

WinQVT/Net

TCP/IP Services for Microsoft Windows
Version 3.6

QPC Software is pleased to announce the release of version 3.6 of WinQVT/Net, a suite of TCP/IP client and server applications for Windows 3.1.

Services provided include:

Network Virtual Terminal

WinQVT/Net will support up to 15 simultaneous virtual terminal (telnet or rlogin) sessions. Each session resides in its own window, which can be moved, sized, and iconified according to standard Windows procedures. If you have a color display, you can use color (both foreground and background) to help differentiate visually between sessions; fonts can also be used to distinguish sessions.

You can select sessions quickly using either the mouse or the keyboard (with a single keystroke).

Like all QPC emulation products, the present one offers exceptionally complete and accurate emulation of the DEC 'VT' series of terminals, including the VT220, VT102, and VT52. The graphical capabilities of the Windows environment are used to provide support for features such as 132 columns, multi-national characters, and double-size characters.

WinQVT/Net has built-in support for the industry-standard 101-key PC keyboard, and for the DEC LK250 keyboard. Non-standard keyboards, such as those found on many laptop PC's, can also be used, with proper configuration.

FTP

With WinQVT/Net's FTP client application, you can transfer files to and from your PC. The FTP application runs in its own window, concurrently with any terminal sessions that may be running. Commands can be entered from the keyboard in the traditional manner, or by using the mouse.

Electronic Mail

Electronic mail is supported in the form of a POP3 client module, which allows you to send and receive Internet mail from the PC keyboard. For installations whose POP3 servers don't support the sending of mail, WinQVT/Net allows mail to be sent using the SMTP protocol.

Usenet News

For users with access to an NNTP server, WinQVT/Net includes a news reading and posting facility.

Network Printing

Using WinQVT/Net's `lpr` module, you can print PC files (text and binary) on printers and plotters which are attached to remote network hosts.

Servers

WinQVT/Net includes two server applications, support FTP and `rcp`. The FTP server allows remote users to log on to your PC and transfer files, using the FTP protocol. The `rcp` server allows files to be copied to and from the PC from the remote user's Unix command line.

Packing List

This shareware distribution contains the following files which are active parts of the WinQVT/Net package:

WNQVTNET.EXE	The program executable
WNNETDLL.DLL	The TCP/IP transport library
DLLTASK.EXE	The DLL transport task driver
WNQVTNET.SYM	Symbol files for use by Dr. Watson
WNNETDLL.SYM	
QVTNET.INI	The main configuration file
PKTINT.COM	The protected-mode driver interface
VT220.FON	The DEC 'VT' fonts
WNQVTNET.HLP	The on-line Help file
WNSETUP.HLP	The setup Help file
PASSWD.EXE	FTP login security database maintenance
TNSTART.EXE	Remote application launcher
RELNOTES.WRI	Notes on recent changes
SETUPS.TXT	Setup tips

Documentation

This file is one of four sources of information on how to set up and use WinQVT/Net. The other three are:

- * The RELNOTES.WRI file, which contains a list of recent changes and enhancements

- * The sample QVTNET.INI file, which includes capsule descriptions of each of WinQVT/Net's setup parameters

- * The on-line help file WNQVTNET.HLP, which can be accessed from the WinQVT/Net Console, or from any of the interactive applications.

We recommend that you print out and read both RELNOTES.WRI and QVTNET.INI, in addition to this file, before you attempt to run WinQVT/Net.

A full 70+ page user manual is provided to registered users of WinQVT/Net.

Hardware and Software Requirements

WinQVT/Net 3.6 requires:

- * A 386 processor (or higher)
- * Windows 3.1 or Windows for Workgroups

WinQVT/Net *will not run* on 286 machines, or under Windows 3.0.

Packet Driver Interface

WinQVT/Net does not have built-in support for any particular network interface hardware. Instead, it uses the software interface provided by FTP Software's Packet Driver Specification. Therefore, WinQVT/Net can operate over any hardware for which an FTP-compatible packet driver is available (with some exceptions).

Many manufacturers of Ethernet cards and adapters bundle packet drivers in with their hardware. In addition, public-domain packet drivers are available for many Ethernet (and non-Ethernet) cards. For example, see the Crynwr Packet Driver Library, which includes dozens of Ethernet packet drivers, as well as drivers for Token Ring, SLIP, and other non-Ethernet hardware platforms. The enclosed file HOWTOGET.IT provides instructions on how the Crynwr Library can be obtained.

WinQVT/Net will not run over LocalTalk cards. Nor will it run over Token Ring cards, except when using the Crynwr driver IBMTOKEN.COM, which presents an Ethernet-like interface to the software.

Windows for Workgroups

If you need to run WinQVT/Net under Windows for Workgroups (which uses an NDIS driver) you can do so by using the device driver 'DIS_PKT.DOS', which converts packet-driver calls to NDIS calls. It effectively replaces the packet driver in your system. DIS_PKT.DOS is an unsupported product of FTP Software, Inc. (subsequently enhanced by Joe Doupnik, Dan Lanciani, and others), which has been placed in the public domain, and can be obtained as a free download from many BBS systems and FTP sites. Most DIS_PKT.DOS packages include information on how to install the driver in your system. The installation involves minor changes to CONFIG.SYS and PROTOCOL.INI.

You can get DIS_PKT.DOS, as well as other network-related TSR's, via anonymous FTP from biochemistry.cwru.edu. Look in directory /pub/qvtnet.

*WinQVT/Net will usually **not run** when other TCP/IP products are active in the system. Examples include PC-NFS, PC/TCP, and Chameleon. WinQVT/Net can be made to run concurrently with other TCP/IP products which support the Packet Driver Specification, using the freeware utility 'PKTMUX'.*

Installation Procedure

WinQVT/Net must be installed from the DOS prompt, preferably with Windows not running. This is because changes must be made to the runtime environment before WinQVT/Net can operate.

The installation steps are:

1. Create a directory for WinQVT/Net on your hard drive

For example, \QVTNET

2. Copy files to their correct locations:

* Copy all files except VT220.FON and PKTINT.COM to the WinQVT/Net 'home' directory (i.e., the directory created in Step 1)

* Copy VT220.FON to the \WINDOWS\SYSTEM directory

* Copy PKTINT.COM to your root directory, or to the same directory in which your packet driver is located.

3. Modify your AUTOEXEC.BAT.

Include lines that will load the packet driver and the protected-mode interface module (PKTINT.COM) at boot time, in that order.

In addition, if you want your WinQVT/Net support files (e.g., QVTNET.INI) located in a different directory from the executable files, you must create an environment variable, QVTNET_DIR, that points to the directory that contains the support files.

These changes to AUTOEXEC.BAT will look something like this:

```
set QVTNET_DIR=c:\qvtnet
...
<load packet driver>
c:\pktint.com
```

This example assumes that you have placed PKTINT.COM in the root directory. If you are using a packet driver from the Crynwr library, make sure to include the '-w' command-line switch. This will prevent the driver from being swapped out by Windows, which, should it occur, will result in all of your WinQVT/Net sessions being dropped.

If you are trying to run WinQVT/Net on a machine that is already running other network software, we recommend that you study the file SETUPS.TXT for information on running

WinQVT/Net in various heterogeneous environments.

6. Edit the QVTNET.INI file.

WinQVT/Net cannot run without being given values for three items in `QVTNET.INI`: 'name', 'ip', and 'packet_vector'. These three entries should be made directly in `QVTNET.INI`, using any standard ASCII text editor.

For details, see the section below on `QVTNET.INI`.

Once these installation steps are complete, you are ready to start WinQVT/Net.

If you are trying to run WinQVT/Net for the first time, we recommend that you temporarily disable any other network software that may be running on your machine. WinQVT/Net can be made to cooperate with most other network software, including other TCP/IP software, but it is best to leave these integration tasks for later, after you have established that WinQVT/Net is running correctly in a 'clean' environment.

A Note on the QVTNET_DIR Environment Variable

The executable files (.EXE, .DLL, .SYM) don't have to be together in the same directory with the support files (.INI, .RC, etc.). You can place these two sets of files in different locations, then set `QVTNET_DIR` to point to the location of the support files. This means that a number of users can share a single set of executable files (for example, in a LAN environment), yet each can have his or her own set of support files.

You can also use the Program Manager 'Working Directory' field to specify the location of the support files.

WinQVT/Net Support Files

WinQVT/Net uses two types of external files: configuration files and database files. The main configuration files are `QVTNET.INI` and `QVTNET.RC`; the main database file is `QVTHOST.RC`. Other database files of lesser importance are `QVTALIAS.RC` (list of aliases for mail recipients), `NEWS.RC` (list of subscribed Usenet newsgroups), and `QVTNET.ACL` (access control lists for FTP and `rcp` servers).

All configuration and database files must reside in the same directory. This should be either the 'Working Directory', as specified by Program Manager, or the directory named by the `QVTNET_DIR` environment variable.

QVTNET.INI

WinQVT/Net reads its basic setup information from the `QVTNET.INI` file. This is a standard ASCII text file that can be read and modified using any ASCII text editor.

The construction of a valid `QVTNET.INI` file is critical to the proper functioning of WinQVT/Net. See the sample file for an explanation of the required setup parameters, as well as the optional ones that you can use to customize your environment.

The three most critical lines in `QVTNET.INI` are 'name=', 'ip=', and 'packet_vector=', all in the [net] section. These statements define your PC's network node name, IP address, and the software interrupt that will be used to communicate with the packet driver. WinQVT/Net will not function unless these three items are present.

Here is an example:

```
[net]
name=mypc
ip=28.1.13.75
...
packet_vector=0x60
```

There are two ways to assign values to these items so that you can run WinQVT/Net. The first method would be to edit the file directly, using an ASCII text editor (such as Windows Notepad). The other method is to go ahead and start WinQVT/Net without having edited `QVTNET.INI`; the missing items will be detected at startup time, and you will be presented with a dialog box that you can use to enter the required values.

[Note that the packet vector is specified as a hexadecimal number, using C-style notation. This is the method used by many packet drivers, and it is used here by WinQVT/Net as well. The packet driver specification calls for interrupt vectors 0x60 through 0x80 to be available for use by the packet driver, but under WinQVT/Net vector 0x80 is not available; it is pre-empted for use by the protected-mode interface program, PKTINT.COM.]

Note: in many network environments, the assignment of node names and IP addresses is reserved to the network administrator. We therefore suggest that you consult with your local network authorities before attempting to run WinQVT/Net. The consequences of an addressing error of some kind, such as address duplication, can be very unpleasant!

WinQVT/Net supports the Reverse Address Resolution Protocol. This allows you to specify your IP address as 'RARP', which will cause WinQVT/Net to issue a RARP request at startup time in order to acquire it's own IP address over the network. In order for this facility to work, two conditions must be satisfied:

- * There must be a RARP server running on your local network
- * Your PC's Ethernet address must be listed in that machines `ethers` database.

Successful use of RARP will therefore require the cooperation of your network administrator. It is worthwhile, however, in that it eliminates the need for you to store your IP address locally.

QVTHOST.RC

In addition to the general setup in `QVTNET.INI`, you will also need to create documentation for the hosts on your network that you intend to communicate with. This documentation will be placed in a file named `QVTHOST.RC`. This file is organized as a series of host entries, with one line per entry. Each line is structured as follows:

```
<IP address> <host name> [<alias> <alias> ... ]
```

Note that this structure is basically that employed by the `hosts` file in a Unix environment.

Nameservers

If you plan on using a domain nameserver to acquire addresses for most of the machines that you will connect to, you do not need to list them in `QVTHOST.RC`. However, the nameserver itself must be listed! In addition, you must edit `QVTNET.INI`, and enter the name of the nameserver machine as the argument to the 'nameserver=' directive ([domain] section).

Even though the nameserver makes it unnecessary to list host addresses in `QVTHOST.RC`, it is still desirable to do so, since hosts listed there will be presented as 'selectable' hosts at various points in the operation of WinQVT/Net. To include a host in `QVTHOST.RC` without specifying an address, simply use all zeros for the address:

```
0.0.0.0    <host name>
```

WinQVT/Net will use domain nameserver queries to acquire the address for any machine whose address is given this way in `QVTHOST.RC`.

Routers

In order to access machines outside your local net, you will need the services of a router or gateway. Like nameservers, routers are documented in two locations: first, there must be a complete `QVTHOST.RC` entry for the router; second, the name of the router must be given as the argument to the 'router=' statement in `QVTNET.INI`.

QVTNET.RC

Setup instructions for a 'default' terminal configuration are contained in `QVTNET.INI` ([terminal] section). If you want to create additional configurations, to help visually distinguish sessions, you can place these configurations into the file `QVTNET.RC`.

Each `QVTNET.RC` configuration entry consists of a number of lines of text. The first line must be structured as follows:

```
name=<configuration name>
```

Configuration names can include embedded spaces, as long as the entire name is enclosed in double quotes. For example,

```
name="White on Blue 24x80"
```

might refer to a configuration which uses white characters on a blue background, in a 24x80 window. Configuration names can be up to 80 characters long.

The remaining lines will be of the form `<item>=<value>`, where `<item>` is one of the configurable items listed in the [terminal] section of `QVTNET.INI`, and `<value>` is the value that should be assigned to that item in the current configuration. All of the items contained in the [terminal] section of `QVTNET.INI` can be used in `QVTNET.RC` as well.

There is one additional item that you can use in `QVTNET.RC` that is not found in `QVTNET.INI`. This is the 'host=' directive. By using this directive, you can associate a configuration with a host. The effect of this association is to reduce the number of mouse-clicks (or keystrokes) needed to start a terminal session. You won't have to select both a host and a configuration. Instead, just select the configuration, and the associated host will automatically be selected. Note that this is only a default; you can still select a different host for any particular session.

A configuration entry in `QVTNET.RC` does not have to include specifications for all of the items found in `QVTNET.INI`. The idea is to assign new values only when you want values different from those given in `QVTNET.INI`. In all other cases, the configuration will 'inherit' the values from `QVTNET.INI`. This feature allows you to quickly set up a series of configurations that are visually quite different from the default, without having to repeatedly set values which already have acceptable defaults.

QVTALIAS.RC

WinQVT/Net's email module will use this file as a list of aliases for mail recipients. When sending a mail message, you can type in one of these aliases instead of the recipient's actual email address. In addition, the alias can be used to represent not just one person, but a list of people, all of whom will receive the message.

The format of `QVTALIAS.RC` entries is:

```
<alias>: <address>[,<address>, ...]
```

Starting WinQVT/Net

In order to run WinQVT/Net, you must have started both the packet driver and the interface program PKTINT.COM before starting Windows. If you have not done so, and attempt to run WinQVT/Net, you will bring down Windows! We recommend that you include the appropriate lines in your AUTOEXEC.BAT to load the packet driver and the PD interface module at system startup.

Be careful with the packet driver command-line arguments, particularly the IRQ number. There are very few available IRQ lines on most PC's, and you must be careful to avoid setting up your network card with an IRQ that conflicts with another device. On most PC's the only available IRQ's are 2, 5, and 7. Some network cards can only use IRQ's 2 through 5, which eliminates 7 from consideration. If you have a bus mouse installed in your PC, it is almost certainly using one of these IRQ lines. Additional hardware, such as a Sound Blaster, will use another. Having established that an IRQ line is available for the network card, make sure that both the card and the packet driver are set up to use this interrupt.

Once you have gotten into the Windows 3.1 environment, you should:

1) Use Program Manager's 'New' menuitem to add WinQVT/Net to a program group. If you are not using the QVTNET_DIR environment variable, be sure to fill in the 'Working Directory' field; it should give the location of the WinQVT/Net support files (i.e., QVTNET.INI, etc.).

2) Start WinQVT/Net by double-clicking on the icon.

If you have already edited your QVTNET.INI, and supplied a PC node name and address by typing them in directly, WinQVT/Net will start by presenting a small 'console' window in the upper-right corner of the screen. All of the various client modules are started from the console.

If you have left your QVTNET.INI in its initial (incomplete) state, the console window will not come up. Instead, you will see a configuration dialog box, which will allow you to enter values for the three critical items: node name, IP address, and packet vector. You should now enter your values into these fields, then press 'Ok'. If you cancel, or fail to provide all three values, WinQVT/Net will terminate gracefully. If all three are present and valid, the console window will be displayed, and you can proceed.

As an initial foray, we recommend that you try to open a 'Terminal' session on a local host (i.e., one not requiring the use of a router), preferably one that is listed in QVTHOST.RC. To do so, simply press the 'Terminal' button, and wait for the 'Start Terminal Session' dialog to appear. All of the hostnames which are defined in QVTHOST.RC will be shown in the left-hand listbox. The right-hand listbox should contain the single entry, 'Default' (unless you have already created a QVTNET.RC file, with some additional configurations).

To start the session, select a host from the 'Hosts' list, and (optionally) a configuration from the 'Configurations' list, then press 'Ok'. WinQVT/Net will dismiss the dialog, and

attempt to start a Telnet session on the selected host. As soon as a connection is made, a 24x80 Terminal window will be displayed, containing the remote system 'login' prompt. You can now proceed with your Telnet session.

Opening a New Session

New sessions can be started by returning to the console window and pressing the 'Terminal' button again. This will bring up the same dialog that was presented previously. As before, simply select the host/configuration that you want and click on 'Ok' to start the new session.

A tip: you can quickly 'hot-key' from a 'Terminal' session back to the Console window by pressing <Alt-C>.

Note that there is nothing preventing you from starting another session using the same host and/or configuration as your first session. Should you do this, you can still distinguish between the first and second session by referring to the session number, which is displayed in the window title bar.

Cycling Between Sessions

If you have a mouse, you can activate a session by moving the mouse cursor to any part of that session's window, then clicking the left mouse button once.

Using the keyboard, you can move from the current session to the next by pressing <Alt-N>. This will cause the next session in WinQVT/Net's list to become the current session. The screen image and all operational characteristics of that session will be restored (including the state of the <CapsLock> key). If you press <Alt-N> while currently working with the last session in the list, WinQVT/Net will 'wrap around' to the first session.

Standard Windows methods for switching the foreground window will also work, such as pressing <Alt-Tab> or <Alt-Esc>.

Changing the Terminal Operating Characteristics

The 'Setup' menu contains items that you can use to change a session's operating characteristics 'on the fly'. The first item, 'Terminal', provides a dialog box that allows you to change values relating to the keyboard and display.

The 'Colors' dialog allows you to select new foreground and/or background colors for a session.

The 'Font' and 'Window' menuitems allow you to change the font size and window size, respectively.

Note that, although you can use these dialogs to change the behavior of a running session, you cannot save any of these changes. To make a permanent change in your setup values, you must edit the QVTNET.RC file (or use the Console's 'Configuration' dialog).

Key Redefinition

WinQVT/Net's telnet module allows you to arbitrarily redefine almost any key on the keyboard. The exceptions are the modifier keys: <Shift>, <Ctrl>, <Alt>, and <CapsLock>.

The key-redefinition capability is accessed through the 'Keymaps' menu option. Two separate dialogs are presented: one for the 'main' keyboard, and one for the smaller keypads which are located on the right-hand portion of the IBM 101-key keyboard.

To redefine a key, you should:

- * Bring up the appropriate keymap (the one that contains the right key)
- * Click on the button which represents the key that you want to redefine
- * Type in the string that you want to be transmitted when that key is pressed.

Key-redefinition strings may be up to 80 characters in length.

Each key can have up to four separate redefinitions:

- * one for when the key is pressed in its unmodified, or 'base' state
- * one for when the key is pressed together with the <Shift> key
- * one for when the key is pressed together with the <Ctrl> key.
- * one for when the key is pressed together with both <Shift> and <Ctrl>

These strings should be entered into to the input field as one continuous string, with each of the substrings separated by the '|' (pipe) character. For example:

```
test|TEST|Test|tEST
```

is a key-redefinition string containing four parts, one each for the base state, the shift state, the <Ctrl> state, and the <Ctrl+Shift> state. If you omit one or more of the four states, the default behavior for the key will be used (if one exists).

The caret (^) character can be used to specify a control character; this notation for the first 32 control characters is supported by WinQVT/Net. Another, more versatile notation is also available: this is the 'C' style 'backslash' notation. For example, '\033' could be used to represent the <Escape> character. If you use this type of notation, you must supply exactly three octal digits, including leading zeros if required.

Key redefinitions will be saved to disk after you exit from the keymap by pressing the 'OK' button.

FTP

WinQVT/Net allows you to have one FTP session in addition to your terminal sessions. To start an FTP session, go to the Console window and press the 'FTP' button (or select 'FTP' from the Services menu). Once the FTP window has come up, you can use the 'Open' menuitem to begin an FTP session. The FTP 'login' dialog box contains a drop-down list box showing the names of the hosts which are defined in your `QVTHOST.RC` file, and also provides input fields for your login name and password. All three must be filled in before you can begin the FTP session.

If you cancel the dialog, the login window will disappear, but the FTP window will remain, in a 'closed' state.

When you are ready to close the FTP session, enter the command 'bye' or 'quit' at the 'ftp>' prompt. This will terminate the FTP connection and close the window. You can terminate an FTP session without closing the window by using the 'close' command. All of these commands are also available from the menu bar.

Note that FTP runs concurrently with any terminal sessions that you may have started. You can switch back to one of them at any time.

News Reader

If there is an NNTP server running on your network, you can use WinQVT/Net to read Usenet articles directly from the server. There are two setup steps you must perform in order to enable the news reading facility:

1. Find the [nntp] section in `QVTNET.INI`, find the 'host=' entry, and type in the name of the host machine on which the NNTP server is running. If you do not have a nameserver on your network, you will have to create an entry in `QVTHOST.RC` for this machine, including the IP address of the machine. Alternatively, you can provide the IP address of the NNTP host directly as the value of the 'host=' configuration entry.

This step can be performed either by editing `QVTNET.INI` directly, or by invoking the 'News' configuration dialog from the Console menu. If there is no NNTP host defined in `QVTNET.INI`, the news reader will not start!

2. Contact your system administrator, and have your PC added to the 'nntp_access' list. Make sure you ask for posting privileges, or you will not be allowed to post articles!

The News Reader will, at startup time, immediately attempt to open a connection to the NNTP server. If successful, a 'connected' message will appear in the text window. You should now proceed to select one or more newsgroups to read, using the 'Subscribe' menu option. This procedure allows you to filter the newsgroup list by providing the first few letters of the newsgroup name, such as 'rec' or 'comp'; a filtered list is much easier to deal with when attempting to find a particular newsgroup.

Once you have subscribed to a few newsgroups, you can read articles from them by selecting the newsgroup from the listbox, then selecting the 'Read' menu option. Double-clicking on the newsgroup name will accomplish the same thing.

Posting either new articles or replies to existing articles requires that a valid '`PNEWS.HDR`' file be present in the WinQVT/Net home directory. A sample `PNEWS.HDR` is provided in this package, but it cannot be used 'as is'. You must complete the three lines which begin with the keywords 'From:', 'Organization:', and 'Distribution:' as follows:

- * The 'From:' line should contain your email address
- * The 'Organization:' line should contain your organizational affiliation
- * The 'Distribution:' line should specify the range over which you want your articles distributed. Examples include 'usa' (United States), and 'na' (North America).

Your system manager should be able to provide you with proper values for these items.

Note: each line of `PNEWS.HDR` must contain a trailing blank after the colon; this means that lines which have no pre-assigned values will have blanks as the last character. In addition, the file as a whole must have a blank line at the end. You should make sure that both conditions are satisfied before attempting to post news. If these conditions aren't met, the NNTP server will probably reject the posting (441 error).

Email

If there is a POP3 server available on your network, you can use WinQVT/Net to receive and send electronic mail from your PC.

The only configuration that is required to use the Mail application is the 'host=' entry in `QVTNET.INI`. As with the News reader, this entry can be either a host name or IP address. If you supply a name, the host must either be documented in `QVTHOST.RC`, or you must have a nameserver on your LAN provide an address for that machine.

WinQVT/Net's mail module is capable of both sending and receiving mail. However, the details of sending mail may vary, depending on the POP3 server which is installed at your site. The POP3 protocol itself doesn't specify any particular mechanism for sending mail. However, the Berkeley POP3 server - 'popper' - supports an extension to the protocol which allows you to send mail through the server. This extension - the 'XTND XMIT' command - is not supported by all POP3 servers. If your POP3 server doesn't support XTND XMIT, you will have to use the SMTP protocol for sending mail. In order to do so, you should find the 'protocol=' line in the [pop] section of `QVTNET.INI`, and change the value from POP3 to SMTP. Also, you should enter an appropriate email address, not containing your PC's node name, as the value of the 'smtp_return=' directive in the same section (there is no default).

Network printing using `lpr`

WinQVT/Net includes a small application that allows you to submit files which reside on your PC for printing on a remote printer (i.e., a printer which is attached to a host elsewhere on the network). The `lpr` module is fairly simply to use. The only setup requirement is that you must have assigned a node name to your PC, and placed it in `QVTNET.INI`. Of course, WinQVT/Net will not run at all without a node name, so there are effectively no special setup requirements for `lpr`. All of the remaining required data items can be supplied at runtime.

Host setup: you must ask your system administrator to add your PC to the list of hosts which are allowed to communicate with the line printer daemon, 'lpd'. If your PC is not on this list, the daemon will reject your request to establish a TCP connection. There may be separate lists for each host, so you should make sure to contact the administrator of each system that you want to use for printing. Normally, this list is kept in the file `/etc/hosts.lpd`.

To use `lpr`, you start by selecting 'lpr' from the Services menu. This brings up a dialog box, which contains the following elements:

- * A list box containing a list of all the hosts which are defined in your `QVTHOST.RC` file. If you have included a 'hostname=' directive in the [lpr] section of `QVTNET.INI`, that host will already be selected when the `lpr` window is initially displayed.
- * An input field for entering the print queue name. The default queue, as specified by the 'qname' directive, will already be present in this field.
- * An input field for entering the username under which your print job will be submitted.
- * A set of radio buttons for selecting the file type (text or binary)
- * An input field for entering the name of the file to be printed.
- * A pushbutton labelled 'Files', that you can use to activate a file-selection dialog.

All of these fields are required in order to start a print job. Only then will the 'Print' button be enabled. After you press 'Print', a series of messages will track the progress of the job, until completion.

Server Applications

WinQVT/Net includes two server applications, FTP and `rcp`. These applications allow remote users on other systems to access your PC's file system.

FTP Server

WinQVT/Net provides a background FTP server facility. This feature allows remote users to access your PC remotely using FTP.

There are several `QVTNET.INI` configuration directives which are associated with the FTP server. These are:

- passfile** the file which contains the list of authorized users and their passwords
- login_dir** the directory to which authorized users will be attached at login time
- anonftp_dir** the directory to which 'anonymous' users will be attached. These users will not be able to log to any other directories, except for subdirectories within the same tree.

A small utility program, `PASSWD.EXE`, is provided for the maintenance of the password file. It is a DOS program which uses a simple TTY interface that is self-explanatory.

WinQVT/Net's FTP server will allow logins only from 'documented' users (i.e., those with usernames and passwords) or from 'anonymous' users. Anonymous users operate under some restrictions:

- * Access is restricted to a single directory tree (as specified by 'anonftp_dir')
- * Anonymous users are not allowed to delete files, or overwrite existing files.

Authorized users have fewer restrictions, but access control lists can be used to protect certain files and directories from authorized users also. The set of access control lists is stored in the `QVTNET.ACL` file, which should be placed in the WinQVT/Net home directory. Each access control list occupies a single line in `QVTNET.ACL`, and is of the form:

```
<directory name> [<username>,<username>,...]
```

The `<directory name>` is mandatory, and gives the name of the directory to which the ACL applies. The optional `<username>` entries give the names of the users who are authorized to access the named directory. Each username should be the name of a valid FTP user as created by `PASSWD.EXE`. If `<username>` entries are present in an ACL, they should be separated from the `<directory name>` by a single blank space. The `<username>`'s themselves should be separated by comma's, and there should be no blanks anywhere in the list.

You can completely cut off access to a directory by creating an ACL with an empty list of usernames. The inverse - a directory with no access control - will occur if no ACL is

created for a directory; any valid user will be able to access it.

In the present release, there is no attempt to distinguish different classes of access (e.g., read-only vs. read/write). This sort of refinement may be added in a future release.

***r*cp Server**

WinQVT/Net also provides a server that allows remote users to copy files to and from the PC using the BSD `r`cp command. This server makes use of the same security features as does the FTP server, particularly the user-validation facility. Unlike FTP, however, there is no provision for 'anonymous' users; only documented users will be admitted.

Terminal Keyboard Mapping

As a VT220 emulator, WinQVT/Net employs a keyboard mapping that is closely tied to the DEC VT keyboard:

DEC	IBM
PF1	NumLock
PF2	'/' on keypad
PF3	'*' on keypad
PF4	'-' on keypad
- (minus)	<Ctrl> + '+' on keypad
, (comma)	'+' (on keypad)
Enter	Enter (on keypad)
HoldScreen	Pause
PrintScreen	<Alt-F2>
Data/Talk	Not Supported
F6 - F10	F6 - F10
F11 - F20	Shift-F1 - F10
Help	F11
Do	F12

The numeric keypad is forced into 'NumLock' mode by WinQVT/Net. As a result, only the cursor keys on the separate inverted-T keypad will work as cursor-control keys.

The following keys are located on the separate 'Editing' keypad. Each key is mapped to its physical equivalent on the DEC keyboard:

Find	Insert
InsertHere	Home
Remove	PageUp
Select	Delete
PrevScreen	End
NextScreen	PageDown

The mapping of these keys may be changed to editing the 'keypad=' line in `QVTNET.INI` to read 'keypad=IBM'. This will create a 'logical' instead of a 'physical' mapping.

The DEC user-defined keys (DECUDK) 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.

A Note on Fonts

WinQVT/Net allows you to use one of four distinct fonts: DEC, IBM, ANSI, and 'Terminal'. The 'DEC' font is provided by QPC, and is an exact emulation of the DEC Multinational Character Set, as found in the VT2xx terminals. The other three are standard Windows fixed-pitch fonts.

The DEC font included in this package (VT220.FON) is designed for use with VGA display adapters. It will work on displays whose resolution exceeds the VGA-standard 640x480, 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 EGA (640x350), Hercules (720x350), Super-VGA (800x600), and 8514/A (1024x768).

Registration Information

WinQVT/Net is a shareware product. Should you find it satisfactory and suitable for your needs, we ask that you remit your registration fee to:

QPC Software
P.O. Box 226
Penfield, NY 14526
(USA)

The registration fee for WinQVT/Net is \$40, except for students, who can register for \$20. For shipment outside of North America, please add \$5.

Institutional customers: purchase orders are welcome!

Registered users receive a printed user manual, a complete set of fonts, and free access to upgrades for a period of one year. Please allow one to two weeks for delivery; longer if shipping outside the USA is required.

If possible, please include the name and Internet (or CompuServe) address of a contact person to whom correspondence and updates can be addressed.

If you upload this program to another bulletin board or ftp site, please do so in .ZIP or .LZH format (whichever is supported), and be sure to include ALL of the original files that are in this package, without modification.

Other QPC Products

QPC Software offers a complete line of asynchronous DEC emulation products for most major personal computing environments, including MS-DOS, Microsoft Windows, Apple Macintosh, and OS/2. All are of high quality and provide exceptional value. Please write to us for a complete price list, including information on discounts and site licenses.

Contacting QPC

You can contact QPC electronically via Internet mail. Our email address is:

djpk@troi.cc.rochester.edu

Please: if you send us an email message from an Internet site, please include the IP address of your system somewhere in the message or signature. We often find that our responses bounce due to a 'host unknown' error.

We can also be contacted via fax:

(716) 377-8305

Please note: we receive quite a bit of electronic mail. Priority of response will be given to registered users. However, we guarantee that every inquiry will be answered.