



PowerNet Twin Client™
Version 7.4.0

User's Guide

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Manual Production

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PowerNet Twin Client Overview

PowerNet Twin Client is a software package that provides VT100, VT220, TN3270 (Telnet 3270), and TN5250 (Telnet 5250) emulation on portable terminals. It includes an easy-to-use Windows program for configuring and downloading the software to the portable terminals.

Modes of Operation

PowerNet Twin Client operates in either of two modes: thick client or thin client.

- Thick client mode (also referred to as telnet client mode) provides a telnet connection directly to host computers and their applications.
- Thin client mode communicates directly with a PowerNet OpenAir or PowerNet AirLinc server, which in turn provides the connection to host computers and their applications.

The primary difference between the two modes is in processing load distribution: In thick mode, all application protocol processing is performed on the terminal, while in thin mode all of the processing takes place on an intermediate OpenAir or AirLinc server. Another important difference is optimization: In thin mode, the OpenAir or AirLinc server introduces display optimization, data compression, and several other techniques that can dramatically reduce wireless network traffic. These optimizations are not possible in thick mode.

All of the user interface features, functions, and capabilities remain the same, regardless of the mode of operation.

Major Features

PowerNet Twin Client for HHP terminals offers the following benefits:

- **Simplicity:** Twin Client is preset to match the default keyboard overlays and functionality of the HHP Telnet client. No special configuration procedures are required.
- **Compatibility:** Existing HHP installations that have been customized can be easily converted to PowerNet by importing the existing configuration file, and/or by using the alternate HHP -style terminal configuration menu system.
- **Management:** Administrators and integrators can monitor and modify the software revision and configuration of each portable terminal from any Windows PC attached to the TCP/IP network. Changes are downloaded to the terminals over the wireless LAN automatically.
- **Diagnostics:** Because Twin Client is fully integrated with PowerNet Vision, the network management tool, administrators and technicians can monitor terminal displays, keyboard activity, and diagnostic logs on the Twin Client terminals in real time, from any Windows PC attached to the TCP/IP network.
- **Formatting:** The PowerNet Terminal Screen Formatter feature is built-in, allowing integrators to tailor host application displays to suit the needs of the terminal operators without modifying the applications.
- **Migration:** Conversion to a PowerNet OpenAir or PowerNet AirLinc client-server environment is automatic because the "thin" client is included in the Twin Client software already downloaded to the terminal.

In This Manual

This manual is organized as follows:

- Chapter 1 provides an overview to the PowerNet Twin Client.
- Chapter 2 describes how to load the PowerNet Twin Client Manager software on a Windows 95, 98, or NT/2000 PC.
- Chapter 3 describes how to quickly configure the PowerNet Twin Client Manager and the terminal for automatic, over-the-air software download and subsequent Telnet session startup.
- Chapter 4 describes how to change the Standard setup options specific to VT, 3270, and 5250 emulations. The simple, time-saving features for converting existing HHP Telnet client installations to PowerNet are also described here.
- Chapter 5 describes how to use the Advanced setup options for VT, 3270, and 5250 emulations. These options are used to customize keyboard, display, scanner, timer, alarm, and printer operation.
- Chapter 6 describes how to use the PowerNet advanced integration tools to further customize terminal operation. The creation and use of mapping, macro, dialog, and scanner control objects are described.
- Chapter 7 describes the use of the built-in PowerNet Formatter, and how to configure the portable terminal to use screen formatting.
- Chapter 8 describes how to use the Auto-Configuration tool to manage and automatically maintain the software configuration of all terminals on the wireless network. Also described are software management procedures and options that are unique to HHP terminals.
- Chapter 9 is a reference for the ISO 8859-1 and ASCII character sets.
- Chapter 10 is a reference for the default keyboard configurations for HHP terminals using PowerNet Twin Client in advanced mode. Figures and tables are included for 3270, 5250, and VT.

Installation

This chapter describes the installation of the PowerNet Twin Client software on a Windows 95, 98, or NT/2000 PC. The software is available in the Partner's area of HHP's web site, www.hhp.com.

Requirements

Installation of PowerNet Twin Client requires, at a minimum, the following:

- A Pentium-class processor
- 32 MB of RAM
- 10 MB of free hard disk space available
- Microsoft Windows 95, 98, or NT/2000 operating system

Downloading From the Web

The PowerNet Twin Client software package can be downloaded from the HHP web site at www.hhp.com. Click on Partners Enter Here and log in to the Partners web site. Under Technical Support, click on Software Downloads. Select the file named PowerNet Twin Client for HHP.

Running Setup from a Download File

The downloaded file is a compressed archive. After extraction using a utility such as WinZip, folders are created on the hard disk as shown in the following figure.

Name ▲	Size	Type
INST32I.EX_	292 KB	EX_ File
_ISDel.exe	27 KB	Application
_Setup.dll	34 KB	Application Extension
_sys1.cab	172 KB	WinZip File
_sys1.hdr	4 KB	HDR File
_user1.cab	1 KB	WinZip File
_user1.hdr	5 KB	HDR File
DATA.TAG	1 KB	TAG File
data1.cab	4,184 KB	WinZip File
data1.hdr	15 KB	HDR File
lang.dat	5 KB	DAT File
layout.bin	1 KB	BIN File
os.dat	1 KB	DAT File
setup.bmp	185 KB	BMP File
Setup.exe	70 KB	Application
SETUP.INI	1 KB	Configuration Settings
setup.ins	58 KB	Internet Communication Settings
setup.lid	1 KB	LID File

Click on the Setup application and proceed to the following section entitled Installation for further instructions.

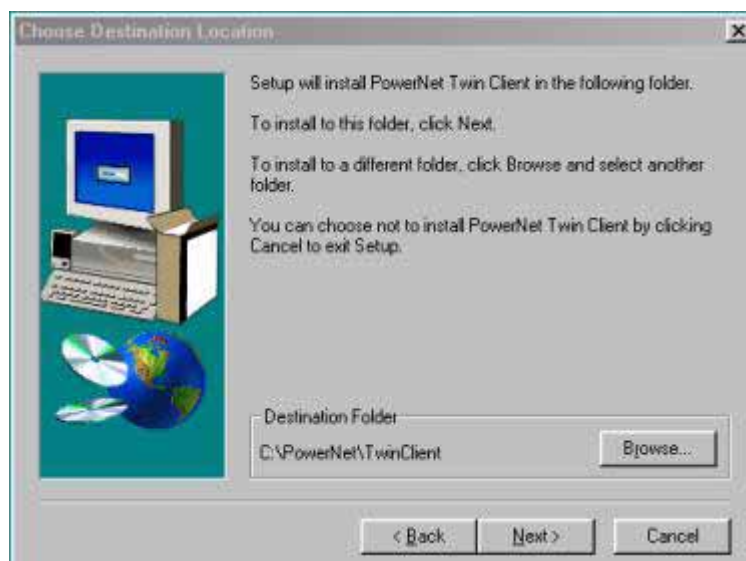
Note: If a previous version of PowerNet Twin Client exists on your system, un-install it, reboot your computer, and verify that the PowerNet Twin Client directory has been completely removed from your system.

Installation

The InstallShield wizard runs and presents the following screen:



Click on Next to begin the installation process. The Choose Destination Location window appears. The default folder is PowerNet. To change the default Destination Location, click on Browse and select a location. Then click on Next.



This default may be changed either by selecting an existing program group or by typing in a new name at the prompt. Then click on Next.



When the installation is complete, reboot the system to initialize the PowerNet software.

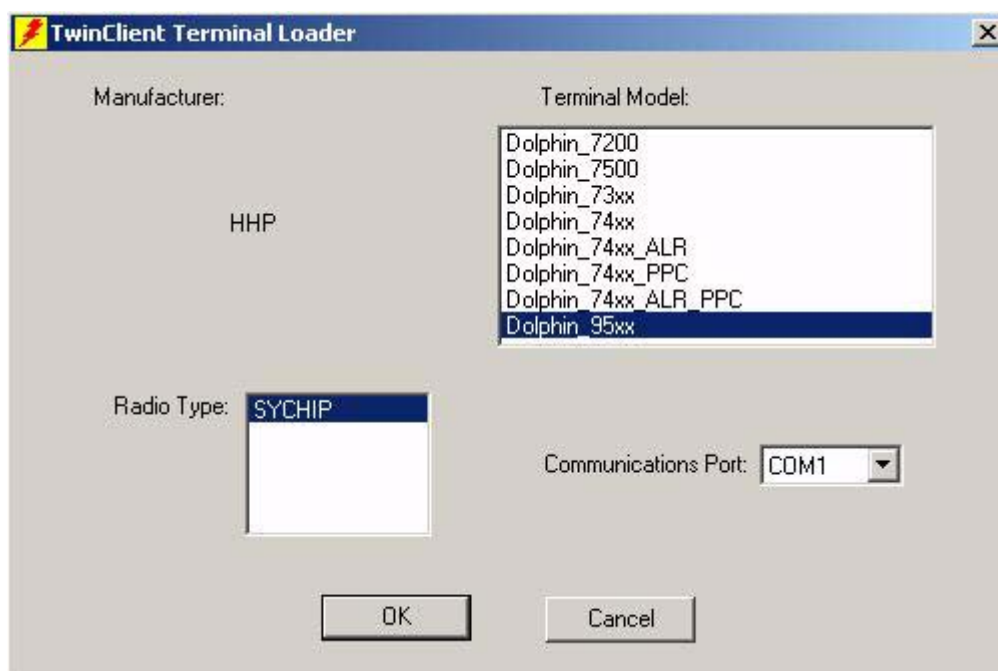
- a. To reboot the system immediately, click on Finish.
- b. To reboot later, click on <No, I will restart my computer later.> and then click on Finish.



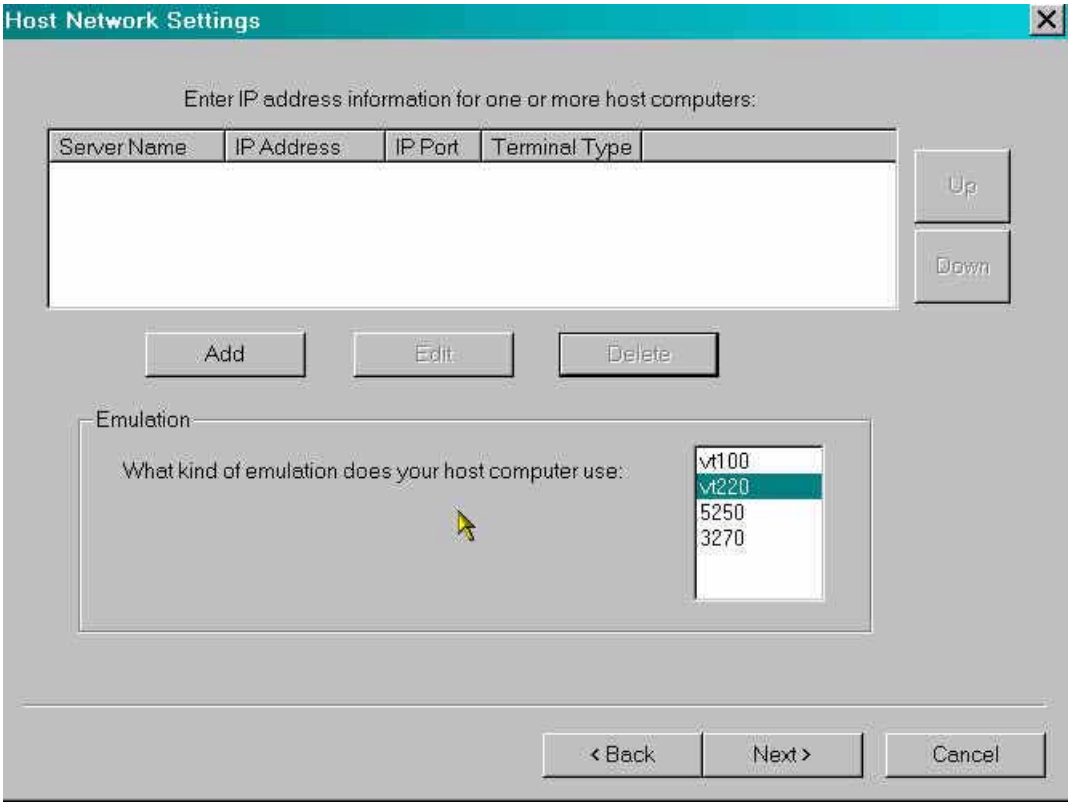
To run the TwinClient Configuration Wizard, click on Start>Programs>PowerNet>Twin Client Manager. From the File menu, choose Wizard. The TwinClient Configuration Wizard runs and presents the following screen:



Click on Next to begin the installation process. The following screen displays:



Choose the terminal model, radio type, and communications port, and then click on Next.



The **Host Network Settings** dialog box is used for configuring host computers. It features a table for entering IP address information, buttons for adding, editing, and deleting entries, and an emulation selection dropdown.

Enter IP address information for one or more host computers:

Server Name	IP Address	IP Port	Terminal Type

Buttons: Up, Down, Add, Edit, Delete

Emulation: What kind of emulation does your host computer use:

- vt100
- vt220
- 5250
- 3270

Navigation: < Back, Next >, Cancel

Enter the IP address information and choose the emulation. Then click on Next.



The **Authorization** dialog box displays system information and provides options for managing authorization. It shows the system ID, client version, and a status message indicating the system is not currently authorized. It includes buttons for applying, adding licenses, transferring authorization, listing, and closing, as well as a section for authorized terminals.

Your System ID is: 98E30555

Twin Client version: 7.3.0

Enter your Authorization Code below:

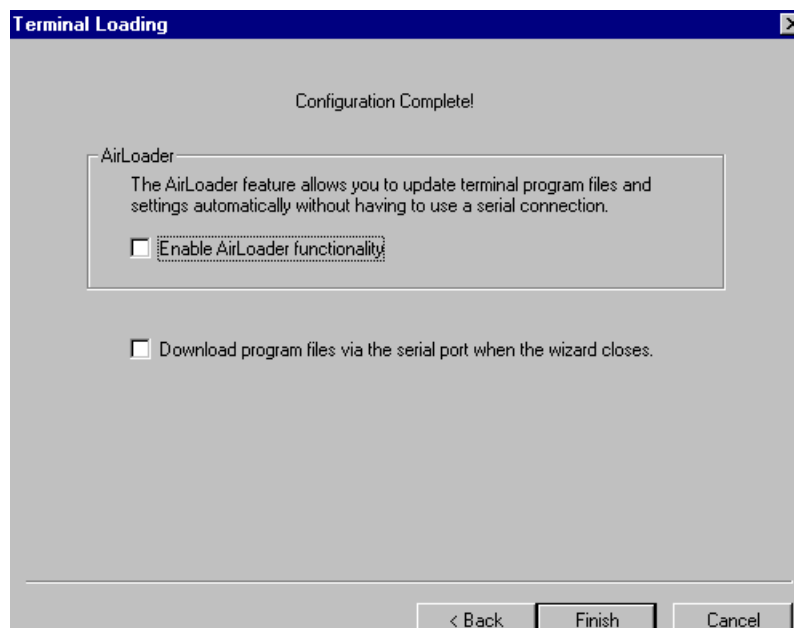
The system is NOT currently authorized

Authorized Terminals:

- Total Authorized: 0
- In Use: 0
- Remaining: 0

Buttons: Apply, Add Licenses, Transfer Authorization, Listing..., Close, Details..., Manual Authorization...

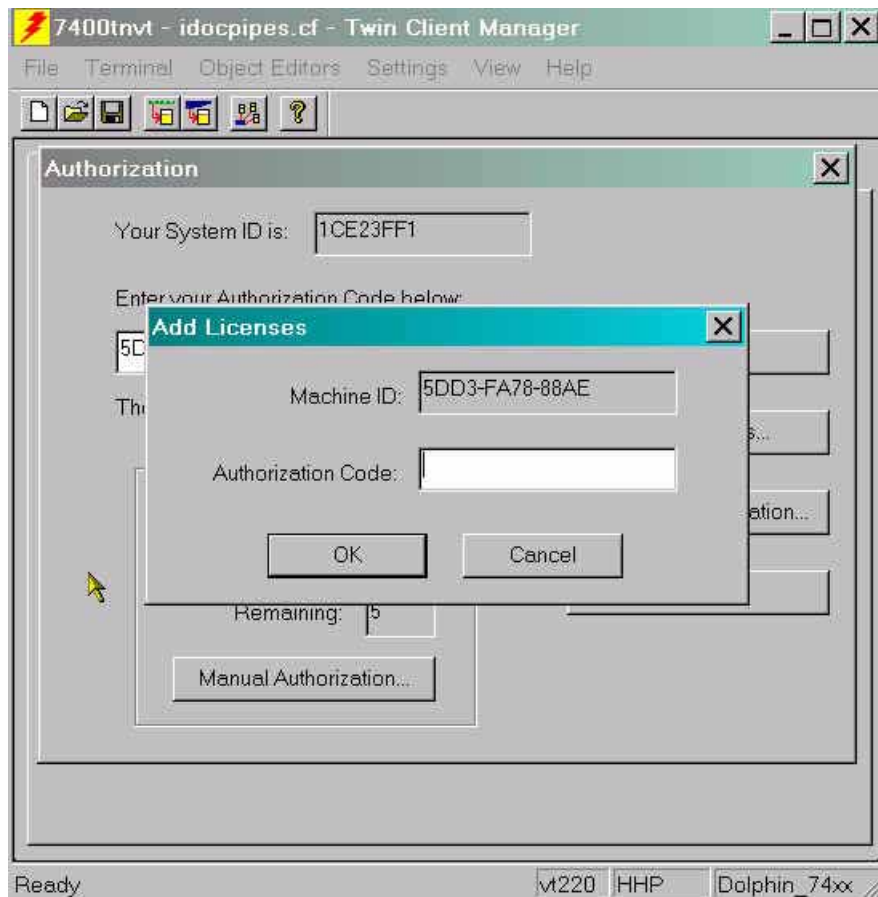
Enter the authorization code, or choose the Enable AirLoader functionality feature on the next screen to load the individual authorization codes for each terminal onto the terminal automatically. Click on Next. The PowerNet Twin Client Manager and terminal files are then installed.



Enable the second box to download the program files via the serial port when the wizard closes. Click on Finish to reboot the system to initialize the PowerNet software.

Adding Licenses

This feature allows you to increase the number of users you are allowed to authorize locally.



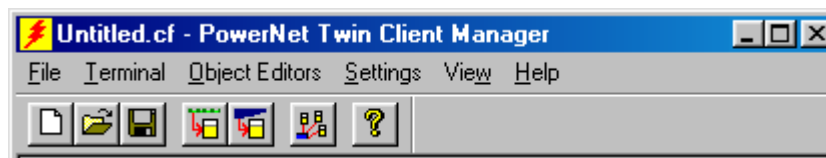
Transferring Authorizations

Transferring authorization allows you to move the remaining portion of your site license from one computer to another computer. Once the transfer is complete, the computer from which authorization was transferred will no longer be able to authorize terminals. The new computer will be able to authorize the number of terminals remaining on the existing site license.

Running the Manager

The PowerNet Twin Client Manager is the utility that manages the terminal software and configurations.

Select **Start>Programs>PowerNet>TwinClient Manager**. The PowerNet Twin Client Manager screen appears as shown in the following figure. This is the administrator's main screen; and all functions are accessed from its menu bar, tool bar, and tabs.










Menu Bar

The menu bar provides access to the functions used to configure the terminals and manage their software. Subsequent chapters of this manual explain each menu and its options.

Toolbar

Under the menu bar, the tool bar provides shortcuts to major features. The toolbar can be turned on or off by changing the Toolbar parameter found on the View menu. The shortcuts available from the toolbar are as follows:

	Create a new terminal configuration.
	Open an existing terminal configuration.
	Save the current terminal configuration.
	Download the configuration to terminal.
	Download software to terminal.
	Automatically configure terminals over the wireless network.
	PowerNet Twin Client Manager version.

The PowerNet Twin Client Manager is now successfully installed and ready for use. [Chapter 3](#) provides detailed instructions for quickly configuring the terminal and starting a telnet session.

Quick Start

This chapter describes how to prepare the Twin Client Manager and the HHP terminal for a Telnet session with the host. Following an initial serial download, the terminal software and configuration is managed automatically, over the wireless network.

Note: HHP terminals are normally delivered with HHP files pre-installed. However, if the terminal does not have those files installed refer to [Software Management](#) beginning on page 8-1, before proceeding.

Configuring the Manager

The first step is to configure the Twin Client Manager to meet site-specific requirements, and then prepare it for the automatic management of the terminal software and IP addresses. This simple procedure will require only a few minutes to complete.

Setting the Emulation

1. Click **Start>Programs>PowerNet>Twin Client Manager**.
2. Click **Settings** as shown below.



3. Select **Emulation**.



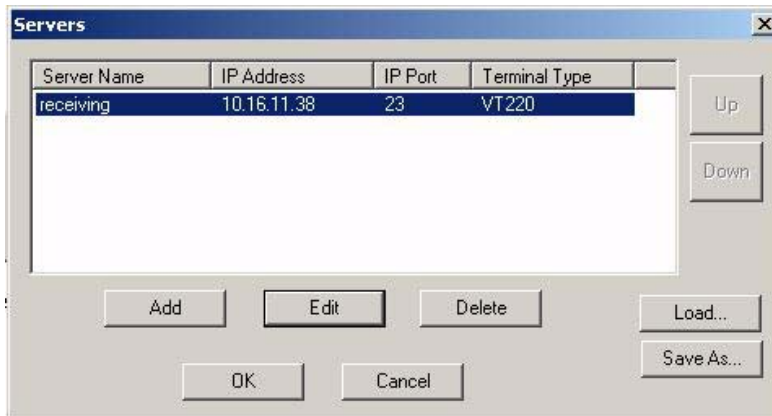
4. Select the desired emulation, then click **OK**.

Setting the Servers

The Servers are the Telnet host systems the terminals will access.



To set these addresses from the Settings menu, click on Servers and then click on Add. Enter the name of each server, its IP Address and IP port (normally 23 for Telnet servers), and emulation type. Then click OK.



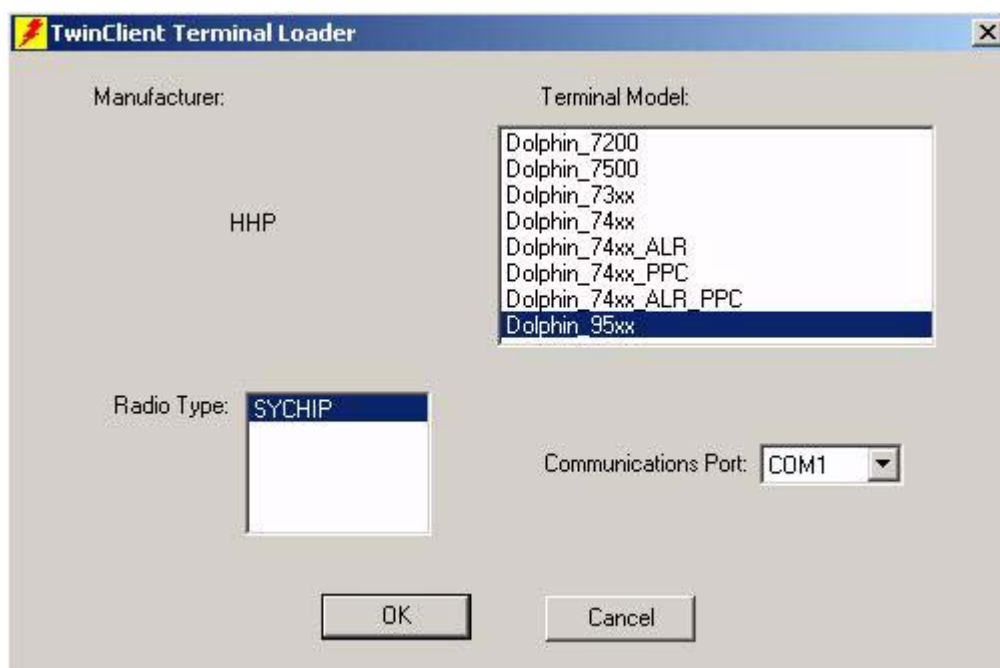
Repeat this step for each telnet server the terminals are required to access. If an error is made in the name, IP Address, IP Port number, or Terminal emulation type, click on the line that is in error and then click on the Edit button to make the corrections.

Setting Terminal Model and COM Port

To select a specific HHP terminal model and keypad, or to change the COM port assignment, click on the Options menu as shown.



To maintain compatibility with existing HHP Telnet client keyboard layouts, a specific terminal model and keypad must be selected from the Terminal Model window.

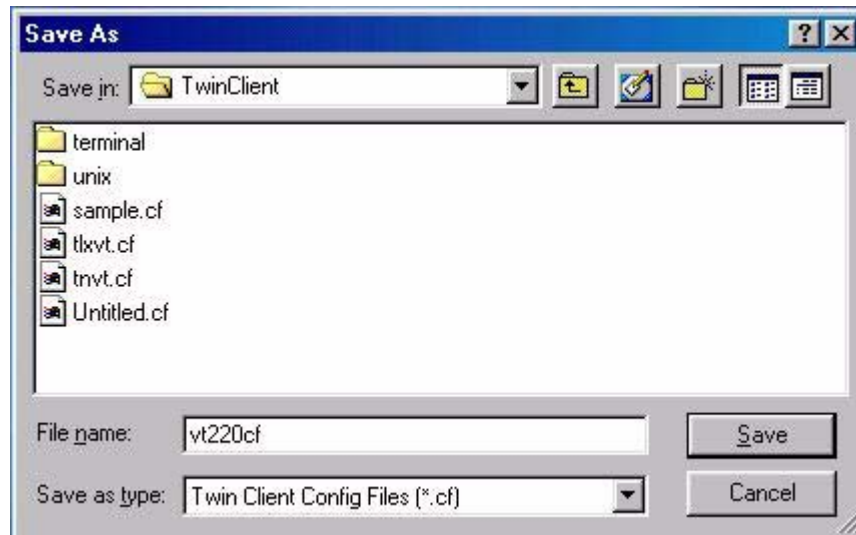


Saving the Configuration

Click File, Save As, and enter a name for this configuration.



For the purposes of this example, the name is VT220.



Configuring the Terminal for Download

HHP terminals are delivered with system software. For additional information concerning system software, refer to “Software Management” on page 1 before proceeding.

The terminal is prepared for the addition of PowerNet by booting to safe mode, selecting the program loader on the terminal, and setting the serial port parameters as described in this section. This simple procedure is described in the following sections, and requires only a few minutes to complete.

Connecting the Terminal for Download

For Dolphin 7200 and 74XX devices, the terminal download requires a serial connection between the terminal and the PC. For Dolphin 95XX devices, the terminal download requires a either a serial or a USB connection.

Connect the terminal either directly to the PC using a serial/USB cable or via an HHP charging/communication cradle such as a HomeBase. If a HomeBase is being used, make sure it is connected to the serial/USB port on the PC.

Command Mode Safe Boot

See the chart below for the key sequences for booting the 7200 and 7500 terminals to safe mode. Note: The reboot keys always restart the terminal. However, the <on scan> key must be depressed while rebooting for the 7200 or 7500 terminal to come up in safe mode.

Table 1: Command Mode Safe Boot Sequences

Terminal Model & Keypad	Key Sequence
7200, 7500	To exit to DOS prompt from main screen, press <shift> to view uppercase mode, press <C> for Edit Functions screen, press <F2> to Exit, and press <enter> . Press <shift> <bksp> and <on scan> keys simultaneously, then release. Press and hold <on scan> key until terminal finishes rebooting
74XX/95XX	Press Shift and Ctrl keys simultaneously, hold for 10 seconds, and release (often referred to as warm boot).

Cold Booting the Terminal

Table 2: Cold Boot Sequences

Terminal Model & Keypad	Key Sequence
7200, 7500	To exit to DOS prompt from main screen, press <shift> to view uppercase mode, press <C> for Edit Functions screen, press <F2> to Exit, and press <enter> . Press <shift> <bkspace> and <on scan> keys simultaneously, then release.
74XX/95XX	Press ESC and CTRL keys simultaneously, hold for 10 seconds, then release. (Often referred to as cold boot.)

Downloading from the HomeBase to the Dolphin 7200

Run the Dolphin Wizard step 1 to set the baud rate to 57600. Also in the Dolphin Wizard, perform step 6 to install the TCP/IP stack.

The terminal then associates with an access point, contacts the Twin Client Manager, and then downloads the program, configuration, and IP address of the terminal.

During the download, progress messages are displayed on the terminal. Pauses in activity of up to 10 seconds will be observed as the terminal writes to FLASH. The download requires approximately 2 minutes to complete. The following table describes the error messages that will be displayed on the terminal in the event of a download failure, and can be used as a guide to correcting the problem.

Error Indication	Possible Cause	Corrective Action
NOT Associated	Invalid Security ID	Run RFSETUP and set Security ID to match the access point. See Chapter 4 for instructions.
No AirLoad Manager Found	AirLoad Manager not active, or not installed on the LAN segment	Ensure that the PC with Twin Client Manager is on the same segment and that the PC is operating. If the PC is not on the same segment, enter the address of the PC in response to the terminal prompt.
Manager not Active	Previously identified AirLoad Manager is no longer found.	Same as above.
Unable to open connection	IP stack on terminal failed to load.	Reload HHP driver files.
Timeout waiting for data	Transient communications failure Reboot terminal.	If problem persists, check the RFSYNC.log in the PowerNetTN directory.
Download aborted	Socket closed during download	Ensure PC is operating. Reboot terminal and retry.
Manager inactive	PC not operating	Restart the PC.

After taking the corrective action, the terminal must be cold booted again. A successful wireless connection and download is indicated by the display of the PowerNet main menu shown below:

```
TwinClient, TNVT  
©1991-2001,  
Connect
```

```
Any Key To  
Continue
```

The terminal is now ready to establish a Telnet session with the host system.

Standard Setup

The default terminal setup is sufficient for most installations. However, to meet site-specific requirements it may be necessary to customize terminal operation. The standard setup options simplify this process and can be modified using any one of the following methods:

- Using the Twin Client Manager.
- Using the PowerNet terminal menu system.

This chapter describes how to use the Twin Client Manager, the terminal menu systems, and barcodes to setup the terminal. Also described are the methods for authorizing the terminal software.

Standard Settings

The Twin Client Manager provides a Standard Settings tab for automatic setup of the terminals. The options within this tab vary according to the emulation selected, each of which is described in the following sections.

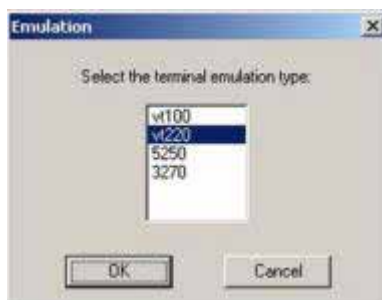


VT Settings

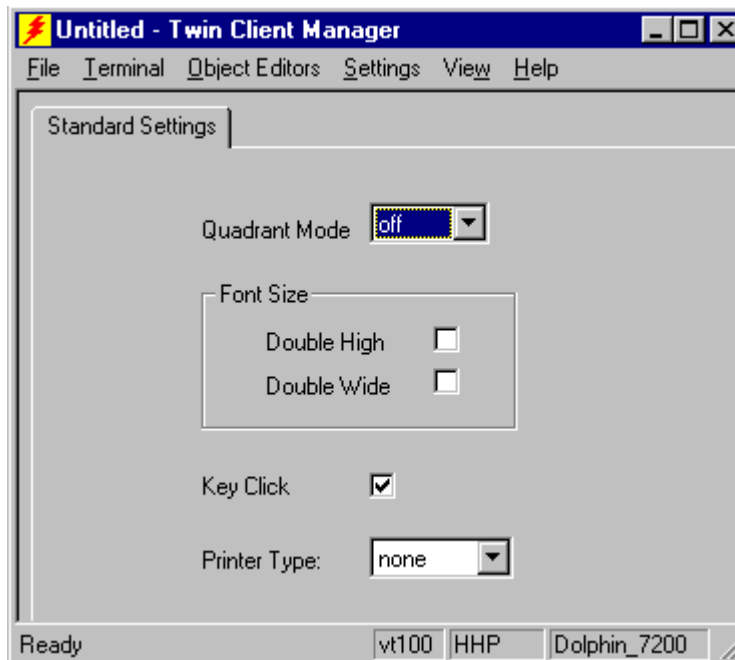
Select the VT emulation setup by clicking on the Settings menu and then the Emulation menu, as shown below.



Then click on the VT100, or VT220, as shown below.



Click on OK after the selection is made, and return to the main Twin Client Manager menu. The standard settings tab will now reflect the settings for VT emulation.



Quadrant Mode



This scrolling list option defines the rules by which the terminal display is positioned in the larger host display. As defined by Twin Client, quadrants are fixed position "windows" in the host display, and the terminal display is located on whatever quadrant contains the current cursor position.

Font Size

These check boxes enable (checked) or disable (un-checked) the display of characters in double high and double wide font.

Key Click

This option is used to automatically transmit a keystroke to the VT100 host when the VT100 field matches the selected attribute. The automatic keystroke generation can be based on whether the input is scanned, or keyed, or both.

Printer Type

This scrolling list selects the attached printer type. The default value is none, indicating no printer is attached.

5250 Settings

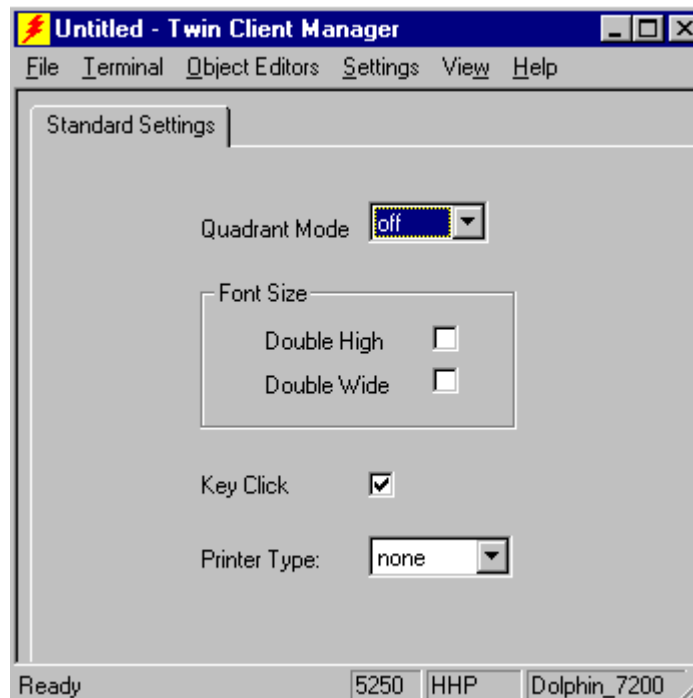
Select the 5250 emulation setup by clicking on the Settings menu and then the Emulation menu, as shown below.



Then click on the 5250 selection, as shown below.



Click on OK after the selection is made, and return to the main Twin Client Manager menu. The standard settings tab will now reflect the settings for 5250 emulation.



Quadrant Mode

This scrolling list option defines the rules by which the terminal display is positioned in the larger host display. As defined by Twin Client, quadrants are fixed position "windows" in the host display, and the terminal display is located on whatever quadrant contains the current cursor position.

Font Size

These check boxes enable (checked) or disable (un-checked) the display of characters in double high and double wide font.

Key Click

This option is used to automatically transmit a keystroke to the 5250 host when the 5250 field matches the selected attribute. The automatic keystroke generation can be based on whether the input is scanned, or keyed, or both.

Printer Type

This scrolling list selects the attached printer type. The default value is none, indicating no printer is attached.

3270 Settings

Select the 3270 emulation setup by clicking on the Settings menu and then the Emulation menu, as shown below.



Then click on the 3270 selection, as shown below.



Click on OK after the selection is made, and return to the main Twin Client Manager menu. The standard settings tab will now reflect the settings for 3270 emulation.



Quadrant Mode

This scrolling list option defines the rules by which the terminal display is positioned in the larger host display. As defined by Twin Client, quadrants are fixed position "windows" in the host display, and the terminal display is located on whatever quadrant contains the current cursor position.

Double High and Double Wide Font

These check boxes enable (checked) or disable (un-checked) the display of characters in the double-high and double-wide fonts.

Key Click

This option is used to automatically transmit a keystroke to the 3270 host when the 3270 field matches the selected attribute. The automatic keystroke generation can be based on whether the input is scanned, or keyed, or both.

Printer Type

This scrolling list selects the attached printer type. The default value is none, indicating no printer is attached.

Terminal Setup Using PowerNet Menus

The Twin Client terminal software provides an internal menu system for configuring certain parameters on the terminal and for switching between "thin" and "thick" mode of operation. To access this menu system, press uppercase C at the startup screen as shown in the following figure.

```
PowerNet
©1991-2001, Connect, Inc.

Any Key to Continue
```

Use the UP-ARROW and DOWN-ARROW keys to navigate the menu, and press ENTER to select the highlighted option. Each menu option is described in the following sections.

Edit Mobile Unit IP

Note: This applies only to the 7200 terminal.

The IP list contains the terminal IP address, the Subnet Mask and the Router IP address. Enter the appropriate address and select <F3> to save and/or <F7> to Quit.

```
IP      206.232.71.38
SN      255.255.255.0
RT      206.232.71. 1

<F3> Save    <F7> Quit
```

Edit Server/Host IPs

If the host IP address or addresses were not pre-configured as described earlier in the section Setting the Servers, or if you wish to change those settings using the terminal menus, select Edit Host List and enter up to four Host IP addresses as required.

```
Host 0
IP 206.183.67.155
Port 23

<F3> Save    <F7> Quit
```

Press <F3> to save the configurations.

Edit Radio Option

Note: This applies only to the 7200 terminal.

This function acts as a password to join the radio network. Terminals associating with an Access Point must supply a matching value, determined by their configurations, or their association requests will be ignored.

```
ID
tsunami_____

<F3> Save      <F7>
Quit
```

Edit the Authorization/License Key

The client software can be authorized automatically, as described in the next section. This menu option permits authorization of each terminal manually. Select Edit Authorization to obtain the terminal's Identification Code, which is then used to obtain the Authorization code from the Connect web site as described in the next section.

The 12-digit hexadecimal value displayed at the top of the terminal screen is the Identification Code for the terminal.

```
00A0F826E614
Authorization
-----
-----
-

not authorized
```

Type the authorization code into the field as it appears on the WEB site. Punctuation characters, such as the hyphen (-), are required. Press <F3> to save the authorization code.

Switch Client Modes

The PowerNet Twin Client normally operates in "thick" mode, which provides direct connection to Telnet hosts. It can also operate in "thin" mode, through a PowerNet OpenAir server. Select the Switch Modes menu option to switch between thin and thick modes of operation. Note that the host port address for the PowerNet OpenAir servers is 1800, which must also be changed in the Edit Host List menu described at the beginning of this section.

Run Client Emulator

After all desired changes have been made, select the Run Emulator option to return to the PowerNet main menu. Then press any key to establish the Telnet session and begin emulation. Refer to [Chapter 3](#), for further instructions on starting a telnet session.

Authorizing PowerNet

Each PowerNet Twin Client will run for 30 minutes at a time without authorization. Uninterrupted operation for a production environment is the result of authorizing the software. Authorization codes are obtained from HHP. Please contact your local HHP sales representative for details.

Manual Authorization

The procedure for manually setting the Authorization code on the terminal is described in the previous section entitled Editing the Authorization.

Advanced Setup

The PowerNet Twin Client permits the customization of all aspects of terminal operation without custom programming. This chapter describes all of the advanced setup options. Additional advanced customization features, using the Object Editors, are described in Chapter 6.

Experienced HHP installers accustomed to performing customizations by manually-editing the HHP Telnet client configuration file will find this interface easier to use. However, those who prefer the file editing method can still do so, and still achieve the same result, by using the **Import** option described in the previous chapter.

Selecting the Advanced Setup

The Twin Client Manager is installed in the Standard Setup mode. To change to the Advanced mode, click on the **View** menu and then on **Advanced**.



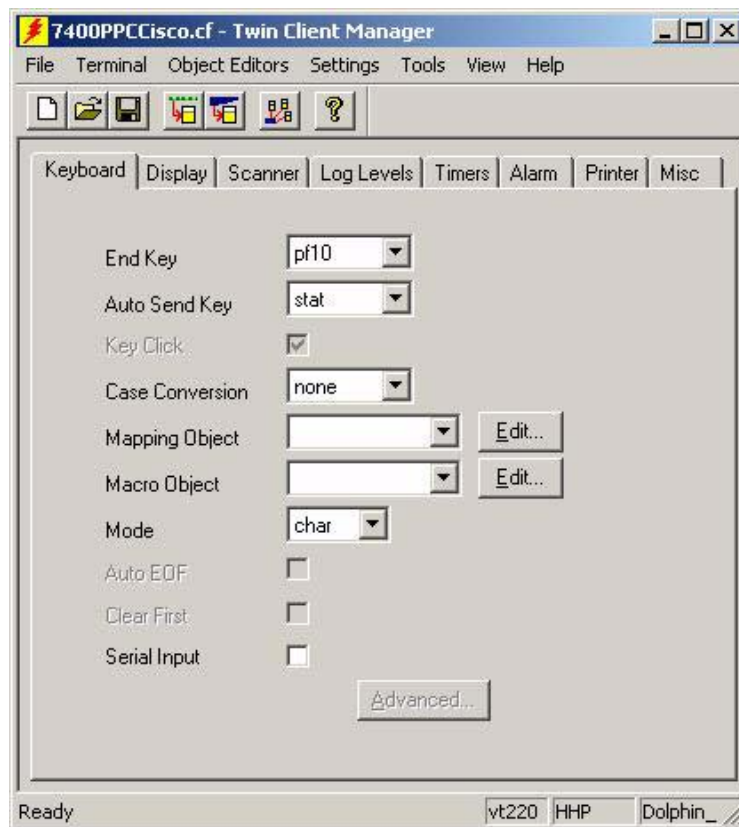
As a result, a new set of tabs is displayed, as shown below.



The following sections in this chapter describe each of the tabs and the options within each tab.

Customizing the Keyboard

Clicking on the Keyboard tab displays the setup options related to the terminal keyboard and its operation.



End Key

This scrolling list selection is used to set the terminal key that terminates both the host connection and the wireless session. The default is **pf10**.

Auto Send Key

This scrolling list selection is used to set the keystroke to be sent automatically by the terminal when an input field on the terminal is filled with keyed input. That is, if an input field is 9 characters long, and 9 characters are manually keyed into the field, the Auto Send key is automatically transmitted with the 9 characters. The default is **tab**. Selecting **noop** disables this feature.

Note: Selecting the Length Check option on the Scanner tab disables the Auto Send Key.

Key Click

This check box enables (checked) or disables (un-checked) audible key clicks from the terminal. Default is on (checked).

Case Conversion

This scrolling list selection allows automatic conversion of keyed input to upper or lower case. The default value is none, meaning no conversion takes place.

Mapping Object

This feature of PowerNet Twin Client allows for custom keyboard development. For example, the tab key can be changed to generate a pf4. This is an advanced integration tool and its use is described in Chapter 6.

Macro Object (VT Only)

This feature is used to assign a key sequence to a specific terminal key. For example, the PF1 key can be set to generate a sequence such as receiving. This is an advanced integration tool and its use is described in Chapter 6.

Mode (VT Only)

This scrolling list selection controls the transmission characteristics of the VT emulations. In char mode, each keystroke generates an individual transmission. In block mode, a transmission takes place only after a control key, such as ENTER or a PF key, is depressed. The block mode is more efficient. Refer to [See "Advanced Display Options for VT" on page 19](#), for more details on setting block mode operation.

Auto EOF (3270 only)

This check box option enables (checked) or disables (un-checked) the automatic erasure of all data in a field prior to keyed or scanned data input. The default value is disabled (un-checked).

Clear First (3270 only)

This check box option enables (checked) or disables (un-checked) the automatic erasure of all data in a field prior to keyed or scanned data input. The default value is disabled (un-checked).

Serial Input

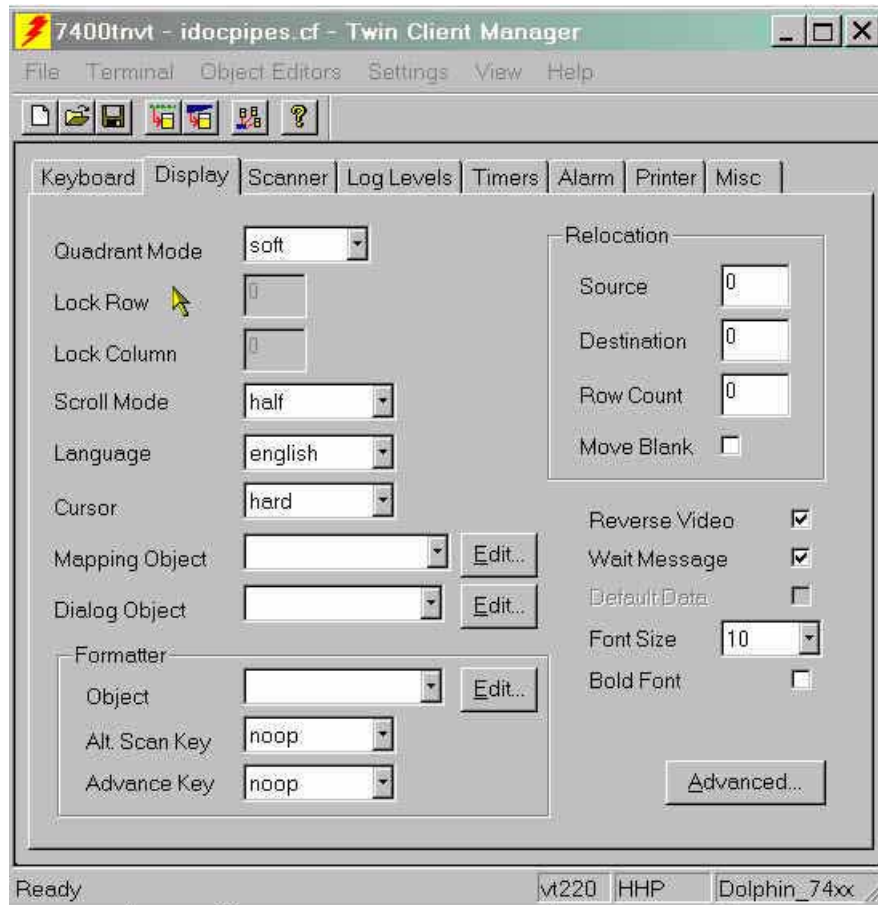
This check box is used to accept input from the serial port of the Dolphin 7300/74XX/95XX (e.g., input scanner [3800])

Advanced (3270 only)

Clicking the Advanced button brings up the Advanced 3270 Keyboard screen and provides a variety of special key generation options. This is an advanced integration tool and its use is described in Chapter 6.

Customizing the Display

Clicking on the Display tab shows the options related to the terminal display and its operation.



Quadrant Mode

This scrolling list option defines the rules by which the terminal display is positioned in the larger host display. As defined by Twin Client, quadrants are fixed position "windows" in the host display, and the terminal display is located on whatever quadrant contains the current cursor position.

Off disables quadrant processing and Twin Client simply centers the current host input field in the terminal display.

On enables quadrant processing. However, input fields that cross quadrant boundaries result in a shift to the left in order to locate as much of the current input field on the terminal display.

Soft always positions on a quadrant boundary regardless of input field boundaries. Viewing keys are enabled.

Hard is the same as Soft except the viewing keys are disabled.

Lock locks the terminal display origin (upper left corner) to fixed row and column (x,y) coordinates in the host display. The coordinates are zero-based.

Lock Row Defines the Y coordinate for display position locking. Range is zero (0) to maximum number of rows on the host screen. Default is zero (0).

Lock Column Defines the X coordinate for display position locking. Range is zero (0) to the maximum number of columns on the host screen. Default is zero (0).

Scroll Mode

This scrolling list option selects the rule used for moving the terminal display within the host display using the viewing keys.

Half scrolls the terminal display in half-screen increments. For example, given a 16-column screen, the screen is scrolled left and right 8 columns at a time.

Full scrolls the terminal display in full screen increments. For example, given a 16-column screen, the screen is scrolled left and right 16 columns at a time.

Language

This scrolling list option selects the display character mapping and the translation table used for error messages displayed on the terminal. The default value is English. The file `umsgs.txt`, which is installed with PowerNet Twin Client, contains all of the current language translations.

Cursor Appearance

This scrolling list option selects the manner in which the cursor is displayed on the terminal. The default value is hard.

Type Appearance

Soft	Blinking Underscore (_)
hard	Blinking Block n
hide	None

Mapping Object

This feature is used to modify the displayed character set. This is an advanced integration option and its use is described in [Advanced Integration](#) beginning on page 6-1.

Dialog Object

This feature is used to build session automation scripts, and is an advanced integration option described in Chapter 6.

Formatting

This feature is used to re-format the host display onto the terminal display. This is an advanced integration option and is described in [Advanced Integration](#) beginning on page 6-1.

Relocation Group

This option group allows rows of the host display to be relocated automatically. This option is particularly useful when the application generates important error messages on a specific row that is not necessarily within the terminal's display area.

Source

Defines the starting row (zero-based) in the host display that is relocated to the destination row of the host display. The default is zero (0).

Destination

Defines the starting source row location (zero-based) in the host display. Default is zero (0).

Row Count

Specifies the number of host display rows to be relocated, starting with the row defined by the Source option and continuing from top to bottom of the display. The default, zero (0), disables row relocation.

Move Blank

This check box enables unconditional relocation (checked), or enables relocation only when data is present on the source row or rows (un-checked). The default is un-checked.

Reverse Video

This check box enables (checked), or disables (un-checked), the processing of the reverse video display attribute on the terminal. The default value is on (checked).

Wait Message

This check box enables (checked), or disables (unchecked), the display of the message Waiting for Data on the terminal display. This message is used to indicate that the terminal has transmitted data to the host application and is waiting for a response. The default value is enabled (checked).

Default Data (3270/5250 only)

This check box enables (checked), or disables (unchecked), editing of data present in the current input field prior to entry of new data by the terminal operator.

Double High and Double Wide

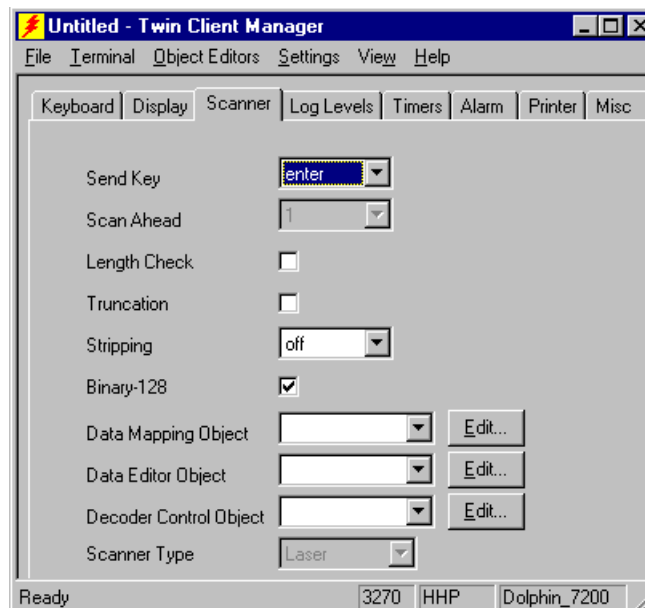
These check boxes enable (checked), or disable (unchecked), the display of characters on the terminal screen in double high and double wide fonts, respectively.

Advanced (VT only)

This button accesses setup options for controlling all aspects of VT display attribute mapping and masking. This is an advanced integration tool and its use is described in [Advanced Integration](#) beginning on page 6-1.

Customizing the Scanner

Clicking on the Scanner tab shows the options related to the terminal scanner and its operation.



Send Key

This scrolling list option defines the control key automatically transmitted with scanned data. The list of keys depends on the type of emulation in use. The noop key indicates that no automatic control key will be sent. The default value is ENTER.

Scan Ahead

This feature is not supported on HHP Dolphin terminals.

Length Check

This check box option enables (checked), or disables (unchecked), scanned input data length checking. When this option is enabled and the scanned input data exceeds the length of the input field, an error message is automatically generated on the terminal and the data is not transmitted. The default value is disabled (unchecked).

Note: Enabling Length Check disables the Truncation option (described below).

Truncation

This check box option enables (checked), or disables (unchecked), the automatic truncation of scanned data that is greater than the length of the input field. With both Truncation and Length Checking disabled, oversized scans are automatically applied to subsequent input fields as needed. If either option is enabled, this automatic application is disabled. The default value is disabled (unchecked).

Stripping

This scrolling list option controls the rule for automatically removing trailing spaces and underscore characters. The rules are defined as follows:

Rule	Operation
off	No stripping is performed.
space	Trailing spaces are stripped.
score	Trailing underscores are stripped.
both	Both trailing spaces and underscores are stripped.

Binary-128

This check box enables (checked), or disables (unchecked), the processing of binary code 128 bar codes on the terminal. The default value is enabled (checked).

Caution: If this option is disabled and binary-128 barcodes are used, the results are unpredictable.

Data Mapping, Data Editor, and Decoder Control

These are advanced integration tools and are described in Chapter 6.

Scanner Type

This scrolling list option defines the type of special scanner attachment in use, if present.

External Scanner Setup

RF terminals can be ordered with an Internal scanner or they can support an external scanner. The external scanner is connected to the bottom of the terminal through the serial port. This requires the RS-232 adapter be installed. The external scanner can be made to work even if an internal scanner is present. However, scanner decoder controls only apply to the internal scanner as the user only has access to the internal decoder.

The external scanner must be a serial based scanner. These are scanners that have on board decoder hardware/software and output their signals by normal RS-232 signaling methods. These external scanners are controlled by their respective manufacturers' program controls provided in the manual accompanying the scanner from the manufacturer.

The serial data stream, which the scanner outputs, needs to be in specific data format and speed. The RF terminal user manual has the setup for some popular scanners in this manual. It also includes the required bar codes to setup these scanners.

The following is an example of a setup for an RF terminal.

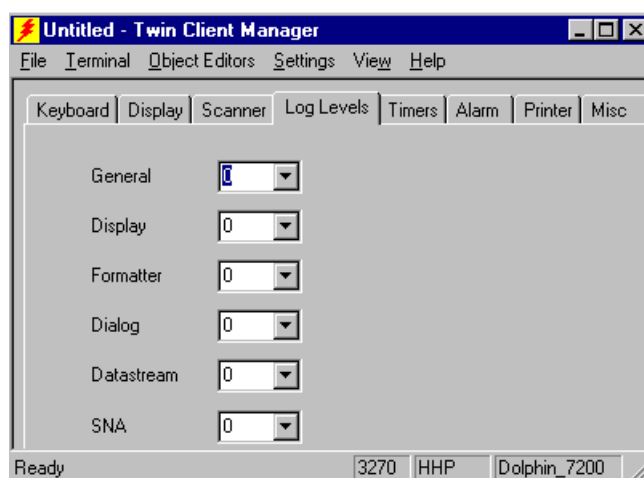
The order in which to set up the scanner is:

1 - (SET RS-232C DEFAULTS)

-
- 2 - (SET ALL DEFAULTS)
 - 3 - RS-232 HOST BAUD RATE (9600)
 - 4 - RS-232 HOST PARITY (NONE)
 - 5 - RS-232 HOST DATA TRANSMISSION FORMATS (<DATA><SUFFIX>)
 - 6 - RS-232 HOST PREFIX/SUFFIX VALUES (SUFFIX)
 - 7 - RS-232 HOST PREFIX/SUFFIX VALUES (<1><0><1><3>)

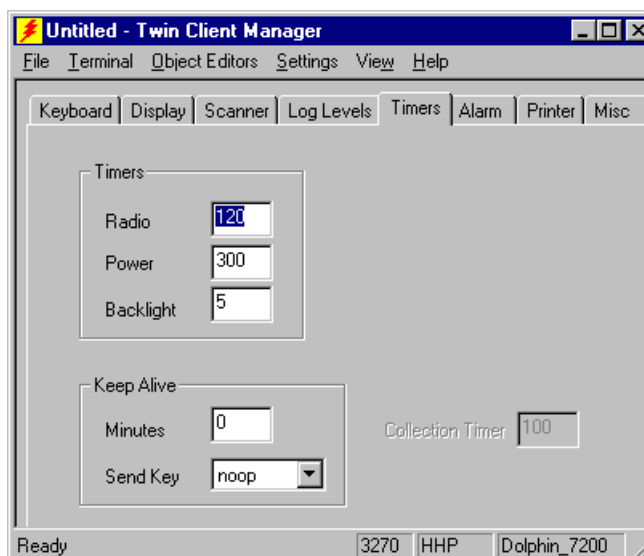
Setting Log Levels

The terminal maintains a logging facility that can be used by Technical Support and Engineering to assist in problem resolution. These levels should always be set to zero (0) and can be adjusted during a telnet session, using the PowerNet Vision network management tool.



Customizing Timers

Clicking on the Timers tab shows the options related to the terminal timers, as shown below.



Timers Group

Radio

This numeric input field defines the length of time, in seconds, during which the terminal activates the radio and waits for a response from the host application. After the time is exceeded, an error message is displayed on the terminal. The default value is 120.

Power

This numeric input field defines the length of the time, in seconds, after which inactivity of the scanner, keyboard, or radio results in a power saving shutdown of the terminal. The default is 300 (5 minutes).

Backlight

This numeric input field defines the length of time, in seconds, during which the terminal's display backlight remains on after keyboard or scanner input. When set to a value other than 0, the terminal turns on the backlight for the amount of time specified. Backlight use reduces battery life. The default value is 5.

Keepalive (3270/5250 only)

This option group circumvents host application connection timeouts by automatically generating the selected keystroke when the terminal is inactive for the specified period of time, in minutes.

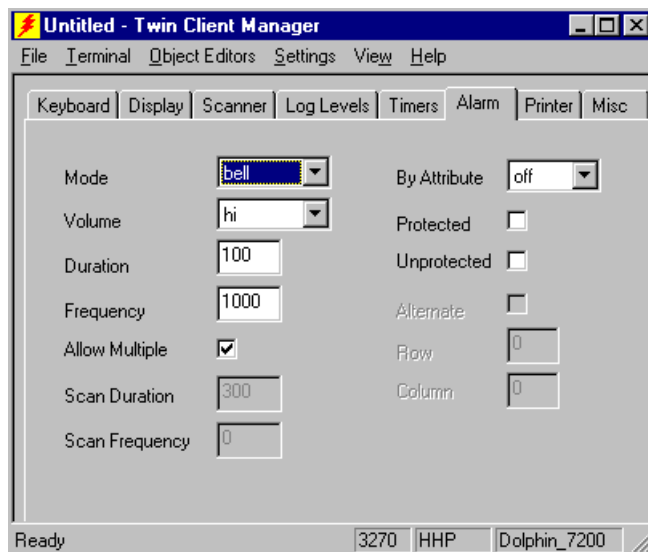
Collection Timer (VT only)

This scrolling list option specifies the number of milliseconds the terminal waits for inactivity from the host before processing received data. This feature is useful in situations where the application and network latency fragments host transmissions to the terminal, and also when host applications generate intermediate displays that are not used. The default value is 100.

Note: For maximum performance, adjust the collection time to 30-50ms when **Mode** on the **Keyboard** tab is set to **char**.

Customizing Alarms

Clicking on the **Alarm** tab shows the options related to the terminal alarm mechanisms, as shown below.



Mode

This scrolling list option defines the operation of the audible alarm and scanner light on the terminal. Default is **bell**.

- **Off** disables the audible alarm.
- **Bell** enables the audible alarm as a double beep.
- **Flash** enables the scan indicator light as the alarm - no audible alarm sounds.

-
- **Both** enables the double beep and the scan indicator light as the alarm.
 - **Spec1** enables the audible alarm as a single beep.
 - **Spec2** enables a single beep and the scan indicator light as the alarm.

Volume

This scrolling list option set the volume of the audible alarm. The default is setting is **hi**.

Duration & Frequency

The next two options, duration and frequency, are used to make a distinction between alarms and scan decode tones when the **Mode** is set to **spec1** or **spec2**.

Duration

This numeric entry field defines the length of the alarm sound in milliseconds. The default is 150.

Frequency

This numeric entry field defines the frequency of the audible alarm in Hertz. The default, zero (0) selects the terminal's factory-set default which is terminal model dependent. The default value is 2048.

Allow Multiple

This check box enables (checked), or disables (unchecked), multiple alarms in a single host transmission.

Scan Duration & Frequency

The next two options, scan duration and frequency, relate to the tones generated when the scan decoder successfully identifies a symbology.

Scan Duration

This numeric input field defines the duration of the tone generated by a successful scan decode, in milliseconds. The default is 300.

Scan Frequency

This numeric entry field defines the frequency of the scan decode tone in Hertz. The default, zero (0), selects the terminal's factory-set default which is terminal model dependent.

By Attribute (3270 only)

This scrolling list entry defines how 3270 field attributes can be used to generate alarms. The choices are off (the default), pen for the light pen attribute, num for numeric attribute, hi for high intensity attribute, and hal for high intensity and light pen attributes.

Protected

This check box enables (checked), or disables (unchecked), the processing of the field attribute into audible alarms for all protected fields on the display.

Unprotected

This check box enables (checked), or disables (unchecked), the processing of the field attribute into audible alarms for all unprotected fields on the display.

Alternate (5250 only)

This check box enables (checked), or disables (unchecked), the conversion of a single digit character at a specified row and column on the 5250 display into the corresponding number of audible alarms.

Row

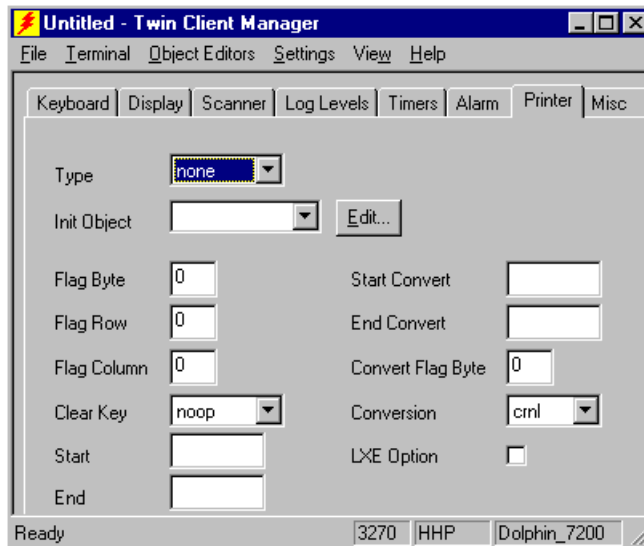
This numeric input field specifies the zero-based row number in the 5250 display of the alternate alarm digit.

Column

This numeric input field specifies the zero-based row number in the 5250 display of the alternate alarm digit.

Customizing Printers

Clicking on the Printer tab shows the options related to the terminal printer, as shown below.



Type

This scrolling list option defines the type of printer attached to the terminal. The default is none.

Init Object

This feature allows printer initialization commands to be sent to the terminal immediately after the terminal establishes a session. This is an advanced integration tool and is described in Chapter 6.

Flag Byte, Row, Column, and Clear Key (3270,5250 only)

This group of options provides 3270 and 5250 host application direct control over the terminal printer. See the [“Start and End \(3270 and 5250 only\)” on page 11](#) for an alternate method. VT/HP applications rely on standard escape sequences for the printing function.

Flag Byte

This numeric input field is a decimal value that corresponds to the ASCII-converted value of an EBCDIC character generated by the host application. When the Flag Byte is set to a non-zero value, the terminal checks the host display for the value at the specified row and column ([“Flag Byte, Row, Column, and Clear Key \(3270,5250 only\)” on page 11](#)). If the Flag Byte is present, all data in the display that follows the Flag Byte is routed directly to the printer, up to the next occurrence of a Flag Byte value in the display or else the end of the display.

Flag Row

This numeric input field specifies the row (zero-based, range of 0 to 23) where the Flag Byte (defined above) is located.

Flag Column

This numeric input field specifies the column (zero-based, range of 0 to 79) where the Flag Byte (defined above) is located.

Clear Key

This scrolling list option defines the keystroke transmitted by the terminal after printing has completed. Set the key to **noop** to disable transmission.

Start and End (3270 and 5250 only)

This option group provides the host application direct control over the terminal printer.

Start

Specifies a unique character sequence that, when encountered in the host display, indicates that all subsequent characters up to but not including the End character sequence are to be transmitted to the printer attached to the terminal. The default value is blank which also indicates that this option is not in use.

Note: The print data limit is 1.5 K.

End

Specifies a unique character sequence that terminates collection of data from the host display area for transmission to the printer attached to the terminal. The default value is blank which also indicates that this option is not in use.

Start and End Convert (3270/5250 only)

This option group provides for conversion of print data collected with the Start and End option group from ASCII characters in hexadecimal format (0-9 and A-F) to binary. The feature allows binary data that might otherwise interfere with the emulation to be included in the display area. The host application is responsible for generating the hexadecimal data.

Start Convert

Specifies a unique character sequence (ASCII-converted) within the print data collected with the Start and End options that indicates the subsequent character pairs are hexadecimal values that are converted to binary. A blank value, default, indicates this option not in use.

End Convert

Specifies a unique character sequence (ASCII-converted) that terminates binary conversion. Default, blank, indicates that this option is not in use.

LXE Option (3270/5250 only)

This check box enables (checked), or disables (unchecked) the processing of print data embedded in the datastream according to LXE printing rules.

Conversion Flag Byte and Conversion (3270 only)

This option group defines the conversion of a single character (Conversion Flag Byte) found in the 3270 print data, to a printer control sequence defined by the Conversion scroll list.

Convert Flag Byte

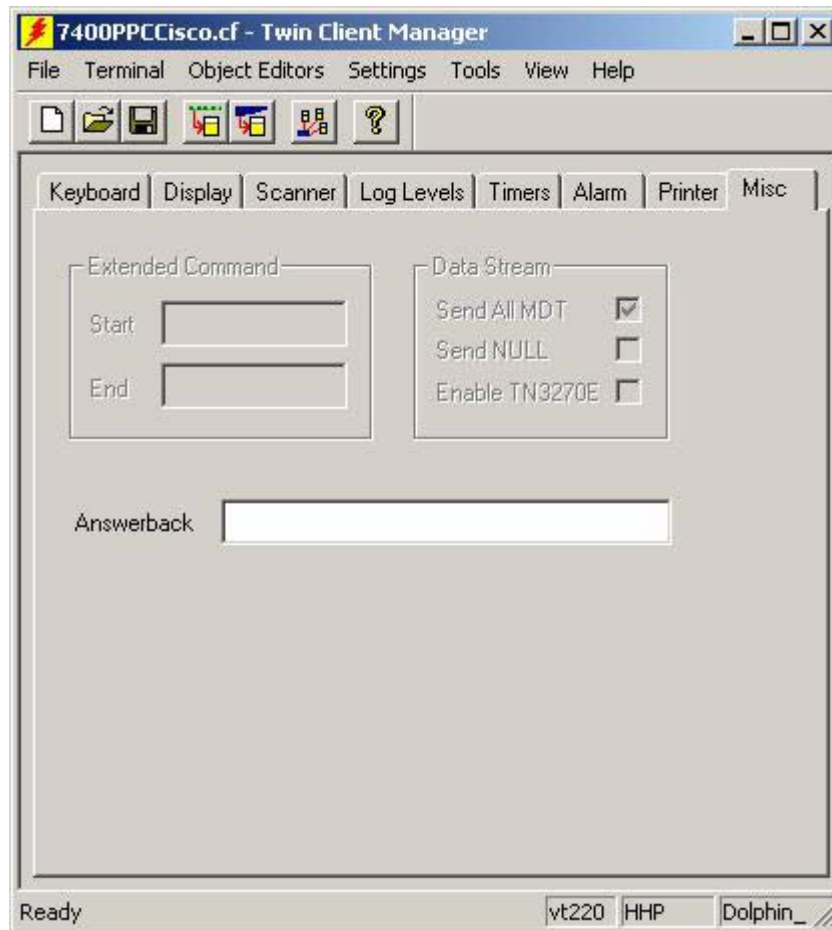
This numeric input field defines an ASCII value, in decimal, that will be converted to a printer control sequence as defined by the Conversion option. The default value is zero (0), which disables conversion.

Conversion

Specifies what the Flag Byte is converted to. The options are **crnl**, **cr**, and **nl** which represent ASCII carriage return new line, carriage return, and new line, respectively. The default value is **crnl**.

Miscellaneous Customizations

Clicking on the **Misc** tab shows the following options window:



Extended Command Group (3270 and 5250 only)

This option group provides 3270 and 5250 host applications with the same extended command set available to VT applications. See ["Extended Commands" on page 16](#) for a detailed description of the commands.

Start

Specifies a unique character sequence that, when encountered within the host display, indicates that all subsequent characters up to but not including the End sequence, are to be interpreted as an Extended Command. Default, blank, indicates that the option is not in use.

End

Specifies a unique character sequence that terminates the Extended Command.

Data Stream Group (3270 only)

Send All MDT

This check box enables (checked), or disables (unchecked) the transmission of all fields with the MDT (Modified Data Tag) bit set. When disabled, only unprotected fields are transmitted. The default is enabled, which transmits all fields with the MDT set.

Send NULL

This check box enables (checked), or disables (unchecked) the transmission of NULL characters to the host system. The default value is disabled. For AS400 hosts, this option must be checked.

Answerback (VT only)

This text input field defines the response returned to the host application when the answerback command (as defined under VT emulation) is received. If this value is left blank, the terminal automatically returns an ASCII string corresponding to the emulation in use (VT100 or VT220).

Non-graphic characters may be embedded in the answerback field using the escape sequence `\nnn`, where the backslash is followed by three digits representing the octal value. Refer to [ASCII Character Set](#) on page 9-7.

Inserting the sequences "\$A," "\$B," "C," and "D\$" into the answerback string results in a substitution of four octets, three octets, two octets, and the last octet of the terminal IP address, respectively, as shown below.

\$A - all four octets of the IP address (206.183.067.226)

\$B - the last 3 octets (183.067.226)

\$C - the last 2 octets (067.226)

\$D - the last octet (226)

Given a terminal with an IP address of 206.183.67.226, the following examples demonstrate how substitution and non-graphic escape sequences are processed.

Answerback	Data Sent in Response to Answerback Command
-------------------	--

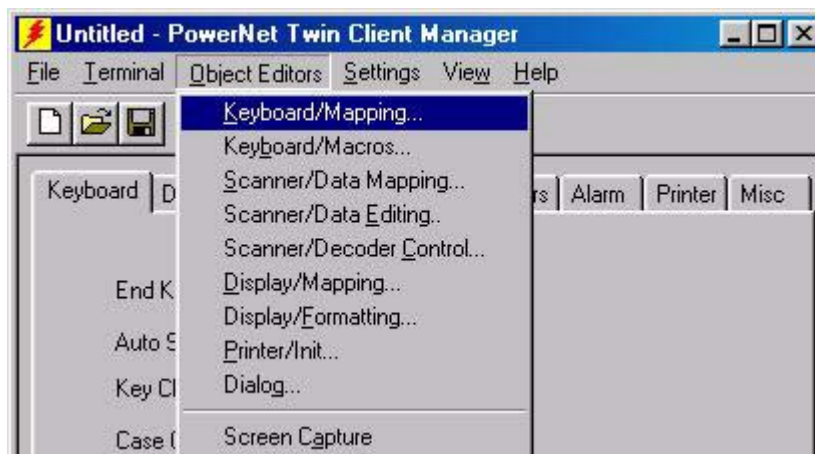
Hello World	Hello World
\$A	206.183.067.226
RF\$A	RF206.183.067.226
RF\$A\015	RF206.183.067.226<carriage return>
\$B	183.067.226
RF\$B	RF183.067.226
RF\$B\015	RF183.067.226<carriage return>
\$C	067.226
RF\$C	RF067.226
RF\$C\015	RF067.226<carriage return>
\$D	226
RF\$D	RF226
RF\$D\015	RF226<carriage return>

Advanced Integration

This chapter describes the use of the advanced integration features built in to the PowerNet Twin Client. These features make it possible to tailor Twin Client operation to meet special customer requirements without custom programming.

Integration objects are used to implement the PowerNet advanced integration capability. An editor is used to create and modify each object, and the objects are associated with a terminal configuration using the Advanced setup options described in the previous chapter. The objects then become part of the terminal's software configuration and as a result are supported by the powerful Auto-Configuration tools described in Chapter 8.

Clicking on the **Object Editors** menu.



The following sections describe the use of each object, how to create the object, and how to assign the object to a terminal configuration using the Advanced Setup options.

A detailed description of the Extended Commands, which are used by applications to dynamically control the terminal scanner and keyboard, is included in this chapter. The advanced emulation-specific configuration options referred to in the previous chapter are also described here.

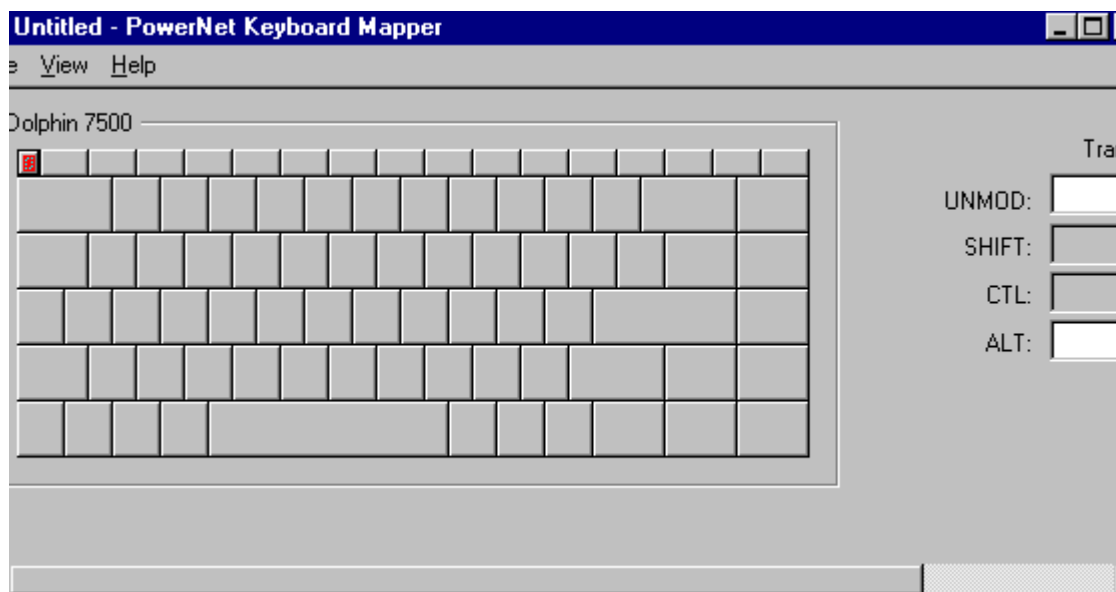
Keyboard/Mapping

The Keyboard/Mapping object is used to change the functionality of the terminal keyboard. This feature is most often used to simplify keyboard usage and reduce operator workload. It is also used to reduce re-training requirements when introducing new terminal models.

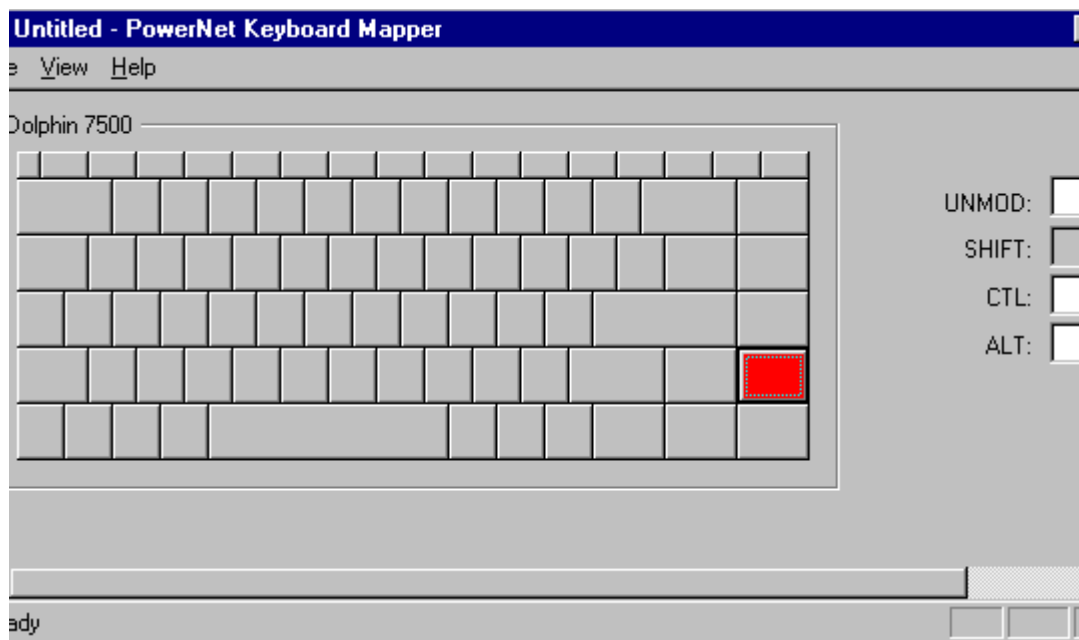
The need for keyboard mapping is a result of the size-restricted keypads common to all portable terminal devices. Compensating for the physical limitations, the manufacturer uses state modifier keys to expand the functionality of the keypad. As a result, many keys (e.g., the **UP-ARROW** key) require the operator to press two or more keys to emulate a single keystroke. Because many applications tend to rely heavily on a small group of keys, it is advantageous to map those frequently used keys to single key strokes, thus increasing both productivity and user acceptance.

Creating the Object

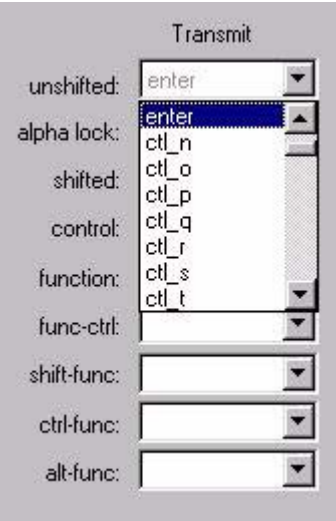
Create the object by clicking on **Object Editors**, then click on **Keyboard/Mapping**.



The Keyboard Mapper screen provides a mock-up of a keypad on the left side of the window, and options for key remapping on the right. By clicking on a key on the keypad mock-up, the available options that apply to that key appear on the right. For example, clicking on the key at the right side of this model changes the display as follows:



The first column on the right side of the window, entitled Transmit, defines the emulation key assigned to the highlighted keypad button in each of the available keyboard states (unshifted, shifted, alpha lock, etc.). Each modified key state is initially blank, indicating that the PowerNet default is in effect and no changes will be made to that key or its Mode of operation. Refer to [Keypad Configurations](#) beginning on page 10-1 for the table of default PowerNet key assignments for each HHP terminal.



After a key is selected, the Mode options change depending on the key selection. The Mode column defines the action taken by the selected key combination.



The table of mode options, and their effect, is as follows:

xmit	Transmits the key
noop	Disables the key
edleft	Non-destructive backspace (moves) to the left of the cursor within a field
edrite	Non-destructive space (moves) to the right of the cursor within a field
edbksp	Destructive backspace (moves) to the left of the cursor within a field
edeeof	Erases from current position to end of field
edefld	Erases entire field
lhelp	Displays terminal ID, date, time, and terminal software version number
scan	Activates the scanner

Saving and Assigning the Object

Save the object by clicking on File, Save As, and then enter a name. For the purposes of this example, the name is vt.



Then click on **Save**. Return to the PowerNet Twin Client Manager menus by clicking on the **X** button at the upper right corner of the Keyboard Mapper window.

Next, assign the object to a terminal configuration by opening a terminal configuration from the **Files** menu. Click on the advanced setup **Keyboard** tab, then on the **Mapping Object** list button, and finally on the object name.



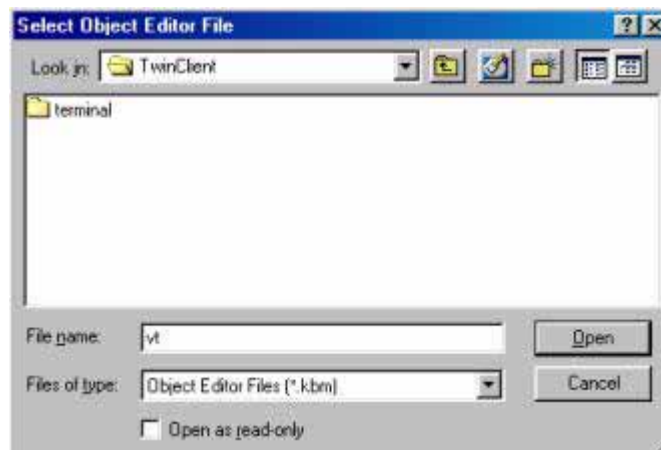
Save the updated terminal configuration by clicking on File, and then Save. The next time the terminal is cold booted, the new configuration will be downloaded automatically and the keyboard mapping will take effect.

Keyboard Macros

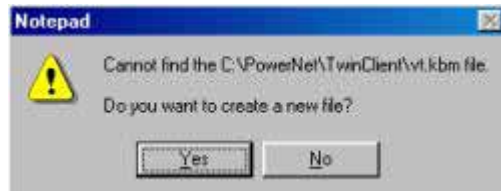
The Keyboard/Macro object is used to assign sequences of characters to the VT programmable function keys. Using this feature, strings of characters can be assigned to a single keystroke.

Creating the Object

Create the object by clicking on **Object Editors**, then **Keyboard/Macros**, and then enter a file name. For the purposes of this example, the name is vt.



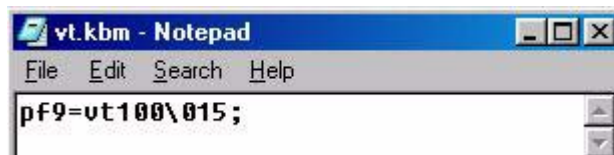
Click on the **Open** button, and then click on the **Yes** button to create the new file.



The Notepad utility is then invoked. The Keyboard/Macro object is a text file with one entry per line. Each entry uses the following format,

<keyname>=<macro string>;

where <keyname> is pf1 to pf24, and <macro string> is the macro text assigned to that specific key. For example, to assign the text "VT 100" followed by a carriage return to the pf9 key, the entry is:



Note: \015 represents the octal value for "carriage return". Refer to [ASCII Character Set](#) on page 9-7.

Saving and Assigning the Object

Save the object by clicking on File, then on Save, and then on Exit, which returns to the Twin Client Manager menu.

Next, assign the object to a terminal configuration by opening a terminal configuration from the Files menu. Click on the advanced setup Keyboard tab, then on the Macro Object list button, and finally on the object name.



Save the updated terminal configuration by clicking on **File**, and then **Save**. The next time the terminal is cold booted, the new configuration will be downloaded automatically and the keyboard macro will take effect.

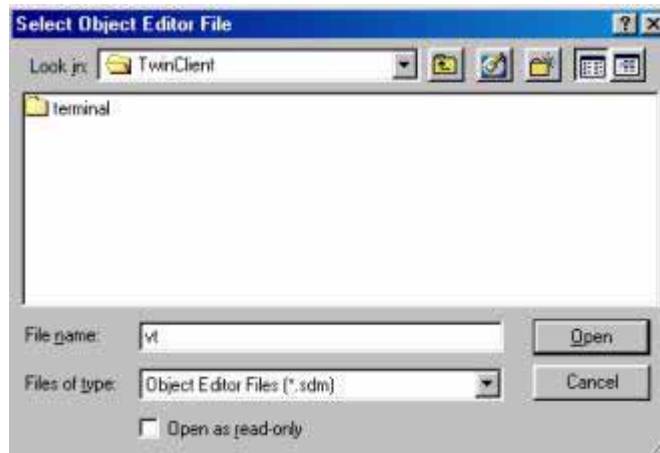
Scanner/Data Mapping

The scanner data mapping object defines barcode sequences that, when encountered in scanned data, are automatically converted to emulator keystrokes. This feature can be used to reduce or eliminate keyboard entry by the operator. That is, instead of pressing the PF3 key to access a help screen, the operator scans a barcode that is mapped to the keystroke.

Creating the Object

Create the object by clicking on Object Editors, then Scanner Data/Mapping, and then enter a file name. For the purposes of this example, the name is vt.

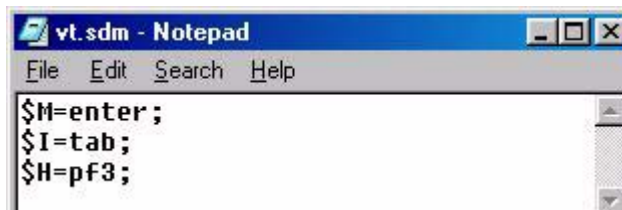
Click on the **Open** button, and then click on the **Yes** button to create the new file.



The Notepad utility is then invoked. The Scanner/Data mapping object is a text file with one entry per line. Each entry uses the following format,

`<barcode>=<keystroke>`

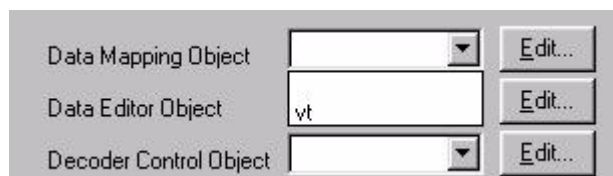
where `<barcode>` is the scanned barcode and `<keystroke>` is the keystroke to send when the barcode is scanned. The following example object demonstrates three scan data mappings, including the mapping of barcode \$H to the PF3 keystroke.



Saving and Assigning the Object

Save the object by clicking on File, then on Save, and then on Exit, which returns to the Twin Client Manager menu.

Next, assign the object to a terminal configuration by opening a terminal configuration from the Files menu. Click on the advanced setup Scanner tab, then on the Data Mapping Object list button, and finally on the object name.



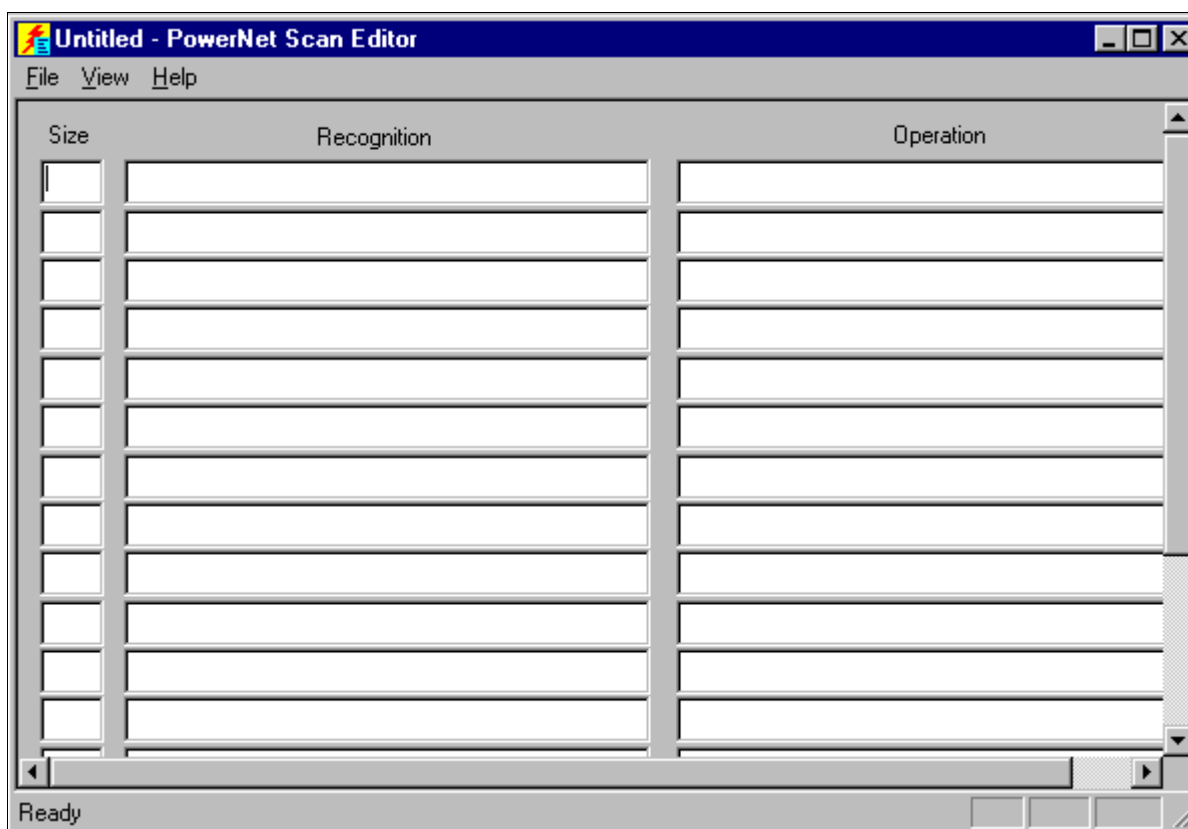
Save the updated terminal configuration by clicking on **File**, and then **Save**. The next time the terminal is cold booted, the new configuration will be downloaded automatically and the scanner data mapping will take effect.

Scanner/Data Editing

The scanner data editing object defines the rules for recognizing barcode patterns, and then for performing automatic manipulations on the barcode before it is transmitted to the host application. This feature is most often employed when upgrading wedge-based systems.

Creating the Object

Create the object by clicking on Object Editors, then Scanner/Data Editing.



Bar code recognition is based on the **Size** (length) and **Recognition** specifiers. Once the pattern is recognized, **Operation** specifiers manipulate the barcode.

The **recognition** specifiers consist of the four characters, as shown in the following table.

- A Alpha character
- N Numeric character
- * Any character
- = Must match next character

The **operation** specifiers consist of the following constructs:

- X Delete character
- * Copy as is
- () Substitute
- "" Insert

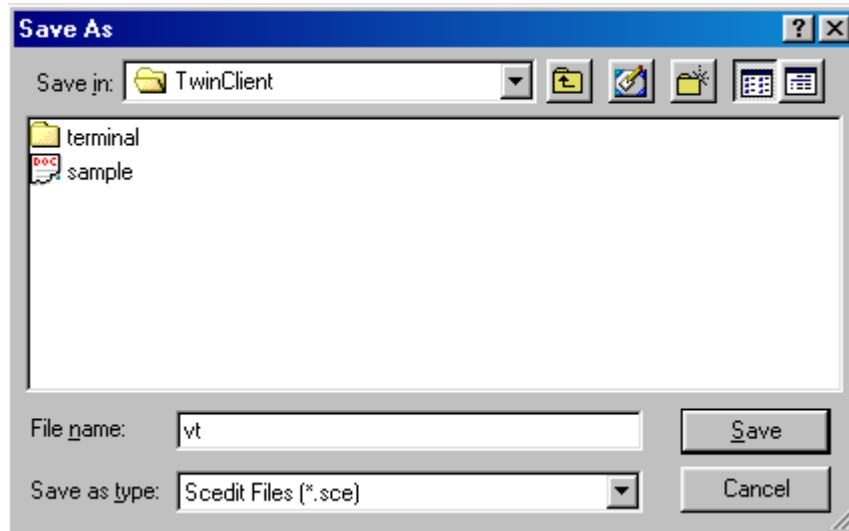
The following table illustrates how the recognition and operation specifiers identify and manipulate the data.

Bar Code	Size	Recognition	Operation	Result
PN-1245	7	AA=-NNNN	"F"*****	FPN-1245

5A5567BBAT	10	*****	*****"M	"5A5567BBATM
TGR87	5	=T=GAN*	**(S)**	TGS87
78-RHG	6	NN=-AAA	**X***	78RHG

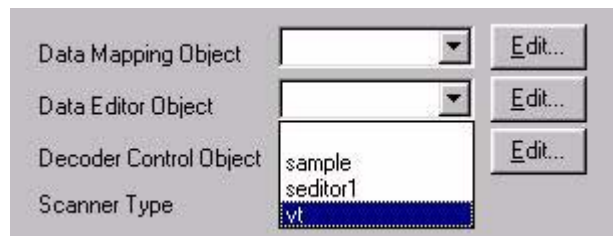
Saving and Assigning the Object

Save the object by clicking on **File, Save As**, and then enter a name. For the purposes of this example, the name is vt.



Then click on **Save**. Return to the PowerNet Twin Client Manager menus by clicking on the **X** button at the upper right corner of the Scan Editor window.

Next, assign the object to a terminal configuration by opening a terminal configuration from the Files menu. Click on the advanced setup Scanner tab, then on the Data Editor Object list button, and finally on the object name.



Save the updated terminal configuration by clicking on **File**, and then **Save**. The next time the terminal is cold booted, the new configuration will be downloaded automatically and the scan data editor object will take effect.

Scan/Decoder Control

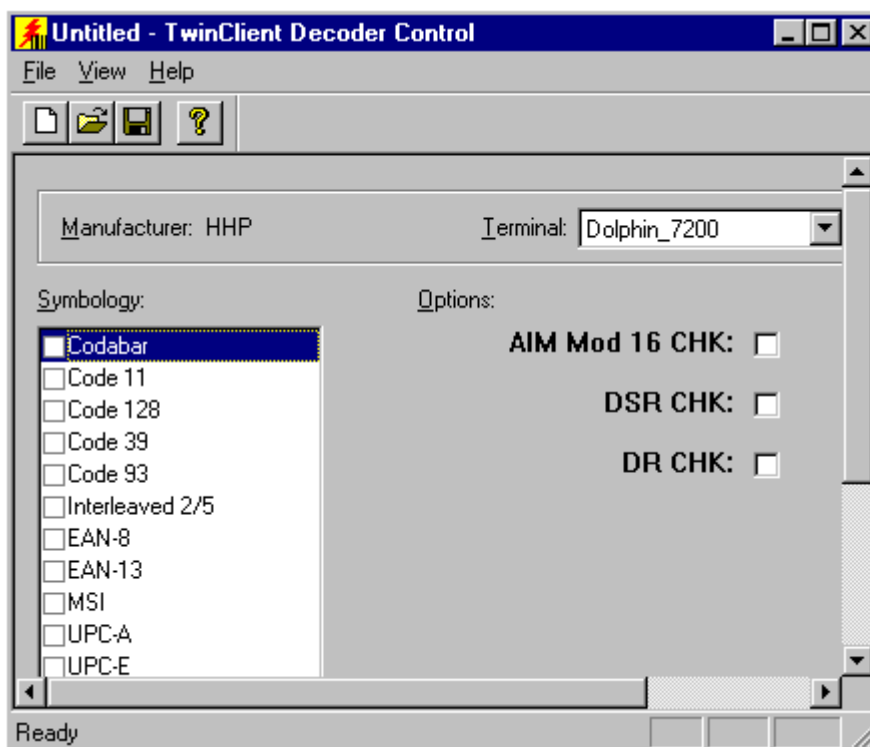
The scan/decoder control object modifies the operation of the scan decoder in the terminal. Any of the supported symbologies can be enabled or disabled, and all of the parameters associated with a specific symbology can be modified to meet specific customer requirements.

This feature is used primarily to reduce errors and increase performance. For example, a terminal used in a receiving application can be restricted to symbologies used only in the receiving department, thus reducing the opportunity for scan decoder errors and, in many cases, increasing scanner performance. As another example, the scan decoder can be instructed to return a successful scan only when the barcode is of a certain length. As a result, the opportunity for a scan decoder error is further reduced.

PowerNet Twin Client also allows the scanner to be controlled dynamically by the application. This is accomplished through the use of the Extended Command set, which is described later in this chapter.

Creating the Object

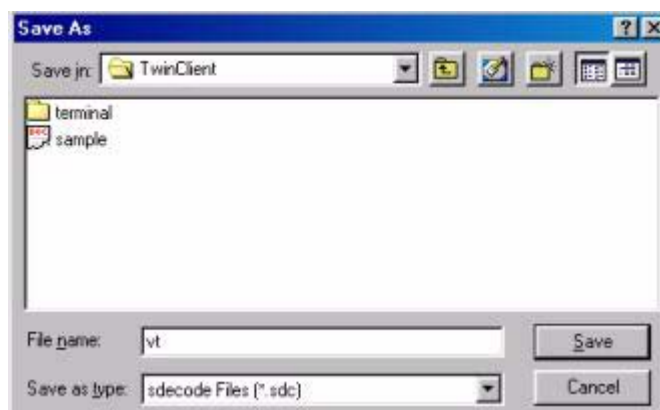
Create the object by clicking on Object Editors, then Scanner/Decoder Control.



The check box next to the symbology enables (checked) or disables (unchecked) the symbology. The options for a specific symbology are available for modification by highlighting the select symbology.

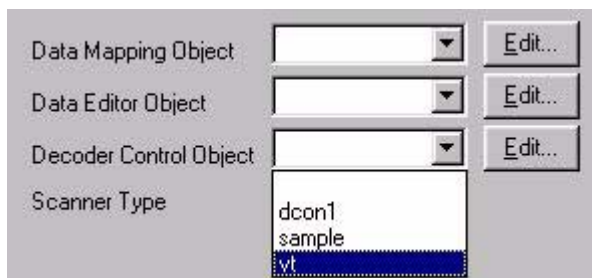
Saving and Assigning the Object

Save the object by clicking on **File, Save As**, and then enter a name. For the purposes of this example, the name is vt.



Then click on Save. Return to the PowerNet Twin Client Manager menus by clicking on the button at the upper right corner of the Decoder Control window.

Next, assign the object to a terminal configuration by opening a terminal configuration from the Files menu. Click on the advanced setup Scanner tab, then on the Decoder Control Object list button, and finally on the object name.



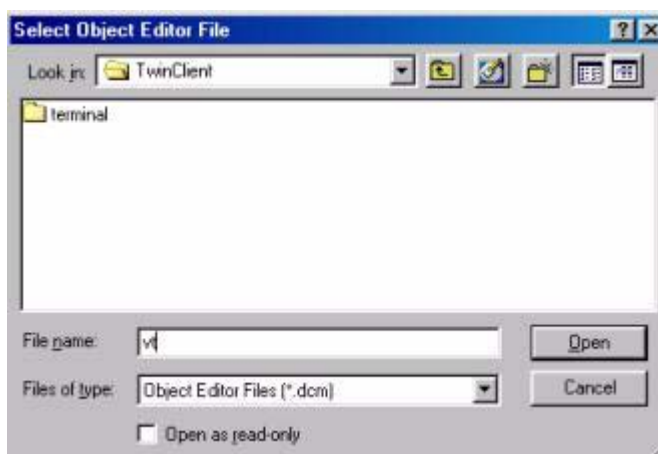
Save the updated terminal configuration by clicking on File, and then Save. The next time the terminal is cold booted, the new configuration will be downloaded automatically and the scan decoder control object will take effect.

Display/Mapping

The display mapping object is used to correct variations between application character sets and the terminal display character set. The terminal display uses the ISO-8859-1 font set, which is an international standard adhered to by most, but not all, applications. The display mapping is used to resolve any discrepancies.

Creating the Object

Create the object by clicking on **Object Editors**, then **Display/Mapping**, and then enter a file name. For the purposes of this example, the name is vt.



Click on the **Open** button, and then click on the **Yes** button to create the new file.

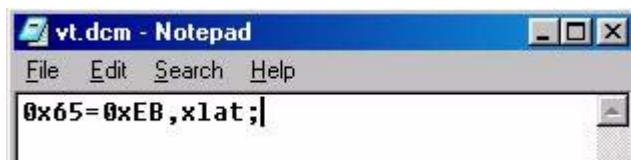


The Notepad utility is then invoked. The Display/Mapping object is a text file with one entry per line. Each entry uses the following format,

```
<application char>=<ISO-8859-1 char>,xlat;
```

where <application char> is the hexadecimal value of the character transmitted by the host application, and <ISO-8859-1 char> is the hexadecimal value of the desired terminal display character, followed by a comma, the word `xlat`, and a semicolon. Tables for both ISO-8859-1 and the ASCII character sets are in Appendix A.

For the purposes of this example, the English character `e` (0x65) will be converted to an umlaut `ë` (0xEB) with the entry shown below. Note that the two character hexadecimal values must be preceded by 0x.



Saving and Assigning the Object

Save the object by clicking on **File**, then on **Save**, and then on **Exit**, which returns to the Twin Client Manager menu.

Next, assign the object to a terminal configuration by opening a terminal configuration from the Files menu. Click on the advanced setup Display tab, then on the Mapping Object list button, and finally on the object name.



Save the updated terminal configuration by clicking on **File**, and then **Save**. The next time the terminal is cold booted, the new configuration will be downloaded automatically and the display mapping object will take effect.

Display/Formatting

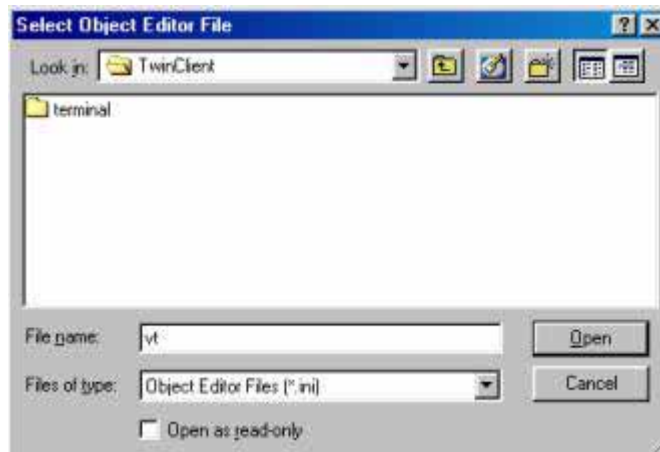
The display formatting object is used to make the host application interface easier to use, without modifying the host application. Chapter 7 is devoted to the description of this important integration feature.

Printer/Init

The printer initialization object is used to send initialization commands to the printer at the start of each terminal session. It can also be used to test printer operation.

Creating the Object

Create the object by clicking on **Object Editors**, then **Printer/Init**, and then enter a file name. For the purposes of this example, the name is vt.



Click on the **Open** button, and then click on the **Yes** button to create the new file.

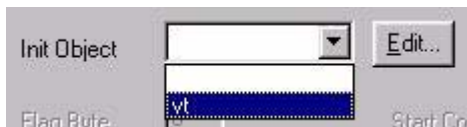


The Notepad utility is then invoked. The printer/init object is a text file, allowing for the entry of printer-specific commands. Refer to the documentation provided by the printer manufacturer for instructions.

Saving and Assigning the Object

Save the object by clicking on **File**, then on **Save**, and then on **Exit**, which returns to the Twin Client Manager menu.

Next, assign the object to a terminal configuration by opening a terminal configuration from the Files menu. Click on the advanced setup **Printer** tab, then on the **Init Object** list button, and finally on the object name.



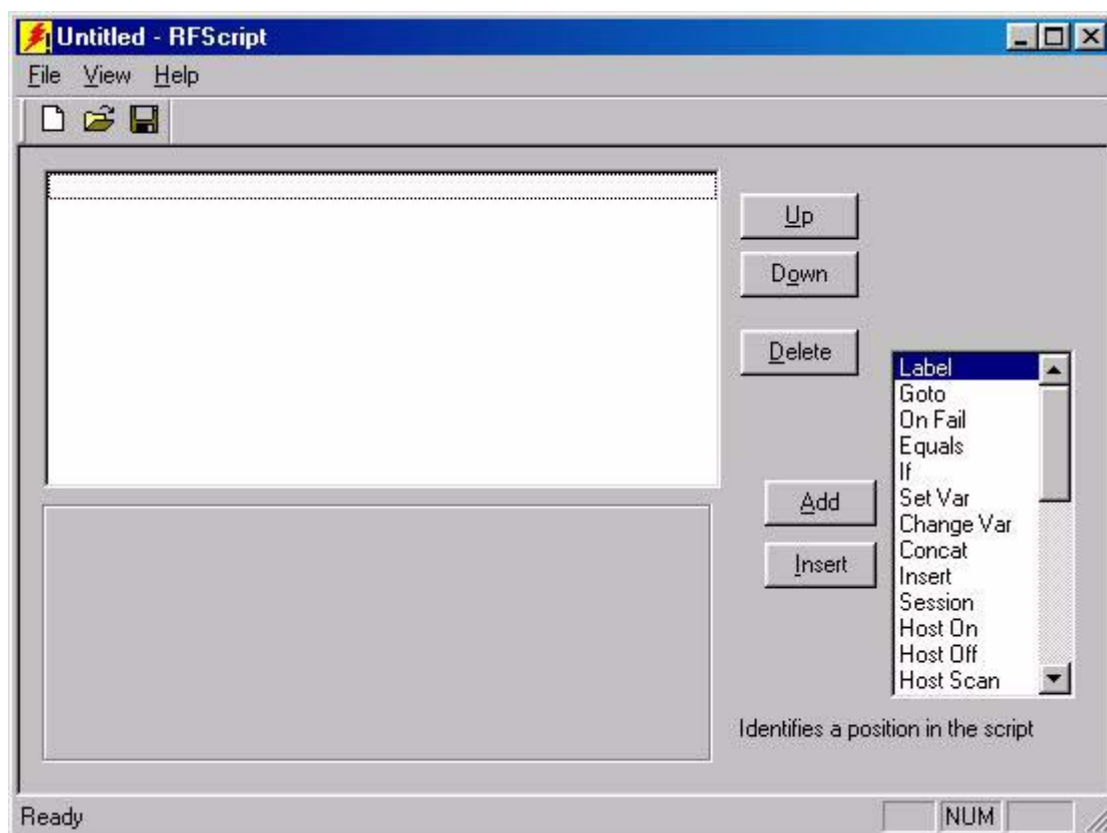
Save the updated terminal configuration by clicking on **File**, and then **Save**. The next time the terminal is cold booted, the new configuration will be downloaded automatically and the init object will be transmitted to the printer at the start of the next Telnet session.

Dialog

The dialog object is a script used to automate difficult or repetitive user interactions with the host application. It can be used to create terminal screens, collect input, generate output, and make decisions based upon terminal keyboard or scanner input, and host application data.

Creating the Object

Create the object by clicking on Object Editors, then Dialog. Commands selected from scrolling list on the right are added or inserted into the scripting area on the left using the click buttons between the two areas. The bottom left portion of the window is used to collect arguments for those commands that require them.



Commands and Arguments

Commands control the actions taken within the script. They can be used to interact both with the host and the terminal, and to modify activity based on comparisons of both terminal and host data. The following tables describe each command.

Commands

Label	Defines a target for the conditional branch commands Onfail, Equal, If, Host State, Host Scan, and the unconditional branch command, Goto
Goto	Causes execution to begin unconditionally and immediately at the named target Label
On Fail	Upon detection of a system error, execution continues at the named Label.
Equals	If the comparison is equal, branches to Label. Otherwise, execution continues with the next command.
If	If the conditions of the comparison operator are true, branches to Label. Otherwise, execution continues with the next command. The numeric value comparison operators, which treat the values being compared numerically, are = (equal), != (not equal), > (greater than), and < (less than). The string value comparison operators, which treat the values as character strings, are \$= (equal) and \$!= (not equal).
Set Var	Assigns a value to one of up to 36 variables
Change Var	Adds to or subtracts from the value of a variable
Concat	Adds characters to the end of a variable
Session	Returns control of the session to the terminal operator. The operator returns control to the dialog object, at the next line, by pressing the key defined as the End Key in the Keyboard tab.
Host On	Initiates a TCP/IP connection to the host system
Host Off	Terminates the TCP/IP connection to the host system
Host Scan	Scans the host display for a value, and continues execution at the named label if the value is found
Host Update	Refreshes the host display. This command is used after data has been sent to the host that may change the display, and prior to using the Host Scan or Host State conditional branch commands, or a Host Copy command.
Host Send	Transmits data and/or a keystroke to the host
Host Copy	Copies characters from the host display to a variable
Host State	If the state of the session matches the value supplied, execution begins at the named Label. The possible values are inactive, meaning the host session has not been established, and plu, which means the host session has been established.
Settle	Allows time for the host application to settle
Term Enable	Initializes the terminal configuration parameters
Term Clear	Clears the terminal display of all characters
Term Display	Puts a value or the value of a variable on the terminal display
Term input	Prompts the terminal operator to input data
Term No Echo	Prompts the terminal operator to input data, which will not be echoed on the terminal display
Term Wait	Waits for any input from the terminal
Term Logoff	Terminates the connection to the wireless network
Exit	Terminates execution of the dialog object
Sleep	Suspends all activity for the specified number of seconds
Var Char	Sets the character used internally by the dialog processor to indicate the name of a variable. The character is normally \$. This command is used only when the first character of a value used in one of the conditional branching commands begins with a \$.
Log	Writes a message to the terminal log
Comment	Inserts documentation in the dialog object

Adding Commands

The scrolling list box on the right side of the window is used to select a command. Click on the desired command and then click on the **Add** button to add the command to the dialog script.

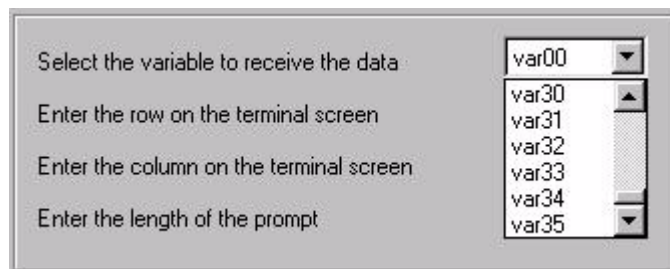
All commands that require arguments prompt for them in the box at the lower left side of the window. In the example above, the Term Display command requires a row number and either a variable or a character string. In this case the display string is Hello World. Note that the text entry field scrolls to the right so that text longer than the size of the box can be entered.

Inserting and Deleting Commands

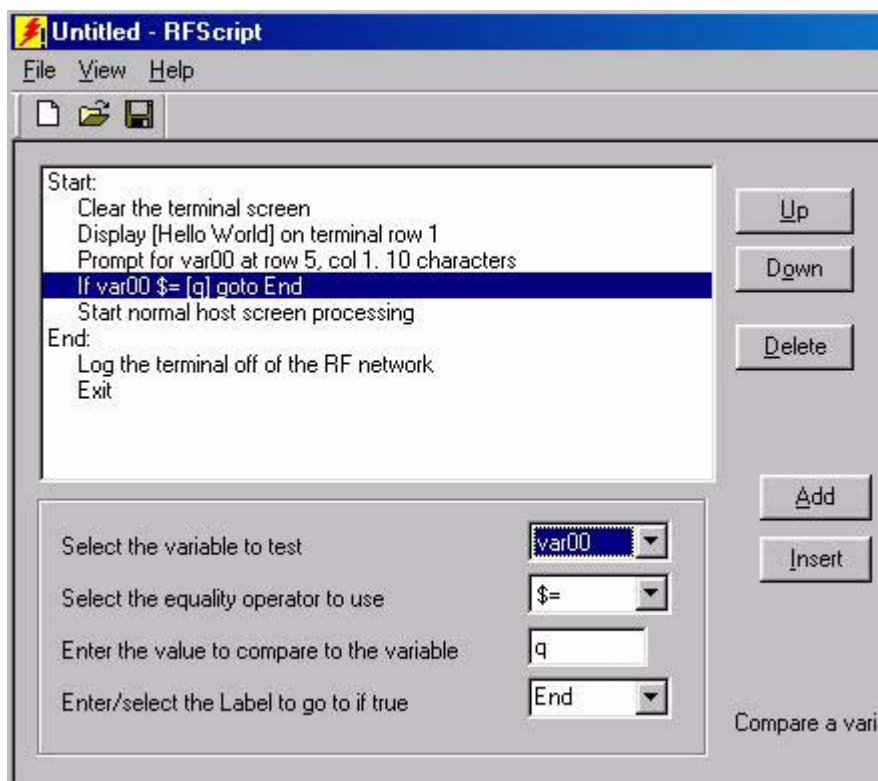
Click on the desired dialog line on the upper left side of the window to highlight the line, then click on the **Insert** button to insert a new command above the selected line, or click on the **Delete** button to remove the line.

Using Variables and Labels

The dialog object provides up to 36 variables to store temporary data collected during the execution of the script.



These variables can be compared to fixed values or other variables using the **if** command. If the comparison is true, execution branches to the specified label.



Saving and Assigning the Object

Save the object by clicking on **File, Save As**, and then enter a name. For the purposes of this example, the name is vt.

Extended Commands

The host application can control the terminal's scanner and keyboard dynamically, while the terminal is in session, by issuing the extended commands described in the following sections.

Dynamic Decoder Control

The format and content of the commands that control the scan decoder are described in the following sub-sections.

CODABAR Control

Extended Command:

<ESC>[?0;<state>;<minlen>;<maxlen>;0z

- State: Disable/enable codabar scanning. 0=disabled, 1=enabled.
- Minlen: Minimum valid barcode length. Valid values are 1-54.
- Maxlen: Maximum valid barcode length. The maximum length must be greater than or equal to the minimum length. Valid values are 1-54.

CODE 128

Extended Command:

<ESC>[?2;<state>;<minlen>;<maxlen>;0z

- State: Disable/enable code 128 scanning. 0=disabled, 1=enabled.
- Minlen: Specify minimum valid barcode length. Valid values are from 1 to 54.
- Maxlen: Specifies the maximum valid barcode length. The maximum length must be greater than or equal to the minimum length. Valid values are from 1 to 54.

CODE 39

Extended Command:

<ESC>[?3;<state>;<minlen>;<maxlen>;<depend>z

- State: Disable/enable code 39 scanning. 0=disabled, 1=enabled.
- Minlen: Specifies the minimum valid barcode length. Valid values are from 1 to 54.
- Maxlen: Specifies the maximum valid barcode length. The maximum length must be greater than or equal to the minimum length. Valid values are from 1 to 54.
- Depend: Disable/enable full ASCII code 39 interpretation. 0=disabled, 1=enabled.

CODE 93

Extended Command:

<ESC>[?5;<state>;<minlen>;<maxlen>;0z

- State: Disable/enable code 93 scanning. 0=disabled, 1=enabled.
- Minlen: Minimum valid barcode length. Valid values are 1-54.
- Maxlen: Maximum valid barcode length. The maximum length must be greater than or equal to the minimum length. Valid values are 1-54.

INTERLEAVED 2 OF 5

Extended Command:

<ESC>[?7;<state>;<minlen>;<maxlen>;0z

- State: Disable/enable interleaved 2 of 5 scanning. 0=disabled, 1=enabled.
- Minlen: Minimum valid barcode length. Valid values range from 1 to 54.
- Maxlen: Maximum valid barcode length. The maximum length must be greater than or equal to the minimum length. Valid values range from 1-54.

EAN-13/UPC-A

Extended Command:

<ESC>[?8;<state>;0;0;0z

- State: Disable/enable EAN-13/UPC-A scanning. 0=disabled, 1=enabled.

EAN-8

Extended Command:

<ESC>[?9;<state>;0;0;0z

- State: Disable/enable EAN-8 scanning. 0=disabled, 1=enabled.

UPC-E

Extended Command:

<ESC>[?14;<state>;0;0;0z

- State: Disable/enable UPC-E scanning. 0=disabled, 1=enabled.

Supplemental Barcode Handling (UPC/EAN) Options

Extended Command:

<ESC>[?12;<state>;<minlen>;<maxlen>;<depend>z

- State: This flag should always be set to one.
- Minlen: Specifies if two character supplementals are enabled/disabled (only applies to transmit mode 1). 0=no codes with two character supplementals decoded, 1=codes with two character supplementals decoded.
- Maxlen: Indicates if five character supplementals are enabled/disabled (only applies to transmit mode 1). 0=no codes with five character supplementals decoded, 1=codes with five character supplementals decoded.
- Depend: Specifies the supplemental transmit mode. 0=no supplementals transmitted to host, supplemental enable/disable ignored. 1=only codes with the appropriate supplemental (from minlen/maxlen) decoded. 2=all codes sent as is, supplemental enable/disable ignored.

Disabling All Decoders

Extended Command:

<ESC>[?z

This command is used to disable all barcodes on the handheld. Typically this would be issued before turning on an individual barcode type just to make sure of the state of the active barcodes.

Input Mode Command

The input mode parameter sent from the application controls (via the host application) whether the terminal accepts input from the keyboard, the scanner or both. The format of this command is as follows.

<ESC>[!1;<mode>z

The mode parameter can be one of the following:

Mode	Action	Description
0(default)	Scan and Key	Data initially accepted from either the keyboard or scanner. Scanning, allowed on a partially keyed field, causes the keyed data to be discarded and the scanned data to be accepted.
1	Scan and Key	Data initially accepted from either the keyboard or scanner. Scanning is not allowed on a partially keyed field. If the operator clears the field then scanning is again allowed.
2	Scan Only	Data accepted only from the scanner. Use caution when using this command, bad barcode can block the user from completing input.
3	Key Only	Data accepted only from keyboard, the scanner off

Key Input Mode Command

The processing of keyed input can be controlled dynamically, while the terminal is in session. The format of this command is as follows.

<ESC>[!2;<mode>z

The mode parameter can be one of the following:

Mode	Description
0(default)	Accepts characters between 0x20 and 0x7F
1	Accepts alphabetic cha
2	Accepts numeric characters only
3	Accepts alphanumeric characters only

For example, to allow keyboard input of numeric characters only, use the following sequence:

<ESC>[!1;3z<ESC>[!2;2z

(HEX equivalent: 1B 5B 21 31 3B 33 7A 27 5B 21 32 3B 32 7A)

To reset the terminal back to normal input, use the following sequence:

<ESC>[!1;0z<ESC>[!2;0z

(HEX equivalent: 1B 5B 21 31 3B 30 7A 27 5B 21 32 3B 30 7A)

Advanced Display Options for VT

The Advanced button in the advanced view Display tab is active when VT100 or VT220 emulation is selected. This option group controls how display attributes are processed, and it can also be used to simulate block mode operation ([“Customizing the Keyboard” on page 2](#)).



Attribute Mask

This check box group enables (checked), or disables (unchecked), the display of the indicated character attribute. HHP character-based terminal displays are capable of displaying only the Reverse and Blinking attributes. All other attributes, if enabled, are displayed in Reverse, except for those attributes checked in the Blink Mask group (see below).

Field Mask

The VT100 and VT220 protocols do not support the more efficient block mode of operation that is standard in the 3270 and 5250 protocols, since there are no VT100 or VT220 protocol commands for defining input fields.

However, PowerNet makes it possible to simulate block mode operation by using video display attributes to define input fields. Each box checked in the Field Mask window indicates a video attribute that will be recognized as an input field specification by the emulator. During a terminal session with a host, whenever the cursor is positioned on character with the selected attribute(s), all characters to the right of that position with the same attribute are interpreted to specify the length of the input field.

Blink Mask

This check box group is used to enable (checked), or disable (unchecked), the conversion of the selected attribute to Blinking.

Advanced 3270 Keyboard Options

The Advanced button in the advanced view Keyboard tab is active when 3270 emulation is selected. The option groups in this window are used to automate keystroke generation under the special conditions described in the following subsections. It is also used to determine the action taken with oversized scans.

Attribute Key

This option is used to automatically transmit a keystroke to the 3270 host when the 3270 field matches the selected attribute. The automatic keystroke generation can be based on whether the input is scanned, or keyed, or both.

Note: When this feature is made active (setting the Key to a value other than noop and setting the Scan Field and or Key Field to a value other than off) it overrides all other automatic keystroke generation rules except for the Last Field Keys rules (described later in this section).

Key

This scrolling list box is used to select the 3270 keystroke sent with scanned or keyed input when the field matches the selected attribute setting specified in Scan Field and Key Field (described below). This option overrides all other automatic keystroke generation, except for Last Field processing. The default key setting of NOOP disables this function.

Scan Field

This scrolling list box selects the 3270 field attribute that, when data is scanned into the field, results in automatic transmission of the selected Key with the data to the host. The choices are pen (for 3270 Light Pen Enabled), num (for 3270 Numeric Only), hi (for 3270 High Intensity) and hal (for 3270 High Intensity and Light Pen Enabled). The default value is off.

Key Field

This scrolling list box selects the 3270 field attribute that, when data is keyed into the field and the field is completely filled, results in automatic transmission of the selected Key with the data to the host. The choices are pen (for 3270 Light Pen Enabled), num (for 3270 Numeric Only), hi (for 3270 High Intensity) and hal (for 3270 High Intensity and Light Pen Enabled). The default value is off.

Last Field Keys

This option is used to automate keystroke generation when the keyed or scanned input is into the last field on the 3270 display.

Note: When this rule generates a keystroke, it overrides all other automatic keystroke generation rules (i.e., Scan Key, Auto Send Key, and Attribute Key).

Scanned Input

This scrolling list box is used to select the 3270 keystroke to be sent when data is scanned into the last field on the 3270 display. The default value is noop, which disables this function.

Keyed Input

This scrolling list box is used to select the 3270 keystroke to be sent when data is keyed into the last field on the 3270 display, and the field is filled. The default value is noop, which disables this function.

Multiple Fields

This check box enables (checked) the Last Field Keys group only if the host display contains more than one input field.

Key Wrap

This check box enables (checked), or disables (unchecked) the automatic wrapping of oversized scanned input to subsequent 3270 input fields.

Note: This option has no effect if either Length Checking or Truncation options are enabled ([“Customizing the Keyboard” on page 2](#)).

NEW ENVIRON Telnet Extension

The NEW ENVIRON Telnet extension, also known as Workstation ID, is a mechanism for providing named variables with values to the host system via a Telnet negotiation at the beginning of each terminal session. The New Environ option under the Twin Client Manager's Settings menu is used to create the variables, which are applied to all terminal configurations. Variables can be created that apply only to specific terminals (indicated by IP address). It is also possible to create variables that apply to all terminals.

Creating Common Settings

Variables that apply to all terminal sessions are created by selecting **Common to all terminals**, entering the **Variable** and **Value**, and clicking **Set**.

The dialog box 'New-Environ settings' has two radio buttons: 'Common to all terminals' (selected) and 'Terminal Specific'. Below the radio buttons is a text field for 'Second half of terminal IP address (eg. 215.189):'. Below that are two input fields: 'Variable:' with a dropdown menu showing 'DEPARTMENT' and 'Value:' with a text box containing 'RECEIVING'. To the right of these fields is a 'Set' button. Below the input fields is a section titled 'Current Settings:' containing a table.

Terminal	Variable	Value
<common>	DEPARTMENT	RECEIVING

At the bottom of the dialog box is a checkbox labeled 'Show all settings' and two buttons: 'OK' and 'Cancel'.

The variable and its value are then displayed in the Current Settings section.

Creating Terminal Specific Settings

Variables that apply to specific terminal sessions are created by selecting **Terminal Specific**, entering the last two octets of the terminal IP address, entering the **Variable** and **Value**, and clicking **Set**.

The dialog box 'New-Environ settings' has two radio buttons: 'Common to all terminals' and 'Terminal Specific' (selected). Below the radio buttons is a text field for 'Second half of terminal IP address (eg. 215.189):' containing '67.240'. Below that are two input fields: 'Variable:' with a dropdown menu showing 'DEVNAME' and 'Value:' with a text box containing 'TERM240'. To the right of these fields is a 'Set' button. Below the input fields is a section titled 'Current Settings:' containing a table.

Terminal	Variable	Value
67.240	DEVNAME	TERM240
<common>	DEPARTMENT	RECEIVING

At the bottom of the dialog box is a checkbox labeled 'Show all settings' (checked) and two buttons: 'OK' and 'Cancel'.

Select **Show all settings** to display both terminal specific and common variables in the Current Settings section.

Changing and Deleting Settings

Variable names and their values can be modified or deleted by clicking on the variable in the list window. Change the variable or value by editing the Variable and/or Value boxes, and click on the Set button. To delete the variable, press the Delete key on the PC. Deleted variables will continue to appear in the pull down list until after the settings have been saved.

Click on the OK button to save New Environ settings.

TN3270E Negotiation

The following defines the TN3270E negotiation, permitting the transfer of some of the TN3270E Sub-negotiation variables such as **Lunames** from the Telnet terminal to the host during session initialization.

Note: This pertains to 3270 emulation.

TN3270E is implemented on OpenAir Linux using two text files located in the working directory (refer to /etc/.CRF/WORKDIR). The **tnenvcom.cf** file allows for the definition of variables that will be shared by all devices, and the **tnenv.cf** file allows for the definition of terminal-specific variables. These files are currently created and maintained with the system editor.

Line Entry Format, **tnenvcom.cf**:

VARIABLE=VALUE;

Example *DEVTYPE=IBM-3278-2;*CONNECT=RFZ81;

This will assign all terminals the luname of RFZ81.

Line Entry format, **tnenv.cf**:

IDENT:VARIABLE=VALUE;[VARIABLE=VALUE]...!

Where IDENT is either the last two octets of the terminal's IP address, or the three digit Spectrum address (065-511). Multiple variables can be defined, separated by semi-colons. The entry is terminated with an exclamation.

Example file:

#IP terminals fully qualified octets 7 characters:

010.031:*DEVTYPE=IBM-3278-2;*CONNECT=RF3278.001;!

010.032:*DEVTYPE=IBM-3278-2;*CONNECT=RF3278.002;!

This will assign the terminal with an IP address of xxx.yyy.010.031 a device type of IBM-3278-2 to the luname of RF3278.001.

New Environ Negotiation

The following defines the New Environ negotiation, permitting the transfer of environmental variables from the Telnet terminal to the host during session initialization.

Note: This pertains to the 5250 and VT emulations.

New Environ is implemented on OpenAir Linux using two text files located in the working directory (refer to /etc/.CRF/WORKDIR). The **tnenvcom.cf** file allows for the definition of variables that will be shared by all devices, and the **tnenv.cf** file allows for the definition of terminal-specific variables. These files are currently created and maintained with the system editor.

Line Entry Format, **tnenvcom.cf**:

VARIABLE=VALUE;

Line Entry format, **tnenv.cf**:

IDENT:VARIABLE=VALUE;[VARIABLE=VALUE]...!

Where IDENT is either the last two octets of the terminal's IP address, or the three digit Spectrum address (065-511). Multiple variables can be defined, separated by semi-colons. The entry is terminated with an exclamation.

Example file:

#IP terminals fully qualified octets 7 characters:

010.031:DEVNAME=RF5291.001;!

#Spectrum ONE fully qualified radio ID 3 characters

065:DEVNAME=RF5291.002;!

The Display Formatter

Overview

The display formatter adapts full screen Telnet applications to the portable terminal environment without any modification to the host application. This powerful tool is included with PowerNet Twin Client, and is also used with the OpenAir server when the Twin Client is operating the server-based "thin" mode.

This screen capture utility (included with the Twin Client Manager) is used to access the host application via Telnet and "capture" the host displays. Once captured, the screens are processed into a screen formatter object and assigned to a terminal configuration, which can then be downloaded automatically to the terminal, over the wireless network.

Features

The PowerNet Display Formatter provides the following unique features:

- **Performance** - Optimized for minimum run-time overhead and maximum speed.
- **Transparency** - Fully transparent to the host application.
- **Capacity** - Up to 128 host screens per object, 16 terminal screens per host screen, and 32 input fields per terminal screen.
- **Simplicity** - Intuitive drag-and-drop interface for screen capture and formatting.
- **Flexibility** - Supports all Twin Client terminals.

This chapter describes how to set the emulation, capture the host application displays, and process them into formatter objects for download to the terminal.

Setting the Emulation

The first step in the formatting process is to set the emulation (VT, 3270, or 5250) in preparation for capturing the host application displays. Click on **Start > Programs > PowerNet > Twin Client Manager**.

Go to **Settings > Emulation** and select terminal emulation type from the list.



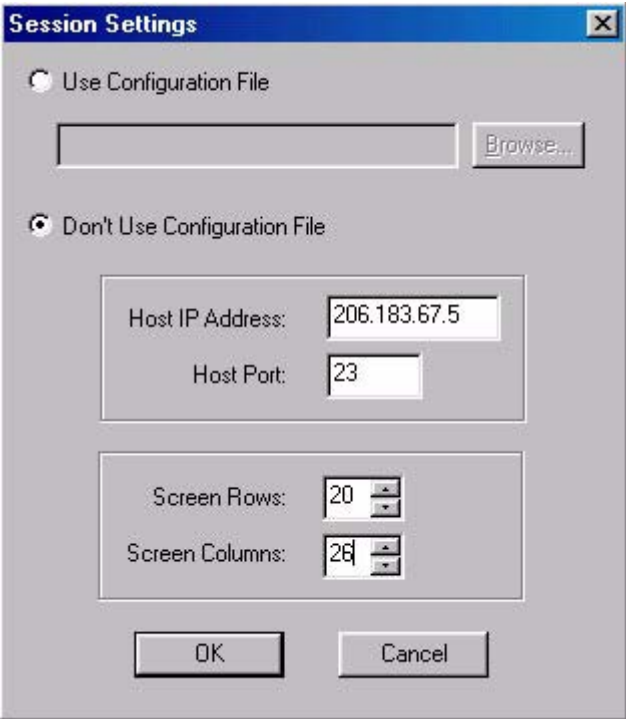
Then click on **OK** to return to the main PowerNet Twin Client menu.

Starting the Emulator

Start the emulator by clicking **Object Editors > Screen Capture**. The emulation window is displayed. Go to **Session > Session Settings**.




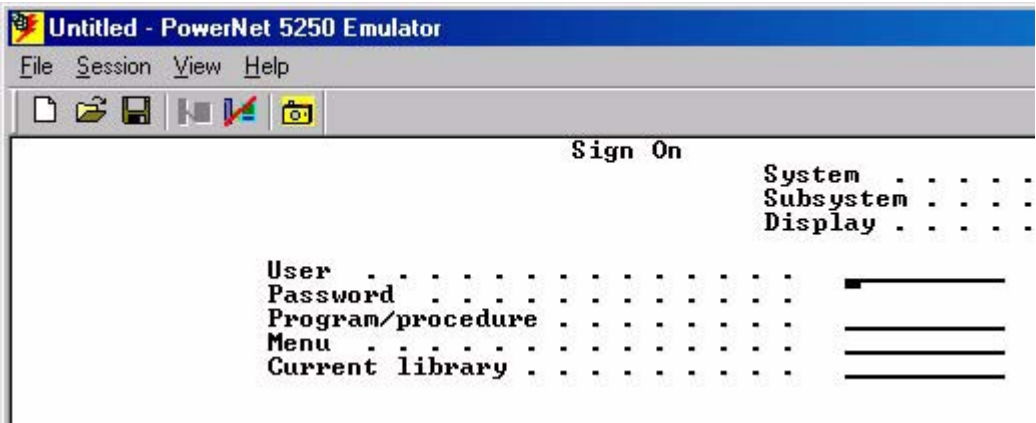
Enter the Host IP address and port of the host system, and then click **OK** to return to the emulator main menu.



Note: The Host Port of 23 is standard for Telnet. However, for security reasons the port number may be set to other values. Consult the local network administrator if a connection cannot be established on port 23.


To Start a Telnet Session with the Host

Click on the  toolbar icon, or go to **Session > Connect**. In this example, the 5250 emulator is used and the host system is an IBM AS/400.



The host application displays are now ready to be captured.


Taking Snapshots

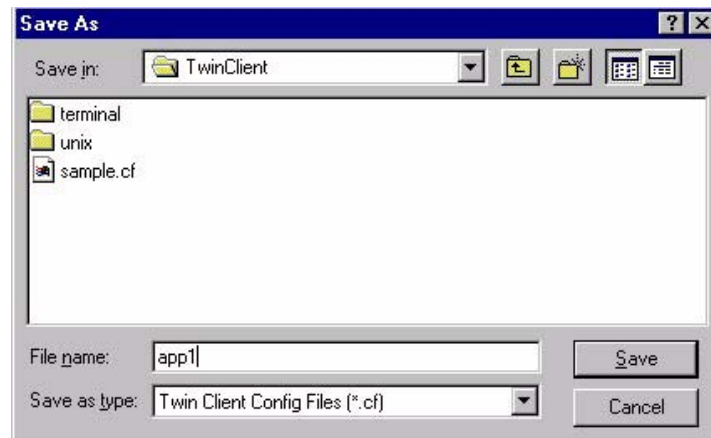
The host screens are captured by clicking on the  icon on the toolbar while the desired screen is displayed. Alternately, click on **Session** and then **Snapshot**. The following pop-up indicates that the screen was captured.



Click **OK** and continue to navigate the host application, taking snapshots of the screens to be formatted.


Saving the Screen File

Save snapshots at any time by clicking on the  toolbar icon. You can also go to **File > Save As**. The following window is displayed for entering the filename.



Enter the **File name**; for this example, the filename is set to app1. Then click on the **Save** button to return to the emulator.

Exiting the Emulator

The telnet session is ended by clicking on the  toolbar icon, or by clicking on **Session** and **Disconnect**. Return to the Twin Client Manager window to format the screens by clicking on the **X** icon at the top right corner of the emulator, or by clicking on **File** and **Exit**.

Formatting

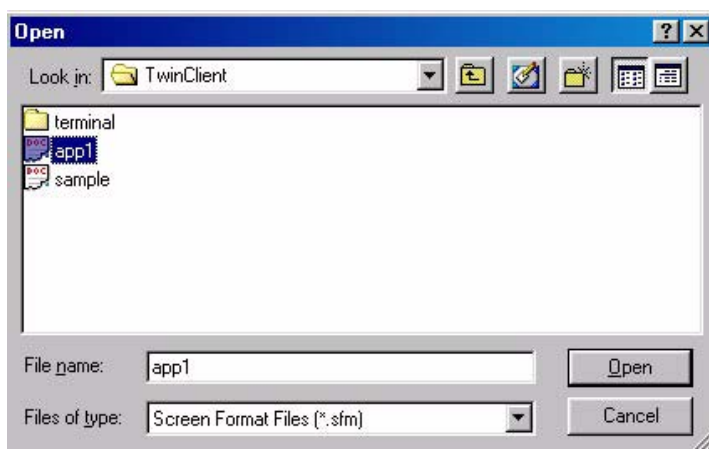
The screen file created in the previous sections can now be formatted. This section describes how to start the formatter, open a screen file, format the screens, save the formatted object, and finally to assign it to a configuration.

Starting the Formatter

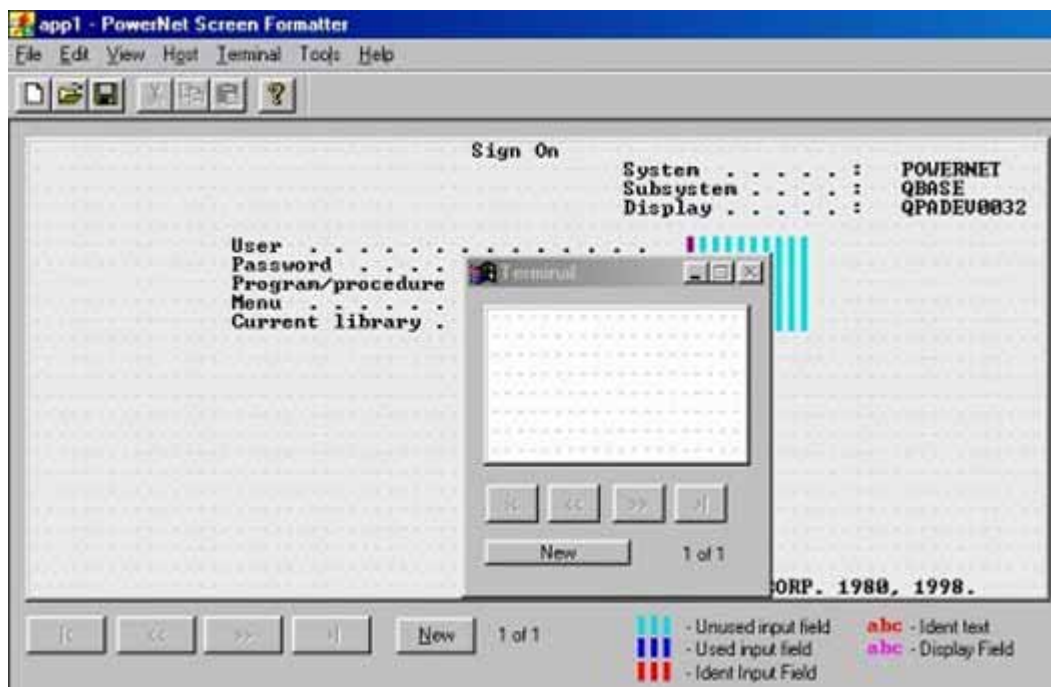
The formatter is started from the Twin Client Manager menu. Start the Twin Client Manager by going to **Start>Programs>Powernet>Twin Client Manager**.

Go to **Object Editors > Display/Formatting**. The formatter window is displayed.

To open the screen file, go to **File > Open**.



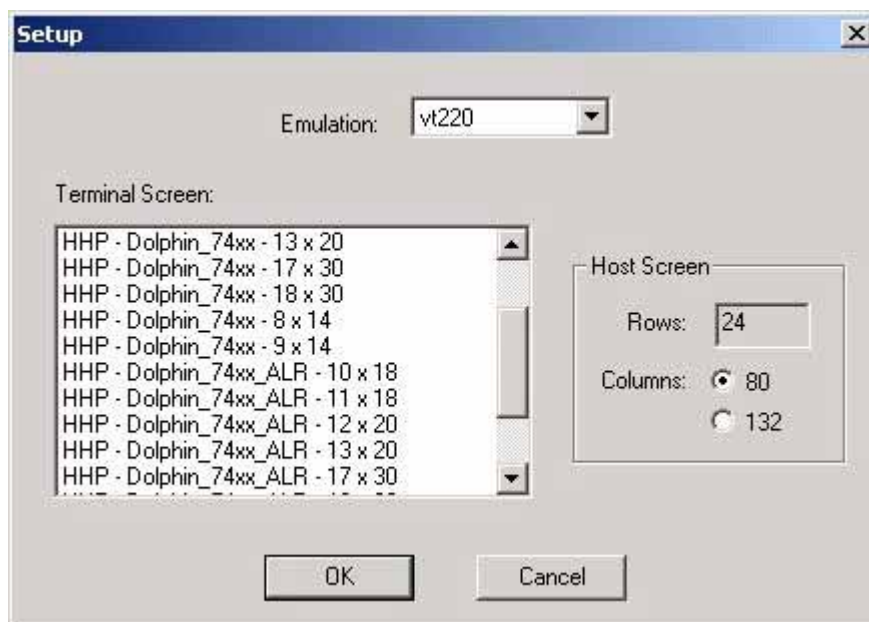
Select the screen filename and click the **Open** button. The formatter window is displayed, including the first host display that was captured. The terminal display window, which is blank at this time since no formatting has taken place.



Note: The Terminal display window floats on top of the host screen. If it needs to be moved, click on the title bar and drag it to a different area of the host screen.

Setting Up the Formatter

The terminal display must be set to match the terminal for which the formatter object is to be created. Click on the **Tools** menu and then **Setup**.



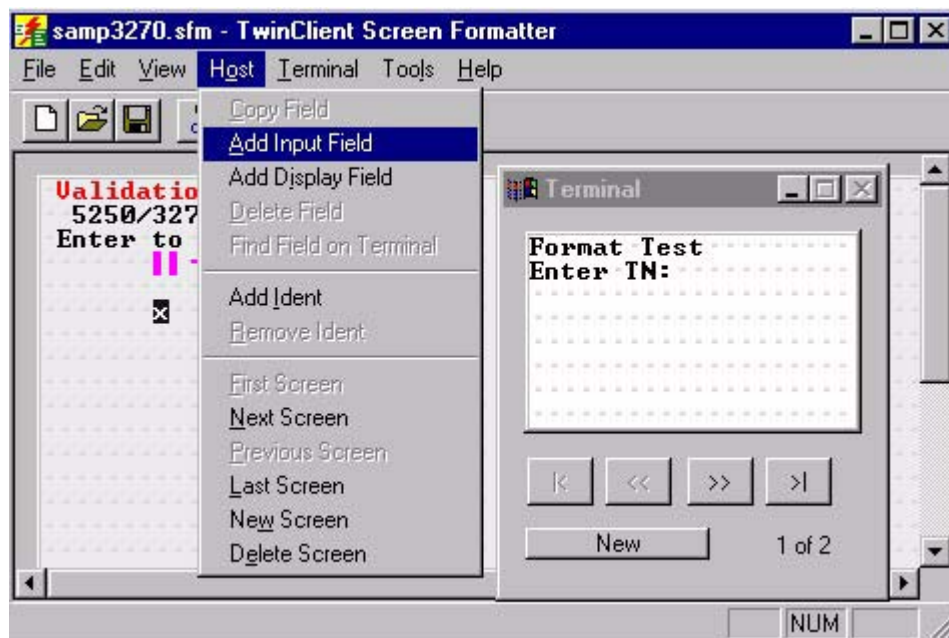
Click on the desired **Terminal Screen** size, and also ensure that the **Host Screen** size is set correctly. Then click on **OK** to return to the formatter.

Copying an Input Field

An input field is copied from the host display to the terminal display by the same method used to copy text. Click the left side of the input field and drag the cursor to the right. The input field will be highlighted. Now click on the field again and drag it to the desired position in the **Terminal** display.

Adding an Input Field

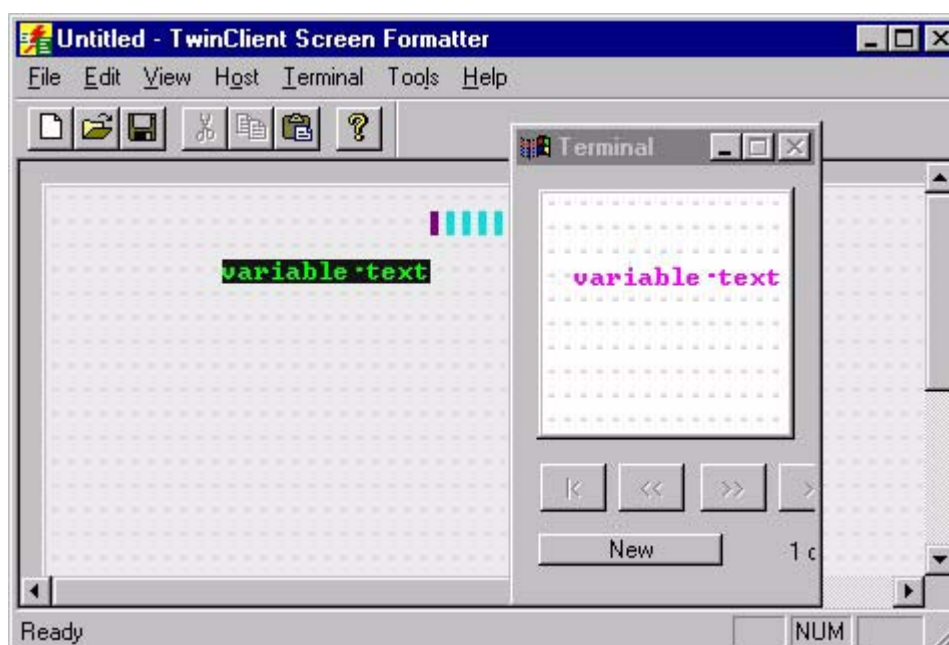
To add an input field, create text in the screen formatter window, highlight it, and chose **Add Input Field** from the **Host** menu. The input filed added in the example below is a lower-case letter "x".



Adding and Copying Variable Display Text

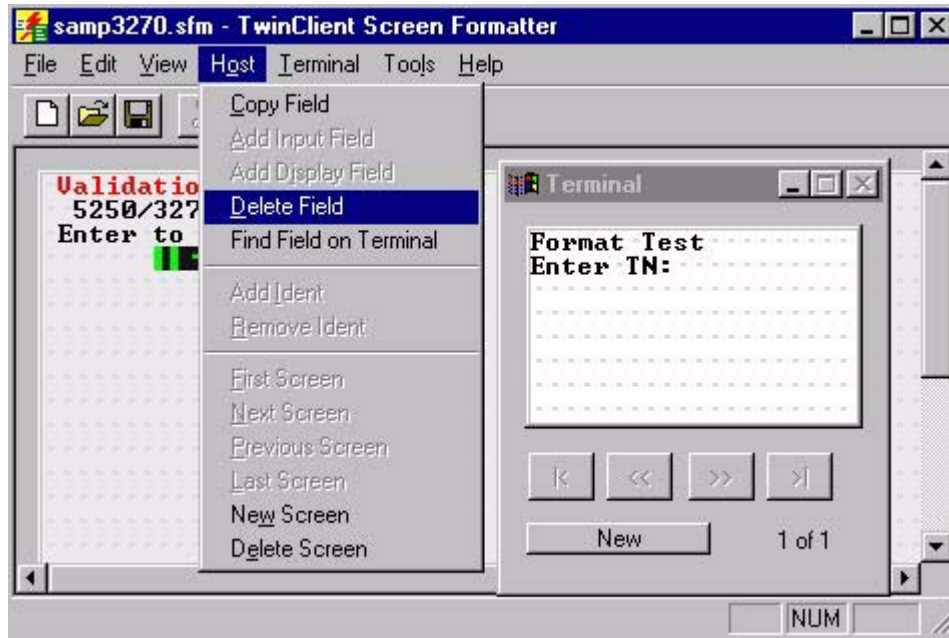
Variable text can be added to the terminal display by clicking on the Terminal window, moving the cursor to the desired display position, and typing in the text (in this case, **variable text**) as shown below.

To do this, move the cursor to the desired position in the host display and hold down the mouse button while moving the cursor to the right. Then, right-click on the text to be copied. This text will be highlighted as shown by the words "**variable text**" copied below. Then drag the highlighted text to the desired position in the terminal display and release the mouse button.



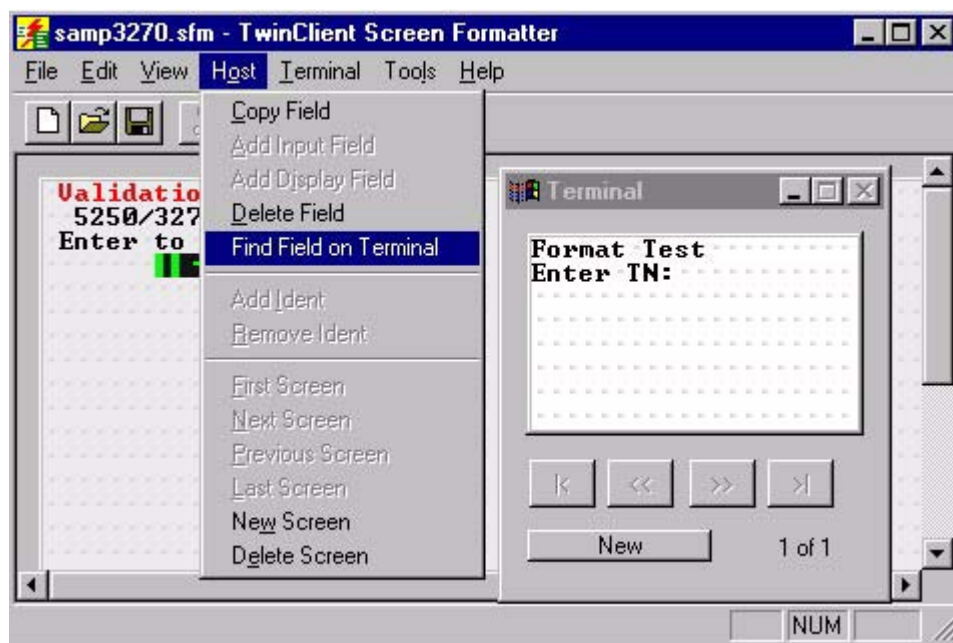
Deleting a Field

Select the text to be deleted by highlighting it, and choose **Delete Field** from the **Host** menu.



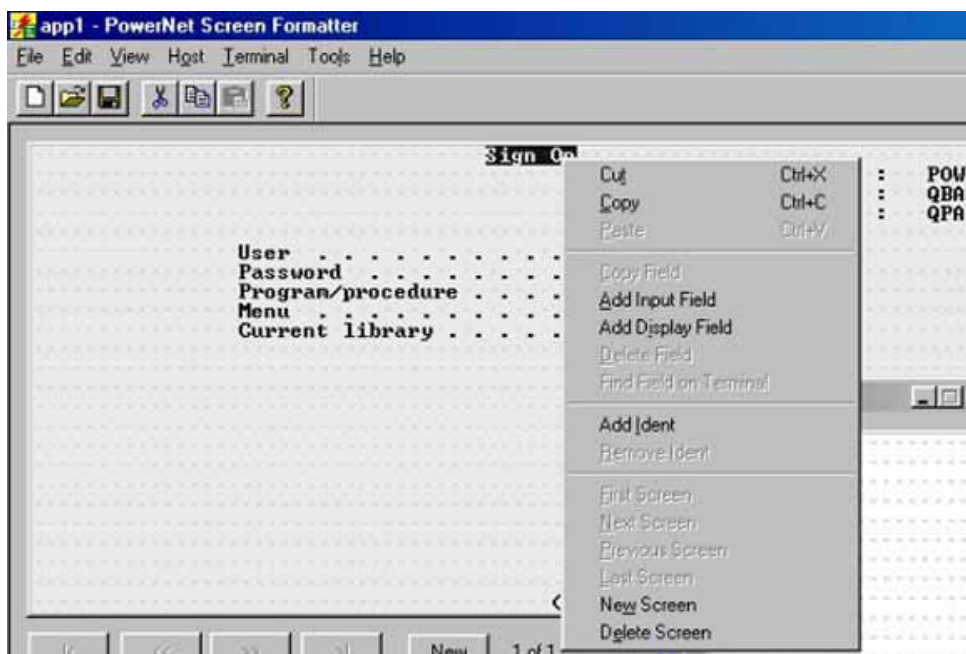
Finding a Field on the Terminal

To find a field on the terminal, go to **Host > Find Field on Terminal**.



Adding an Ident

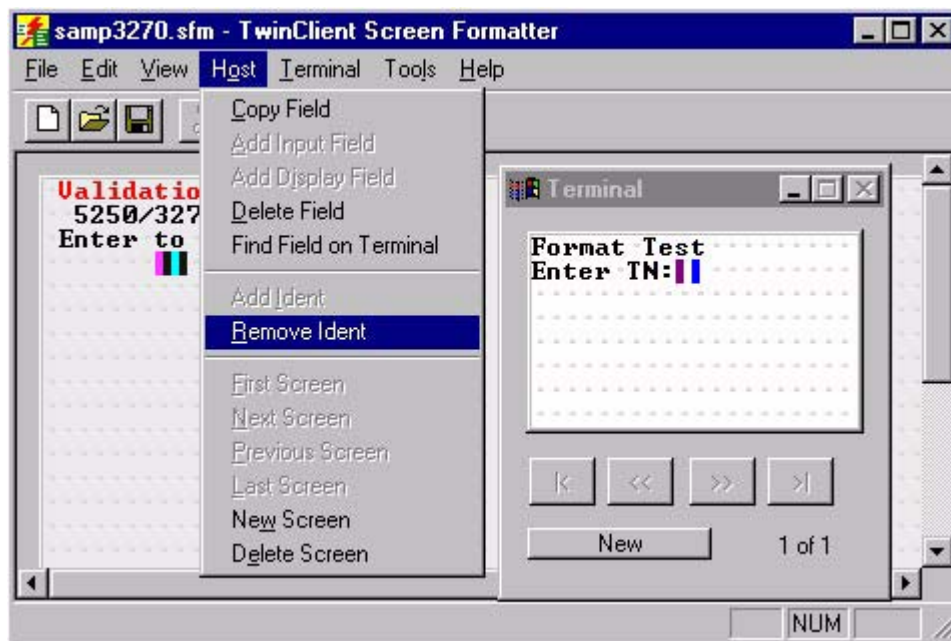
Formatting requires that each host screen to be uniquely identified. One way to do this is to highlight unique text on the host screen (click on the left side of the text and drag the mouse to the right). Then click on the right mouse button, as show below.



From the pull down menu, click on **Add Ident**. The highlighted field is now colored red on the host display, indicating that it is an Ident field. Up to 32 items can be highlighted on each host screen, so if a number of screens share similar features, they can be uniquely identified by adding more Idents. In the event that a group of host displays differ only by position of input fields, input fields can be used for Idents also.

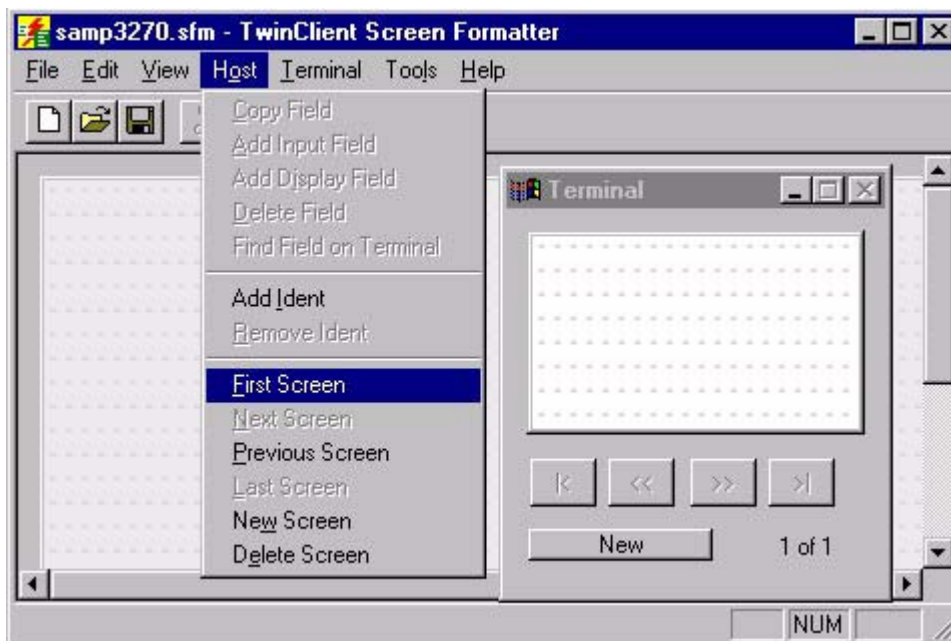
Removing an Ident

Remove an Ident field by highlighting it, and then selecting **Remove Ident** from the **Host** menu.

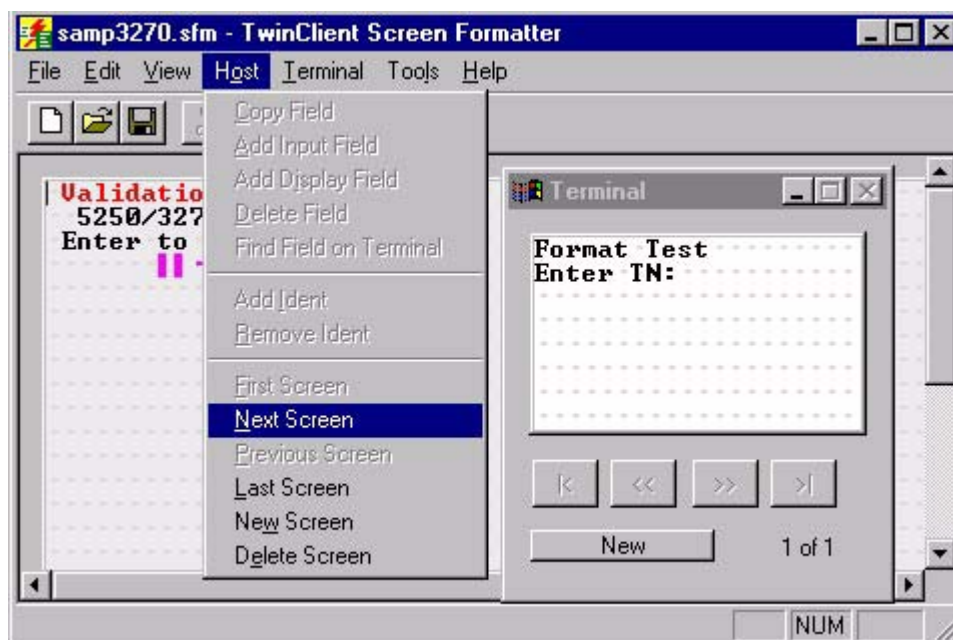


Navigating the Screen Formatter

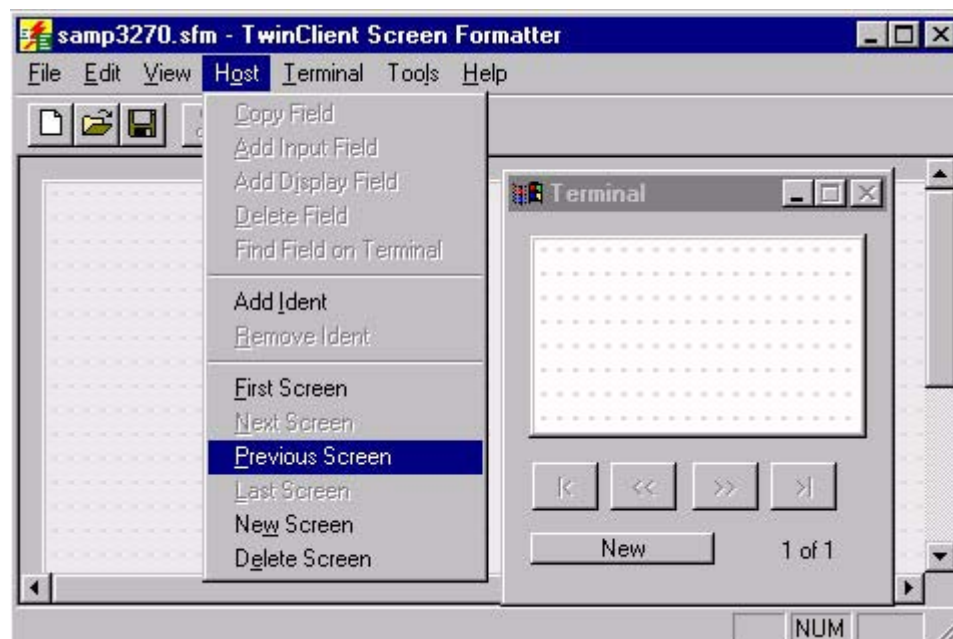
To move to the first screen in the screen formatter, choose **First Screen** from the **Host** menu.



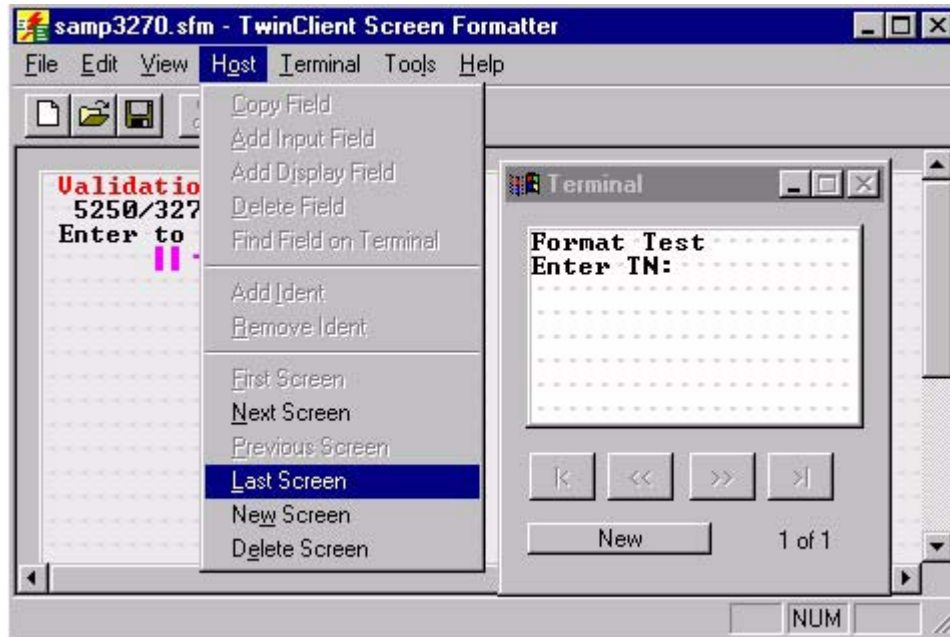
To move to the next screen, select **Next Screen** from the **Host** menu.



To move to the previous screen, select **Previous Screen** from the **Host** menu.



To move to the last screen, select Last Screen from the Host menu.

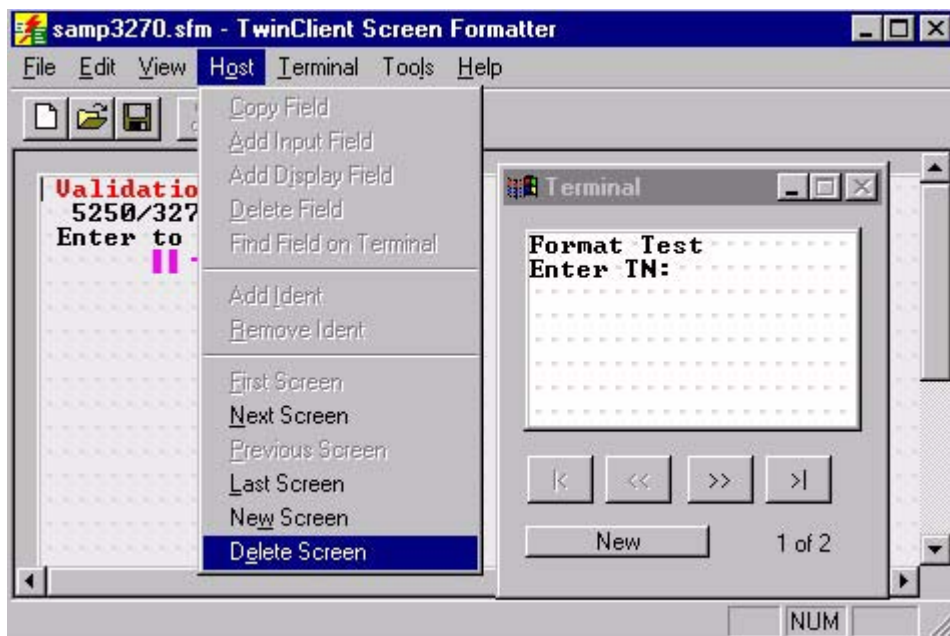


Adding a Terminal Screen

New terminal screens are created by using the **New** button at the bottom of the Terminal display window. This is useful when more than one terminal screen is required to format the relevant data on the host screen. Up to 16 terminal displays can be associated with each formatted host display. These are called terminal pages, and the page that is displayed on the terminal at any point in time depends on the location of the host cursor position. The page to which the corresponding input field is formatted is the one displayed. When multiple pages are present, directional arrows are used to navigate through the pages.

Deleting a Screen

To delete a screen, select **Delete Screen** from the **Host** menu.



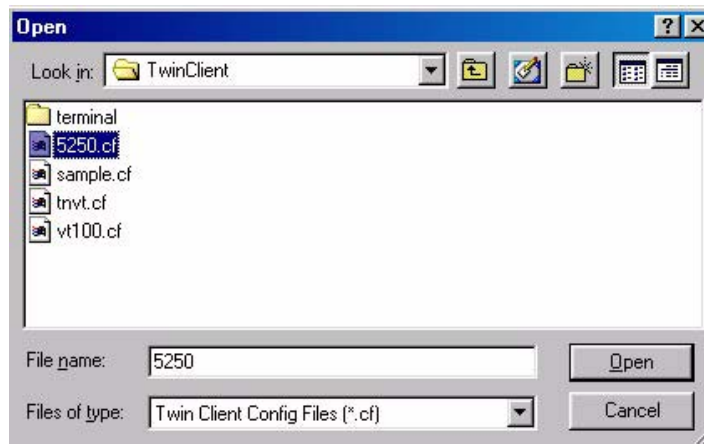
Saving the Formatter Object

The formatter object is saved by clicking on the  toolbar icon, or by clicking on **File** and **Save**.

Assigning the Object to a Terminal Configuration

The formatter object is assigned to a terminal configuration by opening a terminal configuration in the Twin Client Manager, assigning the object to the Display Formatting Object, and saving the configuration.

To open a terminal configuration in the Twin Client Manager, click on **File > Open**.



Select the desired terminal configuration and click **Open**.

Click on the advanced view **Display** tab, and select the object from the **Formatter Object** drop-down list.



Save the newly modified terminal configuration using the  toolbar icon, or click on **File > Save**. The new configuration, incorporating the formatter object, is updated on the terminal, automatically, by cold booting the terminal.

Software Management

In addition to providing functions for downloading files to the terminal via the traditional serial connection, the Twin Client Manager also provides for the management of terminal software and configurations automatically, over the wireless network.

This chapter describes the automated capability in detail. Additional manual operations involving serial download options are described at the end of this chapter.

AirLoader Auto-Configuration

The Airloader Auto-Configuration from is accessed from the Twin Client Manager Settings menu. Select Airloader

Note: If no options are displayed, click the Advanced button.

Enabling Automatic Downloads

Check the **Allow terminal to be automatically configured via RF** box to enable automatic downloading. In the event another PC on the network is already configured and active, the following warning message is displayed.



Synchronizing Configuration Files

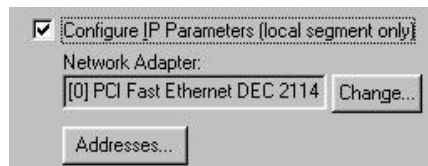
Check in the **Synchronize Configurations Files** box to enable automatic synchronization of configuration files on the terminal. When the terminal is cold booted, its configuration files will be compared with the most recent on the PC. The terminal is updated automatically if it does not have the latest revision.

Synchronizing Program Files

Check in the **Synchronize Program Files** box to enable automatic synchronization of program files on the terminal. When the terminal is cold booted, its program files will be compared with the most recent on the PC. The terminal is updated automatically if it does not have the latest revision.

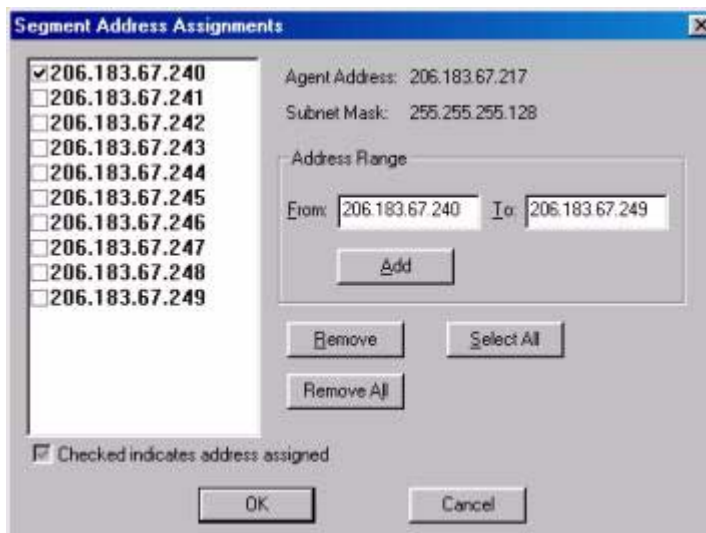
Automatic IP Address Assignment

New terminals will be assigned IP addresses automatically if the following box is checked.



Note: Do not check this box if a DHCP server is configured to manage address assignments.

To set the addresses, click on the **Addresses** button to access the Segment Address Assignments dialog box, as shown in the following figure.



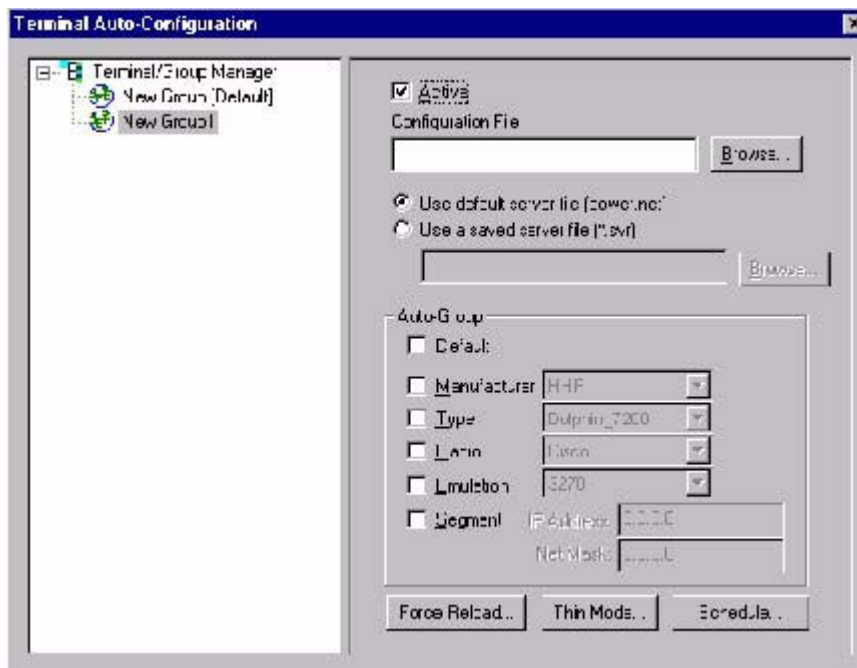
Enter the desired range in the **From** and **To** boxes as shown above, and then click on **Add**.

Creating New Groups

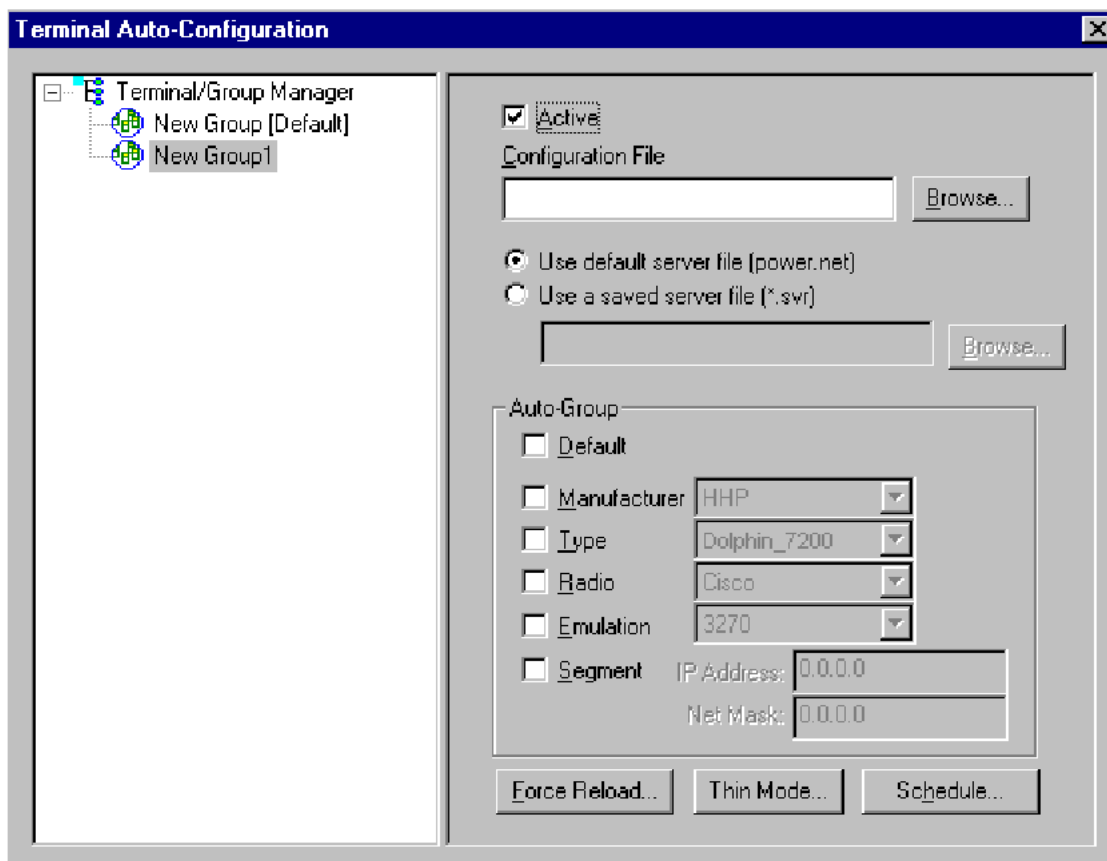
New groups, with different configurations, can be created by clicking on the **Terminal Group Manager**, and then clicking the right mouse button.



After the new group has been created, the group settings option become available for change, as shown below.



After the Configuration File and all of the other parameters have been set, the group is made active by clicking on the **Active** check box.



Clicking on the **Thin Mode** button will cause all terminals in this group that are currently running in thick mode to be switched to thin mode the next time Airloader is run on the terminal.

Click on the **Schedule** button to view a dialog box for scheduling an automatic Airloader update.



Select the desired time and click on **OK**. Click on **Update Now**, and the Airloader "push" capability controls terminals from this end.

Setting the Segment

Checking the **Segment** button restricts a terminal group to a range of IP addresses. The IP Address can be any valid address on the segment as it is used only to identify the segment. The setting of the Net Mask can be used to restrict the range. This feature is useful for segregating terminal groups by location.

Setting Force Reload

Clicking on the **Force Reload** button forces all terminals within a group to be automatically updated. The following warning message appears:



Click on the **Yes** button to force the reload.

Setting the Default Terminal Group

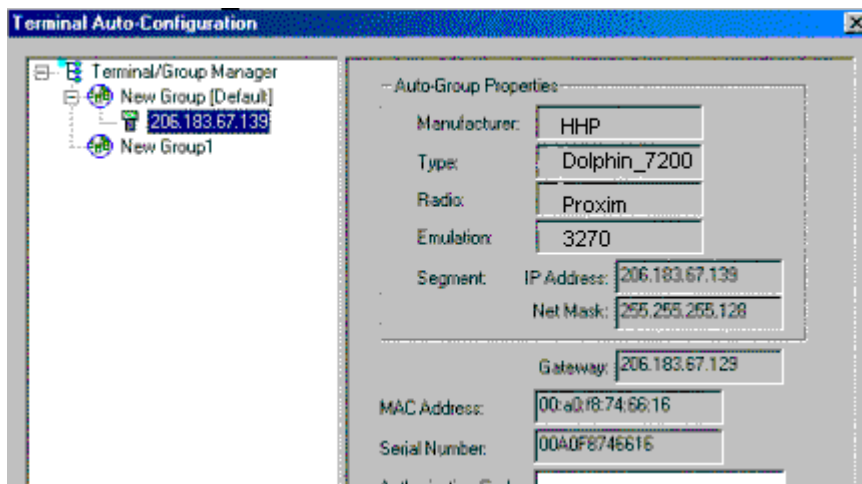
New terminals that have not yet been assigned to any group are initially assigned to the default group in effect when they are cold booted.



Any group can be made the default group by clicking on the group, and then clicking on the right mouse button. Then click on the **Make Default** option.

Reassigning Terminals

After a terminal has been configured and assigned to the default group, it can be reassigned to a new group by clicking on the terminal icon as shown below.



Then, holding the mouse button down, drag the terminal icon to the desired group as shown next.



Release the mouse button, which reassigns the terminal. The next time the terminal is rebooted, it will be reconfigured as defined in the group specification.

Tools Menu

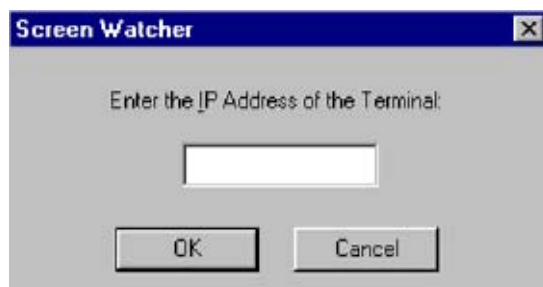
The **Tools** menu contains many features.



Note: The terminal may or may not be able to utilize the Screen Watcher or Terminal Messenger features depending on its authorization codes.

Screen Watcher

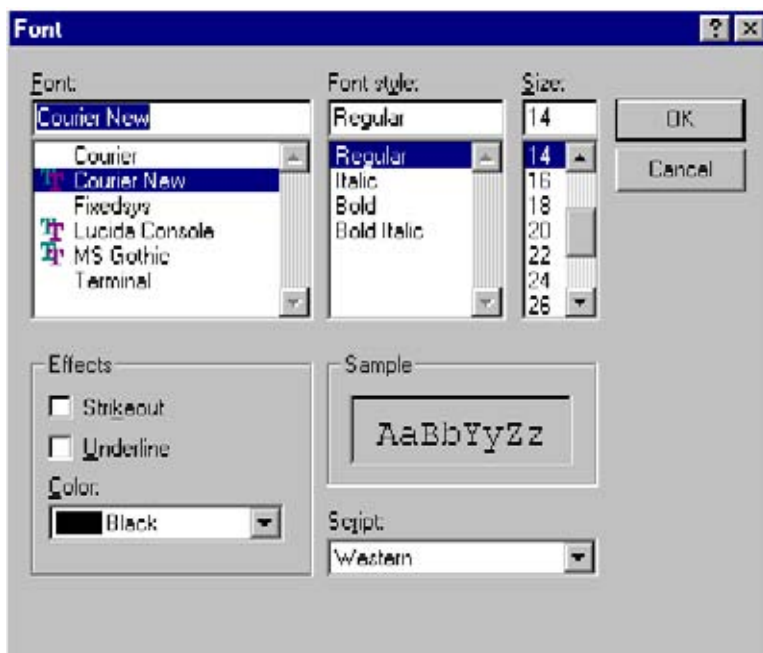
Go to **Tools > Screen Watcher**.



Enter the terminal's IP address, and click **OK**. A screen appears that resembles the terminal screen.



Clicking the **Font** button on the upper left brings up a screen in which you can modify the font settings.



Terminal Messenger

Go to **Tools > Terminal Messenger**.



The screenshot shows the 'Terminal Messenger' dialog box. It has a title bar with the text 'Terminal Messenger' and a close button. Inside, there is a text input field labeled 'Enter the message to send:'. Below this is a section titled 'Select Terminal(s):' which contains a list box on the left and a group box on the right. The group box is titled 'Address Range' and contains two input fields labeled 'From:' and 'To:', an 'Add' button below them, and four buttons below the group box: 'Remove', 'Select All', 'Remove All', and 'Unselect All'. At the bottom of the dialog are 'Send' and 'Close' buttons. A note at the bottom of the 'Select Terminal(s):' section says 'Use Ctrl and Shift keys to select multiple terminals'.

You may enter an **Address Range** in the From and To boxes on this screen. Click on **Add** when finished.

Enter a message to send in the space provided, select the terminal to receive this message in the **Select Terminal(s)** column, and click on the **Send** button to send the message of your choice to the terminal of your choice.

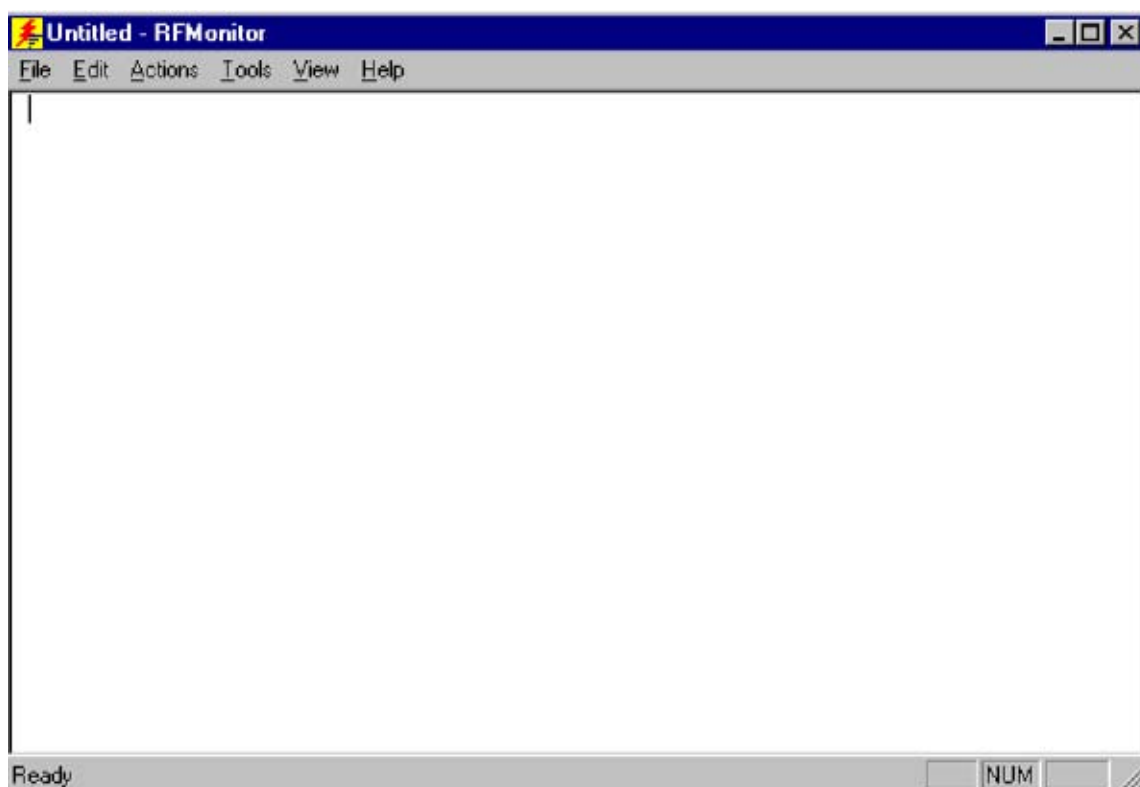
To remove a terminal from the list of terminals receiving your message, click on the terminal number in the **Select Terminal(s)** column, and click on the **Remove** button. Click on the appropriate button, **Remove All**, **Select All**, or **Unselect All**, to remove all terminals, select all terminals, or unselect all terminals from the **Select Terminal(s)** list.

Note: Use the **Ctrl** and **Shift** keys to select multiple terminals.

Click on the **Close** button when finished.

RF Monitor

Go to **Tools > RF Monitor**.



Go to **File > Select Terminal** to view a log of the terminal's activity. Enter the **Terminal IP Address** and set the **Terminal IP Port** to 1802.



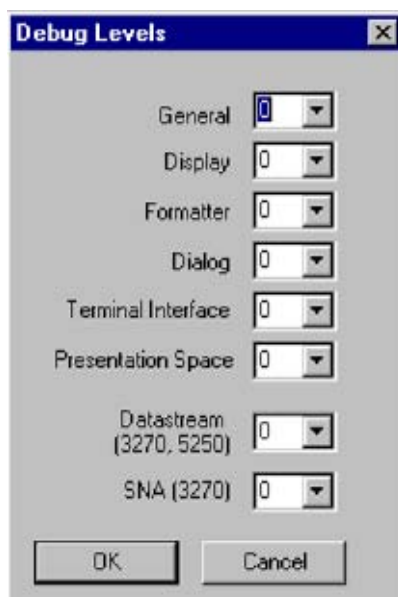
Click **OK**.

Click **Edit > Find** and/or **Find Next** to search for pieces of information in your log. Select **Clear** to clear the search.

Click on **Actions** to Start the Monitor or Stop the Monitor.

Set Debug Levels

Go to **Tools > Set Debug Levels**.



Settings

Go to **Tools > Settings** to set the maximum log file size.



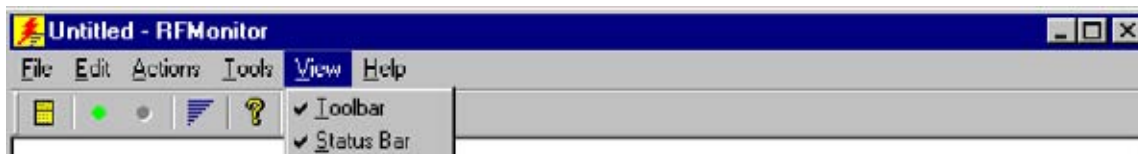
Go to **Tools > Server Transfer**. The FTP Settings screen appears.



To send object editor and configuration files from Windows to your Linux box, enter your **Server address** and click **OK**.

View Menu

Click on **View** to show or hide the Toolbar and the Status Bar.



This is the Toolbar. It is found near the top of the screen.



This is the Status Bar. It is found at the bottom of the screen.



Sending Configuration Files to Dolphin 7200/7500 Terminals

HHP terminals are normally delivered with HHP software pre-installed.

The automated configuration management provided by the Twin Client Manager eliminates the need for a serial download of the terminal configuration. However, this function can be accomplished manually by clicking **Terminal > Send Setup Files to Terminal**. After safe booting the terminal, type "LD" at the DOS prompt, but do not ENTER at this time.

Note: This procedure assumes that the PowerNet Twin Client was previously installed.

The following screen appears:



Now, choose **ENTER** on the terminal, while choosing **OK** at the prompt above.

Cold boot the terminal.

The terminal is now ready to begin a Telnet session with the new setup files.

Sending Configuration Files to Dolphin 74XX/95XX Terminals

1. Cold boot the terminal by pressing and holding the <ESC> and <CTRL> keys for about 10 seconds, then release.
2. On the terminal, press <ENT>.
3. Connect the terminal to the host PC via ActiveSync.
4. On the PC, go to Terminal > **Send Configuration Files to Terminal**. The following screen displays.



5. Click **Yes**. The following window appears.



6. Click **OK**.
7. Cold boot the terminal.
8. On the terminal, select the **Specify an IP Address** button.
9. Enter the **IP Address**, **Subnet Mask**, and **Default Gateway**.
10. Click **OK**.
11. Go to **Start > Programs > Cisco > Client Utility**.
12. Select **SSID** and its **Value**.

-
13. Click **OK**.
 14. Go to **Start > Programs > Cisco > Client Utility**.
 15. Select **World Mode**, and change the value to **Disabled**.
 16. Click **OK**.
 17. Warm boot the terminal.

Sending Program Files to the Dolphin 74XX/95XX Terminal

1. Cold boot the terminal.
2. On the terminal, press <ENT>.
3. Double-click on the **My Computer** icon.
4. Double-click on the **IPSM** icon.
5. Select the **TwinClient** folder.
6. Choose **Delete** from the **File** menu.
7. Choose **Yes** at the prompts.
8. Press <ENT>. Steps 1-8 clear the previous version.
9. Connect the terminal to the host PC via ActiveSync.
10. On the PC, go to **Terminal > Send Program Files to Terminal**. The following screen appears.



11. Click **OK**.
12. On the terminal, select the **Specify an IP Address** button.
13. Enter the **IP Address**, **Subnet Mask**, and **Default Gateway**.
14. Click **OK**.
15. Go to **Start > Programs > Cisco > Client Utility**.
16. Select **SSID** and its **Value**.
17. Click **OK**.
18. Go to **Start > Programs > Cisco > Client Utility**.
19. Select **World Mode**, and change the value to **Disabled**.
20. Click **OK**.

Character Sets

ISO 8859-1 Character Set

Description	Char	Dec	Hex
non-breaking space		160	A0
inverted exclamation	¡	161	A1
cent sign	¢	162	A2
pound sterling	£	163	A3
general currency sign	¤	164	A4
yen sign	¥	165	A5
broken vertical bar		166	A6
section sign	§	167	A7
umlaut (dieresis)	¨	168	A8
copyright	©	169	A9
feminine ordinal	ª	170	AA
left angle quote, guillemot left	«	171	AB
not sign	¬	172	AC
soft hyphen	-	173	AD
registered trademark	®	174	AE
macron accent	ˆ	175	AF
degree sign	°	176	B0
plus or minus	±	177	B1
superscript two	²	178	B2
superscript three	³	179	B3
acute accent	´	180	B4
microsign	µ	181	B5
paragraph sign	¶	182	B6
middle dot	·	183	B7
cedilla	¸	184	B8
superscript one	¹	185	B9
masculine ordinal	º	186	BA
right angle quote, guillemot right	»	187	BB
fraction one-fourth	¼	188	BC

ISO 8859-1 Character Set

Description	Char	Dec	Hex
fraction one-half	½	189	BD
fraction three-fourths	¾	190	BE
inverted question mark	¿	191	BF
capital A, grave accent	À	192	C0
capital A, acute accent	Á	193	C1
capital A, circumflex accent	Â	194	C2
capital A, tilde	Ã	195	C3
capital A, dieresis or umlaut mark	Ä	196	C4
capital A, ring	Å	197	C5
capital AE diphthong (ligature)	Æ	198	C6
capital C, cedilla	Ç	199	C7
capital E, grave accent	È	200	C8
capital E, acute accent	É	201	C9
capital E, circumflex accent	Ê	202	CA
capital E, dieresis or umlaut mark	Ë	203	CB
capital I, grave accent	Ì	204	CC
capital I, acute accent	Í	205	CD
capital I, circumflex accent	Î	206	CE
capital I, dieresis or umlaut mark	Ï	207	CF
capital Eth, Icelandic	Ð	208	D0
capital N, tilde	Ñ	209	D1
capital O, grave accent	Ò	210	D2
capital O, acute accent	Ó	211	D3
capital O, circumflex accent	Ô	212	D4
capital O, tilde	Õ	213	D5
capital O, dieresis or umlaut mark	Ö	214	D6
multiply sign	×	215	D7
capital O, slash	Ø	216	D8
capital U, grave accent	Ù	217	D9
capital U, acute accent	Ú	218	DA
capital U, circumflex accent	Û	219	DB

ISO 8859-1 Character Set

Description	Char	Dec	Hex
capital U, dieresis or umlaut mark	Ü	220	DC
capital Y, acute accent	Ý	221	DD
capital THORN, Icelandic	Þ	222	DE
small sharp s, German (sz ligature)	ß	223	DF
small A, grave accent	à	224	E0
small A, acute accent	á	225	E1
small A, circumflex accent	â	226	E2
small A, tilde	ã	227	E3
small A, dieresis or umlaut mark	ä	228	E4
small A, ring	å	229	E5
small AE diphthong (ligature)	æ	230	E6
small C, cedilla	ç	231	E7
small E, grave accent	è	232	E8
small E, acute accent	é	233	E9
small E, circumflex accent	ê	234	EA
small E, dieresis or umlaut mark	ë	235	EB
small I, grave accent	ì	236	EC
small I, acute accent	í	237	ED
small I, circumflex accent	î	238	EE
small I, dieresis or umlaut mark	ï	239	EF
small Eth, Icelandic	ð	240	F0
small N, tilde	ñ	241	F1
small O, grave accent	ò	242	F2
small O, acute accent	ó	243	F3
small O, circumflex accent	ô	244	F4
small O, tilde	õ	245	F5
small O, dieresis or umlaut mark	ö	246	F6
division sign	÷	247	F7
small O, slash	ø	248	F8
small U, grave accent	ù	249	F9
small U, acute accent	ú	250	FA

ISO 8859-1 Character Set

Description	Char	Dec	Hex
small U, circumflex accent	û	251	FB
small U, dieresis or umlaut mark	ü	252	FC
small Y, acute accent	ý	253	FD
small THORN, Icelandic	þ	254	FE
small Y, dieresis or umlaut mark	ÿ	255	FF

ASCII Character Sets

Decimal and Hexadecimal Values

	Dec	Hex		Dec	Hex		Dec	Hex		Dec	Hex
NUL	0	00	SP	32	20	@	64	40	`	96	60
SOH	1	01	!	33	21	A	65	41	a	97	61
STX	2	02	"	34	22	B	66	42	b	98	62
ETX	3	03	#	35	23	C	67	43	c	99	63
EOT	4	04	\$	36	24	D	68	44	d	100	64
ENQ	5	05	%	37	25	E	69	45	e	101	65
ACK	6	06	&	38	26	F	70	46	f	102	66
BEL	7	07	'	39	27	G	71	47	g	103	67
BS	8	08	(40	28	H	72	48	h	104	68
HT	9	09)	41	29	I	73	49	i	105	69
NL	10	0A	*	42	2A	J	74	4A	j	106	6A
VT	11	0B	+	43	2B	K	75	4B	k	107	6B
NP	12	0C	,	44	2C	L	76	4C	l	108	6C
CR	13	0D	-	45	2D	M	77	4D	m	109	6D
SO	14	0E	.	46	2E	N	78	4E	n	110	6E
SI	15	0F	/	47	2F	O	79	4F	o	111	6F
DLE	16	10	0	48	30	P	80	50	p	112	70
DC1	17	11	1	49	31	Q	81	51	q	113	71
DC2	18	12	2	50	32	R	82	52	r	114	72
DC3	19	13	3	51	33	S	83	53	s	115	73
DC4	20	14	4	52	34	T	84	54	t	116	74
NAK	21	15	5	54	35	U	85	55	u	117	75
SYN	22	16	6	54	36	V	86	56	v	118	76
ETB	23	17	7	55	37	W	87	57	w	119	77
CAN	24	18	8	56	38	X	88	58	x	120	78
EM	25	19	9	57	39	Y	89	59	y	121	79
SUB	26	1A	:	58	3A	Z	90	5A	z	122	7A
ESC	27	1B	;	59	3B	[91	5B	{	123	7B
FS	28	1C	<	60	3C	\	92	5C		124	7C
GS	29	1D	=	61	3D]	93	5D	}	125	7D

Decimal and Hexadecimal Values

	Dec	Hex		Dec	Hex		Dec	Hex		Dec	Hex
RS	30	1E	>	62	3E	^	94	5E	~	126	7E
US	31	1F	?	63	3F	_	95	5F	DEL	127	7F

ASCII Character Set

Octal Values

	Oct		Oct		Oct		Oct
NUL	000	SP	040	@	100	`	140
SOH	001	!	041	A	101	a	141
STX	002	"	042	B	102	b	142
ETX	003	#	043	C	103	c	143
EOT	004	\$	044	D	104	d	144
ENQ	005	%	045	E	105	e	145
ACK	006	&	046	F	106	f	146
BEL	007	'	047	G	107	g	147
BS	010	(050	H	110	h	150
HT	011)	051	I	111	i	151
NL	012	*	052	J	112	j	152
VT	013	+	053	K	113	k	153
NP	014	,	054	L	114	l	154
CR	015	-	055	M	115	m	155
SO	016	.	056	N	116	n	156
SI	017	/	057	O	117	o	157
DLE	020	0	060	P	120	p	160
DC1	021	1	061	Q	121	q	161
DC2	022	2	062	R	122	r	162
DC3	023	3	063	S	123	s	163
DC4	024	4	064	T	124	t	164
NAK	025	5	065	U	125	u	165
SYN	026	6	066	V	126	v	166
ETB	027	7	067	W	127	w	167
CAN	030	8	070	X	130	x	170
EM	031	9	071	Y	131	y	171
SUB	032	:	072	Z	132	z	172
ESC	033	;	073	[133	{	173
FS	034	<	074	\	134		174

Octal Values

	Oct		Oct		Oct		Oct
GS	035	=	075]	135	}	175
RS	036	>	076	^	136	~	176
US	037	?	077	_	137	DEL	177

Keypad Configurations

This chapter describes the default PowerNet key assignments applied to HHP terminals used in Twin Client advanced mode. The figures and tables identify the key assignments by terminal model and emulation.

Adhesive decals that reflect the configurations described in this chapter are available for HHP terminals in each of the emulations (3270, 5250, and VTERM).

Dolphin 7500 Terminal Keypad Table

The keypad table in this section is organized by emulation. The key values represent the default PowerNet keypad assignments applied to the terminal in Twin Client advanced mode. Table entries that are grayed-out indicate the default key assignment.

7500 Terminal Keypad Table

Key	VTERM	3270	5250
a			
b			
c			
d			
e			
f			
g			
h			
i			
j			
k			
l			
m			
n			
o			
p			
q			
r			
s			
t			
u			
v			
w			
x			

7500 Terminal Keypad Table

Key	VTERM	3270	5250
y			
z			
A	<Shift><a>	<Shift><a>	<Shift><a>
B	<Shift>	<Shift>	<Shift>
C	<Shift><c>	<Shift><c>	<Shift><c>
D	<Shift><d>	<Shift><d>	<Shift><d>
E	<Shift><e>	<Shift><e>	<Shift><e>
F	<Shift><f>	<Shift><f>	<Shift><f>
G	<Shift><g>	<Shift><g>	<Shift><g>
H	<Shift><h>	<Shift><h>	<Shift><h>
I	<Shift><i>	<Shift><i>	<Shift><i>
J	<Shift><j>	<Shift><j>	<Shift><j>
K	<Shift><k>	<Shift><k>	<Shift><k>
L	<Shift><l>	<Shift><l>	<Shift><l>
M	<Shift><m>	<Shift><m>	<Shift><m>
N	<Shift><n>	<Shift><n>	<Shift><n>
O	<Shift><o>	<Shift><o>	<Shift><o>
P	<Shift><p>	<Shift><p>	<Shift><p>
Q	<Shift><q>	<Shift><q>	<Shift><q>
R	<Shift><r>	<Shift><r>	<Shift><r>
S	<Shift><s>	<Shift><s>	<Shift><s>
T	<Shift><t>	<Shift><t>	<Shift><t>
U	<Shift><u>	<Shift><u>	<Shift><u>
V	<Shift><v>	<Shift><v>	<Shift><v>
W	<Shift><w>	<Shift><w>	<Shift><w>
X	<Shift><x>	<Shift><x>	<Shift><x>
Y	<Shift><y>	<Shift><y>	<Shift><y>
Z	<Shift><z>	<Shift><z>	<Shift><z>
Backtab	<Shift><Tab>	<Shift><Tab>	<Shift><Tab>
Tab ← →			
Esc			

7500 Terminal Keypad Table

Key	VTERM	3270	5250
Space			
Caps Lock			
Shift			
Ctrl			
Alt			
Backspace ←			
Enter			
Del			
1			
2			
3			
4			
5			
6			
7			
8			
9			
0			
!	<Shift><1>	<Shift><1>	<Shift><1>
@	<Shift><2>	<Shift><2>	<Shift><2>
#	<Shift><3>	<Shift><3>	<Shift><3>
\$	<Shift><4>	<Shift><4>	<Shift><4>
%	<Shift><5>	<Shift><5>	<Shift><5>
^	<Shift><6>	<Shift><6>	<Shift><6>
&	<Shift><7>	<Shift><7>	<Shift><7>
*	<Shift><8>	<Shift><8>	<Shift><8>
(<Shift><9>	<Shift><9>	<Shift><9>
)	<Shift><0>	<Shift><0>	<Shift><0>
F1			
F2			
F3			

7500 Terminal Keypad Table

Key	VTERM	3270	5250
F4			
F5			
F6			
F7			
F8			
F9			
F10			
F11			
F12			
F11	<Shift><F1>	<Shift><F1>	<Shift><F1>
F12	<Shift><F2>	<Shift><F2>	<Shift><F2>
F13	<Shift><F3>	<Shift><F3>	<Shift><F3>
F14	<Shift><F4>	<Shift><F4>	<Shift><F4>
F15	<Shift><F5>	<Shift><F5>	<Shift><F5>
F16	<Shift><F6>	<Shift><F6>	<Shift><F6>
F17	<Shift><F7>	<Shift><F7>	<Shift><F7>
F18	<Shift><F8>	<Shift><F8>	<Shift><F8>
F19	<Shift><F9>	<Shift><F9>	<Shift><F9>
F20	<Shift><F10>	<Shift><F10>	<Shift><F10>
F21	<Shift><F11>	<Shift><F11>	<Shift><F11>
F22	<Shift><F12>	<Shift><F12>	<Shift><F12>
F21	<Ctrl><F1>	<Ctrl><F1>	<Ctrl><F1>
F22	<Ctrl><F2>	<Ctrl><F2>	<Ctrl><F2>
F23	<Ctrl><F3>	<Ctrl><F3>	<Ctrl><F3>
F24	<Ctrl><F4>	<Ctrl><F4>	<Ctrl><F4>
↑			
←			
↓			
→			
/ forward slash			

7500 Terminal Keypad Table

Key	VTERM	3270	5250
` accent			
- hyphen			
= equal sign			
[left bracket			
] right bracket			
\ backward slash			
; semicolon			
' apostrophe			
,	comma		
.	period		
~ tilde	<Shift><`>	<Shift><`>	<Shift><`>
_ underscore	<Shift><->	<Shift><->	<Shift><->
+ addition sign	<Shift><=>	<Shift><=>	<Shift><=>
{ left brace	<Shift><[>	<Shift><[>	<Shift><[>
} right brace	<Shift><]>	<Shift><]>	<Shift><]>
broken vertical bar	<Shift><\>	<Shift><\>	<Shift><\>
:	colon	<Shift><;>	<Shift><;>
" quotation mark	<Shift><'>	<Shift><'>	<Shift><'>
< less-than sign	<Shift><,>	<Shift><,>	<Shift><,>
> greater-than sign	<Shift><.>	<Shift><.>	<Shift><.>
? question mark	<Shift></>	<Shift></>	<Shift></>
Print Screen/Sys Req			
Pause/Break			
Scroll Lock			
Insert			
Home			
End			
Page Up			
Page Down			
Num Lock			
Roll up	---	---	<Alt>< ↑ >

7500 Terminal Keypad Table

Key	VTERM	3270	5250
Roll down	---	---	<Alt><↓>
View up	<Ctrl><↑>	<Ctrl><↑>	<Ctrl><↑>
View down	<Ctrl><↓>	<Ctrl><↓>	<Ctrl><↓>
View left	<Ctrl><←>	<Ctrl><←>	<Ctrl><←>
View right	<Ctrl><→>	<Ctrl><→>	<Ctrl><→>
Lighten	<Alt><→>	<Alt><→>	<Alt><→>
Darken	<Alt><←>	<Alt><←>	<Alt><←>
PA1	---	<Alt><1>	---
PA2	---	<Alt><2>	---
PA3	---	<Alt><3>	---
ERINP	---	<Alt><End>	<Alt><End>
Attention	---	<Alt><a>	<Alt><a>
Bottom	---	<Alt>	<Alt>
Clear	---	<Alt><c>	<Alt><c>
Redraw	---	<Alt><d>	<Alt><d>
Field exit	---	---	<Alt><e>
FM	---	<Alt><f>	<Alt><f>
Field mark	---	---	---
Help	<Alt><h>	<Alt><h>	<Alt><h>
Info	<Alt><i>	<Alt><i>	<Alt><i>
EOF	---	<Alt><j>	<Alt><j>
Erinp	---	<Alt><k>	<Alt><k>
Local exit	---	<Alt><l>	<Alt><l>
Field -	---	---	<Alt><m>
New line	---	<Alt><n>	<Alt><n>
ErEOF	---	---	<Alt><o>
Field +	---	---	<Alt><p>
Reset	---	<Alt><r>	<Alt><r>
Sys req	---	<Alt><s>	<Alt><s>
Top	---	<Alt><t>	<Alt><t>

7500 Terminal Keypad Table

Key	VTERM	3270	5250
Dup	---	<Alt><u>	<Alt><u>
Refresh	---	<Alt><v>	<Alt><v>
Print	---	<Alt><w>	<Alt><w>
Null end	---	<Alt><x>	<Alt><x>
Back tab	<Alt><y>	<Alt><y>	<Alt><y>
EndPos	---	<Alt><z>	<Alt><z>
Ctrl_a	<Ctrl><a>	<Ctrl><a>	<Ctrl><a>
Ctrl_b	<Ctrl>	<Ctrl>	<Ctrl>
Ctrl_c	<Ctrl><c>	<Ctrl><c>	<Ctrl><c>
Ctrl_d	<Ctrl><d>	<Ctrl><d>	<Ctrl><d>
Ctrl_e	<Ctrl><e>	<Ctrl><e>	<Ctrl><e>
Ctrl_f	<Ctrl><f>	<Ctrl><f>	<Ctrl><f>
Ctrl_g	<Ctrl><g>	<Ctrl><g>	<Ctrl><g>
Ctrl_h	<Ctrl><h>	<Ctrl><h>	<Ctrl><h>
Ctrl_i	<Ctrl><i>	<Ctrl><i>	<Ctrl><i>
Ctrl_j	<Ctrl><j>	<Ctrl><j>	<Ctrl><j>
Ctrl_k	<Ctrl><k>	<Ctrl><k>	<Ctrl><k>
Ctrl_l	<Ctrl><l>	<Ctrl><l>	<Ctrl><l>
Ctrl_m	<Ctrl><m>	<Ctrl><m>	<Ctrl><m>
Ctrl_n	<Ctrl><n>	<Ctrl><n>	<Ctrl><n>
Ctrl_o	<Ctrl><o>	<Ctrl><o>	<Ctrl><o>
Ctrl_p	<Ctrl><p>	<Ctrl><p>	<Ctrl><p>
Ctrl_q	<Ctrl><q>	<Ctrl><q>	<Ctrl><q>
Ctrl_r	<Ctrl><r>	<Ctrl><r>	<Ctrl><r>
Ctrl_s	<Ctrl><s>	<Ctrl><s>	<Ctrl><s>
Ctrl_t	<Ctrl><t>	<Ctrl><t>	<Ctrl><t>
Ctrl_u	<Ctrl><u>	<Ctrl><u>	<Ctrl><u>
Ctrl_v	<Ctrl><v>	<Ctrl><v>	<Ctrl><v>
Ctrl_w	<Ctrl><w>	<Ctrl><w>	<Ctrl><w>
Ctrl_x	<Ctrl><x>	<Ctrl><x>	<Ctrl><x>
Ctrl_y	<Ctrl><y>	<Ctrl><y>	<Ctrl><y>

7500 Terminal Keypad Table

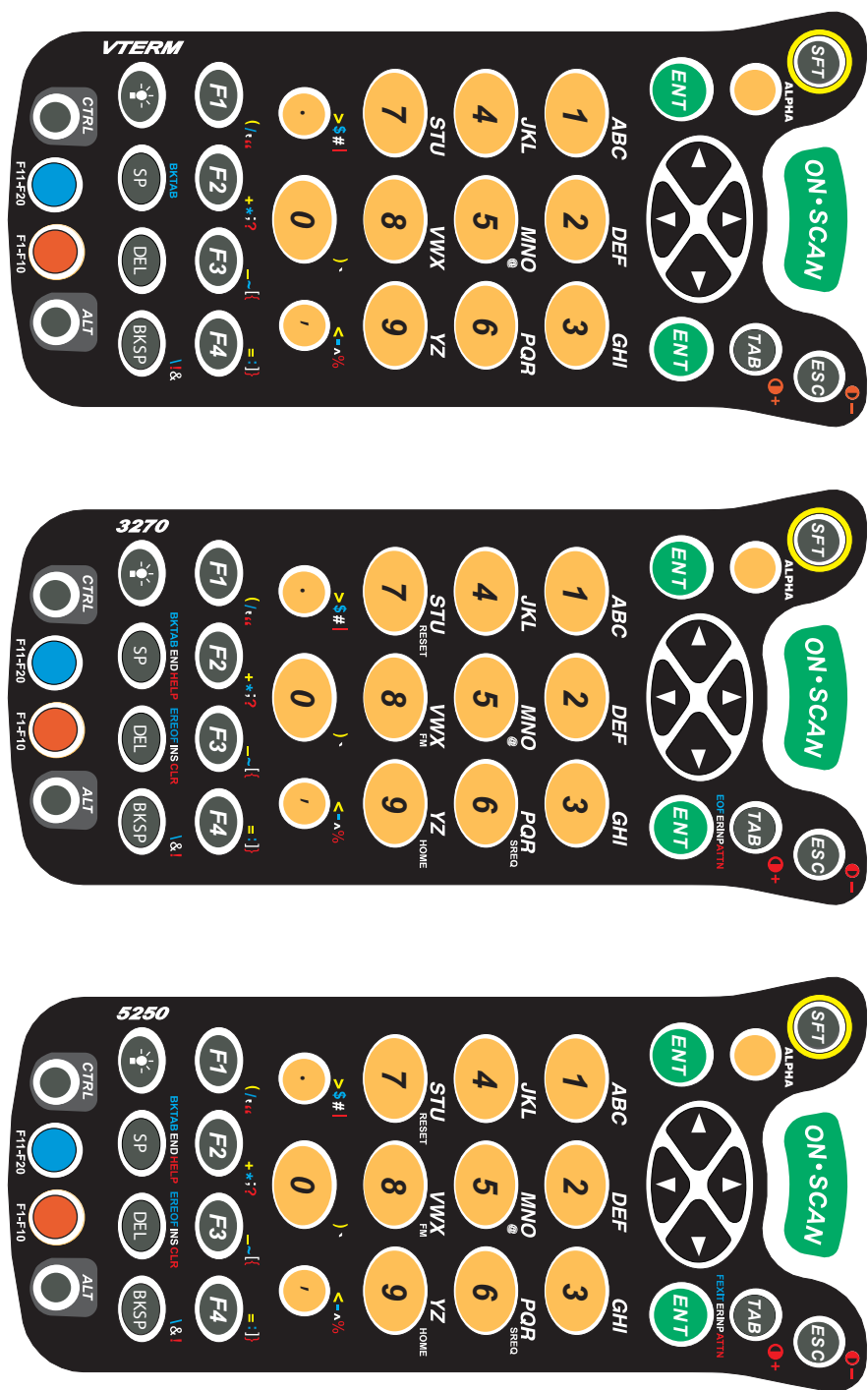
Key	VTERM	3270	5250
Ctrl_Z	<Ctrl><z>	<Ctrl><z>	<Ctrl><z>
Ctrl ^	<Ctrl><6>	<Ctrl><6>	<Ctrl><6>
Ctrl _	<Ctrl><->	<Ctrl><->	<Ctrl><->

Dolphin 7500 Keyboard


Esc	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	Num Lock	Prt Sc SysRq	Scroll Lock	Pause Break
1 !	2 @	3 #	4 \$	5 %	6 ^	7 &	8 '	9 (0)	- _	= +	? Backspace		Home		
? Tab	Q	W	E	R	T	Y	U	I	O	P	{ [}]	 \ ~	Pg Up		
Caps Lock	A	S	D	F	G	H	J	K	L	; :	" '	? Enter		Pg Dn		
↑ Shift	Z	X	C	V	B	N	M	< ,	> .	? /	↑ Shift	?	End			
Ctrl	Fn	Alt	~ '						Alt	Ins	Del	?	?	?		

Dolphin 35-Key Keypads for Terminal Emulation


Dolphin 74XX 35-Key Keypad Overlays




Dolphin 74XX 35-Key Keypad Map for VTERM

Key	SFT 	ALPHA	CTRL	BLUE	RED	WHITE (BLUE + RED)	ALT
ESC							
ALPHA							
TAB							
ENT							
LEFT	Vwleft						
UP	Vwup						
RIGHT	Vwwrite						
DOWN	Vwdn						
ENT							
1	ABC	abc	Ctrl_a	PF11	PF1		
2	DEF	def	Ctrl_d	PF12	PF2		
3	GHI	ghi	Ctrl_g	PF13	PF3		
4	JKL	jkl	Ctrl_j	PF14	PF4		
5	MNO	mno	Ctrl_m	PF15	PF5	@	
6	PQR	pqr	Ctrl_p	PF16	PF6		
7	STU	stu	Ctrl_s	PF17	PF7		
8	VWX	vwX	Ctrl_v	PF18	PF8		
9	YZ	yz	Ctrl_y	PF19	PF9		
.	>			\$		#	
0)			PF20	PF10	`	
,	<			-	%	^	
F1	(/	"	'	
F2	+			*	?	;	
F3	_			~	{	[
F4	=			:	}]	
light							
SP				BKTAB			
DEL							
BKSP				\	!	&	


Dolphin 74XX 35-Key Keypad Map for VTERM

Key	SFT 	ALPHA	CTRL	BLUE	RED	WHITE (BLUE + RED)	ALT
CTRL							
BLUE							
RED							
ALT							


Dolphin 74XX 35-Key Keypad Map for 3270

Key	SFT 	ALPHA	CTRL	BLUE	RED	WHITE (BLUE + RED)	ALT
SFT							
ESC							
ALPHA							
TAB							
ENT				EOF	ATTN	ERINP	
LEFT	Vwleft			PA1	NEWL		
UP	Vwup			PA2	LEXIT		
RIGHT	Vwrite			PA3			
DOWN	Vwdn						
ENT				EOF	ATTN	ERINP	
1	ABC	abc		PF11	PF1		
2	DEF	def		PF12	PF2		
3	GHI	ghi		PF13	PF3		
4	JKL	jkl		PF14	PF4		
5	MNO	mno		PF15	PF5	@	
6	PQR	pqr		PF16	PF6	SREQ	
7	STU	stu		PF17	PF7	RESET	
8	VWX	vwX		PF18	PF8	FM	
9	YZ	yz		PF19	PF9	HOME	
.	>			\$		#	
0)			PF20	PF10	`	
,	<			-	%	^	
F1	(/	"	'	
F2	+			*	?	;	
F3	_			~	{	[
F4	=			:	}]	
light							
SP				BKTAB	HELP	END	
DEL				EREOF	CLEAR	INS	


Dolphin 74XX 35-Key Keypad Map for 3270

Key	SFT 	ALPHA	CTRL	BLUE	RED	WHITE (BLUE + RED)	ALT
BKSP				\	!	&	
CTRL							
BLUE							
RED							
ALT							

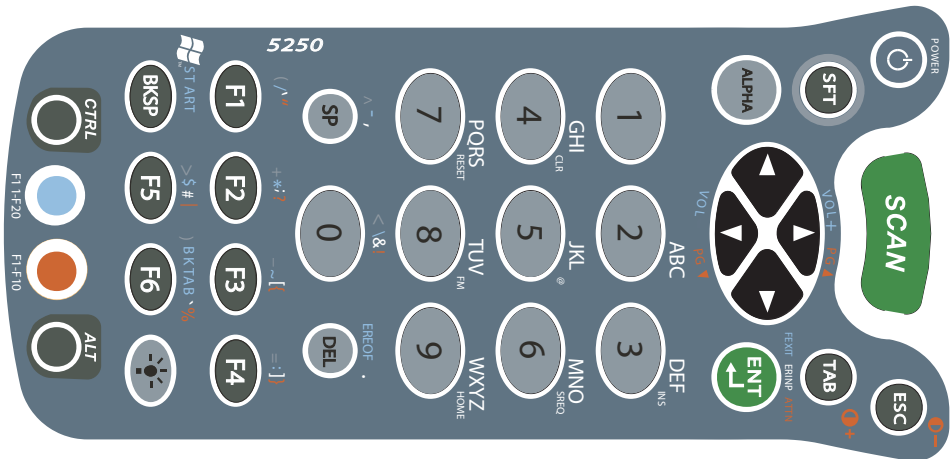
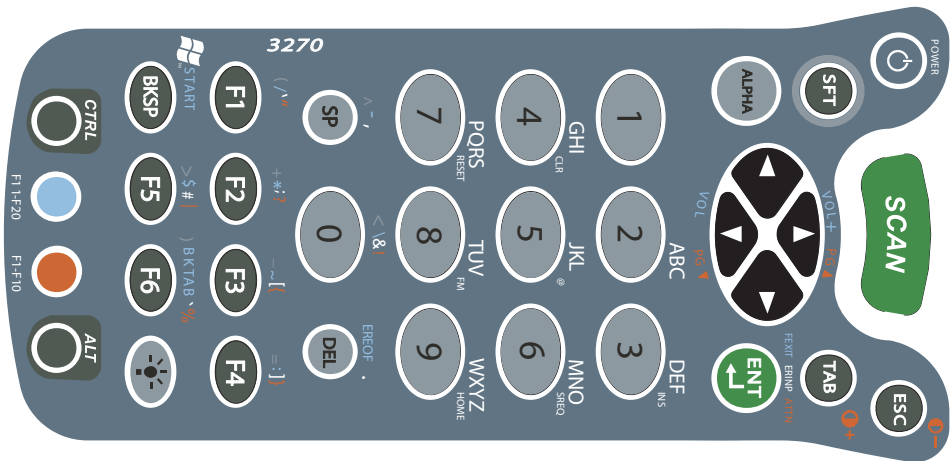
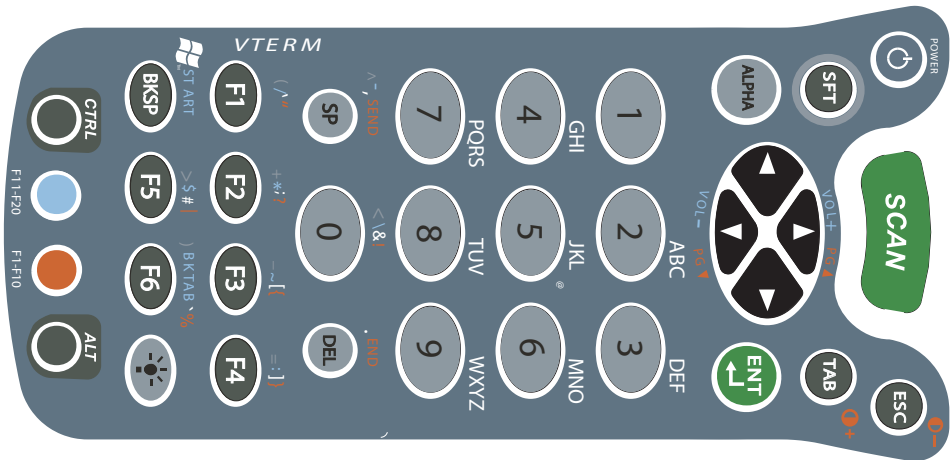
Dolphin 74XX 35-Key Keypad Map For 5250

Key	SFT 	ALPHA	CTRL	BLUE	RED	WHITE (BLUE + RED)	ALT
SFT							
ESC							
ALPHA							
TAB							
ENT				FEXIT	ATTN	ERINP	
LEFT	Vwleft			FLD+	NEWL		
UP	Vwup			Rollup	LEXIT		
RIGHT	Vwrite			FLD-			
DOWN	Vwdn			Rollwn			
ENT				FEXIT	ATTN	ERINP	
1	ABC	abc		PF11	PF1		
2	DEF	def		PF12	PF2		
3	GHI	ghi		PF13	PF3		
4	JKL	jkl		PF14	PF4		
5	MNO	mno		PF15	PF5	@	
6	PQR	pqr		PF16	PF6	SREQ	
7	STU	stu		PF17	PF7	RESET	
8	VWX	vwX		PF18	PF8	FM	
9	YZ	yz		PF19	PF9	HOME	
.	>			\$		#	
0)			PF20	PF10	`	
,	<			-	%	^	
F1	(/	"	'	
F2	+			*	?	;	
F3	_			~	{	[
F4	=			:	}]	
Backlight							
SP				BKTAB	HELP	END	
DEL				EREOF	CLEAR	INS	

Dolphin 74XX 35-Key Keypad Map For 5250

Key	SFT 	ALPHA	CTRL	BLUE	RED	WHITE (BLUE + RED)	ALT
BKSP				\	!	&	
CTRL							
BLUE							
RED							
ALT							

Dolphin 95XX 35-Key Keypad Overlays



Dolphin 95XX 35-Key Keypad Map for VTERM

Key	SFT	ALPHA	CTRL	BLUE	RED	WHITE (BLUE + RED)	ALT
SFT							
ESC					- Contrast		
ALPHA							
TAB					+ Contrast		
ENT							
LEFT	Vwleft						
UP	Vwup						
RIGHT	Vwrite						
DOWN	Vwdn						
1				PF11	PF1		
2	ABC	abc	Ctrl_a	PF12	PF2		
3	DEF	def	Ctrl_d	PF13	PF3		
4	GHI	ghi	Ctrl_g	PF14	PF4		
5	JKL	jkl	Ctrl_j	PF15	PF5	@	
6	MNO	mno	Ctrl_m	PF16	PF6		
7	PQRS	pqrs	Ctrl_p	PF17	PF7		
8	TUV	tuv	Ctrl_t	PF18	PF8		
9	WXYZ	wxyz	Ctrl_w	PF19	PF9		
SP	^			-		,	
0	<			PF20	PF10	&	
DEL				\	!	.	
F1	(/	"	'	
F2	+			*	?	;	
F3	_			~	{	[
F4	=			:	}]	
BKSP				START			
F5	>			\$		#	
F6)			BKTAB	%	'	

Dolphin 95XX 35-Key Keypad Map for VTERM

Key	SFT	ALPHA	CTRL	BLUE	RED	WHITE (BLUE + RED)	ALT
Backlight							
CTRL							
BLUE							
RED							
ALT							

Dolphin 95XX 35-Key Keypad Map for 3270

Key	SFT	ALPHA	CTRL	BLUE	RED	WHITE (BLUE + RED)	ALT
SFT							
ESC				CLEAR	- Contrast		
ALPHA							
TAB				INSERT	+ Contrast		
ENT				EOF	ATTN	ERINP	
LEFT	Vwleft			PA1	NEWL		
UP	Vwup			PA2	LEXIT		
RIGHT	Vwwrite			PA3			
DOWN	Vwdn						
1				PF11	PF1		
2	ABC	abc	Ctrl_a	PF12	PF2		
3	DEF	def	Ctrl_d	PF13	PF3		
4	GHI	ghi	Ctrl_g	PF14	PF4		
5	JKL	jkl	Ctrl_j	PF15	PF5	@	
6	MNO	mno	Ctrl_m	PF16	PF6	SREQ	
7	PQRS	pqrs	Ctrl_p	PF17	PF7	RESET	
8	TUV	tuv	Ctrl_t	PF18	PF8	FM	
9	WXYZ	wxyz	Ctrl_w	PF19	PF9	HOME	
SP	^			-	\	,	
0	<			PF20	PF10	&	
DEL				EREOF	!	.	
F1	(/	"	'	
F2	+			*	?	;	
F3	_			~	{	[
F4	=			:	}]	
BKSP				START			
F5	>			\$		#	
F6)			BKTAB	%	'	

Dolphin 95XX 35-Key Keypad Map for 3270

Key	SFT	ALPHA	CTRL	BLUE	RED	WHITE (BLUE + RED)	ALT
Backlight							
CTRL							
BLUE							
RED							
ALT							

Dolphin 95XX 35-Key Keypad Map For 5250

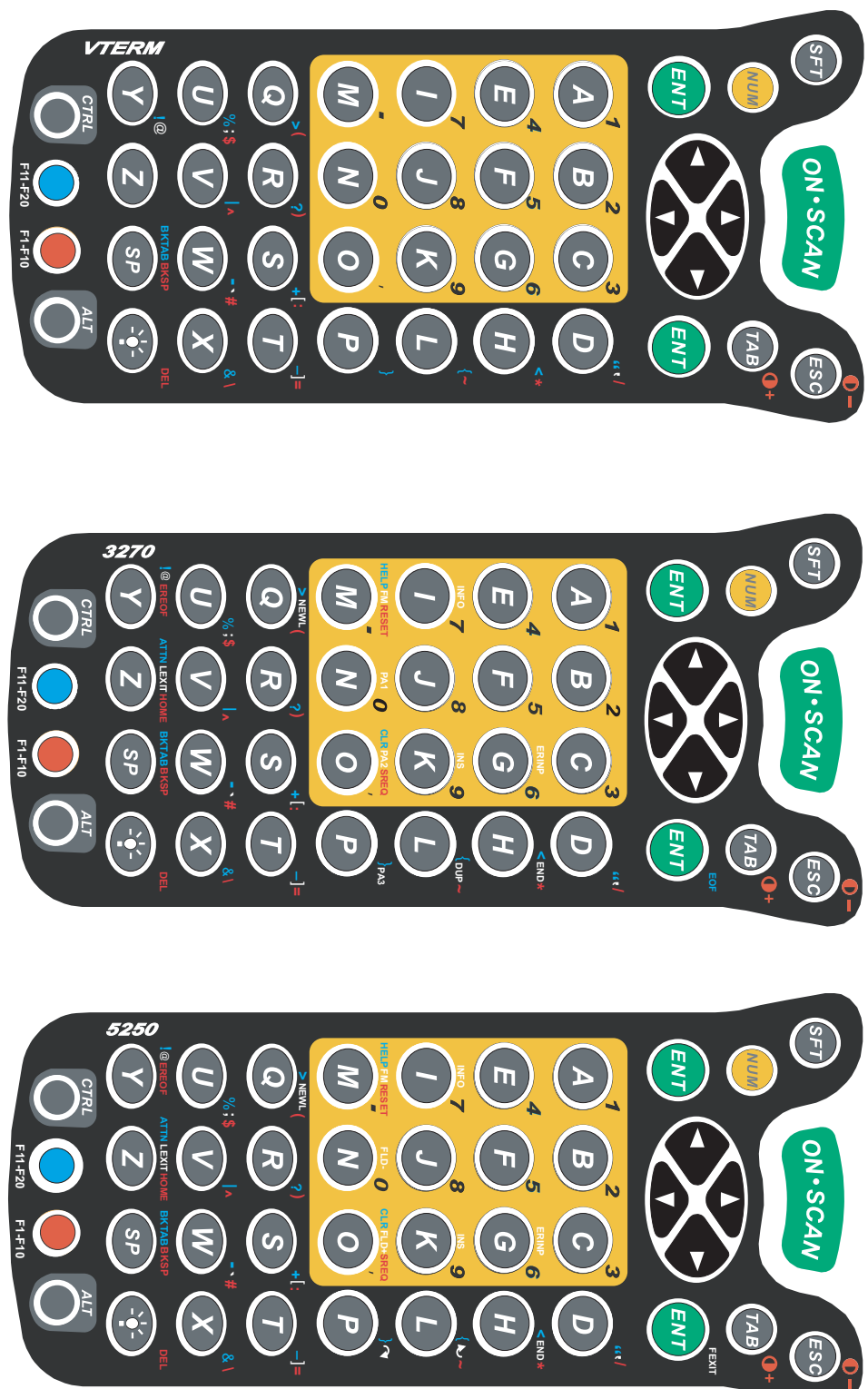
Key	SFT	ALPHA	CTRL	BLUE	RED	WHITE (BLUE + RED)	ALT
SFT							
ESC				CLEAR	- Contrast		
ALPHA							
TAB				INSERT	+ Contrast		
ENT				FEXIT	ATTN	ERINP	
LEFT	Vwleft			FLD+	NEWL		
UP	Vwup			Rollup	LEXIT		
RIGHT	Vwwrite			FLD-			
DOWN	Vwdn			Rollwn			
1				PF11	PF1		
2	ABC	abc	Ctrl_a	PF12	PF2		
3	DEF	def	Ctrl_d	PF13	PF3		
4	GHI	ghi	Ctrl_g	PF14	PF4		
5	JKL	jkl	Ctrl_j	PF15	PF5	@	
6	MNO	mno	Ctrl_m	PF16	PF6	SREQ	
7	PQRS	pqrs	Ctrl_p	PF17	PF7	RESET	
8	TUV	tuv	Ctrl_t	PF18	PF8	FM	
9	WXYZ	wxyz	Ctrl_w	PF19	PF9	HOME	
SP	^			-	\	,	
0	<			PF20	PF10	&	
DEL				EREOF	!	.	
F1	(/	"	'	
F2	+			*	?	;	
F3	_			~	{	[
F4	=			:	}]	
BKSP				START			
F5	>			\$		#	
F6)			BKTAB	%	'	

Dolphin 95XX 35-Key Keypad Map For 5250


Key	SFT	ALPHA	CTRL	BLUE	RED	WHITE (BLUE + RED)	ALT
Backlight							
CTRL							
BLUE							
RED							
ALT							

Dolphin 43-Key Keypads for Terminal Emulation


Dolphin 74XX 43-Key Keypad Overlays




Dolphin 74XX 43-Key Keypad Map For VTERM

Key	SFT 	NUM	CTRL	BLUE	RED	WHITE (BLUE + RED)	ALT
ESC							
NUM							
TAB							
ENT							
LEFT	Vwleft						
UP	Vwup						
RIGHT	Vwrite						
DOWN	Vwdn						
ENT							
A(a)	A	1	Ctrl A	PF11	PF1		
B(b)	B	2	Ctrl B	PF12	PF2		
C(c)	C	3	Ctrl C	PF13	PF3		
D(d)	D		Ctrl D	"	/	'	
E(e)	E	4	Ctrl E	PF14	PF4		
F(f)	F	5	Ctrl F	PF15	PF5		
G(g)	G	6	Ctrl G	PF16	PF6		
H(h)	H			<	*		
I(i)	I	7		PF17	PF7		
J(j)	J	8	Ctrl J	PF18	PF8		
K(k)	K	9	Ctrl K	PF19	PF9		
L(l)	L		Ctrl L	{	~		
M(m)	M	.					
N(n)	N	0		PF20	PF10		
O(o)	O	,	Ctrl O				
P(p)	P		Ctrl P	}			
Q(q)	Q		Ctrl Q	>	(
R(r)	R		Ctrl R	?)		
S(s)	S		Ctrl S	+	:	[


Dolphin 74XX 43-Key Keypad Map For VTERM

Key	SFT 	NUM	CTRL	BLUE	RED	WHITE (BLUE + RED)	ALT
T(t)	T		Ctrl T	UNDER_	=]	
U(u)	U		Ctrl U	%	\$;	
V(v)	V		Ctrl V		^		
W(w)	W		Ctrl W	-	#	`	
X(x)	X			&	\		
Y(y)	Y		Ctrl Y	!		@	
Z(z)	Z		Ctrl Z				
SP				BKTAB	BKSP		
LIGHT					DEL		
CTRL							
BLUE							
RED							
ALT							

Dolphin 74XX 43-Key Keypad Map for 3270

Key	SFT 	NUM	CTRL	BLUE	RED	WHITE (BLUE + RED)	ALT
ESC							
NUM							
TAB							
ENT							
LEFT	Vwleft						
UP	Vwup						
RIGHT	Vwrite						
DOWN	Vwdn						
ENT				EOF			
A(a)	A	1		PF11	PF1		
B(b)	B	2		PF12	PF2		
C(c)	C	3		PF13	PF3		
D(d)	D			"	/	'	
E(e)	E	4		PF14	PF4		
F(f)	F	5		PF15	PF5		
G(g)	G	6		PF16	PF6	ERINP	
H(h)	H			<	*	END	
I(i)	I	7		PF17	PF7	INFO	
J(j)	J	8		PF18	PF8		
K(k)	K	9		PF19	PF9	INS	
L(l)	L			{	~	DUP	
M(m)	M	.		HELP	RESET	FM	
N(n)	N	0		PF20	PF10	PA1	
O(o)	O	,		CLEAR	SREQ	PA2	
P(p)	P			}	+	PA3	
Q(q)	Q			>	(NEWL	
R(r)	R			?)		
S(s)	S			+	:	[
T(t)	T			-	=]	

Dolphin 74XX 43-Key Keypad Map for 3270

Key	SFT 	NUM	CTRL	BLUE	RED	WHITE (BLUE + RED)	ALT
U(u)	U			%	\$;	
V(v)	V				^		
W(w)	W			-	#	`	
X(x)	X			&	\		
Y(y)	Y			!	EREOF	@	
Z(z)	Z			ATTN	HOME	LEXIT	
SP				BKTAB	BKSP		
LIGHT					DEL		
CTRL							
BLUE							
RED							
ALT							

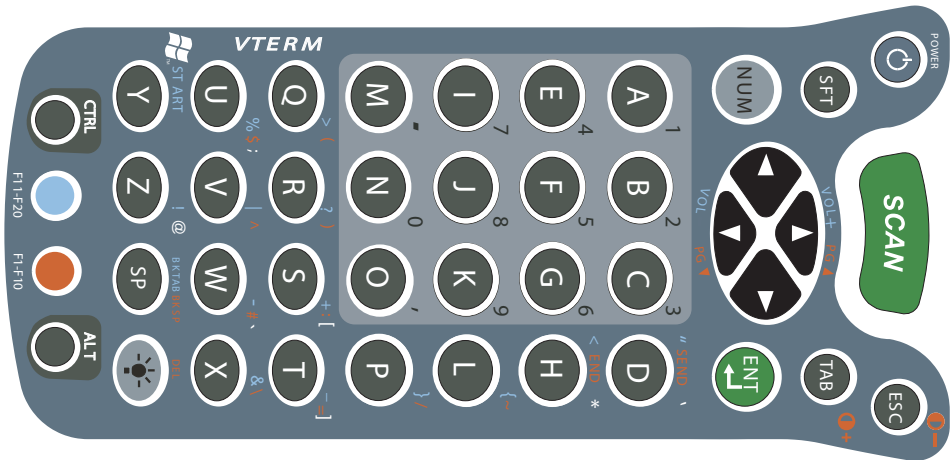
Dolphin 74XX 43-Key Keypad Map for 5250

Key	SFT	NUM	CTRL	BLUE	RED	WHITE (BLUE +RED)	ALT
ESC							
NUM							
TAB							
ENT							
LEFT	Vwleft						
UP	Vwup						
RIGHT	Vwwrite						
DOWN	Vwdn						
ENT						FEXIT	
A(a)	A	1		PF11	PF1		
B(b)	B	2		PF12	PF2		
C(c)	C	3		PF13	PF3		
D(d)	D			"	/	'	
E(e)	E	4		PF14	PF4		
F(f)	F	5		PF15	PF5		
G(g)	G	6		PF16	PF6	ERINP	
H(h)	H			<	*	END	
I(i)	I	7		PF17	PF7	INFO	
J(j)	J	8		PF18	PF8		
K(k)	K	9		PF19	PF9	INS	
L(l)	L			{	~	Rollup	
M(m)	M	.		HELP	RESET	FM	
N(n)	N	0		PF10	PF20	FLD-	
O(o)	O	,		CLEAR	SREQ	FLD+	
P(p)	P			}		Rollown	
Q(q)	Q			>	(NEWL	
R(r)	R			?)		
S(s)	S			+	:	[
T(t)	T			-	=]	

Dolphin 74XX 43-Key Keypad Map for 5250

Key	SFT	NUM	CTRL	BLUE	RED	WHITE (BLUE +RED)	ALT
U(u)	U			%	\$;	
V(v)	V				^		
W(w)	W			-	#	`	
X(x)	X			&	\		
Y(y)	Y			!	EREOF	@	
Z(z)	Z			ATTN	HOME	LEXIT	
SP				BKTAB	BKSP		
LIGHT					DEL		
CTRL							
BLUE							
RED							
ALT							

Dolphin 95XX 43-Key Keypad Overlays



Dolphin 95XX 43-Key Keypad Map For VTERM

Key	SFT	NUM	CTRL	BLUE	RED	WHITE (BLUE + RED)	ALT
ESC							
NUM							
TAB							
ENT							
LEFT	Vwleft						
UP	Vwup						
RIGHT	Vwrite						
DOWN	Vwdn						
ENT							
A(a)	A	1	Ctrl A	PF11	PF1		
B(b)	B	2	Ctrl B	PF12	PF2		
C(c)	C	3	Ctrl C	PF13	PF3		
D(d)	D		Ctrl D	"	SEND	'	
E(e)	E	4	Ctrl E	PF14	PF4		
F(f)	F	5	Ctrl F	PF15	PF5		
G(g)	G	6	Ctrl G	PF16	PF6		
H(h)	H			<	END	*	
I(i)	I	7		PF17	PF7		
J(j)	J	8	Ctrl J	PF18	PF8		
K(k)	K	9	Ctrl K	PF19	PF9		
L(l)	L		Ctrl L	{	~		
M(m)	M	.					
N(n)	N	0	Ctrl N	PF20	PF10		
O(o)	O	,	Ctrl O				
P(p)	P		Ctrl P	}	/		
Q(q)	Q		Ctrl Q	>	(
R(r)	R		Ctrl R	?)		
S(s)	S		Ctrl S	+	:	[
T(t)	T		Ctrl T	UNDER_	=]	

Dolphin 95XX 43-Key Keypad Map For VTERM

Key	SFT	NUM	CTRL	BLUE	RED	WHITE (BLUE + RED)	ALT
U(u)	U		Ctrl U	%	\$;	
V(v)	V		Ctrl V		^		
W(w)	W		Ctrl W	-	#	`	
X(x)	X			&	\		
Y(y)	Y		Ctrl Y	START			
Z(z)	Z		Ctrl Z	!		@	
SP				BKTAB	BKSP		
LIGHT					DEL		
CTRL							
BLUE							
RED							
ALT							



Dolphin 95XX 43-Key Keypad Map for 3270

Key	SFT	NUM	CTRL	BLUE	RED	WHITE (BLUE + RED)	ALT
ESC							
NUM							
TAB							
ENT							
LEFT	Vwleft						
UP	Vwup						
RIGHT	Vwrite						
DOWN	Vwdn						
ENT				EOF			
A(a)	A	1		PF11	PF1		
B(b)	B	2		PF12	PF2		
C(c)	C	3		PF13	PF3		
D(d)	D			"	SEND	'	
E(e)	E	4		PF14	PF4		
F(f)	F	5		PF15	PF5		
G(g)	G	6		PF16	PF6	ERINP	
H(h)	H			<	END	*	
I(i)	I	7		PF17	PF7	INFO	
J(j)	J	8		PF18	PF8		
K(k)	K	9		PF19	PF9	INS	
L(l)	L			{	~	DUP	
M(m)	M	.		HELP	RESET	FM	
N(n)	N	0		PF20	PF10	PA1	
O(o)	O	,		CLEAR	SREQ	PA2	
P(p)	P			}	/	PA3	
Q(q)	Q			>	(NEWL	
R(r)	R			?)	EREOF	
S(s)	S			+	:	[
T(t)	T			_	=]	

Dolphin 95XX 43-Key Keypad Map for 3270

Key	SFT	NUM	CTRL	BLUE	RED	WHITE (BLUE + RED)	ALT
U(u)	U			%	\$;	
V(v)	V				^	@	
W(w)	W			-	#	`	
X(x)	X			&	\	!	
Y(y)	Y			START			
Z(z)	Z			ATTN	HOME	LEXIT	
SP				BKTAB	BKSP		
LIGHT					DEL		
CTRL							
BLUE							
RED							
ALT							

Dolphin 95XX 43-Key Keypad Map for 5250

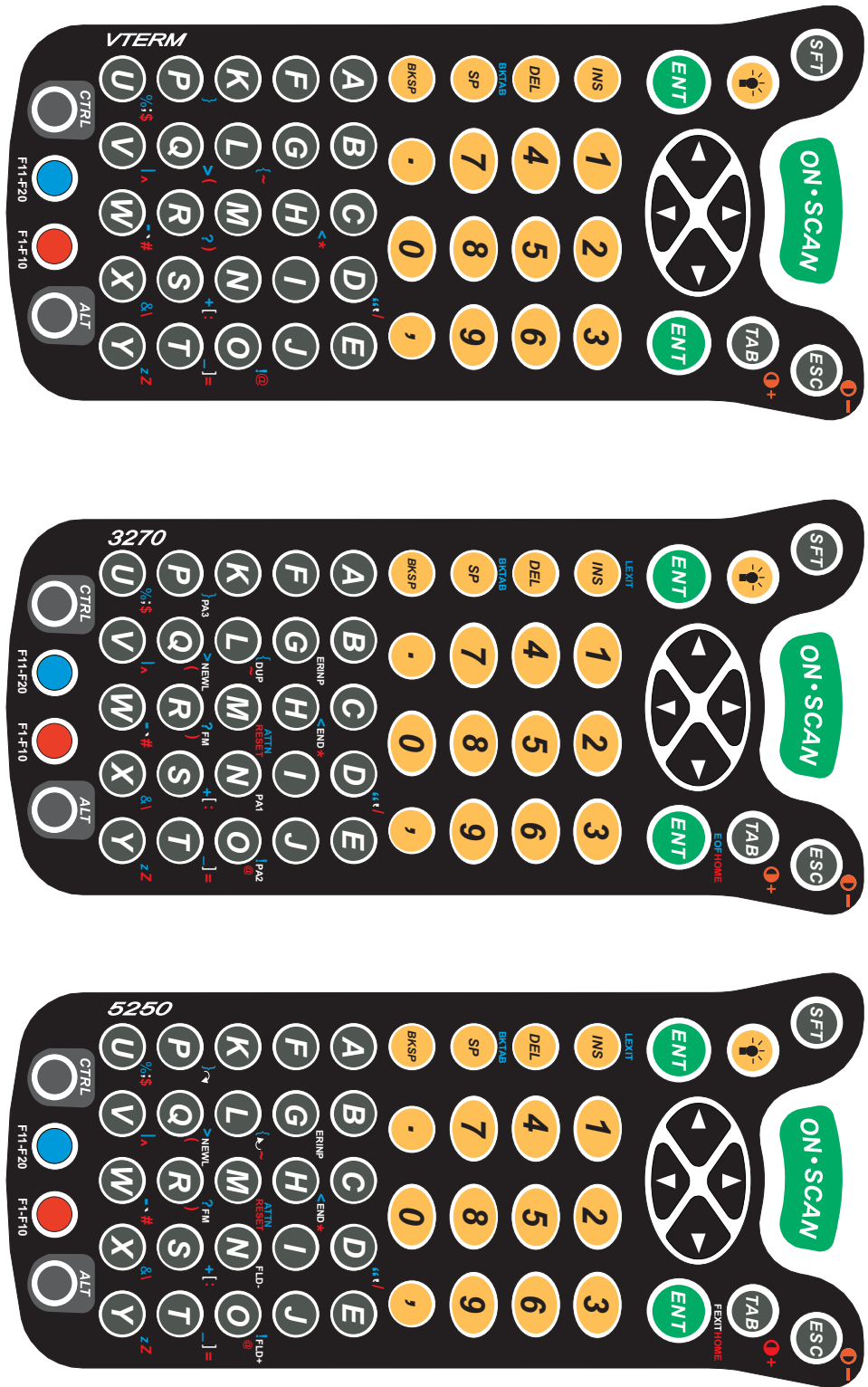
Key	SFT	NUM	CTRL	BLUE	RED	WHITE (BLUE + RED)	ALT
ESC							
NUM							
TAB							
ENT							
LEFT	Vwleft						
UP	Vwup						
RIGHT	Vwrite						
DOWN	Vwdn						
ENT						FEXIT	
A(a)	A	1		PF11	PF1		
B(b)	B	2		PF12	PF2		
C(c)	C	3		PF13	PF3		
D(d)	D			"	SEND	'	
E(e)	E	4		PF14	PF4		
F(f)	F	5		PF15	PF5		
G(g)	G	6		PF16	PF6	ERINP	
H(h)	H			<	END	*	
I(i)	I	7		PF17	PF7	INFO	
J(j)	J	8		PF18	PF8		
K(k)	K	9		PF19	PF9	INS	
L(l)	L			{	~	Rollup 	
M(m)	M	.		HELP	RESET	FM	
N(n)	N	0		PF20	PF10	FLD-	
O(o)	O	,		CLEAR	SREQ	FLD+	
P(p)	P			}	/	Rolldown 	
Q(q)	Q			>	(NEWL	
R(r)	R			?)	EREOF	
S(s)	S			+	:	[
T(t)	T			-	=]	

Dolphin 95XX 43-Key Keypad Map for 5250

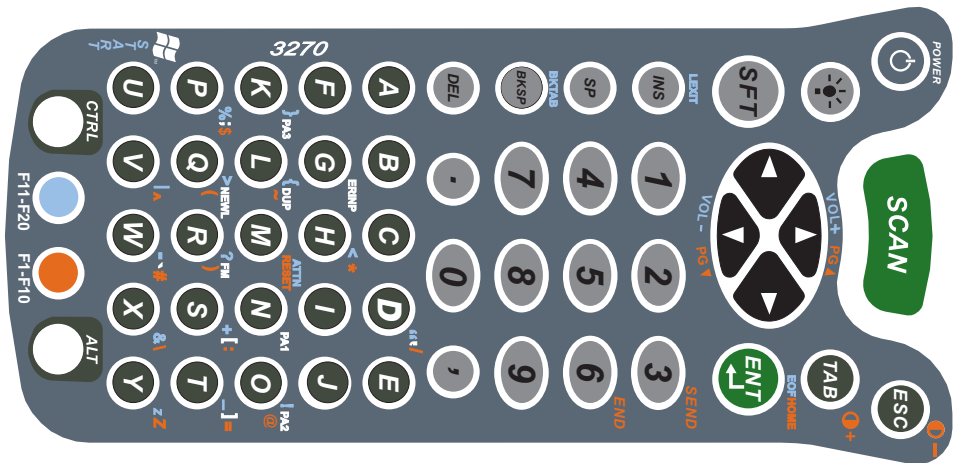
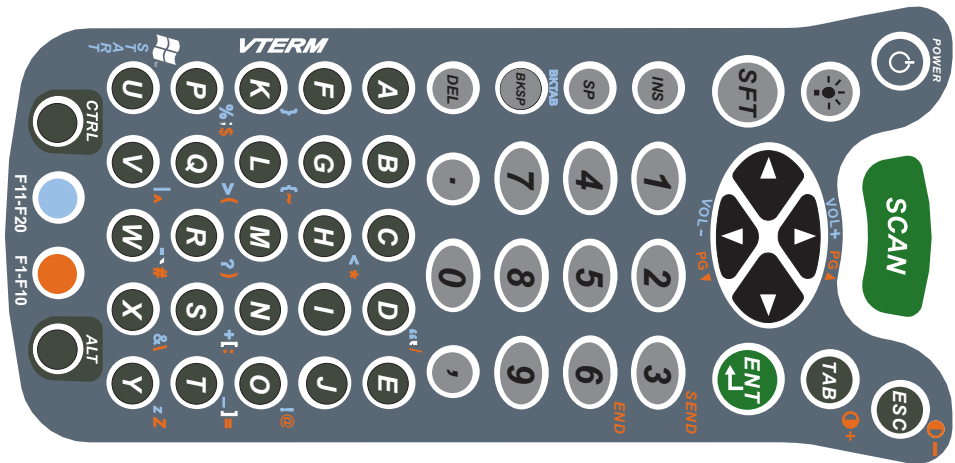
Key	SFT	NUM	CTRL	BLUE	RED	WHITE (BLUE + RED)	ALT
U(u)	U			%	\$;	
V(v)	V				^	@	
W(w)	W			-	#	`	
X(x)	X			&	\	!	
Y(y)	Y			START			
Z(z)	Z			ATTN	HOME	LEXIT	
SP				BKTAB	BKSP		
LIGHT					DEL		
CTRL							
BLUE							
RED							
ALT							

Dolphin 56-Key Keypads for Terminal Emulation

Dolphin 74XX 56-Key Keypad Overlays



Dolphin 95XX 56-Key Keypad Overlays



Dolphin 74XX/95XX 56-Key Keypad Map for VTERM

	SFT	CTRL	BLUE	RED	RED + BLUE (White)	ALT
SFT						
ESC						
Light						
TAB						
ENT						
LEFT	Vwleft					
UP	Vwup					
RIGHT	Vwrite					
DOWN	Vwdn					
ENT						
INS						
1			PF11	PF1		
2			PF12	PF2		
3			PF13	PF3		
DEL						
4			PF14	PF4		
5			PF15	PF5		
6			PF16	PF6		
SP			BKTAB			
7			PF17	PF7		
8			PF18	PF8		
9			PF19	PF9		
BKSP						
.						
0			PF20	PF10		
,						
A(a)	A	Ctrl A	PF11	PF1		
B(b)	B	Ctrl B	PF12	PF2		
C(c)	C	Ctrl C	PF13	PF3		

Dolphin 74XX/95XX 56-Key Keypad Map for VTERM

	SFT	CTRL	BLUE	RED	RED + BLUE (White)	ALT
D(d)	D	Ctrl D	"	/	'	
E(e)	E	Ctrl E	PF14	PF4		
F(f)	F	Ctrl F	PF15	PF5		
G(g)	G	Ctrl G	PF16	PF6		
H(h)	H		<	*		
I(i)	I		PF17	PF7		
J(j)	J	Ctrl J	PF18	PF8		
K(k)	K	Ctrl K	PF19	PF9		
L(l)	L	Ctrl L	{	~		
M(m)	M					
N(n)	N	Ctrl N	PF20	PF10		
O(o)	O	Ctrl O	!	@		
P(p)	P	Ctrl P	}			
Q(q)	Q	Ctrl Q	>	(
R(r)	R	Ctrl R	?)		
S(s)	S	Ctrl S	+	:	[
T(t)	T	Ctrl T	UNDER_	=]	
U(u)	U	Ctrl U	%	\$;	
V(v)	V	Ctrl V		^		
W(w)	W	Ctrl W	-	#	`	
X(x)	X	Ctrl X	&	\		
Y(y)	Y	Ctrl Y	z	Z		
CTRL						
BLUE						
RED						
ALT						

Dolphin 74XX/95XX 56-Key Keypad Map for 3270

Key	SFT	CTRL	BLUE	RED	WHITE (BLUE + RED)	ALT
SFT						
ESC						
Light						
TAB						
ENT						
LEFT						
UP						
RIGHT						
DOWN						
ENT						
INS						
1			PF11	PF1		
2			PF12	PF2		
3			PF13	PF3		
DEL						
4			PF14	PF4		
5			PF15	PF5		
6			PF16	PF6		
SP			BKTAB			
7			PF17	PF7		
8			PF18	PF8		
9			PF19	PF9		
BKSP						
.						
0			PF20	PF10		
,						
A(a)	A		PF11	PF1		
B(b)	B		PF12	PF2		
C(c)	C		PF13	PF3		

Dolphin 74XX/95XX 56-Key Keypad Map for 3270

Key	SFT	CTRL	BLUE	RED	WHITE (BLUE + RED)	ALT
D(d)	D		"	/	'	
E(e)	E		PF14	PF4		
F(f)	F		PF15	PF5		
G(g)	G		PF16	PF6		
H(h)	H		<	*		
I(i)	I		PF17	PF7		
J(j)	J		PF18	PF8		
K(k)	K		PF19	PF9		
L(l)	L		{	~		
M(m)	M					
N(n)	N		PF20	PF10		
O(o)	O		!	@		
P(p)	P		}			
Q(q)	Q		>	(
R(r)	R		?)		
S(s)	S		+	:	[
T(t)	T		UNDER_	=]	
U(u)	U		%	\$;	
V(v)	V			^		
W(w)	W		-	#	`	
X(x)	X		&	\		
Y(y)	Y		z	z		
CTRL						
BLUE						
RED						
ALT						
Roll Up						
Roll Down						
View up	▲					

Dolphin 74XX/95XX 56-Key Keypad Map for 3270

Key	SFT	CTRL	BLUE	RED	WHITE (BLUE + RED)	ALT
View down	▼					
View left	◀					
View right	▶					
PA1					n	
PA2					o	
PA3					p	
Attention			m			
Field exit						
FM					r	
HOME				ENT		
EOF			ENT			
ERINP					g	
Field -						
LEXIT			INS			
New line					q	
Field +						
RESET				m		
DUP					l	
Backtab			SP			
End					h	

Dolphin 74XX/95XX 56-Key Keypad Map for 5250

Key	SFT	CTRL	BLUE	RED	WHITE (BLUE + RED)	ALT
SFT						
ESC						
Light						
TAB						
ENT						
LEFT	Vwleft					
UP	Vwup					
RIGHT	Vwrite					
DOWN	Vwdn					
ENT						
INS						
1			PF11	PF1		
2			PF12	PF2		
3			PF13	PF3		
DEL						
4			PF14	PF4		
5			PF15	PF5		
6			PF16	PF6		
SP			BKTAB			
7			PF17	PF7		
8			PF18	PF8		
9			PF19	PF9		
BKSP						
.						
0			PF20	PF10		
,						
A(a)	A		PF11	PF1		
B(b)	B		PF12	PF2		
C(c)	C		PF13	PF3		

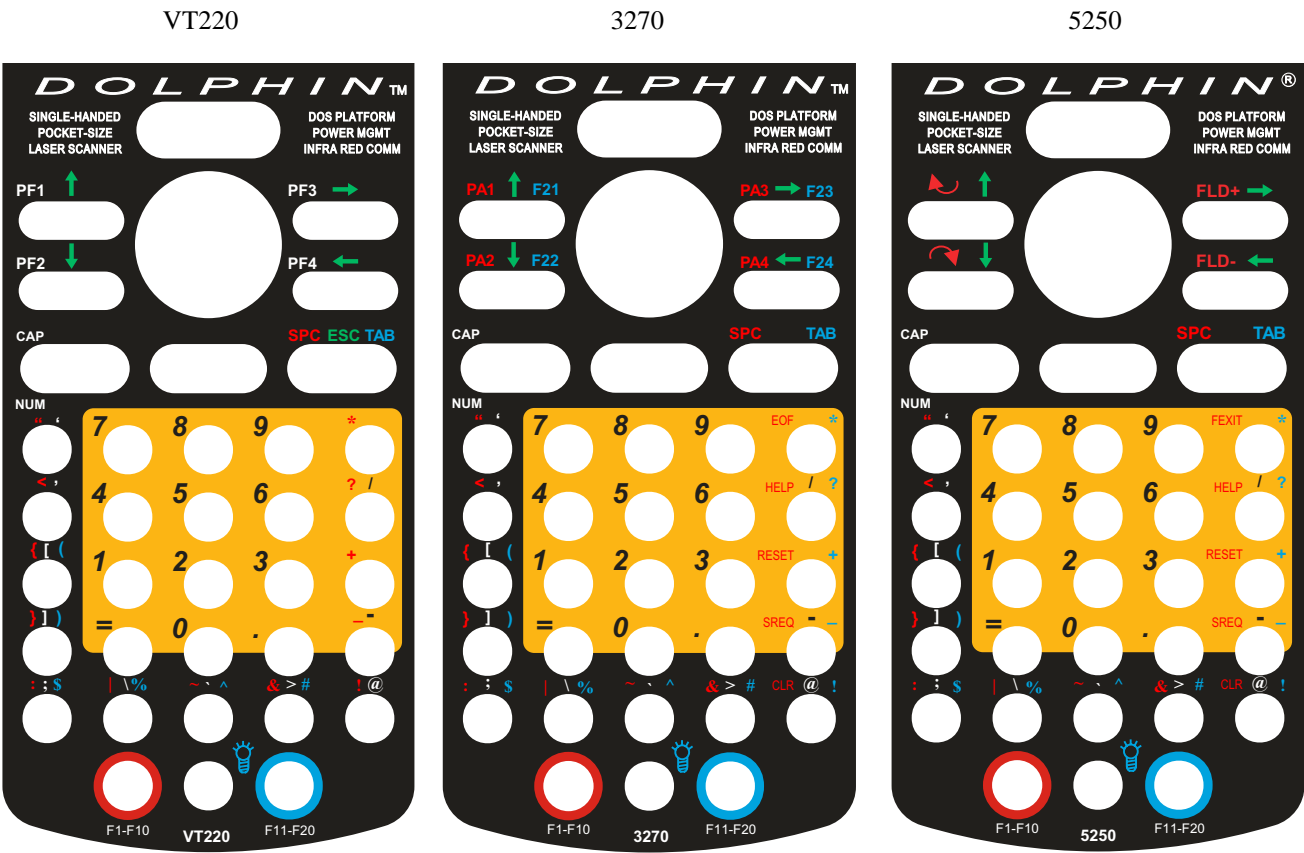
Dolphin 74XX/95XX 56-Key Keypad Map for 5250

Key	SFT	CTRL	BLUE	RED	WHITE (BLUE + RED)	ALT
D(d)	D		"	/	'	
E(e)	E		PF14	PF4		
F(f)	F		PF15	PF5		
G(g)	G		PF16	PF6		
H(h)	H		<	*		
I(i)	I		PF17	PF7		
J(j)	J		PF18	PF8		
K(k)	K		PF19	PF9		
L(l)	L		{	~		
M(m)	M					
N(n)	N		PF20	PF10		
O(o)	O		!	@		
P(p)	P		}			
Q(q)	Q		>	(
R(r)	R		?)		
S(s)	S		+	:	[
T(t)	T		UNDER_	=]	
U(u)	U		%	\$;	
V(v)	V			^		
W(w)	W		-	#	`	
X(x)	X		&	\		
Y(y)	Y		z	Z		
CTRL						
BLUE						
RED						
ALT						
Roll Up					l	
Roll Down					p	
View up	▲					

Dolphin 74XX/95XX 56-Key Keypad Map for 5250

Key	SFT	CTRL	BLUE	RED	WHITE (BLUE + RED)	ALT
View down	▼					
View left	◀					
View right	▶					
PA1						
PA2						
PA3						
Attention			m			
Field exit					ENT	
FM					r	
Home				ENT		
EOF						
ERINP					g	
FIELD -					n	
LEXIT			INS			
New line					q	
Field +					o	
RESET				m		
DUP						
Backtab			SP			
End					h	

Dolphin 7200 Alphanumeric Keypads



Dolphin 7200 Alphanumeric Keypad Map Legend

Key	<abc> = lowercase letter mode = Press <Shift> until "abc" appears on bottom left of screen
	<ABC> = uppercase letter mode = Press <Shift> until "ABC" appears on bottom left of screen
	<123> = numeric mode = Press <Shift> until "123" appears on bottom left of screen

Dolphin 7200 Alphanumeric Terminal Keypad Map

Key	VTERM	3270	5250
▲ F1			
▼ F2			
► F3			
◄ F4			
On Scan			
Enter			
Shift			
BKSP			
Red			
Blue			
a	<abc><A>	<abc><A>	<abc><A>
b	<abc>	<abc>	<abc>
c	<abc><C>	<abc><C>	<abc><C>
d	<abc><D>	<abc><D>	<abc><D>
e	<abc><E>	<abc><E>	<abc><E>
f	<abc><F>	<abc><F>	<abc><F>
g	<abc><G>	<abc><G>	<abc><G>
h	<abc><H>	<abc><H>	<abc><H>
i	<abc><I>	<abc><I>	<abc><I>
j	<abc><J>	<abc><J>	<abc><J>
k	<abc><K>	<abc><K>	<abc><K>
l	<abc><L>	<abc><L>	<abc><L>
m	<abc><M>	<abc><M>	<abc><M>
n	<abc><N>	<abc><N>	<abc><N>
o	<abc><O>	<abc><O>	<abc><O>
p	<abc><P>	<abc><P>	<abc><P>
q	<abc><Q>	<abc><Q>	<abc><Q>
r	<abc><R>	<abc><R>	<abc><R>
s	<abc><S>	<abc><S>	<abc><S>
t	<abc><T>	<abc><T>	<abc><T>

Dolphin 7200 Alphanumeric Terminal Keypad Map

Key	VTERM	3270	5250
u	<abc><U>	<abc><U>	<abc><U>
v	<abc><V>	<abc><V>	<abc><V>
w	<abc><W>	<abc><W>	<abc><W>
x	<abc><X>	<abc><X>	<abc><X>
y	<abc><Y>	<abc><Y>	<abc><Y>
z	<abc><Z>	<abc><Z>	<abc><Z>
A	<ABC><A>	<ABC><A>	<ABC><A>
B	<ABC>	<ABC>	<ABC>
C	<ABC><C>	<ABC><C>	<ABC><C>
D	<ABC><D>	<ABC><D>	<ABC><D>
E	<ABC><E>	<ABC><E>	<ABC><E>
F	<ABC><F>	<ABC><F>	<ABC><F>
G	<ABC><G>	<ABC><G>	<ABC><G>
H	<ABC><H>	<ABC><H>	<ABC><H>
I	<ABC><I>	<ABC><I>	<ABC><I>
J	<ABC><J>	<ABC><J>	<ABC><J>
K	<ABC><K>	<ABC><K>	<ABC><K>
L	<ABC><L>	<ABC><L>	<ABC><L>
M	<ABC><M>	<ABC><M>	<ABC><M>
N	<ABC><N>	<ABC><N>	<ABC><N>
O	<ABC><O>	<ABC><O>	<ABC><O>
P	<ABC><P>	<ABC><P>	<ABC><P>
Q	<ABC><Q>	<ABC><Q>	<ABC><Q>
R	<ABC><R>	<ABC><R>	<ABC><R>
S	<ABC><S>	<ABC><S>	<ABC><S>
T	<ABC><T>	<ABC><T>	<ABC><T>
U	<ABC><U>	<ABC><U>	<ABC><U>
V	<ABC><V>	<ABC><V>	<ABC><V>
W	<ABC><W>	<ABC><W>	<ABC><W>
X	<ABC><X>	<ABC><X>	<ABC><X>
Y	<ABC><Y>	<ABC><Y>	<ABC><Y>

Dolphin 7200 Alphanumeric Terminal Keypad Map

Key	VTERM	3270	5250
Z	<ABC><Z>	<ABC><Z>	<ABC><Z>
SPC	<Red><BKSP>	<Red><BKSP>	<Red><BKSP>
Clear	---	<Red><Y>	<Red><Y>
ESC	<Red><Blue><BKSP>	---	---
TAB →	<Blue><BKSP>	<Blue><BKSP>	<Blue><BKSP>
1	<123><L>	<123><L>	<123><L>
2	<123><M>	<123><M>	<123><M>
3	<123><N>	<123><N>	<123><N>
4	<123><G>	<123><G>	<123><G>
5	<123><H>	<123><H>	<123><H>
6	<123><I>	<123><I>	<123><I>
7	<123>	<123>	<123>
8	<123><C>	<123><C>	<123><C>
9	<123><D>	<123><D>	<123><D>
0	<123><R>	<123><R>	<123><R>
F1	<Red><1>	<Red><1>	<Red><1>
F2	<Red><2>	<Red><2>	<Red><2>
F3	<Red><3>	<Red><3>	<Red><3>
F4	<Red><4>	<Red><4>	<Red><4>
F5	<Red><5>	<Red><5>	<Red><5>
F6	<Red><6>	<Red><6>	<Red><6>
F7	<Red><7>	<Red><7>	<Red><7>
F8	<Red><8>	<Red><8>	<Red><8>
F9	<Red><9>	<Red><9>	<Red><9>
F10	<Red><0>	<Red><0>	<Red><0>
F11	<Blue><1>	<Blue><1>	<Blue><1>
F12	<Blue><2>	<Blue><2>	<Blue><2>
F13	<Blue><3>	<Blue><3>	<Blue><3>
F14	<Blue><4>	<Blue><4>	<Blue><4>
F15	<Blue><5>	<Blue><5>	<Blue><5>
F16	<Blue><6>	<Blue><6>	<Blue><6>

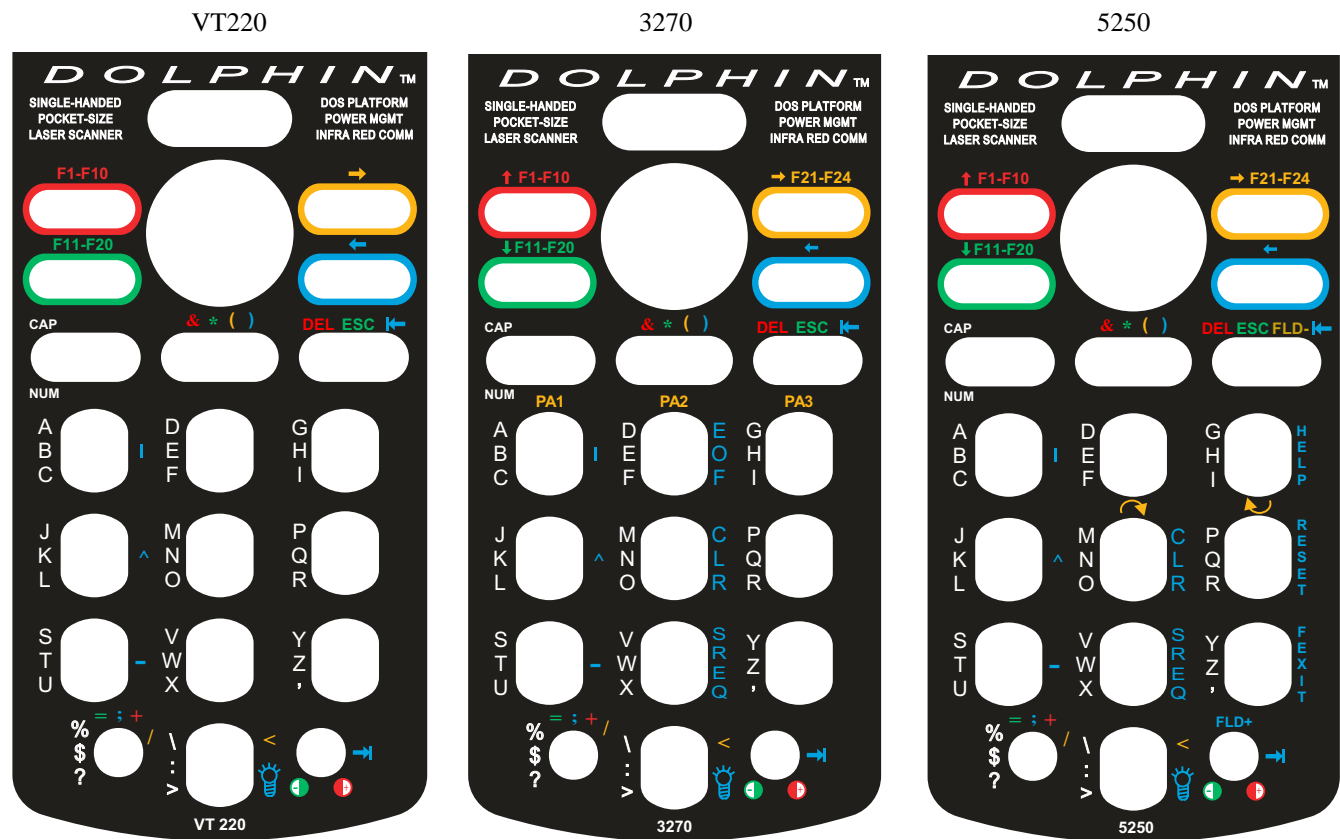
Dolphin 7200 Alphanumeric Terminal Keypad Map

Key	VTERM	3270	5250
F17	<Blue><7>	<Blue><7>	<Blue><7>
F18	<Blue><8>	<Blue><8>	<Blue><8>
F19	<Blue><9>	<Blue><9>	<Blue><9>
F20	<Blue><0>	<Blue><0>	<Blue><0>
F21	---	<Blue><▲ F1>	---
F22	---	<Blue><▼ F2>	---
F23	---	<Blue><► F3>	---
F24	---	<Blue><◄ F4>	---
Roll up	---	---	<Red><▲ F1>
Roll down	---	---	<Red><▼ F2>
Darken	<Red><Blue><Z>	<Red><Blue><Z>	<Red><Blue><Z>
Lighten	<Red><Z>	<Red> <Z>	<Red><Z>
Backlight	<Blue><Z>	<Blue><Z>	<Blue><Z>
PA1	---	<Red><▲ F1>	---
PA2	---	<Red><▼ F2>	---
PA3	---	<Red><► F3>	---
Field exit	---	---	<Red><E>
EOF	---	<Red><E>	---
Help	---	<Red><J>	<Red><J>
Field -	---	---	<Red> <► F3>
Field +	---	---	<Red> <◄ F4>
Reset	---	<Red><O>	<Red><O>
Sys req	---	<Red><T>	<Red><T>
View up ▲	<Red><Blue><▲ F1>	<Red><Blue><▲ F1>	<Red><Blue><▲ F1>
View down ▼	<Red><Blue><▼ F2>	<Red><Blue><▼ F2>	<Red><Blue><▼ F2>
View right ►	<Red><Blue><► F3>	<Red><Blue><► F3>	<Red><Blue><► F3>
View left ◄	<Red><Blue><◄ F4>	<Red><Blue><◄ F4>	<Red><Blue><◄ F4>
" quotations	<Red><A>	<Red><A>	<Red><A>
, comma	<123><F>	<123><F>	<123><F>

Dolphin 7200 Alphanumeric Terminal Keypad Map

Key		VTERM	3270	5250
[left bracket	<123><K>	<123><K>	<123><K>
]	right bracket	<123><P>	<123><P>	<123><P>
{	left brace	<Red><K>	<Red><K>	<Red><K>
}	right brace	<Red><P>	<Red><P>	<Red><P>
~	tilde	<Red><W>	<Red><W>	<Red><W>
`	accent	<123><W>	<123><W>	<123><W>
-	hyphen	<123><T>	<123><T>	<123><T>
/	forward slash	<123><J>	<123><J>	<123><J>
=	equal sign	<123><Q>	<123><Q>	<123><Q>
*	asterisk	<123><E>	<Blue><E>	<Blue><E>
/	forward slash	<123><J>	<123><J>	<123><J>
+	addition sign	<Red><O>	<Blue><O>	<Blue><O>
-	subtraction sign	<123><T>	<Blue><T>	<Blue><T>
.	period	<123><S>	<123><S>	<123><S>
!	exclamation	<Blue><Y>	<Blue><Y>	<Blue><Y>
@	"at" sign	<123><Y>	<123><Y>	<123><Y>
#	pound	<Blue><X>	<Blue><X>	<Blue><X>
\$	dollar	<Blue><U>	<Blue><U>	<Blue><U>
%	percentage	<Blue><V>	<Blue><V>	<Blue><V>
^	carat	<Blue><W>	<Blue><W>	<Blue><W>
&	ampersand	<Red><X>	<Red><X>	<Red><X>
(left parenthesis	<Blue><K>	<Blue><K>	<Blue><K>
)	right parenthesis	<Blue><P>	<Blue><P>	<Blue><P>
'	apostrophe	<Red><A>	<Red><A>	<Red><A>
\	backward slash	<123><V>	<123><V>	<123><V>
:	colon	<Red><U>	<Red><U>	<Red><U>
>	greater-than sign	<123><X>	<123><X>	<123><X>
;	semicolon	<123><U>	<123><U>	<123><U>
	broken vertical bar	<Red><V>	<Red><V>	<Red><V>
<	less-than sign	<Red><F>	<Red><F>	<Red><F>
?	question mark	<Red><J>	<Blue><J>	<Blue><J>

Dolphin 7200 Numeric Keypads



Dolphin 7200 Numeric Keypad Map Legend

Key	<abc> = lowercase letter mode = Press <Shift> until "abc" appears on bottom left of screen
	<ABC> = uppercase letter mode = Press <Shift> until "ABC" appears on bottom left of screen
	<123> = numeric mode = Press <Shift> until "123" appears on bottom left of screen

Dolphin 7200 Numeric Terminal Keypad Map

Key	VTERM	3270	5250
▲ F1			
▼ F2			
► F3			
◄ F4			
On Scan			
Shift			
Enter			
BKSP			
Period (.)			
SP			
a	<abc><7>	<abc><7>	<abc><7>
b	<abc><7><7>	<abc><7><7>	<abc><7><7>
c	<abc><7><7><7>	<abc><7><7><7>	<abc><7><7><7>
d	<abc><8>	<abc><8>	<abc><8>
e	<abc><8><8>	<abc><8><8>	<abc><8><8>
f	<abc><8><8><8>	<abc><8><8><8>	<abc><8><8><8>
g	<abc><9>	<abc><9>	<abc><9>
h	<abc><9><9>	<abc><9><9>	<abc><9><9>
i	<abc><9><9><9>	<abc><9><9><9>	<abc><9><9><9>
j	<abc><4>	<abc><4>	<abc><4>
k	<abc><4><4>	<abc><4><4>	<abc><4><4>
l	<abc><4><4><4>	<abc><4><4><4>	<abc><4><4><4>
m	<abc><5>	<abc><5>	<abc><5>
n	<abc><5><5>	<abc><5><5>	<abc><5><5>
o	<abc><5><5><5>	<abc><5><5><5>	<abc><5><5><5>
p	<abc><6>	<abc><6>	<abc><6>
q	<abc><6><6>	<abc><6><6>	<abc><6><6>
r	<abc><6><6><6>	<abc><6><6><6>	<abc><6><6><6>
s	<abc><1>	<abc><1>	<abc><1>
t	<abc><1><1>	<abc><1><1>	<abc><1><1>

Dolphin 7200 Numeric Terminal Keypad Map

Key	VTERM	3270	5250
u	<abc><1><1><1>	<abc><1><1><1>	<abc><1><1><1>
v	<abc><2>	<abc><2>	<abc><2>
w	<abc><2><2>	<abc><2><2>	<abc><2><2>
x	<abc><2><2><2>	<abc><2><2><2>	<abc><2><2><2>
y	<abc><3>	<abc><3>	<abc><3>
z	<abc><3><3>	<abc><3><3>	<abc><3><3>
1	<123><1>	<123><1>	<123><1>
2	<123><2>	<123><2>	<123><2>
3	<123><3>	<123><3>	<123><3>
4	<123><4>	<123><4>	<123><4>
5	<123><5>	<123><5>	<123><5>
6	<123><6>	<123><6>	<123><6>
7	<123><7>	<123><7>	<123><7>
8	<123><8>	<123><8>	<123><8>
9	<123><9>	<123><9>	<123><9>
0	<123><0>	<123><0>	<123><0>
A	<ABC><7>	<ABC><7>	<ABC><7>
B	<ABC><7><7>	<ABC><7><7>	<ABC><7><7>
C	<ABC><7><7><7>	<ABC><7><7><7>	<ABC><7><7><7>
D	<ABC><8>	<ABC><8>	<ABC><8>
E	<ABC><8><8>	<ABC><8><8>	<ABC><8><8>
F	<ABC><8><8><8>	<ABC><8><8><8>	<ABC><8><8><8>
G	<ABC><9>	<ABC><9>	<ABC><9>
H	<ABC><9><9>	<ABC><9><9>	<ABC><9><9>
I	<ABC><9><9><9>	<ABC><9><9><9>	<ABC><9><9><9>
J	<ABC><4>	<ABC><4>	<ABC><4>
K	<ABC><4><4>	<ABC><4><4>	<ABC><4><4>
L	<ABC><4><4><4>	<ABC><4><4><4>	<ABC><4><4><4>
M	<ABC><5>	<ABC><5>	<ABC><5>
N	<ABC><5><5>	<ABC><5><5>	<ABC><5><5>
O	<ABC><5><5><5>	<ABC><5><5><5>	<ABC><5><5><5>

Dolphin 7200 Numeric Terminal Keypad Map

Key	VTERM	3270	5250
P	<ABC><6>	<ABC><6>	<ABC><6>
Q	<ABC><6><6>	<ABC><6><6>	<ABC><6><6>
R	<ABC><6><6><6>	<ABC><6><6><6>	<ABC><6><6><6>
S	<ABC><1>	<ABC><1>	<ABC><1>
T	<ABC><1><1>	<ABC><1><1>	<ABC><1><1>
U	<ABC><1><1><1>	<ABC><1><1><1>	<ABC><1><1><1>
V	<ABC><2>	<ABC><2>	<ABC><2>
W	<ABC><2><2>	<ABC><2><2>	<ABC><2><2>
X	<ABC><2><2><2>	<ABC><2><2><2>	<ABC><2><2><2>
Y	<ABC><3>	<ABC><3>	<ABC><3>
Z	<ABC><3><3>	<ABC><3><3>	<ABC><3><3>
F1	<▲F1><1>	<▲F1><1>	<▲F1><1>
F2	<▲F1><2>	<▲F1><2>	<▲F1><2>
F3	<▲F1><3>	<▲F1><3>	<▲F1><3>
F4	<▲F1><4>	<▲F1><4>	<▲F1><4>
F5	<▲F1><5>	<▲F1><5>	<▲F1><5>
F6	<▲F1><6>	<▲F1><6>	<▲F1><6>
F7	<▲F1><7>	<▲F1><7>	<▲F1><7>
F8	<▲F1><8>	<▲F1><8>	<▲F1><8>
F9	<▲F1><9>	<▲F1><9>	<▲F1><9>
F10	▲F1><0>	<▲F1><0>	<▲F1><0>
F11	<▼F2><1>	<▼F2><1>	<▼F2><1>
F12	<▼F2><2>	<▼F2><2>	<▼F2><2>
F13	<▼F2><3>	<▼F2><3>	<▼F2><3>
F14	<▼F2><4>	<▼F2><4>	<▼F2><4>
F15	<▼F2><5>	<▼F2><5>	<▼F2><5>
F16	<▼F2><6>	<▼F2><6>	<▼F2><6>
F17	<▼F2><7>	<▼F2><7>	<▼F2><7>

Dolphin 7200 Numeric Terminal Keypad Map

Key	VTERM	3270	5250
F18	<▼F2><8>	<▼F2><8>	<▼F2><8>
F19	<▼F2><9>	<▼F2><9>	<▼F2><9>
F20	<▼F2><0>	<▼F2><0>	<▼F2><0>
F21	---	<►F3><1>	<►F3><1>
F22	---	<►F3><2>	<►F3><2>
F23	---	<►F3><3>	<►F3><3>
F24	---	<►F3><4>	<►F3><4>
Esc	<▼F2><BKSP>	---	---
Tab ►	<◄F4><SP>	<◄F4><SP>	<◄F4><SP>
Backspace ◄	<◄F4><BKSP>	<◄F4><BKSP>	<◄F4><BKSP>
Del	<▲F1><BKSP>	<▲F1><BKSP>	<▲F1><BKSP>
\$	<ABC><.><.>	<ABC><.><.>	<ABC><.><.>
%	<ABC><.>	<ABC><.>	<ABC><.>
^	<◄F4><4>	<◄F4><4>	<◄F4><4>
&	<▲F1><Enter>	<▲F1><Enter>	<▲F1><Enter>
*	<▼F2><Enter>	<▼F2><Enter>	<▼F2><Enter>
(<►F3><Enter>	<►F3><Enter>	<►F3><Enter>
)	<◄F4><Enter>	<◄F4><Enter>	<◄F4><Enter>
↑	---	<ABC><▲F1>	<ABC><▲F1>
↓	---	<ABC><▼F2>	<ABC><▼F2>
←	<ABC><►F3>	<ABC><►F3>	<ABC><►F3>
→	<ABC><◄F4>	<ABC><◄F4>	<ABC><◄F4>
Roll down	---	---	<►F3><5>
Roll up	---	---	<►F3><6>
Lighten	<▲F1><SP>	<▲F1><SP>	<▲F1><SP>
Darken	<▼F2><SP>	<▼F2><SP>	<▼F2><SP>
PA1	---	<►F3><7>	---

Dolphin 7200 Numeric Terminal Keypad Map

Key	VTERM	3270	5250
PA2	---	<►F3><8>	---
PA3	---	<►F3><9>	---
Clear	---	<◄F4><5>	<◄F4><5>
Field exit	---	---	<◄F4><3>
EOF	---	<◄F4><8>	---
Help	---	---	<◄F4><9>
Field -	---	---	<►F3><BKSP>
Reset	---	---	<◄F4><6>
Sys req	---	<◄F4><2>	<◄F4><2>
= equal sign	<▼F2><.>	<▼F2><.>	<▼F2><.>
; semicolon	<◄F4><.>	<◄F4><.>	<◄F4><.>
+ addition sign	<▲F1><.>	<▲F1><.>	<▲F1><.>
- subtraction sign	<◄F4><1>	<◄F4><1>	<◄F4><1>
broken vertical bar	<◄F4><7>	<◄F4><7>	<◄F4><7>
< less-than sign	<►F3><0>	<►F3><0>	<►F3><0>
? question mark	<ABC><.><.><.>	<ABC><.><.><.>	<ABC><.><.><.>
' apostrophe	<ABC><3><3><3>	<ABC><3><3><3>	<ABC><3><3><3>
/ forward slash	<►F3><.>	<►F3><.>	<►F3><.>
\ backward slash	<ABC><0>	<ABC><0>	<ABC><0>
: colon	<ABC><0><0>	<ABC><0><0>	<ABC><0><0>
> greater-than sign	<ABC><0><0><0>	<ABC><0><0><0>	<ABC><0><0><0>

HHP Terminal Control Sequence

Safe Mode Boot

Safe Boot Sequences	
<i>Terminal Model & Keypad</i>	<i>Key Sequence</i>
7200, 7500	To exit to DOS prompt from main screen,press <shift> to view uppercase mode, press <C> for Edit Functions screen, press <F2> to Exit, and press <enter>. Press <shift> <bksp>and <on scan> keys simultaneously, then release.Press and hold <on scan> key until terminal finishes rebooting.
7400/7450, 95XX	Press Shift and Ctrl keys simultaneously, hold for 10 seconds, and release. (Often referred to as warm boot.)

Cold Mode Boot

Cold Boot Sequences	
<i>Terminal Model & Keypad</i>	<i>Key Sequence</i>
7200, 7500	To exit to DOS prompt from main screen,press <shift> to view uppercase mode, press <C> for Edit Functions screen, press <F2> to Exit, and press <enter>. Press <shift> <bksp> and <on scan> keys simultaneously, then release.
7400/7450, 95XX	Press ESC and CTRL keys simultaneously, hold for 10 seconds, then release. (Often referred to as cold boot.)



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