

WinQVT

A DEC VT220 Terminal Emulator

For Microsoft Windows
Version 4.75

WinQVT is a DEC VT220/102/52 terminal emulator and communications program which has been created to run under Microsoft Windows as a true 'Windows' application. WinQVT provides exceptionally complete VT emulation, including double-wide and double-high characters, the full 'Special Graphics' character set, smooth scrolling, 132 columns, and user-defined keys.

In addition to terminal emulation, WinQVT offers file transfer facilities using five popular protocols - Kermit, XMODEM, YMODEM, ZMODEM, and CompuServe B-Plus, as well as auto-dial and auto-login capabilities. Since WinQVT is a Windows application, these operations, once started, may be sent to the background, thereby permitting the use of the machine for other tasks.

This document does not constitute full user documentation, but it does tell you what you need to know to use and register WinQVT. For a list of recent changes, see the accompanying RELNOTES file.

Hardware Requirements

To run WinQVT, the following minimum hardware configuration is required:

- * 12-mhz 286, 16-mhz 386sx, or higher;
- * EGA or VGA display
- * 101-key 'enhanced' keyboard, or DEC LK250 keyboard
- * Hayes or Hayes-compatible modem (MNP modems are supported)

Software Requirements

WinQVT version 4.7x requires Windows 3.0 or higher. WinQVT will not run on older versions of Windows.

Files

The files included in this archive are:

WINQVT.EXE	The executable program file
VT220.FON	The special fonts required by WinQVT
QVT.INI	A model 'global' configuration file
DEFAULT.VT	A model 'host' configuration file
RELNOTES.WRI	A list of recent changes and improvements in WinQVT
README.WRI	This document

The file 'VT220.FON' should be copied to your \WINDOWS\SYSTEM directory, where it will be together with the rest of the fonts. The 'QVT.INI' file should be copied to the \WINDOWS directory.

The other files should be kept together in a separate directory (e.g., \WINQVT).

Note: We strongly recommend that, before you attempt to run WinQVT, you print out and study the two sample config files, QVT.INI and DEFAULT.VT. These files contain comments which explain each of the various config directives. This is important documentation, and you should make sure that the originals of these files are not destroyed.

Warning!

If you have a serial mouse attached to COM1, you must edit the file DEFAULT.VT before you attempt to run WinQVT! This is because WinQVT will attempt to open the port specified in DEFAULT.VT at program startup. If a mouse is connected to that port, WinQVT's attempt to open the port will probably cause your system to 'hang'. Using the Windows 'Notepad' editor, find the line that reads 'port=1', and change the '1' to whatever number specifies the serial port that you intend to use for communications.

Initial Configuration

WinQVT uses two types of configuration files in order to configure itself to the user's requirements. The first file is QVT.INI, the 'global' configuration file. This file is read just once, at program startup. It contains settings which will be retained throughout your WinQVT session, regardless of which .VT file is loaded. The contents of this file can be modified only by editing it directly, using the Windows 'Notepad' or similar ASCII text editor.

You should take the time now to study the sample QVT.INI, and make any modifications that are needed to suit your environment. For example, you may require a different modem initialization string.

The other type of config file is the 'host' configuration file, also referred to as '.VT' files, or 'config' files. These files contain settings which are tailored to the specific remote systems that you intend to communicate with. It is here that you specify values such as baud rate, bits, parity, and phone numbers. There are many other options which are configurable in .VT files as well, such as default download protocol, fonts, and screen colors.

Unless you perform a single-step load-and-configure (as described in a subsequent section), the config file DEFAULT.VT will be loaded by WinQVT at program startup, right after the QVT.INI file has been processed. Therefore, you should make sure that this file doesn't contain any settings that are grossly inappropriate. As noted above, the COM port is a good example of a setting that must be correct in order to obtain any results at all. In fact, all of the RS232 settings in DEFAULT.VT (e.g., baud, bits, parity, etc.) should be reviewed and changed if necessary.

You may also want to create some additional .VT files at this time, so that you can set up some of the various hosts that you will be communicating with. You can create .VT files in one of two ways:

* use a text editor such as the Windows 'Notepad' to create the file directly. Probably the most efficient method would be to load DEFAULT.VT, make the appropriate changes, then save it under a new name.

Note: the filename extension must be '.VT' in order for the file to be recognized by WinQVT. Also, the file should be placed in the same directory as the WinQVT executable.

* use WinQVT's own 'Setup' menu to assign the desired values, then invoke the 'File Save as' menu item to save the configuration to disk;

Windows 3.x Program Manager Setup

WinQVT is fully compatible with the Windows Program Manager. You can create a Program Manager icon for the WinQVT executable itself, and also for individual .VT files. This second option allows you to load WinQVT and the desired config file from the Program Manager in a single step.

You can now add WinQVT, and if desired, .VT files, to a Program Group by going through the usual procedure for creating icons within Program Manager. This is done by first selecting the 'New' option from the Program Manager 'File' menu, then selecting the 'Program Item' option from the subsequent dialog box.

To create an icon for WinQVT itself, enter 'WinQVT' into the 'Description' field, and the executable pathname into the 'Command Line' field (e.g., c:\winqvt\winqvt.exe).

Creating Icons for .VT files

It is particularly convenient to create Program Manager icons for .VT files, because when double-clicked, these icons will load both WinQVT and the .VT file. If the configuration calls for automatic dialing and/or login (see sections below), these steps will be performed automatically as soon as the program begins executing.

In order for this mechanism to work, you must first modify your WIN.INI file. Go to the [extensions] section, and add the line:

```
vt=winqvt.exe ^.vt
```

To add a .VT file to a Program Group, begin as usual by selecting the 'New' menuitem. Enter the host name (or any meaningful identifier) as the 'Description', and, as the 'Command Line', the full DOS pathname of the .VT file. For example,

```
c:\winqvt\myvax.vt.
```

The resulting icon, when double-clicked, will load WinQVT together with the specified .VT file.

WinQVT is fully compatible with the Norton Desktop. The only difference between the procedure described here and the one used with Norton is that, instead of editing WIN.INI, you would use the 'Associate' menuitem to create the link between WinQVT and the '.VT' file extension.

Once you are satisfied with the contents of both QVT.INI and DEFAULT.VT, and you have added WinQVT to a program group, you are ready to go!

Phone Numbers & Dialing

Phone numbers may be associated with specific host configurations by placing a 'phone=' directive in the .VT file for that host. This number will then come up when the 'Dial' menuitem is invoked. If you specify 'dial_on_load=yes' in the .VT file, the dialing process will be started automatically by WinQVT as soon as the configuration

has been loaded.

The 'phone=' directive has the following structure:

```
phone=number [comm setup string] :description
```

Immediately following the equal sign is the phone number itself, followed by a serial-port setup string (inside square brackets) and some descriptive text (both optional).

The setup string allows you to group a set of phone numbers in the same .VT file (or phone book), even though the same communications setup may not apply to all of them. Using this method, you can associate the correct setup with each phone number. The 'description' is simply some freeform text that describes the system that is at the other end of the phone number.

If the optional configuration string is employed, it must be of the form '[baud:bps]', where 'baud' is a number specifying the baud rate, 'b' is the number of data bits, 'p' is the parity, and 's' is the number of stop bits. For example, '[2400:8N1]' specifies 2400 baud, 8 data bits, no parity, and 1 stop bit. The configuration string must be enclosed in square brackets, and it may not include blanks; the four parts of the string must be concatenated together, with only the single colon separating the baud rate from the remainder of the string.

If the optional description is included, it must be preceded by a colon, to separate it from whatever comes before.

The phone number may contain punctuation (e.g., spaces, dashes) for readability, and all Hayes subcommands (such as the comma) are permitted.

Note: do not include an asterisk () in a phone number for the purpose of disabling call-waiting. If you need this functionality, you should include the asterisk in your 'dialprefix' instead.*

The total character count of the number, configuration, and the description must not exceed 63 characters.

A complete example phone number directive might look like this:

```
phone=(212) 555-1111 [9600:8N1] : The VAX at Work
```

Multiple Phone Numbers

You can have as many phone numbers as you like in the .VT file, each one as a separate 'phone=' directive. If more than one number is present, you can use the 'Numbers' menu option to select one (or more) at runtime. This dialog is available both from the main menu, and from within the 'Dial' dialog itself. Both numbers stored in the .VT file and those stored in the master phone book (see section below) will be presented in this list.

Dial Prefix and Suffix

In order for dialing to be carried out correctly, make sure that the 'dialprefix' and 'dialsuffix' config directives are set up properly. These two directives are found in

QVT.INI, and they specify the dialing command initiator and terminator (the phone number itself comes in between). The default values are 'ATDT' and '^M' (a carriage return), respectively.

If you have 'call waiting' on your phone line, and you want to disable it while using the modem, you should include the '*' character in the dial prefix, not the phone number! Though phone numbers can contain characters other than digits, only digits and valid Hayes subcommands will actually be transmitted to the modem.

Modem Initialization String

WinQVT also supports the use of a modem initialization string. You should store your initialization string as a 'modem_init=' directive in the QVT.INI file. A reasonable default initialization string - for Hayes 2400 modems - is included in the supplied copy of QVT.INI. If you modify the default initialization string, MAKE SURE that you do NOT edit out the 'q0' and 'v0' subcommands. These are critical to the proper functioning of the WinQVT dialer!

NOTE: if your modem responds to a carriage return as a command terminator (as most modems do), you must include a carriage return, notated as ^M, at the end of your initialization string. For example, 'modem_init=atq0e0v0&c1&d2x1^M' would be a valid initialization string for a typical Hayes-compatible 2400-baud modem.

The modem initialization string may be up to 63 characters in length.

Modem Reset String

Before initializing the modem, it is advisable to reset the modem first. This ensures that the initialization is performed in a controlled environment. To accomplish a proper reset, WinQVT provides a 'modem_reset' string, as specified in QVT.INI. In the sample QVT.INI file, the reset string is 'ATZ^M', which is appropriate for Hayes-compatible modems. Note the presence of the '^M' at the end, indicating a carriage return.

Do not include a 'reset' command in your initialization string!

Automatic Dialing

WinQVT can be set up to dial the number for a host as soon as the config file for that host is loaded. This is done by specifying 'dial_on_load=yes' in the .VT file. If there is only one number listed in the config file, that number will be dialed immediately after the config file is loaded. If you have listed more than one number, a dialog will be displayed that you can use to select the number to dial at that time.

Automatic dialing will not be performed at initial startup if the only config file loaded is DEFAULT.VT. In order to get automatic dialing working correctly you should do a one-step load-and-configure, by creating an icon for the .VT file, and double-clicking on that icon, rather than the icon which is associated with the WinQVT executable itself.

Phone Book

Including the 'phone=' directive in a config file is a way to associate a phone number with a specific host system. However, WinQVT also supports the concept of a 'phone book', which is a list of phone numbers (with descriptions) that is always accessible, no matter which configuration happens to be in effect. The phone book can be accessed by using the 'Numbers' menu option ('Modem' menu).

The phone book is simply a text file that you create using a text editor, such as 'Notepad'. Each line in the file represents one phone book entry, with the following structure:

number [comm setup string] :description

The first part of the entry is the phone number itself. The optional second part (enclosed in square brackets) is a string which specifies the communications setup that should be used with the number. The optional third part - following the colon delimiter - is a brief description of the system which can be reached at that number. As noted previously, the phone number can contain punctuation (such as dashes and parentheses), as well as Hayes subcommands (such as the comma).

See the section above on 'Phone Numbers and Dialing' for more information on the structure of a phone book entry.

To make the phone book available to WinQVT, you should enter the name of the

phone book file (absolute DOS pathname recommended) as the argument to the 'phone_book' directive in the global confile file QVT.INI.

Login Scripts

WinQVT includes a small script language, which, while not elaborate, is nevertheless capable of carrying on fairly complicated dialogs with host software (including those involving callback modems). It is mainly intended for use as a tool for automating login procedures, which are often both routine and tedious. It does, however, provide some additional features such as scheduled, unattended file transfer.

If you want to use a login script with a particular host, you must first create the script, then specify the name of the script file in the .VT file for that host. This is done using the 'login=' config directive. We recommend that you use the full DOS pathname of the script file.

Automatic Script Execution

If the name of a script file is specified in the config file, it will be executed immediately after a modem connection is established (using the 'Dial' menuitem). We **strongly** recommend that, if you plan to use a script file in this way, that you specify the phone number(s) using the 'phone=' directive in the .VT file, rather than relying on the phone book to store the number. For the most part, phone numbers and login scripts belong together, since both are (probably) valid for only a single host system.

If you are using WinQVT in a direct-connect environment, you can still have automatic script execution: if a script file has been specified in the config file (i.e., 'login='), and 'dial_on_load' has been set to 'yes', and there are no phone numbers listed in the config file, then WinQVT will assume that you are directly connected, and will execute the script file as soon as it is finished loading the config file.

Though full documentation of the script language is made available only to registered users, you may find that a considerable amount can be accomplished with only these commands:

dial "number" number. Follow	Dial the specified phone with 'if_err_goto' or 'if_noerr_goto' to direct the flow of the script based on the whether or not the dial command
type "string" string to the host.	Transmits the specified Control characters can be specified by using the '^' character, followed by the appropriate letter; e.g., '^C' = <Ctrl-C>. A carriage return is notated as '^M'.

wait <secs> ["string"] This command performs either a simple 'wait' for the specified number of seconds, or, when given the optional "string" argument, will wait for that string to arrive in the incoming data stream (for up to <secs> seconds). 'Wait' is not case-sensitive.

if_err_goto <label> Performs a conditional transfer, based on the success or failure of the previous command (usually a 'wait'). If the 'wait' times out before the looked-for string is received, you can use 'if_err_goto' to jump to another point in the script, as indicated by the 'label'.

Labels in WinQVT scripts are similar to those in DOS batch files. They consist of a single line of text, containing the label itself preceded by a colon (:). Note that the label must be all by itself on the line that contains it.

The inverse of 'if_err_goto', 'if_noerr_goto', is also available.

Note: even though labels in script files must have a colon as the first character, you should not include the colon in the 'if_err_goto' command (i.e., 'if_err_goto exit' rather than 'if_err_goto :exit').

Additional commands include 'sleepuntil' (to pause until a certain time of day), 'capture' (to open a log file of the session), 'ksend' (to upload a file using Kermit), and 'shutdown' (to terminate WinQVT at the conclusion of a script).

File Transfer Protocols

Kermit

When performing Kermit file transfers, make sure that you set the parity of the remote Kermit so that it matches WinQVT's parity setting. Otherwise, the transfer will fail. Note that the remote Kermit will show no signs of misbehavior until the transfer is started, at which point the session will 'hang'.

YMODEM

The version of YMODEM included in WinQVT is a true 'batch' YMODEM implementation.

ZMODEM

WinQVT's ZMODEM is based on the public-domain ZMODEM protocol. Recent shareware versions of the host end of ZMODEM (sz/rz) have included some proprietary startup routines which are compatible only with Omen Technology's 'dsz' program. The non-proprietary version can be obtained from Omen only by registering your copy of sz/rz.

You may also find that you will need to tinker with the command-line options when you start sz or rz on the host. Pay particular attention to the 'L', 'I', and 'w' options. Reducing these values from the defaults will sometimes get Zmodem to work where the defaults won't.

B-Plus

In order for the CompuServe B-Plus protocol to work, you must be operating at 8-bits, no parity. This may require that you modify your CompuServe user profile (with the 'GO TERMINAL' command). The best way to perform a B-Plus transfer is to enable the B-Plus protocol (using the 'Transfer' menu) just before selecting 'B Plus' from CompuServe's protocol menu. You should disable B-Plus after the transfer is finished.

After a file transfer has been started, you can switch to another Windows application while the transfer is proceeding. Note that the new foreground application should be a Windows application; switching to a DOS application may cause the file transfer to time out.

NOTE: WinQVT is quite careful to allow messages for other applications to be processed during file transfers. If there are many such messages, there may be a noticeable impact on the speed of the file transfer. We suggest that, before beginning a WinQVT file transfer, you terminate any running applications which generate a continuous stream of messages .

Fonts

The font file included in this package is designed for use with EGA display adapters. It will work with VGA and Hercules displays, but the character size will be somewhat smaller than the optimum for those displays. Registered users will receive a complete set of fonts for all PC display systems, including VGA (640x480), Hercules (720x350), Super-VGA (800x600), and 8514/A (1024x768).

Note that you can also select the builtin ANSI and IBM PC fonts, from the 'Terminal - Display' dialog box. These fonts will normally be sized appropriately for your display. Note, however, that true DEC terminal emulation cannot be done with these fonts, since the line-drawing characters (and other special characters) are missing. They are suitable only for TTY or Bulletin Board environments.

COM3 and 4

WinQVT will work with COM3 or 4, as long as these ports have been initialized and set up correctly within the Windows environment.

In order to initialize COM3 and/or 4 for use with Windows, you may need to use a utility such as David Macchia's COMSET (available from many BBS's). This program should be included in your AUTOEXEC.BAT boot routine. If your ports are not properly initialized, you will probably get an error message from Windows, stating that the ports have been assigned for use by a DOS application; attempts to use the ports from within Windows will fail.

SYSTEM.INI

If you are running Windows in 386-enhanced mode, you should probably modify your SYSTEM.INI file (the [386Enh] section) to make sure that the correct I/O addresses and IRQ lines are being used for the serial ports. Note that Windows does not use the industry-standard port addresses as its defaults for COM3 and 4!

Here are some suggested values for use in your SYSTEM.INI:

```
COM1Base=3f8h  
COM2Base=2f8h  
COM3Base=3e8h  
COM4Base=2e8h
```

```
COM1Irq=4  
COM2Irq=3  
COM3Irq=4  
COM4Irq=3
```

```
Com1AutoAssign=0  
Com2AutoAssign=0  
Com3AutoAssign=0  
Com4AutoAssign=0
```

```
ComIrqSharing=1
```

Lines which refer to ports which are not installed on your system may be omitted.

High Baud Rates in 386-Enhanced Mode

Though not actually a bug in WinQVT, it is worth mentioning that, when running in 386-enhanced mode, the Windows 3.0 communications driver drops characters at very high baud rates (e.g., 19200 baud). This is because Windows spends too much time in modes which block the servicing of serial-port interrupts (for example, timer interrupts, which are of higher priority than comm interrupts).

(The same problem will also occur if you want to use another program in the foreground while performing a Zmodem download, especially if the other program involves a lot of disk I/O).

If you want to run at high baud rates without dropping characters, we recommend that you use the 'Control Panel -386 Enhanced' dialog to select the 'Exclusive in Foreground' option. This will make background file transfers impossible, but it will at least protect the integrity of the foreground terminal session.

You may also consider acquiring a replacement comm driver, such as TurboCom from Bio-Engineering Research Labs, of Berkeley CA.

Using WinQVT with Bulletin Board Systems

WinQVT is a DEC terminal emulator, and is intended primarily for use in insitutional environments where DEC terminals are the norm. However, it can also be used to communicate with IBM PC bulletin-board systems. For best results, you should:

- * Select the 'IBM' character set (Terminal - Display dialog)
- * Select 'BS' as the backspace character (Terminal - Keyboard dialog)

WinQVT supports ANSI color, so you can enable color in your BBS user profile.

Unsupported VT220 Capabilities

WinQVT supports the entire feature set of the DEC VT220 terminal, with the following exceptions:

- * Compose key
- * Downloadable character sets

Keyboard Mapping

The version of WinQVT provided here is intended for use on computers with the 101-key 'Enhanced' keyboard.

DEC	IBM
PF1	NumLock
PF2	'/' on keypad
PF3	'*' on keypad
PF4	'-' on keypad
, (comma)	'+' (on keypad)
- (minus)	<Ctrl> + '+' on keypad
Enter	Enter (on keypad)
HoldScreen	<Pause>
PrintScreen	<Alt-F2>
Setup	(no key, use menu)
Data/Talk	Not Supported
Break	F5 or <Ctrl-Break>
F6 - F10	F6 - F10
F11 - F20	Shift-F1 - F10
Help	F11
Do	F12
Find	Insert
InsertHere	Home
Remove	PageUp
Select	Delete
PrevScreen	End
NextScreen	PageDown

The DEC user-defined keys are accessed by pressing <Ctrl-F6> through <Ctrl-F10> for the first five, and <Ctrl-Shift-F1> through <Ctrl-Shift-F10> for the last ten.

Registration Information

WinQVT is a shareware product. Should you find it useful and suitable for your requirements, we ask that you remit \$50 to:

**QPC Software
P.O. Box 226
Penfield, NY 14526**

Your registration will entitle you to a copy of the latest version of the program, a complete set of fonts, and a printed user manual. You will also be eligible to receive free upgrades for a period of one year.

NY State Residents: shareware is now taxable! Please include applicable sales tax.

Contacting QPC

You can contact QPC Software electronically on Compuserve. Our account is [76676,1420]. If you have access to the Internet, you can send mail to our account using this e-mail address: 76676.1420@compuserve.com.

If you believe you have found a bug in WinQVT, or if you would like to see the program modified or enhanced in some way, please let us know! Many user suggestions have already been incorporated into WinQVT, and we continue to welcome ideas from all sources.

Other Versions of QVT

QPC Software has a family of DEC emulation products for many popular personal computer environments, including MS-DOS, Microsoft Windows, Apple Macintosh, and OS/2 Presentation Manager. Also available are networking versions - for both DOS and Windows - which run in an Ethernet-TCP/IP network environment. The Windows network product provides a suite of TCP/IP applications, including Telnet, FTP, NNTP (news), POP3 (mail), and lpr.

Write to us for our complete product price list.

If you pass on your copy of WinQVT to others, we ask that you include all of the original files from this package.

Thank you for your interest in WinQVT!