

## **QVT/Net Terminal Help**

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## QVT/Net Terminal Quick Start

QVT/Net Terminal is shipped pre-configured in a usable state. Though you may want to create a number of custom configurations over time, very little effort is required to immediately begin using the application.

- **Use the toolbar to invoke the 'Open Session' dialog**

To get started quickly with QVT/Net Terminal, all you need to do is click on the 'Open Session' toolbar button, which is the leftmost button in the toolbar. Another way to accomplish the same thing would be to invoke the 'File' menu, and select the 'Open' menuitem.

This will cause a dialog box to appear, with the title 'Start Terminal Session'. There will be two listboxes in this dialog. The listbox on the left will contain the list of hosts that is contained in your Windows Sockets database, in the 'hosts' file. The right-hand listbox will contain a list of terminal configurations, starting with 'Default'. When you first start QVT/Net Terminal, the left-hand list will probably be empty, or nearly empty, and the right-hand list will contain only one entry, 'Default'.

- **Type in a Host Name or IP Address**

To launch a network virtual terminal session all you have to do is type the name or IP address of a host machine into the input field labelled 'Host Name or IP Address', then click on 'Ok'. This will cause QVT/Net terminal to open a telnet session on the specified host. After a short delay, you should see a 'Login' prompt appear near the top of the Terminal window, at which point you can perform your usual login sequence for this host.

## Using a Serial Port

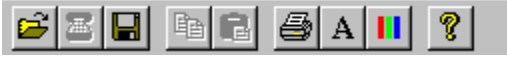
Starting a dialup session is a bit more involved, because the QVT/Net Terminal is set up to connect over the network by default. So, the first thing you must do is go to the 'Setup' menu, and select 'Current Settings'. Click on the 'Connectivity' dialog tab, and select 'Serial' as the connection type. Then, click on the 'Serial Port' tab and make sure that the default settings are acceptable. If not, you will have to make changes here as well. When you are finished with the setup changes, click on 'Ok'.

Next, click on the 'Open' button, and type in the phone number of the dialup host into the 'Host Name or IP Address' field, then press 'Ok'. The 'Dialer' popup window will then appear, and you will have to click on 'Ok' to begin dialing. After the 'Connected!' message appears, you can begin typing.

**Note:** We are not speaking here of Internet access via a dialup modem. When using QVT/Term to perform any type of network communication, whether over a LAN or over a dialup-networking connection, the connectivity type will always be 'network'. QVT/Term's serial-port mode is for traditional asynchronous RS232-style communications.

## Toolbar Commands

QVT/Net Terminal employs a 'toolbar' to provide you with quick access to frequently-used commands. All of these toolbar items are also accessible from the pull-down menus, but it is usually quicker to use the toolbar instead.



Commands which are supported by the toolbar are, in order from left to right:

### **File - Open**

Select a host and configuration for a new session

### **File - Connect**

Initiate a connection to the selected host

### **File - Save**

Save the current configuration to disk

### **Edit - Copy**

Copy the selected text to the Windows Clipboard

### **Edit - Paste**

Transmit the current contents of the Clipboard to the host

### **File - Print Screen**

Print an image of the current screen

### **Font - Custom**

Select a 'custom' font. Choose from among the available fixed-pitch screen fonts.

### **Setup - Colors**

Change the screen colors (text and background)

## File Menu

The **File** pulldown menu contains a set of items which allow you to access commands having to do with files and sessions.

### Open

QVT/Net Terminal has many user-configurable parameters. These parameters may be manipulated interactively using the various dialogs which are associated with the Setup Menu, especially the 'Settings' dialog. Examples of configurable parameters include font, screen color, screen size, and terminal emulation mode.

At any time during a session, you can take a snapshot of the current settings, give the snapshot a name, and save it on disk. These snapshots of setup values are called **configurations**. The 'Open' command is used to load one of these stored configurations and launch a new session using the values contained in the configuration.

Invoking the 'Open' command will cause a dialog box to be displayed. This dialog has three important input areas:

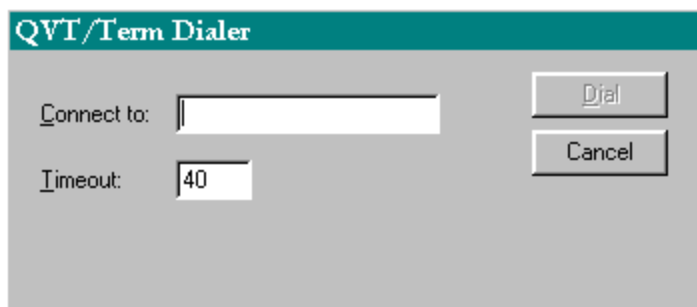
- An input field for a host name or IP address
- A list box for selecting a host name
- A list box for selecting a configuration

In order to launch a session, you must select a configuration, and type in or select a host name (or address). Once you have done so, you should then click on 'Ok' to initiate the session. All of the settings in the selected configuration will be applied to the new session, and a connection to the specified host will be established.

### Connect

This command is used to initiate a connection to the currently selected host. Since the 'Open' command automatically creates a connection right after loading the configuration, this menuitem will only be used if you have closed a session and wish to open another one in the same window.

For network sessions, the 'Connect' command generates no additional user-interface tasks. However, for serial-port sessions, a call to 'Connect' will result in a new dialog:



This dialog contains two data elements:

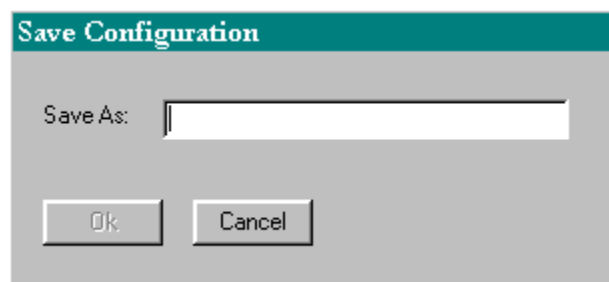
- The phone number to dial
- The length of time, in seconds, to wait before abandoning a dial attempt.

## Disconnect

This command is used to terminate the current host session. If 'autoclose' has been selected from the Default Settings dialog, the application window will be closed. Otherwise, the window will remain open, and you can use the 'Open' or 'Connect' command to open a new session.

## Save Configuration

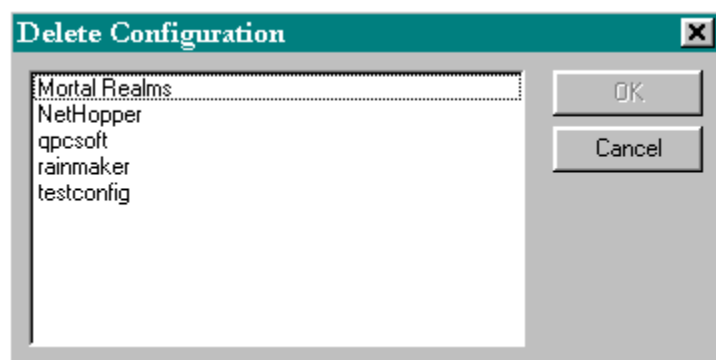
Use this menuitem to save your current operating values into a disk file. These value sets are called 'configurations', and they are stored in a file named TERM.CFG. If you are using the default configuration, you will be required to supply a name for the configuration before it can be saved.



Configuration names are intended to be meaningful, so you can use more than one word. For example, 'My First Configuration' is perfectly valid as a configuration name.

## Delete Configuration

Sometimes a configuration is created but then is no longer needed. To remove such configurations, select this menuitem, then select the configuration that you want to remove.



After selecting the desired configuration, click on "OK" to delete the configuration.

## Screen Image

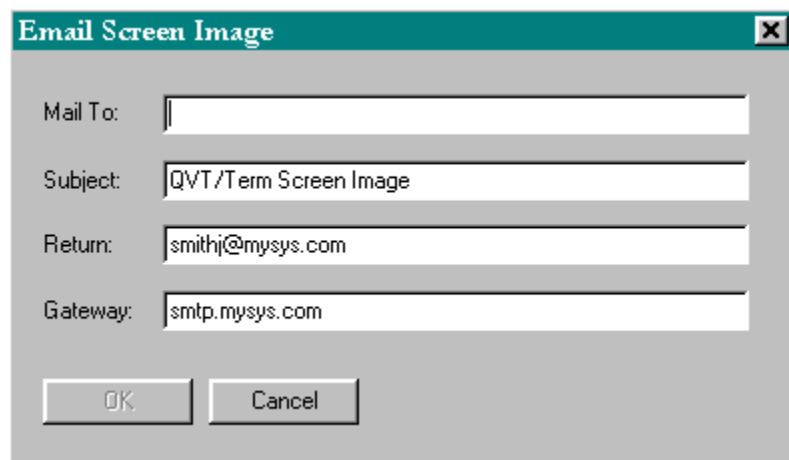
This menuitem, when selected, leads to a submenu that offers two additional options. They are:

- Save the current screen image to a disk file

A filename is required, but a plausible default filename is generated by the application, so you only have to click on 'Save' in order to complete the operation.

- Mail the current screen image using Internet mail

If you select this option, a new dialog will appear:



The screenshot shows a dialog box titled "Email Screen Image" with a close button in the top right corner. It contains four text input fields: "Mail To:" (empty), "Subject:" (containing "QVT/Term Screen Image"), "Return:" (containing "smithj@mysys.com"), and "Gateway:" (containing "smtp.mysys.com"). At the bottom are "OK" and "Cancel" buttons.

You must fill in all four fields:

- The recipient's email address
- The subject line (a default is supplied)
- Your return email address
- The SMTP mail gateway which will be used to send the message

### **Log File**

It is sometimes desirable to save a log of your session activity to a disk file. This command is used to open a log file, and then close it later. As with the 'Screen Image' command, a filename is required, but again a plausible default filename is supplied.

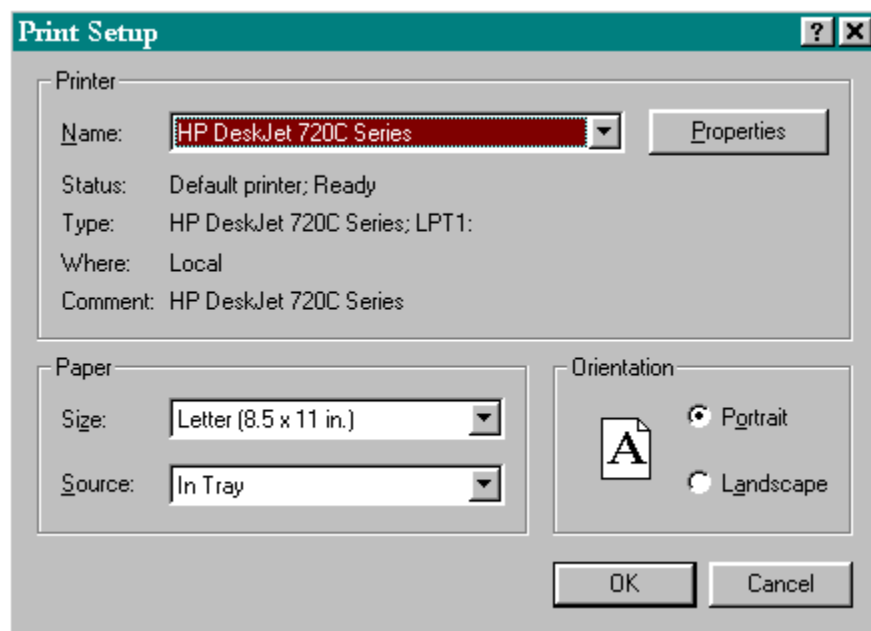
Note that log files can be created in two modes, 'text' and 'binary'. In binary mode (the default), all received data is written to the log file exactly as it arrives. In text mode, however, escape sequences and other non-ASCII characters are filtered out, leaving only plain text and a few common control characters, such as newlines and tabs.

### **Execute Script**

Invoking this command will allow you to select and execute a QVT/Term script. For details on how to prepare a script file, see the section on [Script Files](#).

## Print Setup

Use this command to select and configure a printer prior to running a print job. The standard Windows printer selector is used:



## Print Screen

Prints an image of the current QVT/Term screen.

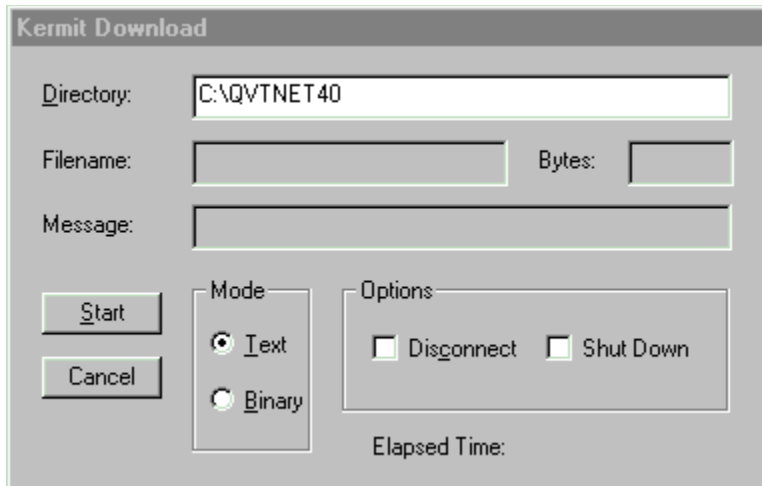
## File Transfers

In addition to its main function as a terminal emulator, QVT/Term also allows you to transfer files, using the standard Kermit file transfer protocol. Additional menu items are provided so that you can transmit special commands to the host telnet daemon.

### Download

QVT/Term provides two file transfer protocols: Kermit and Zmodem. After selecting the 'Download' menu item, you must then select the desired protocol from the submenu.

To download a file, you should first prepare the host side of the transfer. After the 'send' command has been given to the host, you should then select the 'Transfer - Download' menuitem, which will bring up this dialog:



Before initiating the download, you should first make sure that:

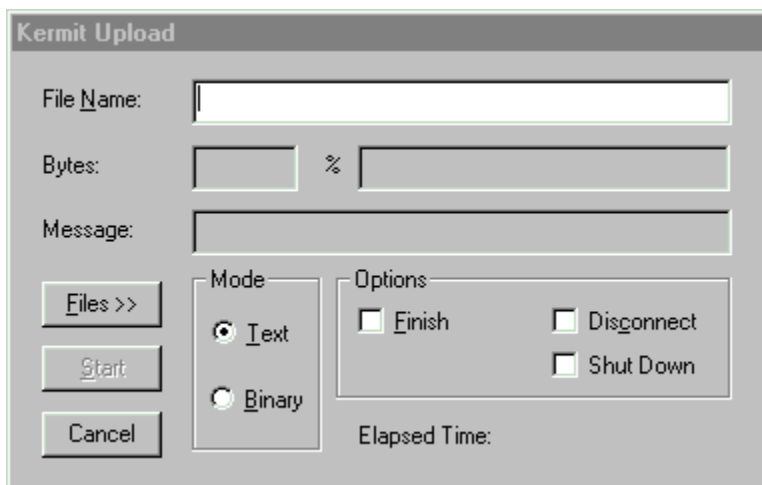
- The correct download directory has been entered
- The transfer mode is correct for the file that you are transferring

The additional checkboxes in the lower-right hand portion of the dialog allow you to specify that you want to either terminate the session, or shut down the Terminal application, following the completion of the transfer.

After you have confirmed or changed these values, you can then click on 'Start' to begin the download. The file transfer will proceed to completion, unless you click on 'Abort' first.

## Upload

To upload a file, you should first prepare the host side of the transfer. After the 'receive' command has been given to the host, you should then select the 'Transfer - Upload' menuitem, which will bring up this dialog:



You can type in a filename directly, or press the 'Files>>' button to browse your disk. Note that this browser allows you to select multiple files.



The additional checkboxes in the lower-right hand portion of the dialog allow you to specify that you want to either terminate the session, or shut down the Terminal application, following the completion of the transfer. The 'Finish' checkbox is for use in situations where the remote Kermit has been placed in server mode; selecting 'Finish' will cause Terminal to send a 'finish' command after all files have been transferred.

### **Exit**

Terminates the current session, if any, and closes the application window. If you have made changes to your operating settings but have not saved them, you will be prompted to do so before the window closes. Also, if you a print job open, all pending output will be flushed to the printer.

## **Edit Menu**

The **Edit** menu provides a list of functions which allow you to move data to and from the Windows Clipboard.

### **Copy**

Before you can use the 'Copy' command, you must first use the mouse to select some text on the QVT/Term screen. Once you have done so, the 'Copy' command will copy the selected text to the Windows Clipboard.

### **Paste**

This command transmits the current contents of the Windows Clipboard to the current host. Note that this command will be available only when:

- A host session is active;
- Text data is present in the Clipboard.

### **Slow Paste**

This is like the 'Paste' command, except that it sends the data more slowly. Some hosts require a slower pace, since they are expecting data to arrive at about the speed at which a person can type.

### **Clear**

Erases the contents of the Clipboard.

### **Copy Full Screen**

This command is provided as an 'express' method for copying entire screen images to the Clipboard.

### **Copy Buffer**

This command will copy the contents of the entire scrollbar buffer to the Clipboard. Leading blank lines will be skipped.

## Setup Menu

QVT/Net Terminal has many user-configurable parameters. This menu provides access to the various dialogs that you can use to set up Terminal to suit your preferences.

The functions which are accessible through this menu include:

Default Settings

Current Settings

Reset Terminal

Colors

Script File

Printer Font

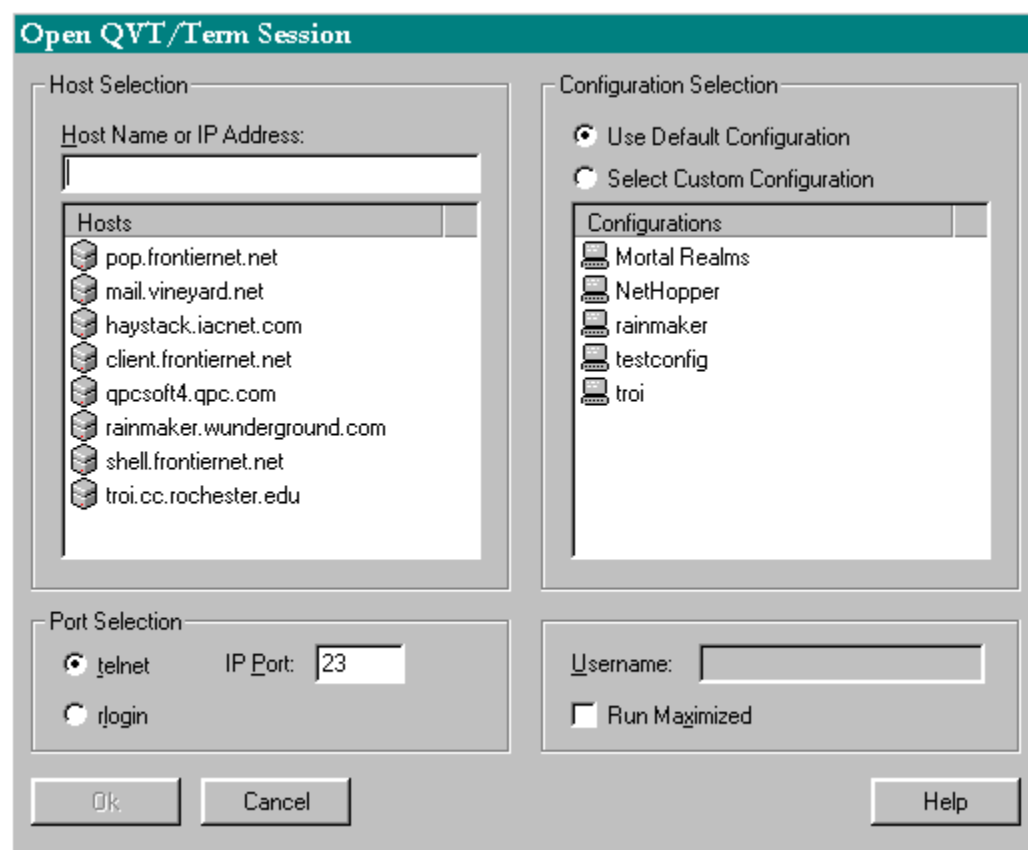
## Commands Menu

The telnet protocol provides a set of commands that you can use to break into a host application and suspend or terminate the execution of that application. These commands are accessible from the keyboard, and also from this submenu:

<b>Interrupt Process</b>	<Ctrl+Break>
<b>Abort Output</b>	<ScrollLock>
<b>Break</b>	<Ctrl+ScrollLock>

**Note:** these menuitems are specific to the telnet protocol, and will not be available during rlogin or serial-port sessions.

## Open Session Dialog



### Host Name or IP Address

There are two ways to specify a host name (or address). The first is to type the name or address into the input field; the other is to select a name from the listbox. Note that the listbox will only contain the name of hosts which are contained in your 'hosts' file (part of your Windows Sockets database).

This input field is also used to input phone numbers for cases when you are using the serial port rather than the network to connect to a host.

### IP Port

When connecting to a host, you must specify not only an address, but also a port number. The telnet and rlogin ports are available for selection via radio buttons, but you may also type in an arbitrary port number.

### Configuration

All QVT/Net terminal sessions are opened under the control of a 'configuration'. The default configuration is defined in TERM.INI, and is always available for use. Additional configurations may be created and stored in TERM.CFG (by using the 'File - Save' menu

option).

Note that configurations may include references to host names, which means that you may initiate a session by selecting only the configuration (you can skip the host-selection process).

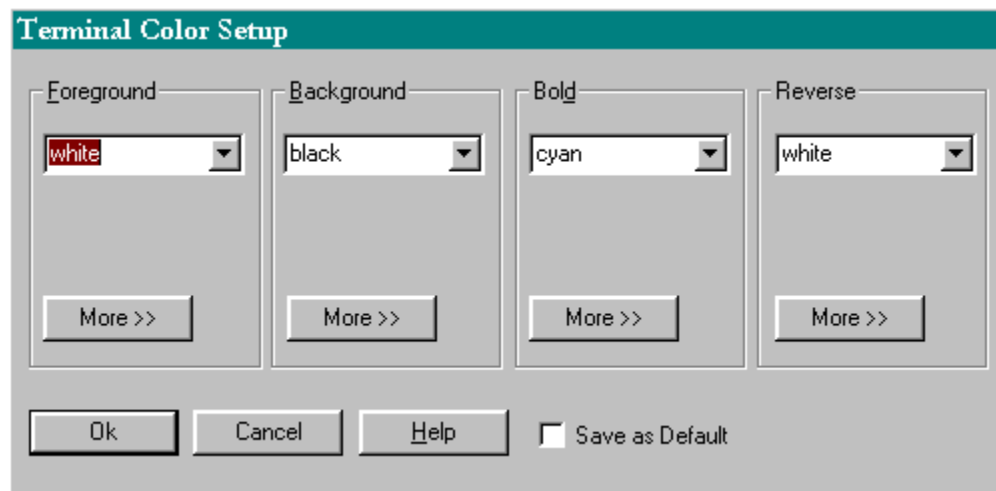
### **User Name**

If you are opening an 'rlogin' session. You will be required to supply a username at connect time. Normally a username will be stored with the configuration, but you can also type one in here.

### **Run Maximized**

Check this box if you want to run this session in a full-screen (maximized) window.

## Color Selection Dialog



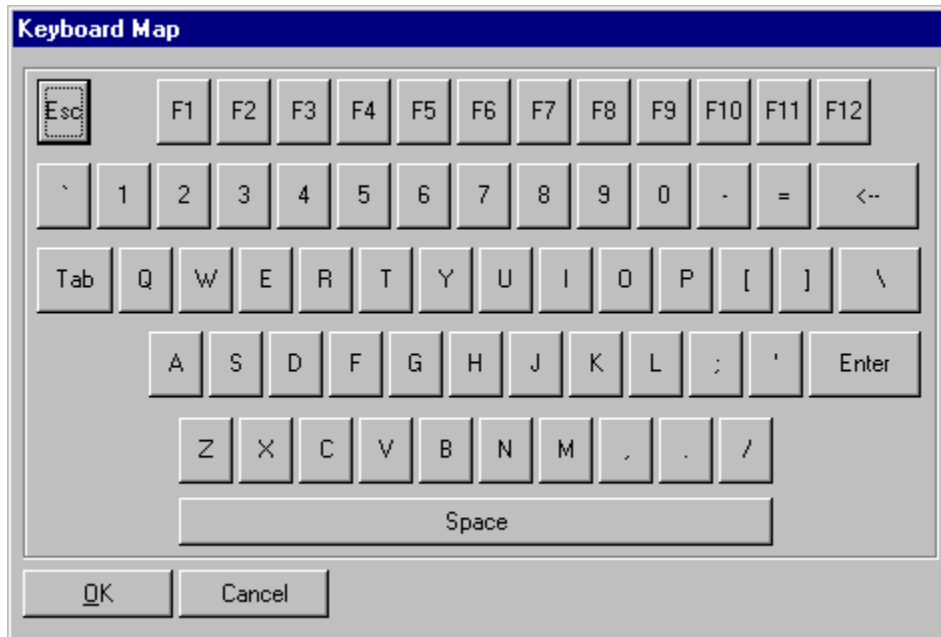
There are three ways to select a color. The first is to use the drop-down list to select a color from among the 'basic eight'. These colors have the advantage of being very pure and distinct.

A second approach is implemented using the 'More' button which is located underneath the drop-down list. Clicking on this button will bring up a standard Windows color selector, which allows you to choose a color visually from among the entire range of available colors.

The final method for selecting a color is to directly type in RGB values. An RGB value consists of a three-part numeric string, of the form 'nnn,nnn,nnn', where each comma-separated 'nnn' is a decimal number ranging from 0 through 255.

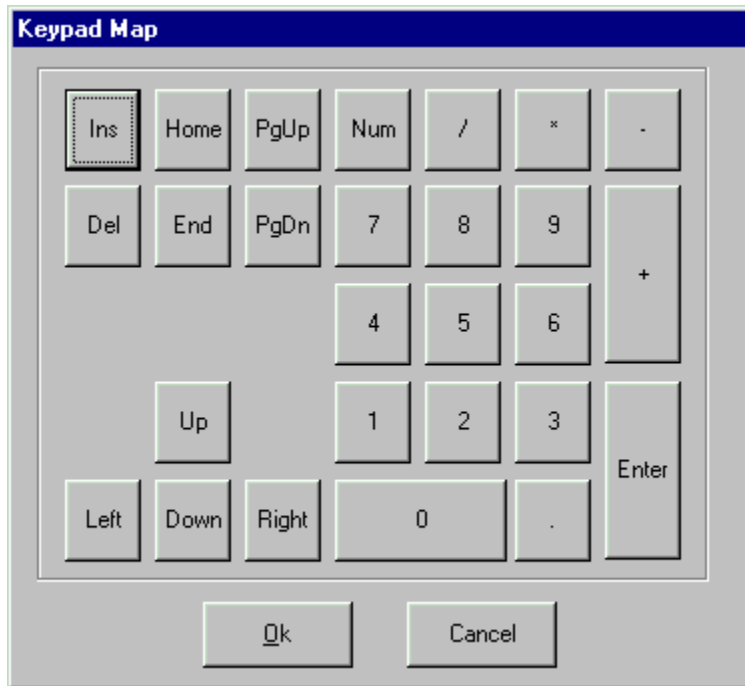
Note the checkbox labelled "Save as Default". If you select this checkbox before exiting the dialog, the selected colors will become part of QVT/Term's default configuration, and all new QVT/Term windows will be brought up using those colors.

## Main Keyboard Dialog





## Keypads Dialog



## Default/Current Settings

In order to understand how QVT/Term is configured, you need to know the difference between the **Default** settings, and the **Current** settings. The Default settings are the configuration values that QVT/Term uses at startup time. The size, location, and appearance of the QVT/Term window are examples of these configuration values. These default values are used **only** at startup time.

When QVT/Term is launched, it automatically creates a 'current session', even before you try to establish a host connection. Think of a session as a platform upon which a host connection is built. Initially the 'current session' is based on the default values. In effect, a session is created using the default values as the current values.

The difference between the Default and Current settings can be clarified by considering this point: when you make changes to the Default settings, the operation of the current session is **not affected**. Only **future** sessions are affected by changes to Default settings. By contrast, changes made to Current settings are reflected immediately. For example, if you select a different font, or a different window background, the appearance of the QVT/Term window will change immediately to reflect the new settings.

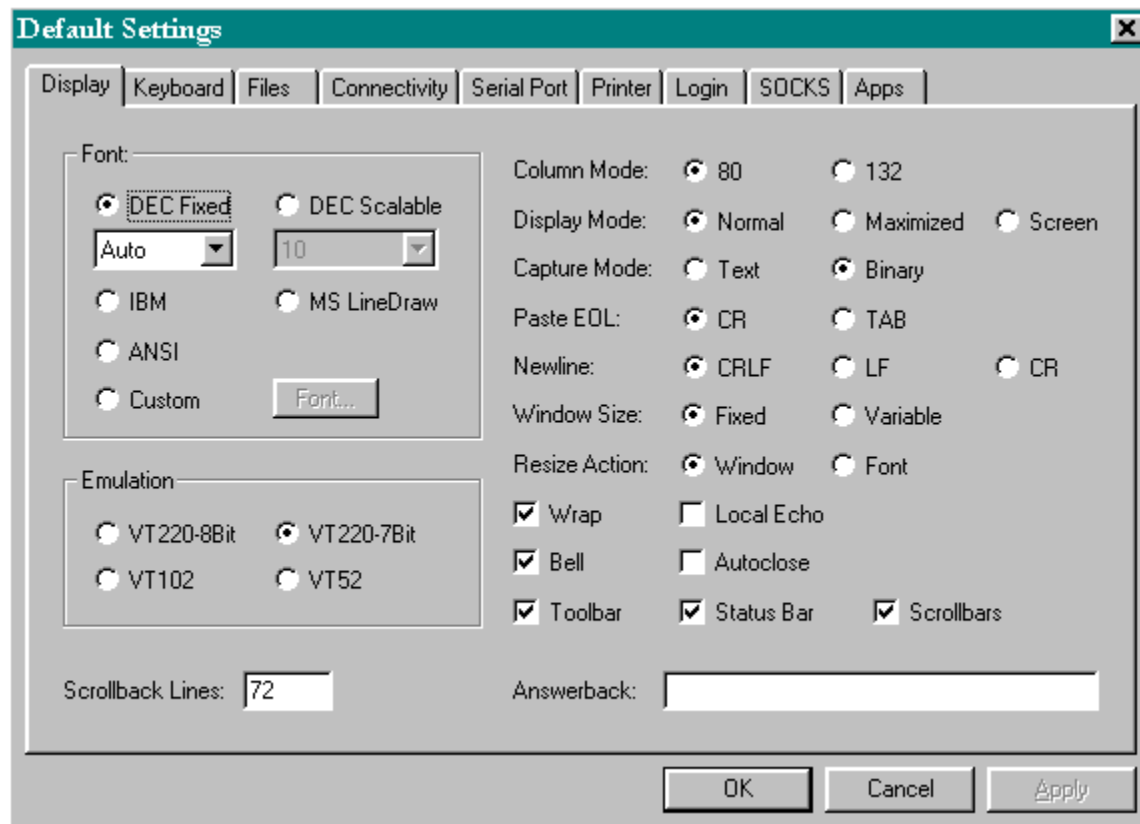
### Using the Setup Dialog

The dialog that is used to configure QVT/Term is quite complex, consisting of six separate pages. There are pages for each of these topics:

- Display
- Keyboard
- Files
- Connectivity
- Serial Port
- Printer
- Login
- Proxy

### Display Setup Dialog

There are two different versions of this dialog, one for 'Default Settings' and one for 'Current Settings'. Here is the 'Default Settings - Display' dialog:



## Font

Select from among the five available fonts. If you choose 'Custom', you can then use the 'Custom Font' menuitem to select a font from among the list of installed fixed-pitch screen fonts.

## Emulation

There are four emulation modes. The first two are both 'VT220', but they differ in the way in which escape sequences are handled on output. In 8-bit mode, escape sequences are prefixed by a single 8-bit control character, 0x9B; many Unix-based applications are not able to handle this format. In 7-bit mode, escape sequences are prefixed by two 7-bit characters, <Esc> and '['.

## Scrollback Buffer

Set the number of lines that you want to keep in the scrollback buffer. Be reasonable, because each line will require 640 bytes of memory.

## Column Mode

Indicates whether the terminal will operate in 80-column mode (the default) or 132-column mode.

## Display Mode

QVT/Net Terminal usually occupies a window which is somewhat smaller than the full

screen. You can, however, cause the Terminal display to take up the whole screen by selecting 'Screen' display mode.

**Note:** you will only be able to select 'Screen' mode if the active font is the 'DEC-Scalable' font. Otherwise, this radiobutton group will be disabled.

### **Capture Mode**

By default, when a log file is opened, the entire data stream will be written to the file. If you select 'Text' mode, however, only printable ASCII characters will be captured, plus CR, LF, HT, and FF.

### **Paste EOL**

When pasting multi-line text, a carriage-return (CR) is normally used to indicate the ends of lines. However, there are some situations in which the host application is looking for a TAB instead of a CR as an end-of-line character. This radio-button pair allows you to choose the correct character.

### **Newline**

Specifies the character(s) that will be treated as an 'newline' indication on received data. Normally, this will be CRLF, but you can optionally select CR or LF.

### **Window Size**

Normally, QVT/Term windows can be dynamically resized. However, some host applications expect a standard-size 24x80 window, and they will misbehave if a different-sized window is used. To help in these situations, you can configure QVT/Term so that it will retain its initial size (by default, 24x80).

### **Resize Action**

When a QVT/Term window is resized by the user, there are two things that may happen:

- The number of rows and columns will change, and the font size will remain the same
- The font size will change, and the number of rows and columns will remain the same (TrueType fonts only)

This check box allows you to choose which of these will be the default response to a window resize. Note that, which is selected as the default, the other action is available by pressing and holding the <Ctrl> key while resizing the window with the mouse.

### **Wrap**

Indicates whether or not 'auto-wrap' mode is enabled. Auto-wrap means that lines which exceed the logical width of the screen will be wrapped automatically.

### **Local Echo**

Indicates that keystrokes will be echoed to the screen locally by the terminal, rather than relying on the host to echo characters.

### **Bell**

Indicates that an audible bell will sound when a BEL character (0x07) is received.

### **Autoclose**

Specifies whether the terminal window will be left open after session disconnect occurs. If autoclose is ON, the window will close; if OFF, the window will remain open and available for use in a new session.

### **Toolbar**

Specifies whether the QVT/Term default window will include a toolbar.

### **Status Bar**

Specifies whether the QVT/Term default window will include a status bar.

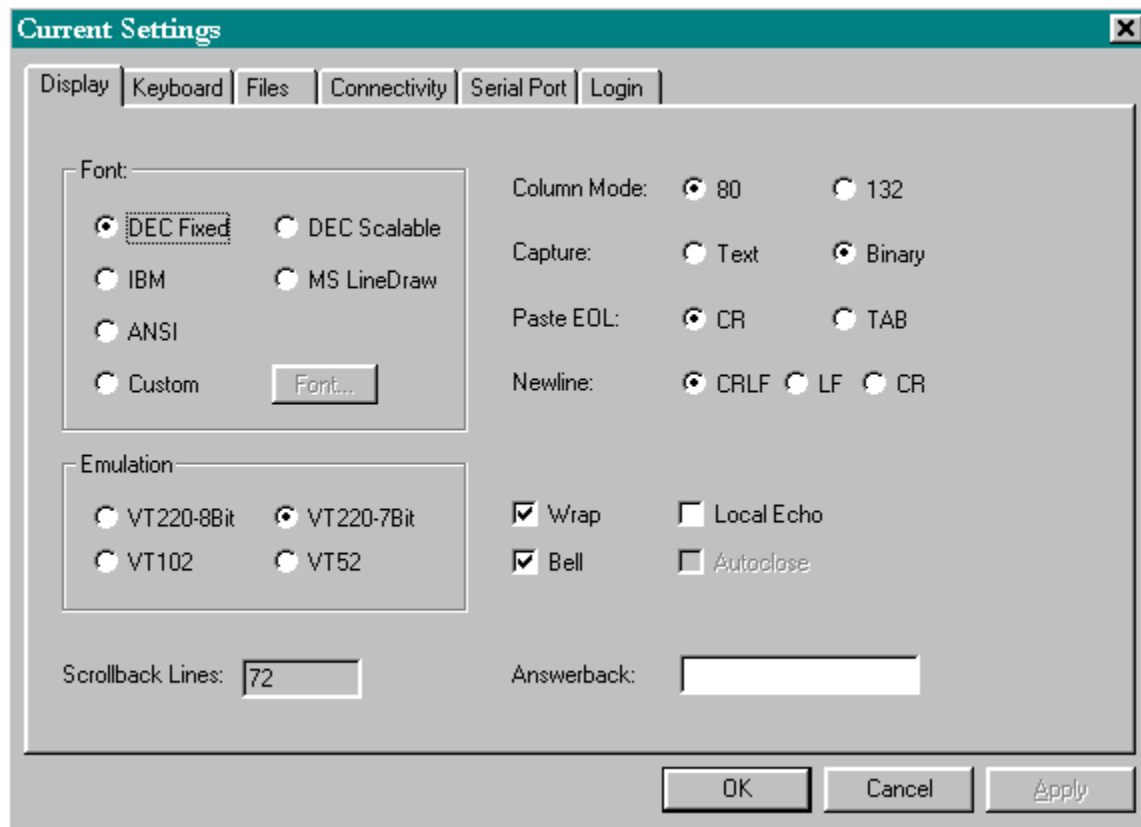
### **Scrollbars**

Specifies whether or not scrollbars will be included in the QVT/Term default window.

### **Answerback**

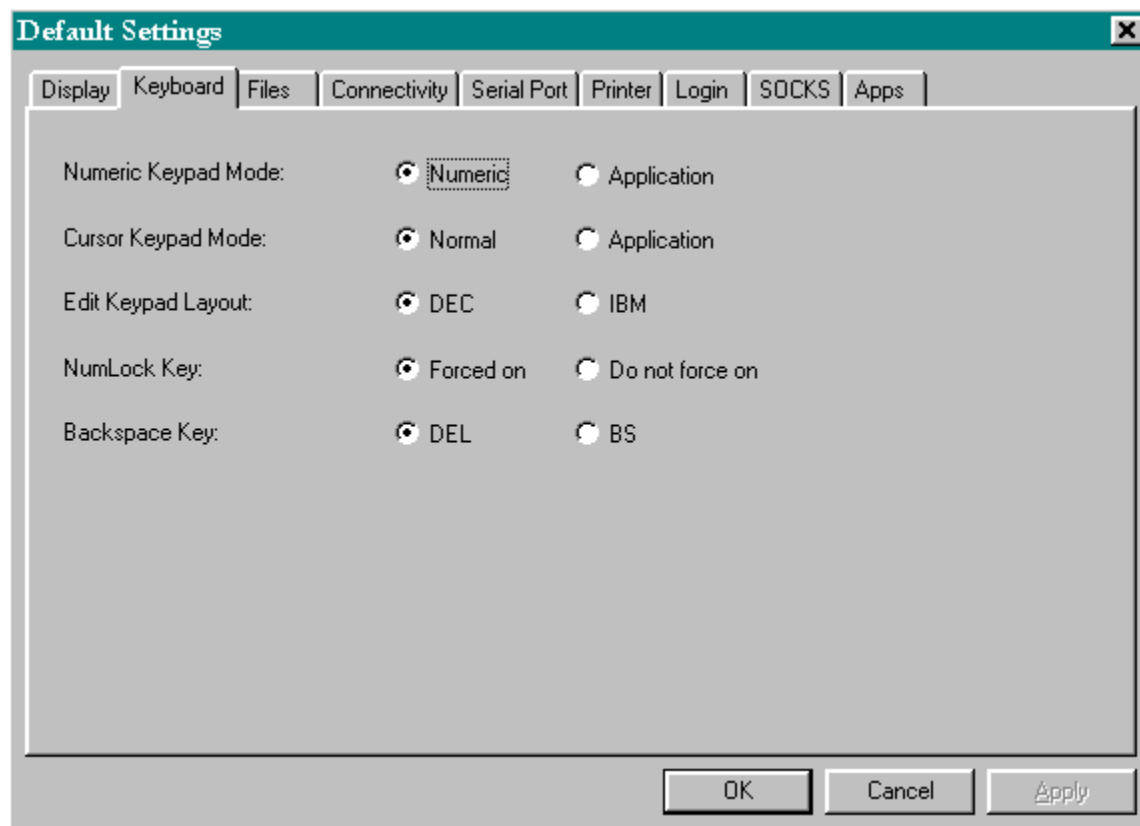
Specifies the string that will be returned to the host in response to an ENQ character. Non-printing characters should be encoded using either the 'caret' notation ('^' + character), or octal notation ('\ + 3 octal digits).

The 'Current Settings - Display' dialog is very similar. The only real difference is that several items are omitted.



The 'Scrollback Buffer' setting is not present because this particular item is configurable only as a default value; there are no per-configuration values. The various control-bar checkboxes are omitted because control over those items is provided in the 'View' menu.

## Keyboard Setup Dialog



### **Numeric Keypad Mode**

The numeric key has two modes of operation: 'numeric' and 'application'. These modes are usually under host control, but they can also be set here locally.

### **Cursor Keypad Mode**

The cursor keypad has two modes of operation: 'normal' and 'application'. Though usually set by the host, they can be also be set here locally.

### **Edit Keypad Layout**

By default, the 'edit' keypad will be set up to emulate the physical layout of the DEC 'LK' keyboards. You can select an alternate layout which is a better 'logical' fit with the IBM PC keyboard.

### **NumLock Key**

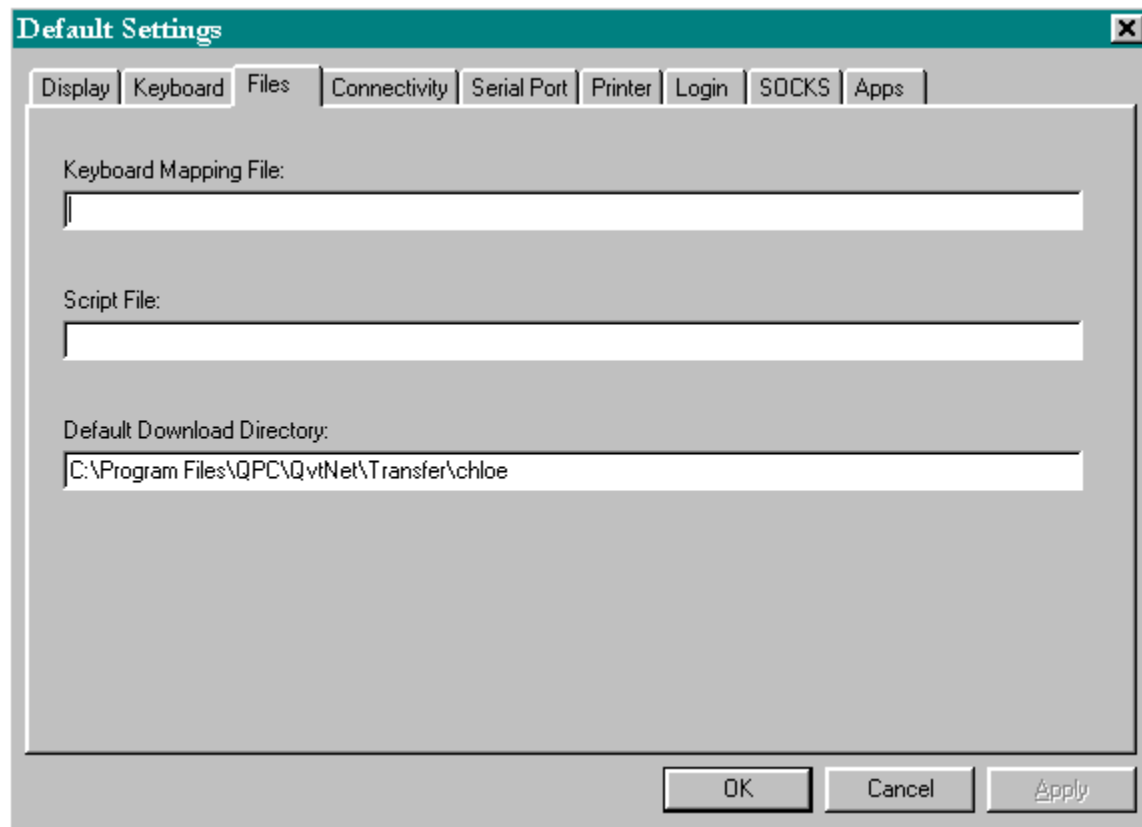
By default, the NumLock key is programmed to keep itself in the 'On' state. There is an alternate mode, which will cause the NumLock key to retain its current state, whether that is 'On' or 'Off'. This will allow you to turn NumLock 'Off' and keep it off, which is useful on laptops which often have the numeric keypad embedded within the main keyboard.

Note: the state of the NumLock key can be toggled by pressing <Shift+NumLock>.

### **Backspace Key**

Specifies the ASCII character that will be transmitted by the <Backspace> key. By default, this will be a DEL character (ASCII 127), but you can select BS (ASCII 8) instead, if your host requires it.

## Files Setup Dialog



There is some filename information that is important to the operation of QVT/Term:

### Keyboard Mapping File

QVT/Term stores information on key mappings and redefinitions in a file separate from the main configuration file. In the interest of reliability we recommend that you use a fully-qualified pathname.

### Script File

If a configuration has an associated script file, that script will be executed at 'Open' time, as soon as a connection is established.

### Default Download Directory

QVT/Term provides the ability to download files over the terminal connection, via the Kermit and Zmodem protocols. This setup item allows you to specify the directory which will be the default location for files downloaded in this manner.



## Connectivity Setup Dialog

The screenshot shows a dialog box titled "Default Settings" with a close button (X) in the top right corner. The "Connectivity" tab is selected, and the "Network" radio button is chosen under "Connection Type". The "IP Port" section has "telnet" selected, and the "Host Name or Address" and "rlogin Username" fields are empty. "Telnet Negotiation" is set to "Telnet Only", and "Negotiate Terminal Type" is checked. The "First" terminal type is "vt220", "Second" is "vt100", and "Third" is "vt52". "Confirm Disconnect on Close" is unchecked. Buttons for "OK", "Cancel", and "Apply" are at the bottom right.

### Connection Type

QVT/Term supports both serial and network (Windows Sockets) interfaces.

(The following items apply only when the Network interface is selected)

### IP Port

Terminal's network interface supports two pre-defined IP ports, 'telnet' and 'rlogin', which can be chosen by the radiobuttons provided here. You may also choose a 'custom' IP port that is not one of the predefined port.

### Negotiation

Specifies whether or not telnet negotiation will be initiated upon successful completion of a network connection to the host. Note that this will not completely disable negotiation. It will only indicate whether or not negotiation will be initiated by the terminal. Host-initiated negotiations will always be handled correctly.

### Negotiate Terminal Type

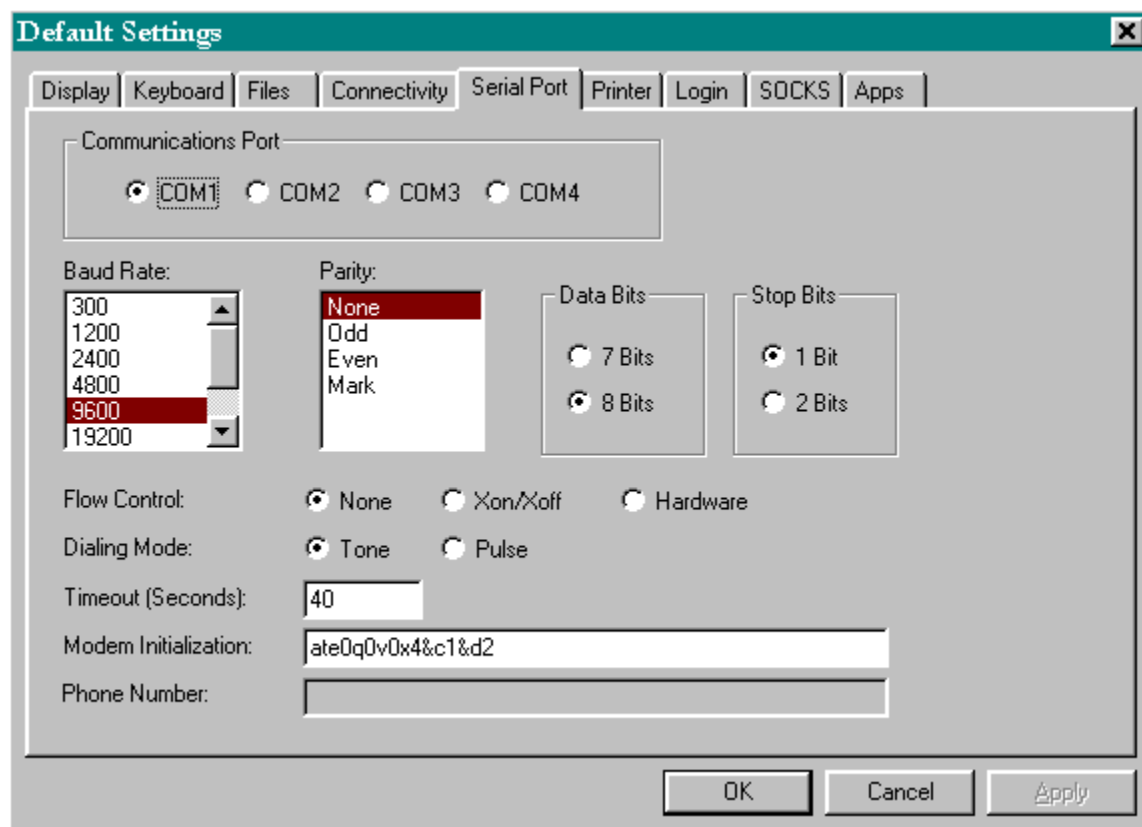
Specifies whether or not QVT/Net Terminal will allow terminal-type negotiations. You should normally leave this enabled, and disable it only if you want to force the use of a certain terminal type (e.g. VT200).

Directly below the 'Negotiate Terminal Type' checkbox, are three text input fields that you can use to specify the exact terminal names that QVT/Terminal will use during the terminal-type negotiation process. The defaults are 'vt200', 'vt100', and 'vt52', but if your host needs to see different names you can enter them here. (These fields are available only in the 'Default Settings' dialog).

### rlogin Username

If you are using the 'rlogin' protocol, it will be necessary to supply a login username to the host as part of the initial rlogin negotiation.

## Serial Port Setup Dialog



### Communications Port

Select from among the installed serial ports.

### Baud Rate

Baud rates up to 38,400 are supported. Note, however, that unless you have a 16500 UART, you may experience difficulty at the higher baud rates (>9600).

### Parity

Select from among the standard parity values (default is NONE)

## Data Bits

This specifies the number of data bits in each word.

## Stop Bits

Specifies the number of stop bits in each word.

## Flow Control

There are two available flow-control methods available: XON/XOFF (software) and CTS/RTS (hardware). You may also disable flow control entirely.

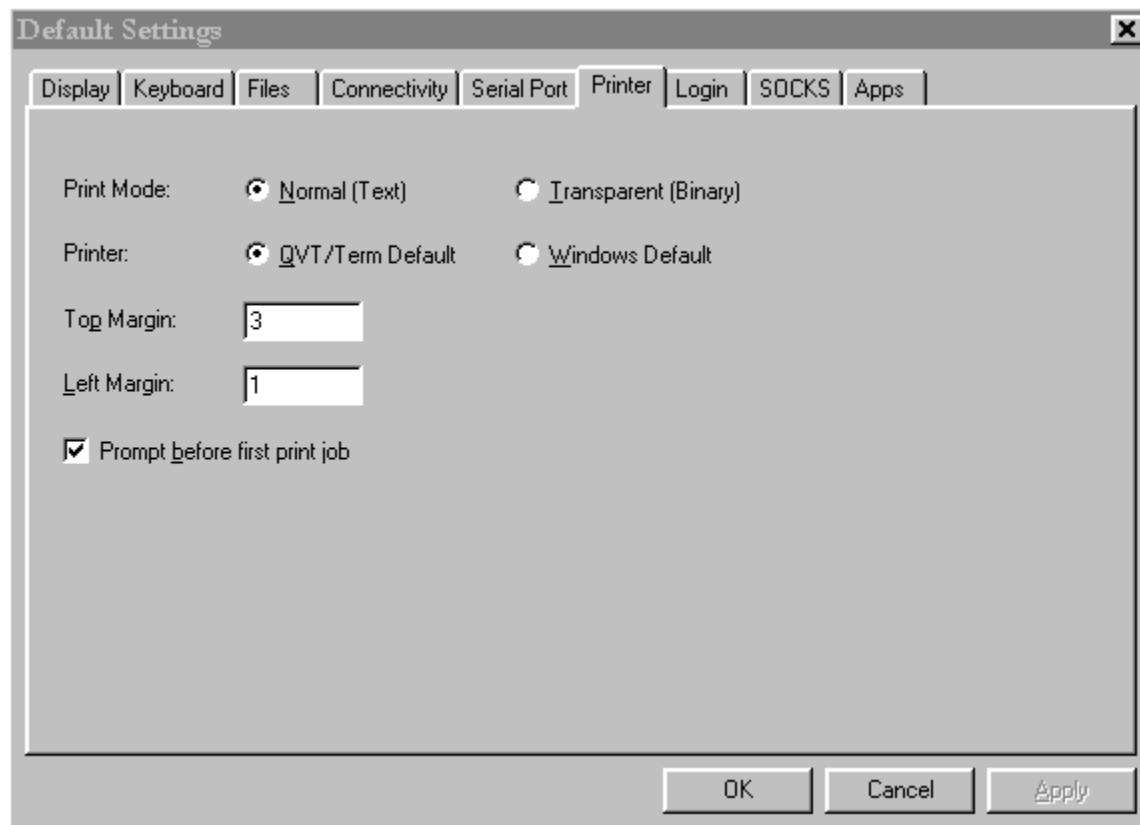
## Modem Initialization String

Specifies the initialization string that will be sent to your modem prior to dialing. Your string must include 'e0', 'v0', and 'q0'.

## Phone Number

The telephone number to associate with this configuration. You can include special modem-control characters such as the comma.

## Printer Setup



This page appears only in the 'Default Settings' version of this dialog. The five items are

used as follows:

### **Print Mode**

QVT/Term has two print modes. In 'Text' mode, only ASCII text is passed to the printer, and the text is formatted according to the capabilities of the current printer and font. In 'Transparent' mode, it is assumed that the received data will constitute a fully-formatted print file, including all of the various commands and control codes which are normally supplied by the printer driver. In Transparent mode, incoming data is passed directly to the printer with no filtering or pre-processing.

### **Printer**

Normally, QVT/Term keeps track of the printer used in the last print job, and automatically selects that printer again for the next print job, even if it occurs in a completely different session (say, the next day). You can modify this behavior by selecting the button labelled "Windows Default". If this option is selected, QVT/Term will always use the Windows Default printer as its own default printer. This can, of course, be overridden for individual print jobs, using the "File - Print Setup" menu item.

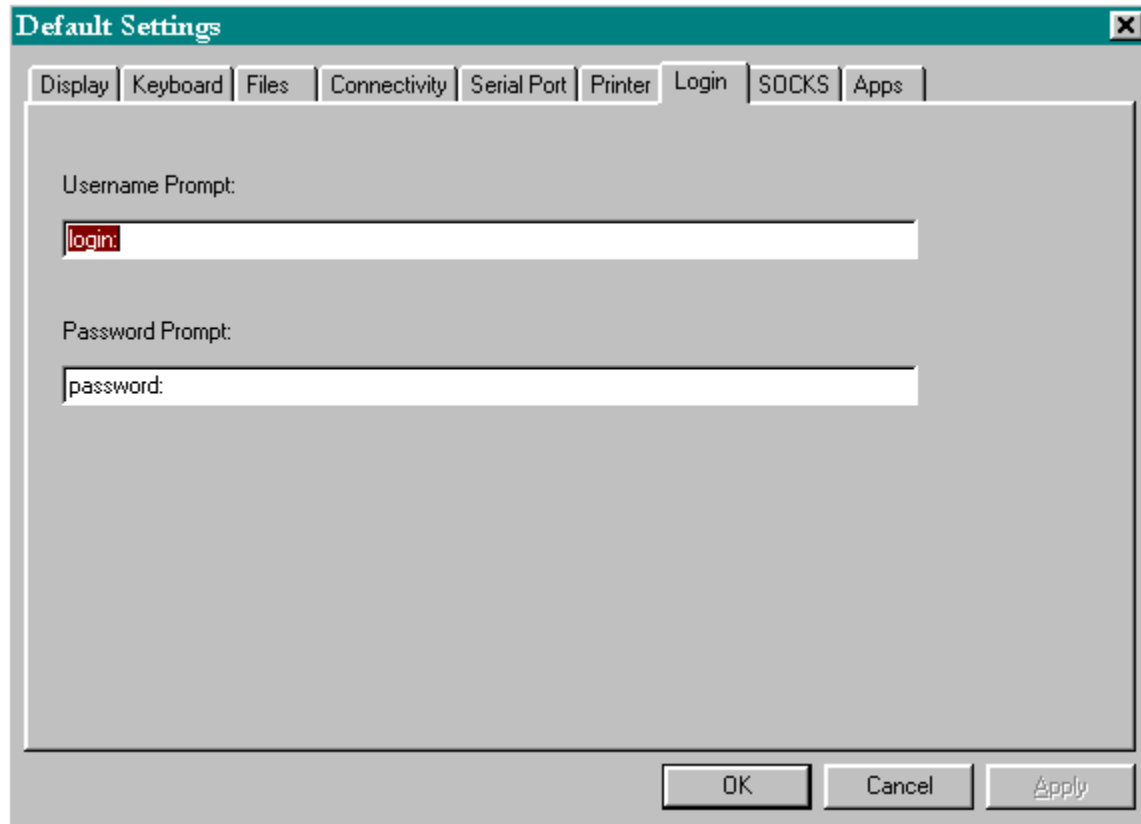
### **Margins**

These two items have meaning only in 'Text' mode. The 'Top Margin' refers to the number of lines which will be left blank at the top and bottom of each page. The 'Left Margin' refers to the number of columns which will be left blank at the start of each line of text.

### **Prompt Before First Print Job**

By default, QVT/Term will pop up the "Print Setup" dialog before the first print job of a session. This is done so that you will have a chance to make sure that the default printer is actually the printer that you want to use for this print job. If this checkbox is deselected, QVT/Term will eliminate this prompt.

### **Login Setup Dialog**

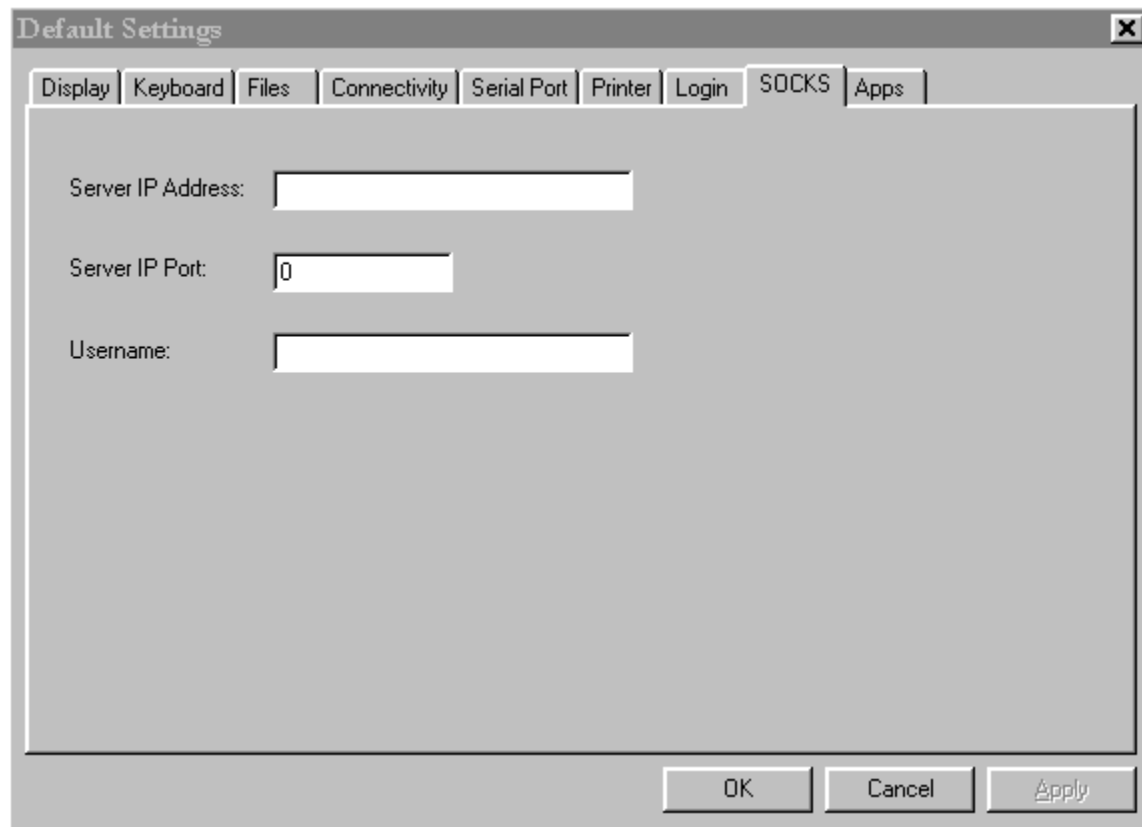


QVT/Term allows you to program an automatic login (after connect) by using a series of command-line options:

```
term -h <host name or IP> -u <username> -p <password>
```

In order for this scheme to work, however, the terminal software must be able to determine when to transmit the <username> and <password> strings. This is done by creating a pair of 'wait' strings, one for the username and one for the password. The logic is this: Terminal, after completing the connection, will then wait for the prompt which is associated with the username. At that point, the <username> string will be sent. The software will then perform the same sequence for the password: wait for the password prompt, then transmit the <password>.

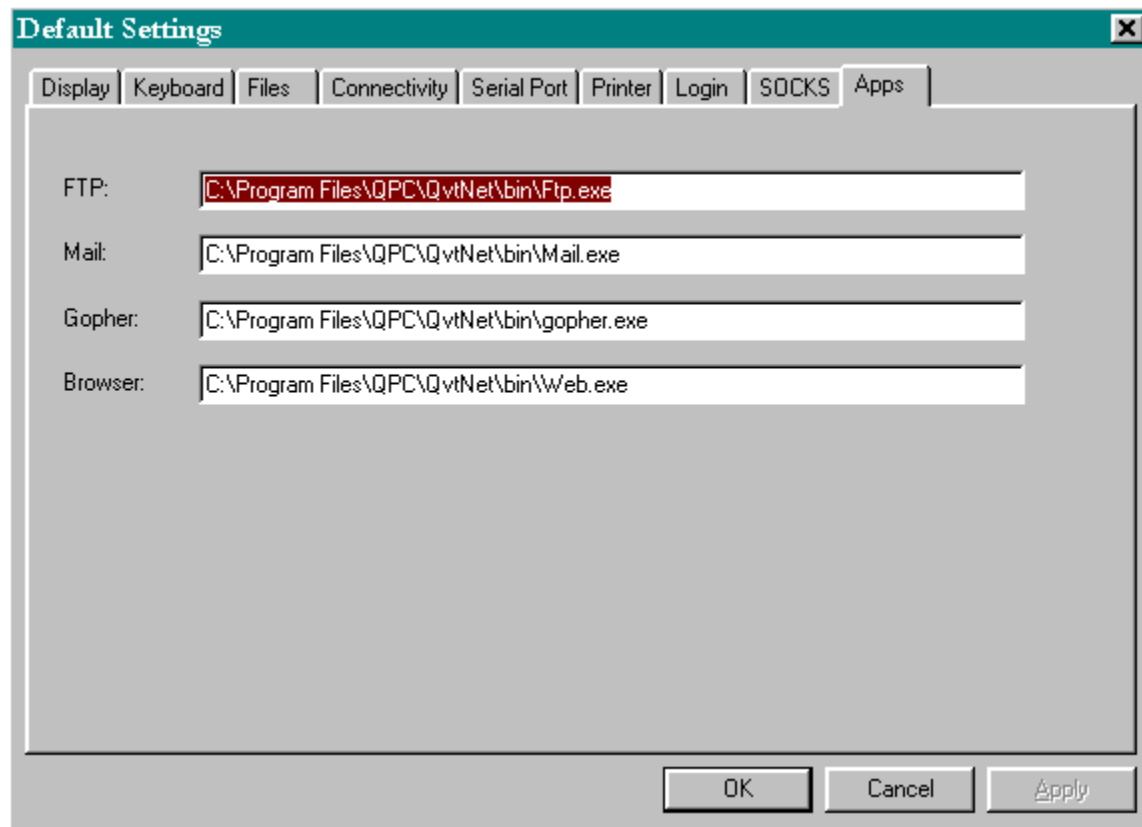
## **SOCKS Setup Dialog**



QVT/Terminal allows you to specify a proxy server to use for your TCP/IP connections. Using this dialog, you should type in the IP address of the server, and the IP port number to use when calling the server.

The 'Username' field is optional, and is for use only in situations where a SOCKS4 firewall requires username authentication.

## **Helper Application Dialog**



The QVT/Term "NetApps" menu allows you to quickly launch additional network applications. This dialog allows you to modify the paths to those applications.

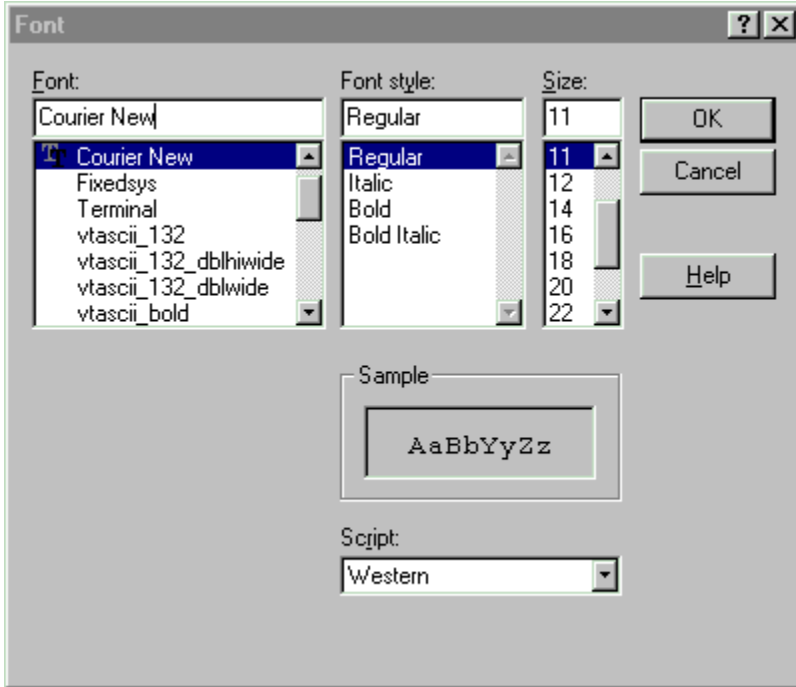
## **Reset Terminal**

Re-establishes the 'power-up' settings for the current session. All of the operational values are reinstated as they are found in the TERM.CFG entry for the current configuration.



## Custom Font

QVT/Term includes its own special font, which provides 100% emulation of the 8-bit DEC Multinational Character Set. However, if your application does not use any but the standard 7-bit ASCII characters, you can make effective use of other fonts as well. A standard Windows dialog is used to select from among the installed fixed-pitch screen fonts.



If you are already using the 'custom' font in the current session, then the new font will automatically be applied. If you are not presently using the 'custom' font, you will be prompted to do so if you wish.

Note: If your host application requires the use of the DEC Special Graphics characters for line-drawing, you will almost certainly have to use the built-in DEC font rather than a custom font!

## Keymaps

QVT/Term closely emulates the keyboard which is supplied with DEC VT terminals, and provides support for all of the keys which exist on those keyboards. However, it is frequently advantageous to modify the default keyboard setup, possibly to enhance the efficiency of a specific host application.

The 'Keymaps' menu provides four functions which relate to the key-mapping process:

- Main Keyboard                      Program keys on the main alphanumeric keyboard
- Keypads                              Program keys which reside on one of the keypads
- Load Keymap File                Load a keymap file from disk
- Restore Key Defaults            Restore all keys to their default (power-up) state

You will be allowed to remap each key in four states: the 'base' state, by which we mean the pressed by itself; the 'shift' state, in which the key is pressed together with a <Shift> key; the 'ctrl' state, in which the key is pressed together with a <Ctrl> key; and 'ctrl+shift' state, in which the key is pressed together with both a <Shift> and a <Ctrl> key.

These menuitems can be used to remap and/or redefine the keys according to your requirements.

### Key Remapping

The first and simplest option is remapping, which means that the value of one key is assigned to another key. For example, the DEC PF1 key is assigned by default to the NumLock key, which is the closest physical equivalent. However, you may prefer to assign this functionality to the F1 key, which is a plausible logical equivalent.

[Note that in cases like this, of simple remapping, the behavior of the 'source' key (in this case the NumLock key) is not modified. This means that there will be two keys that emulate the DEC PF1 key]

### Key Reprogramming

QVT/Term also supports the concept of key reprogramming, which involves the assignment of an arbitrary character string to a key. This is done by typing in the string that you want to associate with the key, using the input fields provided. As with remapping, there are four key states available.

Printable characters can be entered verbatim, but non-printing characters must be encoded. There are three encoding methods available.

### Control-Character Encoding

The first encoding method can be used only with the first 32 non-printing characters, with ASCII values ranging from 0 through 31. The method consists of picking the printable character whose value is 32 higher than the non-printing character, and prefixing it with a caret ('^'). For example, the control character whose ASCII value is 0x03 can be notated as '^C'. This is the character that is usually produced at the keyboard by pressing <Ctrl+C>.

## Octal Encoding

The second method can be used for any non-printing character, including those whose ASCII values are higher than 31. This method involves using a notation that is familiar to C programmers, consisting of a 3-digit octal string prefixed by a backslash. In this notation, for example, the <Escape> character, decimal value 27, would appear as \033.

## Predefined Codes

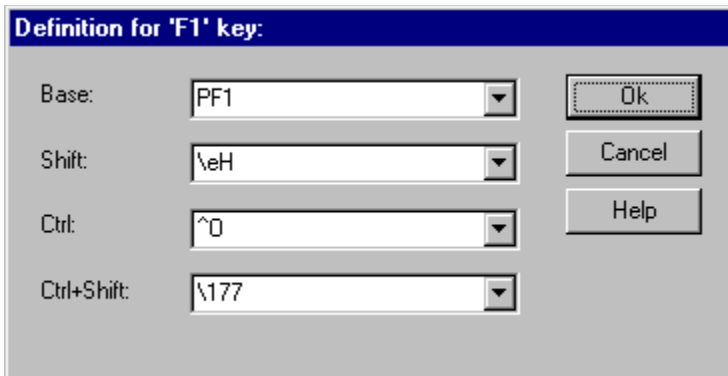
QVT/Term provides predefined codes for some of the most frequently-used control characters. These are as follows:

Escape	\e
Backspace	\b
Tab	\t
Carriage-Return	\r
Linefeed	\n
Formfeed	\f

## User Interface

There are two dialog boxes provided for key remapping. One covers the main alphanumeric keyboard, including the top-row function keys, and the other covers the array of keypads which are located to the right of the main keyboard.

In either case, you remap a key by clicking on the button that represents the key that you want to work with. This brings up a dialog box that presents four input/selection fields for the four definable key states, as described above.



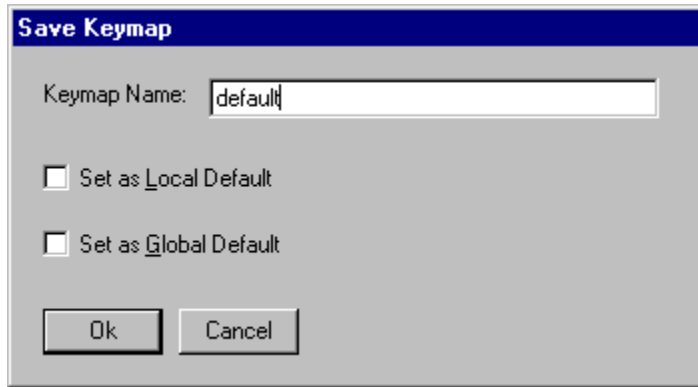
This image shows examples of all four key-definition methods.

- The Base state is remapped to emulate the 'PF1' key
- The Shift state shows an escape sequence, with the escape character notated by its predefined code, '\e'
- The Ctrl state shows an example of control-character encoding
- The Ctrl+Shift state provides an example of octal encoding

Note that you need not program all four states. You should modify only the state(s) that you need to, and leave the rest alone, and they will retain their default behavior.

When you are finished with a key, click on the 'Ok' button, and the new key definition will be saved provisionally. After finishing the last key, you should then click on the 'Ok' button in the main keyboard dialog, and all of the new key definitions will be saved to disk.

If this is your first pass through this procedure, you will have to provide a name for the new keymap:



Note the two checkboxes:

- Save as Local Default will associate the keymap with the current configuration. If the current configuration is unnamed, you will be prompted for one.
- Save as Global Default will make the keymap part of QVT/Term's default settings

## Printer Menu

QVT/Term supports printing in two ways:

- User-directed printing of screen images
- The redirection of the incoming host data stream to the printer

The 'Printer' menu contains several functions that are used to set up the printer, and to control QVT/Term printing:

- Transparent Mode                      Select normal or pass-through mode
- Auto Print                                Toggle 'auto-print' mode
- Printer Controller                      Toggle 'printer-controller' mode
- Print Buffer                               Print the entire contents of the QVT/Term buffer

### Printer Mode: Normal and Transparent

In its standard power-up state, QVT/Term assumes that you are going to be printing plain text, by which we mean printable characters from the ASCII character set, along with a few common control characters, such as <Carriage Return>, <Linefeed>, and <Tab>. Text in this form is printed in normal, or text, mode.

However, if your host application will generate a pre-formatted print file, already targetted on the installed printer, you should use transparent mode. In this mode, QVT/Term goes into 'passthrough' mode, and all print data received from the host is sent directly to the printer, with no filtering or other pre-processing. Examples of pre-formatted print files include PostScript and HP PCL.

**Note:** Transparent mode does not work well with HP DeskJet printers. This is because most host systems add characters to the data stream, as padding. These extra characters corrupt the structure of the DeskJet binary file format, and the resulting file won't print.

### Auto Print Mode

QVT/Term has two ways of doing local printing. The first of these is called 'auto-print' mode, and in this mode all data received from the host is sent to both the printer and the screen. Once invoked, auto-print mode will stay in effect until it is deactivated either locally (by toggling the 'Auto Print' menu item), or remotely, via an escape sequence sent down from the host.

**Note:** pressing the 'Printer' icon on the QVT/Term toolbar will toggle 'auto-print' mode.

### Printer Controller Mode

In 'printer-controller' mode, received data is sent to the printer only, and not to the screen. This mode is most appropriate when printing long reports, or especially when printing pre-formatted print files (see 'Transparent Mode' above). This is important because the pre-formatted print file will probably contain binary data and/or escape sequences which will present problems for QVT/Term's data parser (which is designed to handle terminal-control commands, not printer-control commands).

## Command-Line Arguments

QVT/Term can be started with a few command-line arguments which can help expedite your startup procedure. The structure of all of the arguments is the same:

```
term <keyword> <value>
```

Here are the supported keywords:

### **-h <host ID>**

The '-h' option allows you to specify host names or IP addresses on the command line. The argument 'host ID' will consist minimally of a host name or IP address. It may also contain an optional IP Port specifier, which is done by adding a colon (':') after the host name, then the port number. Here are a couple of examples:

```
-h channel1.bbs.com
-h 204.249.0.2:3001          /* notice the IP port 3001 */
```

### **-c <configuration>**

This option allows you to specify the initial configuration that should be loaded at startup time. Normally, QVT/Term will start using the values found in the system registry; this is a way to override the default and load a different configuration instead.

The actual value of the 'configuration' argument should be the name of one of your saved configurations, as found in TERM.CFG. For example,

```
-c "White on Blue 132x30"
```

Note the use of the double-quotes to enclose the name, since it includes blanks.

### **-u <username> and -p <password>**

These two are used together. In the main Setup dialog, the last page is used to enter the default login prompts which are issued by your host computer. For example, the prompt for username might be 'Username:', followed by 'Password:'. These prompts are stored in the Setup dialog.

The values supplied here, on the command line, are the responses to those prompts. For example, here is a typical login dialog:

```
Username: smithj
Password: secret
```

In this case, 'Username:' and 'Password' are the prompts defined in the Setup dialog. 'smithj' and 'secret' are the values of the '-u' and '-p' command-line arguments, respectively:

```
term -u smithj -p secret
```

## Using Command-line Arguments to Launch QVT/Term from within a Web Browser

Most popular Web browsers allow you to specify the name of a telnet 'helper' application, for use in connecting to telnet URL's. You can use QVT/Term in this situation by specifying the pathname of the QVT/Term executable, typically:

```
c:\program files\qpc\qvtnet\bin\term.exe
```

When the browser calls QVT/Term it will provide the name or IP address of the host on the command line. To accommodate this, QVT/Term will interpret the first argument as a host name, and the second argument, if present, as the IP port.

QVT/Term can also accept complete telnet URL's on the command line. For example,

```
telnet://smithj:secret@mysys.com
```

When this URL is seen on the command line, QVT/Term will first connect to 'mysys.com'. If a connection is made, QVT/Term will proceed to log in, using 'smithj' as the username, and 'secret' as the password. Note, however, that the host 'mysys' must employ the login and password prompts that you have placed in your default QVT/Term configuration (e.g., 'login:' and 'Password:').

**Note:** The first time you launch QVT/Term, you will be asked if you want to install QVT/Term as your default telnet application. If you answer "Yes" to this question, QVT/Term will be entered into your system registry as the telnet protocol handler, which will identify it as such to most popular web browsers. This may make additional browser setup unnecessary.

## Entering a Host Name or IP Address

The 'Start Session' dialog provides an input field that you can use to enter the name or address of the host that you want to connect to. If you use a host name, make sure that;

- There is a domain nameserver available on your local network
- The address of the nameserver has been supplied to your TCP/IP setup

Host Name or IP Address:



## Dynamic Data Exchange

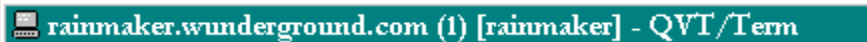
QVT/Terminal supports the Dynamic Data Exchange (DDE) protocol. There are three types of DDE transactions available:

- Advise
- Request
- Poke

To initiate a DDE conversation with a QVT/Terminal session, you need to give your DDE client the Application and Topic identifiers. For QVT/Terminal, the Application will always be 'qvt\_term'.

The Topic will vary from one session to another. For any given session, the Topic will consist of the **configuration name** plus the **session number**. The configuration name is the text that is enclosed in square brackets; the session number is the number in parentheses, located to the left of the configuration name.

For example, a QVT/Terminal title bar look like this:



In this case, the DDE Topic will be **rainmaker:1**.

Once the DDE conversation is established, you can execute the various supported transactions. In order to initiate a DDE transaction within the context of an established DDE conversation, you need to supply an 'Item' ID; for any QVT/Terminal transaction, the Item ID will be 'qvt\_term\_item'.

The Advise and Request transactions both involve the transfer of data from QVT/Terminal to your DDE client. The difference is that the Advise transaction is a 'hot' link; all data received by QVT/Terminal will be passed on to the client as it is received. In the Request transaction, no data is transferred pre-emptively. Instead, the current contents of the screen are sent to the client.

In the Poke transaction, data is sent from the DDE client to QVT/Terminal, which then sends the data out over the network connection.

**Note:** DDE conversations can be established only with **connected** QVT/Term windows; i.e., windows which contain live host sessions. This is due to the use of the session number in the DDE topic string, which helps ensure that each QVT/Term window can be uniquely identified.

Sample DDE client code is available by request from QPC's Tech Support.

## Script Files

QVT/Term allows you to create script files that can automate most login sequences. Scripts are created using a mix of these statements:

```
severity <abort|continue>
wait <secs> ["<string>"]
type "<string>"
password
sync
onscreen ["<string>"]
goto <label>
if_err_goto <label>
if_noerr_goto <label>
```

Following is some detail on each statement.

### Wait

The 'wait' command is used when you want to look for a specific string, such as a prompt, to be received from the host. For example, you may want to wait for a 'login' prompt before sending a username:

```
wait 10 "login:"
type "myusername^M"
```

In this sequence the script waits for the string 'login:' to be received, then sends out the string 'myusername', followed by a carriage return (the carriage return is notated as '^M'). Since it is possible that the waited-for string may never arrive (i.e., the host may be down), there must be a timeout period on the wait, and in this case the timeout is 10 seconds.

The "<string>" portion of the 'wait' command is optional, but the <secs> portion is not. Each 'wait' must have a timeout value. When a script is running, if the waited-for string is not seen within the time allowed, the script will abort (unless 'severity continue' has been set previously).

Note that, for both the 'wait' and 'onscreen' statements, the string matching is **case-insensitive**. You don't have to worry about whether a host issues the "Password" prompt with a capital 'P', or in all lower-case.

### Type

The 'type' command is used to send data to the host. Data can consist of printing and non-printing characters. To send data consisting of printable characters, simply enclose the string in double quotes:

```
type "data"
```

If you need to send some non-printing characters, this can be accomplished by notating the non-printable characters in some coded form, and enclosing the code within the double quotes. This example shows the 'type' command used to send the word 'data', followed by a carriage return:

```
type "data^M"
```

Non-printing characters in the 'type' command can be notated in two ways. The first can be used only with the set of 'control characters' which reside in the lowest portion of the ASCII character set. This notation consists of a caret - '^' - followed by the alphabetic equivalent of the control character. For example, '^C' is the notation for <Ctrl-C>.

Another, more flexible, method can be used to represent any non-printing character, including those which lie outside the range of the standard control characters (i.e., characters with ASCII values higher than 127). This more flexible notation consists of a leading backslash - '\' - followed by three octal digits which represent the ASCII value of the character. The <Ctrl-C> character would be represented in this notation as '\003'. Please note that exactly three octal digits are required, even if three are not needed to represent the number.

## Severity

This statement is used to specify the response that QVT/Term should perform if a 'wait' or 'onscreen' statement fails. The default is 'abort'; if the searched-for string cannot be found, the script will abort. You can override this by using the statement 'severity continue'. This will cause the script to continue even if a 'wait' fails. This is important if you intend to perform a branching operation following the wait, and the type of branch will be determined by the success or failure of the 'wait'. For example:

```
severity continue
wait 10 "login:"
if_err_goto exit
...
:exit
```

## Password

If you prefer to keep passwords out of your script files, you can use the 'password' statement to enter passwords securely at runtime. This command will interrupt the script and pop up a small dialog that you can use to enter your password.

## Sync

Sometimes a host will issue a stream of introductory data before arriving at a point where user input is permitted. To allow such a stream to pass by uninspected, use the 'sync' command. The syntax of this command is:

```
sync <secs>
```

where <secs> is the number of seconds of 'dead air' that the script should look for. In other words, the 'sync' command will cause the script to look for an interval of <secs> seconds, during which no data is received.

## Onscreen

The 'onscreen' statement is another way of searching for a string of received data. Unlike 'wait', however, 'onscreen' doesn't search the incoming data stream as it is received. Instead, 'onscreen' takes a snapshot of the screen, and looks for the target string within the snapshot. This is particularly useful if you are expecting several possible valid responses from the host, but you have no idea in advance which of them will arrive in any particular instance. You can use 'onscreen', followed by 'if\_noerr\_goto', to look for each response in turn, and jump to the appropriate handler once you have found one of them:

```
severity continue
...
onscreen "login:"
if_noerr_goto UNIX
onscreen "Username:"
if_noerr_goto VMS
goto EXIT
...
```

## if\_err\_goto if\_noerr\_goto goto

These statements allow you to modify the control flow of a script. The two 'if' forms are used only after 'wait' and 'onscreen' statements, and require that you issue a 'severity continue' at the top of the script. The plain 'goto' statement can be used anywhere.

The target of a 'goto' is a 'label'. The syntax of QVT/Term labels is similar to that used in DOS batch files: the label will consist of a single word, alone on a line, and preceded by a ':'. For example:

```
:exit
```

This label can serve as a target for this 'goto' statement:

```
goto exit
```

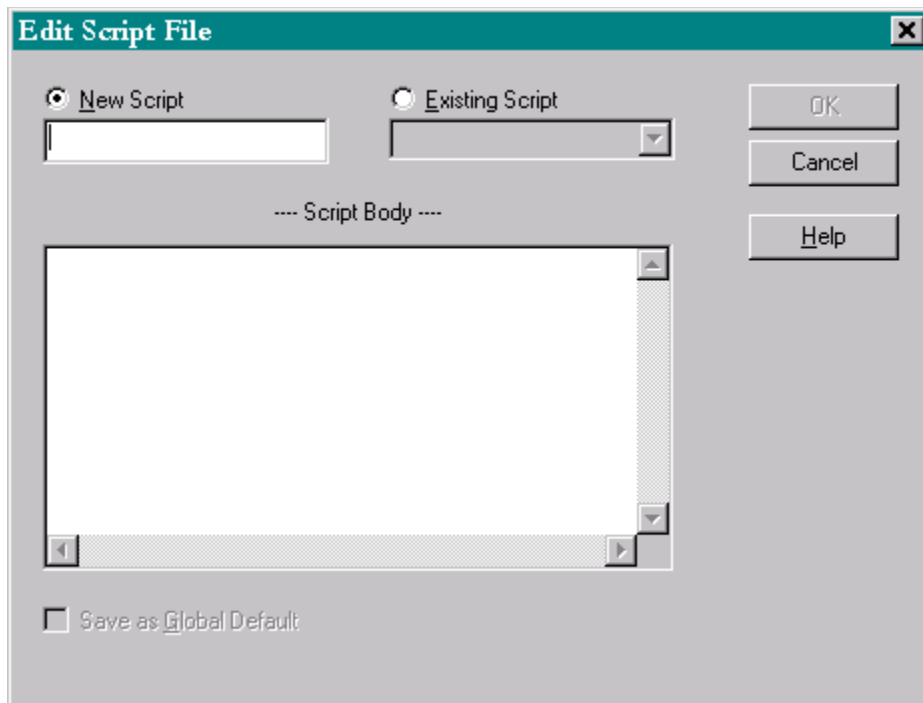
Here is an example of how the conditional goto statements can be used:

```
severity continue
wait 10 "login:"
if_noerr_goto UNIX
onscreen "Username:"
if_err_goto EXIT
type "myvmsusername^M"
wait 10 "password:"
if_err_goto EXIT
type "myvmspassword^M"
sync 2
```

```
goto EXIT
:UNIX
type "myunixusername^M"
wait 10 "Password:"
if_err_goto EXIT
type "unixpass^M"
sync 2
:EXIT
```

## Creating a Script File

The QVT/Term script file editor is accessed by selecting the 'Setup - Script File' menu item. A dialog box comes up that looks like this:



The script editor can perform one of three possible functions:

1. Create a new script and associate it with the current configuration
2. Modify a script
3. Disassociate a script from the current configuration

The initial mode of the editor will depend on whether the current configuration has a script associated with it or not. If it does, that script will be loaded into the editor window, and the name of the script will be selected in the field labelled "Existing Script". If the current configuration has no script associated with it, the text editor window will be empty, and the cursor will be positioned in the field labelled "New Script".

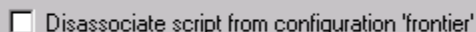
In the example shown, there is no existing script, so the editor is in the mode associated with creating a new script.

Once you have either selected or named the script, you should enter the contents of the script into the main editor window. Just type each line of the script, and press <Return> after each line to advance to the next line. When you are finished, click on "OK".

The checkbox labelled "Save as Global Default" allows you to save a script as the default script for all configurations that don't have a script associated with them. This is not a scenario that will come into play very often, since different hosts usually require different login procedures. The option is provided here solely as a convenience.

## **Disassociated Scripts from Configurations**

The normal relationship between scripts and configurations is one of "association". By this we mean that a configuration may have a script associated with it. In these cases, the script will be executed as soon as the host connection specified by the configuration is established. You can use the checkbox labelled "Disassociate script from configuration" to break this connection.

A screenshot of a checkbox with the text "Disassociate script from configuration 'frontier'". The checkbox is currently unchecked.

Both the script and the configuration will continue to exist, but the script will no longer be associated with the configuration. The configuration will remain useful, but no script will execute when host connections are made.

Note that this checkbox will be visible only when working with a configuration that already has a script associated with it.

## **Executing a Script**

Normally, a script is associated with a configuration, and the script will be executed when the configuration is loaded, and a host connection is made. This supports the most frequent use of scripts, which is to automate login procedures.

You can also execute a script by selecting the 'File - Execute Script' menuitem. This can only be done if a host connection is present.

During the execution of a script, the name of the script file will be shown in the title bar. To terminate a script during execution, press the key combination <Ctrl+Break>.

## View Menu

QVT/Term's 'View' menu gives you the ability to interactively show or hide three of the main window elements:

- Toolbar
- Status Bar
- Scroll Bars

These items will be checked when they are visible, and unchecked when hidden. Just select an item to toggle its value, and cause the associated control to appear or disappear.

**Note:** if you do a 'File - Save', the current state of the toolbar, status bar, and scrollbars will be saved as part of the configuration.

The 'View' menu also allows you to change the display aspect.

### 80/132 Columns

QVT/Term operates in two basic 'column' modes, 80 columns or 132 columns. These menu items can be used to select the desired column mode.

### Window/Screen Mode

QVT/Term normally operates in 'window' mode, by which we mean that the QVT/Term display is implemented as a standard overlapped Windows window. However, there is another mode available, which we call 'Full Screen' mode. In this mode, the QVT/Term display will occupy the entire screen. In addition, the various control bars will be hidden, to provide the largest possible display surface. The font will be scaled to provide the closest possible approximation to 25 rows, 80 columns (it will usually be a bit more, e.g. 27x85).

### Reset Geometry

Selecting this menu item will cause the QVT/Term window to revert to a standard 24x80 format.

## Font Menu

QVT/Terminal allows you to choose from between two built-in DEC fonts, one fixed-size and one scalable, or choose from among any of your installed fixed-pitch fonts. Font selection is done most efficiently at runtime by using the Font menu.

There are several options on this menu:

- DEC Fixed

Selects a fixed-size font which implements the DEC Multinational Character Set. QPC supplies this font in three sizes, and QVT/Term will select the appropriate size for your display at runtime.

- DEC Scalable (w/selectable point size)

Selects a scalable (TrueType) font which implements the DEC Multinational Character Set. This font is available in sizes ranging from 8 point to 14 point.

### ANSI

Selects the builtin ANSI font, usually Courier or something similar.

### IBM

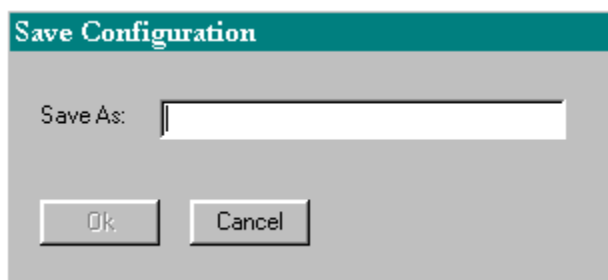
Selects the builtin OEM font, usually a fixed-pitch font that implements the IBM Extended ASCII character set, as found in the MS-DOS operating system.

### MS LineDraw

This selection may will be enabled only if you have the MS LineDraw font installed on your PC. This font is similar in appearance to Courier, and it is a scalable TrueType font which implements the IBM Extended ASCII character set.

- Custom

Presents a standard Windows font-selector dialog, which you can use to select any of the fixed-pitch fonts that are currently installed on your machine:



Note that only the two DEC fonts will support the DEC Special Graphics characters, which are used as line-drawing characters by many applications. If your application requires these characters, you will have to use one of the DEC fonts.



## Keyboard Layout

QVT/Term employs a keyboard mapping that is closely tied to the DEC LK201 keyboard.

### Main 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	<PrintScreen>
F6 - F10	F6 - F10
F11 - F20	Shift-F1 - F10
Help	F11
Do	F12

### Notes:

1. Function keys F1 through F5 have no default function (unless shifted). The local functions that these keys perform on the DEC terminal have been relocated, either to the menu, or to other keys.
2. 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.

### Editing Keypad

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

The mapping of these keys may be changed by visiting the 'Default Settings - Keyboard' dialog and selecting IBM instead of DEC mapping for the editing keypad.

### Downloadable Function Keys

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. The programs for these keys are downloaded from the host.

## **NetApps Menu**

This menu is provided so that you can have immediate access to the other QVT/Net applications. This menu will be enabled only if the complete QVT/Net Suite is installed.

## **Miscellaneous Items**

This section contains material that is not covered elsewhere in this document.

### **Using the mouse cursor to move the terminal cursor**

With QVT/Term, you can, in some situations, use the mouse cursor to move the terminal cursor. This is most frequently used when a text-editing application is being used on the host (e.g. EMACS). Rather than using the cursor keys to repetitively move the cursor one character at a time, you can simply press and hold the <Ctrl> key, and click the mouse at the point where you want the terminal cursor to go.

Note that this technique will work only when application cursor movement is linear, and free of 'jumps'. For example, if a text display contains tabs, this will create a situation in which a single press of a cursor key will cause the cursor to move more than one character position right or left. In these situations, using the mouse to move the cursor will give unpredictable results.

### **Rescaling the DEC Scalable Font**

QVT/Term includes a scalable implementation of the DEC Multinational and DEC Special Graphics character sets. The 'Font' menu provides a set of choices that allow you to select various sizes for this font, ranging from 8pt to 16pt.

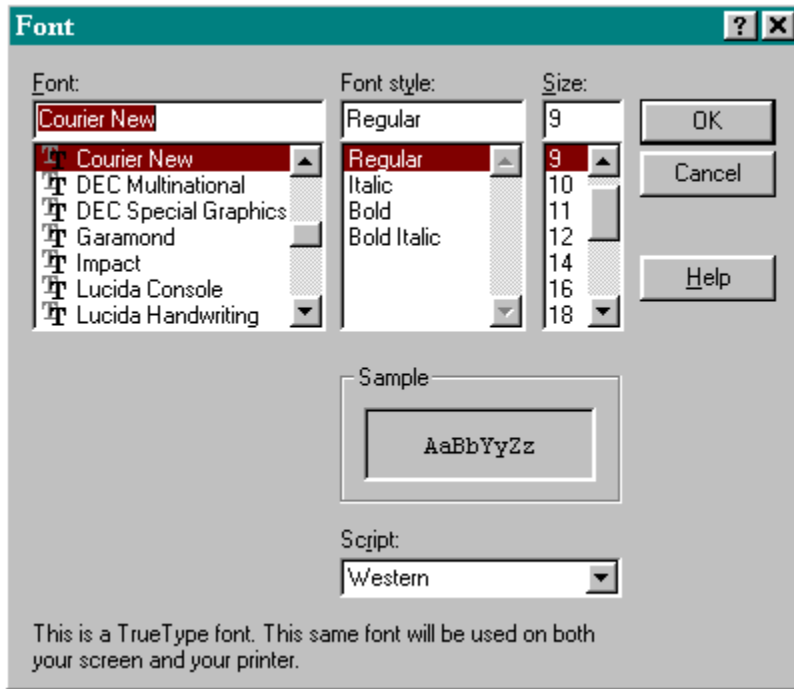
However, QVT/Term windows that use the DEC Scalable font can also be dynamically resized. So can any QVT/Term window that has a TrueType 'custom' font selected (e.g., Courier New). Normally, a window is resized by grabbing the sizing controls that lie along the borders of the window, and dragging the border to a new location. By default, when a QVT/Term window is resized, the size of the characters will remain the same, and the number of rows and columns will be adjusted to fit the new size of the window. However, if you press and hold the <Ctrl> key while resizing, the opposite will happen: the number of rows and columns will stay the same, and the size of the characters will be changed to fit.

Note that, on occasion, characters of the exact requested size cannot be generated by the font mapper. In these cases, the closest approximation will be returned, and the window size may be re-adjusted programmatically by QVT/Term.

## Printer Font Selection

By default, QVT/Term employs a 10-point Courier font when printing. You can change this by running the "Setup Printer Font" menu item.

This command will bring up a standard Windows font selector:



The dialog will initially be set up to show the currently-selected printer font. You should make your selection and click on OK to activate the new printer font.

**Note:** If no printer device-context is presently available within the current QVT/Term session, you will be prompted to select a printer before you can select a font. This is because in the Windows environment fonts always must be selected within the context of a specific device, in this case, a specific printer.

