonts that are available and suitable to use. If none of these are found, the server default font will be used.

The font list must be enclosed within double quotes (except when only one font is specified) and in ascending height order. Each font name must be separated from the next by a comma.

The number in the font name indicates the height and width of the font in pixels. The first digit of a three digit number or the first two digits of a four digit number indicate the height, while the remaining two digits indicate the width. For example, **tis805** will display a font that is eight pixels high and five pixels wide, while **tis1608** will display a font sixteen pixels high and eight pixels wide. **nil2** is a standard system font two pixels high and two pixels wide.

80 Column Normal Text

Resource: **xteemx320*80Font:** *"font list"*

Command Line: **-fn80** *"font list"*

Default Fonts:

"nil2,tis603,tis704,tis805,tis1206,tis1407,tis1608,tis2010,tis2412,tis2814"

This specifies the fonts to use for 80 column text mode.

80 Column Double Height Text

Resource: **xteemx320*doubleheight80Font:** *"font list"*

Command Line: **-dhfn80** *"font list"*

Default Fonts:

"nil2,tis1203,tis1404,tis1605,tis2406,tis2807,tis3208,tis4010,tis4812,tis4814"

This specifies the fonts to use for 80 column double height text.

80 Column Double Width Text

Resource: **xteemx320*doublewidth80Font:** *"font list"*

Command Line: **-dwn80** *"font list"*

Default Fonts:

"nil2,tis606,tis708,tis810,trm1212,tis1414,tis1616,tis2020,tis2424,tis2828"

This specifies the fonts to use for 80 column double width text.

80 Column Double Height & Width Text

Resource: **xteemx320*doubled80Font:** *"font list"*

Command Line: **-dbfn80** *"font list"*

Default Fonts:

"nil2,tis1206,tis1408,tis1610,tis2412,tis2814,tis3216,tis4020,tis4824,tis5628"

This specifies the fonts to use for 80 column double height, double width text.

132 Column Normal Text

Resource: **xteemx320*132Font:** *"font list"*

Command Line: **-fn132** *"font list"*

Default Fonts:

"nil2,tis603,tis704,tis805,tis1205,tis1405,tis1605,tis2006,tis2408,tis2810"

This specifies the fonts to use for 132 column text mode.

132 Column Double Height Text

Resource: **xteemx320*doubleheight132Font:** *"font list"*

Command Line: **-dhfn132** *"font list"*

Default Fonts:

"nil2,tis1203,tis1404,tis1605,tis2405,tis2805,tis3205,tis4006,tis4807,tis4808"

This specifies the fonts to use for 132 column double height text.

132 Column Double Width Text

Resource: **xteemx320*doublewidth132Font:** *"font list"*

Command Line: **-dwfn132** *"font list"*

Default Fonts:

"nil2,tis606,tis708,tis810,trm1210,tis1410,trm1610,trm2012,trm2416,trim2820"

This specifies the fonts to use for 132 column double width text.

132 Column Double Height & Width Text

Resource: **xteemx320*doubled132Font:** *"font list"*

Command Line: **-dbfn132** *"font list"*

Default Fonts:

"nil2,tis1206,tis1408,tis1610,tis2410,tis2810,trm3210,trm4012,tis4816,tis5620"

This specifies the fonts to use for 132 column double height and width text.

Default Fonts When *teemX* Started

Resource: **xteemx320*defaultFontindex:** *index*

Command Line: **-df** *index*

Default Setting: **6** (7th entry in font lists)

This specifies the font index number which is to be used by default when *teemX* is started to select fonts for display from the font lists. The index number for the first font in each list is **0**, and the tenth font is index **9**.

Load All Fonts Or Only As Required

Resource: **xteemx320*preloadFont:** *on/off*

Command Line: **-fnpreload** all fonts loaded
+fnpreload fonts loaded only when required

Default Setting: **on**

These commands determine how *teemX* loads fonts. When preload font is enabled, *teemX* will load all fonts (standard, bold, double width etc.) when it is started or when the window is resized. When preload font is disabled, *teemX* will only load fonts when they are required.

IBM 3270 Font Size Fixed

Resource: **xteemx320*ibmFixedFont:** *on/off*

Command Line: **-ibmfixed**

Default Setting: Font size changes to retain same window size

When you switch between IBM models while running the IBM 3270 emulation, the size of the font is adjusted by default so that the total number of rows and columns supported by the IBM model selected can be displayed without adjusting the size of the window. These commands allow you to retain the initial font size regardless of the IBM model you switch to, forcing the window size to be adjusted instead.

Understanding X Resources

Most X clients now implement a simple mechanism of specifying application preferences using preference strings. These preference strings comprise the name of the X client followed by the name of the resource to be set. A colon and then the value to be assigned to the resource follow.

The following example specifies that the *teemX* background colour should be set to blue:

```
xteemx320*background: blue
```

Note that if the X client name (**xteemx320**) is omitted, then the resource entry will match all applications that recognise the background resource name. Consequently the resource entry:

```
*background: blue
```

will set the background colour of all X clients to blue.

Since most applications are now object-orientated, they comprise of many sub-objects and hence many windows. *teemX* for example comprises a main application window, a scroll bar, a menu bar and many pull down menus. When the background resource for *teemX* is used, it changes the background colour of all objects. That is, in our example, the main window, scroll bar background, and menu bar background all become blue. In order to have more precise control over specific elements of an application, the resource preference string should be considered to be a heirarchy of objects and sub-objects of the form:

```
object..subobject..attribute: value
```

where each object and sub-object corresponds to various major components of an application. There is no limit on the number of object name or sub-objects that may be specified. For example the following allows different components of the *teemX* window to have different colours,:

```
xteemx320*vt220*background: black  
xteemx320*scrollbar*background: red
```

*Note: The ***vt220*background** can be specified as the single resource ***vtBackground***

The object names are hard-coded into the application and therefore fixed. With the level of application configurability offered by this technique, careless use of resources can seriously affect the operation of the application. For this reason only a subset of all the object names and attributes are made available by the manufacturer to the end-user.

Object Names Available In *teemX*

The following object names are available in *teemX*:

vt220	the main emulation window.
scrollbar	the scrollbar on the right hand side of the window.
menubar	the menubar at the top of the window.
File	the File pulldown menu.
Settings	the Settings pulldown menu.
<	the decrease menu button.
>	the increase menu button.
TelnetControl	the Telnet dialog box.
TextPrinterControl	the Text Printer dialog box.
ModeControl	the Mode Settings dialog box.
TerminalControl	the Terminal Settings dialog box.
BlockControl	the VT Block Mode Settings dialog box.
IBM5250Control	the IBM 5250 Settings dialog box.
MacrosControl	the Macros Settings dialog box.
AttributeControl	the Attributes Settings dialog box.
MouseControl	the Mouse Button Actions dialog box.

The following object names correspond to the various buttons in the pulldown menus.

File*Factory
File*Reset
File*Save
File*Open (Telnet)
File*Close (Telnet)
File*PrinterSettings
File*Print
File*ClearBuffer
File*Quit

Settings*Emulation
Settings*Terminal
Settings*Blockmode
Settings*IBM5250
Settings*Macros
Settings*Attributes
Settings*Mouse

As the menus can be uniquely identified, total control can be exerted over various attributes within the setup entries. For example, you can specify the colour, font, and whether the menus are enabled or disabled. Regretably you will need to be

armed with an X Window programmer's manual to fully identify the scores of resource names that are available within menu systems.

Where To Specify Resource Entries

When an X application is started, resource preference strings from a variety of places are merged together to create one large resource database for that application which is then processed when it is started. Clearly, since preferences can be specified in more than one place, the priority which exists between duplicate entries is also important. The following sections describe the most common sources of resource entries; the sections are ordered according to priority - e.g. command line options override duplicate entries in the **.Xdefaults** file.

Command Line

Entries on the command line override any other settings specified in other resource files. Whilst most general attributes have equivalent command line arguments, heirarchical ones seldom do have direct equivalents. For example:

***foreground: red** has the command line equivalent: **-fg red**
***Settings: red** does not have a direct equivalent.

Although the latter does not have a direct command line option equivalent, it can still be specified on the command line by using its resource string directly. For example:

-xrm “*Settings: red”

Application Defaults

The application defaults file usually exists in either of **/usr/lib/X11/app-defaults** for Motif based systems or **\$OPENWINHOME/lib/app-defaults** on OpenWindows based systems. The file in which the resource entries are put is the name of the application with the first two letters capitalised; the application name is hard coded by the X client vendor and is unchangeable.

The application defaults file name is **XTeemx320**. The Application defaults file sets resources globally for applications and therefore sets preferences for all users of the application.

.XDefaults

The **.Xdefaults** file is located in a specific user's 'home' directory and is processed for all applications and is not therefore specific to a particular application. Since it is located in the user's 'home' directory it only affects instances of the applications started by users whose home directory it is.

Unlike the Application Defaults and Command Line options which are merged into the resource database when an application is started, the entries in the **.Xdefaults** file are only read once when the X server is started. Therefore changes made to the **.Xdefaults** file will not affect applications until the next time the X Server is started and the **.Xdefaults** file re-read.

Controlling The Resource Database

The X utility **xrdb** is a useful tool for maintaining and debugging the resource database. Whilst full details can be found in all good X guides, a few uses are presented below.

- xrdb < .Xdefaults** Loads the contents of **.Xdefaults** into the database. In practice **.Xdefaults** can be replaced with any file that contains resource information.

- xrdb -q** Displays the current contents of the database and is therefore useful for checking what resource preference strings are defined. The contents of the Application defaults and command line options are not included.

Debugging Resources

Problems with resource management are seldom attributable to *teemX* and are more commonly attributable to incorrect syntax or the resource file not being read by the resource manager. Resource files require 100% accuracy in specification; everything is case sensitive, the position of white space characters are critical, and non-printable characters inserted in the file causes absolute havoc. Here are a few hints:

1. Command line options will only work on plain files.

For example:

```
xteemx320.sun -fg red
```

will not work because of the file type suffix (**.sun**), and all command line options will be ignored.

2. If the application name is specified as part of the resource preference string then this must be the same name by which the program is called.
3. One of the simplest tests for checking correct positioning/reading of a resource file is:

```
xteemx320*title: Test-It
```

which should set the window title to '**Test-It**'. If this doesn't work, nothing else will.

4. If some of the resource file works and some doesn't, then there are probably non-printable characters in the resource file.
5. Check that general resources specified for other applications are not also affecting *teemX*. If they don't contain a specific name in the resource string then they will affect all applications.
6. There are many quirks to the X Window system. Many basic resources (e.g. foreground/background) are common to all X Applications. If it doesn't work on *teemX* try the same resource on, for example, **xterm**.

A

Virtual Key Names

This appendix lists all the virtual key names supported by *teemX*.

Introduction

Virtual key names enable you to include a specific key function in a user definition for key macros, soft buttons, hotspots, etc. The following sections list the virtual key names applicable to each terminal emulation mode.

Standard Virtual Key Names

Key Function	Virtual Key Name	Key Function	Virtual Key Name
Alt	VK_ALT	Keypad Add (+)	VK_ADD
Backspace	VK_BACK	Keypad Divide (/)	VK_DIVIDE
Break	VK_BREAK	Keypad Decimal (.)	VK_DECIMAL
Control	VK_CONTROL	Keypad Multiply (*)	VK_MULTIPLY
Cursor Down	VK_DOWN	Keypad Subtract (-)	VK_SUBTRACT
Cursor Left	VK_LEFT	Line Feed	VK_LINEFEED
Cursor Right	VK_RIGHT	Num Lock	VK_NUMLOCK
Cursor Up	VK_UP	Page Down	VK_NEXT
Del Key	VK_DELKEY	Page Up	VK_PRIOR
Delete	VK_DELETE	Pause	VK_PAUSE
End	VK_END	Print Screen	VK_SNAPSHOT
Escape	VK_ESCAPE	Return	VK_RETURN
Euro Sign	VK_EUROSIGN	Scroll Lock	VK_OEM_SCROLL
F1 - F12	VK_F1 - VK_F12	Separator	VK_SEPARATOR
Home	VK_HOME	Shift	VK_SHIFT
Insert	VK_INSERT	Tab	VK_TAB
Keypad 0 - 9	VK_NUMPAD0 - 9		

DEC VT400 Virtual Key Names

Key Function	Virtual Key Name	Key Function	Virtual Key Name
Back Tab	VT_CSIZ	Insert	VT_INSERT
Break	VT_BREAK	Keypad 0 - 9	VT_PAD0 - 9
Backspace	VT_BACKSPACE	Keypad Comma	VT_COMMA
Compose	VT_COMPOSE	Keypad Decimal	VT_PADDECIMAL
Cursor Down	VT_DOWN	Keypad Minus	VT_MINUS
Cursor Left	VT_LEFT	Next Page	VT_NEXT
Cursor Right	VT_RIGHT	PF1 - PF4	VT_PF1 - VT_PF4
Cursor Up	VT_UP	Previous Page	VT_PREV
DatatalK	VT_DATATALK	Print	VT_PRINT
Delete	VT_DELETE	Remove	VT_REMOVE
Do (F16)	VT_DO	Return	VT_RETURN
Enter	VT_ENTER	Scroll Down	VT_PANDOWN
Escape	VT_ESCAPE	Scroll Left	VT_PANLEFT
F6 - F14	VT_F6 - VT_F14	Scroll Right	VT_PANRIGHT
F17 - F20	VT_F17 - VT_F20	Scroll Up	VT_PANUP
Find	VT_FIND	Select	VT_SELECT
Help (F15)	VT_HELP	Setup	VT_SETUP
Hold Screen	VT_HOLD	Tab	VT_TAB

IBM 3270 Virtual Key Names

Key Function	Virtual Key Name	Key Function	Virtual Key Name
Attention	IB_ATTN	F1 - F24	IB_F1 - IB_F24
Back Tab	IB_BACKTAB	Field Mark	IB_FIELDMARK
Backspace	IB_BACKSPACE	Home	IB_HOME
Clear	IB_CLEAR	Insert Mode	IB_INSERT
Cursor Down	IB_DOWN	Mono Case	IB_MONO
Cursor Left	IB_LEFT	Next Word	IB_NEXTWORD
Cursor Right	IB_RIGHT	Num Lock	IB_NUMLOCK
Cursor Select	IB_CURSORSEL	PA1 - PA3	IB_PA1 - IB_PA3
Cursor Up	IB_UP	Previous Word	IB_PREVWORD
Delete Character	IB_DELCHAR	Print Screen	IB_PRINT
Delete Word	IB_DELWORD	Reset	IB_RESET
Duplicate	IB_DUP	Return	IB_RETURN
Enter	IB_ENTER	Selectable Field Tab	IB_FIELDTAB
Erase End Of Field	IB_ERASEEOF	System Request	IB_SYSREQ
Erase Input	IB_ERASEINPUT	Tab	IB_TAB

IBM 5250 Virtual Key Names

Key Function	Virtual Key Name	Key Function	Virtual Key Name
Attention	AS_ATTN	Field Mark	AS_FIELDMARK
Back Tab	AS_BACKTAB	Field Minus	AS_FIELDMINUS
Backspace	AS_BACKSPACE	Field Plus	AS_FIELDPLUS
Clear	AS_CLEAR	Help	AS_HELP
Cursor Down	AS_DOWN	Home	AS_HOME
Cursor Left	AS_LEFT	Insert Mode	AS_INSERT
Cursor Right	AS_RIGHT	Monochrome	AS_MONO
Cursor Fast Left	AS_FASTLEFT	New Line	AS_NEWLINE
Cursor Fast Right	AS_FASTRIGHT	PA1 - PA3	AS_PA1 - AS_PA3
Cursor Select	AS_CURSORSEL	Print Local	AS_PRINTLOCAL
Cursor Up	AS_UP	Print	AS_PRINT
Delete Character	AS_DELCHAR	Reset	AS_RESET
Duplicate	AS_DUP	Roll Down	AS_ROLLODOWN
Enter	AS_ENTER	Roll Up	AS_ROLLUP
Erase End Of Field	AS_ERASEEOF	System Request	AS_SYSREQ
Erase Input	AS_ERASEINPUT	Tab	AS_TAB
F1 - F24	AS_F1 - AS_F24	Test	AS_TEST
Field Exit	AS_FIELDEXIT		

Notes

B

Keysyms

This appendix describes the use of virtual keysyms and lists all the valid keysyms that may be used to define the function of keys

Virtual Keysyms

The standard X translation tables may be used to redefine the function of most keys on the keyboard. However, certain keys such as **Insert** and **F4** for example cannot be redefined in this way.

To overcome this problem, OSF Motif enables you to use virtual keysyms to change the name of the keysym to be used in the translation table. Programs like **xev** are not subject to the virtual keysym translation because they are not based on OSF Motif and therefore report the keysym as normal.

The following list provides a cross-reference from actual keysym to the virtual keysym which should be used in the translation table.

Actual Keysym	Virtual Keysym	Actual Keysym	Virtual Keysym
Escape	osfCancel	Insert	osfInsert
Left	osfLeft	ShiftF8	osfAddMode
Up	osfUp	F1	osfHelp
Right	osfRight	F4	osfMenu
Down	osfDown	F7	osfEndLine
End	osfEndLine	F10	osfMenuBar
Home	osfBeginLine	Select	osfSelect
Prior	osfPageUp	KP_Enter	osfActivate
Next	osfPageDown	Clear	osfClear
BackSpace	osfBackSpace	Undo	osfUndo
Delete	osfDelete		

Keysyms & Functions

This section lists all the actual keysyms and their functions. The first column in the following tables provides an example of a legend which may be printed on the cap of a key which relates to the function performed or character displayed as described in the second column.

Note: The legend on a keycap may not necessarily indicate the actual function of that key, hence the need to be able to remap the keyboard as required.

The second column describes a function which may be attributed to a key and the third column shows the keysym for that function.

Keysyms		
KEY	FUNCTION	KEYSYM
Back Space	Back space, back character	BackSpace
Tab	Tab	Tab
Line Feed	Line Feed, LF	Linefeed
Clear	Clear	Clear
Return	Return, enter	Return
Pause	Pause, hold	Pause
Scroll Lock	Scroll lock	Scroll_Lock
Escape	Escape	Escape
Delete	Delete, rubout	Delete
Compose	Multi-key character compose	Multi_key
Home	Home cursor	Home
←	Move cursor left, left arrow	Left
↑	Move cursor up, up arrow	Up
→	Move cursor right, right arrow	Right
↓	Move cursor down, down arrow	Down
Previous	Prior, previous	Prior
Next	Next	Next
End	Move cursor to end of line, EOL	End

Keysyms

KEY	FUNCTION	KEYSYM
Begin	Move cursor to beginning of line, BOL	Begin
Select	Select, mark	Select
Print	Print	Print
Execute	Execute, run, do	Execute
Insert	Insert, insert here	Insert
Undo	Undo, oops	Undo
Redo	Redo, again	Redo
Menu	Menu	Menu
Find	Find, search	Find
Cancel	Cancel, abort, exit, stop	Cancel
Help	Help, ?	Help
Break	Break	Break
	Character set switch, mode switch	Mode_switch
	Alias for Mode_switch	Script_switch
Num Lock	Lock keypad in numeric mode	Num_Lock
	Keypad space	KP_Space
Tab	Keypad Tab	KP_Tab
Enter	Keypad Enter	KP_Enter
F1	Keypad F1, PF1, a	KP_F1
F2	Keypad F2, PF2, b	KP_F2
F3	Keypad F3, PF3, c	KP_F3
F4	Keypad F4, PF4, d	KP_F4
=	Keypad equals sign	KP_Equal
*	Keypad multiplication sign, asterisk	KP_Multiply
+	Keypad plus sign	KP_Add
,	Keypad separator, comma	KP_Separator
-	Keypad minus sign, hyphen	KP_Subtract
.	Keypad decimal point, period	KP_Decimal
/	Keypad division sign, solidus	KP_Divide

Keysyms

KEY	FUNCTION	KEYSYM
0	Keypad 0	KP_0
1	Keypad 1	KP_1
2	Keypad 2	KP_2
3	Keypad 3	KP_3
4	Keypad 4	KP_4
5	Keypad 5	KP_5
6	Keypad 6	KP_6
7	Keypad 7	KP_7
8	Keypad 8	KP_8
9	Keypad 9	KP_9
F1	Function key 1	F1
F2	Function key 2	F2
F3	Function key 3	F3
F4	Function key 4	F4
F5	Function key 5	F5
F6	Function key 6	F6
F7	Function key 7	F7
F8	Function key 8	F8
F9	Function key 9	F9
F10	Function key 10	F10
F11	Function key 11	F11
F12	Function key 12	F12
F13	Function key 13	F13
F14	Function key 14	F14
F15	Function key 15	F15
F16	Function key 16	F16
F17	Function key 17	F17
F18	Function key 18	F18
F19	Function key 19	F19

Keysyms

KEY	FUNCTION	KEYSYM
F20	Function key 20	F20
F21	Function key 21	F21
F22	Function key 22	F22
F23	Function key 23	F23
F24	Function key 24	F24
F25	Function key 25	F25
F26	Function key 26	F26
F27	Function key 27	F27
F28	Function key 28	F28
F29	Function key 29	F29
F30	Function key 30	F30
F31	Function key 31	F31
F32	Function key 32	F32
F33	Function key 33	F33
F34	Function key 34	F34
F35	Function key 35	F35
	Left function key 1 (F11 equivalent)	L1
	Left function key 2 (F12 equivalent)	L2
	Left function key 3 (F13 equivalent)	L3
	Left function key 4 (F14 equivalent)	L4
	Left function key 5 (F15 equivalent)	L5
	Left function key 6 (F16 equivalent)	L6
	Left function key 7 (F17 equivalent)	L7
	Left function key 8 (F18 equivalent)	L8
	Left function key 9 (F19 equivalent)	L9
	Left function key 10 (F20 equivalent)	L10
	Right function key 1 (F21 equivalent)	R1
	Right function key 2 (F22 equivalent)	R2
	Right function key 3 (F23 equivalent)	R3

Keysyms

KEY	FUNCTION	KEYSYM
	Right function key 4 (F24 equivalent)	R4
	Right function key 5 (F25 equivalent)	R5
	Right function key 6 (F26 equivalent)	R6
	Right function key 7 (F27 equivalent)	R7
	Right function key 8 (F28 equivalent)	R8
	Right function key 9 (F29 equivalent)	R9
	Right function key 10 (F30 equivalent)	R10
	Right function key 11 (F31 equivalent)	R11
	Right function key 12 (F32 equivalent)	R12
	Right function key 13 (F33 equivalent)	R13
	Right function key 14 (F34 equivalent)	R14
	Right function key 15 (F35 equivalent)	R15
Shift	Left Shift	Shift_L
Shift	Right Shift	Shift_R
Ctrl	Left Control	Control_L
Ctrl	Right Control	Control_R
Caps Lock	Caps Lock	Caps_Lock
Shift Lock	Shift Lock	Shift_Lock
Meta	Left Meta	Meta_L
Meta	Right Meta	Meta_R
Alt	Left Alt	Alt_L
Alt	Right Alt	Alt_R
	Left Super	Super_L
	Right Super	Super_R
	Left Hyper	Hyper_L
	Right Hyper	Hyper_R
	Space	space
!	Exclamation mark	exclam
"	Double quotation mark	quotedbl

Keysyms

KEY	FUNCTION	KEYSYM
#	Number sign	numbersign
\$	Dollar sign	dollar
%	Percent sign	percent
&	Ampersand	ampersand
'	Apostrophe	qouteright
(	Left parenthesis	parenleft
)	Right parenthesis	parenright
*	Asterisk	asterisk
+	Plus sign	plus
,	Comma	comma
-	Hyphen, minus sign	minus
.	Full stop	period
/	Solidus	slash
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
:	Colon	colon
;	Semicolon	semicolon
<	Less than sign	less
=	Equals sign	equal
>	Greater than sign	greater
?	Question mark	question

Keysyms

KEY	FUNCTION	KEYSYM
@	Commercial at	at
A	Uppercase A	A
B	Uppercase B	B
C	Uppercase C	C
D	Uppercase D	D
E	Uppercase E	E
F	Uppercase F	F
G	Uppercase G	G
H	Uppercase H	H
I	Uppercase I	I
J	Uppercase J	J
K	Uppercase K	K
L	Uppercase L	L
M	Uppercase M	M
N	Uppercase N	N
O	Uppercase O	O
P	Uppercase P	P
Q	Uppercase Q	Q
R	Uppercase R	R
S	Uppercase S	S
T	Uppercase T	T
U	Uppercase U	U
V	Uppercase V	V
W	Uppercase W	W
X	Uppercase X	X
Y	Uppercase Y	Y
Z	Uppercase Z	Z
[	Left square bracket	bracketleft
\	Back slash	backslash

Keysyms

KEY	FUNCTION	KEYSYM
]	Right square bracket	bracketright
^	Circumflex accent	asciicircum
_	Low line	underscore
`	Grave accent	quoteleft
a	Lowercase a	a
b	Lowercase b	b
c	Lowercase c	c
d	Lowercase d	d
e	Lowercase e	e
f	Lowercase f	f
g	Lowercase g	g
h	Lowercase h	h
i	Lowercase i	i
j	Lowercase j	j
k	Lowercase k	k
l	Lowercase l	l
m	Lowercase m	m
n	Lowercase n	n
o	Lowercase o	o
p	Lowercase p	p
q	Lowercase q	q
r	Lowercase r	r
s	Lowercase s	s
t	Lowercase t	t
u	Lowercase u	u
v	Lowercase v	v
w	Lowercase w	w
x	Lowercase x	x
y	Lowercase y	y

Keysyms

KEY	FUNCTION	KEYSYM
z	Lowercase z	z
{	Left brace	braceleft
|	Vertical line	bar
}	Right brace	braceright
~	Tilde	asciitilde
	No-break space	nobreakspace
;	Inverted exclamation mark	exclamdown
¢	Cent sign	cent
£	Pound sign	sterling
¤	Currency sign	currency
¥	Yen sign	yen
|	Broken vertical bar	brokenbar
§	Paragraph sign, section sign	section
¨	Diaeresis	diaeresis
©	Copyright sign	copyright
ª	Feminine ordinal indicator	ordfeminine
«	Left angle quotation mark	guillemotleft
¬	Not sign	notsign
-	Short horizontal hyphen	hyphen
®	Registered trademark sign	registered
ˉ	Macron	macron
°	Degree sign, ring above	degree
±	Plus/minus sign	plusminus
²	Superscript 2	twosuperior
³	Superscript 3	threesuperior
´	Acute accent	acute
µ	Micro sign	mu
¶	Pilcrow sign	paragraph
·	Middle dot	periodcentered

Keysyms

KEY	FUNCTION	KEYSYM
¸	Cedilla	cedilla
¹	Superscript 1	onesuperior
º	Masculine ordinal indicator	masculine
»	Right angle quotation mark	guillemotright
¼	Vulgar fraction one quarter	onequarter
½	Vulgar fraction one half	onehalf
¾	Vulgar fraction three quarters	threequarters
¿	Inverted question mark	questiondown
À	Uppercase A with grave accent	Agrave
Á	Uppercase A with acute accent	Aacute
Â	Uppercase A with circumflex accent	Acircumflex
Ã	Uppercase A with tilde	Atilde
Ä	Uppercase A with diaeresis	Adiaeresis
Å	Uppercase A with ring above	Aring
Æ	Uppercase diphthong AE	AE
Ç	Uppercase C with cedilla	Ccedilla
È	Uppercase E with grave accent	Egrave
É	Uppercase E with acute accent	Eacute
Ê	Uppercase E with circumflex accent	Ecircumflex
Ë	Uppercase E with diaeresis	Ediaeresis
Ì	Uppercase I with grave accent	Igrave
Í	Uppercase I with acute accent	Iacute
Î	Uppercase I with circumflex accent	Icircumflex
Ï	Uppercase I with diaeresis	Idiaeresis
Ð	Uppercase Icelandic eth	Eth
Ñ	Uppercase N with tilde	Ntilde
Ò	Uppercase O with grave accent	Ograve
Ó	Uppercase O with acute accent	Oacute
Ô	Uppercase O with circumflex accent	Ocircumflex

Keysyms

KEY	FUNCTION	KEYSYM
Õ	Uppercase O with tilde	Otilde
Ö	Uppercase O with diaeresis	Odiaeresis
×	Multiplication sign	multiply
Ø	Uppercase O with oblique stroke	Ooblique
Ù	Uppercase U with grave accent	Ugrave
Ú	Uppercase U with acute accent	Uacute
Û	Uppercase U with circumflex accent	Ucircumflex
Ü	Uppercase U with diaeresis	Udiaeresis
Ý	Uppercase Y with acute accent	Yacute
Þ	Uppercase Icelandic thorn	Thorn
ß	German small sharp s	ssharp
à	Lowercase a with grave accent	agrave
á	Lowercase a with acute accent	aacute
â	Lowercase a with circumflex accent	acircumflex
ã	Lowercase a with tilde	atilde
ä	Lowercase a with diaeresis	adiaeresis
å	Lowercase a with ring above	aring
æ	Lowercase diphthong ae	ae
ç	Lowercase c with cedilla	ccedilla
è	Lowercase e with grave accent	egrave
é	Lowercase e with acute accent	eacute
ê	Lowercase e with circumflex accent	ecircumflex
ë	Lowercase e with diaeresis	ediaeresis
ì	Lowercase i with grave accent	igrave
í	Lowercase i with acute accent	iacute
î	Lowercase i with circumflex accent	icircumflex
ï	Lowercase i with diaeresis	idiaeresis
ð	Lowercase Icelandic eth	eth
ñ	Lowercase n with tilde	ntilde

Keysyms

KEY	FUNCTION	KEYSYM
ò	Lowercase o with grave accent	ograve
ó	Lowercase o with acute accent	oacute
ô	Lowercase o with circumflex accent	ocircumflex
õ	Lowercase o with tilde	otilde
ö	Lowercase o with diaeresis	odiaeresis
÷	Division sign	division
ø	Lowercase o with oblique stroke	oslash
ù	Lowercase u with grave accent	ugrave
ú	Lowercase u with acute accent	uacute
û	Lowercase u with circumflex accent	ucircumflex
ü	Lowercase u with diaeresis	udiaeresis
ý	Lowercase y with acute accent	yacute
þ	Lowercase Icelandic thorn	thorn
ÿ	Lowercase y with diaeresis	ydiaeresis

Notes

C

Key Reference Numbers

This appendix lists the reference numbers assigned to keys on the British keyboard.

National 8-bit Key Reference Numbers

KEY	NORMAL	SHIFT	KEY	NORMAL	SHIFT
£	163	n/a	Î	244	212
ß	223	n/a	Ï	245	213
À	224	192	Ñ	238	206
Á	225	193	Ò	239	207
Â	226	194	Ó	241	209
Ã	227	195	Ô	242	210
Ä	228	196	Õ	243	211
Å	229	197	Ö	246	214
Æ	230	198	Œ	247	215
Ç	231	199	Ø	248	216
È	232	200	Ù	249	217
É	233	201	Ú	250	218
Ê	234	202	Û	251	219
Ë	235	203	Ü	252	220
Ì	236	204	Ý	253	221
Í	237	205			

British Keyboard Key Reference Numbers

KEY	NORMAL	SHIFT	CTRL	CT+SH
COMPOSE	-166	-166	-166	-166
DELETE	127	-34	-35	-36
DO	-232	-234	-236	-238
ENTER	-68	-82	-96	-110
ESCAPE	27	-37	-38	-39
FIND	-255	-261	-267	-273
HELP	-231	-233	-235	-237
INSERT HERE	-256	-262	-268	-274
NEXT	-260	-266	-272	-278
PREVIOUS	-259	-265	-271	-277
REMOVE	-257	-263	-269	-275
RETURN	13	-49	-50	-51
SELECT	-258	-264	-270	-276
SPACE	32	-52	-53	-54
TAB	9	-46	-47	-48
PF1	-239	-243	-247	-251
PF2	-240	-244	-248	-252
PF3	-241	-245	-249	-253
PF4	-242	-246	-250	-254
Keypad 0	-55	-69	-83	-97
Keypad 1	-56	-70	-84	-98
Keypad 2	-57	-71	-85	-99
Keypad 3	-58	-72	-86	-100
Keypad 4	-59	-73	-87	-101
Keypad 5	-60	-74	-88	-102
Keypad 6	-61	-75	-89	-103
Keypad 7	-62	-76	-90	-104
Keypad 8	-63	-77	-91	-105
Keypad 9	-64	-78	-92	-106
Keypad .	-65	-79	-93	-107
Keypad +	43	43	43	43
Keypad ,	-66	-80	-94	-108
Keypad -	-67	-81	-95	-109

British Keyboard Key Reference Numbers

KEY	NORMAL	SHIFT	CTRL	CT+SH
→	-135	-139	-143	-147
↑	-136	-140	-144	-148
←	-137	-141	-145	-149
↓	-138	-142	-146	-150
F6	128	136	-2	-10
F7	129	137	-3	-11
F8	130	138	-4	-12
F9	131	139	-5	-13
F10	132	140	-6	-14
F11	133	141	-7	-15
F12	134	142	-8	-16
F13	135	143	-9	-17
F14	144	151	-18	-25
F17	145	152	-19	-26
F18	146	153	-20	-27
F19	147	154	-21	-28
F20	148	155	-22	-29
0	48	41	n/a	n/a
1	49	33	n/a	n/a
2	50	34	0	0
3	51	35	27	27
4	52	36	28	28
5	53	37	29	29
6	54	94	30	30
7	55	38	31	31
8	56	42	127	127
9	57	40	n/a	n/a
\	35	126	28	28
' "	39	64	39	64
, <	44	60	44	60
-	45	95	n/a	n/a
. >	46	62	46	62

British Keyboard Key Reference Numbers

KEY	NORMAL	SHIFT	CTRL	CT+SH
/	47	63	31	31
; :	59	58	59	58
=	61	43	n/a	n/a
[	91	123	27	27
]	93	125	29	29
` ~	96	126	30	30
A	97	65	1	1
B	98	66	2	2
C	99	67	3	3
D	100	68	4	4
E	101	69	5	5
F	102	70	6	6
G	103	71	7	7
H	104	72	8	8
I	105	73	9	9
J	106	74	10	10
K	107	75	11	11
L	108	76	12	12
M	109	77	13	13
N	110	78	14	14
O	111	79	15	15
P	112	80	16	16
Q	113	81	17	17
R	114	82	18	18
S	115	83	19	19
T	116	84	20	20
U	117	85	21	21
V	118	86	22	22
W	119	87	23	23
X	120	88	24	24
Y	121	89	25	25
Z	122	90	26	26

D

Character Sets

This appendix shows the tables of characters that are supported by *teemX*.

Introduction

Each character set consists of a series of control characters and displayable characters. Displayable characters are alphanumeric, symbolic or graphic characters that can be displayed on the screen or printed by a hardcopy device. Control characters enable the terminal emulation or the printer to perform specific tasks, such as a line feed or carriage return. These will be actioned when received from the host or when *teemX* is in local mode and they are entered from the keyboard.

*Note: When the **Display Controls** option in the **Emulation Settings** dialog box is selected, a representation of most control characters received will be displayed on the screen instead of actioned.*

To enter a control character from the keyboard, first find the displayable character equivalent by adding 64 to the decimal value of the control character in the relevant character set table. For example, the control character **CR** (carriage return) has a decimal value of 13. Adding 64 makes 77 which is the decimal value of the displayable character **M**. When the **Ctrl** (control) key is held down and **Shift** + **M** is pressed, this will generate a **CR** code in local mode.

Some setup options require you to specify one or more control characters. A control character can be specified by typing ^ to represent the **Ctrl** key, immediately followed by the displayable character equivalent of the control character as described in the previous paragraph. For example, ^**M**, represents **Ctrl** + **M**, which generates the control character **CR**.

ASCII CHARACTER SET
(Multinational 7 Bit)

COLUMN	0	1	2	3	4	5	6	7
ROW	0000	0001	0010	0011	0100	0101	0110	0111
8 7 6 5 4 3 2 1								
0	0000 NUL	0010 DLE	0100 SP	0100 0	1000 @	1000 P	1100 `	1100 p
1	0001 SOH	0011 DC1 XON	0101 !	0101 1	1001 A	1001 Q	1101 a	1101 q
2	0010 STX	0011 DC2	0101 "	0101 2	1001 B	1001 R	1101 b	1101 r
3	0011 ETX	0011 DC3 XOFF	0101 #	0101 3	1001 C	1001 S	1101 c	1101 s
4	0100 EDT	0011 DC4	0101 \$	0101 4	1001 D	1001 T	1101 d	1101 t
5	0101 ENQ	0101 NAK	0101 %	0101 5	1001 E	1001 U	1101 e	1101 u
6	0110 ACK	0101 SYN	0101 &	0101 6	1001 F	1001 V	1101 f	1101 v
7	0111 BEL	0101 ETB	0101 '	0101 7	1001 G	1001 W	1101 g	1101 w
8	1000 BS	0101 CAN	0101 (	0101 8	1001 H	1001 X	1101 h	1101 x
9	1001 HT	0101 EM	0101)	0101 9	1001 I	1001 Y	1101 i	1101 y
10	1010 LF	0101 SUB	0101 *	0101 :	1001 J	1001 Z	1101 j	1101 z
11	1011 VT	0101 ESC	0101 +	0101 ;	1001 K	1001 [	1101 k	1101 {
12	1100 FF	0101 FS	0101 ,	0101 <	1001 L	1001 \	1101 l	1101 |
13	1101 CR	0101 GS	0101 -	0101 =	1001 M	1001]	1101 m	1101 }
14	1110 SO	0101 RS	0101 .	0101 >	1001 N	1001 ^	1101 n	1101 ~
15	1111 SI	0101 US	0101 /	0101 ?	1001 O	1001 _	1101 o	1101 DEL

KEY: ESC 33 OCTAL
27 DECIMAL
1B HEXADECIMAL

The ASCII (American Standard Code for Information Interchange) character set will be selected when the **Keyboard Language** option in the **Emulation Settings** dialog box is set to **North American**, or the **Multinational Mode** option in the same dialog box is selected. This table forms the first half of the Multinational character set, the second half of which may be the **DEC Additional** or one of the **ISO Latin Additional** sets (as determined by the **Preferred Font** option in the **Emulation Settings** dialog box).

NATIONAL REPLACEMENT CHARACTERS

BINARY BIT	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	6	1	0	0	0	0	0	0	1	1	1	1	1	1	1	1
	5	0	0	1	1	1	1	1	0	1	1	1	1	1	1	1
	4	0	0	1	1	1	1	1	0	1	1	1	1	1	1	1
	3	0	0	0	1	1	1	1	0	0	1	1	1	1	1	1
	2	1	0	1	0	0	1	1	0	1	0	0	0	0	1	1
	1	1	0	1	0	1	0	1	0	1	0	0	1	0	1	0
OCTAL		43	100	133	134	135	136	137	140	173	174	175	176			
DECIMAL		35	64	91	92	93	94	95	96	123	124	125	126			
HEXADECIMAL		23	40	5B	5C	5D	5E	5F	60	7B	7C	7D	7E			
ASCII	#	@	[	\	\]	^	_	`	{	|	}	~		
British	£	@	[	\	\]	^	_	`	{	|	}	~		
Canadian	#	à	â	ç	ê	î	_	ô	é	ù	è	û				
Danish Norwegian	#	Ä	Æ	Ø	Å	Ü	_	ä	æ	ø	å	ü				
Dutch	£	¾	ij	½	l	^	_	`	"	fl	¼	´				
Finnish	#	@	Ä	Ö	Å	Ü	_	é	ä	ö	å	ü				
French Belgian	£	à	°	ç	§	^	_	`	é	ù	è	"				
German	#	§	Ä	Ö	Ü	^	_	`	ä	ö	ü	ß				
Italian	£	§	°	ç	é	^	_	`	ù	à	ò	è	ì			
Portuguese	#	@	Ã	Ç	Õ	^	_	`	ã	ç	õ	~				
Spanish	£	§	í	Ñ	¿	^	_	`	°	ñ	ç	~				
Swedish	#	É	Ä	Ö	Å	Ü	_	é	ä	ö	å	ü				
Swiss French Swiss German	ù	à	é	ç	ê	î	è	ô	ä	ö	ü	û				

This table shows the characters that replace certain ASCII characters when the **Multinational Mode** option in the **Emulation Settings** dialog box is not selected (i.e. set to **National** character set mode). The national character set consists of the ASCII set with the changed characters listed on the line for the selected keyboard nationality.

**DEC ADDITIONAL CHARACTER SET
(Multinational 8 Bit)**

8	9	10	11	12	13	14	15	COLUMN	
1000	1001	1010	1011	1100	1101	1110	1111	8 7 6 5 4 3 2 1 ROWS	
200 128 80	DCS 144 90	220 145 91	240 160 A0	260 176 B0	300 192 C0	320 208 D0	340 224 E0	360 240 F0	0000 0
201 129 81	PU1 145 91	221 145 91	241 161 A1	261 177 B1	301 193 C1	321 209 D1	341 225 E1	361 241 F1	0001 1
202 130 82	PU2 146 92	222 146 92	242 162 A2	262 178 B2	302 194 C2	322 210 D2	342 226 E2	362 242 F2	0010 2
203 131 83	STS 147 93	223 147 93	243 163 A3	263 179 B3	303 195 C3	323 211 D3	343 227 E3	363 243 F3	0011 3
204 132 84	IND CCH 148 94	224 148 94	244 164 A4	264 180 B4	304 196 C4	324 212 D4	344 228 E4	364 244 F4	0100 4
205 133 85	NEL MW 149 95	225 149 95	245 165 A5	265 181 B5	305 197 C5	325 213 D5	345 229 E5	365 245 F5	0101 5
206 134 86	SSA SPA 150 96	226 150 96	246 166 A6	266 182 B6	306 198 C6	326 214 D6	346 230 E6	366 246 F6	0110 6
207 135 87	ESA EPA 151 97	227 151 97	247 167 A7	267 183 B7	307 199 C7	327 215 D7	347 231 E7	367 247 F7	0111 7
210 136 88	HTS 152 98	230 152 98	250 168 A8	270 184 B8	310 200 C8	330 216 D8	350 232 E8	370 248 F8	1000 8
211 137 89	HTJ 153 99	231 153 99	251 169 A9	271 185 B9	311 201 C9	331 217 D9	351 233 E9	371 249 F9	1001 9
212 138 8A	VTS 154 9A	232 154 9A	252 170 AA	272 186 BA	312 202 CA	332 218 DA	352 234 EA	372 250 FA	1010 10
213 139 8B	PLD CSI 155 9B	233 155 9B	253 171 AB	273 187 BB	313 203 CB	333 219 DB	353 235 EB	373 251 FB	1011 11
214 140 8C	PLU ST 156 9C	234 156 9C	254 172 AC	274 188 BC	314 204 CC	334 220 DC	354 236 EC	374 252 FC	1100 12
215 141 8D	RI OSC 157 9D	235 157 9D	255 173 AD	275 189 BD	315 205 CD	335 221 DD	355 237 ED	375 253 FD	1101 13
216 142 8E	SS2 PM 158 9E	236 158 9E	256 174 AE	276 190 BE	316 206 CE	336 222 DE	356 238 FE	376 254 FE	1110 14
217 143 8F	SS3 APC 159 9F	237 159 9F	257 175 AF	277 191 BF	317 207 CF	337 223 DF	357 239 EF	377 255 FF	1111 15

KEY: ESC 33 OCTAL
27 DECIMAL
1B HEXADECIMAL

This is one of three possible second halves of the Multinational character set (the first half is the ASCII character set and the other possible second halves are the ISO Latin-1 and ISO Latin-2 Additional character sets). These characters may be generated when *termX* is in VT400 7 or 8 bit mode and both the **Multinational Mode** and **DEC MCS** options are selected in the **Emulation Settings** dialog box.

ISO LATIN-1 ADDITIONAL CHARACTER SET
(Multinational 8 Bit)

8	9	10	11	12	13	14	15	COLUMN
1000	1001	1010	1011	1100	1101	1110	1111	8 7 6 5 4 3 2 1 ROWS
200 128 80	DCS 220 144 90	NBSP 240 160 A0	° 260 176 B0	À 300 192 C0	Ð 320 208 D0	à 340 224 E0	ð 360 240 F0	0000 0
201 129 81	PU1 221 145 91	í 241 161 A1	± 261 177 B1	Á 301 193 C1	Ñ 321 209 D1	á 341 225 E1	ñ 361 241 F1	0001 1
202 130 82	PU2 222 146 92	¢ 242 162 A2	² 262 178 B2	Â 302 194 C2	Ò 322 210 D2	â 342 228 E2	ò 362 242 F2	0010 2
203 131 83	STS 223 147 93	£ 243 163 A3	³ 263 179 B3	Ã 303 195 C3	Ó 323 211 D3	ã 343 227 E3	ó 363 243 F3	0011 3
204 132 84	IND 224 148 94	¤ 244 164 A4	´ 264 180 B4	Ä 304 196 C4	Ô 324 212 D4	ä 344 228 E4	ô 364 244 F4	0100 4
205 133 85	NEL 225 149 95	¥ 245 165 A5	µ 265 181 B5	Å 305 197 C5	Õ 325 213 D5	å 345 229 E5	õ 365 245 F5	0101 5
206 134 86	SSA 226 150 96	¦ 246 166 A6	¶ 266 182 B6	Æ 306 198 C6	Ö 326 214 D6	æ 346 230 E6	ö 366 246 F6	0110 6
207 135 87	ESA 227 151 97	§ 247 167 A7	· 267 183 B7	Ç 307 199 C7	× 327 215 D7	ç 347 231 E7	÷ 367 247 F7	0111 7
210 136 88	HTS 230 152 98	¨ 250 168 A8	, 270 184 B8	È 310 200 C8	Ø 330 216 D8	è 350 232 E8	ø 370 248 F8	1000 8
211 137 89	HTJ 231 153 99	© 251 169 A9	¹ 271 185 B9	É 311 201 C9	Ù 331 217 D9	é 351 233 E9	ù 371 249 F9	1001 9
212 138 9A	VTS 232 154 9A	ª 252 170 AA	º 272 186 BA	Ê 312 202 CA	Ú 332 218 DA	ê 352 234 EA	ú 372 250 FA	1010 10
213 139 9B	PLD 233 155 9B	« 253 171 AB	» 273 187 BB	Ë 313 203 CB	Û 333 219 DB	ë 353 235 EB	û 373 251 FB	1011 11
214 140 9C	PLU 234 156 9C	¬ 254 172 AC	¼ 274 188 BC	Ì 314 204 CC	Ü 334 220 DC	ì 354 236 EC	ü 374 252 FC	1100 12
215 141 9D	RI 235 157 9D	— 255 173 AD	½ 275 189 BD	Í 315 205 CD	Ý 335 221 DD	í 355 237 ED	ý 375 253 FD	1101 13
216 142 9E	SS2 236 158 9E	® 256 174 AE	¾ 276 190 BE	Î 316 206 CE	Þ 336 222 DE	î 356 238 EE	þ 376 254 FE	1110 14
217 143 9F	SS3 237 159 9F	— 257 175 AF	¿ 277 191 BF	Ï 317 207 CF	ß 337 223 DF	ï 357 239 EF	ÿ 377 255 FF	1111 15

KEY: ESC 33 OCTAL
27 DECIMAL
1B HEXADECIMAL

This is one of three possible second halves of the Multinational character set (the first half is the ASCII character set and the other possible second halves are the DEC Additional and ISO Latin-2 character sets). These characters may be generated when *teemX* is in **VT400 7** or **8** bit mode and both the **Multinational Mode** and **ISO Latin-1** options are selected in the **Emulation Settings** dialog box.

**ISO LATIN-2 ADDITIONAL CHARACTER SET
(Multinational 8 Bit)**

8	9	10	11	12	13	14	15	COLUMN								
1000	1001	1010	1011	1100	1101	1110	1111	8 7 6 5 4 3 2 1 ROWS								
200 128 80	DCS	220 144 90	NBSP	240 160 A0	°	260 176 B0	Ř	300 192 C0	Đ	320 208 D0	í	340 224 E0	ö	360 240 F0	0000	0
201 129 81	PU1	221 145 91	À	241 161 A1	á	261 177 B1	Á	301 193 C1	Ñ	321 209 D1	á	341 225 E1	ñ	361 241 F1	0001	1
202 130 82	PU2	222 146 92	˘	242 162 A2	˙	262 178 B2	Â	302 194 C2	Ñ	322 210 D2	â	342 226 E2	ň	362 242 F2	0010	2
203 131 83	STS	223 147 93	Ł	243 163 A3	ł	263 179 B3	Ă	303 195 C3	Ó	323 211 D3	ă	343 227 E3	ó	363 243 F3	0011	3
204 132 84	IND	224 148 94	Ẁ	244 164 A4	ẁ	264 180 B4	Ä	304 196 C4	Ö	324 212 D4	ä	344 228 E4	ö	364 244 F4	0100	4
205 133 85	NEL	225 149 95	Ł	245 165 A5	ł	265 181 B5	Ĺ	305 197 C5	Ó	325 213 D5	ĺ	345 229 E5	ó	365 245 F5	0101	5
206 134 86	SSA	226 150 96	Ś	246 166 A6	ś	266 182 B6	Ć	306 198 C6	Ö	326 214 D6	ć	346 230 E6	ö	366 246 F6	0110	6
207 135 87	ESA	227 151 97	Ş	247 167 A7	ş	267 183 B7	Ç	307 199 C7	×	327 215 D7	ç	347 231 E7	÷	367 247 F7	0111	7
210 136 88	HTS	230 152 98	ˆ	250 168 A8	˚	270 184 B8	Č	310 200 C8	Ř	330 216 D8	č	350 232 E8	ř	370 248 F8	1000	8
211 137 89	HTJ	231 153 99	Š	251 169 A9	š	271 185 B9	É	311 201 C9	Ů	331 217 D9	é	351 233 E9	ů	371 249 F9	1001	9
212 138 8A	VTS	232 154 9A	Ş	252 170 AA	ş	272 186 BA	Ę	312 202 CA	Ú	332 218 DA	ę	352 234 EA	ú	372 250 FA	1010	10
213 139 8B	PLD	233 155 9B	Ť	253 171 AB	ť	273 187 BB	Ě	313 203 CB	Ú	333 219 DB	ě	353 235 EB	ú	373 251 FB	1011	11
214 140 8C	PLU	234 156 9C	Ž	254 172 AC	ž	274 188 BC	E	314 204 CC	Ü	334 220 DC	ë	354 236 EC	ü	374 252 FC	1100	12
215 141 8D	RI	235 157 9D	SHY	255 173 AD	ˆ	275 189 BD	Í	315 205 CD	Ý	335 221 DD	í	355 237 ED	ý	375 253 FD	1101	13
216 142 8E	SS2	236 158 9E	Ž	256 174 AE	ž	276 190 BE	Î	316 206 CE	Ĵ	336 222 DE	î	356 238 EE	ĵ	376 254 FE	1110	14
217 143 8F	SS3	237 159 9F	Ž	257 175 AF	ž	277 191 BF	Ď	317 207 CF	ß	337 223 DF	ď	357 239 EF	·	377 255 FF	1111	15

KEY: ESC 33 OCTAL
27 DECIMAL
1B HEXADECIMAL

This is one of three possible second halves of the Multinational character set (the first half is the ASCII character set and the other possible second halves are the DEC Additional and ISO Latin-1 character sets). These characters may be generated when *termX* is in **VT400 7** or **8** bit mode and both the **Multinational Mode** and **ISO Latin-2** options are selected in the **Emulation Settings** dialog box.

ANSI 437 CHARACTER SET

8	9	10	11	12	13	14	15	COLUMN								
1000	1001	1010	1011	1100	1101	1110	1111	8 7 6 5 4 3 2 1								
ROW	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ç	È	É	Ê	Ë	Ï	Ï	Ï	0000	0							
Ü	Æ	Ó	Ô	Õ	Ö	Ø	Ù	0001	1							
È	Æ	Ó	Ô	Õ	Ö	Ø	Ù	0010	2							
À	Â	Ã	Ä	Å	Æ	Ç	È	0011	3							
Ä	Ö	Ñ	Ñ	Ñ	Ñ	Ñ	Ñ	0100	4							
À	Ò	Ñ	Ñ	Ñ	Ñ	Ñ	Ñ	0101	5							
À	Ò	À	À	À	À	À	À	0110	6							
Ç	Ù	È	È	È	È	È	È	0111	7							
È	ÿ	È	È	È	È	È	È	1000	8							
È	Ö	È	È	È	È	È	È	1001	9							
È	Ü	È	È	È	È	È	È	1010	10							
Ï	È	½	È	È	È	È	È	1011	11							
Ï	£	¼	È	È	È	È	È	1100	12							
Ï	¥	Ï	È	È	È	È	È	1101	13							
Ä	Ï	«	È	È	È	È	È	1110	14							
Ä	f	»	È	È	È	È	È	1111	15							

KEY: Ñ 245 OCTAL
 165 DECIMAL
 A5 HEXADECIMAL

This table forms the second half of the ANSI 437 character set, the first half being the ASCII character set.

The ANSI 437 character set is used when the **Preferred Font** option in the **Emulation Settings** dialog box is set to **ANSI** and the **ANSI Codepage** option is set to **437**.

ANSI 850 CHARACTER SET

8	9	10	11	12	13	14	15	COLUMN
1000	1001	1010	1011	1100	1101	1110	1111	8 7 6 5 4 3 2 1 BITS ROW
Ç 200 128 80	É 220 144 90	á 240 160 A0	█ 260 176 B0	Ł 300 192 C0	ø 320 208 D0	Ó 340 224 E0	— 360 240 F0	0000 0
ū 201 129 81	æ 221 145 91	í 241 161 A1	█ 261 177 B1	Ł 301 193 C1	Đ 321 209 D1	β 341 225 E1	± 361 241 F1	0001 1
é 202 130 82	Æ 222 146 92	ó 242 162 A2	█ 262 178 B2	Ł 302 194 C2	Ê 322 210 D2	Ô 342 226 E2	= 362 242 F2	0010 2
â 203 131 83	ò 223 147 93	ú 243 163 A3	█ 263 179 B3	Ł 303 195 C3	Ë 323 211 D3	Ò 343 227 E3	¾ 363 243 F3	0011 3
ā 204 132 84	ö 224 148 94	ñ 244 164 A4	█ 264 180 B4	— 304 196 C4	È 324 212 D4	õ 344 228 E4	¶ 364 244 F4	0100 4
à 205 133 85	ò 225 149 95	Ñ 245 165 A5	█ 265 181 B5	— 305 197 C5	Ì 325 213 D5	Ö 345 229 E5	§ 365 245 F5	0101 5
á 206 134 86	ó 226 150 96	ä 246 166 A6	█ 266 182 B6	ã 306 198 C6	Í 326 214 D6	μ 346 230 E6	÷ 366 246 F6	0110 6
ç 207 135 87	ù 227 151 97	ë 247 167 A7	█ 267 183 B7	Ä 307 199 C7	Î 327 215 D7	Ï 347 231 E7	ˆ 367 247 F7	0111 7
ê 210 136 88	ÿ 230 152 98	¿ 250 168 A8	© 270 184 B8	Ł 310 200 C8	Ī 330 216 D8	Ð 350 232 E8	○ 370 248 F8	1000 8
ē 211 137 89	Ö 231 153 99	® 251 169 A9	█ 271 185 B9	Ł 311 201 C9	Ĵ 331 217 D9	Ú 351 233 E9	“ 371 249 F9	1001 9
è 212 138 8A	Ü 232 154 9A	⌈ 252 170 AA	█ 272 186 BA	Ł 312 202 CA	Ł 332 218 DA	Û 352 234 EA	• 372 250 FA	1010 10
ī 213 139 8B	ø 233 155 9B	½ 253 171 AB	█ 273 187 BB	Ł 313 203 CB	█ 333 219 DB	Ù 353 235 EB	1 373 251 FB	1011 11
î 214 140 8C	£ 234 156 9C	¼ 254 172 AC	█ 274 188 BC	Ł 314 204 CC	█ 334 220 DC	Ý 354 236 EC	3 374 252 FC	1100 12
ì 215 141 8D	ø 235 157 9D	ı 255 173 AD	€ 275 189 BD	= 315 205 CD	ı 335 221 DD	Ý 355 237 ED	2 375 253 FD	1101 13
Ā 216 142 8E	× 236 158 9E	« 256 174 AE	¥ 276 190 BE	Ł 316 206 CE	ı 336 222 DE	— 356 238 FE	█ 376 254 FE	1110 14
Å 217 143 8F	f 237 159 9F	» 257 175 AF	█ 277 191 BF	Ł 317 207 CF	█ 337 223 DE	’ 357 239 FE	BLANK FF 377 255 FE	1111 15

KEY: Ñ 245 OCTAL
165 DECIMAL
A5 HEXADECIMAL

This table forms the second half of the ANSI 850 character set, the first half being the ASCII character set.

The ANSI 850 character set is used when the **Preferred Font** option in the **Emulation Settings** dialog box is set to **ANSI** and the **ANSI Codepage** option is set to **850**.

ANSI 852 CHARACTER SET

8	9	10	11	12	13	14	15	COLUMN
1000	1001	1010	1011	1100	1101	1110	1111	8 7 6 5 4 3 2 1
Ç	É	á		Ł	ø	Ó	▬	0000
ü	Ł	í		⌈	Đ	ß	˝	0001
é	ł	ó		⌋	Đ	Ô	˘	0010
â	ô	ú		⌌	Ě	Ń	˘	0011
ã	ö	Ą		⌍	Ǽ	ń	˘	0100
ũ	ł	ą	Á	⌎	Ň	ň	§	0101
ć	ł	ż	Â	Ǽ	í	š	÷	0110
ç	ś	ż	Ě	ǻ	í	š	˘	0111
ł	ś	Ę	Ş	Ł	ě	Ř	°	1000
ë	Ö	ę	⌐	⌏	Ĳ	Ú	˝	1001
ó	Ů		⌑	⌐	⌒	ř	+	1010
ó	ř	ž	⌒	⌓	■	Ú	ú	1011
î	ř	Č	⌓	⌔	■	ý	ř	1100
ž	ł	š	ž	⌕	Ĳ	ý	ř	1101
Ā	×	«	ž	⌖	Ů	ł	■	1110
Ć	ć	»	⌗	⌘	■	˘	˘	1111
200 128 80	220 144 90	240 160 A0	260 176 B0	300 192 C0	320 208 D0	340 224 E0	360 240 F0	0
201 129 81	221 145 91	241 161 A1	261 177 B1	301 193 C1	321 209 D1	341 225 E1	361 241 F1	1
202 130 82	222 146 92	242 162 A2	262 178 B2	302 194 C2	322 210 D2	342 226 E2	362 242 F2	2
203 131 83	223 147 93	243 163 A3	263 179 B3	303 195 C3	323 211 D3	343 227 E3	363 243 F3	3
204 132 84	224 148 94	244 164 A4	264 180 B4	304 196 C4	324 212 D4	344 228 E4	364 244 F4	4
205 133 85	225 149 95	245 165 A5	265 181 B5	305 197 C5	325 213 D5	345 229 E5	365 245 F5	5
206 134 86	226 150 96	246 166 A6	266 182 B6	306 198 C6	326 214 D6	346 230 E6	366 246 F6	6
207 135 87	227 151 97	247 167 A7	267 183 B7	307 199 C7	327 215 D7	347 231 E7	367 247 F7	7
210 136 88	230 152 98	250 168 A8	270 184 B8	310 200 C8	330 216 D8	350 232 E8	370 248 F8	8
211 137 89	231 153 99	251 169 A9	271 185 B9	311 201 C9	331 217 D9	351 233 E9	371 249 F9	9
212 138 8A	232 154 9A	252 170 AA	272 186 BA	312 202 CA	332 218 DA	352 234 EA	372 250 FA	10
213 139 8B	233 155 9B	253 171 AB	273 187 BB	313 203 CB	333 219 DB	353 235 EB	373 251 FB	11
214 140 8C	234 156 9C	254 172 AC	274 188 BC	314 204 CC	334 220 DC	354 236 EC	374 252 FC	12
215 141 8D	235 157 9D	255 173 AD	275 189 BD	315 205 CD	335 221 DD	355 237 ED	375 253 FD	13
216 142 8E	236 158 9E	256 174 AE	276 190 BE	316 206 CE	336 222 DE	356 238 FE	376 254 FE	14
217 143 8F	237 159 9F	257 175 AF	277 191 BF	317 207 CF	337 223 DF	357 239 FE	377 255 FE	15

KEY:

7	277
7	181
7	BF

 OCTAL
DECIMAL
HEXADECIMAL

This table forms the second half of the ANSI 852 character set, the first half being the ASCII character set.

The ANSI 852 character set is used when the **Preferred Font** option in the **Emulation Settings** dialog box is set to **ANSI** and the **ANSI Codepage** option is set to **852**.

ANSI 1250 CHARACTER SET

8	9	10	11	12	13	14	15	COLUMN	
1000	1001	1010	1011	1100	1101	1110	1111	8 7 6 5 4 3 2 1 BITS R O W	
200 128 80	DCS 144 90	220 NBS 160 A0	240 ° 160 A0	260 ° 176 B0	300 ° 182 C0	320 ° 208 D0	340 ° 224 E0	360 ° 240 F0	0000 0
201 129 81	PU1 145 91	221 A 161 A1	241 a 161 A1	261 ° 177 B1	301 ° 193 C1	321 ° 209 D1	341 ° 225 E1	361 ° 241 F1	0001 1
202 130 82	PU2 146 92	222 ° 162 A2	242 ° 162 A2	262 ° 178 B2	302 ° 194 C2	322 ° 210 D2	342 ° 226 E2	362 ° 242 F2	0010 2
203 131 83	STS 147 93	223 L 163 A3	243 t 163 A3	263 ° 179 B3	303 ° 195 C3	323 ° 211 D3	343 ° 227 E3	363 ° 243 F3	0011 3
204 132 84	IND CCH 148 94	224 x 164 A4	244 ° 164 A4	264 ° 180 B4	304 ° 196 C4	324 ° 212 D4	344 ° 228 E4	364 ° 244 F4	0100 4
205 133 85	NEL MW 149 95	225 L 165 A5	245 l 165 A5	265 ° 181 B5	305 ° 197 C5	325 ° 213 D5	345 ° 229 E5	365 ° 245 F5	0101 5
206 134 86	SSA SPA 150 96	226 S 166 A6	246 s 166 A6	266 ° 182 B6	306 ° 198 C6	326 ° 214 D6	346 ° 230 E6	366 ° 246 F6	0110 6
207 135 87	ESA EPA 151 97	227 S 167 A7	247 ° 167 A7	267 ° 183 B7	307 ° 199 C7	327 ° 215 D7	347 ° 231 E7	367 ° 247 F7	0111 7
210 136 88	HTS 152 98	230 ° 168 A8	250 ° 168 A8	270 ° 184 B8	310 ° 200 C8	330 ° 216 D8	350 ° 232 E8	370 ° 248 F8	1000 8
211 137 89	HTJ 153 99	231 S 169 A9	251 s 169 A9	271 ° 185 B9	311 ° 201 C9	331 ° 217 D9	351 ° 233 E9	371 ° 249 F9	1001 9
212 138 9A	VTS 154 9A	232 S 170 AA	252 ° 170 AA	272 ° 186 BA	312 ° 202 CA	332 ° 218 DA	352 ° 234 FA	372 ° 250 FA	1010 10
213 139 9B	PLD CSI 155 9B	233 T 171 AB	253 t 171 AB	273 ° 187 BB	313 ° 203 CB	333 ° 219 DB	353 ° 235 EB	373 ° 251 FB	1011 11
214 140 9C	PLU ST 156 9C	234 Z 172 AC	254 z 172 AC	274 ° 188 BC	314 ° 204 CC	334 ° 220 DC	354 ° 236 EC	374 ° 252 FC	1100 12
215 141 9D	RI OSC 157 9D	235 SHY 173 AD	255 ° 173 AD	275 ° 189 BD	315 ° 205 CD	335 ° 221 DD	355 ° 237 ED	375 ° 253 FD	1101 13
216 142 9E	SS2 PM 158 9E	236 Z 174 AE	256 z 174 AE	276 ° 190 BE	316 ° 206 CE	336 ° 222 DE	356 ° 238 FE	376 ° 254 FE	1110 14
217 143 9F	SS3 APC 159 9F	237 Z 175 AF	257 z 175 AF	277 ° 191 BF	317 ° 207 CF	337 ° 223 DF	357 ° 239 FF	377 ° 255 FF	1111 15

KEY: ESC 33 OCTAL
27 DECIMAL
1B HEXADECIMAL

This table forms the second half of the ANSI 1250 character set, the first half being the ASCII character set.

The ANSI 1250 character set is used when the **Preferred Font** option in the **Emulation Settings** dialog box is set to **ANSI** and the **ANSI Codepage** option is set to **1250**.

DEC LINE DRAWING CHARACTER SET

COLUMN	0	1	2	3	4	5	6	7
ROW	0000	0001	0010	0011	0100	0101	0110	0111
8-BITS	0000	0001	0010	0011	0100	0101	0110	0111
4321	0000	0001	0010	0011	0100	0101	0110	0111
0	0000 NUL	0001 DLE	0010 SP	0011 0	0100 @	0101 P	0110 ◆	0111 ▬
1	0001 SOH	0010 DC1 XON	0011 !	0100 1	0101 A	0110 Q	0111 █	▬
2	0010 STX	0011 DC2	0100 "	0101 2	0110 B	0111 R	H _T	▬
3	0011 ETX	0100 DC3 XOFF	0101 #	0110 3	0111 C	0111 S	F _F	▬
4	0100 EOT	0101 DC4	0110 \$	0111 4	0111 D	0111 T	C _R	▬
5	0101 ENQ	0110 NAK	0111 %	0111 5	0111 E	0111 U	L _F	▬
6	0110 ACK	0111 SYN	0111 &	0111 6	0111 F	0111 V	°	▬
7	0111 BEL	0111 ETB	0111 -	0111 7	0111 G	0111 W	±	▬
8	1000 BS	1001 CAN	1010 (	1011 8	1011 H	1011 X	N _L	▬
9	1001 HT	1010 EM	1011)	1011 9	1011 I	1011 Y	V _T	≤
10	1010 LF	1011 SUB	1011 *	1011 :	1011 J	1011 Z	J	≥
11	1011 VT	1100 ESC	1101 +	1101 ;	1101 K	1101 [	⌈	π
12	1100 FF	1101 FS	1101 ,	1101 <	1101 L	1101 \	⌋	≠
13	1101 CR	1110 GS	1111 -	1111 =	1111 M	1111]	L	£
14	1110 SO	1111 RS	1111 .	1111 >	1111 N	1111 ^	⊕	·
15	1111 SI	1111 US	1111 /	1111 ?	1111 O	1111	▬	DEL

KEY: ESC

33	OCTAL
27	DECIMAL
1B	HEXADECIMAL

This is a special DEC character set which is used by some applications.

DEC TECHNICAL CHARACTER SET (7 Bit)

COLUMN	0	1	2	3	4	5	6	7	
ROW	8 7 6 5 4 3 2 1	0000	0001	0010	0011	0100	0101	0110	0111
0	0000 NUL	09 09 DLE	20 16 10 SP	40 32 20 }	60 48 30 ,	100 84 40 :	120 80 50 Π	140 96 80 ¬	160 112 70 π
1	0001 SOH	11 11 DC1 XON	21 17 11 ↓	41 33 21 ∇	61 49 31 α	101 85 41 Ψ	121 81 51 α	141 97 61 ψ	161 113 71 ϕ
2	0010 STX	22 22 DC2	22 18 12 Γ	42 34 22 ∠	62 50 32 ∞	102 82 42 Σ	122 98 62 β	142 98 62 ρ	162 114 72 σ
3	0011 ETX	33 33 DC3 XOFF	23 19 13 -	43 35 23 \	63 51 33 ÷	103 87 43 Σ	123 83 53 χ	143 99 63 σ	163 115 73 τ
4	0100 EOT	44 44 DC4	24 20 14 ↑	44 36 24 /	64 52 34 Δ	104 88 44 ∇	124 84 54 δ	144 100 64 τ	164 116 74 ϕ
5	0101 ENQ	55 55 NAK	25 21 15 ↓	45 37 25 ¬	65 53 35 ∇	105 89 45 ε	125 85 55 ε	145 101 65 ς	165 117 75 ϕ
6	0110 ACK	66 66 SYN	26 22 16 |	46 38 26 ┘	66 54 36 Φ	106 90 46 √	126 86 56 φ	146 102 66 f	166 118 76 ϕ
7	0111 BEL	77 77 ETB	27 23 17 Γ	47 39 27 >	67 55 37 Γ	107 91 47 Ω	127 87 57 γ	147 103 67 ω	167 119 77 ϕ
8	1000 BS	88 88 CAN	30 24 18 L	50 40 28 ?	70 56 38 ~	110 94 48 ≡	130 88 58 η	150 104 68 ξ	170 120 78 ϕ
9	1001 HT	99 99 EM	31 25 19 ┘	51 41 29 ┘	71 57 39 ≈	111 95 49 Υ	131 89 59 l	151 105 69 u	171 121 79 ϕ
10	1010 LF	10A 10A SUB	32 26 1A ┘	52 42 2A ┘	72 58 3A Θ	112 96 4A C	132 90 5A θ	152 106 6A ζ	172 122 7A ϕ
11	1011 VT	11B 11B ESC	33 27 1B ┘	53 43 2B ┘	73 59 3B X	113 97 4B D	133 91 5B K	153 107 6B ←	173 123 7B ϕ
12	1100 FF	12C 12C FS	34 28 1C ┘	54 44 2C ≤	74 60 3C Δ	114 98 4C ∩	134 92 5C λ	154 108 6C ↑	174 124 7C ϕ
13	1101 CR	13D 13D GS	35 29 1D ┘	55 45 2D ≠	75 61 3D ↔	115 99 4D U	135 93 5D →	155 109 6D →	175 125 7D ϕ
14	1110 SO	14E 14E RS	36 30 1E ┘	56 46 2E ≥	76 62 3E ⇒	116 100 4E ^	136 94 5E v	156 110 6E ↓	176 126 7E ϕ
15	1111 SI	15F 15F US	37 31 1F ┘	57 47 2F ┘	77 63 3F ≡	117 101 4F v	137 95 5F ð	157 111 6F DEL	177 127 7F ϕ

KEY: ESC 33 OCTAL
27 DECIMAL
1B HEXADECIMAL

This is a special DEC character set which is used by some applications.

DEC TECHNICAL CHARACTER SET (8 Bit)

8	9	10	11	12	13	14	15	COLUMN	
1000	1001	1010	1011	1100	1101	1110	1111	8-7 BITS 65 4321	R O W
200 128 80	DCS 220 144 90	240 160 A0	260 176 B0	300 192 C0	320 208 D0	340 224 E0	360 240 F0	0000	0
201 129 81	PU1 221 145 91	241 161 A1	261 177 B1	301 193 C1	321 209 D1	341 225 E1	361 241 F1	0001	1
202 130 82	PU2 222 146 92	242 162 A2	262 178 B2	302 194 C2	322 210 D2	342 226 E2	362 242 F2	0010	2
203 131 83	STS 223 147 93	243 163 A3	263 179 B3	303 195 C3	323 211 D3	343 227 E3	363 243 F3	0011	3
IND 204 132 84	CCH 224 148 94	244 164 A4	264 180 B4	304 196 C4	324 212 D4	344 228 E4	364 244 F4	0100	4
205 133 85	MW 225 149 95	245 165 A5	265 181 B5	305 197 C5	325 213 D5	345 229 E5	365 245 F5	0101	5
206 134 86	SPA 226 150 96	246 166 A6	266 182 B6	306 198 C6	326 214 D6	346 230 E6	366 246 F6	0110	6
207 135 87	EPA 227 151 97	247 167 A7	267 183 B7	307 199 C7	327 215 D7	347 231 E7	367 247 F7	0111	7
210 136 88	230 152 98	250 168 A8	270 184 B8	310 200 C8	330 216 D8	350 232 E8	370 248 F8	1000	8
211 137 89	231 153 99	251 169 A9	271 185 B9	311 201 C9	331 217 D9	351 233 E9	371 249 F9	1001	9
212 138 8A	232 154 9A	252 170 AA	272 186 BA	312 202 CA	332 218 DA	352 234 EA	372 250 FA	1010	10
213 139 8B	CSI 233 155 9B	253 171 AB	273 187 BB	313 203 CB	333 219 DB	353 235 EB	373 251 FB	1011	11
214 140 8C	ST 234 156 9C	254 172 AC	274 188 BC	314 204 CC	334 220 DC	354 236 EC	374 252 FC	1100	12
215 141 8D	OSC 235 157 9D	255 173 AD	275 189 BD	315 205 CD	335 221 DD	355 237 ED	375 253 FD	1101	13
216 142 8E	PM 236 158 9E	256 174 AE	276 190 BE	316 206 CE	336 222 DE	356 238 FE	376 254 FE	1110	14
217 143 8F	APC 237 159 9F	257 175 AF	277 191 BF	317 207 CF	337 223 DF	357 239 FF	377 255 FF	1111	15

KEY: ESC 33 OCTAL
27 DECIMAL
1B HEXADECIMAL

This is a special DEC character set which is used by some applications.

**IBM 3270 & IBM 5250 ENGLISH (U.S.),
CANADIAN BILINGUAL & NETHERLANDS CHARACTER SET**

HEX	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0	SP	&	-	ø	Ø	°	μ	^	{	}	\	0
-1	RSP	é	/	É	a	j	~	£	A	J	÷	1
-2	â	ê	Â	Ê	b	k	s	¥	B	K	S	2
-3	ä	ë	Ä	Ë	c	l	t	·	C	L	T	3
-4	à	è	À	È	d	m	u	©	D	M	U	4
-5	á	í	Á	Í	e	n	v	§	E	N	V	5
-6	ã	î	Ã	Ĩ	f	o	w	¶	F	O	W	6
-7	â	ī	Å	Ī	g	p	x	¼	G	P	X	7
-8	ç	ì	Ç	Ì	h	q	y	½	H	Q	Y	8
-9	ñ	β	Ñ	`	i	r	z	¾	I	R	Z	9
-A	¢	! |	! |	:	«	ª	ı	[	SHY	¹	²	³
-B	.	\$	,	#	»	º	¿	]	ô	ù	ô	ù
-C	<	*	%	@	ö	æ	ð	-	ö	ü	ö	ü
-D	(	)	_	´	ý	¸	Ý	-	ò	ù	ò	ù
-E	+	;	>	=	þ	Æ	þ	´	ó	ú	ó	ú
-F	|	¬	?	´	±	¤	®	×	õ	ÿ	õ	

Legend: **RSP** required space, **SHY** syllable hyphen, **SP** space.

**IBM 3270 & IBM 5250
ENGLISH (U.K.) CHARACTER SET**

HEX	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0	SP	&	-	ø	Ø	°	μ	€	{	}	\	0
-1	RSP	é	/	É	a	j	-	[	A	J	÷	1
-2	â	ê	Â	Ê	b	k	s	¥	B	K	S	2
-3	ä	ë	Ä	Ë	c	l	t	.	C	L	T	3
-4	à	è	À	È	d	m	u	©	D	M	U	4
-5	á	í	Á	Í	e	n	v	§	E	N	V	5
-6	ã	ï	Ã	Ï	f	o	w	¶	F	O	W	6
-7	â	ī	Ā	Ī	g	p	x	¼	G	P	X	7
-8	ç	ì	Ç	Ì	h	q	y	½	H	Q	Y	8
-9	ñ	β	Ñ	`	i	r	z	¾	I	R	Z	9
-A	\$	!	!	:	«	»	^	SHY	1	2	3	
-B	.	£	,	#	»	º	¿	]	ó	ú	ô	ù
-C	<	*	%	@	ö	æ	Ð	~	ö	ü	Ö	Ü
-D	(	)	_	´	ý	,	Ý	-	ò	ù	ò	ù
-E	+	;	>	=	þ	Æ	þ	´	ó	ú	Ó	Ú
-F	|	¬	?	"	±	¤	®	×	õ	ÿ	Õ	

Legend: **RSP** required space, **SHY** syllable hyphen, **SP** space.

**IBM 3270 & IBM 5250
DANISH & NORWEGIAN CHARACTER SET**

HEX	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0	SP	&	-	|	@	°	µ	¢	æ	å	\	0
-1	RSP	é	/	É	a	j	ū	£	A	J	÷	1
-2	â	ê	Â	Ê	b	k	s	¥	B	K	S	2
-3	ä	ë	Ä	Ë	c	l	t	·	C	L	T	3
-4	à	è	À	È	d	m	u	©	D	M	U	4
-5	á	í	Á	Í	e	n	v	§	E	N	V	5
-6	ã	î	Ã	Î	f	o	w	¶	F	O	W	6
-7	}	ï	§	Ï	g	p	x	¼	G	P	X	7
-8	ç	ì	Ç	Ì	h	q	y	½	H	Q	Y	8
-9	ñ	ß	Ñ	`	i	r	z	¾	I	R	Z	9
-A	#	æ	ø	:	«	ª	¡	¬	SHY	¹	²	³
-B	.	Å	,	Æ	»	º	¿	¡	ô	ó	ô	ú
-C	<	*	%	Ø	ø	{	Ð	—	ö	ü	ö	ü
-D	(	)	_	´	ý	¸	Ý	”	ò	ù	ò	ù
-E	+	;	>	=	þ	[	þ	´	ó	ú	ó	ú
-F	!	^	?	"	±	]	®	×	õ	ÿ	õ	

Legend: **RSP** required space, **SHY** syllable hyphen, **SP** space.

**IBM 3270 & IBM 5250
FRENCH CHARACTER SET**

HEX	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0	SP	&	-	ø	Ø	[	`	¢	é	è	ç	0
-1	RSP	{	/	É	a	j	˘	#	A	J	÷	1
-2	â	e	Â	Ê	b	k	s	¥	B	K	S	2
-3	ä	ē	Ä	Ë	c	l	t	.	C	L	T	3
-4	@	}	À	È	d	m	u	©	D	M	U	4
-5	á	í	Á	Í	e	n	v	]	E	N	V	5
-6	ã	î	Ã	Ï	f	o	w	¶	F	O	W	6
-7	â	ī	Å	Ī	g	p	x	¼	G	P	X	7
-8	\	ì	Ç	ì	h	q	y	½	H	Q	Y	8
-9	ñ	β	Ñ	μ	i	r	z	¾	I	R	Z	9
-A	°	§	ù	:	«	ª	ı	¬	SHY	¹	²	³
-B	.	\$	,	£	»	º	¿	|	ó	ú	ô	ù
-C	<	*	%	à	ö	æ	Ð	—	ö	ü	ö	ü
-D	(	)	_	´	ý	,	Ý	~	ò	ı	ò	ù
-E	+	;	>	=	þ	Æ	þ	´	ó	ú	ó	ú
-F	!	^	?	"	±	¤	®	×	õ	ÿ	õ	

Legend: **RSP** required space, **SHY** syllable hyphen, **SP** space.

**IBM 3270 & IBM 5250
GERMAN & AUSTRIAN CHARACTER SET**

HEX	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0	SP	&	-	ø	Ø	°	μ	¢	ä	ū	Ö	0
-1	RSP	é	/	É	a	j	β	£	A	J	÷	1
-2	â	ê	Â	Ê	b	k	s	¥	B	K	S	2
-3	{	ë	[	Ë	c	l	t	·	C	L	T	3
-4	à	è	À	È	d	m	u	©	D	M	U	4
-5	á	í	Á	Í	e	n	v	@	E	N	V	5
-6	ã	î	Ã	Ĩ	f	o	w	¶	F	O	W	6
-7	â	ī	Å	Ī	g	p	x	¼	G	P	X	7
-8	ç	ì	Ç	Ì	h	q	y	½	H	Q	Y	8
-9	ñ	~	Ñ	˘	i	r	z	¾	I	R	Z	9
-A	Ä	Ü	ö	:	«	ä	ï	¬	SHY	¹	²	³
-B	.	\$	,	#	»	º	¿	|	ô	ù	Ô	Ù
-C	<	*	%	§	ö	æ	Ð	—	|	}	\	\]
-D	(	)	_	´	ý	¸	Ý	-	ò	û	Ò	Û
-E	+	;	>	=	þ	Æ	þ	´	ó	ú	Ó	Ú
-F	!	^	?	·	±	¤	®	×	ö	ÿ	Ö	

Legend: **RSP** required space, **SHY** syllable hyphen, **SP** space.

**IBM 3270 & IBM 5250
ITALIAN CHARACTER SET**

HEX	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0	SP	&	-	ø	Ø	[	μ	€	à	è	ç	0
-1	RSP	]	/	É	a	j	ì	#	A	J	÷	1
-2	â	e	Â	Ê	b	k	s	¥	B	K	S	2
-3	ä	ë	Ä	Ë	c	l	t	.	C	L	T	3
-4	{	}	À	È	d	m	u	©	D	M	U	4
-5	á	í	Á	Í	e	n	v	@	E	N	V	5
-6	ã	î	Ã	Î	f	o	w	¶	F	O	W	6
-7	â	ī	Ā	Ī	g	p	x	¼	G	P	X	7
-8	\	~	Ç	ì	h	q	y	½	H	Q	Y	8
-9	ñ	β	Ñ	ù	i	r	z	¾	I	R	Z	9
-A	°	é	ò	:	«	ª	ı	¬	SHY	¹	²	³
-B	.	\$	,	£	»	º	¿	|	ó	ú	ô	ù
-C	<	*	%	§	ö	æ	Ð	-	ö	ü	Ö	Ü
-D	(	)	_	´	ý	,	Ý	-	ı	`	ò	ù
-E	+	;	>	=	þ	Æ	þ	´	ó	ú	ó	ú
-F	!	^	?	"	±	¤	®	×	õ	ÿ	Õ	

Legend: **RSP** required space, **SHY** syllable hyphen, **SP** space.

IBM 3270 & IBM 5250
SPANISH CHARACTER SET

HEX	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0	SP	&	-	ø	Ø	°	μ	¢	{	}	\	0
-1	RSP	é	/	É	a	j	˘	£	A	J	÷	1
-2	â	ê	Â	Ê	b	k	s	¥	B	K	S	2
-3	ä	ë	Ä	Ë	c	l	t	·	C	L	T	3
-4	à	è	À	È	d	m	u	©	D	M	U	4
-5	á	í	Á	Í	e	n	v	§	E	N	V	5
-6	ã	î	Ã	Î	f	o	w	¶	F	O	W	6
-7	å	ï	Å	Ï	g	p	x	¼	G	P	X	7
-8	ç	ì	Ç	Ì	h	q	y	½	H	Q	Y	8
-9	ı	ß	#	ˆ	i	r	z	¾	I	R	Z	9
-A	[	]	ñ	:	«	ª	ı	^	SHY	¹	²	³
-B	.	\$	,	Ñ	»	º	¿	!	ô	ó	ô	ú
-C	<	*	%	@	ö	æ	ð	˘	ö	ü	ö	ü
-D	(	)	_	´	ý	¸	Ý	˘	ò	ù	ò	ù
-E	+	;	>	=	þ	Æ	þ	´	ó	ú	ó	ú
-F	|	¬	?	"	±	¤	®	×	õ	ÿ	õ	

Legend: RSP required space, SHY syllable hyphen, SP space.

**IBM 3270 & IBM 5250
SWEDISH & FINNISH CHARACTER SET**

HEX	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0	SP	&	-	ø	Ø	°	μ	€	ä	å	É	0
-1	RSP	`	/	\	a	j	ū	£	A	J	÷	1
-2	å	e	Å	Ê	b	k	s	¥	B	K	S	2
-3	{	ē	#	Ë	c	l	t	.	C	L	T	3
-4	à	è	À	È	d	m	u	©	D	M	U	4
-5	á	í	Á	Í	e	n	v	[	E	N	V	5
-6	ä	î	Ä	Î	f	o	w	¶	F	O	W	6
-7	}	ï	\$	Ī	g	p	x	¼	G	P	X	7
-8	ç	ì	Ç	Ì	h	q	y	½	H	Q	Y	8
-9	ñ	β	Ñ	é	i	r	z	¾	I	R	Z	9
-A	§	α	ö	:	«	ª	ı	¬	SHY	¹	²	³
-B	.	Å	,	Ā	»	º	¿	ı	ó	ú	ô	ù
-C	<	*	%	Ō	ö	æ	Ð	—	ı	~	@	Û
-D	(	)	_	´	ý	,	Ý	ˉ	ò	ù	ò	ù
-E	+	;	>	=	þ	Æ	þ	´	ó	ú	ó	ú
-F	!	^	?	"	±	]	®	×	õ	ÿ	Õ	

Legend: **RSP** required space, **SHY** syllable hyphen, **SP** space.

**IBM 3270 & IBM 5250 BELGIAN &
SWISS-FRENCH/GERMAN CHARACTER SET**

HEX	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0	SP	&	-	ø	Ø	°	μ	¢	{	}	\	0
-1	RSP	é	/	É	a	j	~	£	A	J	÷	1
-2	â	ê	Â	Ê	b	k	s	¥	B	K	S	2
-3	ä	ë	Ä	Ë	c	l	t	·	C	L	T	3
-4	à	è	À	È	d	m	u	©	D	M	U	4
-5	á	í	Á	Í	e	n	v	§	E	N	V	5
-6	ã	î	Ã	Ĩ	f	o	w	¶	F	O	W	6
-7	â	ī	Å	Ī	g	p	x	¼	G	P	X	7
-8	ç	ì	Ç	Ì	h	q	y	½	H	Q	Y	8
-9	ñ	β	Ñ	`	i	r	z	¾	I	R	Z	9
-A	[	]	!	:	«	ª	¡	¬	SHY	¹	²	³
-B	.	\$	,	#	»	º	¿	ı	ô	ù	ô	ù
-C	<	*	%	@	ö	æ	Ð	—	ö	ü	Ö	Ü
-D	(	)	_	´	ý	¸	Ý	-	ò	ù	Ò	Ù
-E	+	;	>	=	þ	Æ	þ	´	ó	ú	Ó	Ú
-F	!	^	?	·	±	¤	®	×	ö	ÿ	Ö	

Legend: **RSP** required space, **SHY** syllable hyphen, **SP** space.

E

Host Command Summary

This appendix lists the host commands that are valid in each terminal emulation mode. *teemX*-specific commands are listed at the back.

The following conventions are used in this command list. Spaces in a command are for clarity only and are not to be entered as part of the command. A space character that is part of the command will be shown as SP. An asterisk (*) in a command indicates the location of one or more parameters except otherwise indicated next to the command.

Note that IBM 3270 and IBM 5250 emulation commands are not included because of their complexity. Refer to the manuals supplied with these terminals for the host commands that are supported.

VT52 Emulation

CHARACTER SET SELECTION

Invoke G0 character set	SI
Invoke G1 character set	SO
Select G0 character set	ESC G
Select Line Drawing character set	ESC F

CURSOR

Direct cursor addressing (1 to 96 = SP to DEL)	ESC Y *line *column
Insert FF character & advance cursor	FF
Line feed	LF
Move cursor down one line	ESC B
Move cursor down one line	VT
Move cursor home	ESC H
Move cursor one column left	BS
Move cursor one column left	ESC D
Move cursor one column right	ESC C
Move cursor to left margin of current line	CR
Move cursor to next tab stop	HT
Move cursor up one line	ESC A
Reverse line feed	ESC I

TEXT ERASURE

Erase text to end of line	ESC K
Erase text to end of screen	ESC J

GENERAL

Cancel current ESC sequence & display error	CAN
Sound audible tone	BEL

MODE SELECTION

Select numeric keypad application mode	ESC =
Select numeric keypad normal mode	ESC >
Select VT100 mode	ESC <

PRINTING

Auto print off	ESC _
Auto print on	ESC ^
Print controller off	ESC X
Print controller on	ESC W

REPORTS

Request mode identification report	ESC Z
Send terminal emulation mode report	ESC # ! 0

ANSI VT100 Emulation

CHARACTER ATTRIBUTES

Assign * attribute(s) to following characters	ESC [* m
Default attributes 0	White background 40
Bold on 1	Red background 41
Underline on 4	Red background 42
Flashing on 5	Yellow background 43
Inverse video on 7	Blue background 44
Half intensity off 22	Magenta background 45
Underline off 24	Cyan background 46
Flashing off 25	White background 47
Inverse video off 27	'Normal' background 49
Black foreground 30	White background 50
Red foreground 31	Red background 51
Green foreground 32	Red background 52
Yellow foreground 33	Yellow background 53
Blue foreground 34	Blue background 54
Magenta foreground 35	Magenta background 55
Cyan foreground 36	Cyan background 56
White foreground 37	White background 57
'Normal' foreground 39	'Normal' background 59

Deselect underline character mode	ESC [< 1 h
Double width & height (top half) characters	ESC # 3
Double width & height (bottom half) characters	ESC # 4
Double width single height characters	ESC # 6
Select underline character mode	ESC [< 1 l
Single width & height (normal) characters	ESC # 5

CHARACTER SET SELECTION

Assign G0 label to * character set	ESC (*
Assign G1 label to * character set	ESC) *
ASCII / N.American B	Italian Y
British A	Danish / Norwegian ' or E or 6
Dutch 4	Portuguese %6
Finnish 5 or C	Spanish Z
French R	Swedish 7 or H
French Canadian 9 or Q	Swiss =
German K	Line Drawing 0
Assign G0 labelled set to 7 bit codes	SI
Assign G1 labelled set to 7 bit codes	SO

CURSOR

Clear tab stops (0 = cursor position, 2 or 3 = all)	ESC [* g
Deselect auto carriage return	ESC [20 l
Disable cursor	ESC [? 50 l
Disable cursor autowrap	ESC [? 7 l
Enable cursor	ESC [? 50 h
Enable cursor autowrap	ESC [? 7 h
Index cursor (move down one line)	ESC D
Insert FF character & advance cursor	FF
Line feed	LF
Move cursor down * lines	ESC [* B
Move cursor down one line	VT
Move cursor left * columns	ESC [* D
Move cursor one column left	BS
Move cursor right * columns	ESC [* C
Move cursor to beginning of next line	ESC E
Move cursor to left margin of current line	CR
Move cursor to line (*l) column (*c)	ESC [*l ; *c H
Move cursor to line (*l) column (*c)	ESC [*l ; *c f
Move cursor to next tab stop	HT
Move cursor up * lines	ESC [* A
Reverse index cursor (move up one line)	ESC M
Select absolute origin mode	ESC [? 6 l
Select auto carriage return	ESC [20 h
Select relative origin mode	ESC [? 6 h
Set tab stop at current cursor position	ESC H
Tab cursor backward * tabs	ESC [* Z
Tab cursor forward * tabs	ESC [* I

DISPLAY

Scroll display down * lines	ESC [* T
Scroll display up * lines	ESC [* S
Select 80 column display mode	ESC [? 3 l
Select 132 column display mode	ESC [? 3 h
Select invisible display	ESC [? 75 l
Select normal colour display mode	ESC [? 5 l
Select reverse colour display mode	ESC [? 5 h
Select thin-line graphics in ANSI BBS mode	ESC 10 m
Select visible display	ESC [? 75 h
Set top (*t) and bottom (*b) margin positions	ESC [*t ; *b r

EDITING

Delete * characters from cursor position right	ESC [* P
Delete * lines from cursor position down	ESC [* M
Enable all characters to be erased	ESC [6 h
Enable erasure of unprotected characters only	ESC [6 l
End protected area	ESC W
Erase * characters & attributes from cursor right	ESC [* X
Erase line portion (0 = from, 1 = to, 2 = all)	ESC [* K
Erase screen portion (0 = from, 1 = to, 2 = all)	ESC [* J
Insert * blank lines	ESC [* L
Insert * space characters	ESC [* @
Protect characters with * attribute(s)	ESC [* }
Select insert mode	ESC [4 h
Select replace mode	ESC [4 l
Start protected area	ESC V

GENERAL OPERATION

Cancel current ESC sequence & display error	CAN
Local echo mode on	ESC [12 l
Local echo mode off	ESC [12 h
Reset features (* = * in ESC [* h commands)	ESC [* l
Reset terminal emulation	ESC c
Restore saved features	ESC 8
Save features (char. set, attrib's, cursor, origin)	ESC 7
Select VT52 mode	ESC [? 2 l
Select VT100 mode from VT400 mode	ESC [61 " p
Select VT400 7 bit mode	ESC [62 ; 1 " p
Select VT400 8 bit mode	ESC [62 " p
Select VT400 8 bit mode (* can be 0 or 2)	ESC [62 ; * " p
Set features (* = * in ESC [* h commands)	ESC [* h
Soft reset	ESC [! p
Sound audible tone	BEL
Transmit rate limited to 150-180 cps	ESC [? 73 h
Transmit rate unlimited	ESC [? 73 l

KEYBOARD

Backspace key performs backspace only	ESC [? 67 h
Backspace key performs delete	ESC [? 67 l
Data processing keys mode	ESC [? 68 h
Disable key autorepeat	ESC [? 8 l
Disable keyboard	ESC `
Disable keyboard input	ESC [2 h
Enable key autorepeat	ESC [? 8 h
Enable keyboard	ESC b
Enable keyboard input	ESC [2 l
Select cursor key application mode	ESC [? 1 h
Select cursor key normal mode	ESC [? 1 l
Select keypad application mode	ESC =
Select keypad numeric mode	ESC >
Typewriter keys mode	ESC [? 68 l

LOCAL EDITING

Data block for transmission is cursor line	ESC [? 11 h
Data block for transmission is page	ESC [? 11 l
Disable transmission of protected areas	ESC [1 l
Edit key changes mode immediately	ESC [? 16 h
Edit key waits for host to enable mode change	ESC [? 16 l
Enable all selected areas to be transmitted	ESC [15 h
Enable only cursor area to be transmitted	ESC [15 l
Enable transmission of all characters	ESC [17 h
Enable transmission of protected areas	ESC [1 h
Enable transmission of selected characters only	ESC [17 l
End of block indicator character(s) (0 = no, 1 = FF, 2 = ETX, 3 = EOT, 4 = CR, 5 = DC3)	ESC [ * |
End selected area	ESC G
Enter edit mode	ESC [? 10 h
Enter interactive mode	ESC [? 10 l
Function according to ANSI rules	ESC [? 53 l
Function as VT131 terminal	ESC [? 53 h
Line termination characters (ASCII decimal)	ESC [? * ' s
Space compression mode off	ESC [? 13 l
Space compression mode on	ESC [? 13 h
Start selected area	ESC F
Transmission occurs immediately	ESC [? 14 h
Transmission waits for host	ESC [? 14 l
Transmit block of data	ESC 5
Transmit scrolling region	ESC [16 h
Transmit VT131 or ANSI partial page	ESC [16 l

PRINTING

Auto print off	ESC [? 4 i
Auto print on	ESC [? 5 i
Form feed at end of print	ESC [? 18 h
No form feed at end of print	ESC [? 18 l

Print controller on	ESC [5 i
Print controller off	ESC [4 i
Print cursor line	ESC [? 1 i
Print page	ESC [i
Print page prints complete page	ESC [? 19 h
Print page prints scrolling region only	ESC [? 19 l

REPORTS

Report compatibility level	ESC [> c
Report cursor position	ESC [6 n
Report keyboard nationality	ESC [? 26 n
Report operating status	ESC [5 n
Report terminal emulation mode	ESC # 1 0
Report VT terminal identity	ESC [0 c
Report VT terminal identity	ESC [c
Report VT terminal identity	ESC Z

ANSI VT400 Emulation

When *teemX* is in VT400 Series-7 or 8 mode, the following commands will be executed in addition those listed previously for ANSI VT100 mode.

CHARACTER ATTRIBUTES

Assign * attribute(s) to following characters	ESC [* m
Attributes:	
Invisible	8
Bold off	22
Underline off	24
Flashing off	25
Reverse video off	27
Invisible off	28
Non-erase attribute on	ESC [1 " q
Non-erase attribute off (* = 0 or 2)	ESC [* " q

CHARACTER SET SELECTION

Assign G2 label to * character set (second * is parameter)	ESC * *
Assign G3 label to * character set	ESC + *
Extra character sets: DEC Additional	%5
ISO Latin-1 Additional	A
Assign G1 labelled set to 8 bit codes	ESC ~
Assign G2 labelled set to 7 bit codes	ESC n
Assign G2 labelled set to 7 bit codes for 1 character	ESC N
Assign G2 labelled set to 8 bit codes	ESC }
Assign G3 labelled set to 7 bit codes	ESC o
Assign G3 labelled set to 7 bit codes for 1 character	ESC O
Assign G3 labelled set to 8 bit codes	ESC |
Clear redefinable character set	ESC P 1 ; 1 ; 2 { SP @ ESC \

Load redefinable character set	ESC P * { * ESC \
Preferred Additional set is DEC	ESC P 0 ! u %5 ESC \
Preferred Additional set is ISO Latin-1	ESC P 1 ! u A ESC \
Select Multinational character set mode	ESC [? 42 l
Select National character set mode	ESC [? 42 h

DISPLAY

Display host-writable status line	ESC [2 \$ ~
Display indicator status line	ESC [1 \$ ~
Display no status line	ESC [0 \$ ~
Send data to main display	ESC [0 \$ }
Send data to status line	ESC [1 \$ }
Display time on status line (*h = hour (24) *m = minutes)	ESC [*h ; *m , p

EDITING

Selective erase line (0 = from, 1 = to, 2 = all)	ESC [? * K
Selective erase screen (0 = from, 1 = to, 2 = all)	ESC [? * J

GENERAL OPERATION

Select C1 7 bit control mode	ESC SP F
Select C1 8 bit control mode	ESC SP G

KEYBOARD

Select application keypad mode	ESC [? 66 h
Select numeric keypad mode	ESC [? 66 l

PF KEYS

Clear all PF keys	ESC P 0 ; 1 | ESC \
Lock PF keys	ESC P 1 ; 0 | ESC \
Program a PF key	ESC P * ; * | * / * ESC \

REPORTS

Request colour table report	ESC [2 \$ u
Request control function settings	ESC P \$ q
Request cursor information report	ESC [1 \$ w
Request emulation state report	ESC [1 \$ u
Request locator device port status	ESC [? 55 n
Request locator device type	ESC [? 56 n
Request mode settings	ESC [* \$ p
Request tab stop report	ESC [2 \$ w
Request user-preferred Additional set	ESC [& u
Restore colour table	ESC P 2 \$ p
Restore cursor information	ESC P 1 \$ t
Restore emulation state	ESC P 1 \$ p
Restore tab stops	ESC P 2 \$ t

ANSI VT420 Emulation

When *teemX* is in VT420 mode, the following commands will be executed in addition those listed previously for ANSI VT100 and VT400 modes.

CURSOR MOVEMENT & PANNING

Back index	ESC 6
Forward index	ESC 9
Pan down (*l = number of lines)	ESC [*l S
Pan up (*l = number of lines)	ESC [*l T
Vertical cursor coupled mode	ESC [? 61 h
Vertical cursor uncoupled mode	ESC [? 61 l
Page cursor coupled mode	ESC [? 64 h
Page cursor uncoupled mode	ESC [? 64 l

EDITING

Delete column(s) (*c = number of columns to delete)	ESC [*c '~
Insert column(s) (*c = number of columns to insert)	ESC [*c ' }

GENERAL OPERATION

Secure reset (*n = any number in range 0 - 16383)	ESC [*n + p
Secure reset confirmation (*n = number in range 0 - 16383)	ESC [*n * q

MACROS

Define macro	ESC P *n ; *d ; *e ! z D...D ESC \
*n = Macro ID number	0-63
*d = Delete all macros	0
Delete current macro l	
*e = Encoding format for macro text:	
Standard ASCII characters	0
Hex pairs for each ASCII character l	
Control data string	D...D
Repeat sequence introducer	!
Invoke macro (*n = macro ID number)	ESC [*n * z

KEYBOARD

Enable local functions	ESC [*n ; *c ; ... *n ; *c + q		
*n = Function number:	*c = Control performed:		
All local functions	0	Factory default	0
Local copy & paste	1	Enable local function	1
Local panning	2	Disable local function	2
Local window resize	3		

Local function key control ESC [*k ; *f ; ... *k ; *f * }

<p>*k = Function key number:</p> <p>All local function keys 0</p> <p>F1 or Hold 1</p> <p>F2 or Print 2</p> <p>F3 or Set-Up 3</p> <p>F4 or Session 4</p>	<p>*f = Function performed:</p> <p>Factory default 0</p> <p>Local function 1</p> <p>Send key sequence 2</p> <p>Disable key 3</p>
---	--

Select modifier key reporting ESC [*k ; *c ... *k ; *c + r

<p>*k = Key number:</p> <p>All keys 0</p> <p>Left Shift 1</p> <p>Right Shift 2</p> <p>Lock key 3</p> <p>Ctrl key 4</p> <p>Left Alt Function 5</p> <p>Right Alt Function 6</p> <p>Left Compose Char 7</p> <p>Right Compose Char 8</p>	<p>*c = Control performed:</p> <p>Factory default 0</p> <p>Modifier function 1</p> <p>Extended keyboard report 2</p> <p>Key disabled 3</p>
--	--

PAGE MEMORY

Set lines per page ESC [*1 t

	Session: Dual	Single	
	*1 = 3 pages	6 pages	24
	2 pages	5 pages	25
	2 pages	4 pages	36
	1 page	3 pages	48
	1 page	2 pages	72
	-	1 page	144

Set left & right margins (*l = left column, *r = right) ESC [*1 ; *r s

Vertical split screen mode - L&R margins can be changed ESC [? 69 h

Vertical split screen mode - L&R margins cannot be changed ESC [? 69 l

Move cursor to page *n at same position ESC [*n SP P

RECTANGULAR AREA OPERATIONS

Copy rectangular area ESC [*t ; *1 ; *b ; *r ; *s ; *dt ; *dl ; *dp \$ v

*t Top-line border	*s Source page number
*l Left-column border	*dt Destination top-line border
*b Bottom-line border	*dl Destination left-column border
*r Right-column border	*dp Destination page number

Erase rectangular area ESC [*t ; *1 ; *b ; *r \$ z

*t Top-line border	*b Bottom-line border
*l Left-column border	*r Right-column border

Fill rectangular area	ESC [*f ; *t ; *l ; *b ; *r \$ x
*f Decimal code of fill character	*b Bottom-line border
*t Top-line border	*r Right-column border
*l Left-column border	
Selective erase rectangular area	ESC [*t ; *l ; *b ; *r \$ {
*t Top-line border	*b Bottom-line border
*l Left-column border	*r Right-column border
Select attribute change extent	ESC [*c * x
*c = character positions affected:	
Stream of character positions	0 or 1
Rectangular area of character positions	2
Change attributes in rectangular area	ESC [*t ; *l ; *b ; *r *a \$ r
*t Top-line border	*r Right-column border
*l Left-column border	*a Visual character attributes
*b Bottom-line border	
Reverse attributes in rectangular area	ESC [*t ; *l ; *b ; *r *a \$ t
*t Top-line border	*r Right-column border
*l Left-column border	*a Visual character attributes
*b Bottom-line border	

VT420 REPORTS

Tertiary device attribute request	ESC [= c or ESC [= 0 c
Request extended cursor position report	ESC [? 6 n
Request checksum of rectangular area	ESC [*id ; *p ; *t ; *l ; *b ; *r * y
*id Request label	*l Left-column border
*p Page number	*b Bottom-line border
*t Top-line border	*r Right-column border
Request macro space report	ESC [? 62 n
Request memory checksum report (*l = request label)	ESC [? 63 ; *l n
Request multiple session status report	ESC [? 85 n
Request window report	ESC [" v

MOUSE REPORTING IN ALPHANUMERIC APPLICATIONS

Arm *teemX* for mouse operation

ESC [= *arg g

where *arg is of the format:

bit 7 - 3	0 0 1 1 0
bit 2	when set enables motion events
bit 1	when set enables button release events
bit 0	when set enables button press events

If all bits are cleared then any outstanding arming request is cancelled. The mouse remains armed until cancelled. When any of the selected events occur, the following report format is sent to the host:

ESC [= <Event Type> ; <Button Status> ; <Column> ; <Row> r

Where: <Event Type> is the event(s) that caused the report in the same format as the arming sequence.

<Button Status> is of the format: 00110LMR

where LMR indicates which button caused the event.

<Column> and <Row> are the alphanumeric position of the mouse.

Index

A

ANSI BBS Emulation 2-2
ANSI BBS Mode
 Character sets
 ANSI 1250 D-10
 ANSI 437 D-7
 ANSI 850 D-8
 ANSI 852 D-9
 Setup 6-13
Answerback String 6-22

B

Block Mode
 Cursor positioning 4-2
 Settings (DEC VT) 6-23
Border Width 10-12
Buffer For Text Lines 10-14

C

Character Sets D-1
 ANSI 1250 D-10
 ANSI 437 D-7
 ANSI 850 D-8
 ANSI 852 D-9
 ASCII D-2
 Control characters D-1
 DEC
 Additional D-4
 Line Drawing D-11
 Technical (7 bit) D-12
 Technical (8 bit) D-13

 IBM 3270 D-14
 IBM 5250 D-14
 ISO Latin-1 Additional D-5
 ISO Latin-2 Additional D-6
 Multinational D-4
 Multinational mode 6-15
 National characters D-3
 National mode 6-15
 VT420 downloadable 6-14

Colour

 Attributes menu 6-32
 Background 6-32, 10-18
 Border 10-19
 Foreground (text) 6-32, 10-18
 Greyscale or colour 6-19
 Reflection 4 support 10-19
 Text attributes 6-32
 Text cursor 10-19

Command Line Options

 Background colour 10-18
 Bell volume 10-8
 Border colour 10-19
 Buffer for text lines 10-14
 Closed telnet exits teemX 10-11
 Cursor line selection extent 10-8
 Cut/paste EOL character 10-8
 Deactivate DEC status line 10-16
 Debug mode 10-7
 Emulation to run on startup 10-6
 Font selection 10-20
 Foreground (text) colour 10-18
 Format 10-2
 Host telnet port number 10-10
 IBM 3270 font size fixed 10-23

- IBM reply mode 10-9
- Initiate telnet session 10-10
- Input queue size 10-7
- Introduction 10-1
- Menu bar display 10-15
- Menu enable/disable 10-15
- Mouse button multi-click time 10-8
- Mouse cursor style 10-17
- Prevent message display 10-7
- Reflection 4 colours 10-19
- Resource file selection 10-5
- Resource specification 10-6
- Scroll bar display 10-15
- Server for display & input 10-5
- Setup file selection 10-6
- Soft button display 10-16
- String sent on exit 10-9
- Summary 10-3
- Sync signal frequency 10-5
- Telnet close option 10-11
- Telnet keepalive messages 10-10
- Text cursor colour 10-19
- Text lines displayed 10-13
- Title for window & icon 10-12
- Window border width 10-12
- Window size & location 10-12

Composing Characters 3-7

Control Characters D-1

- Displaying 6-15
- Keyboard equivalents D-1

Copy & Paste

- EOL character 10-8
- Graphic screen/area 4-2
- Using mouse 4-1

Cursor

- Mouse cursor style 10-17
- Positioning in block mode 4-2

Cursor Key Mode 6-20

D

- Debug Mode 10-7
 - For key identification 3-2

- DEC Multinational Set
 - Selecting 6-15
- DEC VT Emulations
 - Introduction 7-1
 - Keyboard mapping 7-3
- Default Setup Settings 6-3
- Display
 - 80 column font 6-21
 - 80/132 columns 6-18
 - Colour or greyscale 6-19
 - Control codes 6-15
 - Hold screen 2-6, 7-2
 - Hotspots 5-1
 - IBM 3270 font size 10-23
 - ISO Latin fonts 6-14
 - Jump/smooth scroll 6-20
 - Menu bar enable/disable 10-15
 - Menu enable/disable 10-15
 - Page arrangement 6-17
 - Resize window effect 6-18
 - Scroll bar enable/disable 10-15
 - Scrolling horizontally 2-6
 - Soft buttons 2-7
 - Status line (DEC VT) 6-17
 - Text attributes 6-32
 - Window size & location 10-12

E

- Emulation Settings 6-13
- Emulation Workspace 2-8
- Enhanced AT Keyboard Mapping
 - DEC VT400 functions 7-3
 - IBM 3270 functions 8-3
 - IBM 5250 functions 9-4

F

- Factory Default Setup 6-5
- File Menu 6-5
- Fonts
 - DEC Multinational 6-14
 - Default 10-22
 - ISO Latin Selection 6-14

- Loading 10-22
 - Selecting 10-20
- G**
- Getting Started
 - Keyboard operation 3-1
 - Terminal emulation selection 2-1
 - Using window elements 2-4
 - Graphic Copy & Paste 4-2
 - Greyscale Display 6-19
- H**
- Help Menu 6-37
 - Hold Screen 2-6, 7-2
 - Horizontal Scrolling 2-6
 - Host Command Summary
 - ANSI VT100 emulation E-2
 - teemX additional commands E-11
 - VT400 emulation E-6
 - VT420 emulation E-8
 - VT52 emulation E-1
 - Host Communications
 - Telnet connection 2-3
 - Hotspots
 - Defining 5-2
 - Displaying all 5-1
 - Using 5-1
- I**
- IBM 3270 Emulation
 - Introduction 8-1
 - Keyboard mapping 8-2
 - NVT mode 8-4
 - Printer support 8-4
 - Selecting 2-2, 8-1
 - Status line 8-5
 - SysReq key support 8-4
 - Virtual key names A-2
 - IBM 3270 Mode
 - Character sets
 - Austrian D-18
 - Belgian D-22
 - Canadian bilingual D-14
 - Danish D-16
 - English (UK) D-15
 - English (US) D-14
 - Finnish D-21
 - French D-17
 - German D-18
 - Italian D-19
 - Netherlands D-14
 - Norwegian D-16
 - Spanish D-20
 - Swedish D-21
 - Swiss-French D-22
 - Swiss-German D-22
 - Setup 6-28
 - IBM 5250 Emulation
 - Introduction 9-1
 - Keyboard mapping 9-3
 - Selecting 2-2, 9-1
 - Status line 9-3
 - Virtual key names A-3
 - IBM 5250 Mode
 - Character sets
 - Austrian D-18
 - Belgian D-22
 - Canadian bilingual D-14
 - Danish D-16
 - English (UK) D-15
 - English (US) D-14
 - Finnish D-21
 - French D-17
 - German D-18
 - Italian D-19
 - Netherlands D-14
 - Norwegian D-16
 - Spanish D-20
 - Swedish D-21
 - Swiss-French D-22
 - Swiss-German D-22
 - Setup 6-28
 - Insert Mode 2-6, 7-2
 - Introduction
 - Product description 1-1
 - Range of teemX products 1-1

Terms & conventions 1-3
ISO Latin Multinational Set
Selecting 6-14

K

Key Mapping
Changing key function 3-2
Reference numbers C-1
Translation resource examples 3-3

Key Programming
Macros 6-29

Keyboard
Changing key functions 3-2
Composing characters 3-7
Cursor key mode 6-20
DEC VT400 functions 7-3
Entering control characters D-1
IBM 3270 functions 8-3
IBM 5250 functions 9-4
Key reference numbers C-1
Macros 3-4, 6-29
Nationality 3-1, 6-15
Numeric keypad mode 6-21
Operation 3-1
Programming keys 3-4
Remapping 3-1
Virtual key names A-1

Keysyms B-1

Keywords 4-3

L

Local Echo 6-20
Local/On Line Setting 2-7, 6-19, 7-2

M

Macro Settings 6-29
Menu Bar 2-4
< and > commands 2-5
Enable/disable 10-15
Pop-up menus 2-4

Microcolour M2200
Preferred font 6-14
Terminal identity 6-14

Mouse
Button multi-click time 10-8
Cursor style 10-17

Mouse Button Actions 6-35

Mouse Functions
Action hotspots 4-2
Default 4-1
Graphic select & paste 4-2
Move cursor 4-2
Rect select text 4-1
Selecting text for copy 4-1
Send keyword 4-3
Show hotspots 4-2

Multinational Character Set
Selecting 6-14, 6-15

N

Numeric Keypad Mode 6-21

O

On Line/Local Setting 2-7, 6-19, 7-2
Overstrike Mode 2-6, 7-2

P

Page Arrangement 6-17

Print Screen 6-7

Printer
Status 2-7, 7-2

Printer Setup 6-6

Printing
Print screen 6-7
Printer setup 6-6
To file or device 6-6

R

Reset Terminal 6-5

- Resizing The Window
 - Effect on lines 6-18
 - Menu bar < & > 2-5
- Resource File Selection 10-5
- Resources
 - Background colour 10-18
 - Bell volume 10-8
 - Buffer for text lines 10-14
 - Closed telnet exits teemX 10-11
 - Cursor line selection extent 10-8
 - Cut/paste EOL character 10-8
 - Deactivate DEC status line 10-16
 - Debug mode 10-7
 - Debugging 10-28
 - Emulation to run on startup 10-6
 - Font selection 10-20
 - Foreground (text) colour 10-18
 - Host telnet port number 10-10
 - IBM 3270 font size fixed 10-23
 - IBM reply mode 10-9
 - Initiate telnet session 10-10
 - Input queue size 10-7
 - Introduction 10-1
 - Menu bar display 10-15
 - Menu enable/disable 10-15
 - Mouse button multi-click time 10-8
 - Mouse cursor style 10-17
 - Prevent message display 10-7
 - Reflection 4 colours 10-19
 - Scroll bar display 10-15
 - Server for display & input 10-5
 - Setup file selection 10-6
 - Soft button display 10-16
 - Specifying on command line 10-6
 - String sent on exit 10-9
 - Summary 10-3
 - Sync signal frequency 10-5
 - Telnet close option 10-11
 - Telnet keepalive messages 10-10
 - Text cursor colour 10-19
 - Text lines displayed 10-13
 - Title for window & icon 10-12
 - Window border width 10-12
 - Window size & location 10-12
- S**
- Saving the Setup 6-4, 6-5
- SCO Console Emulation 2-2
- Scroll Bar 2-5
 - Enable/disable 10-15
- Scrolling
 - Jump or smooth 6-20
- Scrolling Horizontally 2-6
- Server
 - For display & input 10-5
- Settings Menu 6-12
- Setup File
 - For loading & storing settings 10-6
- Setup Menus
 - Attribute settings 6-32
 - Default settings 6-3
 - Displaying 6-1
 - Emulation settings 6-13
 - Enable/disable 10-15
 - Help menu 6-37
 - IBM 5250 settings 6-28
 - Macro settings 6-29
 - Menu descriptions 6-4
 - Mouse Button Actions 6-35
 - Option selection 6-1
 - Saving settings 6-4
 - Settings menu 6-12
 - Terminal settings 6-17
 - Using dialog boxes 6-2
 - VT Block mode settings 6-23
- Soft Buttons 2-7
 - Number displayed 10-16
 - Programming 6-29
- Status Line
 - DEC VT emulations 2-6, 7-1
 - IBM 3270 emulation 8-5
 - IBM 5250 emulation 9-3
 - Selecting (DEC VT) 6-17
- String Sent To Host On Exit 10-9

T

- Telnet
 - Close option 10-11
 - Closed session exits teemX 10-11
 - Host port number 10-10
 - Initiate host session 10-10
 - Initiating a session 2-3
 - Keepalive messages 10-10
 - Open Connection dialog box 6-5
- Telnet Options 6-8
 - 3270 6-10
 - 5250 6-11
- Terminal Emulation
 - Run on startup
 - Command line option 10-6
 - Resource 10-6
 - Selecting 2-1, 6-13
- Terminal Reset 6-5
- Terminal Settings 6-17
- Terms Used In Manual 1-3
- Text Attributes 6-32
- Text Lines
 - Displayed on loading 10-13
 - Stored in dialog buffer 10-14
- Title Bar 2-4
- Title For Window & Icon 10-12

V

- Virtual Key Names A-1
 - IBM 3270 emulation A-2
 - IBM 5250 emulation A-3
 - Standard A-1
 - VT400 emulation A-2
- Virtual Keysyms B-1
- VT100 Emulation
 - Host command summary E-2

Selecting 2-2, 2-6, 7-2

- VT320 Emulation
 - Selecting 2-6, 7-2
- VT400 Emulation
 - Host command summary E-6
 - Introduction 7-1
 - Keyboard mapping 7-3
 - Selecting 2-2
 - Virtual key names A-2
- VT420 Emulation
 - Host command summary E-8
- VT52 Emulation
 - Host command summary E-1
 - Selecting 2-2, 2-6, 7-2

W

- Window
 - Border width 10-12
 - Menu bar display 10-15
 - Scroll bar display 10-15
 - Size & location 10-12
 - Size (lines/columns) 10-13
- Window Elements
 - < and > 2-5
 - Emulation workspace 2-8
 - Hotspots 4-2
 - Menu bar 2-4
 - Scroll bar 2-5
 - Selecting & using 2-4
 - Soft buttons 2-7
 - Status line
 - DEC VT emulations 2-6, 7-1
 - IBM 3270 emulation 8-5
 - IBM 5250 emulation 9-3
 - Title bar 2-4
- Window Resize 2-5
 - Effect on lines 6-18
- Window Title 10-12

