Win100

Copyright (c) 1989, 1990 by
William S. Hall
3665 Benton Street, #66
Santa Clara, CA 95051

Win100 is a basic communications program for Microsoft Windows. **Win100** features DEC * VT52 and VT100 capability in a simple-to-use application. The program can exchange text data with other applications and up to two instances of the program may be simultaneously in operation. Finally, any part of a session can be logged to a disk file.

Although not all VT100 features, notably double wide and double high character sets, are implemented, some additional commands such as line and character insertion and deletion are available. Hence in the UNIX environment, **Win100** can be used with a termcap entry of VT52, VT100, VT102, or VT132. A complete list of available commands is presented below.

Win100 will run under both Windows 2.x and Windows 3.0.

Operation

The program requires no special installation other than to copy **Win100.exe** to the Windows directory. After the program runs, it reads win.ini for initialization parameters; if none are found, it selects default parameters and saves them to win.ini. The program then attempts to open the first communications port specified in win.ini. If the port is not available the second is tried. If neither is free then the program exits; otherwise, the emulator is ready to communicate.

The terminal is basically 24 lines by 80 columns. On some low resolution displays, you will not be able to see all rows simultaneously. However, the row containing the flashing caret will always be visible; in fact, the window will position itself dynamically to maintain this visibility.

The screen does not automatically scroll horizontally. However, if not all columns are visible, the horizontal scroll bar can be used to position the screen. If the window is resized, the horizontal position is reset.

The terminal uses the Courier font. For best results, install all available Courier fonts to allow the greatest selection of sizes and quality, especially when using 132 column mode. You must use the Control Panel to install a font. First, use the Delete Font option under the Installation menu to view the fonts already present. If you are missing any of the Courier fonts which
come with Windows, use the Install Font option in conjunction with your Windows distribution disks to add the remaining ones.

Three menus are available which can be accessed with a mouse or by using Alt key sequences. If you are not familiar with the keyboard interface, please see your Windows manual.

* DEC is a trademark of Digital Equipment Corporation, Inc

Setup Options

   The user has a number of options, all of which can be saved as default values and which can be selected from the Setup menu item. However, be aware that some choices can be modified by the host using the terminal's command set (escape sequences). The commands are described in more detail below.

   Any set of selections can be saved to win.ini by checking the 'Save Settings' box on the dialog screens.

Mini-Setup

    Figure 1 shows the options available under this menu item. When Line is selected, the keyboard and display are connected to the communications line; in Local mode, the output from the keyboard is routed to the screen. Local mode can be used to explore the command set to which the terminal responds. In addition, when in local mode, it is easy to view lines which may not be currently visible by using the home and arrow keys.

   The screen may be displayed in normal mode or the text and screen colors may be interchanged. Note that if you try to change the screen and background colors while the screen is reversed, the colors you select will also be interchanged. For example, if you select a white background and blue text when the screen is reversed, the text will be white and the screen blue.

   Scrolling may be smooth or jump a line at a time; however, smooth scrolling slows down the effective communication rate.

   Finally, either 80 or 132 columns may be chosen. In 132 column mode, the maximum number of visible characters will depend on the fonts available as well as the width of the window. Typically at most 128 columns will be seen on most displays.

Modem

   Figure 2 shows the Modem dialog box, whose parameters determine the communications settings. Baud rate selections range from 110 to 19200. Parity and word size are lumped together for simplicity. Typical settings are 8 bits and no parity or 7 bits and even parity. Stop bits can be one or two; one stop bit is usual for baud rates over 110.

   Parity checking can be enabled. When a character having incorrect parity is received, a '?'
will be displayed. This feature is useful when attempting to match the host's parity

setting.

The only flow control available is Xon-Xoff. The receiving buffer is 1024 bytes. When the buffer has 'Xoff Point' characters, an Xoff (control S) is sent to the host. When the buffer drops to 32 bytes, an Xon (control Q) is sent. The Xoff point can be set at any one of 5 values from 64 to 768.

Connections can be made to either communications port 1 or port 2. In addition, it is possible to choose which of these will be tried first when the program loads. Note that the initial port selection is disabled if the 'Save Settings' box is not checked.

Local echo should be used only if the remote host does not echo characters typed at the keyboard. For example, if **Win100** is being used between two PC's then local echo should be set.

Display

Figure 3 shows the options available under this menu selection. The cursor can have either a block or underline style and can be blanked or displayed. In addition, the terminal can be set to wrap lines automatically during display or to add a linefeed character with every carriage return transmitted. Finally, a margin bell can be set to ring when the displayed text exceeds the 72nd column.

General

Figure 4 shows the possible choices for screen and text colors and emulation. In addition, the response to the bell character can be enabled or disabled. Note that you cannot choose the same color for both text and screen. An attempt to do so will force a selection of complementary colors.

Keyboard

Figure 5 shows the keyboard options. The behavior of the keyboard is quite close to a real VT100 or VT52. The actual keyboard layout is discussed in more detail later.

Both the keypad and the cursor keys have two modes. The user can set the keypad to send numerical values or escape sequences. Similarly, the arrow key sequences can be chosen to send the usual cursor movement escapes or a special set.

Most terminals have a separate delete key. The typical keyboard on a personal computer may have a delete key as well, but it usually does not transmit the delete character. However, a delete character can be sent if Ctrl-Backsapce is typed. You can interchange the rolls of Backspace and Ctrl-Backspace by selecting the appropriate option.

The break key is assigned to function key F5. If the break key is enabled, F5 will send a short break to the host. Regardless of the break key setting, shift F5 will cause a long break (disconnect) to be executed. Finally, Ctrl-F5 transmits the contents of the Answerback message. In addition, if Auto Answer is checked, the receipt of ENQ (Ctrl-E) will also cause the Answerback message to be sent.

Recall Saved Setup

Permanently saved parameters can be recalled with this menu item. They are stored in win.ini. You may change their values by executing the 'Save' option in a dialog box or by directly editing win.ini. The former method is preferred since values are checked for validity.

Clear Comm Port

   If the communications port appears to have become blocked, use this option to free it.
The most common problem is the receipt of an Xoff character with no subsequent Xon.

   It is important to note that most versions of Windows 2.10 and Windows 2.11 have a communications driver which will does not handle XOFF-XON correctly. If you find that
you must frequently clear the port, then you should obtain a new COMM.DRV from Microsoft
and reinstall Windows.

<div align="center">

Edit Options

</div>

Copy

   A range of lines displayed on the screen can be copied to the clipboard. The default is the entire screen (lines 1 to 24).   A dialog box allows the user to change the range. Once transferred to the clipboard, the lines can be edited, printed, and /or saved to a file with any Windows editor.

Paste

   In addition, the user can 'paste' text from another application. In reality, the text is transmitted to the host and echoed back, giving the illusion of having pasted the text directly into **Win100**. This technique can be used for limited file transfer to the host.

Program function keys

   Some of the function keys (F1 to F12) can be loaded with user defined sequences. Not all keys are programmable since some are dedicated to sending special escape sequences or other uses. However, most are available when used in combination with the shift, control, or control and shift keys.

   You can record the entered string for each key by hitting return or by using the 'Save' button. A key can be cleared by clearing its entry and saving. When all desired keys have been programmed, press 'Quit'.

   Any printable character can be placed into a string. Control characters can also be entered by prefixing each with a '$' symbol. Thus, $M (or $m) is a carriage return , $J ($j) is a line feed, and $[is escape, $$ provides the '$' character itself.

Session Logging

   All or part of a session can be logged to a file. The default file name is
Win100.log. Unless the user provides a full path name, the log file will be created in
the current directory.

   All incoming text will be written to the file until it is closed. If a logging file is
reopened, you may choose to append additional text to the current contents or to
empty the file and begin anew.

   Certain cautions should be observed when logging a session. If you are running
two instances of **Win100**, then you must be careful not to attempt to log both
sessions to the same file. And, if you are logging to a floppy disk file, then do not
removed the disk until the file is closed.

Keyboard

   Every effort has been made to emulate the DEC VT100 class keyboard. In
particular, the keypad has been designed to function in two modes which depend on
the setting of the Num-Lock key. When depressed, the keypad actions are quite
similar to the numeric/application mode of the VT100. Hence, if in numeric mode,
the keypad transmits numbers; otherwise, it sends escape sequences appropriate to
the emulation mode. The keypad does not transmit the standard cursor movement
sequences. However, on an Enhanced (101) keyboard, the additional arrow keys and
home key function as does a VT52/VT100.

   When Num-Lock is released, then the keypad transmits the usual VT52/VT100
arrow key sequences. The home key also sends the correct VT52/VT100 sequence.

   Delete can be sent using Ctrl-Backspace. Ctrl-Enter will send a line feed.

   Scroll-Lock can be used to start and stop screen display. Function keys F1 - F4 act
just as the PF1 - PF4 keys on a VT52/VT100. F-6 to F-9, F11, and F12 are
programmable. Finally, except for F5 (break key) and F10 (secondary ALT key), all
shift, control, and control-shift combinations can be programmed.

   Function and arrow/home key sequences are as follows. Those in parenthesis
apply when in application cursor key mode.

Key	VT100	VT52
F1	ESC [P	ESC P
F2	ESC [Q	ESC Q
F3	ESC [R	ESC R
F4	ESC [S	ESC S
Up	ESC [A (ESC O A)	ESC A
Down	ESC [B (ESC O B)	ESC B
Right	ESC [C (ESC O C)	ESC C
Left	ESC [D (ESC O D)	ESC D
Home	ESC [H (ESC O H)	ESC H

Keypad sequences in application mode are given below.

Key	VT100	VT52
0	ESC O p	ESC ? p
1	ESC O q	ESC ? q
2	ESC O r	ESC ? r
3	ESC O s	ESC ? s
4	ESC O t	ESC ? t
5	ESC O u	ESC ? u
6	ESC O v	ESC ? v
7	ESC O w	ESC ? w
8	ESC O x	ESC ? x
9	ESC O y	ESC ? y
+	ESC O l	ESC ? l
-	ESC O m	ESC ? m
*	ESC O M	ESC ? M

Terminal Commands

Win100 recognizes those VT100/102/220 escape sequences which generate the commands listed below.   The symbol Pn represents an optional string of decimal digits. If absent or 0 then the default value is 1. For example, ESC [A, ESC [1 A, and ESC [0 A all move the cursor up 1 line. Note also that mode commands or video commands can be combined if the selective parameter is separated by semicolons. For example, ESC [? 4 ; 5 h is the same as ESC [? 4 h followed by ESC [? 5 h.

Command	VT100	VT52
Cursor Commands		
Cursor home	ESC [H	ESC H
	ESC [0;0 H	
	ESC [1;1 H	
	ESC [f	
	ESC [0;0 f	
	ESC [1;1 f	
Cursor up	ESC [Pn A	ESC A
Cursor down	ESC [Pn B	ESC B
Cursor right	ESC [Pn C	ESC C
Cursor left	ESC [Pn D	ESC D
Cursor addressing (1)	ESC [r;c H	ESC Y r c
	ESC [r;c f	
Cursor index	ESC D	
Reverse cursor left	ESC M	ESC I
Next line	ESC E	
Save cursor	ESC 7	
Restore cursor	ESC 8	

Mode Commands

Insert character mode	ESC [4 h	
Replace character mode	ESC [4 l	
Local Echo	ESC [12 h	
Local Echo off	ESC [12 l	
Newline mode	ESC [20 h	
Newline mode off	ESC [20 l	
Cursor key application mode	ESC [? 1 h	
Cursor key normal mode	ESC [? 1 l	
VT52 mode	ESC [? 2 l	
VT100 mode		ESC <
132 columns	ESC [? 3 h	
80 columns	ESC [? 3 l	
Smooth scroll	ESC [? 4 h	
Jump scroll	ESC [? 4 l	
Reverse video	ESC [? 5 h	
Normal video	ESC [? 5 l	
Word wrap	ESC [? 7 h	
No word wrap	ESC [? 7 l	
Text cursor enabled	ESC [? 25 h	
Text cursor off	ESC [? 25 l	

Erase Commands

Cursor to end of line	ESC [K	ESC K
	ESC [0 K	
Start of line to cursor	ESC [1 K	
Entire line	ESC [2 K	
Cursor to end of page	ESC [J	ESC J
	ESC [0 J	
Beginning of page to cursor	ESC [1 J	
Entire page	ESC [2 J	
Insert line at cursor	ESC [Pn L	
Delete cursor line	ESC [Pn M	
Delete character	ESC [Pn P	

Video Commands

Video attributes off	ESC [m
	ESC [0 m
Underline	ESC [4 m
Reverse	ESC [7 m
Not underline	ESC [24 m
Not reverse	ESC [27 m

Miscellaneous Commands

Primary Terminal ID	ESC [c	ESC Z
	ESC [0 c	
Set tab	ESC H	
Clear tab current position	ESC [0 g	
Clear all tabs	ESC [3 g	
Read cursor location	ESC [6 n	
Read terminal condition	ESC [5 n	
Enter application keypad	ESC =	
Exit application keypad	ESC >	
Align screen	ESC # 8	
Display character set	ESC # 7	

(1) In VT100 mode r and c are row and column numbers expressed as a string of digits. In VT52 mode, r and c are single characters whose ASCII value represent the row and column number offset by 32.

   Win100 does not recognize the following VT100/102/220 commands:

        Lock/Unlock keyboard
        Selective erase in line or page
        Bold, blinking, or dim text
        Double width/height characters
        Printer commands
        Special character sets
        Text paging
        Eight bit controls