
***PERICOM Windows CE
Emulation User's Guide***

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Notes

1

Introduction

This chapter introduces the contents of this User's Guide.

About This User's Guide

*Chapter 1: **Introduction***

Introduces the contents of this User's Guide.

*Chapter 2: **Getting Started***

Describes how to configure a session and describes various display features.

*Chapter 3: **Keyboard Configuration***

Describes how to assign functions to keys and how to use the Compose Character function to generate special characters.

*Chapter 4: **Mouse Functions***

Describes the special functions assigned to the left mouse button and how to redefine them.

*Chapter 5: **Setup Menus***

Describes all the commands and setup dialog boxes that can be accessed via drop-down menus in the command bar.

*Chapter 6: **DEC VT Emulations***

Describes features of the DEC VT emulations.

*Chapter 7: **IBM 3270 Emulation***

Describes features of the IBM 3270 emulation.

*Chapter 8: **IBM 5250 Emulation***

Describes features of the IBM 5250 emulation.

*Chapter 9: **IBM 3151 Emulation***

Describes features of the IBM 3151 emulation.

Chapter 10: Wyse Emulations

Describes features of the Wyse WY-50, WY-50+ and WY-60 emulations.

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 and soft buttons.

Appendix B: Character Sets

Shows the supported character set code tables.

Appendix C: 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 references to keys on the keyboard 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 **Alt + F**' means press and hold down the **Alt** key, press the **F** key then release both keys.
2. 'Click' means position the mouse pointer over an element on the display then quickly press and release the specified mouse button.
3. 'Double click' means position the mouse pointer over an element on the display then quickly press and release the specified mouse button twice in quick succession.

2

Getting Started

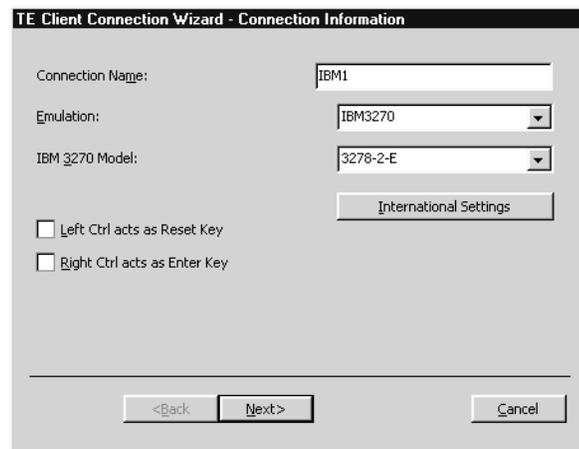
This chapter describes how to configure a session and describes various display features.

WBT Session Configuration

Using The Connection Wizard

This section describes the basic procedure for creating a session configuration in WBT mode. The options available are described in detail in the following sections.

1. Click the **Configure** tab in the **Terminal Connection Manager** then click the **Add** button to display the **New Connection** dialog box.
2. Select **Terminal Emulation Client** and click **OK**. The **Connection Information** dialog box will be displayed.



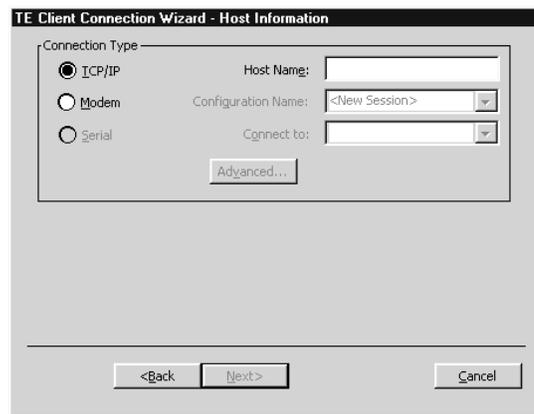
The screenshot shows a dialog box titled "TE Client Connection Wizard - Connection Information". It contains the following fields and controls:

- Connection Name:** A text input field containing "IBM1".
- Emulation:** A dropdown menu with "IBM3270" selected.
- IBM 3270 Model:** A dropdown menu with "3278-2-E" selected.
- International Settings:** A button.
- Left Ctrl acts as Reset Key
- Right Ctrl acts as Enter Key
- <Back** **Next>** **Cancel** buttons at the bottom.

3. Enter a name which will identify this session configuration for future selection in the **Connection Name** box.
4. Select the terminal emulation required in the **Emulation** list box.
5. If additional configuration options are displayed, make the relevant selections. Refer to the *Terminal Emulation Configuration* section later in this chapter for details.

Clicking the **International Settings** button will display keyboard language and character set options for the selected terminal emulation. Refer to the relevant emulation settings dialog box description in the *Setup Menus* chapter for details. (Note that the DEC VT options are located in the **Emulation** and **Terminal Settings** dialog boxes.)

6. Click **Next** to display the **Host Information** dialog box.



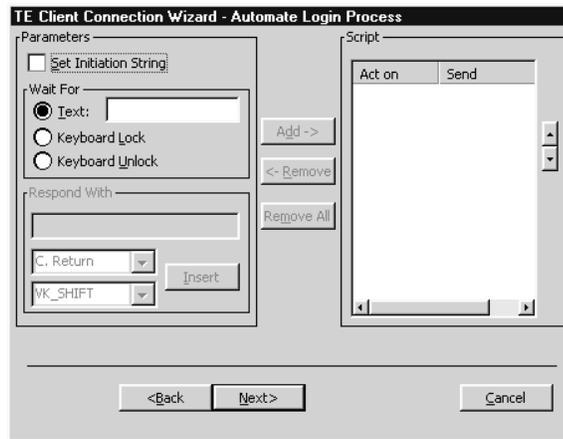
For a TCP/IP connection, click the **TCP/IP** button, enter the name or internet address of the host computer in the **Host Name** box, then click **Advanced** for Telnet options. Refer to the *TCP/IP Connection Settings* section later in this chapter for details.

For a modem connection, click the **Modem** button then click **Advanced** to display configuration options. Refer to the *Modem Connection Settings* section later in this chapter for details.

For a serial connection, click the **Serial** button, specify the communications port in the **Connect To** box, then click **Advanced** for additional serial options. Refer to the *Serial Connection Settings* section later in this chapter for details.

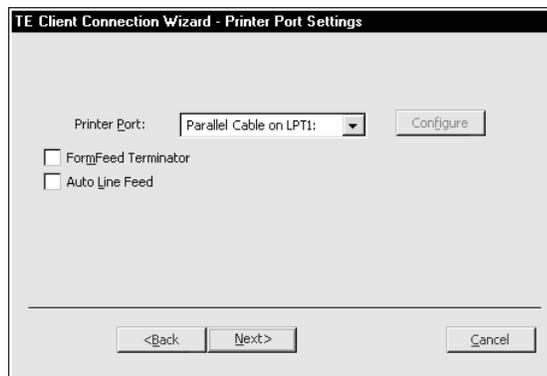
Make the relevant selections then click **OK** to return to the **Host Information** dialog box, then click **Next** to display the **Automate Login Process** dialog box.

7. The **Automate Login Process** dialog box gives you the option to automate part or all of the host login procedure. Refer to the *Automate Login Process* section later in this chapter for details.



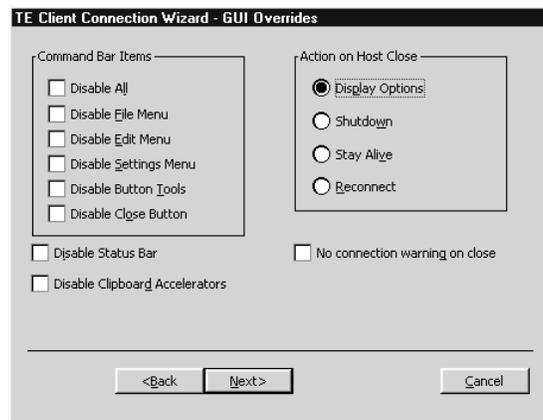
Make the relevant selections if required then click **Next** to display the **Printer Port Settings** dialog box.

8. The next dialog box in the Connection Wizard enables you to specify **Printer Port Settings**. Refer to the *Printer Port Settings* section later in this chapter for details.



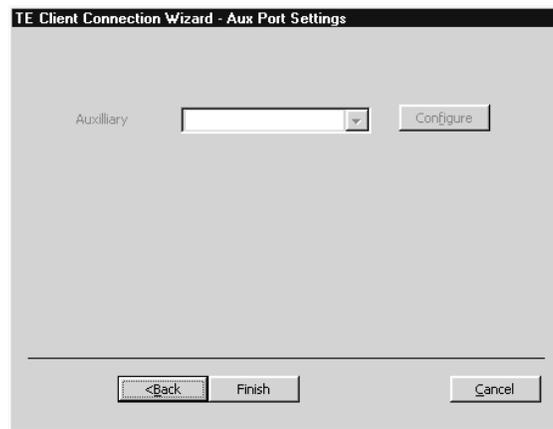
Make the relevant selections if required then click **Next** to display the **GUI Overrides** dialog box.

9. The **GUI Overrides** dialog box allows you to disable various GUI items and also enables you to specify how the emulator responds when the host closes the connection. Refer to the *GUI Overrides* section later in this chapter for details.



Make the relevant selections if required then click **Next** to display the **Aux Port Settings** dialog box.

10. The **Aux Port Settings** dialog box enables you to specify a COM or LPT port for bidirectional output when in any DEC VT mode, ANSI BBS, Sco Console or IBM 3151 mode.



11. When you have made your selections, click **Finish** to return to the **Terminal Connection Manager**.
12. In the **Terminal Connection Manager**, display the **Connections** list, select the session name you specified earlier in step 3, then click the **Connect** button.

Terminal Emulation Configuration

Emulation Options

The **Emulation** options in the Connection Wizard **Connection Information** dialog box are as follows:

The **ADDS A2** emulation provides compatibility with software designed to drive the ADDS Viewpoint A2 terminal, as emulated by the Wyse WY-50/50+/60 terminals. Refer to the *Wyse Emulations* chapter for details.

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.

The **HZ1500** emulation provides compatibility with software designed to drive the Hazeltine 1500 terminal, as emulated by the Wyse WY-50/50+/60 terminals. Refer to the *Wyse Emulations* chapter for details.

The **IBM 3151** emulation provides compatibility with software designed to drive the IBM 3151 terminal. Refer to the *IBM 3151 Emulation* chapter for information on this emulation.

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 Network Virtual Terminal mode (NVT mode for short). The setting of the **IBM 3270 Model** option determines the size of the display and whether or not extended attributes are supported. Refer to the *IBM 3270 Emulation* chapter for details.

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 Network Virtual Terminal mode (NVT mode for short). Refer to the *IBM 5250 Emulation* chapter for details.

SCO Console is an emulation of the SCO UNIX box.

The **TVI 910+**, **TVI 920** and **TVI 925** emulations provide compatibility with software designed to drive the TeleVideo 910+, 920 and 925 terminals, respectively, as emulated by the Wyse WY-50/50+/60 terminals. Refer to the *Wyse Emulations* chapter for details.

The **VT52** and **VT100** emulations enable you to run applications written for the DEC VT52 and VT100 terminals, respectively. Refer to the *DEC VT Emulations* chapter for information on these emulations.

The **VT400 7-Bit** and **VT400 8-Bit** emulations enable you to run applications written for the DEC VT320 terminal, the difference is in their treatment of 8-bit control codes. When **VT400 7-Bit** is selected, all 8-bit codes are converted to their 7-

bit equivalents, whereas **VT400 8-Bit** leaves 8-bit codes unchanged. If you are using VT200 applications, select **VT400 7-Bit**. Refer to the *DEC VT Emulations* chapter for information on these emulations.

The **WY50**, **WY50+** and **WY60** emulations provide compatibility with software designed to drive the Wyse WY-50, WY-50+ and WY-60 terminals, respectively. Refer to the *Wyse Emulations* chapter for information on these emulations.

DEC VT Option

The **VT Terminal ID** option specifies what is reported back to the host in response to a terminal identification request. (Note that not all features of the specified terminal may be supported.)

IBM 3151 Option

The setting of the **IBM 3151 Model** option identifies the terminal model being emulated in response to a terminal identification request from the host. Model 11 supports only one viewport containing 24 or 25 rows and 80 columns. Model 31 supports up to three viewports (80 or 132 columns wide) and pass-through printing.

IBM 3270 Options

The setting of the **IBM 3270 Model** option specifies what is reported back to the host in response to a terminal identification request. (Note that not all features of the specified terminal may be supported.) TN3287 printing is supported by selecting **3287-1**.

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

3278 settings with the **E** extension provide support for the following extended attributes (these are supported by the **3279** as standard):

- 3270 Field Attributes
- Extended Highlighting
- Foreground Colour
- Query Reply Inbound Structured Fields

The setting of the **Left Ctrl acts as Reset Key** option determines whether or not the left **Control** key performs the same function as the **Reset** key.

The setting of the **Right Ctrl acts as Enter Key** option determines whether or not the right **Control** key performs the same function as the keypad **Enter** key.

IBM 5250 Options

The **IBM 5250 Model** option specifies what is reported back to the host in response to a terminal identification request. (Note that not all features of the specified terminal may be supported.) The terminal models and their display characteristics are listed below:

Model	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
5555_B01	Monochrome	24 x 80
5555_C01	Colour	24 x 80

The printer models are listed below:

3812-1	Single byte printer
5553-B01	Double byte printer

If double byte character sets (e.g. Japanese) are supported and you wish to use them, then select either **5555_B01** (monochrome) or **5555_C01** (colour) for display, or **5553-B01** for printing.

The setting of the **IBM 5250 Monochrome** option will match the normal display characteristic of the selected IBM 5250 model by default. Note that the emulation of all IBM 5250 models supports 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 (described in the *Setup Menus* chapter) will be used for the display.

The setting of the **Left Ctrl acts as Reset Key** option determines whether or not the left **Control** key performs the same function as the **Reset** key.

The setting of the **Right Ctrl acts as Enter Key** option determines whether or not the right **Control** key performs the same function as the keypad **Enter** key.

The setting of the **Carriage Return acts as Enter Key** option determines whether or not the **Return** key performs the same function as the keypad **Enter** key.

TCP/IP Connection Settings

The **TCP/IP Telnet Configuration** dialog box can be displayed from the Connection Wizard **Host Information** dialog box by setting the **Connection Type** to **TCP/IP** then clicking the **Advanced** button, or the **New Connection** dialog box when in non-WBT mode by selecting **TCP/IP** in the **Type** list box then clicking the **Configure** button.

Note that the options available and the default settings depend on the current terminal emulation. The '3270' options are only applicable when running the IBM 3270 emulation. The example illustration above shows the options available by default when you are running the IBM 3270 emulation.

Host 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.

Local Port Number

This enables you to specify the local Telnet port number if required. Setting this to **0** will cause the number to be allocated automatically.

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 *TN3270 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 *TN5250 Options* section.

Force Negotiation

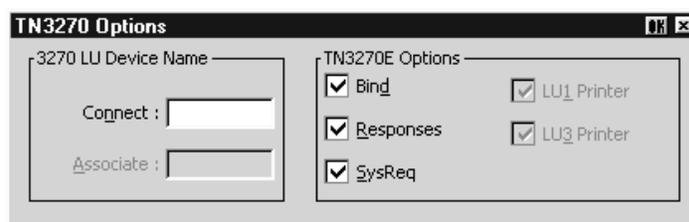
These settings determine whether or not the Telnet Binary or EOR options are supported. Both are set to **no** by default.

- 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.

TN3270 Options



This dialog box is displayed by clicking the **3270 Options** button in the **TCP/IP Telnet Configuration** 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. To return the terminal DHCP name, enter the characters **%s**. (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.

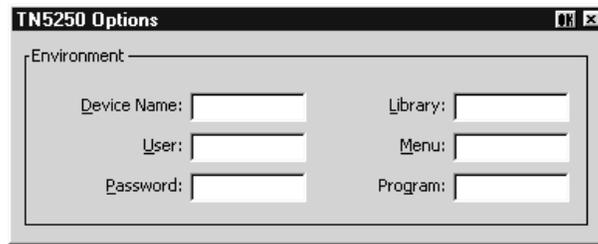
The **Bind** setting determines whether or not the server is allowed to send the SNA Bind image and Unbind notification to the emulator.

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.

TN5250 Options



The image shows a dialog box titled "TN5250 Options". Inside the dialog, there is a section titled "Environment" which contains six text input fields arranged in two columns. The left column contains "Device Name:", "User:", and "Password:". The right column contains "Library:", "Menu:", and "Program:". Each label is followed by a small icon of a text box.

This dialog box is displayed by clicking the **5250 Options** button in the **TCP/IP Telnet Configuration** dialog box when TN5250 is not suppressed and the **IBM 5250 Model** is not set to **3812-1** or **5553-B01** (printers). Refer to the next section for **5250 Printer Options**.

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. To return the terminal DHCP name, enter the characters **%s**.

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.

5250 Printer Options

This dialog box is displayed by clicking the **5250 Options** button in the **TCP/IP Telnet Configuration** dialog box when TN5250 is not suppressed and the **IBM 5250 Model** is set to **3812-1** (a printer).

Device Name

Specifies the name of the printer device.

IGC Feature

This is always set to **Don't Report**.

Transform

Specifies whether the printer will use the host print transform function to generate ASCII printer data. This is always set to **Yes**. The **Mfg. Type and Model** option must specify the printer manufacturer, type and model.

Mfg. Type and Model

Specifies the manufacturer, type and model of the printer. The entry must exactly match an AS400 printer type string, including the * (asterisk) character. The following valid entries are for the IBM AS/400 V3R1. Note that the list can change according to AS/400 settings.

*IBM2380	*IBM2381	*IBM2390	*IBM2391	*IBM3812
*IBM3816	*IBM3912HP	*IBM3916HP	*IBM39302	*IBM39303
*IBM4019	*IBM4019HP	*IBM4029	*IBM4029HP	*IBM4037
*IBM4039HP	*IBM4070	*IBM4070EP	*IBM4072	*IBM4076
*IBM42011	*IBM42012	*IBM42013	*IBM42021	*IBM42022
*IBM42023	*IBM42071	*IBM42072	*IBM42081	*IBM42082

*IBM4212	*IBM4216	*IBM4226	*IBM4230	*IBM4232
*IBM47121	*IBM47122	*IBM47221	*IBM47222	*IBM4770
*IBM5152	*IBM5201	*IBM5202	*IBM5204	*IBM5216
*IBM6404	*IBM6404EP	*IBM6408	*IBM6408EP	*IBM6412
*IBM6412EP	*HPII	*HPIID	*HPIIP	*HPIII
*HPIIID	*HPIIIP	*HPIISI	*HP4	*HP310
*HP500	*HP520	*HP550C	*HP560C	*HPPAINT
*CPQPM15	*CPQPM20	*EPAP2250	*EPAP3250	*EPAP5000
*EPAP5500	*EPDFX5000	*EPDFX8000	*EPFX850	*EPFX870
*EPFX1170	*EPLX810	*EPLQ510	*EPLQ570	*EPLQ860
*EPLQ870	*EPLQ1070	*EPLQ1170	*EPLQ2550	*EPSQ870
*EPSQ1170	*EPEPL7000	*EPEPL8000	*NECP2	*NECP2200
*NECP2200XE	*NECP5200	*NECP5300	*NECP6200	*NECP6300
*OKI184IBM	*OKI320IBM	*OKI321IBM	*OKI390IBM	*OKI391IBM
*OKI393IBM	*OKI590IBM	*OKI591IBM	*OKI400	*OKI800
*OKI810	*OKI820	*OKI3410	*PAN1123EP	*PAN1124EP
*PAN1124IEP	*PAN1180EP	*PAN1180IEP	*PAN1191EP	*PAN1624EP
*PAN1654EP	*PAN1695EP	*PAN2123EP	*PAN2124EP	*PAN2180EP
*PAN2624EP	*PAN4410HP	*PAN4420HP	*PAN4430HP	*PAN4450IHP
*PAN4451HP				

***MSGQ Name**

Specifies the name of the message queue to which operational messages for the printer are to be sent.

***MSGQ Library**

Specifies the message queue library.

Font

Specifies the font identifier and point size used by the single-byte printer (e.g. **11**).

Formfeed

This is always set to **Don't Report**. The **Paper Source 1** option is used to specify the paper format to be used.

Paper Source 1 & 2

These options specify the paper format to be used. The possible settings are:

Don't Report	No value returned.
*NONE	No paper source is defined.
*MFR	The system determines the paper type used based on the manufacturer, type and model of the printer.
*LET	Letter-sized paper (8.5 x 11 inches).
*LEGL	Legal-sized paper (8.5 x 14 inches).

*EXEC	Executive-sized paper (7.25 x 10.5 inches).
*A4	A4-sized paper (210 mm x 297 mm).
*A5	A5-sized paper (148 mm x 210 mm).
*B5	B5-sized paper (182 mm x 257 mm).
*C80	Continuous-form paper, 8.0 inches wide (Paper Source 1 only).
*C132	Continuous-form paper, 13.2 inches wide (Paper Source 1 only).
*A3	A3-sized paper (297 mm x 420 mm).
*B4	B4-sized paper (257 mm x 364 mm).
*LEDG	Ledger-sized paper (11 inches x 17 inches).

Envelope Hopper

This specifies the envelope format to be used. The possible settings are:

Don't Report	No value returned.
*NONE	No envelope source is defined.
*MFR	The system determines the envelope type used based on the manufacturer, type and model of the printer.
*B5	B5-sized envelopes (176mm x 250mm).
*MON	Monarch-sized envelopes (3.875 x 7.5 inches).
*N9	Number 9-sized envelopes (3.875 x 8.875 inches).
*N10	Number 10-sized envelopes (4.125 x 9.5 inches).
*C5	C5-sized envelopes (162mm x 229mm).
*DL	DL-sized envelopes (110mm x 220mm).

ASCII 899 Support

Specifies whether the single-byte printer has ASCII code page 899 installed. Selecting **Don't Report** will cause no value to be returned.

WSCST Name

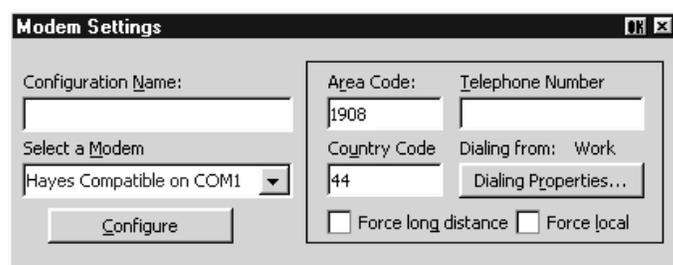
Specifies the name of the object containing pointers to the work station customizing tables.

WSCST Library

Specifies the library name of the object containing pointers to the work station customizing tables.

Modem Connection Settings

The **Modem Settings** dialog box can be displayed from the Connection Wizard **Host Information** dialog box by setting the **Connection Type** to **Modem** then clicking the **Advanced** button, or the **New Connection** dialog box when in non-WBT mode by selecting **Modem** in the **Type** list box then clicking the **Configure** button.

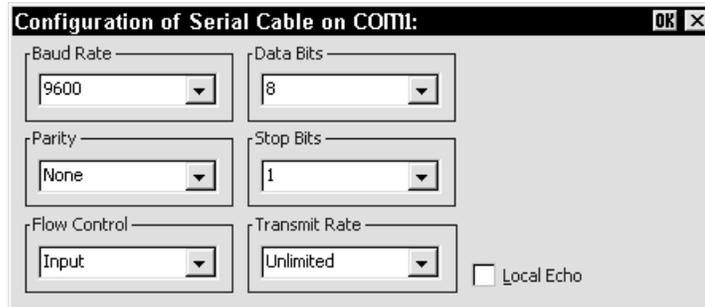


This enables you to define a particular modem configuration which can be saved under a specific name for future selection in the **Host Information** dialog box.

1. If this is a new configuration, enter a name to identify it in the **Configuration Name** box.
2. **Select a Modem** from the list box below. The **Configure** button provides access to the standard Microsoft dialog boxes for specifying port settings and call options.
3. Enter the **Country Code**, **Area Code** and **Telephone Number**.
4. Click the **Dialing Properties** button to display the standard Microsoft dialog boxes for specifying a variety of dialing formats.
5. If you want the country and area codes to be ignored when dialing, select **Force Local**. If you want the area code dialed even if you are in that area, select **Force long distance**.
6. Click **OK** to save the settings and the name you assigned to this configuration will appear in the Modem configuration selection box in the main **Host Information** dialog box.

Serial Connection Settings

The **Serial Configuration** dialog box can be displayed from the Connection Wizard **Host Information** dialog box by setting the **Connection Type** to **Serial** then clicking the **Advanced** button, or the **New Connection** dialog box when in non-WBT mode by selecting **Serial** in the **Type** list box then clicking the **Configure** button.



Baud Rate

Factory default: 9600

This specifies the transmit and receive baud rates for the port selected for host communications.

Parity

Factory default: None

This option specifies the parity mode for each transmitted character. If the number of **Data Bits** is **8**, set this option to **None**.

Selecting **Odd** will cause an eighth bit to be added with a value of 1 if the previous 7 bits add up to an even number, and 0 if the previous 7 bits add up to an odd number. Selecting **Even** will cause an eighth bit to be added with a value of 1 if the previous 7 bits add up to an odd number, and 0 if the previous 7 bits add up to an even number. **Mark** parity will set every eighth bit to 1 and **Space** parity every bit to 0.

Flow Control

Factory default: Input

This option specifies the type of flow control used by the line port to communicate readiness to transmit or receive data from the host.

- None** - No flow control
- Input** - XON/XOFF on received data
- Output** - XON/XOFF on transmitted data

In/Out - XON/XOFF on transmitted & received data

Hardware - DTR/CTS hardware flow control.

Data Bits

Factory default: 8

This option specifies the number of data bits sent for each transmitted character.

Stop Bits

Factory default: 1

This specifies the number of stop bits sent for each transmitted character.

Transmit Rate

Factory default: Unlimited

The setting of this option determines the maximum effective baud rate that the emulator transmits terminal reports and data sent as a result of pasting data to the host.

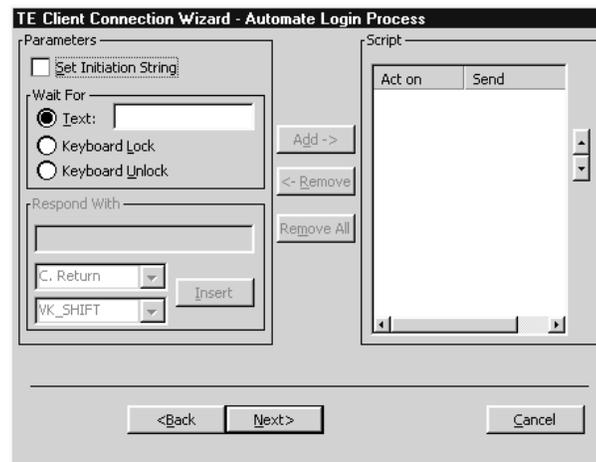
Local Echo

Factory default: Unselected

The setting of this option determines whether keyboard entered characters are displayed on the screen as well as sent to the host. When unselected, characters are not displayed when they are transmitted unless the host 'echoes' them back.

Automate Login Process

The **Automate Login Process** dialog box enables you to automate part or all of the host login procedure.



The settings in this dialog box enable you to specify what is sent to the host in response to prompts displayed on the screen.

1. If an initiation string is required by the host when you first make a connection, select the **Set Initiation String** option, enter the required characters in the **Initiate with** box (the **Respond With** box in the illustration above), then click the **Add** button. The initiation string will be added to the **Script** window on the right.
2. The **Wait For** options enable you to specify the prompt or keyboard locked or unlocked command that the automatic login process is to wait for before proceeding. Some systems are case sensitive, so make sure your **Text** entries follow the correct conventions for your system.

*Note: When running the IBM 3270 or IBM 5250 emulation, **Text** entries are only applicable in NVT mode.*

3. Enter the response required in the **Respond With** box. In order for a text entry to be sent to the host it must be followed by a carriage return command. This is specified by selecting **C. Return** in the list of predefined commands in the list box below then clicking the **Insert** button. A **<CR>** will appear in the **Respond With** box.

You can also enter a predefined key function in the **Respond With** box by selecting **Key Definition** in the list of predefined commands in the list box below, selecting one of the virtual key names listed in the box below that, then clicking the **Insert** button. The *Virtual Key Names* appendix lists the predefined key functions available for each emulation.

The list of predefined commands that can be inserted include **UserName** (indicated by <UN>) and **Password** (indicated by <PW>). Selecting either of these will cause a dialog box to pop-up when logging on to the host prompting the user to enter a name or password, respectively. You can also delay the script response by 2 seconds by inserting **Delay (2s)** (indicated by <D>) or 0.255 seconds by inserting **Pause (0.255)** (indicated by <P>).

4. When you have finished specifying the response to a particular prompt, click the **Add** button to add the definition to the **Script** window on the right.

The script will perform the actions in the order displayed in the **Script** window. To change the order of the script lines, use the up and down arrow buttons to the right of the **Script** window.

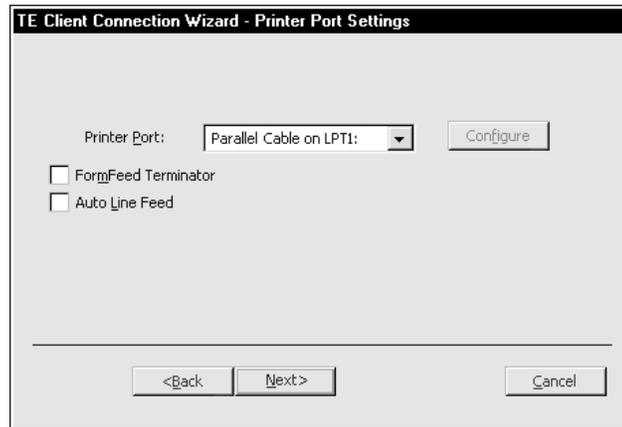
5. Repeat this procedure for each prompt as required.

If you want to edit one of the script lines, select the line in the **Script** window then click **Remove** to send it to the edit boxes on the left. Make the change(s) then click **Add** to send it back to the script. Note that this will now be the last line of the script.

6. When the **Script** window contains all the required responses to the relevant prompts in the correct order, click **Finish**.

Printer Port Settings

The **Printer Port Settings** dialog box provides several print options.

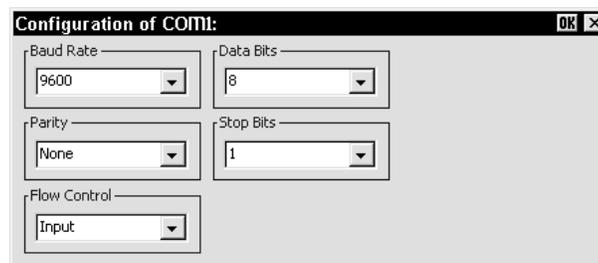


The **Printer Port** option enables you to direct print data to a specific port.

Selecting the **FormFeed Terminator** option will cause the printer to advance the paper to the top of the form when it has finished printing.

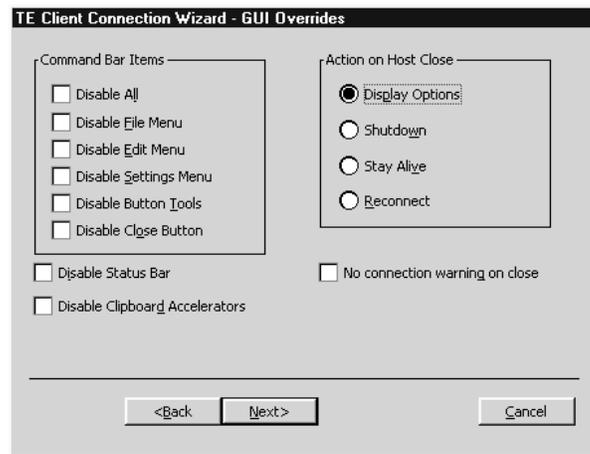
Selecting **Auto Line Feed** will cause the printer to print at the beginning of the next line when a carriage return command is received.

The **Configure** button is enabled when a serial port is selected and this will display a dialog box in which you can specify the baud rate, parity, flow control, data bits and stop bits settings.



GUI Overrides

The **GUI Overrides** dialog box enables you to disable various GUI items and also enables you to specify how the emulator responds when the host closes the connection.



The **Disable** options enable you to disable any or all of the command bar items and the status bar.

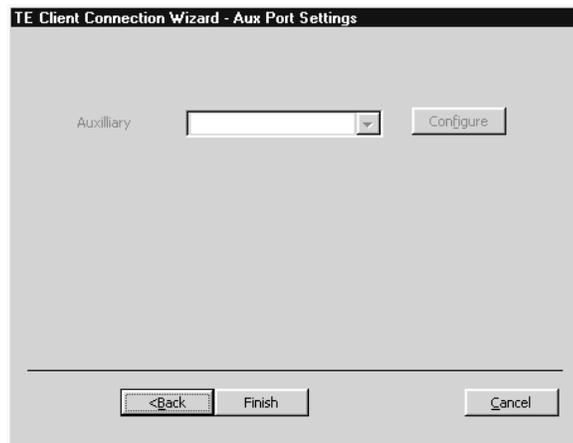
The **Disable Clipboard Accelerators** option will disable the **Ctrl + C** (copy) and **Ctrl + V** (paste) keyboard commands.

The **Action on Host Close** options enable you to specify how the emulator responds when the host closes the connection. Selecting **Display Options** will cause a dialog box to be displayed with the following three options. Selecting **Shutdown** will cause the emulator to shutdown. Selecting **Stay Alive** will keep the emulator running. Selecting **Reconnect** will cause the emulator to attempt to reconnect to the host.

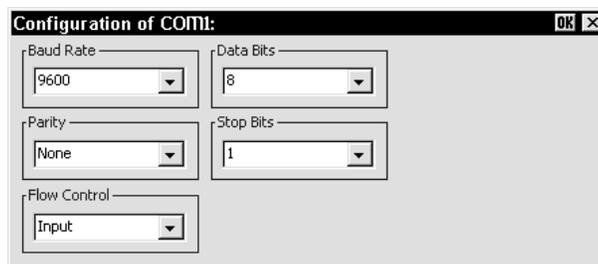
By default, a warning message will be displayed if you attempt to exit the emulator while a host connection is still active. You can disable this message by selecting the **No connection warning on close** option.

Aux Port Settings

The **Aux Port Settings** dialog box enables you to specify a COM or LPT port for bidirectional output when in any DEC VT mode, ANSI BBS, Sco Console, HP 700/92 or IBM 3151 mode.



Clicking the **Configure** button will display a dialog box in which you can specify settings for the COM port. The options in it are described in the *Serial Settings* section earlier in this chapter.



The Command Bar

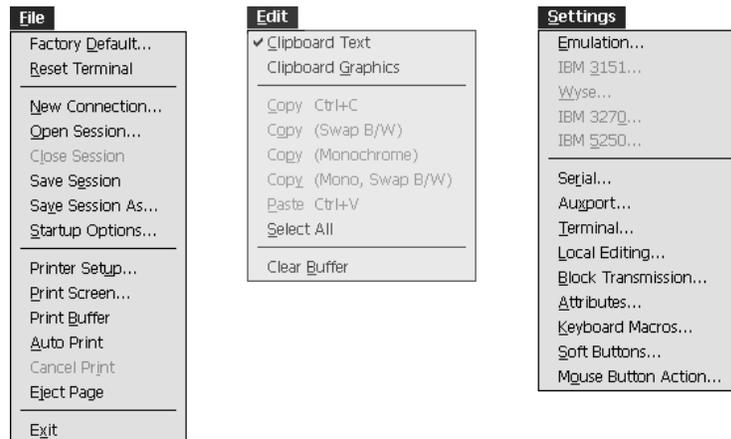
The command bar provides access to a series of menus and buttons which enable you to configure the terminal emulator and perform various functions.



Note: The buttons available depend on whether or not you are in WBT mode.

Setup Menus

Three menus can be displayed from the command bar. These are headed **File**, **Edit** and **Settings**.



Note: The options available in the menus depend on whether or not you are in WBT mode.

Refer to the *Setup Menus* chapter for a complete discussion on selecting and using the options in these menus.

The Button Tools

The button tools provide a quick way of actioning commands or displaying setup dialog boxes by just clicking a button.



Displays the **New Connection** dialog box for making a serial or network host connection.



Closes the current host connection.



Displays the **Open Session** dialog box. This enables you to load a particular setup configuration.



Saves the current session configuration.



Displays the **Printer Setup** dialog box.



Displays the **Print Screen** dialog box for producing a hardcopy of screen data in a particular format.



Copies selected data to the clipboard.



Pastes clipboard data at the current cursor position.



Displays help information.



Toggles display of the soft buttons on and off and selects the level.



Toggles display of the soft buttons on and off and selects the level.

The Soft Buttons



A set of soft buttons are provided which can be programmed so that they perform various functions when clicked. Soft button display in the command bar is toggled on and off by clicking the following buttons:



You can define up to four soft button levels. Level 1 is displayed by default. Each level consists of twelve programmable buttons, providing a combined total of 48 programmable buttons. Levels stored off-screen can be 'scrolled' into view by clicking one of the arrow buttons.

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

The Status Bar

Along the bottom of the display is a status bar which shows the status of various operations and enables you to switch between modes. The information displayed in the status bar depends on the current terminal emulation. The following description applies when running any of the DEC VT terminal emulations, though some of the fields and buttons will be applicable to other emulations as well.



- Item 1:** This displays two LEDs. The first LED indicates whether or not you are connected to the host. It will show red when not connected and green when you are connected. The second LED indicates whether or not data is being sent to or from the host. It will show dull green when there is no activity, red when data is being sent to the host, and bright green when data is being received from the host.
- Item 2:** This button enables you to switch between **Local** and **Online** mode. The label indicates the mode you will switch to if the button is clicked.
- Item 3:** This button enables you to **Pause** or **Resume** scrolling data in the window. The label indicates the action that will be taken if the button is clicked.
- Item 4:** Indicates the current terminal emulation.
- Item 5:** This displays the active session (always 1), the current page number (always 1), and the **line,column** location of the text cursor.
- Item 6:** This 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.
- Item 7:** This will display **Edit** when the terminal emulation is in Edit mode.
- Item 8:** This will display the time in 24 hour format when in DEC VT400 mode if the VT525 set time command has been received from the host.
- Item 9:** Indicates the status of the printer as follows:
None signifies that the printer is not turned on or not connected, or not installed in Microsoft Windows.

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.

ErrGen indicates that an error has occurred and a message box will be displayed indicating the error.

Item 10: This indicates the keyboard mode. It will be blank when the keyboard is in normal mode and will display **DEC** when in DEC mode. You can toggle between normal and DEC mode by pressing the keys **Alt + Num Lock** together.

Item 11: Indicates the status of the aux port as follows:

Ready indicates that the aux port is ready for bidirectional output.

In Use indicates that the aux port is currently busy.

Hotspots

A hotspot facility is provided which enables you to invoke a function by clicking on 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 holding down the **Control** key and clicking the mouse pointer on the key name on the display (assuming default mouse configuration).

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

You can identify hotspots that are currently present in display memory by assigning the **Show Hotspots** function to a key + mouse button combination using the **Mouse Button Actions** dialog box (refer to the *Mouse Functions* chapter for details).

Holding down the relevant key and left mouse button will cause all colour attributes to be temporarily removed from the display and the hotspots will be highlighted with a red background. Releasing the key and left mouse button will return the display to its original state.

3

Keyboard Configuration

This chapter describes how to configure the keyboard, define key functions and compose special characters.

Keyboard Nationality

It is important that the emulator is configured for the nationality of the keyboard being used otherwise the characters displayed may not match the key legends. The nationality is specified using the **Keyboard Language** option in the **Emulation Settings** dialog box, which is displayed by selecting **Emulation** in the **Settings** menu. Select the nationality required in this list box then click the **OK** button to action the change and close the dialog box.

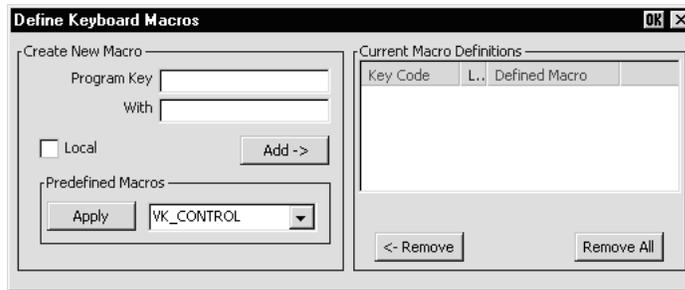
Keyboard Mapping

The keyboard is mapped as close as possible to the terminal being emulated. An illustration showing the mapping of key functions on the 101/102 key Enhanced AT style keyboard layout is shown in each terminal emulation chapter.

Special key functions supported by each terminal emulation can be mapped to keys using the predefined macros listed in the **Define Key Macros** dialog box as described in the next section.

Defining Key Functions

You can redefine the function of keys on the keyboard using the **Define Keyboard Macros** dialog box which is displayed by selecting **Keyboard Macros** in the **Settings** menu.



This enables you to redefine the function of most of the keys on your keyboard, including the key combinations listed below:

Key
Shift + Key
Control + Key
Control + Shift + Key
Alt + Key
Alt + Shift + Key
Alt + Control + Key
Alt + Control + Shift + Key

Each definition may contain a string of up to 127 characters. The combined total of all the characters that may be programmed into keys is determined by the 127 character limit per definition and the amount of memory available in your terminal.

The **Predefined Macros** box enables you to select from a list of standard functions associated with the current terminal emulation. Clicking the arrow button will display a list box in which the names of valid key functions (called *virtual key names*) are shown.

Note: The Virtual Key Names appendix lists all the functions and associated virtual key names for each terminal emulation.

Note that a virtual key name will be sent across a network as a single packet, whereas an escape sequence will be split into several packets. If a required function has a virtual key name equivalent, use this instead of the escape sequence.

A key definition may be actioned locally or transmitted to the host when the key or key combination is pressed. This is determined by the setting of the **Local** check box. When unchecked the definition will be transmitted to the host.

The **Current Macro Definitions** box displays the key and key combinations that are currently defined. You can remove the selected definition or delete all the definitions by clicking the relevant **Remove** button.

Defining A Key Or Key Combination

1. Click in the **Program Key** box then press the key or key combination to define. The current definition will be displayed.
2. Click in the **With** box then enter the new definition, or make a selection from the list of **Predefined Macros** then click **Apply**.
3. Check the **Local** check box to make the key definition action locally, or uncheck it to transmit the definition to the host when the key or key combination is pressed.
4. Click the **Add** button to accept the definition. The new definition will be added to the **Current Macro Definitions** list.

Entering Control Characters

You can enter a control character 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.

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 program a key to perform the function of a combination or sequence of keys. For example, you can cause the **F1** key to perform the same function as 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. The virtual key name has to be enclosed by the **<** and **>** characters in the key definition box. You may omit the **VK_** and **VT_** (etc.) parts of the virtual key name.

To program a key so that it performs the same function as pressing two or more other keys together, type the < character followed by the virtual key names linked together with + (plus sign) characters and ending with the > character.

For example, to program the **F1** key so that when it is pressed it performs the same function as pressing the keys **Alt + F4** together, enter the following characters in the key definition box:

<ALT+F4>

To program a key so that it performs the same function as pressing a sequence of keys one after the other, enter each virtual key name in the order required, enclosing each virtual key 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 program the **A** key so that when it is pressed it performs the same function as pressing the keys **F2** then **F3** then **F4** enter the following characters in the key definition box:

<F2><F3><F4>

Compose Character Sequences

Compose character sequences can be used to generate codes for characters not shown on your keyboard. The characters that can be composed depend on the setting of the **Character Set Mode** option in the **Emulation Settings** dialog box and the **Preferred Char. Set** option in the **Terminal Settings** dialog box.

When **Character Set Mode** is set to **National**, only characters found in the character set that corresponds to the selected keyboard nationality can be composed. When **Multinational** is selected, the emulator 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 Char. Set** option. When this 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 keys **Alt + C** together, followed by the key bearing the first character then the key bearing the second character.

Note: The compose character sequence can also be initiated by pressing a key defined with the COMPOSE virtual key name.

A compose character sequence may be abandoned before completion by pressing the **Delete** key. Pressing **Alt + C** (or the key defined with the COMPOSE virtual key name) 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 **Character Set Mode** option in the **Emulation Settings** dialog box is set to **Multinational**, and the **Preferred Char. Set** option in the **Terminal Settings** dialog box is set to **DEC-MCS**.

(Latin-1) indicates that the character can only be composed if the **Character Set Mode** option in the **Emulation Settings** dialog box is set to **Multinational** and the **Preferred Char. Set** option in the **Terminal Settings** dialog box is set to **ISO Latin-1**.

If a nationality is specified with the character description, for example **(Dutch)**, then the character can only be composed when the **Character Set Mode** option in the **Emulation Settings** dialog box is set to **National** and the relevant **Keyboard Language** is selected..

COMPOSE CHARACTER SEQUENCES

"	quotation mark	" space	ª	feminine ordinal indicator	ª - or A _
#	number sign	+ +	«	double open angle brackets	< <
'	apostrophe	' space	°	degree sign	0 ^ (Multinational) ° space (National)
@	commercial at	ªª or AA (Multinational) ªª or AA or aA (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	/ ^	º	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 | or C |	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.)	o e (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 and how to redefine them.

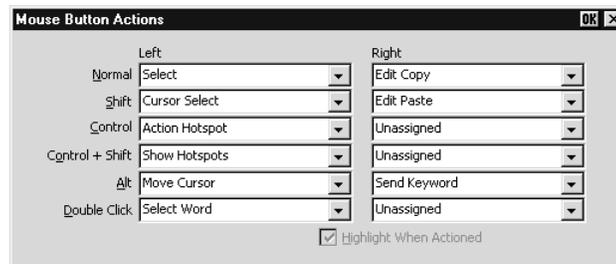
Introduction

You can assign up to six special functions to the left and right mouse buttons when used in conjunction with modifier keys. The following functions are defined by default:

	Left Button	Right Button
Normal:	Select	Edit Copy
Shift:	Extend Selection	Edit Paste
Control:	Action Hotspot	Unassigned
Control + Shift:	Select Rectangle	Unassigned
Alt:	Move Cursor	Send Keyword
Double Click:	Select Word	Unassigned

Redefining Mouse Functions

You can redefine the functions assigned to the mouse buttons using the **Mouse Button Actions** dialog box, which is displayed from the **Settings** menu.



This enables you to specify the functions of the left and right mouse buttons when clicked on their own or in conjunction with modifier keys. You can assign up to six functions to each button, either entering your own definition in the same format as described for keyboard macros and soft buttons, or selecting from a list of standard built-in functions. Clicking one of the arrow buttons will display a drop-down list box which lists all the standard functions that can be assigned:

Unassigned	Send CR
Select	Send Keyword
Extend Selection	*Middle Button
Edit Copy	Select Rectangle
Edit Paste	Select Word
Show Hotspots	Select and Copy
Action Hotspot	Cursor Select
Move Cursor	Rectangular Select and Copy

*Note: The item marked with * does not perform any function.*

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.

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**, **Select and Copy**, **Select Rectangle**, **Rectangular Select and Copy** or **Select Word** function.

The **Select** 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 **Select Rectangle** 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 **Select Word** function will cause the word under the mouse cursor to be selected.

The **Select and Copy** function is the same as **Select** but will also copy the selected data to the Clipboard automatically. The **Rectangular Select and Copy** function is the same as **Select Rectangle** but will also copy the selected data to the Clipboard automatically.

Moving The Cursor In Block Mode

When the emulator is in any of the local block modes you can use the mouse instead of the cursor keys to position the text cursor using the **Move Cursor** function. To

position the text cursor, move the mouse pointer to the position required, hold down the **Alt** key then click the left mouse button.

The **Cursor Select** function does the same as **Move Cursor**, but when running the IBM 3270 or IBM 5250 emulation it also performs a cursor select.

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 **space**, **NULL**, **/**, **:**, **=** **(** **)** **[** and **]**.

Show & Action Hotspots

A hotspot facility is provided which enables you to invoke a function by clicking the mouse pointer on 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 holding down the **Alt** key and clicking the mouse pointer on the displayed key name (assuming default mouse configuration).

Hotspots are supported in ALL terminal emulation modes. A set of default hotspot keywords is provided 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 the emulator will execute the function associated with the **Help** key.

You can identify hotspots that are currently present in display memory by using the **Show Hotspots** function. All colour attributes will be temporarily removed from the display and the hotspots will be highlighted with a red background.

Notes

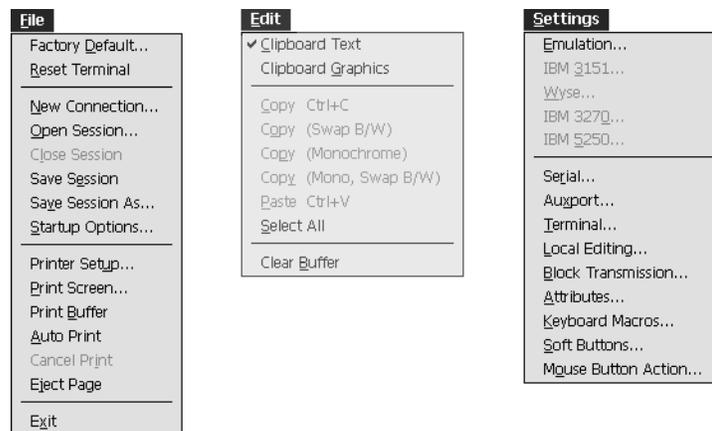
5

Setup Menus

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

Displaying & Closing Menus

The following menus can be displayed from the command bar:



Note: The options available in the menus depend on whether or not you are in WBT mode.

To display a menu:

Mouse: Click on the title of the menu required.

Keyboard: Hold down the **Alt** key and press the key bearing the underlined character in the menu title. For example, pressing **Alt + F** will display the **File** menu.

To close a menu:

Mouse: Click anywhere outside the menu.

Keyboard: Press the **Alt** key.

Using The Menus

The menu options follow several conventions:

Options that are displayed dimmed are not applicable to the current mode of operation and cannot be selected. An example of this is the **IBM 5250** option in the **Settings** menu. This can only be selected when the IBM 5250 emulation is running.

Options that include an underlined character may be actioned by pressing the key bearing that character. For example, pressing the **X** key while the **File** menu is displayed will cause the emulator to shut down.

Options that are *not* followed by an ellipsis (...) perform a particular function when selected. For example, selecting **Reset Terminal** in the **File** menu will perform a terminal reset.

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 specify various emulation settings.

To select a menu option:

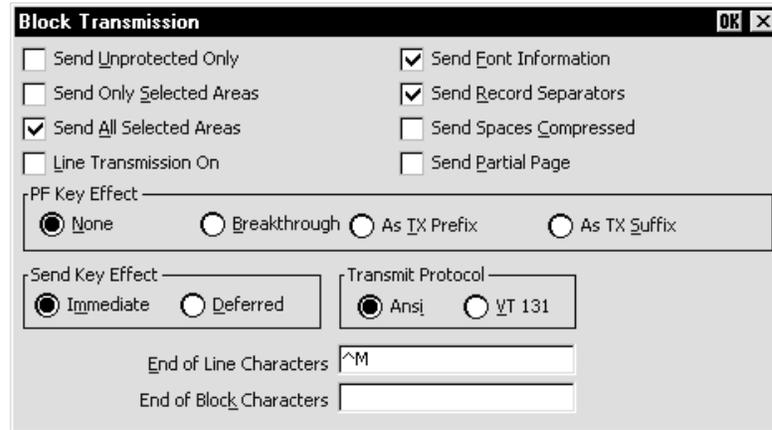
Mouse: Click the menu option.

Keyboard: Method 1: If the option includes an underlined character, press the key bearing that character. For example, pressing **X** while the **File** menu is displayed will cause the emulator to shut down.

Method 2: Use the up or down arrow keys to highlight the option required then hit **Return**.

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 **Block Transmission...** option in the **Settings** menu.



There are four basic methods for changing settings within the dialog boxes.

Options preceded by a check box, such as **Send Unprotected Only** in the example above, are true or selected when the box contains a , and false or unselected when the box is empty. Click the pointer in the box to toggle the setting on or off, or press the spacebar on the keyboard.

When a group of options preceded by round buttons are enclosed in a box, such as the **PF Key Effect** options in the example above, only one of these options is selected or true at any one time. The currently selected option is indicated by a button with a dark centre. These buttons behave just like radio buttons in that clicking one will cause the previously selected button to be deselected.

Some options require you to type information in a text box, such as the **End of Line Characters** option.

When an option has many possible settings, these will be shown in a list box. The **Alpha Emulation** option in the **Emulation Settings** dialog box is an example of this. To make a selection using the mouse, click the arrow button to display a drop-down list box then click on the setting required. If the list is long a scroll bar may be displayed. To make a selection using the keyboard, press the up or down cursor keys to cycle through the available settings until the one required is highlighted in the box.

To select a dialog box option:

- Mouse:** Click the check box, button or list box. The current setting is highlighted or surrounded by a dotted rectangle, or both.
- Keyboard:** Move to the option to be changed either by holding down the **Alt** key and pressing the key bearing the character underlined in the option, if one is displayed, or press the **Tab** key to move forward through the options (left to right, top to bottom), or **Shift + Tab** to move backwards, until the required option is highlighted. Press the **Spacebar** to toggle check boxes or buttons on or off.

To close a dialog box without actioning changes:

- Mouse:** Click the **Cancel** button.
- Keyboard:** Press the **Tab** or **Shift + Tab** keys to move the cursor until it rests over the **Cancel** button and press **Return** or the **Spacebar**.

To close a dialog box and action changes:

- Mouse:** Click the **OK** button.
- Keyboard:** Press **Return**.

Default Settings

You can restore the factory default settings of all the setup options by selecting the **Factory Default** option in the **File** menu.

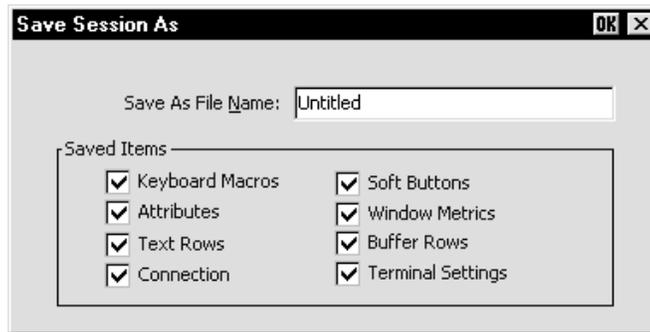
Some dialog boxes include a **Default** button to enable the default settings of options contained in the dialog box to be reasserted.

Creating A Connection Template

You can save the current session configuration as a connection template. To make the emulator automatically attempt to make a host connection using the same settings the next time it is loaded, display the **File** menu and select the **Save Session** option.

You can create multiple connection templates when the terminal is not in WBT mode, any one of which can be selected for use. The procedure is as follows:

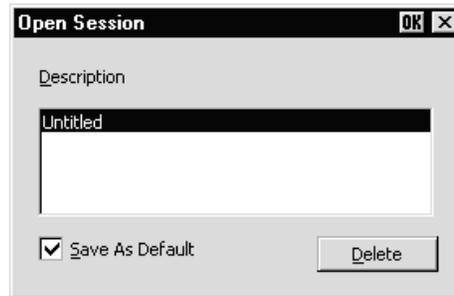
1. In the **File** menu, select the **Save Session As...** option to display the following dialog box.



2. In the **Saved Items** box, indicate which settings are to be saved by checking the boxes next to the relevant options.
3. In the **Save As File Name** text box, enter a descriptive name to enable it to be identified for future selection. This description will be listed in the **Open Session** dialog box.
4. Click the **OK** button to save the template settings. If you specified a descriptive name that already exists, a message box will ask you to confirm whether or not you want to overwrite the existing name with the new settings.

Selecting A Connection Template

The **Open Session** dialog box enables you to select a connection template to use when the terminal is not in WBT mode. This is displayed by selecting **Open Session...** in the **File** menu.



The **Description** list box displays the names of connection templates that were created using the **Save Session As** dialog box. The descriptive name of the connection template currently in use is highlighted. The factory default connection template is **Untitled**. Clicking one of the descriptions then the **OK** button will cause the dialog box to close and the connection template associated with the chosen description will be actioned.

You can specify a particular connection template to use by default by clicking the required description, checking the **Save As Default** check box, then clicking the **OK** button. To delete a connection template, select the description then click the **Delete** button.

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 restore the factory default settings of all the setup options. A message box will be displayed asking you to confirm whether or not you want to assert the factory default settings. Click the **OK** button to assert the factory defaults.



Reset Terminal

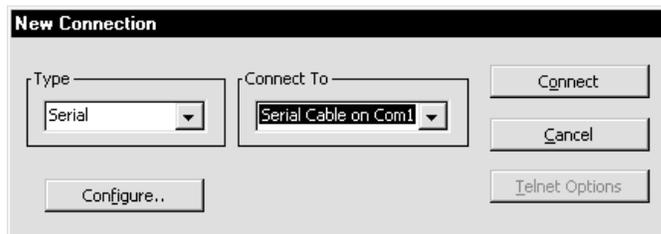
This will reset the current terminal emulation mode.

New Connection...

(Not available in WBT mode)

Factory default: Serial, Com 1

This will display a dialog box which enables you to make a host connection.



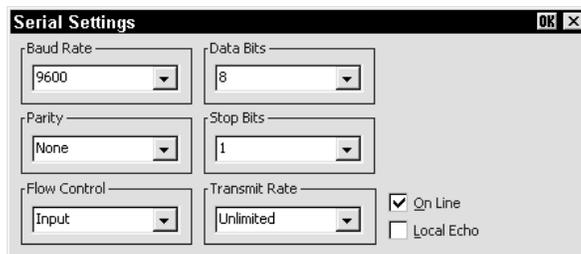
The **Type** list box specifies whether a serial, modem or TCP/IP network connection is to be made.

The **Connect To** box specifies the port or host to communicate with. You can either make a selection from the list or enter a valid host name or internet address.

The host connection will be closed if you change the settings in the **New Connection** dialog box and attempt to connect, if you log out of the host, or the host closes the connection. Warning messages will be displayed if the host closes the connection, or you attempt to open a new session or exit the emulator while a session is open.

Making A Serial Host Connection

To connect to a serial host, select **Serial** in the **Type** list box (default), then select the **Com** port required in the **Connect To** list box. Click the **Configure...** button to display the **Serial Settings** dialog box and make sure the settings match that of the host. Click **OK** then **Connect**.



Note: These options are described in the Serial Settings section later in this chapter and only apply when the connection type is set to Serial.

Making A Network Host Connection

To connect to a network host node, select **TCP/IP** in the **Type** list box. The **Connect To** box will display the available devices on the network. Select the name of the device required or enter the host name or IP address. Clicking the **Telnet Options** button will display a dialog box with additional options. These are described in the *Getting Started* chapter.

The screenshot shows the 'TCP/IP Telnet Configuration' dialog box. It contains the following fields and options:

- Host Port Number: 23
- Local Port Number: 0
- Telnet Name: IBM-3278-2-E
- Suppress section:
 - Echo
 - 3270 Regime
 - IN3270E (with 3270 Options button)
 - TN5250E (with 5250 Options button)
- Force Negotiation section:
 - Binary: No (dropdown)
 - EQR: No (dropdown)
- Break Settings section:
 - TM with Break
 - CR with Break

Clicking the **Connect** button or the name of the host in the **Connect To** list box twice will cause the emulator to attempt to connect to the specified host. If a connection cannot be made because the network driver is not installed or the host node name is invalid, an error message will indicate this. Failure to connect for any other reason will result in a **Connection Failed** message.

Making A Modem Host Connection

For a modem connection, click the **Modem** button then click **Advanced** to display configuration options. Refer to the *Modem Connection Settings* section in chapter 2 for details. When you have made the relevant selections, click **OK** then **Connect**.

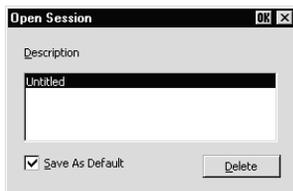
The screenshot shows the 'Modem Settings' dialog box. It contains the following fields and options:

- Configuration Name: [Empty text box]
- Select a Modem: Hayes Compatible on COM (dropdown)
- Area Code: 1908
- Telephone Number: [Empty text box]
- Country Code: 44
- Dialing From: Work
- Dialing Properties... (button)
- Force long distance:
- Force local:
- Configure (button)

Open Session...

(Not available in WBT mode)

This enables you to select a connection template. The following dialog box will be displayed.



The **Description** list box displays the names of connection templates that were created using the **Save Session As** dialog box. The name of the connection template currently in use is highlighted. The factory default connection template is **Untitled**. Selecting one of the descriptions then clicking the **OK** button will cause the dialog box to close and the connection template associated with the chosen description to be actioned.

You can specify a particular connection template to use by default by clicking the required description, checking the **Save As Default** check box, then clicking the **OK** button. To delete a connection template, select the description then click the **Delete** button.

Close Session

(Not available in WBT mode)

This will close the current session.

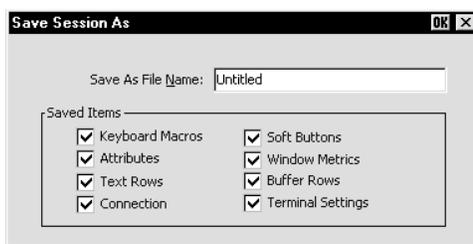
Save Session

Selecting this option will save the current session configuration.

Save Session As...

(Not available in WBT mode)

This will display a dialog box which enables you to save the current session configuration as a connection template.



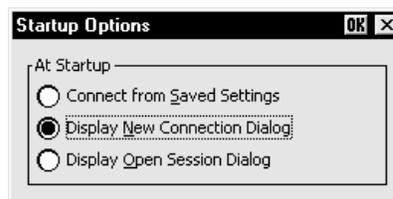
You can create multiple connection templates, any one of which can be selected for use. The procedure is as follows:

1. In the **Saved Items** box, indicate which settings are to be saved by checking the boxes next to the relevant options.
2. In the **Save As File Name** text box, enter a descriptive name to enable it to be identified for future selection. This description will be listed in the **Open Session** dialog box.
3. Click the **OK** button to save the template settings. If you specified a descriptive name that already exists, a message box will ask you to confirm whether or not you want to overwrite the existing name with the new settings.

Startup Options...

(Not available in WBT mode)

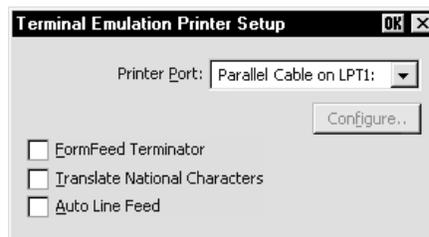
The following dialog box will be displayed when this option is selected.



This enables you specify whether the emulator is to make a host connection using the default connection template, display the **New Connection** dialog box, or display the **Open Session** dialog box when it is loaded (but not when it is reset). Refer to the relevant descriptions earlier in this section for information on these dialog boxes.

Printer Setup...

This will display a dialog box which enables you to specify print settings.



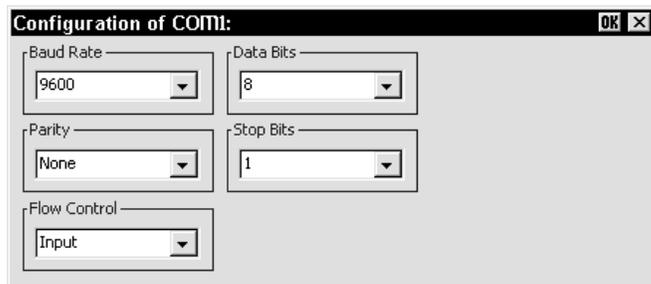
The **Printer Port** option enables you to direct print data to a specific port.

Selecting the **FormFeed Terminator** option will cause the printer to advance the paper to the top of the form when it has finished printing.

The setting of the **Translate National Characters** option determines whether or not the ISO Latin characters used by Microsoft Windows are translated to IBM characters for the printer.

Selecting **Auto Line Feed** will cause the printer to print at the beginning of the next line when a carriage return command is received.

The **Configure** button is enabled when a serial port is selected and this will display a dialog box in which you can specify the baud rate, parity, flow control, data bits and stop bits settings.



Print Screen...

This displays a dialog box which enables you to specify printer, port and page settings.

Note: The virtual key name VT_PRINT will also cause this dialog box to be displayed.

Print Buffer

This will send a copy of all the data contained in the window buffer to the currently selected printer.

Auto Print

This toggles auto print mode on and off, as indicated by a tick when auto print mode is on. Auto print mode causes each line of data to be transmitted to the printer when the cursor moves to a new line as a result of a carriage return, line feed, vertical tab, or form feed.

Cancel Print

This will cancel the current **Print Screen** or **Print Buffer** function.

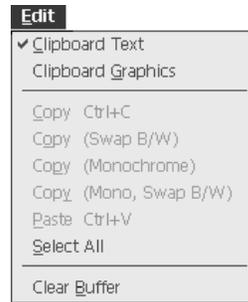
Eject Page

This option enables data that has been spooled to the printer to be printed.

Exit

This option will cause the emulator to shut down.

Edit Menu



Clipboard Text Clipboard Graphics

Selecting one of these options will enable selected text or graphics to be copied to the clipboard when the **Copy** command is used. The **Paste** and **Select All** commands will also be enabled. A tick will be displayed next to the option when it is selected.

Copy

The **Copy** commands become available when data has been selected. They will cause the currently selected text or graphics to be copied to the clipboard. The data can then be inserted in a different position or another file using the **Paste** command. The next block of data that is copied will delete the previous block on the clipboard.

The first **Copy** option enables you to perform a standard copy. The last three options are only available when **Clipboard Graphics** is selected. They enable you to copy the graphics image with black and white reversed, with colour converted to monochrome, or both.

Paste

This will cause data that has been copied to the clipboard to be pasted at the current cursor position. The same block of data may be pasted repeatedly as the clipboard stores it until the **Copy** command is used again.

Select All

This will cause the window contents (not the entire buffer) to be selected.

Clear Buffer

This will erase the contents of the window and the scroll buffer.

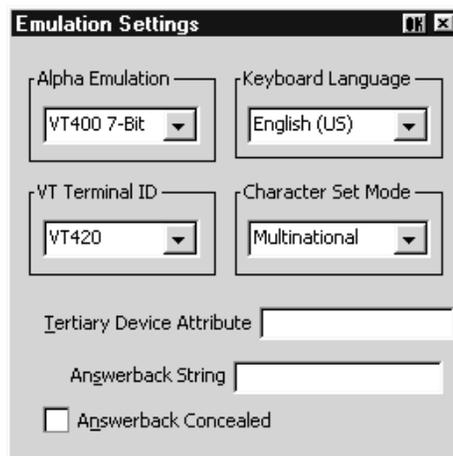
Settings Menu



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 the answerback string.
IBM 3151 Settings	- for configuring the IBM 3151 emulation.
Wyse Settings	- for configuring the Wyse 50/50+/60, TVI 910+/920/925, ADDS A2 and HZ 1500 emulations.
IBM 3270 Settings	- for configuring the IBM 3270 emulation.
IBM 5250 Settings	- for configuring the IBM 5250 emulation.
Serial Settings	- for specifying serial communication settings.
Auxport Settings	- for specifying auxilliary port settings.
Terminal Settings	- for specifying terminal and display settings.
Local Editing	- for specifying DEC VT Block (Edit) mode local editing functions.
Block Transmission	- for specifying DEC VT Block (Edit) mode text formatting and transmission.
Attributes	- for assigning colours and specifying how characters with attributes are displayed.
Keyboard Macros	- for redefining the function of keys.
Soft Buttons	- for defining soft button functions.
Mouse Button Actions	- for defining mouse functions.

Emulation Settings



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

Alpha Emulation

(Not available in WBT mode)

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

The **ADDS A2** emulation provides compatibility with software designed to drive the ADDS Viewpoint A2 terminal, as emulated by the Wyse WY-50/50+/60 terminals. Refer to the *Wyse Emulations* chapter for details.

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 Char. Set** option in the **Terminal Settings** dialog box is automatically set to **Ansi**. The setting of the **Ansi Code Page** option in this dialog box determines the characters available in the ANSI BBS set.

The **HZ1500** emulation provides compatibility with software designed to drive the Hazeltine 1500 terminal, as emulated by the Wyse WY-50/50+/60 terminals. Refer to the *Wyse Emulations* chapter for details.

The **IBM 3151** emulation provides compatibility with software designed to drive the IBM 3151 terminal. Refer to the *IBM 3151 Emulation* chapter for information on this emulation.

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 Network Virtual Terminal mode (NVT mode for short). The setting of the **IBM 3270 Model** option in the **IBM 3270 Settings** dialog box determines the size of the display and whether or not extended attributes are supported. Refer to the *IBM 3270 Emulation* chapter for details.

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 Network Virtual Terminal mode (NVT mode for short). Refer to the *IBM 5250 Emulation* chapter for details.

SCO Console is an emulation of the SCO UNIX box.

The **TVI 910**, **TVI 920** and **TVI 925** emulations provide compatibility with software designed to drive the TeleVideo 910+, 920 and 925 terminals, respectively, as emulated by the Wyse WY-50/50+/60 terminals. Refer to the *Wyse Emulations* chapter for details.

The **VT52** and **VT100** emulations enable you to run applications written for the DEC VT52 and VT100 terminals, respectively. Refer to the *DEC VT Emulations* chapter for details.

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

The **WY50**, **WY50+** and **WY60** emulations provide compatibility with software designed to drive the Wyse WY-50, WY-50+ and WY-60 terminals, respectively. Refer to the *Wyse Emulations* chapter for information on these emulations.

Keyboard Language

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.

VT Terminal ID

Factory default: VT420

This specifies what is reported back to the host in response to a terminal identification request. You can either select from the list of IDs or you can edit the text box and enter a different terminal identity. (Note that not all features of the specified terminal may be supported.)

Character Set Mode

Factory default: Multinational

The setting of this option determines the type of character set used to generate characters. In **National** mode, a character set specific to the selected keyboard nationality is used. In **Multinational** mode, a character set consisting of two tables of characters is used. This enables characters from any keyboard nationality to be generated.

Tertiary Device Attribute

When the emulator is in VT420 mode (**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.

Answerback String

This 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.

IBM 3151 Settings

The screenshot shows the 'IBM 3151 Settings' dialog box. It features a grid of settings:

- Operating Mode:** Echo
- Row and Column:** 24 x 80
- Turnaround Char:** CR
- Forcing Insert:** Both
- Insert Character:** Space
- Tab Operation:** Field
- Enter Key:** Return
- Return Key:** Field
- Send Operation:** Page

Below the grid are three checkboxes:

- Auto Wrap
- Auto LF
- Auto New Line

At the bottom, there is a 'Terminal ID' text field, a 'Model' dropdown menu set to '11', and a 'Default' button.

This dialog box is displayed by selecting **IBM 3151** in the **Settings** menu.

Operating Mode

Factory default: Echo

The setting of this option determines how keyboard entered data is sent to the host and displayed on the screen.

In **Echo** mode, keyboard entered data is sent only to the host. The host is then responsible for returning the data to the display.

In **Character** mode, keyboard entered data is sent simultaneously to the host and the display.

In **Block** mode, keyboard entered data is displayed and processed locally, allowing you to edit it before a block of data is sent to the host.

Row and Column

Factory default: 24 x 80

This option enables you to select one of four display formats:

- 24 rows x 80 columns
- 25 rows x 80 columns
- 24 rows x 132 columns
- 25 rows x 132 columns

Note that the contents of the display will be cleared when you change the display format.

Turnaround Char

Factory default: CR

This option specifies the line turnaround character (LTC) that is generated when a Read command is received or one of the block data transmission keys is pressed. Note that selecting **DC3** will disable the XON/XOFF inbound and outbound pacing characters.

Forcing Insert

Factory default: Both

This option specifies how an insert command affects displayed data when the screen is full.

When set to **Off**, you will not be able to perform an insert operation.

When set to **Line**, you will be able to insert one or more lines, using the **Ins Ln** key for example. The contents of the current and all following lines will move down the number of lines inserted, causing the lines originally at the bottom of the display to be discarded.

When set to **Character**, you will be able to insert one or more characters in the current line. Characters to the right of the cursor position will move along. If the **Auto Wrap** option is set to **No**, then characters originally at the end of the current line will be discarded. If set to **Yes**, characters on all following lines will move along, forcing characters at the end of the last line to be discarded.

When set to **Both**, the function of the **Line** and **Character** settings will be enabled.

Insert Character

Factory default: Space

The setting of this option determines the effect of pressing the **Insert** key.

When set to **Space**, a space character will be inserted after the current cursor position.

When set to **Mode**, the emulation will enter Insert mode when the **Insert** key is pressed.

Tab Operation

Factory default: Field

The setting of this option determines whether tab stops are according to field attribute characters or column-tab definitions.

When set to **Field**, tab stops in a formatted page are provided by field attribute characters. Column-tab definitions are ignored.

When set to **Column**, tab stops are provided by column-tab definitions. Field attribute characters are ignored.

Enter Key

Factory default: Return

This option enables you to specify whether the **Enter** key performs the same function as the **Return** key or the **Send** key.

Return Key

Factory default: Field

This option specifies whether or not the cursor can enter a line within a protected field when the **Return** key is pressed.

When set to **Field**, the result of pressing the **Return** key is determined by the setting of the **Auto New Line** option and the cursor will move to the next unprotected line.

When set to **New Line**, the result of pressing the **Return** key is determined by the setting of the **Auto New Line** option.

Send Operation

Factory default: Page

The setting of this option determines the effect of pressing the **Send** and **Send Line** keys.

When set to **Page**, the contents of the current page will be sent to the host when **Send** is pressed, or the current line if **Send Line** is pressed.

When set to **Line**, the contents of the current line will be sent to the host when **Send** is pressed, or the current page if **Send Line** is pressed.

Auto Wrap

Factory default: Selected

The setting of this option determines what happens to the cursor and data sent to the display when the end of the current line is reached.

When selected, the cursor will automatically move to the beginning of the next line. Note that this will always be the case in block mode or in a formatted page regardless of the setting of this option.

When unselected, the cursor will remain at the end of the current line and each new character sent to the display will overwrite the character already occupying the cursor position.

Auto LF

Factory default: Unselected

The setting of this option in conjunction with that of the **Auto New Line** option determines the destination of the cursor when the **Return** key is pressed or the **CR** character is received.

When both this and the **Auto New Line** options are unselected, the cursor will move to the first position of the current line when the **Return** key is pressed or the **CR** character is received.

When this is unselected and **Auto New Line** is selected, the cursor will move to the first position of the next line when the **Return** key is pressed.

When this is selected and **Auto New Line** is unselected, the cursor will move to the first position of the next line when the **Return** key is pressed or the **CR** character is received.

When both this and the **Auto New Line** options are selected, the cursor will move to the first position of the line after the next line when the **Return** key is pressed.

Auto New Line

Factory default: Unselected

The setting of this option determines the effect of pressing the **Return** key.

When unselected, the **Return** key will generate a **CR** (carriage return) character.

When selected, the **Return** key will generate a **CR** and an **LF** (line feed) character.

Terminal ID

Factory default: Unspecified

This specifies what is reported back to the host in response to a terminal identification request. The terminal ID can be up to 20 characters long. (Note that not all features of the specified terminal may be supported.)

Model

Factory default: 11

This option identifies the terminal model being emulated in response to a terminal identification request from the host. Model 11 supports only one viewport containing 24 or 25 rows and 80 columns. Model 31 supports up to three viewports (80 or 132 columns wide) and pass-through printing.

Wyse Settings

This dialog box is displayed by selecting **Wyse** in the **Settings** menu. Note that some of the settings apply to the TVI 910+, TVI 920, TVI 925, ADDS A2 and HZ 1500 emulations in addition to the Wyse emulations. Also, some settings may not apply to the particular Wyse emulation currently running. Selecting a setting that is not applicable to the current emulation will cause the emulator to use the default setting for that emulation when the dialog box is exited.

*Note: The **Tab Stops** dialog box displayed by clicking the **Set Tabs** button is described later in this chapter, after the **Terminal Settings** description.*

Lines

Factory default: 24

This option applies to the WY-50+ and WY-60 emulations and specifies the number of data lines displayed on the screen below the status line. Note that the other emulations only support 24 lines and a label line.

24	24 data lines and a label line at the bottom.
25	25 data lines but no label line.
42	42 data lines and a label line at the bottom.
43	43 data lines but no label line.

Page Size

Factory default: 1 x Lines

This option applies to the WY-50+ and WY-60 emulations and specifies the size of a page in display memory in multiples of the **Lines** setting. Note that the other emulations only support **1 x Lines**.

The **1 + Rest** setting will divide the display memory into two pages, the first containing the number of lines specified by the **Lines** option, the second containing all the remaining lines.

Note that changing the page format will cause the entire display memory to be cleared, the cursor will move to the home position and the scroll margin will be reset.

Status Line

Factory default: Standard

This option applies to all emulations and enables you to specify the type of status line displayed at the top of the screen, or remove it from the display.

Both the **Standard** and **Extended** status lines display messages about the state of the emulation or application. The **Extended** status line displays additional editing status messages. Refer to the *Wyse Emulations* chapter for details.

Block End

Factory default: US / CR

This option applies to all emulations and specifies the ASCII characters used to indicate the end of a line and a block when a block of data is sent to the host.

When set to **US / CR**, the line terminator is a **US** character and the block terminator is a **CR** character. When set to **CRLF / ETX**, the line terminators are the **CR** and **LF** characters, and the block terminator is an **ETX** character.

Attribute Type

Factory default: Page

The setting of this option determines whether display attributes are active to the end of the line or the end of the page. The **Character** setting only applies to the WY-60 emulation and causes attributes to only apply to characters written to the screen. The WY-50, ADDS A2 and HZ 1500 emulations only support the **Page** setting.

Code Page

Factory default: PC Multinational 437

This option determines the set of characters that form the second half of the multinational character set when in multinational mode (as set by the **Character Set Mode** option in the **Emulation Settings** dialog box).

ASCII Font

Factory default: WY ASCII

This option determines whether the Wyse ASCII or PC standard character set is used as the first half of the multinational character set when in multinational mode (as set by the **Character Set Mode** option in the **Emulation Settings** dialog box).

WPRT Attribute

Factory default: Dim

This option applies to all emulations and enables you to specify the appearance of write-protected characters on the display. They can be displayed in reverse video, dimmed or blinking. The WY-50+ and WY-60 emulations also support the underline and invisible attributes.

Multiple Page

Factory default: Unselected

This option applies to the WY-50+, WY-60 and all the TVI emulations. It determines whether or not more than one page of display memory can be accessed. When selected, all pages will be accessible. See also the **Auto Page** option.

Note that the TVI emulations support two pages of 24 lines each when this and the **Auto Page** options are selected, regardless of the **Lines** and **Page Size** settings.

80 / 132 Clears

Factory default: Unselected

This option applies to the WY-50+ and WY-60 emulations and determines whether or not data is cleared from the display when the number of columns is changed. The screen is always cleared when the number of columns is changed in the other emulations.

Economy 80

Factory default: Unselected

This option applies to the WY-50+ and WY-60 emulations and enables 80 column display with more lines of display memory.

Auto Scroll

Factory default: Selected

This option applies to all emulations and determines what happens when the cursor is moved beyond the last line of the current page. When selected, the displayed data scrolls up and the cursor remains on the last line. When unselected, the cursor moves to the top of the same page.

Auto Page

Factory default: Unselected

This option applies to the WY-50+, WY-60 and all the TVI emulations. It determines what happens when the cursor reaches the top or bottom of the page.

When unselected, the cursor either moves to the top of the same page or data scrolls up from the bottom, as determined by the setting of the **Auto Scroll** option. When selected, a new page of memory will be displayed.

Note: The other emulations will always display a new page of memory.

Auto Wrap

Factory default: Selected

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

DEL = DestBS

Factory default: Unselected

This option applies to the WY-50+ and WY-60 emulations and determines what effect an ASCII **DEL** character has on displayed characters. The other emulations ignore the **DEL** character.

When unselected, the **DEL** character is ignored. When selected, the **DEL** character is interpreted as a destructive backspace, causing the character to the left of the cursor to be deleted and the cursor to move into that position.

Margin Bell

Factory default: Unselected

This option applies to all emulations and specifies whether or not an audible warning sounds when the cursor reaches a specified column. The default bell column number is 72 in 80 column mode and 124 in 132 column mode.

Enhance

Factory default: Selected

When this option is selected, the emulator will recognize an additional set of Wyse codes which are not normally supported by specific non-Wyse terminals.

Answerback Mode

Factory default: Unselected

This option applies to all emulations and specifies whether or not an answerback message is automatically sent to the host in response to an ASCII **ENQ** character.

Send ACK

Factory default: Selected

This option applies to all emulations and specifies whether or not an ASCII **ACK** character is sent to the host port after certain commands have been executed.

Block Mode

Factory default: Unselected

This option applies to all emulations. In Block mode, keyboard entered data is displayed and processed locally, allowing you to edit it before a block of data is sent to the host. When Block mode is disabled, data is sent to the host as it is entered at the keyboard.

Colour Support

Factory default: Unselected

When this option is selected, an additional set of host commands will be recognized to determine the colours used for the display. Wyse 350 colour commands will be recognized in all modes except Wyse 60, which will use Wyse 60 colour commands.

Application Key Mode

Factory default: Unselected

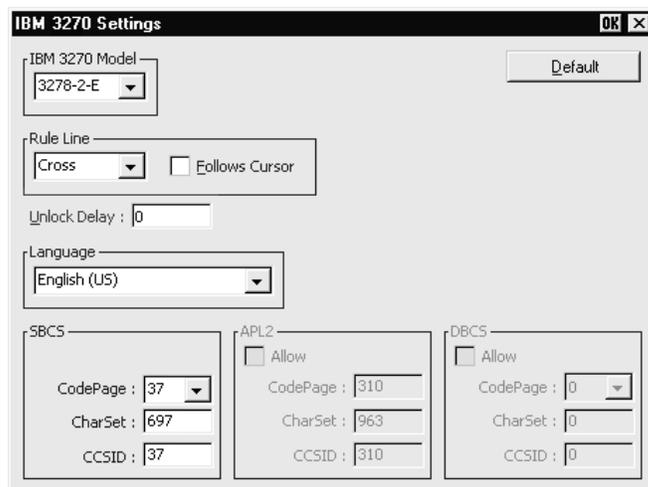
When application key mode is selected, the function keys and certain editing keys will send application codes when pressed, regardless of whether or not the keys have been redefined. When this option is not selected, the keys will send their programmed definitions.

CR=CR/NULL

Factory default: Selected

This option allows you to disable the **NULL** being automatically sent on **CR**.

IBM 3270 Settings



This dialog box is displayed by selecting **IBM 3270** in the **Settings** menu.

IBM 3270 Model

Factory default: 3278-2-E

This specifies what is reported back to the host in response to a terminal identification request. (Note that not all features of the specified terminal may be supported.) TN3287 printing is supported by selecting **3287-1**.

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

3278 settings with the **E** extension provide support for the following extended attributes (these are supported by the **3279** as standard):

- 3270 Field Attributes
- Extended Highlighting
- Foreground Colour
- Query Reply Inbound Structured Fields

Rule Line

Factory default: Cross

A rule can be displayed across the emulation workspace at the cursor position by pressing the keys **Alt + Page Down**, which toggles it on and off. The setting of this option determines whether it is displayed as a horizontal rule, vertical rule or both (cross).

Follows Cursor

Factory default: Unselected

When the rule is displayed in the emulation workspace, the setting of this option determines whether or not the rule follows the cursor when it moves.

Unlock Delay

Factory default: 0

When the keyboard is unlocked by the host, this specifies a delay in milliseconds before characters are sent.

Language

Factory default: English (US)

This option enables you to select the character set to be used. The settings of the **SBCS**, **APL2** and **DBCS** options below will reflect the default settings for the chosen language and should only be changed by the System Administrator. If they have been changed and you wish to restore the default settings in this dialog box, click the **Default** button. The following table shows the default settings.

SBCS, APL2 & DBCS

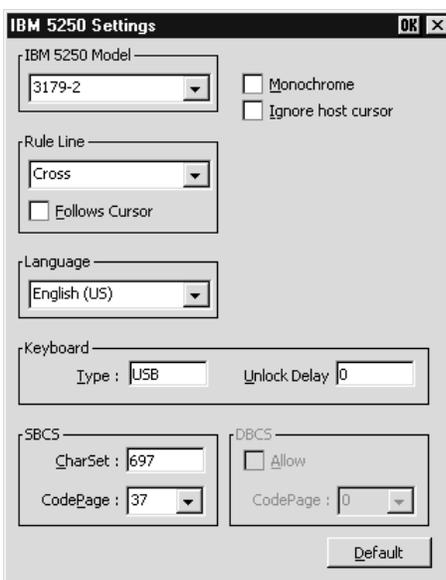
The Single Byte Character Set, APL2 and Double Byte Character Set options enable you to change the settings used by default for the chosen language. These should only be changed by the System Administrator. The following table shows the default settings. A list of IBM EBCDIC codepages supplied can be found at the end of the *Character Sets* appendix.

Note: Double byte character sets may not be supported by this version of the emulator.

Default Language, Codepage & Character Set Settings

Language	Type	Codepage	Char Set	CCSID
English (US)	SBCS	37	697	37
English (UK)	SBCS	285	697	285
Belgian	SBCS	500	697	500
Canadian French	SBCS	37	697	37
Danish	SBCS	277	697	277
Finnish	SBCS	278	697	278
German	SBCS	273	697	273
Dutch	SBCS	37	697	37
Italian	SBCS	280	697	280
Swiss French	SBCS	500	697	500
Swiss German	SBCS	500	697	500
Swedish	SBCS	278	697	278
Norwegian	SBCS	277	697	277
French	SBCS	297	697	297
Spanish	SBCS	284	697	284
Portuguese	SBCS	37	697	37
Japanese Kanji + Katakana	SBCS	290	1172	290
	DBCS	300	1001	930
Korean	SBCS	833	1173	833
	DBCS	834	934	933
Simplified Chinese	SBCS	836	1174	836
	DBCS	837	937	937
Traditional Chinese	SBCS	37	1175	37
	DBCS	835	935	935
Hebrew	SBCS	424	941	424
Thai	SBCS	838	1176	838
Greek	SBCS	875	925	875
Cyrillic	SBCS	880	960	880
Turkish	SBCS	1026	1152	1026
Russian	SBCS	1025	1150	1025
Czech	SBCS	870	959	870
Slovak	SBCS	870	959	870
Polish	SBCS	870	959	870

IBM 5250 Settings



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

IBM 5250 Model

Factory default: 3179_2

This specifies what is reported back to the host in response to a terminal identification request. (Note that not all features of the specified terminal may be supported.) The terminal models and their display characteristics are listed below:

Model	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
5555_B01	Monochrome	24 x 80
5555_C01	Colour	24 x 80

The printer models supported are listed below:

3812-1	Single byte printer
5553-B01	Double byte printer

If double byte character sets are supported, then select either **5555_B01** (monochrome) or **5555_C01** (colour) for display, or **5553-B01** for printing.

Monochrome

Factory default: Depends on terminal type

By default the setting of this option will match the normal display characteristic of the **IBM 5250 Model** selected, as shown in the list above. In the emulator, 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.

Ignore host cursor

Factory default: Unselected

Selecting this option will cause the emulator to ignore any commands from the host to change the cursor style.

Rule Line

Factory default: Cross

A rule can be displayed across the emulation workspace at the cursor position by pressing the keys **Alt + Page Down**, which toggles it on and off. The setting of this option determines whether it is displayed as a horizontal rule, vertical rule or both (cross).

Follows Cursor

Factory default: Unselected

When the rule is displayed in the emulation workspace, the setting of this option determines whether or not the rule follows the cursor when it moves.

Unlock Delay

Factory default: 0

When the keyboard is unlocked by the host, this specifies a delay in milliseconds before characters are sent.

Language

Factory default: English (US)

This option enables you to select the character set to be used. The settings of the **Keyboard Type**, **SBCS** and **DBCS** options below will reflect the default settings for

the chosen language and should only be changed by the System Administrator. If they have been changed and you wish to restore the default settings in this dialog box, click the **Default** button. The following table shows the default settings. If double byte character sets (e.g. Japanese) are supported and you wish to use them, then set the **IBM 5250 Model** to either **5555_B01** (monochrome) or **5555_C01** (colour) for display, or **5553-B01** for printing.

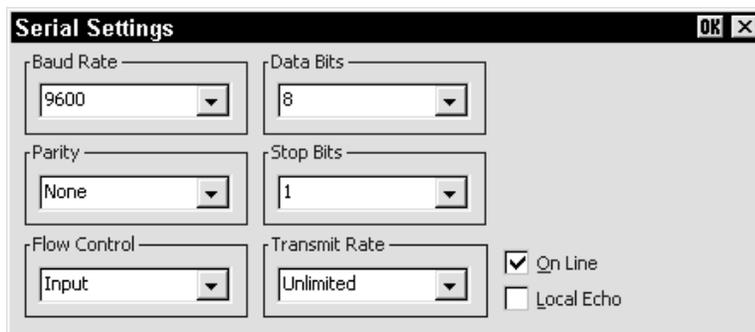
SBCS & DBCS

The Single Byte Character Set (and Double Byte Character Set if supported) options enable you to change the settings used by default for the chosen language. These should only be changed by the System Administrator. The following table shows the default settings. A list of IBM EBCDIC codepages supplied can be found at the end of the *Character Sets* appendix.

Default Language, Character Set & Codepage Settings

Language	KBDTYPE	CHARSET	SBCS CODEPAGE	DBCS CODEPAGE
English (US)	USB	697	37	
English (UK)	UKB	697	285	
Belgian	BLI	697	500	
Canadian French	CAI	697	500	
Danish	DMB	697	277	
Finnish	FNB	697	278	
German	AGB	697	273	
Dutch	NEB	697	37	
Italian	ITB	697	280	
Swiss French	SFI	697	500	
Swiss German	SGI	697	500	
Swedish	SWB	697	278	
Norwegian	NWB	697	277	
French	FAB	697	297	
Spanish	SPB	697	284	
Portuguese	PRB	697	37	
Japanese Kanji + Katakana	JKB	1172	290	300
Korean	KOB	1173	833	834
Simplified Chinese	RCB	1174	836	837
Traditional Chinese	TAB	1175	37	835
Hebrew	NCB	941	424	
Thai	THB	1176	838	
Greek	GNB	925	875	
Cyrillic	CYB	960	880	
Turkish	TRB	1152	1026	
Russian	RUB	1150	1025	
Czech	CSB	959	870	
Slovak	SKB	959	870	
Polish	POB	959	870	

Serial Settings



When the terminal is not in WBT mode, this dialog box is displayed by selecting **Serial** in the **Settings** menu, or by clicking the **Configure...** button in the **New Connection** dialog box when the connection type is set to **Serial**. Note that the port for serial communications is selected via the **New Connection** dialog box which is displayed from the **File** menu.

Baud Rate

Factory default: 9600

This specifies the transmit and receive baud rates for the port selected for host communications.

Parity

Factory default: None

This option specifies the parity mode for each transmitted character. If the number of **Data Bits** is **8**, set this option to **None**.

Selecting **Odd** will cause an eighth bit to be added with a value of 1 if the previous 7 bits add up to an even number, and 0 if the previous 7 bits add up to an odd number. Selecting **Even** will cause an eighth bit to be added with a value of 1 if the previous 7 bits add up to an odd number, and 0 if the previous 7 bits add up to an even number. **Mark** parity will set every eighth bit to 1 and **Space** parity every bit to 0.

Flow Control

Factory default: Input

This option specifies the type of flow control used by the line port to communicate readiness to transmit or receive data from the host.

- None** - No flow control
- Input** - XON/XOFF on received data
- Output** - XON/XOFF on transmitted data

In/Out - XON/XOFF on transmitted & received data
Hardware - DTR/CTS hardware flow control.

Data Bits

Factory default: 8

This option specifies the number of data bits sent for each transmitted character.

Stop Bits

Factory default: 1

This specifies the number of stop bits sent for each transmitted character.

Transmit Rate

Factory default: Unlimited

The setting of this option determines the maximum effective baud rate that the emulator transmits terminal reports and data sent as a result of pasting data to the host.

On Line

Factory default: Selected

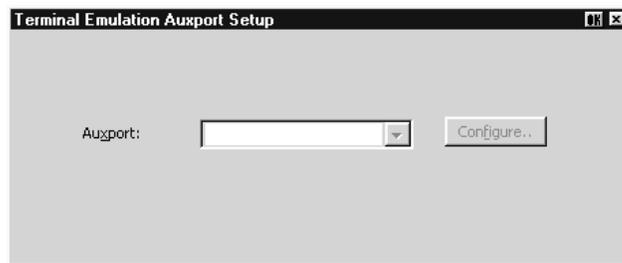
When this option is selected, normal two-way communication between the emulator and the host is enabled. When unselected, the emulator is in Local mode and data will not be sent to, or received from the host. Data typed on the keyboard will be displayed on the screen or actioned if a control command is typed.

Local Echo

Factory default: Unselected

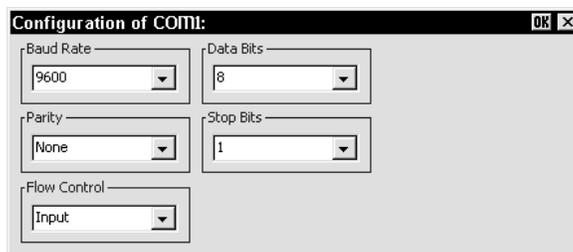
The setting of this option determines whether keyboard entered characters are displayed on the screen as well as sent to the host. When unselected, characters are not displayed when they are transmitted unless the host 'echoes' them back.

Auxport Setup

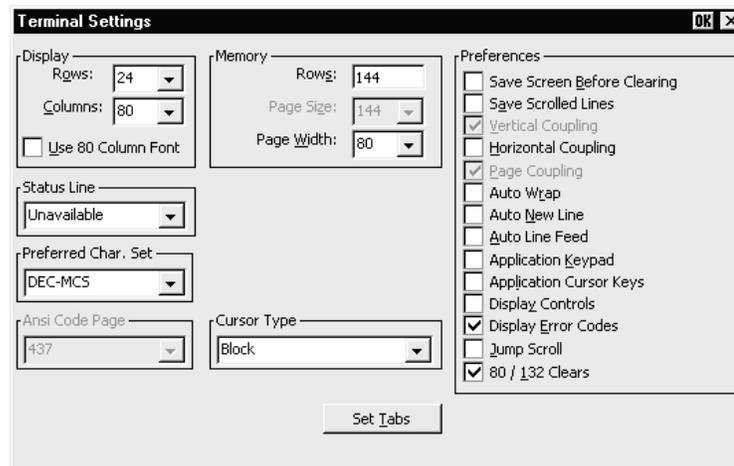


This dialog box is displayed by selecting **Auxport** in the **Settings** menu. It enables you to specify a COM or LPT port for bidirectional output when in any DEC VT mode, ANSI BBS, Sco Console or IBM 3151 mode.

Clicking the **Configure** button will display a dialog box in which you can specify settings for the COM port. The options in it are described in the *Serial Settings* section earlier in this chapter.



Terminal Settings



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

*Note: The **Tab Stops** dialog box displayed by clicking the **Set Tabs** button is described in the next section.*

Display Rows

Factory default: 24

This specifies the number of text rows that can be viewed in the workspace at any one time out of the total number stored in memory. This can be set to a maximum of 64. Note that the number of rows stored in memory is specified by the **Memory Rows** option.

Display Columns

Factory default: 80

This option enables you to specify a width of 80 or 132 columns for the workspace. 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 remaining columns.

Use 80 Column Font

Factory default: Unselected

This option specifies which font to use when the **Display 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.

Memory Rows

Factory default: 144

This option determines the number of text rows that are stored in memory. This can be set from 0 to 528 rows by default. The **Display Rows** option specifies the number of memory rows that can be viewed in the workspace at any one time.

Memory Page Size

Factory default: 24

When the emulator is in VT420 mode, 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. Note that the page size can be larger than the **Display Rows** setting, in which case 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 the emulator is in any mode other than VT420, the page size is the same as the **Display Rows** setting.

Memory Page Width

Factory default: 80

This option specifies the width of display memory for DEC VT modes, in the range 80 to 132 columns. When the number of **Display Columns** 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.

Status Line

Factory default: Unavailable

This option determines whether or not the 25th screen line is used as a status line when the emulator is in any DEC VT terminal emulation mode. When **Unavailable** or **Host Writable** is selected, the host can write application-specific messages to the 25th line. Selecting **None** will prevent this.

Preferred Char. Set

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 **Character Set Mode** option in the **Emulation Settings** dialog box is set to **Multinational**. 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, as shown in the *Character Sets* appendix.

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

Ansi Code Page

Factory default: 437

This option specifies the character set used for display when the **Preferred Char. Set** option is set to **Ansi**. Note that selecting the ANSI BBS emulation will automatically set the preferred font to **Ansi**.

The character set mappings (code pages) supported are **437** for normal usage (default) and **850, 852, 858** 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 sets. Refer to the *Character Sets* appendix for details.

Cursor Type

Factory default: Block

This enables you to specify how the text cursor is displayed. Select from the following:

Underline	Static Underline	Hidden
Block	Static Block	

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.

Vertical 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 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 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.

Auto Wrap

Factory default: Unselected

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

Auto New Line

Factory default: Unselected

When selected, this will cause a carriage return command to be appended to every line feed command received.

Auto Line Feed

Factory default: Unselected

When selected, this will cause a line feed command to be appended to every carriage return command received.

Application Keypad

Factory default: Unselected

The setting of this option determines the effect of pressing keys in the keypad on the right side of the keyboard.

When unselected, the keypad is in numeric mode and keys will generate the characters shown on the key caps. When selected, the keypad is in application mode and keys will generate control functions when pressed. The top row of four keys act as the equivalent DEC function keys PF1 through PF4.

Application Cursor Keys

Factory default: Unselected

When this option is selected the cursor keys will generate application program codes when pressed. Unselected, the keys will generate normal cursor movement commands.

Display Controls

Factory default: Unselected

The setting of this option determines whether received control codes are actioned or displayed. When selected, a representation of most control codes will be displayed on the screen.

Display Error Codes

Factory default: Selected

This option determines whether or not a chequerboard symbol is displayed when the delete code is received.

Jump Scroll

Factory default: Unselected

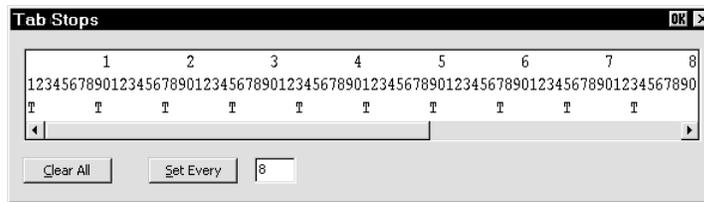
The setting of this option determines whether data is scrolled one or several lines at a time when the window becomes full. Data will scroll up several lines at a time when this is selected.

80 / 132 Clears

Factory default: Selected

This option determines whether or not data is cleared from the display when the number of columns is changed.

Tab Stops

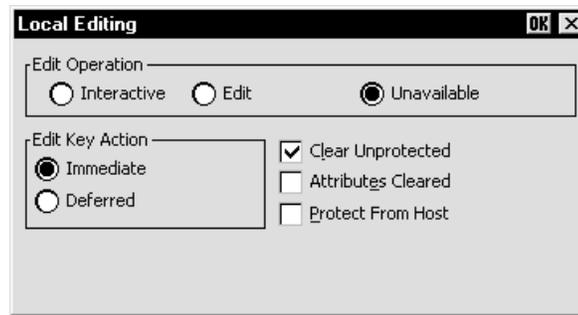


This dialog box is displayed by clicking the **Set Tabs** button in the **Terminal Settings** or **Wyse Settings** dialog box.

Tab stops can be set for the DEC VT, ANSI and SCO Console emulations using the **Tab Stops** dialog box displayed from the **Terminal Settings** dialog box, and for the Wyse emulations by using the **Tab Stops** dialog box displayed from the **Wyse Settings** dialog box.

Tab stops are set every eight columns by default, as indicated by the **T** character below the relevant column numbers. If you want tab stops to be set at regular intervals other than every 8th column, enter the number of columns required between each tab stop next to the **Set Every** button, then click the button. Individual tab stops can be toggled on or off by clicking the mouse pointer above or below the relevant column number. To remove all the tab stops, click the **Clear All** button. To save the current tab stops, select **Save Session** in the **File** menu.

Local Editing



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

Edit Operation

Factory default: Unavailable

The setting of this option determines whether 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** 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.

Edit Key Action

Factory default: Immediate

When this option is set to **Immediate**, 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 set to **Deferred**, 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.

Clear Unprotected

Factory default: Selected

The setting of this option determines which characters can be erased by the host or user. When selected, only unprotected characters can be erased, protected characters will be left untouched. When unselected, both protected and unprotected characters can be erased.

Attributes Cleared

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.

Protect From Host

Factory default: Unselected

The setting of this option determines whether or not the host can overwrite protected characters.

Block Transmission

This dialog box is displayed by selecting **Block Transmission** in the **Settings** menu. The options in this dialog box only apply to the block mode functionality supported by the DEC 'VT' terminal emulations. The block mode settings that are supported by other terminal emulations are specified in their respective dialog boxes.

Send Unprotected Only

Factory default: Unselected

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

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

Send Only Selected Areas

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 **Send All Selected Areas** option determines which selected areas are sent.

Send All Selected Areas

Factory default: Selected

When the **Send Only Selected Characters** 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 unselected, only the selected area containing the cursor will be sent to the host.

Line Transmission On

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 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 **Send Partial Page** and **Transmit Protocol** options.

Send Font Information

Factory default: Selected

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 current character set.

When selected, the character set selection sequences for all character sets represented in the data block will be sent. When unselected, characters which are not contained in the currently selected National or Multinational character set will be substituted with spaces.

Send Record Separators

Factory default: Selected

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 selected.

Send Spaces Compressed

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 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.

Send Partial Page

Factory default: Unselected

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 Transmission On** option is unselected.

When selected, 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 **Transmit Protocol** option. When unselected, the contents of the scrolling region will be sent to the host when the **Enter** key is pressed.

PF Key Effect

Factory default: None

This option determines how unshifted PF keys work in Local Editing mode.

When set to **None**, the unshifted function of PF keys will be disabled.

When set to **Breakthrough**, unshifted PF keys will function immediately when pressed if they have been assigned functions by application software.

When set to **As TX Prefix**, the function of unshifted PF keys will be sent to the host before a block of data is transmitted.

When set to **As TX Suffix**, the function of unshifted PF keys will be sent to the host after a block of data is transmitted.

Send Key Effect

Factory default: Immediate

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

When **Immediate** is selected, data will be sent to the host immediately without waiting for permission to transmit.

When **Deferred** is 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.

Transmit Protocol

Factory default: ANSI

The setting of this option determines whether a partial page of data is transmitted in ANSI or VT131 format when the **Send Partial Page** option is selected.

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

When **VT131** 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.

End of Line Characters

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

This text box 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.

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.

End of Block Characters

Factory default: None

This specifies the characters that are to indicate the end of a block of data.

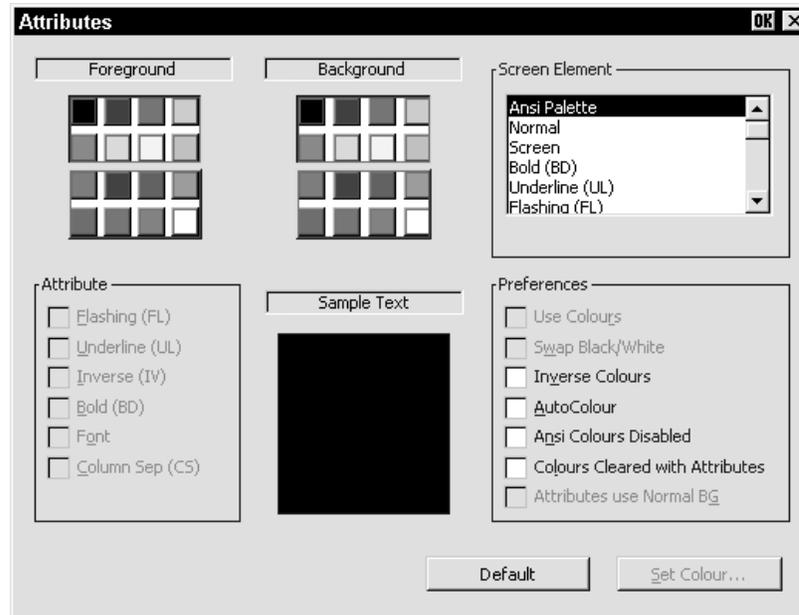
To change the current definition, delete the definition displayed in the text box and type in the new one, either as the control key character equivalent or the decimal value of the ASCII character.

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.

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.

Attributes



This dialog box is displayed by selecting **Attributes** in the **Settings** menu. It enables you to specify the colours used in the emulation workspace and how text with attributes is displayed.

To change the way a screen element is displayed, select the relevant item from the **Screen Element** list box, for example, **Bold (BD)** 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, and the **Sample Text** window will show how the screen element is actually displayed with these settings.

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 **Attribute** options allow you to enable or disable any of the attributes normally associated with the currently selected screen element. (The **Column Sep (CS)** option for the column separator attribute is only available when running the IBM 5250 emulation.)

The setting of the **Use Colours** option in the **Preferences** box determines whether or not a specific colour is assigned to the text attribute. When the **Use Colours** option is selected, the colour of the screen element can be changed by tapping 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). The set of 16 colours displayed can be customized using the **Colour Palette** dialog box which is described later.

Screen Element

This list box enables you to select the screen element for definition.

The **Ansi Palette** option allows you to specify which set of eight **Foreground** and **Background** colour indices are used when ANSI colour escape sequences are received. Either the upper or lower eight colours in the Foreground and Background palettes can be selected. The current eight colours are enclosed within a box. To change the current set of eight, just tap on any colour in the set required.

The list box also enables you to select various display options, depending on the current terminal emulation mode:

Normal	UL+BD	FL+BD+UL
Screen	FL+BD	IV+UL+BD
Bold (BD)	FL+UL	IV+FL+BD
Underline (UL)	IV+FL	IV+FL+UL
Flashing (FL)	IV+BD	IV+FL+BD+UL
Inverse (IV)	IV+UL	

When running the IBM 5250 emulation, the list of character attributes is extended to include the column separator (CS) attribute.

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

Attribute

The list of attribute options allow you to enable or disable the actual display of attributes associated with the selected screen element. Text with the bold attribute may be displayed as such by checking the **Font** box when the **Screen Element** is set to one of the bold options. Note that text display will be slower when **Font** is selected to display characters with the bold attribute as bold instead of a substitute colour.

Use Colours

When selected, the currently selected screen element will be displayed in the colours highlighted in the **Foreground** and **Background** colour palettes. For default display, deselect this option.

Swap Black/White

Factory default: Unselected

When selected, anything that has the white attribute will be displayed as black, and vice versa.

Inverse Colours

Factory default: Unselected

When this option is selected, characters with the inverse attribute will have the text (foreground) colour swapped with that of the text cell (background).

AutoColour

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.

Ansi Colours Disabled

Factory default: Unselected

Selecting this option will cause ANSI colour commands to be ignored.

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.

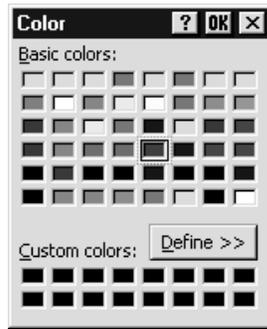
Attributes Use Normal BG

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.

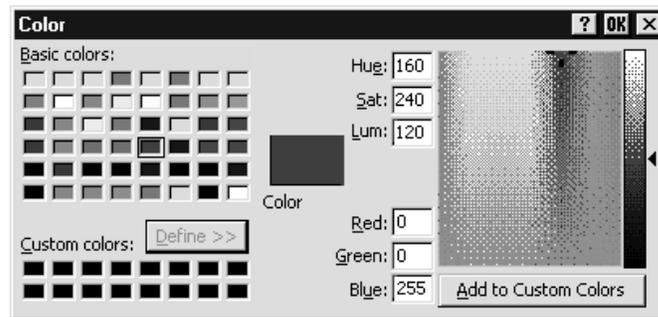
Customizing The Colour Selection

You can change any of the 16 colours displayed in the **Foreground** and **Background** colour palettes. To do this, select the colour you wish to change in one of the palettes then click the **Set Colour...** button to display the **Colour** dialog box.



This shows the basic and custom colours currently available for selection. If you want to use one of these, click on the colour required then tap **OK**.

If you want to define a different custom colour, click the **Define** button to display the colour definition facilities.



This provides two methods for specifying a different colour, one visual and the other numeric. All the settings initially displayed relate to the colour selected in the **Attributes** dialog box and shown in the large **Colour** box. When you start changing any of the settings, the **Colour** box will display the new colour.

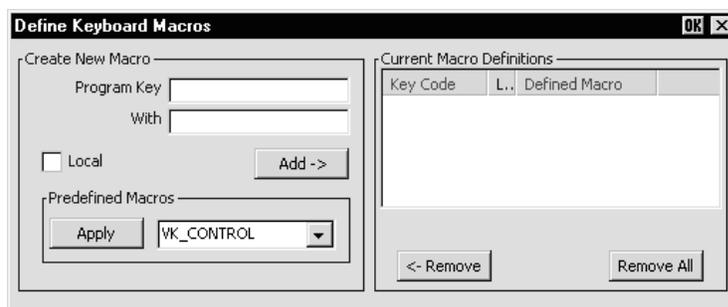
Visual Method

The full range of colours available is displayed in the large colour selection box. A target cursor is positioned over the currently selected colour. To select a new colour you can either click on the colour required or drag the target cursor over it. The colour displayed in the **Colour** box will change accordingly. The lightness of the selected colour can be altered by dragging the triangular pointer up or down the vertical bar to the right. When you have the required colour, click the **Add to Custom Colours** button to apply the change to the set of custom colours.

Numeric Value Method

The numeric value of **Hue**, **Lightness** and **Saturation**, or the **Red**, **Green** and **Blue** percentage values can be entered directly in the text boxes. The colour displayed in the **Colour** box will change accordingly. When you have the required colour, click the **Add to Custom Colours** button to apply the change to the set of custom colours.

Define Keyboard Macros



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

The **Define Keyboard Macros** dialog box enables you to redefine the function of most of the keys on your keyboard, including the key combinations listed below:

Key
Shift + Key
Control + Key
Control + Shift + Key
Alt + Key
Alt + Shift + Key
Alt + Control + Key
Alt + Control + Shift + Key

Each definition may contain a string of up to 127 characters. The combined total of all the characters that may be programmed into keys is determined by the 127 character limit per definition and the amount of memory available in your PC.

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

The **Predefined Macros** box enables you to select from a list of standard functions associated with the current terminal emulation. Clicking the arrow button will display a list box in which the names of valid key functions (called *virtual key names*) are shown. The *Virtual Key Names* appendix lists all the functions and associated virtual key names for each terminal emulation.

A key definition may be actioned locally or transmitted to the host when the key or key combination is pressed. This is determined by the setting of the **Local** check box. When unchecked the definition will be transmitted to the host.

The **Current Macro Definitions** box displays the key and key combinations that are currently defined. You can remove the selected definition or delete all the definitions by clicking the relevant **Remove** button.

Defining A Key Or Key Combination

1. Click in the **Program Key** box then press the key or key combination to define. The current definition will be displayed.
2. Click in the **With** box then enter the new definition, or make a selection from the list of **Predefined Macros** then click **Apply**.
3. Check the **Local** check box to make the key definition action locally, or uncheck it to transmit the definition to the host when the key or key combination is pressed.
4. Click the **Add** button to accept the definition. The new definition will be added to the **Current Macro Definitions** list.
5. To save the definitions, click **OK** to exit, then select **Save Session As** in the **File** menu, make sure the **Keyboard Macros** box is checked, then click **OK**.

Entering Control Characters

You can enter a control character 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.

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 program a key to perform the function of a combination or sequence of keys. For example, you can cause the **F1** key to perform the same function as 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. The virtual key name has to be enclosed by the **<** and **>** characters in the key definition box. You may omit the **VK_** and **VT_** (etc.) parts of the virtual key name.

To program a key so that it performs the same function as pressing two or more other keys together, type the **<** character followed by the virtual key names linked together with **+** (plus sign) characters and ending with the **>** character.

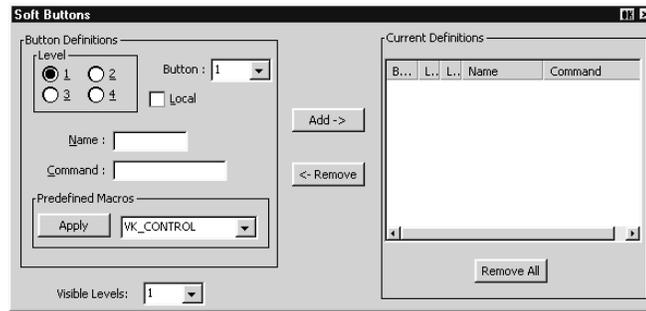
For example, to program the **F1** key so that when it is pressed it performs the same function as pressing the keys **Alt + F4** together, enter the following characters in the key definition box:

<ALT+F4>

To program a key so that it performs the same function as pressing a sequence of keys one after the other, enter each virtual key name in the order required, enclosing each virtual key 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 program the **A** key so that when it is pressed it performs the same function as pressing the keys **F2** then **F3** then **F4** enter the following characters in the key definition box:

<F2><F3><F4>

Soft Buttons



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

A set of soft buttons can be displayed in the command bar by clicking one of the two arrow buttons.



These soft buttons can be programmed so that they perform various functions when clicked.

You can define up to four soft button levels. Level 1 is displayed by default. Each level consists of twelve programmable buttons, providing a combined total of 48 programmable buttons. Levels stored off-screen can be 'scrolled' into view by clicking the arrow buttons.

Programming A Soft Button

1. Select the **Level** number.
2. Select the **Button** number.
3. Check the **Local** check box to make the button definition action locally, or uncheck it to transmit the definition to the host when the button is pressed.
4. Enter a **Name** to be displayed on the button, up to ten characters long.
5. Enter the button definition in the **Command** box, or make a selection from the list of **Predefined Macros** then click **Apply**.
6. Click the **Add** button to accept the definition. The new definition will be added to the **Current Definitions** list.

7. To save the definitions, click **OK** to exit, then select **Save Session As** in the **File** menu, make sure the **Soft Buttons** box is checked, then click **OK**.

Entering Control Characters

You can enter a control character 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.

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 program a soft button to perform the function of a combination or sequence of keys. For example, you can cause a button to perform the same function as 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. The virtual key name has to be enclosed by the **<** and **>** characters in the key definition text box. You may omit the **VK_** and **VT_** (etc.) parts of the virtual key name.

To program a soft button so that it performs the same function as pressing two or more other keys together, type the **<** character followed by the virtual key names linked together with **+** (plus sign) characters and ending with the **>** character.

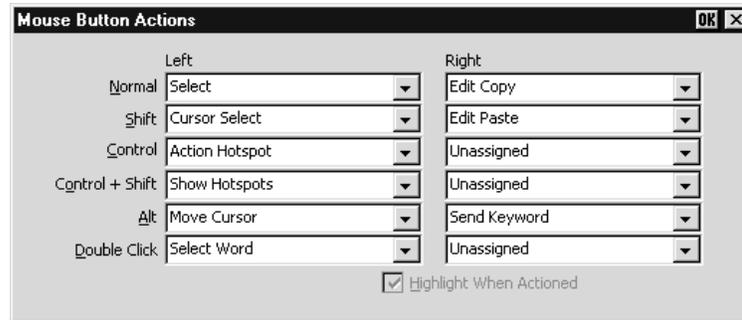
For example, to program a button so that when it is pressed it performs the same function as pressing the keys **Alt + F4** together, enter the following characters in the **Command** box:

<ALT+F4>

To program a button so that it performs the same function as pressing a sequence of keys one after the other, enter each virtual key name in the order required, enclosing each virtual key 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 program the **A** key so that when it is pressed it performs the same function as pressing the keys **F2** then **F3** then **F4** enter the following characters in the **Command** box:

<F2><F3><F4>

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 the left and right mouse buttons when they are clicked on their own or in conjunction with modifier keys. You can assign up to six functions to each button, either entering your own definition in the same format as described for keyboard macros and soft buttons, or selecting from a list of standard built-in functions. Clicking one of the arrow buttons will display a drop-down list box which lists all the standard functions that can be assigned:

Unassigned	Send CR
Select	Send Keyword
Extend Selection	*Middle Button
Edit Copy	Select Rectangle
Edit Paste	Select Word
Show Hotspots	Select and Copy
Action Hotspot	Cursor Select
Move Cursor	Rectangular Select and Copy

*Note: The item marked with * does not perform any function.*

The **Select** 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 **Select Rectangle** 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 **Select Word** function will cause the word under the mouse cursor to be selected.

The **Select and Copy** function is the same as **Select** but will also copy the selected data to the Clipboard automatically. The **Rectangular Select and Copy** function is the same as **Select Rectangle** but will also copy the selected data to the Clipboard automatically.

The **Show Hotspots** and **Action Hotspots** functions are described in the *Hotspots* section of the *Getting Started* 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. To position the text cursor, move the mouse pointer to the position required, hold down the modifier key(s) assigned with the function then click the left mouse button.

The **Cursor Select** function does the same as **Move Cursor**, but when running the IBM 3270 or IBM 5250 emulation it also performs a cursor select.

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.

6

DEC VT Emulations

This chapter describes features of the DEC VT terminal emulations.

Session Configuration

WBT Mode

This section describes the basic procedure for creating a session configuration when the terminal is in WBT mode. The options available are described in detail in chapter 2.

1. Click the **Configure** tab in the **Terminal Connection Manager** then click the **Add** button to display the **New Connection** dialog box.
2. Select **Terminal Emulation Client** and click **OK**. The **Terminal Emulation Client Connection Wizard - Connection Information** dialog box will be displayed.
3. Enter a name which will identify this session configuration for future selection in the **Connection Name** box.
4. Select the DEC VT terminal emulation required in the **Emulation** list box.

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

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

5. Specify the required **VT Terminal ID** setting.
6. Click **Next** to display the **Host Information** dialog box.

For a TCP/IP connection, click the **TCP/IP** button, enter the name or internet address of the host computer in the **Host Name** box, then click **Advanced** for

additional Telnet options. Refer to the *TCP/IP Connection Settings* section in chapter 2 for details.

For a modem connection, click the **Modem** button then click **Advanced** to display configuration options. Refer to the *Modem Connection Settings* section in chapter 2 for details.

For a serial connection, click the **Serial** button, specify the communications port in the **Connect To** box, then click **Advanced** for additional serial options. Refer to the *Serial Connection Settings* section in chapter 2 for details.

Make the relevant selections then click **OK** to return to the **Host Information** dialog box, then click **Next**.

7. The following four dialog boxes provide further configuration options which are described in chapter 2. Click **Next** to advance through the dialog boxes.

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8. When you have made your selections, click **Finish** to return to the **Terminal Connection Manager**.
9. In the **Terminal Connection Manager**, display the **Connections** list, select the session name you specified earlier in step 3, then click the **Connect** button.

Non-WBT Mode

This section describes the basic procedure for creating a session configuration when the terminal is not in WBT mode. The options available are described in detail in the *Setup Menus* chapter.

1. Display the **Settings** menu from the command bar and select **Emulation...** to display the **Emulation Settings** dialog box.
2. Select the DEC VT terminal emulation required in the **Alpha Emulation** list box.

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

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

3. Specify the required **VT Terminal ID** setting then click **OK** to close the dialog box.

4. Display the **File** menu from the command bar and select **New Connection** to display the **New Connection** dialog box.

5. Select the type of host connection required in the **Type** list box.

For a TCP/IP connection, select **TCP/IP**, enter the name or internet address of the host computer in the **Connect To** box, then click **Configure** for additional Telnet options. Refer to the *TCP/IP Connection Settings* section in chapter 2 for details.

For a modem connection, select **Modem**, specify the communications port in the **Connect To** box, then click **Configure** to display configuration options. Refer to the *Modem Connection Settings* section in chapter 2 for details.

For a serial connection, select **Serial**, specify the communications port in the **Connect To** box, then click **Configure** for additional serial options. Refer to the *Serial Connection Settings* section in chapter 2 for details.

6. When you have specified the required settings in the **New Connection** dialog box, click the **Connect** button to make the connection.

*Note: You can save these settings as a connection template using the **Save Session As** dialog box. Refer to the *Setup Menus* chapter for details.*

The Status Bar

The status bar along the bottom of the display enables you to switch between modes and show the status of various operations.



- Item 1:** This displays two LEDs. The first LED indicates whether or not you are connected to the host. It will show red when not connected and green when you are connected. The second LED indicates whether or not data is being sent to or from the host. It will show dull green when there is no activity, red when data is being sent to the host, and bright green when data is being received from the host.
- Item 2:** This button enables you to switch between **Local** and **Online** mode. The label indicates the mode you will switch to if the button is clicked.
- Item 3:** This button enables you to **Pause** or **Resume** scrolling data in the window. The label indicates the action that will be taken if the button is clicked.
- Item 4:** Indicates the current terminal emulation.
- Item 5:** This displays the active session (always 1), the current page number (always 1), and the **line,column** location of the text cursor.
- Item 6:** This 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.
- Item 7:** This will display **Edit** when the terminal emulation is in Edit mode.
- Item 8:** This will display the time in 24 hour format when in DEC VT400 mode if the VT525 set time command has been received from the host.
- Item 9:** Indicates the status of the printer as follows:
- None** signifies that the printer is not turned on or not connected, or not installed in Microsoft Windows.
- 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.

ErrGen indicates that an error has occurred and a message box will be displayed indicating the error.

Item **10**: This indicates the keyboard mode. It will be blank when the keyboard is in normal mode and will display **DEC** when in DEC mode. You can toggle between normal and DEC mode by pressing the keys **Alt + Num Lock** together. Refer to the illustrations in the *Keyboard Mapping* section for the key functions available in each mode.

Item **11**: Indicates the status of the aux port as follows:

Ready indicates that the aux port is ready for bidirectional output.

In Use indicates that the aux port is currently busy.

Horizontal Scrolling

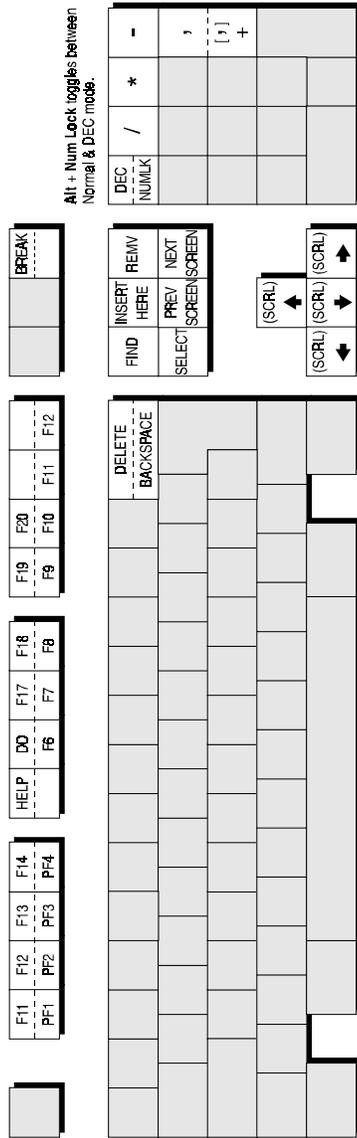
It is possible to make the width of display memory larger than the width of the window by using the **Memory Page Width** option in the **Terminal Settings** dialog box. When you want to view columns stored off-screen, you can scroll horizontally by holding down the **Ctrl** key and pressing the **Left**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

Keyboard Mapping

The illustrations on the following pages show where DEC VT400 keyboard functions are mapped to keys on the 101/102 key Enhanced AT keyboard layout. Special key functions that are provided on the DEC VT keyboard can be mapped to any key on your keyboard by using the VT virtual key names listed in the **Define Keyboard Macros** dialog box.

The keyboard can be used in two modes, Normal and DEC. You can toggle between the two modes by pressing the keys **Alt + Num Lock** together. The 10th item on the status bar will display **DEC** when the keyboard is in DEC mode. The field will be blank when in normal mode.

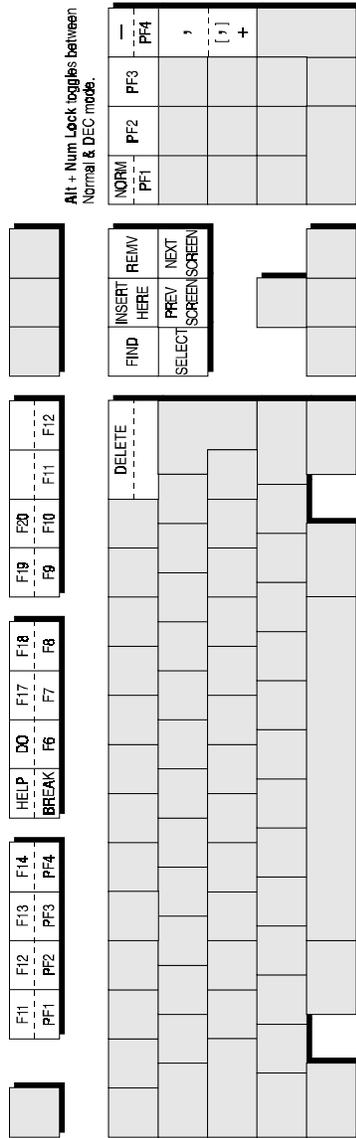
Enhanced AT Keyboard Layout Normal Mode



Alt key usage: F13
Normal key usage: PF3

All unmarked keys function as indicated by the legends on the keycaps.
 Functions in round brackets are generated when used in conjunction with **Control**.
 Functions in square brackets are generated in application keypad mode.

Enhanced AT Keyboard Layout DEC Mode



Alt + Num Lock toggles between Normal & DEC mode.

Alt key usage: F11 **Normal key usage:** HOLD

All unmarked keys function as indicated by the legends on the keycaps.
Functions in square brackets are generated in application keypad mode.

Notes

7

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.

Session Configuration

WBT Mode

This section describes the basic procedure for creating a session configuration when the terminal is in WBT mode. The options available are described in detail in chapter 2.

1. Click the **Configure** tab in the **Terminal Connection Manager** then click the **Add** button to display the **New Connection** dialog box.
2. Select **Terminal Emulation Client** and click **OK**. The **Terminal Emulation Client Connection Wizard - Connection Information** dialog box will be displayed.
3. Enter a name which will identify this session configuration for future selection in the **Connection Name** box.
4. Select the **IBM 3270** terminal emulation in the **Emulation** list box.

5. Select the **IBM 3270 Model** which determines the size of the display and whether or not extended attributes are supported. 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 (blink, flash and underscore, but not in combination), foreground colour, and query reply inbound structured fields. These attributes are also supported by the 3279.

6. Specify if you want the right or left **Control** keys to perform the same function as the keypad **Enter** or **Reset** keys, respectively.
7. Click **Next** to display the **Host Information** dialog box.

For a TCP/IP connection, click the **TCP/IP** button, enter the name or internet address of the host computer in the **Host Name** box, then click **Advanced** for additional Telnet options. Refer to the *TCP/IP Connection Settings* section in chapter 2 for details.

For a modem connection, click the **Modem** button then click **Advanced** to display configuration options. Refer to the *Modem Connection Settings* section in chapter 2 for details.

For a serial connection, click the **Serial** button, specify the communications port in the **Connect To** box, then click **Advanced** for additional serial options. Refer to the *Serial Connection Settings* section in chapter 2 for details.

Make the relevant selections then click **OK** to return to the **Host Information** dialog box, then click **Next**.

8. The following four dialog boxes provide further configuration options which are described in chapter 2. Click **Next** to advance through the dialog boxes.

Automate Login Process
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9. When you have made your selections, click **Finish** to return to the **Terminal Connection Manager**.
10. In the **Terminal Connection Manager**, display the **Connections** list, select the session name you specified earlier in step 3, then click the **Connect** button.

Non-WBT Mode

This section describes the basic procedure for creating a session configuration when the terminal is not in WBT mode. The options available are described in detail in the *Setup Menus* chapter.

1. Display the **Settings** menu from the command bar and select **Emulation...** to display the **Emulation Settings** dialog box.
2. Set the **Alpha Emulation** option to **IBM3270**, then click **OK**. The terminal will now be in Network Virtual Terminal mode.
3. Display the **IBM 3270 Settings** dialog box if you wish to change the setting of the **IBM 3270 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:

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 (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.

4. Select **Save Session** in the **File** menu.
5. Select **New Connection** in the **File** menu to display the **New Connection** dialog box.
6. Select the type of host connection required in the **Type** list box.

For a TCP/IP connection, select **TCP/IP**, enter the name or internet address of the host computer in the **Connect To** box, then click **Configure** for additional Telnet options. Refer to the *TCP/IP Connection Settings* section in chapter 2 for details.

For a modem connection, select **Modem**, specify the communications port in the **Connect To** box, then click **Configure** to display configuration options. Refer to the *Modem Connection Settings* section in chapter 2 for details.

For a serial connection, select **Serial**, specify the communications port in the **Connect To** box, then click **Configure** for additional serial options. Refer to the *Serial Connection Settings* section in chapter 2 for details.

7. When you have specified the required settings in the **New Connection** dialog box, click the **Connect** button to make the connection.

8. If necessary, enter the appropriate information to establish an IBM host session in the Network Virtual Terminal mode screen.
9. 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.

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.

IBM 3287-1 Printer Support

TN3287 printing is supported by setting the **IBM 3270 Model** option in the **IBM 3270 Settings** dialog box to **3287-1**. When a new Telnet connection is made, the display will 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.

SysReq Key Support

When the **SysReq** option in the **Telnet Options** 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
✕  NUM	Red	10-15	Numeric data only
✕ 	Red	10-14	Go elsewhere
✕ SYSTEM	White	10-17	System lock
✕ 	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.

✕ 犬 > 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.

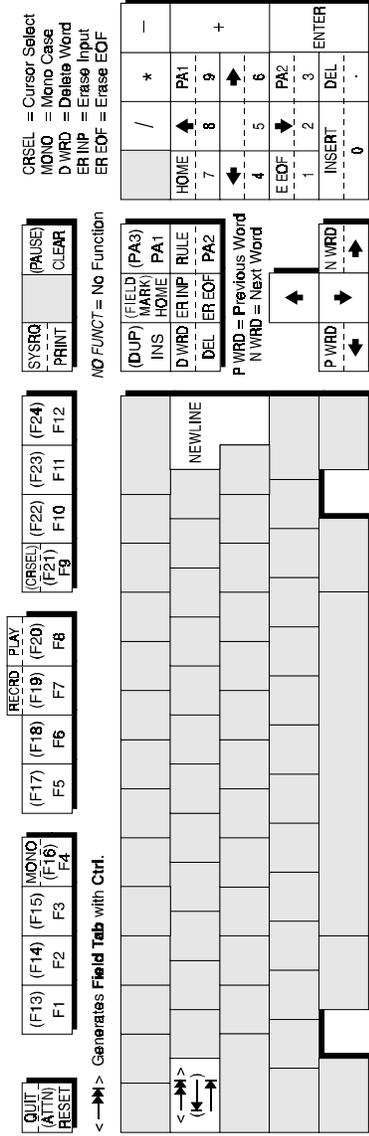
Mode Symbol

^ 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.

Keyboard Mapping

The following illustration shows where IBM 3270 keyboard functions are mapped to keys on the 101/102 key Enhanced AT keyboard layout. Special key functions that are provided on the IBM 3270 keyboard can be mapped to any key on your keyboard by using the IB virtual key names listed in the **Define Keyboard Macros** dialog box.

Enhanced AT Keyboard Layout



All unmarked keys function as indicated by the legends on the keycaps.
 Functions in brackets are generated when the keys are shifted.

Record & Playback Keystrokes Facility

The record/playback keystrokes facility enables you to eliminate repetitive operations by using the **Fn** keys to store, retrieve and display data. The **Fn** keys can store a total of 1500 keystrokes. A sequence of recorded keystrokes may be interrupted so that keystrokes can be entered manually before continuing with the recording or playback. Note that local **Fn** key functions cannot be recorded.

The keys used to initiate recording and playback are shown below together with the equivalent virtual key names which can be used to assign the functions to any key on the keyboard:

	<u>101/102 Key Keyboard</u>	<u>Virtual Key Names</u>
Record:	Alt + F7	IB_RECORD
Pause:	Shift + Pause	IB_PAUSE
Quit:	Alt + Escape	IB_QUIT
Play:	Alt + F8	IB_PLAY

Recording Keystrokes

1. Press **Record** to enter Record mode.

The status line will display **RECRD** and a number from **0-1500** indicating the number of new keystrokes that may be stored. A series of boxes displayed to the right represent the **Fn** keys. A solid box indicates that the **Fn** key in that position is currently storing recorded keystrokes.

2. Press the **Fn** key which will store the keystrokes. (On 101/102 keyboards you can also use **Shift + Fn**.)

The status line will display **R**** F*** where **R** indicates you are in Record mode, ******** is the number of keystrokes that may be stored, and **F*** is the number of the **Fn** key pressed.

*Note: If you press a pre-recorded **Fn** key, its contents will be replaced with the following keystrokes. You can also remove the contents of the **Fn** key before recording by pressing the **Delete** key.*

3. Enter the keystrokes to be recorded. You may pause recording at any time to allow keystrokes to be entered manually when played back by pressing **Pause**. To continue recording, press **Pause** again.

*Note: You can cancel the newly recorded keystrokes by pressing the **Quit** key. This cancellation does not affect the previously recorded keystrokes.*

4. To finish and save the recording, press the **Record** key.

Playback Keystrokes

1. Position the text cursor where the playback is to start.
2. Press the **Play** key to enter Play mode.

The status line will display **PLAY** and a series of boxes representing the **Fn** keys. A solid box indicates that the **Fn** key in that position is currently storing recorded keystrokes.

3. Press the **Fn** key storing the recorded data to play back.

Playback will begin immediately, as indicated by a **P** on the status line. All the recorded keystrokes will be played back automatically. When playback is completed the **P** will disappear.

If the recorded keystrokes included **Pause**, then playback will halt at that point to allow you to enter keystrokes manually. Press **Play** to resume playback from where you stopped typing.

If you want to cancel during the playback operation, press the **Quit** key.

Error Codes

The following error codes may appear on the status line if an error occurs during recording or playback.

9001 *Exceeded the maximum number of allowed keystrokes.*

Remedy: Press the **Record** key to exit Record mode. To record a new keystroke sequence, either:

a) Press the **Record** key and the target **Fn** key that has erasable data, then enter the new data.

b) Press the **Record** key and the target **Fn** key that has erasable data, then press the **Delete** key to erase the recorded data for that key.

9003 *You pressed an invalid **Fn** key while performing the Record or Play function.*

Remedy: Press the **Reset** key.

9007 *You pressed an invalid sequence key (e.g. **Play**) while performing the Record function.*

Remedy: Press the **Reset** key.

- 9010** *While performing the Play function, you pressed an **Fn** key that does not have a keystroke assigned to it.*
Remedy: Press the **Reset** key.
- 9015** *In communication mode, you pressed either the **Quit** or **Pause** key.*
Remedy: Press the **Reset** key.
- 9019** *In Record or Play mode. While the Record/play pause indicator was displayed on the status line you pressed an invalid key (e.g. **Play** key in Record mode, or **Record** key in Play mode).*
Remedy: Press the **Reset** key.

Notes

8

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.

Session Configuration

WBT Mode

This section describes the basic procedure for creating a session configuration when the terminal is in WBT mode. The options available are described in detail in chapter 2.

1. Click the **Configure** tab in the **Terminal Connection Manager** then click the **Add** button to display the **New Connection** dialog box.
2. Select **Terminal Emulation Client** and click **OK**. The **Terminal Emulation Client Connection Wizard - Connection Information** dialog box will be displayed.
3. Enter a name which will identify this session configuration for future selection in the **Connection Name** box.
4. Select the **IBM 5250** terminal emulation in the **Emulation** list box.
5. Specify the **IBM 5250 Model**. This is reported back to the host in response to a terminal identification request. (Note that not all features of the terminal model may be supported.) 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 models currently supported and their display characteristics are listed below.

Model	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
5555_B01	Monochrome	24 x 80
5555_C01	Colour	24 x 80

The printer models supported are listed below:

3812-1	Single byte printer
5553-B01	Double byte printer

If double byte character sets (e.g. Japanese) are supported and you wish to use them, then select either **5555_B01** (monochrome) or **5555_C01** (colour) for display, or **5553-B01** for printing.

- Specify if you want the right or left **Control** keys to perform the same function as the keypad **Enter** or **Reset** keys, respectively.
- Specify the **IBM5250 Monochrome** setting. Note that all IBM 5250 models 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 (described in the *Setup Menus* chapter) will be used for the display.
- Click **Next** to display the **Host Information** dialog box.

For a TCP/IP connection, click the **TCP/IP** button, enter the name or internet address of the host computer in the **Host Name** box, then click **Advanced** for additional Telnet options. Refer to the *TCP/IP Connection Settings* section in chapter 2 for details.

For a modem connection, click the **Modem** button then click **Advanced** to display configuration options. Refer to the *Modem Connection Settings* section in chapter 2 for details.

For a serial connection, click the **Serial** button, specify the communications port in the **Connect To** box, then click **Advanced** for additional serial options. Refer to the *Serial Connection Settings* section in chapter 2 for details.

Make the relevant selections then click **OK** to return to the **Host Information** dialog box, then click **Next**.

- The following four dialog boxes provide further configuration options which are described in chapter 2. Click **Next** to advance through the dialog boxes.

Automate Login Process

Printer Port Settings

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- When you have made your selections, click **Finish** to return to the **Terminal Connection Manager**.
- In the **Terminal Connection Manager**, display the **Connections** list, select the session name you specified earlier in step 3, then click the **Connect** button.

Non-WBT Mode

This section describes the basic procedure for creating a session configuration when the terminal is not in WBT mode. The options available are described in detail in the *Setup Menus* chapter.

- Display the **Settings** menu from the command bar and select **Emulation...** to display the **Emulation Settings** dialog box.
- Set the **Alpha Emulation** option to **IBM5250** then click **OK**. The terminal will now be in Network Virtual Terminal mode.
- Display the **Settings** menu and select **IBM 5250...** to display the **IBM 5250 Settings** dialog box.
- Specify the **IBM 5250 Model**. This is reported back to the host in response to a terminal identification request. (Note that not all features of the terminal model may be supported.) 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 models currently supported and their display characteristics are listed below.

Model	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

5555_B01	Monochrome	24 x 80
5555_C01	Colour	24 x 80

The printer models supported are listed below:

3812-1	Single byte printer
5553-B01	Double byte printer

If double byte character sets (e.g. Japanese) are supported and you wish to use them, then select either **5555_B01** (monochrome) or **5555_C01** (colour) for display, or **5553-B01** for printing.

5. Specify the **Monochrome** setting. Note that all IBM 5250 models 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 (described in the *Setup Menus* chapter) will be used for the display.

Click **OK** to close the dialog box.

6. Select **Save Session** in the **File** menu.
7. Select **New Connection** in the **File** menu to display the **New Connection** dialog box.
8. Select the type of host connection required in the **Type** list box.

For a TCP/IP connection, select **TCP/IP**, enter the name or internet address of the host computer in the **Connect To** box, then click **Configure** for additional Telnet options. Refer to the *TCP/IP Connection Settings* section in chapter 2 for details.

For a modem connection, select **Modem**, specify the communications port in the **Connect To** box, then click **Configure** to display configuration options. Refer to the *Modem Connection Settings* section in chapter 2 for details.

For a serial connection, select **Serial**, specify the communications port in the **Connect To** box, then click **Configure** for additional serial options. Refer to the *Serial Connection Settings* section in chapter 2 for details.

9. When you have specified the required settings in the **New Connection** dialog box, click the **Connect** button to make the connection.
10. If necessary, enter the appropriate information to establish an IBM host session in the Network Virtual Terminal mode screen.
11. 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/cc	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

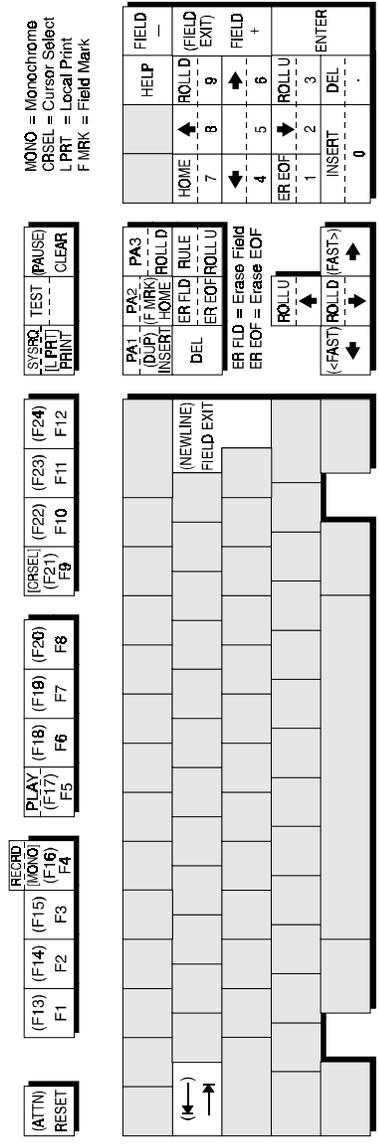
The following illustration shows where IBM 5250 keyboard functions are mapped to keys on the 101/102 key Enhanced AT keyboard layout. Special key functions that are provided on the IBM 5250 keyboard can be mapped to any key on your keyboard by using the AS virtual key names listed in the **Define Keyboard Macros** dialog box.

Word Processing Mode

The following keyboard functions are available when the IBM 5250 emulation is in Word Processing mode:

Symbols Command	Alt + A
Begin Bold	Alt + B
Centre Text	Alt + C
Next Text Column	Alt + D
Half-Index Down	Alt + H
End Attribute	Alt + J
Find Stop Code	Alt + N
Start New Page	Alt + P
Required Page End	Alt + R
Insert Stop Code	Alt + S
Begin Underline	Alt + U
Word Underline	Alt + W
Half-Index Up	Alt + Y
Beginning of Line	Alt + Cursor Left
End of Line	Alt + Cursor Right
Top of Page	Alt + Cursor Up
End of Page	Alt + Cursor Down
Insert Carrier Return	Alt + Field Exit
Required Space	Alt + Space
Required Tab	Alt + Tab

Enhanced AT Keyboard Layout



Alt key usage: PA3
 Normal key usage: ROLLD

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.

Record & Playback Keystrokes Facility

The record/playback keystrokes facility enables you to eliminate repetitive operations by using the **Fn** keys to store, retrieve and display data. The **Fn** keys can store a total of 1500 keystrokes. A sequence of recorded keystrokes may be interrupted so that keystrokes can be entered manually before continuing with the recording or playback. Note that local **Fn** key functions cannot be recorded.

The keys used to initiate recording and playback are shown below together with the equivalent virtual key names which can be used to assign the functions to any key on the keyboard:

	<u>101/102 Key Keyboard</u>	<u>Virtual Key Names</u>
Record:	Alt + F4	AS_RECORD
Pause:	Shift + Pause	AS_PAUSE
Quit:	Alt + LControl (<i>see note</i>)	AS_QUIT
Play:	Alt + F5	AS_PLAY

Note: Quit is Alt + Left Control if Left Control is defined as the Reset key.

Recording Keystrokes

1. Press **Record** to enter Record mode.

The status line will display **RECRD** and a number from **0-1500** indicating the number of new keystrokes that may be stored. A series of boxes displayed to the right represent the **Fn** keys. A solid box indicates that the **Fn** key in that position is currently storing recorded keystrokes.

2. Press the **Fn** key which will store the keystrokes. (On 101/102 keyboards you can also use **Shift + Fn**.)

The status line will display **R**** F*** where **R** indicates you are in Record mode, ******** is the number of keystrokes that may be stored, and **F*** is the number of the **Fn** key pressed.

*Note: If you press a pre-recorded **Fn** key, its contents will be replaced with the following keystrokes. You can also remove the contents of the **Fn** key before recording by pressing the **Delete** key.*

3. Enter the keystrokes to be recorded. You may pause recording at any time to allow keystrokes to be entered manually when played back by pressing **Pause**. Pause mode is indicated by **R^ ^**. To continue recording, press **Pause** again.

*Note: You can cancel the newly recorded keystrokes by pressing the **Quit** key. This cancellation does not affect the previously recorded keystrokes.*

4. To finish and save the recording, press the **Record** key.

Playback Keystrokes

1. Position the text cursor where the playback is to start.
2. Press the **Play** key to enter Play mode.

The status line will display **PLAY** and a series of boxes representing the **Fn** keys. A solid box indicates that the **Fn** key in that position is currently storing recorded keystrokes.

3. Press the **Fn** key storing the recorded data to play back.

Playback will begin immediately, as indicated by a **P** on the status line. All the recorded keystrokes will be played back automatically. When playback is completed the **P** will disappear.

If the recorded keystrokes included **Pause**, then playback will halt at that point to allow you to enter keystrokes manually. Press **Play** to resume playback from where you stopped typing.

If you want to cancel during the playback operation, press the **Quit** key.

Error Codes

The following error codes may appear on the status line if an error occurs during recording or playback.

9001 *Exceeded the maximum number of allowed keystrokes.*

Remedy: Press the **Record** key to exit Record mode. To record a new keystroke sequence, either:

- a) Press the **Record** key and the target **Fn** key that has erasable data, then enter the new data.
- b) Press the **Record** key and the target **Fn** key that has erasable data, then press the **Delete** key to erase the recorded data for that key.

9003 *You pressed an invalid **Fn** key while performing the Record or Play function.*

Remedy: Press the **Reset** key.

9007 *You pressed an invalid sequence key (e.g. **Play**) while performing the Record function.*

Remedy: Press the **Reset** key.

9010 *While performing the Play function, you pressed an **Fn** key that does not have a keystroke assigned to it.*

Remedy: Press the **Reset** key.

9015 *In communication mode, you pressed either the **Quit** or **Pause** key.*

Remedy: Press the **Reset** key.

9019 *In Record or Play mode. While the Record/play pause indicator was displayed on the status line you pressed an invalid key (e.g. **Play** key in Record mode, or **Record** key in Play mode).*

Remedy: Press the **Reset** key.

9

IBM 3151 Emulation

This chapter describes features of the IBM 3151 terminal emulation.

Introduction

The IBM 3151 emulation is based on the native mode of the IBM 3151 Model 11 terminal. The emulation is configured using the **IBM 3151 Settings** dialog box which is described in the *Setup Menus* chapter. The display is set to 24 rows by 80 columns by default, but you can select one of four display formats from the **IBM 3151 Settings** dialog box:

- 24 rows x 80 columns
- 25 rows x 80 columns
- 24 rows x 132 columns
- 25 rows x 132 columns

Session Configuration

WBT Mode

This section describes the basic procedure for creating a session configuration when the terminal is in WBT mode. The options available are described in detail in chapter 2.

1. Click the **Configure** tab in the **Terminal Connection Manager** then click the **Add** button to display the **New Connection** dialog box.
2. Select **Terminal Emulation Client** and click **OK**. The **Terminal Emulation Client Connection Wizard - Connection Information** dialog box will be displayed.
3. Enter a name which will identify this session configuration for future selection in the **Connection Name** box.

4. Select the **IBM 3151** terminal emulation in the **Emulation** list box.
5. Click **Next** to display the **Host Information** dialog box.

For a TCP/IP connection, click the **TCP/IP** button, enter the name or internet address of the host computer in the **Host Name** box, then click **Advanced** for additional Telnet options. Refer to the *TCP/IP Connection Settings* section in chapter 2 for details.

For a modem connection, click the **Modem** button then click **Advanced** to display configuration options. Refer to the *Modem Connection Settings* section in chapter 2 for details.

For a serial connection, click the **Serial** button, specify the communications port in the **Connect To** box, then click **Advanced** for additional serial options. Refer to the *Serial Connection Settings* section in chapter 2 for details.

Make the relevant selections then click **OK** to return to the **Host Information** dialog box, then click **Next**.
6. The following four dialog boxes provide further configuration options which are described in chapter 2. Click **Next** to advance through the dialog boxes.

Automate Login Process
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7. When you have made your selections, click **Finish** to return to the **Terminal Connection Manager**.
8. In the **Terminal Connection Manager**, display the **Connections** list, select the session name you specified earlier in step 3, then click the **Connect** button.

Non-WBT Mode

This section describes the basic procedure for creating a session configuration when the terminal is not in WBT mode. The options available are described in detail in the *Setup Menus* chapter.

1. Display the **Settings** menu from the command bar and select **Emulation...** to display the **Emulation Settings** dialog box.
2. Select the **IBM 3151** terminal emulation in the **Alpha Emulation** list box.
3. Display the **File** menu from the command bar and select **New Connection** to display the **New Connection** dialog box.
4. Select the type of host connection required in the **Type** list box.

For a TCP/IP connection, select **TCP/IP**, enter the name or internet address of the host computer in the **Connect To** box, then click **Configure** for additional

Telnet options. Refer to the *TCP/IP Connection Settings* section in chapter 2 for details.

For a modem connection, select **Modem**, specify the communications port in the **Connect To** box, then click **Configure** to display configuration options. Refer to the *Modem Connection Settings* section in chapter 2 for details.

For a serial connection, select **Serial**, specify the communications port in the **Connect To** box, then click **Configure** for additional serial options. Refer to the *Serial Connection Settings* section in chapter 2 for details.

- When you have specified the required settings in the **New Connection** dialog box, click the **Connect** button to make the connection.

*Note: You can save these settings as a connection template using the **Save Session As** dialog box. Refer to the *Setup Menus* chapter for details.*

The Status Line

This status bar along the bottom of the display shows the status of various operations.

Pause	IBM 3151	1 1(001,001)	ECHO	HOLD SCREEN	Printer: Ready
		1	2	3	4

Field 1: **(rrr,ccc)** indicates the current row and column position of the cursor.

Field 2: **INSERT** indicates that Insert mode is active when the **Insert** key is pressed or when the Insert Character command is received. Note that the message will not be displayed if the **Insert Character** option is not set to **Mode**. Insert mode is exited by pressing the **Insert** or **Reset** key.

Field 3: Indicates the current operating mode.

In **BLOCK** mode, keyboard entered data is displayed and processed locally, allowing you to edit it before a block of data is sent to the host.

In **CHAR** mode, keyboard entered data is sent simultaneously to the host and the display.

In **ECHO** mode, keyboard entered data is sent only to the host. The host is then responsible for returning the data to the display.

Field 4: **HOLD SCREEN** indicates that the **Hold Screen** key has been pressed to suspend screen update. Press **Hold Screen** again to enable screen update.

INVALID KEY appears when you press an invalid key.

KEYS LOCKED appears when the keyboard is locked. The keys will be unlocked when the Keyboard Unlock command is received or when the **Cancel** key is pressed.

NUMERIC indicates the cursor is located in an unprotected numeric field.

PRINTING indicates that data is being sent to the printer.

SENDING indicates that data is being sent to the host.

WRONG PLACE appears when you press an invalid key in a protected field or field attribute character position. It is also displayed when you try to insert a character or line in a screen already full when the **Forcing Insert** option is set to **Off**.

If two or more messages are sent to a particular field, then the message with the highest priority will be displayed. Messages in field **4** are displayed in the following order:

HOLD SCREEN
SENDING
PRINTING
KEYS LOCKED
INVALID KEY
WRONG PLACE
NUMERIC

Keyboard Mapping

The following illustration shows where IBM 3151 keyboard functions are mapped to keys on the 101/102 key Enhanced AT keyboard layout. Special key functions that are provided on the IBM 3151 keyboard can be mapped to any key on your keyboard by using the virtual key names listed in the **Define Keyboard Macros** dialog box.

Defining Function Keys

The keys mapped as **F1** through **F12** can be redefined from the keyboard or by the host. The function keys can store up to 128 characters between them and can include escape sequences and ASCII control characters in addition to character strings. Here we describe how to define a function key from the keyboard.

1. Display the function key menu by pressing the keys **Shift + Esc**.

```
DEF F: █ .....
      |-----|
      Field A      Field B
```

2. Specify the function key to be defined by entering a two-digit number in field **A**, for example, **01** for **F1**, **12** for **F12**, then press **Enter**. Field **B** will display the current definition of the function key.

```
DEF F: 01 █ a..... AID
```

3. In field **B**, enter the new definition for the function key. This can include a character string, escape sequence or control characters.

A control character is entered by typing the keyboard equivalent. For example, the **CR** (carriage return) character is entered by pressing **Ctrl + M**. Refer to the *Character Sets* appendix to find the keyboard equivalents of other control characters.

The following example shows the definition entry for the **F1** key so that it displays **New definition** then performs a carriage return when pressed:

```
DEF F: 01 New definition^M █.....
```

You can erase the character at the current cursor position by pressing the keys **Ctrl + 2**. If you want to restore the default definition, press the **Clear** key while the cursor is in field **B**.

4. Press the **Send** key to store the key definition. The function key menu will be cleared to allow you to enter the next key definition. If you do not wish to save the definition, press **Ctrl + Shift + Esc** instead of **Enter**.

Note that the function keys can store a maximum of 128 characters between them. When this number is reached or exceeded, field **A** will start blinking and any characters following the 128th character will be discarded.

5. Repeat steps 2 to 4 until you have finished defining function keys.
6. To exit from the function key menu, press **Ctrl + Shift + Esc**.

10

Wyse Emulations

This chapter describes features of the Wyse WY-50, WY-50+ and WY-60 terminal emulations.

Session Configuration

WBT Mode

This section describes the basic procedure for creating a session configuration when the terminal is in WBT mode. The options available are described in detail in chapter 2.

1. Click the **Configure** tab in the **Terminal Connection Manager** then click the **Add** button to display the **New Connection** dialog box.
2. Select **Terminal Emulation Client** and click **OK**. The **Terminal Emulation Client Connection Wizard - Connection Information** dialog box will be displayed.
3. Enter a name which will identify this session configuration for future selection in the **Connection Name** box.
4. Select the Wyse terminal emulation required in the **Emulation** list box.

The **WY50**, **WY50+** and **WY60** emulations provide compatibility with software designed to drive the Wyse WY-50, WY-50+ and WY-60 terminals, respectively.

The **ADDS A2** emulation provides compatibility with software designed to drive the ADDS Viewpoint A2 terminal, as emulated by the Wyse WY-50/50+/60 terminals.

The **HZ 1500** emulation provides compatibility with software designed to drive the Hazeltine 1500 terminal, as emulated by the Wyse WY-50/50+/60 terminals.

The **TVI 910+**, **TVI 920** and **TVI 925** emulations provide compatibility with software designed to drive the TeleVideo 910+, 920 and 925 terminals, respectively, as emulated by the Wyse WY-50/50+/60 terminals.

5. Click **Next** to display the **Host Information** dialog box.

For a TCP/IP connection, click the **TCP/IP** button, enter the name or internet address of the host computer in the **Host Name** box, then click **Advanced** for additional Telnet options. Refer to the *TCP/IP Connection Settings* section in chapter 2 for details.

For a modem connection, click the **Modem** button then click **Advanced** to display configuration options. Refer to the *Modem Connection Settings* section in chapter 2 for details.

For a serial connection, click the **Serial** button, specify the communications port in the **Connect To** box, then click **Advanced** for additional serial options. Refer to the *Serial Connection Settings* section in chapter 2 for details.

Make the relevant selections then click **OK** to return to the **Host Information** dialog box, then click **Next**.

6. The following four dialog boxes provide further configuration options which are described in chapter 2. Click **Next** to advance through the dialog boxes.

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7. When you have made your selections, click **Finish** to return to the **Terminal Connection Manager**.
8. In the **Terminal Connection Manager**, display the **Connections** list, select the session name you specified earlier in step 3, then click the **Connect** button.

All the Wyse associated emulations are configured via the **Wyse Settings** dialog box which is described in the *Setup Menus* chapter. Note that some settings may not apply to the particular emulation currently running. Selecting a setting that is not applicable to the current emulation will cause the emulator to use the default setting for that emulation when the dialog box is exited.

Non-WBT Mode

This section describes the basic procedure for creating a session configuration when the terminal is not in WBT mode. The options available are described in detail in the *Setup Menus* chapter.

1. Display the **Settings** menu from the command bar and select **Emulation...** to display the **Emulation Settings** dialog box.

2. Select the Wyse terminal emulation required in the **Alpha Emulation** list box.

The **WY50**, **WY50+** and **WY60** emulations provide compatibility with software designed to drive the Wyse WY-50, WY-50+ and WY-60 terminals, respectively.

The **ADDS A2** emulation provides compatibility with software designed to drive the ADDS Viewpoint A2 terminal, as emulated by the Wyse WY-50/50+/60 terminals.

The **HZ 1500** emulation provides compatibility with software designed to drive the Hazeltine 1500 terminal, as emulated by the Wyse WY-50/50+/60 terminals.

The **TVI 910+**, **TVI 920** and **TVI 925** emulations provide compatibility with software designed to drive the TeleVideo 910+, 920 and 925 terminals, respectively, as emulated by the Wyse WY-50/50+/60 terminals.
3. Display the **File** menu from the command bar and select **New Connection** to display the **New Connection** dialog box.
4. Select the type of host connection required in the **Type** list box.

For a TCP/IP connection, select **TCP/IP**, enter the name or internet address of the host computer in the **Connect To** box, then click **Configure** for additional Telnet options. Refer to the *TCP/IP Connection Settings* section in chapter 2 for details.

For a modem connection, select **Modem**, specify the communications port in the **Connect To** box, then click **Configure** to display configuration options. Refer to the *Modem Connection Settings* section in chapter 2 for details.

For a serial connection, select **Serial**, specify the communications port in the **Connect To** box, then click **Configure** for additional serial options. Refer to the *Serial Connection Settings* section in chapter 2 for details.
5. When you have specified the required settings in the **New Connection** dialog box, click the **Connect** button to make the connection.

*Note: You can save these settings as a connection template using the **Save Session As** dialog box. Refer to the *Setup Menus* chapter for details.*

All the Wyse associated emulations are configured via the **Wyse Settings** dialog box which is described in the *Setup Menus* chapter. Note that some settings may not apply to the particular emulation currently running. Selecting a setting that is not applicable to the current emulation will cause the emulator to use the default setting for that emulation when the dialog box is exited.

- Field 2: Indicates the number of the page that is currently displayed. No message is displayed when the current page is 0.
- Field 3: * indicates that Monitor mode is on. In this mode, received codes are not actioned but displayed as symbolic representations.
- Field 4: Indicates the current operating mode.
- FDX** indicates full-duplex mode.
 - HDX** indicates half-duplex mode.
 - LCL** indicates local mode.
 - BLK** indicates block mode.
 - HBLK** indicates half-duplex block mode.
 - HLD** indicates that display update has been suspended. Pressing the **Hold** key will toggle display update on and off.
- Field 5: **>AUX** indicates that the emulation is in auxiliary print or transparent print mode.
- <AUX** indicates that the emulation is in auxiliary receive mode.
 - =AUX** indicates that the emulation is in auxiliary receive mode and auxiliary print mode.
 - %AUX** indicates that a print screen operation is in progress.

Standard Status Line

- Field 6: **rrr-ccc** indicates the current row and column position of the cursor.

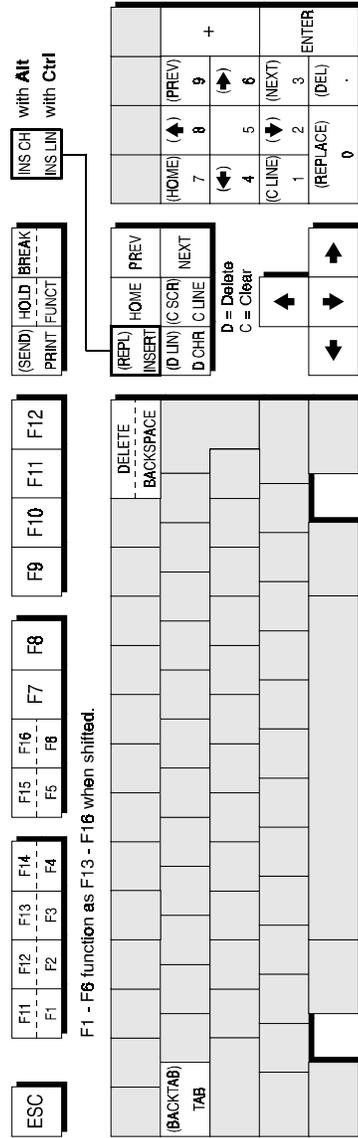
Extended Status Line

- Field 6: **PROT** indicates that Protect mode is on.
- Field 7: **WPRT** indicates that Write-protect mode is on when in Protect mode.
- Field 8: **INS** indicates that Insert mode is on.

Keyboard Mapping

The following illustration shows where Wyse keyboard functions are mapped to keys on the 101/102 key Enhanced AT keyboard layout. Special key functions that are provided on the Wyse keyboard can be mapped to any key on your keyboard by using the WY virtual key names listed in the **Define Keyboard Macros** dialog box.

Enhanced AT Keyboard Layout



Alt key usage: All unmarked keys function as indicated by the legends on the keycaps.
Normal key usage: Numeric keypad bracketed functions are generated when Num Lock is OFF.
 Bracketed functions not on the Numeric keypad are generated when shifted.

A

Virtual Key Names

This appendix lists all the supported virtual key names.

Standard Virtual Key Names

Key Function	Virtual Key Name	Key Function	Virtual Key Name
0 - 9	VK_0 - VK_9	Keypad 0 - 9	VK_NUMPAD0 - 9
A - Z	VK_A - VK_Z	Keypad Add (+)	VK_ADD
Alt (right)	VK_RALT	Keypad Divide (/)	VK_DIVIDE
Apps	VK_APPS	Keypad Decimal (.)	VK_DECIMAL
Apostrophe	VK_APOSTROPHE	Keypad Multiply (*)	VK_MULTIPLY
Backspace	VK_BACK	Keypad Subtract (-)	VK_SUBTRACT
Break	VK_BREAK	Num Lock	VK_NUMLOCK
Clear	VK_CLEAR	Off (⌘ → l) 102 key kbd	VK_OFF
Comma	VK_COMMA	Page Down	VK_NEXT
Compose Character	VK_COMPOSE	Page Up	VK_PRIOR
Control (left)	VK_CONTROL	Paste	VK_PASTE
Control (right)	VK_RCONTROL	Pause	VK_PAUSE
Copy	VK_COPY	Period	VK_PERIOD
Cursor Down	VK_DOWN	Print	VK_PRINT
Cursor Left	VK_LEFT	Print Screen	VK_SNAPSHOT
Cursor Right	VK_RIGHT	Quote (back)	VK_BACKQUOTE
Cursor Up	VK_UP	Return	VK_RETURN
Data Talk	VK_DATATALK	Scroll Lock	VK_SCROLL
Delete	VK_DELETE	Select	VK_SELECT
End	VK_END	Semicolon (; :)	VK_SEMICOLON
Equal	VK_EQUAL	Separator	VK_SEPARATOR
Escape	VK_ESCAPE	Setup	VK_SETUP
Euro Sign	VK_EUROSIGN	Shift (right)	VK_RSHIFT
Execute	VK_EXECUTE	Slash (backward)	VK_BACKSLASH
Exit Emulator	VK_EXIT	Slash (forward)	VK_SLASH
F1 - F12	VK_F1 - VK_F12	Spacebar	VK_SPACE
Help	VK_HELP	Square Bracket (left)	VK_LBRACKET
Hold Screen	VK_HOLDSCREEN	Square Bracket (right)	VK_RBRACKET
Home	VK_HOME	Tab	VK_TAB
Hyphen	VK_HYPHEN	Windows (left)	VK_LWIN
Insert	VK_INSERT	Windows (right)	VK_RWIN

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 Character	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
Datatak	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	Home	IB_HOME
Back Tab	IB_BACKTAB	M. Slot Reader Start	IB_MSATTRIB
Backspace	IB_BACKSPACE	M. Slot Reader Send	IB_OPIDRDR
Clear	IB_CLEAR	Mono Case	IB_MONO
Cursor Down	IB_DOWN	Next Word	IB_NEXTWORD
Cursor Left	IB_LEFT	Num Lock	IB_NUMLOCK
Cursor Right	IB_RIGHT	PA1 - PA3	IB_PA1 - IB_PA3
Cursor Select	IB_CURSORSEL	Pause	IB_PAUSE
Cursor Up	IB_UP	Play Keystrokes	IB_PLAY
Delete Character	IB_DELCHAR	Previous Word	IB_PREVWORD
Delete Word	IB_DELWORD	Print Screen	IB_PRINT
Duplicate	IB_DUP	Quit	IB_QUIT
Enter	IB_ENTER	Record Keystrokes	IB_RECORD
Erase End Of Field	IB_ERASEEOF	Reset	IB_RESET
Erase Input	IB_ERASEINPUT	Return	IB_RETURN
F1 - F24	IB_F1 - IB_F24	Rule Display	IB_RULE
Field Mark	IB_FIELDMARK	System Request	IB_SYSREQ
Selectable Field Tab	IB_FIELDTAB	Tab	IB_TAB
Insert Mode	IB_INSERT		

IBM 5250 Virtual Key Names

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

IBM 5250 Word Processing Mode

Key Function	Virtual Key Name	Key Function	Virtual Key Name
Begin Bold	AS_WP_BOLD	Top of Page	AS_WP_TOP_PAGE
Begin Underline	AS_WP_UNDERLINE	End of Page	AS_WP_END_PAGE
Word Underline	AS_WP_WORD_UNDER	Start New Page	AS_WP_NEW_PAGE
End Attribute	AS_WP_END_ATTR	Insert Carrier Return	AS_WP_RETURN
Centre Text	AS_WP_CENTRE	Insert Stop Code	AS_WP_STOP_CODE
Half-Index Up	AS_WP_HI_UP	Find Stop Code	AS_WP_FIND_STOP
Half-Index Down	AS_WP_HI_DOWN	Required Page End	AS_WP_REQD_PAGE
Next Text Column	AS_WP_NEXT_COL	Required Space	AS_WP_REQD_SPACE
Beginning of Line	AS_WP_BEG_LINE	Required Tab	AS_WP_REQD_TAB
End of Line	AS_WP_END_LINE	Symbols Command	AS_WP_SYMBOLS

SCO Console Virtual Key Names

Key Function	Virtual Key Name	Key Function	Virtual Key Name
Backspace	SC_BACKSPACE	F1 - F12	SC_F1 - SC_F21
Cursor Down	SC_DOWN	F1 - F12 + Shift	SC_S_F1 - SC_S_F12
Cursor Left	SC_LEFT	F1 - F12 + Ctrl	SC_C_F1 - SC_C_F12
Cursor Right	SC_RIGHT	F1 - F12 + Ctrl + Shift	SC_CS_F1 - SC_CS_F12
Cursor Up	SC_UP	Home	SC_HOME
Delete	SC_DELETE	Insert	SC_INSERT
Delete + Shift	SC_S_DELETE	Page Down	SC_PAGEDOWN
Delete + Ctrl + Shift	SC_CS_DELETE	Page Down + Shift	SC_S_PAGEDOWN
End	SC_END	Page Up	SC_PAGEUP
End + Shift	SC_S_END	Return	SC_RETURN
Enter	SC_ENTER	Tab	SC_TAB
Escape	SC_ESCAPE	Tab + Shift	SC_S_TAB

Wyse Virtual Key Names

Key Function	Virtual Key Name	Key Function	Virtual Key Name
Backspace	WY_BACKSPACE	Delete	WY_DELCHAR
Cursor Down	WY_DOWN	Delete shifted	WY_DELLINE
Cursor Left	WY_LEFT	End	WY_CLRLINE
Cursor Right	WY_RIGHT	End shifted	WY CLRSCRN
Cursor Up	WY_UP	Insert	WY_INSCHAR
Delete	WY_DELETE	Insert shifted	WY_INSLINE
Del Key	WY_DELKEY	Insert shifted	WY_REPLACE
End	WY_END	Print shifted	WY_SEND
Enter	WY_ENTER	Alt + A	WY_CHARSET
Escape	WY_ESC		
F1 - F16	WY_F1 - WY_F16		
Function	WY_FUNCT		
Home	WY_HOME		
Insert	WY_INSERT		
Keypad 5	WY_KP5		
Page Down	WY_PAGEDOWN		
Page Up	WY_PAGEUP		
Print	WY_PRINT		
Return	WY_RETURN		
Tab	WY_TAB		

Notes:

To obtain the virtual key names for shifted functions of the keys listed at left, substitute WY_ with WY_S_.

The virtual key names listed above are alternative names that can be used.

B

Character Sets

This appendix shows the supported character sets.

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 the emulator is in local mode and they are entered from the keyboard.

*Note: When the **Display Controls** option in the **Terminal 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**.

Another way of specifying control characters is by entering the decimal value of the ASCII character. 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**.

**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	0000	0001	0010	0011	0100	0101	0110	0111
0	0000 NUL	0001 DLE	0010 SP	0011 0	0100 @	0101 P	0110 `	0111 p
1	0001 SOH	0010 DC1 XON	0011 !	0100 1	0101 A	0110 Q	0111 a	1000 q
2	0010 STX	0011 DC2	0100 "	0101 2	0110 B	0111 R	1000 b	1001 r
3	0011 ETX	0100 DC3 XOFF	0101 #	0110 3	0111 C	1000 S	1001 c	1010 s
4	0100 EOT	0101 DC4	0110 \$	1000 4	1001 D	1010 T	1011 d	1100 t
5	0101 ENQ	0110 NAK	1000 %	1001 5	1010 E	1011 U	1100 e	1101 u
6	0110 ACK	0111 SYN	1000 &	1001 6	1010 F	1011 V	1100 f	1101 v
7	0111 BEL	1000 ETB	1001 `	1010 7	1011 G	1100 W	1101 g	1110 w
8	1000 BS	1001 CAN	1010 (	1011 8	1100 H	1101 X	1110 h	1111 x
9	1001 HT	1010 EM	1011)	1100 9	1101 I	1110 Y	1111 i	1200 y
10	1010 LF	1011 SUB	1100 *	1101 :	1110 J	1111 Z	1200 j	1201 z
11	1011 VT	1100 ESC	1101 +	1110 ;	1111 K	1200 [	1201 k	1210 {
12	1100 FF	1101 FS	1110 ,	1111 <	1200 L	1201 \	1210 l	1211 |
13	1101 CR	1110 GS	1111 -	1200 =	1201 M	1210]	1211 m	1220 }
14	1110 SO	1111 RS	1200 .	1201 >	1210 N	1211 ^	1220 n	1221 ~
15	1111 SI	1200 US	1201 /	1210 ?	1211 O	1220 _	1221 o	1230 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 **Character Set Mode** option is set to **Multinational**. 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 Char. Set** option in the **Terminal 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	1
6	1	0	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	1
4	0	0	1	1	1	1	1	0	1	1	1	1	1	1	1	1
3	0	0	0	1	1	1	1	0	0	1	1	1	1	1	1	1
2	1	0	1	0	0	1	1	0	1	1	1	0	0	1	1	1
1	1	0	1	0	1	0	1	0	1	0	1	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	é	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	é	î	è	ô	ä	ö	ü	û				

This table shows the characters that replace certain ASCII characters when the **Character Set Mode** option in the **Emulation Settings** dialog box is set to **National**. 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	240 160 A0	° 176 B0	À 192 C0	320 208 D0	à 224 E0	360 240 F0	0000 0
201 129 81	PU1 145 91	ı 241 A1	± 161 B1	Á 193 C1	Ñ 209 D1	á 225 E1	ñ 241 F1	0001 1
202 130 82	PU2 146 92	ç 242 A2	2 162 B2	Â 194 C2	Ò 210 D2	â 226 E2	ò 242 F2	0010 2
203 131 83	STS 147 93	£ 243 A3	3 163 B3	Ã 195 C3	Ó 211 D3	ã 227 E3	ó 243 F3	0011 3
204 132 84	IND CCH 148 94	.. 244 A4		Ä 196 C4	Ô 212 D4	ä 228 E4	ö 244 F4	0100 4
205 133 85	NEL MW 149 95	¥ 245 A5	μ 164 B4	Å 197 C5	Õ 213 D5	å 229 E5	õ 245 F5	0101 5
206 134 86	SSA SPA 150 96	ı 246 A6	η 165 B5	Æ 198 C6	Ö 214 D6	æ 230 E6	ö 246 F6	0110 6
207 135 87	ESA EPA 151 97	§ 247 A7	· 166 B6	Ç 199 C7	Œ 215 D7	ç 231 E7	œ 247 F7	0111 7
210 136 89	HTS 230 98	ˆ 250 A8		È 200 C8	Ø 216 D8	è 232 E8	ø 248 F8	1000 8
211 137 89	HTJ 231 99	© 251 A9	1 167 B7	É 201 C9	Ù 217 D9	é 233 E9	ù 249 F9	1001 9
212 138 8A	VTS 232 9A	® 252 AA	2 168 B8	Ê 202 CA	Ú 218 DA	ê 234 EA	ú 250 FA	1010 10
213 139 8B	PLD CSI 233 9B	« 253 AB	» 169 B9	Ë 203 CB	Û 219 DB	ë 235 EB	û 251 FB	1011 11
214 140 8C	PLU 140 9C	ST 158 9C	¼ 170 BA	Ì 188 BC	Ü 204 CC	ì 220 EC	ü 252 FC	1100 12
215 141 8D	RI OSC 157 9D	½ 255 AD	½ 171 BB	Í 189 BD	Ý 205 CD	í 221 ED	ÿ 253 FD	1101 13
216 142 8E	SS2 PM 158 9E	174 256 AE	190 174 BE	Î 190 CE		î 222 EE		1110 14
217 143 8F	SS3 APC 159 9F	175 257 AF	191 191 BF	Ï 207 CF	ß 223 DF	ï 239 EF		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 the terminal is in **VT400 7** or **8** bit mode, the **Character Set Mode** option in the **Emulation Settings** dialog box is set to **Multinational**, and the **Preferred Char. Set** option in the **Terminal Settings** dialog box is set to **DEC-MCS**.

DEC LINE DRAWING CHARACTER SET

COLUMN	0	1	2	3	4	5	6	7
ROW	0000	0001	0010	0011	0100	0101	0110	0111
0	NUL	DLE	SP	0	@	P	◆	▬
1	SOH	DC1 XON	!	1	A	Q	■	▬
2	STX	DC2	"	2	B	R	H _T	▬
3	ETX	DC3 XOFF	#	3	C	S	F _F	▬
4	EOT	DC4	\$	4	D	T	C _R	▬
5	ENQ	NAK	%	5	E	U	L _F	▬
6	ACK	SYN	&	6	F	V	°	▬
7	BEL	ETB	'	7	G	W	±	▬
8	BS	CAN	(	8	H	X	N _L	▬
9	HT	EM	)	9	I	Y	v _T	≤
10	LF	SUB	*	:	J	Z	J	≥
11	VT	ESC	+	;	K	[	⌈	π
12	FF	FS	,	<	L	\	⌋	≠
13	CR	GS	-	=	M]	⌌	£
14	SO	RS	.	>	N	^	⌍	•
15	SI	US	/	?	O		⌎	DEL

KEY: ESC

33	OCTAL
27	DECIMAL
1B	HEXADECIMAL

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

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	R O W
200 128 80	DCS 144 90	NBSP 240 160 A0	° 260 176 B0	À 300 192 C0	Ð 320 208 D0	à 340 224 E0	ö 360 240 F0	0000	0
201 129 81	PU1 221 145 91	ı 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	ç 242 162 A2	² 262 178 B2	Â 302 194 C2	Ò 322 210 D2	â 342 226 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 CCH 224 148 94	 244 164 A4	´ 264 180 B4	Ä 304 196 C4	Ô 324 212 D4	ä 344 228 E4	ö 364 244 F4	0100	4
205 133 85	NEL MW 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 SPA 226 150 96	ı 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 EPA 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 310 203 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 8A	VTS 232 154 9A	² 252 170 AA	² 272 186 BA	Ê 312 202 CA	Ú 332 218 DA	ê 352 234 EA	ú 372 250 FA	1010	10
213 139 8B	PLD CSI 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 8C	PLU ST 234 156 9C	¼ 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 8D	RI OSC 235 157 9D	½ 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 8E	SS2 PM 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 8F	SS3 APC 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 the terminal is in **VT400 7** or **8** bit mode, the **Character Set Mode** option in the **Emulation Settings** dialog box is set to **Multinational**, and the **Preferred Char. Set** option in the **Terminal Settings** dialog box is set to **ISO Latin-1**.

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 144 90	NBSP 145 91	° 160 A0	° 176 B0	Ř 192 C0	Đ 208 D0	ř 224 E0	ö 240 F0	0000 0
201 129 81	PU1 145 91	À 146 92	à 161 A1	á 177 B1	Á 193 C1	Ñ 209 D1	á 225 E1	ñ 241 F1	0001 1
202 130 82	PU2 146 92	˘ 147 93	˘ 162 A2	˘ 178 B2	Â 194 C2	Ë 210 D2	â 226 E2	ë 242 F2	0010 2
203 131 83	STS 147 93	Ł 148 94	ł 163 A3	ł 179 B3	Ă 195 C3	Ó 211 D3	ă 227 E3	ó 243 F3	0011 3
204 132 84	IND 148 94	Š 149 95	š 164 A4	š 180 B4	Ä 196 C4	Ö 212 D4	š 228 E4	ö 244 F4	0100 4
205 133 85	NEL 149 95	Ĺ 150 96	ĺ 165 A5	ĺ 181 B5	Ľ 197 C5	Ő 213 D5	ĺ 229 E5	ő 245 F5	0101 5
206 134 86	SSA 150 96	Ś 151 97	ś 166 A6	ś 182 B6	Ć 198 C6	Œ 214 D6	ś 230 E6	œ 246 F6	0110 6
207 135 87	ESA 151 97	Ş 152 98	ş 167 A7	ş 183 B7	Ç 199 C7	× 215 D7	ş 231 E7	÷ 247 F7	0111 7
210 138 88	HTS 152 98	ˆ 153 99	ˆ 168 A8	ˆ 184 B8	Č 200 C8	Ř 216 D8	č 232 E8	ř 248 F8	1000 8
211 137 89	HTJ 153 99	Š 154 9A	š 169 A9	š 185 B9	É 201 C9	Û 217 D9	é 233 E9	û 249 F9	1001 9
212 138 8A	VTS 154 9A	Ş 155 9B	ş 170 AA	ş 186 BA	Ę 202 CA	Ū 218 DA	ę 234 EA	ū 250 FA	1010 10
213 139 8B	PLD 155 9B	Ť 156 9C	ť 171 AB	ť 187 BB	Ě 203 CB	Ú 219 DB	ě 235 EB	ú 251 FB	1011 11
214 140 8C	PLU 156 9C	Ž 157 9D	ž 172 AC	ž 188 BC	Ě 204 CC	Û 220 DC	ě 236 EC	ů 252 FC	1100 12
215 141 8D	RI 157 9D	SHY 158 9E	ˆ 173 AD	ˆ 189 BD	Í 205 CD	Ý 221 DD	í 237 ED	ý 253 FD	1101 13
216 142 8E	SS2 158 9E	Ž 159 9F	ž 174 AE	ž 190 BE	Î 206 CE	Ť 222 DE	î 238 EE	‡ 254 FE	1110 14
217 143 8F	SS3 159 9F	Ž 175 AF	ž 191 BF	ž 207 CF	Ď 213 DF	ß 223 EF	ž 239 FF	· 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 the terminal is in VT400 7 or 8 bit mode, the **Character Set Mode** option in the **Emulation Settings** dialog box is set to **Multinational**, and the **Preferred Char. Set** option in the **Terminal Settings** dialog box is set to **ISO Latin-2**.

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
								R O W
Ç 200 128 80	É 220 144 90	Á 240 160 A0						0000 0
Û 201 129 81	æ 221 145 91	Í 241 161 A1						0001 1
é 202 130 82	Æ 222 146 92	Ó 242 162 A2						0010 2
â 203 131 83	ô 223 147 93	Ú 243 163 A3						0011 3
ä 204 132 84	ö 224 148 94	Ñ 244 164 A4						0100 4
à 205 133 85	ò 225 149 95	Ñ 245 165 A5						0101 5
á 206 134 86	ú 226 150 96	æ 246 166 A6						0110 6
ç 207 135 87	ù 227 151 97	é 247 167 A7						0111 7
ê 210 136 88	ÿ 230 152 98	¿ 250 168 A8						1000 8
ë 211 137 89	ÿ 231 153 99							1001 9
è 212 138 8A	ÿ 232 154 9A							1010 10
ï 213 139 8B	€ 233 155 9B	½ 253 171 AB						1011 11
î 214 140 8C	£ 234 156 9C	¼ 254 172 AC						1100 12
ì 215 141 8D	¥ 235 157 9D	í 255 173 AD						1101 13
Ä 216 142 8E	ŕ 236 158 9E	« 256 174 AE						1110 14
Å 217 143 8F	f 237 159 9F	» 257 175 AF						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 Char. Set** option in the **Terminal Settings** dialog box is set to **Ansi** and the **Ansi Code Page** 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	
ROW	0	1	2	3	4	5	6	7	
Ç 200 128 80	É 220 144 90	á 240 160 A0	█ 260 176 B0	Ł 300 182 C0	ø 320 208 D0	Ó 340 224 E0	— 360 240 F0	0000	0
ü 201 129 81	æ 221 145 91	í 241 161 A1	█ 261 177 B1	Ł 301 183 C1	Đ 321 209 D1	ß 341 225 E1	± 361 241 F1	0001	1
é 202 130 82	Æ 222 146 92	ó 242 162 A2	█ 262 178 B2	Ł 302 184 C2	Ê 322 210 D2	Ô 342 226 E2	= 362 242 F2	0010	2
â 203 131 83	ô 223 147 93	ú 243 163 A3	█ 263 179 B3	Ł 303 185 C3	Ë 323 211 D3	Ò 343 227 E3	¾ 363 243 F3	0011	3
ä 204 132 84	ö 224 148 94	ñ 244 164 A4	█ 264 180 B4	Ł 304 186 C4	È 324 212 D4	ō 344 228 E4	¶ 364 244 F4	0100	4
à 205 133 85	ò 225 149 95	Ñ 245 165 A5	█ 265 181 B5	Ł 305 187 C5	Ì 325 213 D5	Õ 345 229 E5	§ 365 245 F5	0101	5
â 206 134 86	û 226 150 96	æ 246 166 A6	█ 266 182 B6	Ł 306 188 C6	Í 326 214 D6	μ 346 230 E6	÷ 366 246 F6	0110	6
ç 207 135 87	ù 227 151 97	ø 247 167 A7	█ 267 183 B7	Ł 307 189 C7	Î 327 215 D7	Ɔ 347 231 E7	↳ 367 247 F7	0111	7
ê 210 136 88	ÿ 230 152 98	ç 248 168 A8	█ 268 184 B8	Ł 310 200 C8	Ï 330 216 D8	Đ 350 232 E8	○ 370 248 F8	1000	8
ë 211 137 89	ÿ 231 153 99	® 249 169 A9	█ 269 185 B9	Ł 311 201 C9	Ĵ 331 217 D9	Ú 351 233 E9	“ 371 249 F9	1001	9
è 212 138 8A	ÿ 232 154 9A	⌈ 250 170 AA	█ 270 186 BA	Ł 312 202 CA	Ĵ 332 218 DA	Û 352 234 EA	• 372 250 FA	1010	10
ï 213 139 8B	ø 233 155 9B	½ 251 171 AB	█ 271 187 BB	Ł 313 203 CB	█ 333 219 DB	Ü 353 235 EB	¹ 373 251 FB	1011	11
î 214 140 8C	£ 234 156 9C	¼ 252 172 AC	█ 272 188 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 253 173 AD	█ 273 189 BD	Ł 315 205 CD	█ 335 221 DD	Ý 355 237 ED	² 375 253 FD	1101	13
Ä 216 142 8E	× 236 158 9E	« 254 174 AE	█ 274 190 BE	Ł 316 206 CE	█ 336 222 DE	— 356 238 FE	█ 376 254 FF	1110	14
Å 217 143 8F	f 237 159 9F	» 255 175 AF	█ 275 191 BF	Ł 317 207 CF	█ 337 223 DF	BLANK FF	FF	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 Char. Set option in the Terminal Settings dialog box is set to Ansi and the Ansi Code Page 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	
								R O W	
200 128 80 Ç	220 144 90 È	240 160 A0 Á	260 176 B0 L	300 192 C0 L	320 208 D0 đ	340 224 E0 Ó	360 240 F0 -	0000	0
201 129 81 Û	221 145 91 Í	241 161 A1 í	261 177 B1 I	301 193 C1 I	321 209 D1 Đ	341 225 E1 ~	361 241 F1 ~	0001	1
202 130 82 é	222 146 92 Í	242 162 A2 ó	262 178 B2 I	302 194 C2 I	322 210 D2 Đ	342 226 E2 Ô	362 242 F2 ˆ	0010	2
203 131 83 â	223 147 93 ô	243 163 A3 ú	263 179 B3 I	303 195 C3 I	323 211 D3 Ě	343 227 E3 Ñ	363 243 F3 ˘	0011	3
204 132 84 ä	224 148 94 ö	244 164 A4 A	264 180 B4 I	304 196 C4 I	324 212 D4 đ	344 228 E4 ñ	364 244 F4 ˘	0100	4
205 133 85 û	225 149 95 Û	245 165 A5 a	265 181 B5 I	305 197 C5 I	325 213 D5 ň	345 229 E5 š	365 245 F5 \$	0101	5
206 134 86 ć	226 150 96 č	246 166 A6 ž	266 182 B6 I	306 198 C6 I	326 214 D6 á	346 230 E6 š	366 246 F6 ÷	0110	6
207 135 87 ç	227 151 97 š	247 167 A7 ž	267 183 B7 I	307 199 C7 I	327 215 D7 î	347 231 E7 š	367 247 F7 ˘	0111	7
210 136 88 t	230 152 98 s	250 168 A8 E	270 184 B8 I	310 200 C8 I	330 216 D8 ě	350 232 E8 ř	370 248 F8 o	1000	8
211 137 89 ë	231 153 99 ö	251 169 A9 e	271 185 B9 I	311 201 C9 I	331 217 D9 J	351 233 E9 U	371 249 F9 "	1001	9
212 138 9A ó	232 154 9A ü	252 170 AA I	272 186 BA I	312 202 CA I	332 218 DA I	352 234 EA í	372 250 FA +	1010	10
213 139 9B ó	233 155 9B ť	253 171 AB z	273 187 BB I	313 203 CB I	333 219 DB I	353 235 EB ú	373 251 FB I	1011	11
214 140 9C î	234 156 9C ť	254 172 AC č	274 188 BC I	314 204 CC I	334 220 DC I	354 236 EC ý	374 252 FC ř	1100	12
215 141 9D ž	235 157 9D t	255 173 AD š	275 189 BD I	315 205 CD I	335 221 DD I	355 237 ED ý	375 253 FD ř	1101	13
216 142 9E Ä	236 158 9E x	256 174 AE «	276 190 BE I	316 206 CE I	336 222 DE I	356 238 EE I	376 254 FE I	1110	14
217 143 9F Ć	237 159 9F č	257 175 AF »	277 191 BF I	317 207 CF I	337 223 DF I	357 239 EF I	377 255 FF I	1111	15

KEY:  277 OCTAL
191 DECIMAL
BF 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 Char. Set** option in the **Terminal Settings** dialog box is set to **Ansi** and the **Ansi Code Page** option is set to **852**.

ANSI 858 CHARACTER SET

8	9	10	11	12	13	14	15	COLUMN	
1 ⁰ 0 ⁰	1 ⁰ 0 ¹	1 ⁰ 1 ⁰	1 ⁰ 1 ¹	1 ¹ 0 ⁰	1 ¹ 0 ¹	1 ¹ 1 ⁰	1 ¹ 1 ¹	8 ⁷ 7 ⁶ 6 ⁵ 5 ⁴ 4 ³ 3 ² 2 ¹	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
ü 201 129 81	æ 221 145 91	í 241 161 A1	█ 261 177 B1	Ł 301 193 C1	Ð 321 209 D1	ß 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	ô 223 147 93	ú 243 163 A3	█ 263 179 B3	Ł 303 195 C3	È 323 211 D3	Ò 343 227 E3	¼ 363 243 F3	0011	3
ä 204 132 84	ö 224 148 94	ñ 244 164 A4	█ 264 180 B4	Ł 304 196 C4	È 324 212 D4	ö 344 228 E4	¶ 364 244 F4	0100	4
à 205 133 85	ò 225 149 95	Ñ 245 165 A5	Á 265 181 B5	Ł 305 197 C5	€ 325 213 D5	Õ 345 229 E5	§ 365 245 F5	0101	5
â 206 134 86	û 226 150 96	á 246 166 A6	Â 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	ó 247 167 A7	À 267 183 B7	Ã 307 199 C7	î 327 215 D7	Þ 347 231 E7	¸ 367 247 F7	0111	7
ê 210 136 88	ÿ 230 152 98	¿ 250 168 A8	© 270 184 B8	Ł 310 200 C8	ï 330 216 D8	Ð 350 232 E8	○ 370 248 F8	1000	8
ë 211 137 89	Ö 231 153 99	® 251 169 A9	Ł 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	Ł 272 186 BA	Ł 312 202 CA	Ł 332 218 DA	Û 352 234 EA	• 372 250 FA	1010	10
ï 213 139 8B	ø 233 155 9B	½ 253 171 AB	Ł 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	Ł 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	í 255 173 AD	¢ 275 189 BD	= 315 205 CD	ı 335 221 DD	Ý 355 237 ED	2 375 253 FD	1101	13
Ä 216 142 8E	× 236 158 9E	« 256 174 AE	¥ 276 190 BE	Ł 316 206 CE	ì 336 222 DE	— 356 238 EE	█ 376 254 FE	1110	14
Å 217 143 8F	f 237 159 9F	» 257 175 AF	Ł 277 191 BF	α 317 207 CF	█ 337 223 DF	´ 357 239 EF	BLANK FF 377 255 FF	1111	15

KEY: Ñ 245 OCTAL
165 DECIMAL
A5 HEXADECIMAL

This table forms the second half of the ANSI 858 character set, the first half being the ASCII character set.

The ANSI 858 character set is used when the **Preferred Char. Set** option in the **Terminal Settings** dialog box is set to **Ansi** and the **Ansi Code Page** option is set to **858**.

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	220 144 90	NBSP	240 168 A0	°	260 176 B0	Ŕ	300 192 C0	Đ	320 208 D0	ř	340 224 E0	š	360 240 F0	0000	0
201 129 81	PU1	221 145 91	Ā	241 161 A1	ą	261 177 B1	Á	301 193 C1	Ń	321 209 D1	á	341 225 E1	ń	361 241 F1	0001	1
202 130 82	PU2	222 146 92	˘	242 162 A2	˙	262 178 B2	Ā	302 194 C2	Ņ	322 210 D2	ā	342 226 E2	ņ	362 242 F2	0010	2
203 131 83	STS	223 147 93	Ł	243 163 A3	ł	263 179 B3	Ą	303 195 C3	Ó	323 211 D3	ą	343 227 E3	ó	363 243 F3	0011	3
204 132 84	IND	224 148 94	Œ	244 164 A4	˚	264 180 B4	Ą	304 196 C4	Ô	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	Ł	305 197 C5	Ó	325 213 D5	ł	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 9A	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 9B	PLD	233 155 9B	Ť	253 171 AB	t'	273 187 BB	Ě	313 203 CB	Ú	333 219 DB	ě	353 235 EB	ú	373 251 FB	1011	11
214 140 9C	PLU	234 156 9C	Ž	254 172 AC	ž	274 188 BC	Ě	314 204 CC	Û	334 220 DC	ě	354 236 EC	û	374 252 FC	1100	12
215 141 9D	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 9E	SS2	236 158 9E	Ž	256 174 AE	ž	276 190 BE	Î	316 206 CE	Ĵ	336 222 DE	î	356 238 EE	ț	376 254 FE	1110	14
217 143 9F	SS3	237 159 9F	Ž	257 175 AF	ž	277 191 BF	Ď	317 207 CF	ß	337 223 DF	d'	·	·	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 Char. Set option in the Terminal Settings dialog box is set to Ansi and the Ansi Code Page option is set to 1250.

WYSE NATIVE MODE
CHARACTER SET

COLUMN	0	1	2	3	4	5	6	7
ROW	0000	0001	0010	0011	0100	0101	0110	0111
BITS	8 7 6 5 4 3 2 1	8 7 6 5 4 3 2 1	8 7 6 5 4 3 2 1	8 7 6 5 4 3 2 1	8 7 6 5 4 3 2 1	8 7 6 5 4 3 2 1	8 7 6 5 4 3 2 1	8 7 6 5 4 3 2 1
0	0000	0001	0010	0011	0100	0101	0110	0111
0		T		0	@	P	,	p
1	S	L	!	1	A	Q	a	q
2	X	Γ	"	2	B	R	b	r
3	E	∩	#	3	C	S	c	s
4	T	∪	\$	4	D	T	d	t
5	Q	J	%	5	E	U	e	u
6	A	I	&	6	F	V	f	v
7	L	■	'	7	G	W	g	w
8	S	+	(	8	H	X	h	x
9	H	∩	)	9	I	Y	i	y
10	L	—	*	:	J	Z	j	z
11	V	■	+	;	K	[	k	{
12	F	=	,	<	L	\	l	|
13	C	∩	-	=	M	]	m	}
14	S	∥	.	>	N	^	n	~
15	S	■	/	?	O	_	o	■

KEY:  35 OCTAL
29 DECIMAL
1D HEXADECIMAL

This character set is used by all Wyse emulations and associated emulations. In WY-60 mode this is the default primary character set.

**WY-60 MULTINATIONAL
(CODE PAGE 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 B R O W
Ç 200 128 80	É 220 144 80	á 240 160 A0	█ 260 176 B0	Ł 300 192 C0	▬ 320 208 D0	α 340 224 E0	≡ 360 240 F0	0000 0
Û 201 129 81	æ 221 145 91	í 241 161 A1	█ 261 177 B1	Ł 301 193 C1	▬ 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	▬ 322 210 D2	Γ 342 226 E2	≥ 362 242 F2	0010 2
â 203 131 83	ø 223 147 93	ú 243 163 A3	▬ 263 179 B3	Ł 303 195 C3	▬ 323 211 D3	π 343 227 E3	≤ 363 243 F3	0011 3
ä 204 132 84	ö 224 148 94	ñ 244 164 A4	▬ 264 180 B4	▬ 304 196 C4	▬ 324 212 D4	Σ 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	▬ 325 213 D5	σ 345 229 E5	∫ 365 245 F5	0101 5
á 206 134 86	ù 226 150 96	æ 246 166 A6	▬ 266 182 B6	▬ 306 198 C6	▬ 326 214 D6	μ 346 230 E6	÷ 366 246 F6	0110 6
ç 207 135 87	ù 227 151 97	e 247 167 A7	▬ 267 183 B7	▬ 307 199 C7	▬ 327 215 D7	τ 347 231 E7	≈ 367 247 F7	0111 7
ê 210 136 88	ÿ 230 152 98	¿ 250 168 A8	▬ 270 184 B8	▬ 310 200 C8	▬ 330 216 D8	ϕ 350 232 E8	○ 370 248 F8	1000 8
ë 211 137 89	Ö 231 153 99	┘ 251 169 A9	▬ 271 185 B9	▬ 311 201 C9	▬ 331 217 D9	θ 351 233 E9	• 371 249 F9	1001 9
è 212 138 8A	Ü 232 154 9A	┘ 252 170 AA	▬ 272 186 BA	▬ 312 202 CA	▬ 332 218 DA	Ω 352 234 EA	• 372 250 FA	1010 10
ï 213 139 8B	€ 233 155 9B	½ 253 171 AB	▬ 273 187 BB	▬ 313 203 CB	█ 333 219 DB	δ 353 235 EB	√ 373 251 FB	1011 11
î 214 140 8C	£ 234 156 9C	¼ 254 172 AC	▬ 274 188 BC	▬ 314 204 CC	█ 334 220 DC	∞ 354 236 EC	π 374 252 FC	1100 12
ì 215 141 8D	¥ 235 157 9D	ı 255 173 AD	▬ 275 189 BD	▬ 315 205 CD	█ 335 221 DD	φ 355 237 ED	2 375 253 FD	1101 13
Ä 216 142 8E	ŕ 236 158 9E	« 256 174 AE	▬ 276 190 BE	▬ 316 206 CE	█ 336 222 DE	€ 356 238 EE	█ 376 254 FE	1110 14
Å 217 143 8F	f 237 159 9F	» 257 175 AF	▬ 277 191 BF	▬ 317 207 CF	█ 337 223 DF	∩ 357 239 FF	BLANK 377 255 FF	1111 15

KEY:

Ñ	245	OCTAL
	165	DECIMAL
	A5	HEXADECIMAL

This Wyse character set is only available in WY-60 mode and is the secondary character set when the **Code Page** option in the **Wyse Settings** dialog box is set to 437.

WY-60 MULTINATIONAL
(CODE PAGE 850) CHARACTER SET

8	9	10	11	12	13	14	15	COLUMN
1000	1001	1010	1011	1100	1101	1110	1111	
200	220	240	260	300	320	340	360	8 BITS 65 4321 ROW
Ç 128 80	É 144 80	á 160 A0		Ł 182 C0	ø 208 D0	Ó 224 E0	— 240 F0	0000 0
ü 129 81	æ 145 91	í 161 A1		ł 183 C1	Đ 209 D1	β 225 E1	± 241 F1	0001 1
é 130 82	Æ 146 92	ó 162 A2		Ł 184 C2	Ê 210 D2	Ô 226 E2	= 242 F2	0010 2
â 131 83	ø 147 93	ú 163 A3	|	ł 185 C3	Ë 211 D3	Ò 227 E3	¾ 243 F3	0011 3
ä 132 84	ö 148 94	ñ 164 A4	┘	— 186 C4	È 212 D4	ó 228 E4	ŋ 244 F4	0100 4
à 133 85	ò 149 95	Ñ 165 A5	Á	┘ 187 C5		õ 229 E5	§ 245 F5	0101 5
â 134 86	û 150 96	æ 166 A6	Â	ā 188 C6	í 214 D6	μ 230 E6	÷ 246 F6	0110 6
ç 135 87	ù 151 97	ę 167 A7	À	Ă 189 C7	î 215 D7	ρ 231 E7	ς 247 F7	0111 7
ê 136 88	ÿ 152 98	¿ 168 A8	©	Ł 184 B8	İ 216 D8	Ɔ 232 E8	○ 248 F8	1000 8
ë 137 89	Ö 153 99	® 169 A9	┘	ł 185 B9	Ĳ 217 D9	Ú 233 E9	“ 249 F9	1001 9
è 138 9A	Ü 154 9A	┘ 170 AA	||	ł 186 BA	Ĳ 218 CA	Û 234 EA	• 250 FA	1010 10
ï 139 9B	ø 155 9B	½ 171 AB	┘	ł 187 BB		Ü 235 EB	1 251 FB	1011 11
î 140 9C	£ 156 9C	¼ 172 AC	┘	ł 188 BC		Ý 236 EC	3 252 FC	1100 12
ì 141 9D	Ø 157 9D	ı 173 AD	¢	Ł 189 BD		Ý 237 ED	2 253 FD	1101 13
Ä 142 9E	× 158 9E	« 174 AE	¥	ł 190 BE		— 238 EE	█ 254 FE	1110 14
Å 143 9F	f 159 9F	» 175 AF	┘	ł 191 BF			BLANK 255 FF	1111 15

KEY:

Ñ	245
	185
	A5

 OCTAL
DECIMAL
HEXADECIMAL

This Wyse character set is only available in WY-60 mode and is the secondary character set when the Code Page option in the Wyse Settings dialog box is set to 850.

WY-60 PC EQUIVALENT
CHARACTER SET

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	0000	0001	0010	0011	0100	0101	0110	0111
0	0000	▶	0	@	P	`	p	
1	0001	☺	!	A	Q	a	q	
2	0010	☹	↑	B	R	b	r	
3	0011	♥	!!	C	S	c	s	
4	0100	♦	¶	D	T	d	t	
5	0101	♣	§	E	U	e	u	
6	0110	♠	—	F	V	f	v	
7	0111	◆	↕	G	W	g	w	
8	1000	◊	↑	H	X	h	x	
9	1001	○	↓	I	Y	i	y	
10	1010	◉	→	J	Z	j	z	
11	1011	♂	←	K	[	k	{
12	1100	♀	└	L	\	l	|	
13	1101	♯	↔	M	]	m	}
14	1110	♪	▲	N	^	n	~	
15	1111	☼	▼	O	—	o	■	

KEY: ◀ 33 OCTAL
27 DECIMAL
18 HEXADECIMAL

This Wyse character set is only available in WY-60 mode.

**WY-60 STANDARD ASCII
CHARACTER SET**

COLUMN	0	1	2	3	4	5	6	7
ROW	0000	0001	0010	0011	0100	0101	0110	0111
BITS	8 7 6 5 4 3 2 1							
0	0000	DL	0	0	@	P	,	p
1	0001	SH	D1	!	1	A	Q	a
2	0010	SX	D2	"	2	B	R	b
3	0011	EX	D3	#	3	C	S	c
4	0100	ET	D4	\$	4	D	T	d
5	0101	EQ	NK	%	5	E	U	e
6	0110	AK	SY	&	6	F	V	f
7	0111	BL	EB	'	7	G	W	g
8	1000	BS	CN	(	8	H	X	h
9	1001	HT	EM	)	9	I	Y	i
10	1010	LF	SB	*	:	J	Z	j
11	1011	VT	EC	+	;	K	[	k
12	1100	FF	FS	,	<	L	\	l
13	1101	CR	GS	-	=	M	]	m
14	1110	SO	RS	.	>	N	^	n
15	1111	SI	US	/	?	O	_	o

KEY:

E	33
C	27
	1B

 OCTAL
 DECIMAL
 HEXADECIMAL

This Wyse character set is only available in WY-60 mode.

**WY-60 STANDARD ANSI
CHARACTER SET**

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 0 0 0	0 0 0 1	0 0 1 0	0 0 1 1	0 1 0 0	0 1 0 1	0 1 1 0	0 1 1 1
0	0000	█	█	0	@	P	`	p
1	0001	◆	█	!	A	Q	a	q
2	0010	█	█	"	B	R	b	r
3	0011	H _T	█	#	C	S	c	s
4	0100	F _F	█	\$	D	T	d	t
5	0101	C _R	█	%	E	U	e	u
6	0110	L _F	█	&	F	V	f	v
7	0111	°	█	'	G	W	g	w
8	1000	±	█	(	H	X	h	x
9	1001	N _L	█	)	I	Y	i	y
10	1010	V _T	█	*	J	Z	j	z
11	1011	J	█	+	K	[	k	{
12	1100	█	█	,	L	\	l	|
13	1101	█	█	-	M	]	m	}
14	1110	L	█	.	N	^	n	~
15	1111	+	█	/	O	_	o	█

KEY:

≥	33	OCTAL
	27	DECIMAL
	1B	HEXADECIMAL

This Wyse character set is only available in WY-60 mode.

**WY-60 GRAPHICS 1
CHARACTER SET**

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	0	20	40	60	100	120	140	160
		6	16	32	48	64	80	96	112
		6	10	20	30	40	50	60	70
1	0001	1	21	41	61	101	121	141	161
		1	17	33	49	65	81	97	113
		1	11	21	31	41	51	61	71
2	0010	2	22	42	62	102	122	142	162
		2	18	34	50	66	82	98	114
		2	12	22	32	42	52	62	72
3	0011	3	23	43	63	103	123	143	163
		3	19	35	51	67	83	99	115
		3	13	23	33	43	53	63	73
4	0100	4	24	44	64	104	124	144	164
		4	20	36	52	68	84	100	116
		4	14	24	34	44	54	64	74
5	0101	5	25	45	65	105	125	145	165
		5	21	37	53	69	85	101	117
		5	15	25	35	45	55	65	75
6	0110	6	26	46	66	106	126	146	166
		6	22	38	54	70	86	102	118
		6	16	26	36	46	56	66	76
7	0111	7	27	47	67	107	127	147	167
		7	23	39	55	71	87	103	119
		7	17	27	37	47	57	67	77
8	1000	8	30	50	70	110	130	150	170
		8	24	40	56	72	88	104	120
		8	18	28	38	48	58	68	78
9	1001	9	31	51	71	111	131	151	171
		9	25	41	57	73	89	105	121
		9	19	29	39	49	59	69	79
10	1010	10	32	52	72	112	132	152	172
		10	26	42	58	74	90	106	122
		10	20	30	40	50	60	70	80
11	1011	11	33	53	73	113	133	153	173
		11	27	43	59	75	91	107	123
		11	21	31	41	51	61	71	81
12	1100	12	34	54	74	114	134	154	174
		12	28	44	60	76	92	108	124
		12	22	32	42	52	62	72	82
13	1101	13	35	55	75	115	135	155	175
		13	29	45	61	77	93	109	125
		13	23	33	43	53	63	73	83
14	1110	14	36	56	76	116	136	156	176
		14	30	46	62	78	94	110	126
		14	24	34	44	54	64	74	84
15	1111	15	37	57	77	117	137	157	177
		15	31	47	63	79	95	111	127
		15	25	35	45	55	65	75	85

KEY:  156 OCTAL
 110 DECIMAL
 6E HEXADECIMAL

This Wyse character set is only available in WY-60 mode.

**WY-60 GRAPHICS 2
CHARACTER SET**

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 0 0 0	20 16 10	40 32 20	60 48 30	80 64 40	100 80 50	120 96 60	140 112 70
0	0000							
1	0001							
2	0010							
3	0011							
4	0100							
5	0101							
6	0110							
7	0111							
8	1000							
9	1001							
10	1010							
11	1011							
12	1100							
13	1101							
14	1110							
15	1111							

KEY:  OCTAL
DECIMAL
HEXADECIMAL

This Wyse character set is only available in WY-60 mode.

**WY-60 GRAPHICS 3
CHARACTER SET**

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		20	40	60	100	120	160
		0	16	32	48	64	80	140
		0	10	20	30	40	50	96
								60
								70
1	0001		21	41	61	101	121	161
		1	17	33	49	65	81	141
		1	11	21	31	41	51	97
								61
								71
2	0010		22	42	62	102	122	162
		2	18	34	50	66	82	142
		2	12	22	32	42	52	98
								62
								72
3	0011		23	43	63	103	123	163
		3	19	35	51	67	83	143
		3	13	23	33	43	53	99
								63
								73
4	0100		24	44	64	104	124	164
		4	20	36	52	68	84	144
		4	14	24	34	44	54	100
								64
								74
5	0101		25	45	65	105	125	165
		5	21	37	53	69	85	145
		5	15	25	35	45	55	101
								65
								75
6	0110		26	46	66	106	126	166
		6	22	38	54	70	86	146
		6	16	26	36	46	56	102
								66
								76
7	0111		27	47	67	107	127	167
		7	23	39	55	71	87	147
		7	17	27	37	47	57	103
								67
								77
8	1000		30	50	70	110	130	170
		8	24	40	56	72	88	144
		8	18	28	38	48	58	104
								68
								78
9	1001		31	51	71	111	131	171
		9	25	41	57	73	89	145
		9	19	29	39	49	59	105
								69
								79
10	1010		32	52	72	112	132	172
		A	26	42	58	74	90	146
		A	1A	2A	3A	4A	5A	106
								7A
								8A
11	1011		33	53	73	113	133	173
		B	27	43	59	75	91	147
		B	1B	2B	3B	4B	5B	107
								6B
								7B
12	1100		34	54	74	114	134	174
		C	28	44	60	76	92	148
		C	1C	2C	3C	4C	5C	108
								6C
								7C
13	1101		35	55	75	115	135	175
		D	29	45	61	77	93	149
		D	1D	2D	3D	4D	5D	109
								6D
								7D
14	1110		36	56	76	116	136	176
		E	30	46	62	78	94	150
		E	1E	2E	3E	4E	5E	110
								6E
								7E
15	1111		37	57	77	117	137	177
		F	31	47	63	79	95	151
		F	1F	2F	3F	4F	5F	111
								6F
								7F

KEY:  114 OCTAL
76 DECIMAL
4C HEXADECIMAL

This Wyse character set is only available in WY-60 mode.

**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	ï	Ã	Ï	f	o	w	¶	F	O	W	6
-7	â	ĩ	Â	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	¢	!	¡	:	«	»	¡	[	SHY	¹	²	³
-B	.	\$	,	#	»	»	¿	]	ô	ó	Ô	Ù
-C	<	*	%	@	ð	æ	Ð	—	ö	ü	Ö	Û
-D	(	)	_	´	ý	.	Ý	¨	ò	ù	Ò	Ù
-E	+	;	>	=	þ	Æ	þ	´	ó	ú	Ó	Ú
-F	|	¬	?	"	±	¤	®	×	ö	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	ã	ë	Ã	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	ā	ī	Ā	Ī	f	o	w	¶	F	O	W	6
-7	â	ï	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	\$	!	|	:	«	»	i	^	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	|	¬	?	"	±	¤	®	×	ö	ÿ	Ö	

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	ü	£	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	ā	ī	Ā	Ī	f	o	w	¶	F	O	W	6
-7	}	ī	\$	Ī	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	#	π	ø	:	«	»	ı	¬	SHY	¹	²	³
-B	.	Å	,	Æ	»	º	¿	ı	ô	ù	ô	ù
-C	<	*	%	Ø	ø	{	Ð	—	ö	ü	Ö	Ü
-D	(	)	_	´	ý	.	Ý	¨	ò	ù	Ò	Ù
-E	+	;	>	=	þ	[	Þ	´	ó	ú	Ó	Ú
-F	!	^	?	"	±	]	®	×	ö	ÿ	Ö	

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	é	Â	Ê	b	k	s	¥	B	K	S	2
-3	ã	ë	Ã	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	ï	Â	Ï	g	p	x	¼	G	P	X	7
-8	\	ì	Ç	Ì	h	q	y	½	H	Q	Y	8
-9	ñ	ß	Ñ	µ	i	r	z	¾	I	R	Z	9
-A	°	§	ù	:	«	ª	ı	¬	SHY	¹	²	³
-B	.	\$	,	£	»	º	¿	|	ô	ú	ô	û
-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	!	^	?	"	±	¤	®	×	ö	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	ü	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	ï	Ã	Ï	f	o	w	¶	F	O	W	6
-7	â	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	ñ	~	Ñ	`	i	r	z	¾	I	R	Z	9
-A	Ä	Ü	ö	:	«	»	¡	¬	SHY	¹	²	³
-B	.	\$	,	#	»	º	¿	¡	ô	ù	ô	ù
-C	<	*	%	§	ð	æ	Ð	¯	|	}	\	\]
-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.

**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	é	Â	Ê	b	k	s	¥	B	K	S	2
-3	ã	ë	Ã	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	ï	Â	Ï	g	p	x	¼	G	P	X	7
-8	\	~	Ç	ì	h	q	y	½	H	Q	Y	8
-9	ñ	ß	Ñ	ù	i	r	z	¾	I	R	Z	9
-A	°	é	ò	:	«	ª	¡	¬	SHY	¹	²	³
-B	.	\$	,	£	»	º	¿	|	ô	ù	ô	ù
-C	<	*	%	§	ö	æ	Ð	—	ö	ü	Ö	Ü
-D	(	)	_	´	ý	.	Ý	¨	¡	¨	ò	ù
-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
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	ā	ī	Ā	Ī	f	o	w	¶	F	O	W	6
-7	â	ï	Ā	Ī	g	p	x	¼	G	P	X	7
-8	ç	ì	Ç	Ì	h	q	y	½	H	Q	Y	8
-9	ı	ß	#	`	i	r	z	¾	I	R	Z	9
-A	[	]	ñ	:	«	»	ı	^	SHY	¹	²	³
-B	.	\$	,	Ñ	»	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.

**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	ü	£	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	ā	ī	Ā	Ī	f	o	w	¶	F	O	W	6
-7	}	ï	\$	Ĭ	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	§	⌘	ö	:	«	ª	ı	¬	SHY	¹	²	³
-B	.	Å	,	Ä	»	º	¿	ı	ô	ù	ô	û
-C	<	*	%	Ö	ö	æ	Ð	—	ı	~	@	Ü
-D	(	)	_	´	ý	.	Ý	¨	ò	ú	ò	ù
-E	+	;	>	=	þ	Æ	þ	´	ó	ú	ó	ú
-F	!	^	?	"	±	]	®	×	ö	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	ï	Ã	Ï	f	o	w	¶	F	O	W	6
-7	â	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	ñ	ß	Ñ	`	i	r	z	¾	I	R	Z	9
-A	[	]	|	:	«	»	¡	¬	SHY	¹	²	³
-B	.	\$	,	#	»	º	¿	¡	ô	ù	ô	ù
-C	<	*	%	@	ð	æ	Ð	—	ö	ü	Ö	Ü
-D	(	)	_	´	ý	.	Ý	¨	ò	ù	Ò	Ù
-E	+	;	>	=	þ	Æ	þ	´	ó	ú	Ó	Ú
-F	!	^	?	"	±	¤	®	×	ö	ý	õ	

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

IBM EBCDIC CODEPAGES SUPPLIED

Codepage	Type	Countries
37	SBCS	USA, Canada, Netherlands, Portugal, Brazil
273	SBCS	Austria, Germany
274	SBCS	Belgium (old)
277	SBCS	Denmark, Norway
278	SBCS	Finland, Sweden
280	SBCS	Italy
284	SBCS	Spain, Latin America (Spanish)
285	SBCS	UK
290	SBCS	Japanese - Katakana
297	SBCS	France
300	DBCS	Japanese - Kanji
424	SBCS	Hebrew
500	SBCS	(Latin 1) Belgium, Canada, Switzerland
833	SBCS	Korean
834	DBCS	Korean
835	DBCS	Traditional Chinese
836	SBCS	Simplified Chinese
837	DBCS	Simplified Chinese
838	SBCS	Thai
870	SBCS	(Latin 2) Czech, Slovak, Polish
875	SBCS	Greek
880	SBCS	Cyrillic
905	SBCS	(Latin 3) Turkish (old)
1025	SBCS	Russian Cyrillic
1026	SBCS	(Latin 5) Turkish
1027	SBCS	Japanese - Latin extended
1140	SBCS	[EURO] USA, Canada, Netherlands, Portugal, Brazil
1141	SBCS	[EURO] Austria, Germany
1142	SBCS	[EURO] Denmark, Norway
1143	SBCS	[EURO] Finland, Sweden
1144	SBCS	[EURO] Italy
1145	SBCS	[EURO] Spain, Latin America
1146	SBCS	[EURO] UK
1147	SBCS	[EURO] France
1148	SBCS	[EURO] Belgium, Canada, Switzerland

Notes

C

Host Command Summary

This appendix lists the host commands that are valid in each terminal emulation mode. Additional special 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 [* 1
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 VT320 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 [* l
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 current colour	ESC [= M
Report cursor position	ESC [6 n
Report keyboard nationality	ESC [? 26 n
Report operating status	ESC [5 n
Report terminal emulation mode	ESC # ! 0
Report VT terminal identity	ESC [0 c
Report VT terminal identity	ESC [c
Report VT terminal identity	ESC Z

ANSI VT400 Emulation

When running the VT400 7 or 8 bit emulation, the following commands will be executed in addition those listed previously for ANSI VT100.

CHARACTER ATTRIBUTES

Assign * attribute(s) to following characters	ESC [* m
Attributes: Invisible 8	Flashing off 25
Bold off 22	Reverse video off 27
Underline off 24	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	ESC * * (2ond * is parameter)
Assign G3 label to * character set	ESC + *
Extra character sets: DEC Additional	%5
ISO Latin-1 Additional	A
DOC-18 (optional)	D
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 l
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
Rectangular fill (*c = fill character, *sr = start row *sc = start column, *er = end row, *ec = end column)	ESC [*c ; *sr ; *sc ; *er ; *ec \$ z

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 \

PRINTING

Enable bidirectional printing	ESC [7 i
Disable bidirectional printing	ESC [6 i
Enable printer/tablet to talk directly to host (one way)	ESC [? 9 i
Disable printer/tablet from talking directly to host	ESC [? 8 i
Destination port (only first * is parameter: 0 = None, 1 = LPT 1/2, 2 = COM 1, 3 = COM 2, etc.)	ESC [* * u

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 running the VT420 emulation, the following commands will be executed in addition those listed previously for ANSI VT100 and VT400.

CURSOR MOVEMENT & PANNING

Back index	ESC 6
Forward index	ESC 9
Pan down (*1 = number of lines)	ESC [*1 S
Pan up (*1 = number of lines)	ESC [*1 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	1
*e = Encoding format for macro text:	
Standard ASCII characters	0
Hex pairs for each ASCII character	1
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 * }

*k = Function key number:		*f = Function performed:	
All local function keys	0	Factory default	0
F1 or Hold	1	Local function	1
F2 or Print	2	Send key sequence	2
F3 or Set-Up	3	Disable key	3
F4 or Session	4		

Select modifier key reporting ESC [*k ; *c ... *k ; *c + r

*k = Key number:		*c = Control performed:	
All keys	0	Factory default	0
Left Shift	1	Modifier function	1
Right Shift	2	Extended keyboard report	2
Lock key	3	Key disabled	3
Ctrl key	4		
Left Alt Function	5		
Right Alt Function	6		
Left Compose Char	7		
Right Compose Char	8		

PAGE MEMORY

Set lines per page ESC [*l t

Session:	Dual	Single	
*l =	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 [*l ; *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 ; *l ; *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 ; *l ; *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

IBM 3151 Emulation

CHARACTER SET SELECTION

Select G0	SI
Select G1	SO
Select character set G0	ESC < *set
Select character set G1	ESC > *set

CURSOR

Backspace	BS
Carriage return, new line or LTA	CR
Cursor down	ESC B
Cursor left	ESC D
Cursor right	ESC C
Cursor up	ESC A
Cursor home	ESC H
Index	ESC SP M
Insert cursor	ESC Z
Line feed	VT
Line feed or new line	LF
Line feed or erase input	FF
Next line	ESC M
Page down AID	ESC ! B
Reverse index	ESC ! M
Read cursor address	ESC 5
Set buffer address	ESC X *row *column
Set cursor address	ESC Y *row *column
Reset buffer address mode	ESC SP Z
Tab	HT
Back tab	ESC 2
Set column tab	ESC 0
Clear column tab	ESC 1
Clear all column tabs	ESC SP 1

DISPLAY

Clear all	ESC ! L
Clear page	ESC L
Create viewport	ESC SP r *...*
Disable default field attribute	ESC ' ;
Disable field attribute visible renditions	ESC , ;
Disable host protect	ESC & ;
Disable OIA divide line	ESC * ;
Disable host protect	ESC & ;
Disable OIA divide line	ESC * ;
Disable partition separate line	ESC + ;
Disable read unprotected field	ESC % ;
Display machine status	ESC # :
Enable default field attribute	ESC ' :
Enable field attribute visible renditions	ESC , :
Enable host protect	ESC & :

Enable OIA divide line	ESC * :
Enable read unprotected field	ESC % :
Host message write	ESC = *message ESC =
Host message display	ESC # ;
Set character attribute	ESC 4 *attrib *operation
Set field attribute	ESC 3 *attrib *attrib *operation
Set field attribute response	ESC 3 *attrib *attrib
Create 1 viewport 24 rows x 80 chars	ESC SP r !! SP 8 " P
Create 1 viewport 25 rows x 80 chars	ESC SP r !! SP 9 " P
Create 1 viewport 24 rows x 132 chars	ESC SP r !! SP 8 \$ D
Create 1 viewport 25 rows x 132 chars	ESC SP r !! SP 9 \$ D
Create 2 viewports in 80 column screen	ESC SP r " ! SP *r1 " 0 " SP *r2 " P
Create 2 viewports in 132 column screen	ESC SP r " ! SP *r1 \$ \$ " SP *r2 \$ D
Create 3 viewports in 80 column screen	ESC SP r # ! SP *r1 " 0 " SP *r2 " 0 # SP *r3 " P
Create 3 viewports in 132 column screen	ESC SP r # ! SP *r1 \$ \$ " SP *r2 \$ \$ # SP *r3 \$ D

Note: The ASCII character values of *r1, *r2 and *r3 are listed below. When creating two viewports, *r1 + *r2 must be 24 or 25. When creating three viewports, *r1 + *r2 + *r3 must be 24 or 25.

Rows	ASCII	Rows	ASCII	Rows	ASCII	Rows	ASCII
1	!	8	(	14	.	20	4
2	"	9	)	15	/	21	5
3	#	10	*	16	0	22	6
4	\$	11	+	17	1	23	7
5	%	12	,	18	2	24	8
6	&	13	-	19	3	25	9
7	'						

Select active partition command/response (<i>not model 11</i>)	ESC ! q *
Select host partition command/response (<i>not model 11</i>)	ESC SP q *
* A = Viewport 1, B = Viewport 2, C = Viewport 3	
Jump partition command/response (<i>not model 11</i>)	ESC " A
Enable partition separator line (<i>not model 11</i>)	ESC + :
Disable partition separator line (<i>not model 11</i>)	ESC + ;

EDITING

Delete character	ESC Q
Delete line	ESC O
Erase to end of field/line	ESC I
Erase to end of page	ESC J
Erase input	ESC K
Insert character	ESC P *character
Insert line	ESC N

GENERAL OPERATION

Bell	BEL
Cancel	ESC S or CAN
Disable write Null	ESC " ;
Enable write Null	ESC " :
Line turnaround character (if selected)	ETX, CR, EOT or DC3
Read status	ESC 6

Enter transparent mode (control characters displayed)	DLE STX
Exit transparent mode	DLE ETX
Mandatory disconnect	DLE EOT
Begin pass-through data stream	DLE DC2
End pass-through data stream	DLE DC4
Restart transmission (pacing)	DC1 (XON)
Stop transmission (pacing)	DC3 (XOFF)
Begin outbound trace	ESC SP :
End outbound trace	ESC SP ;
Reset to initial state	ESC SP S
Reset keyboard lock & keep MDT bit	ESC ! S
Read control 1	ESC SP 7
Read control 2	ESC ! 7
Read control 3	ESC " 7
Read control 4	ESC # 7
Read control 5	ESC \$ 7
Read control 6	ESC % 7
Read control 7	ESC & 7
Read model	ESC SP 6
Read model (extended)	ESC " 6
Read terminal ID	ESC ! 6
Read all	ESC # 8
Read line/send line	ESC ! 8
Read message/send message	ESC SP 8
Read page/send page	ESC 8
Write send mark	ESC E
Set control 1	ESC SP 9 *mode1 *mode2 *op
Set control 2	ESC ! 9 *mode1 *mode2 *op
Set control 3	ESC " 9 *mode1 *mode2 *op
Set control 4	ESC # 9 *mode *operation
Set control 5	ESC \$ 9 *m1 *m2 *m3 *m4 *op
Set control 6	ESC % 9 *m1 *m2 *m3 *m4 *op
Set control 7	ESC & 9 *m1 *m2 *m3 *op

KEYBOARD

Disable print key attention	ESC) ;
Disable reset key attention	ESC (;
Enable print key attention	ESC) :
Enable reset key attention	ESC (:
Keyboard lock	ESC :
Keyboard unlock	ESC ;
Load programmable function key	ESC ! = *fn *fnx *ff *fp ESC =
Set all default function keys	ESC SP t
Set default function key	ESC t *key

PRINTING

Print line	ESC U
Print message	ESC V
Print screen	ESC SP W
Print viewport	ESC W

SCO Console Emulation

CONTROLLING TERMINAL PROCESSING

Sound audible tone	BEL
Select iBCSe2 compliance	ESC [= 2 L
Deselect iBCSe2 compliance	ESC [= 3 L
Save cursor position	ESC 7
Restore cursor position	ESC 8

KEYBOARD FUNCTIONS

Disable keyboard input	ESC [2 h
Enable keyboard input	ESC [2 l
Program function keys	ESC Q *key ' *data '

ASCII	105-Key ANSI	Enhanced PC-Style	*key Unshifted	*key Shifted
F1	F6	F1	0	<
F2	F7	F2	1	=
F3	F8	F3	2	>
F4	F9	F4	3	?
F5	F10	F5	4	@
F6	F11	F6	5	A
F7	F12	F7	6	B
F8	F13	F8	7	C
F9	F14	F9	8	D
F10	Help	F10	9	E
F11	Do	F11	:	F
F12	F17	F12	;	G
F13	F18		`	d
F14	F19		a	e
F15	F20		b	f
F16			c	g

*data = data string of up to 29 characters

' = a string delimiter (any character except contained in string)

COLOUR

Set foreground & background colour	ESC [2 ; *fg ; *bg m
*fg and *bg are integers as listed below:	

Dull	Colour	Bold
0	Black	8
1	Blue	9
2	Green	10
3	Cyan	11
4	Red	12
5	Magenta	13
6	Yellow	14
7	White	15

Set inverse & foreground & background colour (* as above)	ESC [7 ; *fg ; *bg ; m
Set normal foreground colour (* = integer as above)	ESC [= * F
Set normal background colour (* = integer as above)	ESC [= * G
Set reverse foreground colour (* = integer as above)	ESC [= * H
Set reverse background colour (* = integer as above)	ESC [= * I
Set graphic foreground colour (* = integer as above)	ESC [= * J
Set graphic background colour (* = integer as above)	ESC [= * K
Request current colour attribute (* = integer as above)	ESC [= * M

CONTROLLING THE SCREEN DISPLAY

Assign * attribute(s) to following characters	ESC [* m		
Default attributes	0		
Bold on	1		
Underline on	4		
Flashing on	5		
Inverse video on	7		
Blank	8		
Fill regions with attribute (* = integer as below)	ESC [= * L		
* = 0	Fill with current attribute	2	Select iBCSe2 compliance
1	Fill with normal attribute	3	Deselect iBCSe2 compliance
Select page (* = 1 - 6)	ESC [* z		
Clear page	FF		
Scroll display up * lines, insert blank lines	ESC [* S		
Scroll display down * lines, insert blank lines	ESC [* T		
Access bank 1 & 2 characters using decimal values	ESC [= * g	(* = 0 - 255)	
Clear tab stops (0 = cursor position, 3 = all)	ESC [* g		

CURSOR

Move cursor to specified column (* = integer)	ESC [* ^ or ESC [* G
Move cursor up * lines	ESC [* A
Move cursor down * lines	ESC [* B or ESC [* e
Move cursor right * columns	ESC [* C or ESC [* a
Move cursor left * columns	ESC [* D
Move cursor to specified line (* = integer)	ESC [* d
Move cursor to line (*l) column (*c)	ESC [* l ; *c H
Move cursor to line (*l) column (*c)	ESC [* l ; *c f
Move cursor down 1 line & to column 1	NAK
Move cursor to start of line	CR
Move cursor down 1 line in current column	LF
Move cursor up * lines & to first column	ESC [* F
Move cursor down * lines & to first column	ESC [* E
Move cursor one column left	BS
Move cursor to next tab stop	HT
Tab cursor backward * tabs	ESC [* Z
Enable cursor autowrap	ESC [? 7 h
Disable cursor autowrap	ESC [? 7 l

EDITING

Erase from cursor to end of display	ESC [0 J
Erase from start of display to cursor	ESC [1 J
Erase entire display	ESC [2 J
Erase from cursor to end of line	ESC [0 K
Erase from start of line to cursor	ESC [1 K
Erase entire line	ESC [2 K
Erase * characters from cursor right	ESC [* X
Insert * blank characters	ESC [* @
Insert * blank lines	ESC [* L
Delete * lines from cursor position down	ESC [* M
Delete * characters	ESC [* P
Set tab at cursor position	ESC H

PRINTING

Send page	ESC [2 i
Send line	ESC [? 3 i
Print page	ESC [0 i
Print all pages	ESC [? 11 i
Print cursor line	ESC [? 1 i
Transparent print mode off	ESC [? 4 i
Transparent print mode on	ESC [? 5 i
Auxiliary print mode on	ESC [5 i
Auxiliary print mode off	ESC [4 i

Wyse Emulations

ATTRIBUTES

Assign character display attribute	ESC G *attribute
Assign line attribute	ESC G *line attribute
Assign write-protected character attribute	ESC ' *attribute
Line attribute mode on	ESC e 3
Page attribute mode on	ESC e 2
Wyse 60 character attribute mode on	ESC e 1
Wyse 60 character attribute mode off	ESC e 0

CHARACTER SETS (WY-60 only)

Define & load soft character ESC c A *b *p *...*c CTRL Y

*b = bank 0-3, *p = position in character set (2-byte hex)

*...*c = character bit pattern (32-byte character string)

Automatic font loading enabled	ESC e O
Automatic font loading disabled	ESC e N
Load font bank with predefined character set	ESC c @ *bank *set

Bank: 0 = Bank 0, 1 = Bank 1, 2 = Bank 2, 3 = Bank 3

Set: Native mode	@	Standard ANSI	G
Multinational	A	44-line Native mode	'
Standard ASCII	B	44-line Multinational	a
Graphics 1	C	44-line PC Equivalent	b
PC Equivalent	D	44-line Standard ASCII	c
Graphics 2	E	44-line Standard ANSI	d
Graphics 3	F		

Clear font bank (* = 0 - 3)	ESC c ? *
Specify font bank for primary character set (* = 0 - 3)	ESC c B *
Specify font bank for secondary character set (* = 0 - 3)	ESC c C *
Select primary character set for display	ESC c D
Select secondary character set for display	ESC c E

CLEARING DATA

Clear cursor column	ESC V
Clear entire rectangle in 80 column page	ESC c H *line *col *character
Clear entire rectangle in 132 column page	ESC c H *line ~ *col *character
Clear page to nulls	ESC *
Clear page to spaces	ESC +
Clear page to write-protected spaces	ESC ,
Clear unprotected column to nulls	ESC c K
Clear unprotected column to specified character	ESC c I *character
Clear unprotected line to nulls from cursor	ESC t
Clear unprotected line foreground to nulls from cursor	ESC c S
Clear unprotected line to spaces from cursor	ESC T
Clear unprotected line foreground to spaces from cursor	ESC c R

Clear unprotected page to attribute character	ESC !
Clear unprotected page to nulls	ESC :
Clear unprotected page to nulls from cursor	ESC y
Clear unprotected page foreground to nulls from cursor	ESC c Q
Clear unprotected page to spaces	ESC ; <i>or</i> SUB
Clear unprotected page to spaces from cursor	ESC Y
Clear unprotected page foreground to spaces from cursor	ESC c P
Clear unprotected page to specified character	ESC . *character
Clear unprotected rectangle in 80 column page	ESC c F *line *col *character
Clear unprotected rectangle in 132 column page	ESC c F *line ~ *col *character
Clear unprotected to end of line with nulls	ESC c L
Clear unprotected to end of line with spaces	ESC c O
Box rectangle in 80 column page	ESC c G *line *column
Box rectangle in 132 column page	ESC c G *line ~ *column
Box rectangle to right of cursor	ESC c N *width *height

COLOUR SELECTION

Wyse 350 colour:

Select colour palette (* = palette ID in range 0 - ?)	ESC % *
Redefine attribute association	ESC m *r *c *m
*r = display attribute group or write protect to be redefined (range 0 - 8)	
*c = the colour assigned (range ! - 6)	
*m = the monochrome attributes assigned:	
0 = Normal, - = Reverse, . = Underline, / = Underline & reverse	

Wyse 60 ASCII colour:

Foreground colour palette	ESC A a *
Select border colour	ESC A b *
Background colour	ESC A c *
Assign foreground colour	ESC A d *
Assign background colour	ESC A e *
Assign display attribute to unprotected characters	ESC A f *
Redefine character attribute association	ESC A g *attr *f *b *assoc
Assign foreground/background colours	ESC A h *
Assign fore/background colours to write-prot. chars.	ESC A i *
Assign foreground colours to write-protected chars.	ESC A j *
Assign background colours to write-protected chars.	ESC A k *
Assign display attribute to write-protected characters	ESC A l *
Assign replacement character colours & attributes	ESC A y *f *b *a

CURSOR

Address cursor in current 80/132 column page	ESC a *line R *column C
Address cursor in current 80 column page	ESC = *line *column
Address cursor in specific 80 column page	ESC w @ *page *line *column
Address cursor in specific 80 column window/page	ESC - *win/pg *line *column
Address cursor column	ESC _
Address cursor row	ESC [
Autowrap mode off	ESC d .
Autowrap mode on	ESC d /
Clear all tab stops	ESC 0

Clear tab stop	ESC 2 or ESC 3
Cursor down (scroll)	LF
Cursor left	BS
Cursor right	FF
Cursor up (no scroll)	VT
Cursor to start of current line	CR
Cursor to start of next line	US
Home cursor	ESC { or RS
Line lock mode on	ESC ` H
Line lock mode off	ESC ` I
Move cursor up; scroll	ESC j
Read 80 column window/page & cursor address	ESC /
Read 80 column page number & cursor address	ESC w '
Read cursor address in current 80 column page	ESC ?
Read cursor address in current 80/132 column page	ESC b
Redefine screen as one window & clear pages	ESC x 0
Set cursor display features	ESC ' *cursor
Set tab stop	ESC 1
Tabulate cursor	ESC i
Tab cursor	HT
Tab cursor backward	ESC I
Tabs are not initialized	ESC e :
Tabs are initialized	ESC e ;

DISPLAY

80 column display	ESC ' :
132 column display	ESC ' ;
80/132 change clears screen on	ESC e /
80/132 change clears screen off	ESC e .
Activate lower window	ESC }
Activate other window/display previous page	ESC J
Activate other window/display next page	ESC K
Activate upper window	ESC }
Autopage mode off	ESC d *
Autopage on	ESC d +
Autoscrolling mode on	ESC 0
Autoscrolling mode off	ESC N
Display 24 data lines	ESC e (
Display 25 data lines	ESC e)
Display 42 data lines	ESC e *
Display 43 data lines	ESC e +
Display graphics character	ESC H *key
Display next page	ESC w C
Display previous page	ESC w B
Display specific page	ESC w *page
Divide memory into pages	ESC w *length
Economy 80 column mode on	ESC e G
Economy 80 column mode off	ESC e F
Horizontal split higher	ESC x R
Horizontal split lower	ESC x P

Program label line	ESC f
Protect mode on	ESC &
Protect mode off	ESC '
Redefine screen as one window	ESC x @
Redefine screen as one window & clear pages	ESC x 0
Restore normal display	ESC ^ 0
Reverse display	ESC ^ 1
Roll window up in page	ESC w E
Roll window down in page	ESC w F
Split screen	ESC x C *line
Split screen (two pages only)	ESC x A *line
Split screen & clear pages	ESC x 3 *line
Split screen & clear pages (2 pages only)	ESC x 1 *line
Status line format (a = extended, b = standard)	ESC ' *
Status line message	ESC F *message CR
Status line not displayed	ESC ' c
Turn display off	ESC ' 8
Turn display on	ESC ' 9

EDITING

Begin send at top of page	ESC d '
Begin send at top of screen	ESC d &
Delete cursor character	ESC W
Delete cursor column	ESC c j
Delete cursor line	ESC R
Insert column of nulls	ESC c M
Insert line of spaces	ESC E
Insert mode on, replace mode off	ESC q
Insert mode off, replace mode on	ESC r
Insert space character	ESC Q
Page edit mode on (Wyse 60 mode)	ESC e #
Page edit mode off (Wyse 60 mode)	ESC e "
Write-protect mode off	ESC (
Write-protect mode on	ESC)

GENERAL OPERATION

Answerback mode off	ESC e SP
Answerback mode on	ESC e !
Graphics mode on	ESC H CTRL B
Graphics mode off	ESC H CTRL C
Received CR mode off	ESC e 4
Received CR mode on	ESC e 5
Run script in Wyse and TVI/ADDS/HZ enhanced modes	ESC c s *filename CR
Set MODEM port receive handshake	ESC c 2 *handshake
Set MODEM port transmit handshake	ESC c 4 *handshake

HOST COMMUNICATIONS

Select terminal emulation		ESC ~ *emulation
*emulation: Wyse 50	@	VT52 6
Wyse 50+	"	VT100 ;
Wyse 60	4	VT220-7 <
TVI 910+	#	VT220-8 =
TVI 912/920	'	VT320-7 B
TVI 925	\$	VT320-8 C
ADDS VP A2	%	
HZ 1500	&	
Enhance mode on		ESC ~ !
Enhance mode off		ESC ~ SP
Monitor mode on (display control codes)		ESC U
Monitor mode off		ESC u <i>or</i> ESC X
Block mode on		ESC B
Half-duplex mode on		ESC C ESC D H
Half-duplex block mode on		ESC D H ESC B
Full-duplex mode on		ESC C ESC D F
ACK mode (6 = off, 7 = on)		ESC e *
Set MODEM port operating parameters		ESC c 0 *b *s *p *w
Set maximum data transmission speed		ESC c 6 *max
Send terminal ID		ESC SP
Program answerback message		ESC c ; *answer CTRL Y
Answerback message (= = conceal, < = send)		ESC c *

KEYBOARD FUNCTIONS

Application key mode on	ESC ~ 3
Application key mode off	ESC ~ 2
Keyboard locked	ESC # <i>or</i> SI
Keyboard unlocked	ESC " <i>or</i> SO
Caps lock on	ESC e &
Caps lock off	ESC e '
Clear all programmable keys	ESC c U
Clear key definition	ESC z *key DEL
Key repeat on	ESC e -
Key repeat off	ESC e ,
Margin bell on	ESC e M
Margin bell off	ESC e L
Set margin bell at cursor position	ESC ` J
Program function key definition	ESC z *fkey seq DEL
Program key direction & definition	ESC Z *dir key seq DEL
Read key direction & definition	ESC Z ~ *key
Sound Bell	BEL
Turn local edit mode on, duplex edit mode off	ESC k
Turn local edit mode off, duplex edit mode on	ESC l

LABEL LINE

Clear function key label	ESC z *field CR
Clear shifted label line message	ESC z) CR

Clear unshifted label line message	ESC z (CR
Display shifted label line	ESC z P CR
Program/display function key label	ESC z *field *label CR
Program/display unshifted label line	ESC z (*text CR
Program shifted label line	ESC z) *text CR
Shifted label line off	ESC z DEL

SENDING DATA

Begin print/send at top of page	ESC d '
Begin print/send at top of screen	ESC d &
Bidirectional mode off	ESC d \$
Bidirectional mode on	ESC d %
Enable transmission (XON/XOFF handshaking)	DC1 (XON)
Stop transmission (XON/XOFF handshaking)	DC3 (XOFF)
Mark block beginning	ESC 8
Mark block end	ESC 9
Print entire formatted page	ESC P
Print formatted unprotected page	ESC @
Print unformatted page	ESC p <i>or</i> ESC L
Secondary receive mode off	ESC d SP
Secondary receive mode on	ESC d !
Send ACK	ENQ
Send cursor character	ESC M
Send entire block	ESC s
Send entire cursor line	ESC 6
Send entire page	ESC 7
Send unprotected characters in block	ESC S
Send unprotected cursor line	ESC 4
Send unprotected page	ESC 5
Send next incoming character to printer port	DLE
Transparent print mode on	ESC d # <i>or</i> CAN
Turn auxiliary print mode on	DC2
Turn print modes off	DC4

<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.

REPORTS

Report application name & version (in DEC VT modes) ESC [0 ; 1234 c

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