The Back Page

Welcome to the back page. You won't find this page unless you're pretty tricky. But, since you're here, we'll tell you a little bit about ourselves.

Michael Baldwin is the C++ wizard who coded the actual terminal emulation code and TELNET communications code (the inner messy stuff). If you find a bug, blame it on him!

Michael Baldwin Jr. is the VB wizard who designed the interface and threw the application together, along with Setup, online Help, Quick Start, the manual, and parts of the box, all while being a sophomore in high school at the same time. Pretty slick, huh?

Gene Ninestein wrote Dart's first VT emulation package, which PowerVT is (loosely) based upon. Gene also was responsible for all sorts of testing, distributing beta copies, and all sorts of input.

"The faster you move, the slower time passes, the longer you live."

--Peter Diamandis

Contents for PowerVT Help

Close

PowerVT is a tool you can use to communicate with host computers using phone lines, a direct connection, or TELNET.

To learn how to use Help, press F1.

What is VT220?

The VT220 is a computer terminal, consisting of a monitor and keyboard. The terminal connects to host computers and displays received data on the screen. The VT220 supports certain control codes--combinations of characters which have special meanings. An example of a control code would be a command to clear the screen, or reverse text.

The VT220's set of control codes has become a standard for terminals. PowerVT interprets VT220 control codes and displays a screen in a window which matches what a VT220 terminal's screen would look like.

PowerVT goes beyond the VT220 terminal in many ways, however. It can connect using TELNET, a modem, or a direct connection. You can customize the screen colors, or fonts it uses. You can scroll backwards to see what was previously on the screen, and assign key sequences to keys. And best of all, you don't need an actual terminal--you can use the PC you already have.

Frequently Asked Questions

- Contacting Dart Communications

Click on a question below to see the anwer.

- How can I open a previous session to change some characteristics without making a connection?
- Why doesn't Auto Print Mode print anything when I check it?
- How can I record the session in a text file?
- Why can't I turn Num Lock on?
- How do I completely uninstall PowerVT?
- How can I change what is sent when I press a key?
- What are the VT220_ascii and VT220_special_fonts?

Command Line Arguments

You can place additional text after the filename of the PowerVT program when you run it using the Run... command from the Program Manager or File Manager. You can also place it in the Item Properties for the PowerVT icon in the Program Manager.

- To load a particular file into PowerVT, place the filename after the program filename. You must include the full path and extension for the filename. For example,

  `c:\powervt\powervt.exe c:\usr\example.pvt`

  would load the file example.pvt in the directory c:\usr when PowerVT started up.

- You can also load one of the four most recently used files in PowerVT. To do this, use the argument /mfile*x* where *x* is the number 1, 2, 3, or 4. For example,

  `c:\powervt\powervt.exe /mfile1`

  would load the file you used the last time you used PowerVT. If you commonly use the same file each time you use PowerVT, this will automatically load it for you.

How to Connect Using a Modem

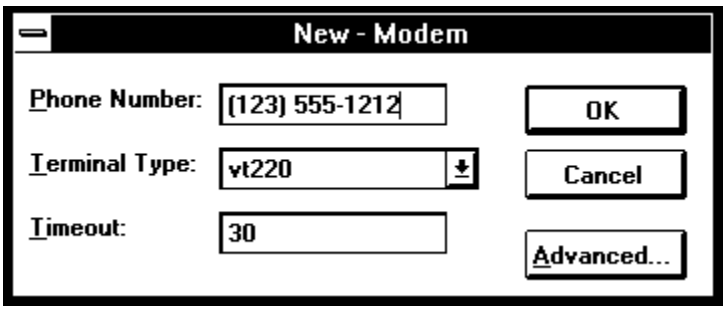
Communication Settings Dialog
Modem Commands

To connect to a host over phone lines, follow these steps:

1. From the File menu, choose New Modem.
2. Fill in the phone number of the host computer.
3. If you have not configured the modem settings before, click the Advanced... button. Select the correct settings for your modem, and click OK.
4. Click the OK button.

The status bar should say, "Connecting to...". If it does not, you may have entered incorrect modem settings, or your modem may not be correctly connected to your computer. You can change the modem settings at this point by choosing Commuication Settings... from the Options menu. Once you have entered the correct settings, choose Connect from the Connect menu.

You should now be connected to the host computer. What you type in the window is immediately sent to the host. To hang up the connection, choose Disconnect from the Connect menu.



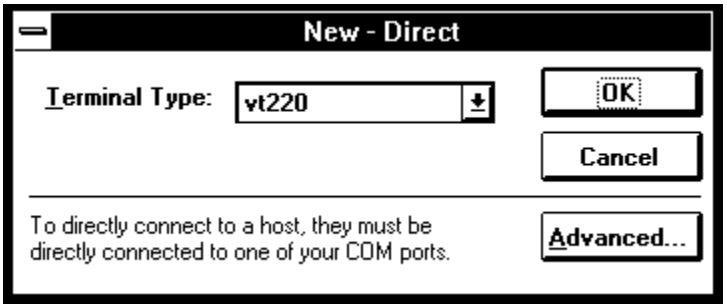
How to Connect Using a Direct Connection

To connect to a host directly connecting to one of the COM ports on your computer, follow these steps:

1. From the File menu, choose New Direct.
2. If you have not configured the COM port settings before, click the Advanced... button. Select the correct settings for your port, and click OK.
3. Click the OK button.

The status bar should say, "Connecting...". If it does not, you may have entered incorrect COM port settings, or the host may not be correctly connected to your computer. You can change the port settings at this point by choosing Communication Settings... from the Options menu. Once you have entered the correct settings, choose Connect again from the Connect menu.

You should now be connected to the host computer. What you type in the window is immediately sent to the host. To disconnect, choose Disconnect from the Connect menu.

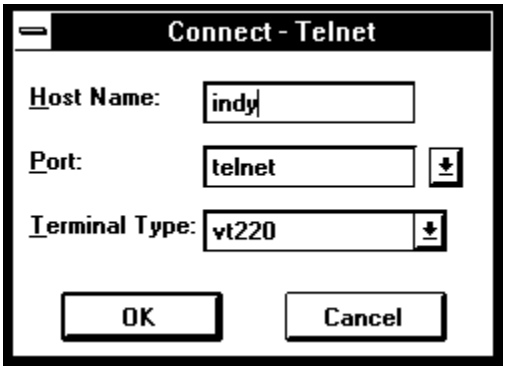


How to Connect Over a Network (Using TELNET)

To connect to a host on your network or another connected network, follow these steps:

1. From the File menu, choose New TELNET.
2. Fill in the name or IP address of the computer you want to connect to, and click the OK button.
3. From the Connect menu, choose Connect.

The status bar should say, "Connecting...", and soon "Connected". You should now be connected to the host computer. What you type in the window is immediately sent to the host. To disconnect, choose Disconnect from the Connect menu.



File Menu Commands

Use the scroll bar to see more commands.

New Telnet...

Creates a new window and connects to a Telnet host.

Toolbar shortcut: 

New Modem...

Creates a new window and connects to a host using a modem.

Toolbar shortcut: 

New Direct...

Creates a new window and connects to a host directly connected to your computer.

Toolbar shortcut: 

Open...

Opens a previously saved session.

Toolbar shortcut: 

Close

Disconnects and removes the session window from the screen.

Save...

Saves current session characteristics (such as phone number, colors, fonts, and modem settings) to a file on disk.

Toolbar shortcut: 

Save As...

Saves current session characteristics to a new file on disk.

Save Text As...

Saves all text from the entire session (up the the size of the buffer) into a text file on disk.

Print Setup...

Allows you to configure your printer.

Print Screen

Prints the current "screen" in the terminal window (normally 80 columns by the last 24 lines).

Print Selected Lines

Prints the selected text in the window.

Auto Print Mode

Sends all output to the printer as well as to the screen. When Auto Print is on, the text is buffered up in memory and printed when you either turn Auto Print off or close the connection.

Printer Controller Mode

This is the same as Auto Print, except that text is sent **only** to the printer, and not to the screen at all.

Log Mode

Sends all output to a text file as well as to the screen. The first time you turn it on, it prompts you for a filename. You can change the filename later on with the Log File... command.

Log File...

Prompts you for a new file to send log output to. If you change the filename while Log Mode is on, then output is **immediately** redirected to the new file.

Exit

Exits PowerVT.

Recent File List

Loads one of the four most recent sessions saved to disk.

Edit Menu Commands

Use the scroll bar to see more commands.

Copy

Copies text from the window and places it onto the clipboard, with carriage returns after each line.

Toolbar shortcut: 

Paste

Sends text from the clipboard across the connection to the host.

Toolbar shortcut: 

Select All

Selects all the text in the window. This is useful if you want to copy the entire contents of the window into the clipboard.

Clear All

Clears all text from the window.

View Menu Commands

Use the scroll bar to see more commands.

Toolbar

Shows or hides the toolbar at the top of the window.

Status Bar

Shows or hides the status bar at the bottom of the window.

Connect Menu Commands

Use the scroll bar to see more commands.

Connect

Connects to a host after a new session has been created, after a session has been loaded, or after a connection has been broken.

Toolbar shortcut: 

Disconnect

Disconnects from a host.

Toolbar shortcut: 

Send Break

Sends the break command across the connection.

Options Menu Commands

Use the scroll bar to see more commands.

Session Options

Displays the session options dialog box, where you can set options such as window color, font, cursor style, buffer size, and more. See the Session Options Dialog for more information.

Key Sequences

Displays the key sequences dialog box, where you can set key sequences to keys on your keyboard. See the Key Sequences Dialog for more information.

Phone Number

Allows you to change the phone number and timeout for modem connections. Changes will affect the next dial-out, and not a current connection.

Communication Settings

Displays the communications options dialog box, where you can configure your communications port or modem. See the Communication Settings Dialog for more information. Changes will affect the next dial-out, and not a current connection.

Telnet Options

Allows you to change the remote host name and port for Telnet connections. Changes will affect the next connection, not a current connection.

Window Menu Commands

Use the scroll bar to see more commands.

Cascade

"Stacks" all windows so that the title bar is visible on each one.

Arrange Icons

Arranges all minimized windows in a row at the lower-left corner of the screen.

Tile

Arranges all windows so that all are completely visible and fill the application's main window.

Window List

Activates the window chosen and brings it to the foreground.

Help Menu Commands

Use the scroll bar to see more commands.

Index

Displays the contents for PowerVT help.

Search For Help On...

Displays a dialog box with keywords for topics to choose from.

How to Use Help

Displays instructions on how to use PowerVT help.

Quick Start

Displays PowerVT Quick Start--a tutorial program which introduces you to PowerVT. To view Quick Start now, click here.

Frequently Asked Questions

Displays a help topic with the most commonly asked questions. To view Frequently Asked Questions, click here.

Remapping Keys

Displays a help topic which describes how key mappings work. To view the topic, click here.

About

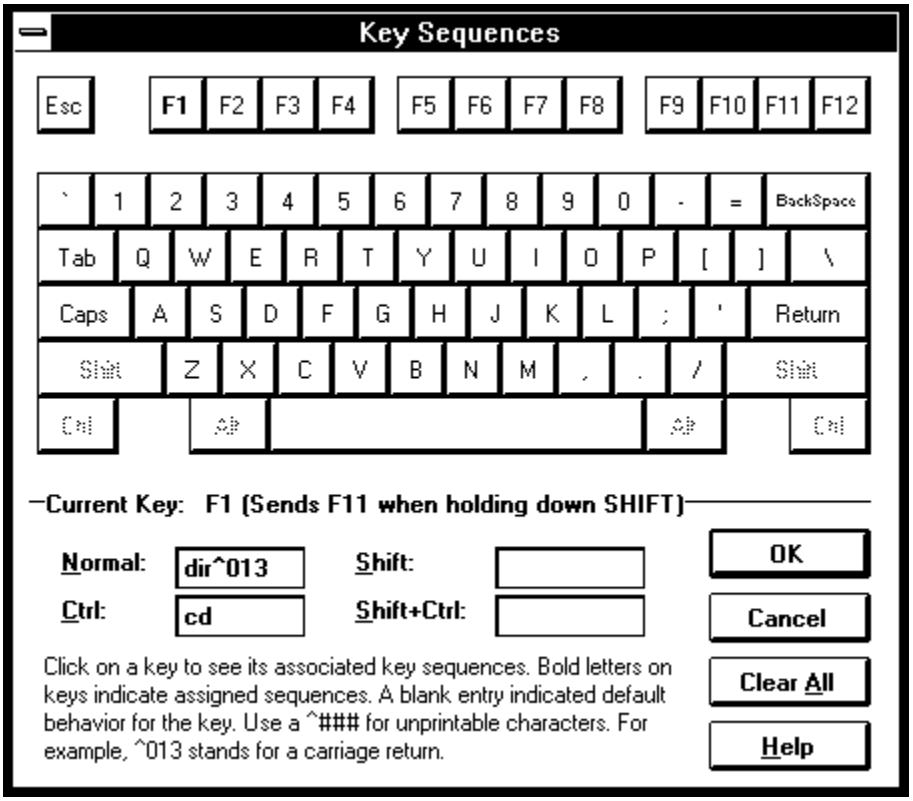
Displays program information and system information, such as the type of processor and amount of memory free.

Key Sequences Dialog

Key Sequences Examples
Key Remappings

The key sequences dialog lets you assign key sequences to certain keys on the keyboard, and lets you remap keys. For example, you could assign your username to the F12 key.

Click on a section of the picture below to learn what it does.



PowerVT allows you to assign a key sequence to almost any key on the keyboard, by itself or with Shift or Ctrl. For example, if you wanted to send the characters "LOGIN" when you pressed CTRL+F12, you would follow these steps:

1. Click the F12 button on the keyboard in the window.
2. In the Ctrl text box, type LOGIN.
3. Click OK.

Now, when you pressed CTRL+F12, the characters "LOGIN" would be typed instead.

You can insert unprintable characters in the sequence text. A caret (^) followed by a three-digit number represents that number's character. If you want to use a caret in your string, use a double-caret instead (^^). PowerVT also supports the ^SS3, ^CSI, and ^ESC characters.

See Key Sequences Examples for more information.

Key Sequences Examples

Key Sequences Dialog

This topic shows several examples of how to use key sequences and remap keys in PowerVT. You must choose Key Sequences... from the Options menu before you try each example.

Example 1: Username

If you type in a username each time you make a connection, you may want to assign it to a key combination such as CTRL+U. You can do this with any command you use often, also, such as "dir". To do this, follow these steps:

1. Click the U button on the keyboard in the window.
2. In the Ctrl text box, type your username (for example, "JohnDoe").
3. After your username, type ^013. This sends a carriage return after the username, the same as pressing Enter. If you don't add ^013, your username will appear when you press CTRL+U, but you will have to press Enter after it.

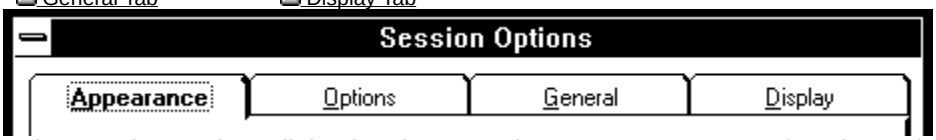
Example 2: Remapping PF1-PF4

By default behavior, the VT220's PF1-PF4 keys are assigned to the Num Lock, /, *, and - keys on the IBM keyboard's numeric keypad. If you wanted to assign them to the F1-F4 keys on the IBM keyboard, you could follow these steps:

1. Click on the F1 button.
2. Look up the code for PF1 in Advanced Keyboard Information. In VT220 Numeric mode, this turns out to be the two-character sequence "SS3" "P".
3. In the Normal text box, type ^SS3P. Notice that we use the characters ^SS3 for an SS3 character, because it is not accessible from the keyboard.
4. Follow steps 1-3 for the keys F2-F4, using the codes SS3 Q, SS3 R, and SS3 S for PF2, PF3, and PF4, respectively. Remember to use ^SS3 for the SS3 character.

Session Options Dialog

Appearance Tab
Options Tab
General Tab
Display Tab



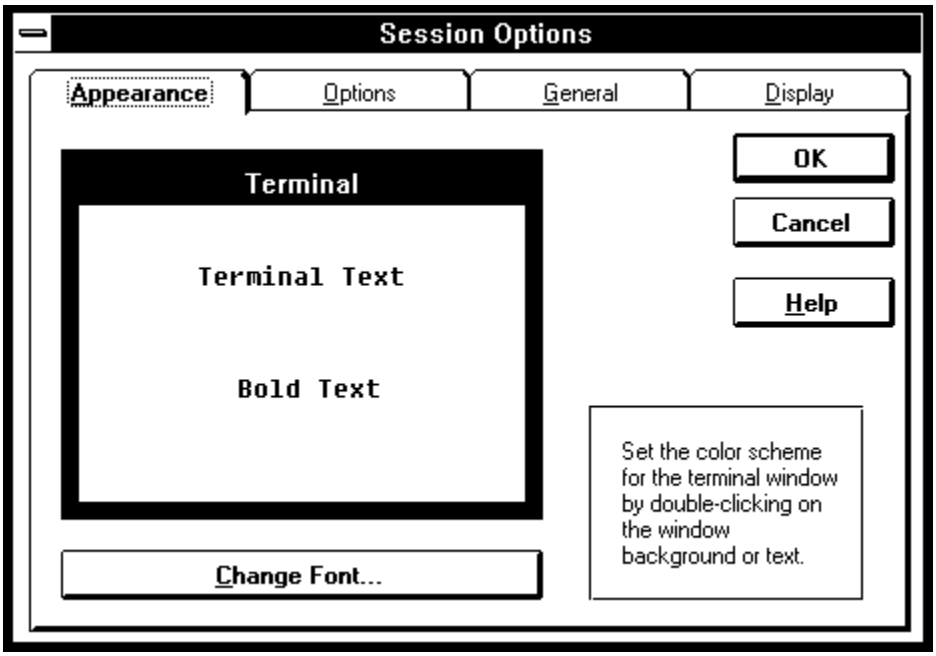
The Session Options dialog box lets you change many aspects of each terminal window. When you save terminal settings, the settings in the Session Options dialog box are also saved.

The dialog box is divided into four sections, or tabs. To view the options associated with each tab, you must click on it.

Appearance Tab

Session Options Dialog

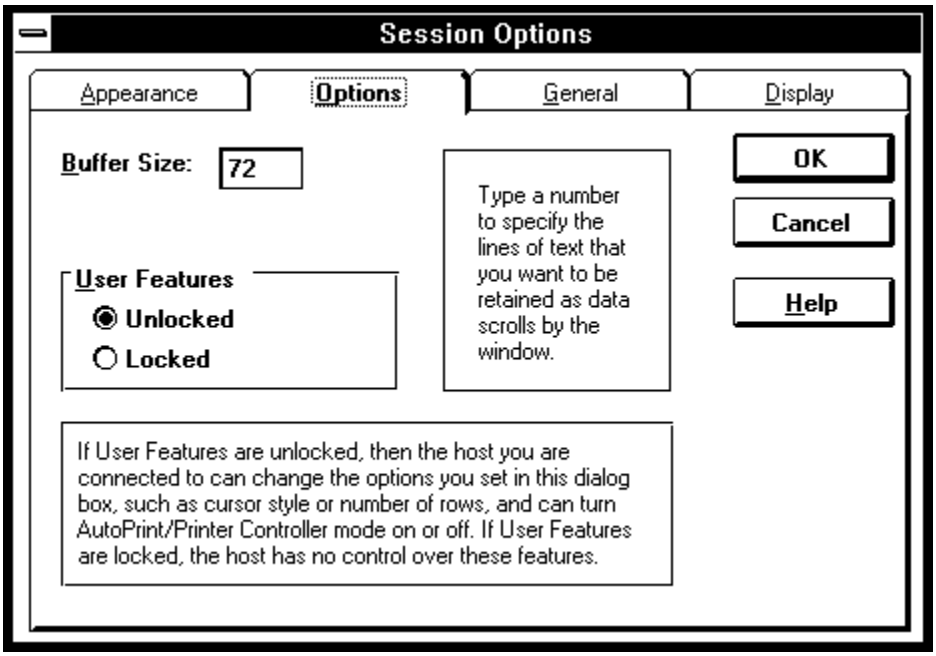
The appearance tab allows you to change the colors and font used by the terminal window. Click on a section below to learn more about it.



Options Tab

Session Options Dialog

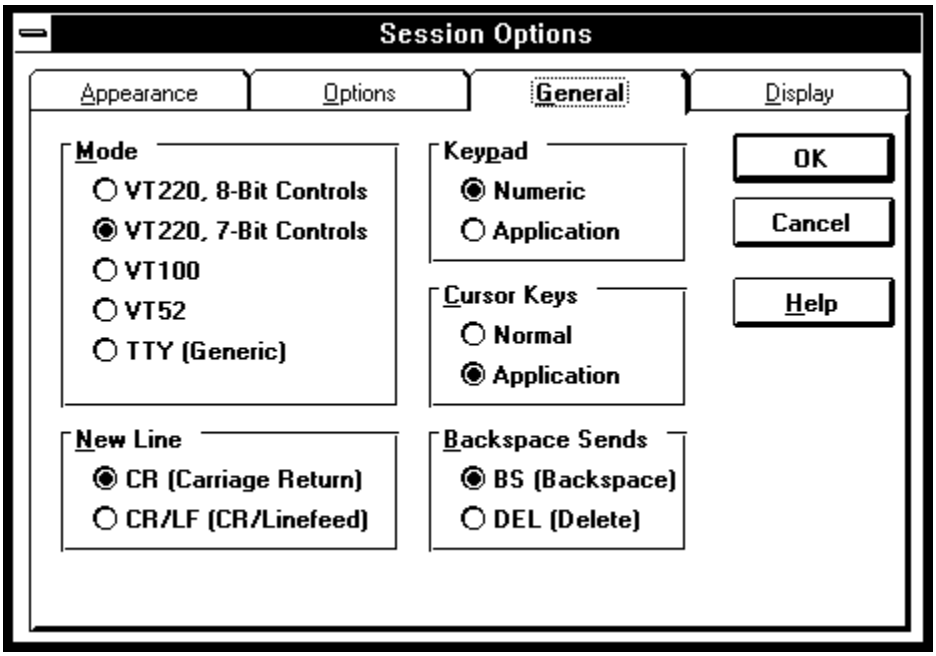
The options tab allows you to change certain options associated with the program. Click on a section below to learn more about it.



General Tab

Session Options Dialog

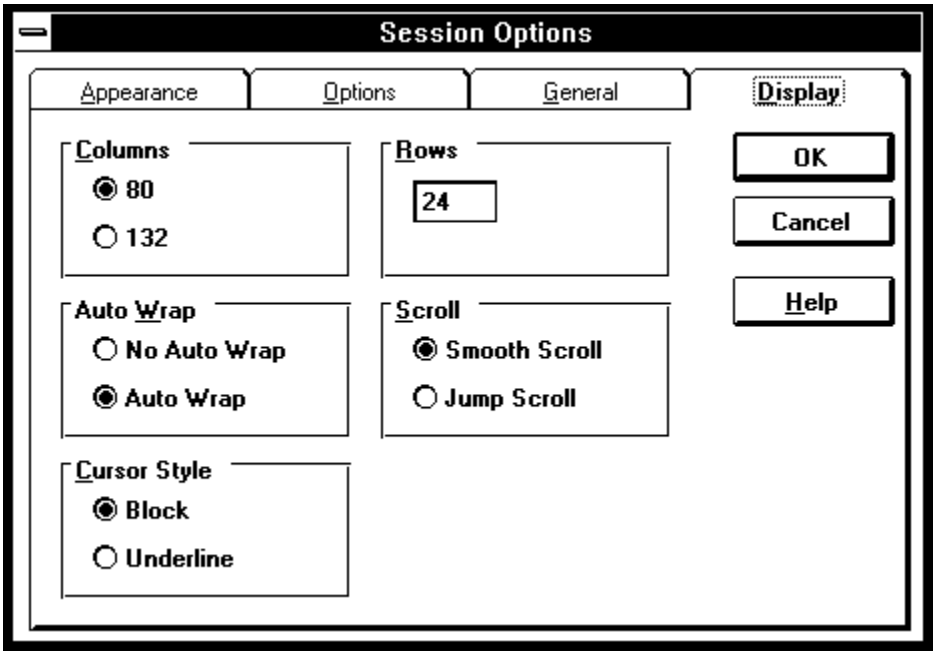
The general tab allows you to set general terminal options. Click on a section of the graphic below to learn more about it.



Display Tab

Session Options Dialog

The display tab allows you to set terminal display options. Click on a section of the graphic below to learn more about it.



Key Remappings

 Advanced

Because the VT220 terminal keyboard contains several keys which the IBM keyboard does not, and vice versa, some keys on the IBM keyboard have been remapped to act like certain VT220 keys. The chart below lists which keys are remapped. You can override these mappings to create your own through the use of key sequences.

VT220 Key	IBM Key
Return	Enter key above shift
Enter	Enter key on numeric keypad
PF1	Num Lock
PF2	Slash (/) key on numeric keypad
PF3	Asterik (*) key on numeric keypad
PF4	Minus (-) key on numeric keypad
Comma (,)	Plus (+) on numeric keypad
Minus (-)	Ctrl+ Plus key (+) on numeric keypad
Find	Insert
Insert Here	Home
Remove	Page Up
Select	Delete
Prev Screen	End
Next Screen	Page Down
Hold Screen	Pause
Print Screen	Print Screen
Help	F11
Do	F12
F6-F10	F6-F10 (same)
Shift+F6-F10	Ctrl+F6-F10
F11-F20	Shift+F1-F10
Shift+F11-F20	Shift+Ctrl+F1-F10

Advanced Keyboard Information

 General Key Remappings

The following tables are provided as a guide to the character strings generated by PowerVT. For more advanced tables, contact Digital Equipment Corporation.

Control Sequences (used below)	7-bit Mode	8-bit Mode
ESC	1B (hexadecimal)	1B (hexadecimal)
CSI	ESC [	9B (hexadecimal)
SS3	ESC O	8F (hexadecimal)

Main Keypad Function Keys

VT/IBM Key	Code Transmitted
Backspace	DEL or BS (depending on session options)
Tab	HT character
Return	CR or CR/LF (depending on session options)
Ctrl, Lock, Shift	(none)
Space Bar	SP character

Edit Keys

VT Key	IBM Key	VT220 Code	VT100/52 Code
Find	Insert	CSI 1 ~	None
Insert Here	Home	CSI 2 ~	None
Remove	Page Up	CSI 3 ~	None
Select	Delete	CSI 4 ~	None
Prev Screen	End	CSI 5 ~	None
Next Screen	Page Down	CSI 6 ~	None

Cursor Control Keys

VT/IBM Key	VT100/220 Normal Mode	VT100/220 Application Mode	VT52 Normal Mode	VT52 Application Mode
Up Arrow	CSI A	SS3 A	ESC A	ESC A
Down Arrow	CSI B	SS3 B	ESC B	ESC B
Right Arrow	CSI C	SS3 C	ESC C	ESC C
Left Arrow	CSI D	SS3 D	ESC D	ESC D

Numeric Keypad Keys

VT Key	IBM Key	VT100/220 Numeric Mode	VT100/220 Application Mode	VT52 Numeric Mode	VT52 Application Mode
0	0	0	SS3 p	0	ESC ? p
1	1	1	SS3 q	1	ESC ? q
2	2	2	SS3 r	2	ESC ? r
3	3	3	SS3 s	3	ESC ? s
4	4	4	SS3 t	4	ESC ? t

5	5	5	SS3 u	5	ESC ? u
6	6	6	SS3 v	6	ESC ? v
7	7	7	SS3 w	7	ESC ? w
8	8	8	SS3 x	8	ESC ? x
9	9	9	SS3 y	9	ESC ? y
,	+	,	SS3 m	-	ESC ? m
-	CTRL-+	-	SS3 l	,	ESC ? l
.	.	.	SS3 n	.	ESC ? n
Enter	Enter	CR or CR/LF	SS3 M	CR or CR/LF	ESC ? M
PF1	NumLock	SS3 P	SS3 P	ESC P	ESC P
PF2	/	SS3 Q	SS3 Q	ESC Q	ESC Q
PF3	*	SS3 R	SS3 R	ESC R	ESC R
PF4	-	SS3 S	SS3 S	ESC S	ESC S

Top Row Function Keys

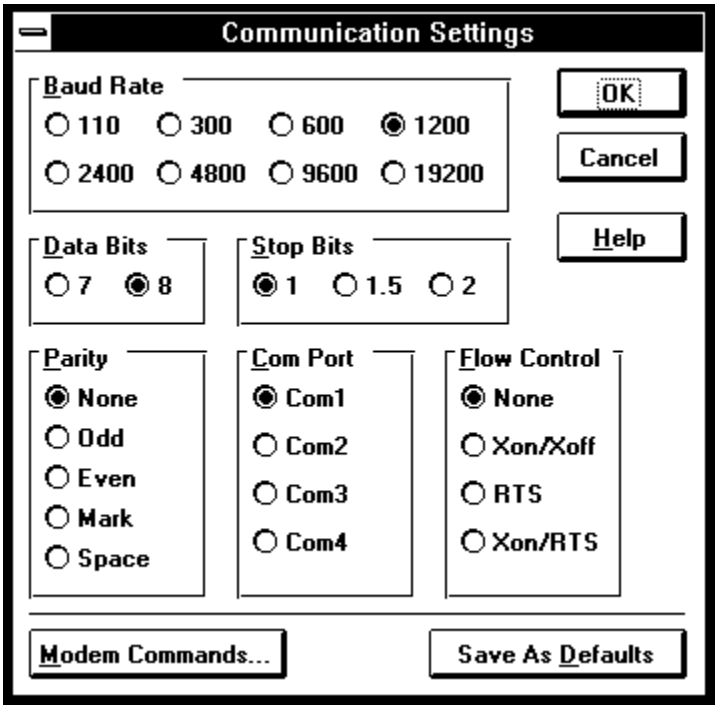
VT Key	IBM Key	VT220 Code	VT100/52 Code
Hold Screen	F1	(none)	(none)
Print Screen	F2	(none)	(none)
Set-up	F3	(none)	(none)
Data/Talk	F4	(none)	(none)
Break	F5	(none)	(none)
F6	F6	CSI 1 7 ~	(none)
F7	F7	CSI 1 8 ~	(none)
F8	F8	CSI 1 9 ~	(none)
F9	F9	CSI 2 0 ~	(none)
F10	F10	CSI 2 1 ~	(none)
F11 (ESC)	SHIFT+F1	CSI 2 3 ~	ESC
F12 (BS)	SHIFT+F2	CSI 2 4 ~	BS
F13 (LF)	SHIFT+F3	CSI 2 5 ~	LF
F14	SHIFT+F4	CSI 2 6 ~	(none)
Help	F11	CSI 2 8 ~	(none)
Do	F12	CSI 2 9 ~	(none)
F17	SHIFT+F7	CSI 3 1 ~	(none)
F18	SHIFT+F8	CSI 3 2 ~	(none)
F19	SHIFT+F9	CSI 3 3 ~	(none)
F20	SHIFT+F10	CSI 3 4 ~	(none)

Communication Settings Dialog

Modem Commands dialog

The Communication Settings dialog allows you to configure the terminal window to match your communcations port's characteristics.

Click on a section of the graphic below to learn more about it.

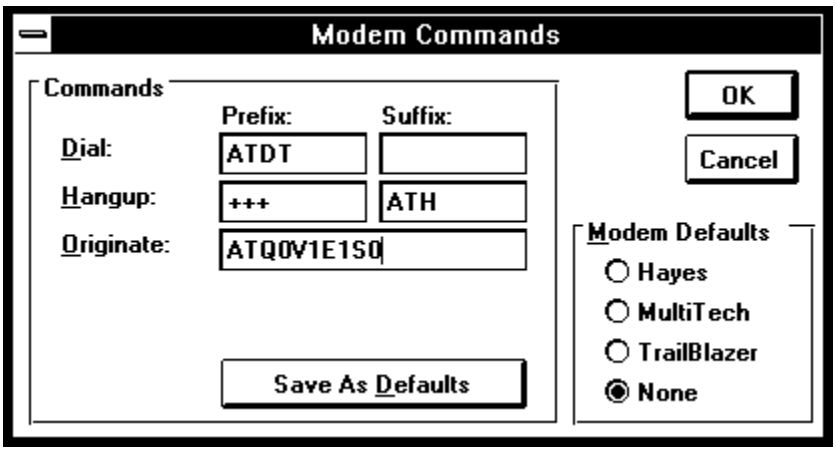


Modem Commands Dialog

Communications Settings Dialog

The Modem Commands dialog allows you to change the commands sent to the modem for initialization, dialing, and hanging up. The default settings generally work, but certain settings are required for some modems.

Click on a section of the graphic below to learn more about it.



Toolbar

The toolbar allows you to access commonly used menu commands quickly. You can show or hide the toolbar with the Toolbar command on the View menu. A list of the toolbar buttons and their descriptions is shown below.

Picture	Description
	Creates a new Telnet session
	Creates a new session using the modem
	Creates a new direct session
	Opens a previously saved session
	Saves session characteristics to disk
	Copies text from a window onto the Clipboard
	Pastes text from the Clipboard into a window
	Connects or dials to a host
	Disconnects or hangs up from a host
	Toggles AutoPrint on and off
	Toggles logging to disk on and off

Status Bar

The status bar displays the current state of the program, and also displays the descriptions of toolbar buttons when depressed. You can show or hide the toolbar with the Status Bar command on the View menu.

Contacting Dart Communications

You can contact Dart Communications in the following ways:

E-mail

support@dart.com

Phone

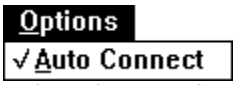
(315) 841-8106

Fax

(315) 841-8107

Postal

6 Occum Ridge Road
Deansboro, NY 13328



There is an option to prevent a connection from automatically being made when you create a new terminal window or open a file. From the Options menu, uncheck AutoConnect.

Using Auto Print, the printer does not print until you do one of the following:

 Turn AutoPrint off

 Close the connection

 Close the window

The same applies to Printer Controller mode.

To record all text received and typed in a text file, choose Log Mode from the File menu. Once you select a filename, all text displayed is appended to the text file.

You also use the log to file toolbar button: 

The VT220's keyboard contains several keys which the standard IBM keyboard does not. Because of this, some of the keys on the IBM keyboard have been remapped to act as VT220 keys (see Key Remappings). The Num Lock key has been remapped to become the "PF1" key. Because the PF1 key is not a toggle key, pressing it has no effect on the status of Num Lock. Therefore, Num Lock is always off.

To completely uninstall PowerVT, do the following:

1. Delete the PowerVT Program Manager group.
2. Delete the PowerVT directory from the File Manager or command line.
3. PowerVT installs certain files into your windows\system directory if they are not already there. You may delete the files P16TNTB1.VBX, P16VT2B1.VBX, YATC.VBX, and POWERVT.INI. PowerVT also installs other files, but these files are often used by other applications, and may prevent them from running if deleted.

NOTE If, after deleting the files in step 3, another application on your hard disk fails to run, you can re-install PowerVT to replace the missing files.

You can use key sequences. Key sequences let you assign a new key string to a key on the keyboard, or Ctrl/Shift+any key. To learn how, see Key Sequences.

The fonts VT220_ascii and VT220_special are automatically loaded from the POWERVT.FON file in your \windows\system directory. The font VT220_ascii provides VT220 screen emulation using the VT220's character set. For as close VT emulation as possible, you should select this font. The font VT220_special is used automatically when special VT220 graphics characters are needed.

IP Address

A four-number phrase in the form *x*.*x*.*x*.*x*, where each *x* is a number from 0 to 255. This four-number phrase uniquely identifies each computer on a TCP/IP network.

Dial Prefix and Suffix

When a dial command is sent the the modem, it is in the form DIALPREFIX+PHONENUMBER+DIALSUFFIX. For most modems, the dial prefix is "ATDT" (ATtention, Dial Tone), and there is no suffix.

Hangup Prefix and Suffix

When a command is sent to the modem to hang up, it is in the form HANGUPPREFIX+HANGUPSUFFIX. For most modems, the prefix is "+++", and the suffix is ATH (Attention, Hang up).

Originate

This command is sent to the modem before any others, and initializes it with certain settings.

Modem Defaults

These are default settings for certain modems. Most modems will work with the default "Hayes" settings.

Save As Defaults

Saves the current settings in the dialog to disk, so that they are used as defaults the next time a new session is created.

Color Scheme

To change the colors, double-click on the section of the window you would like to change, and select a new color from the color dialog box. You may change the background color, text color, and bold text colors.

Change Font

This displays a dialog box which allows you to choose a new font for the window. For full VT emulation, you should choose the VT220_ascii font. This font uses the VT220's character and graphics sets, to provide a screen which matches the VT220's as closely as possible.

Buffer Size

This specifies the size of the scroll buffer, in lines. The higher you set it, the farther back you can scroll.

Mode

This specifies the terminal emulation mode. Select a new option to emulate a different type of terminal. This defaults to VT220, 7-bit.

User Features

This specifies whether the *host* can change options in the General tab or Display tab.

Keypad

This specifies whether the numeric keypad is used to send numbers or the actual keys.

Cursor Keys

This specifies whether the arrow keys are used to move the cursor or send the key code.

Backspace Sends

This specifies whether pressing the Backspace key sends a backspace character or a delete character.

New Line

This specifies whether pressing the Enter key sends a carriage return or a carriage return-linefeed.

Columns

Specifies the number of columns to support.

AutoWrap

Specifies whether text should wrap to the next line when it travels over the right margin, or whether to continually stay at the margin.

Scroll

Specifies whether the screen should scroll as fast as it needs to to catch up when text is received, or if it should scroll smoothly at a certain speed.

Cursor Style

Specifies whether the cursor should be a block or underline.

Baud Rate

Select the baud rate of your modem, or of the host (for a direct connect).

Data Bits

Select the number of data bits your com port supports.

Stop Bits

Select the number of stop bits your com port supports.

Parity

Select the parity your com port supports.

Com Port

Select the com port you wish to use.

Flow Control

Select the type of flow control you wish to use.

Modem Commands

Display the Modem Commands dialog. You can use this to configure the commands sent to the modem.

Save As Defaults

Saves the current settings in the dialog to disk, so that they are used as defaults the next time a new session is created.

Rows

Enter the number of rows. This should usually be set to 24. This is not the same as the buffer size, which contains scrolled data.

Keyboard

When you click on a key, you can view its current assigned key sequences. If the letters on the key are bold, there are assigned sequences. If they are not, no sequences have been assigned.

Current Key

This displays the current key whose key sequences are being displayed in the four text boxes.

Key Sequence text boxes

These display the current key sequences assigned to the current key. By typing in the boxes, you can change the sequences. The key sequence in the Normal box is executed when you type the key. The key sequence in the Shift, Ctrl, and Ctrl+Shift boxes are executed when you hold down the appropriate modifier key and type the key.

If there is no entry in the box, the key takes on default behavior.

Clear All

This button removes all key sequences, restoring the keys to their default behavior.

Help

This button displays help for the dialog box, the topic you are currently viewing.