
MINISOFT® 92

Windows (WS92, version 5.4)

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Minisoft 92 Features

- ◆ A display capacity of up to 66 rows and 255 columns.
- ◆ Windows screen handling with support for pull-down menus, menu bars, side bars, and mouse; support for cutting and pasting information between windows. Resizable windows with scalable fonts. Customizable screen display with variable True Type font selection.
- ◆ Status line and user-defined custom menu with sub menu items.
- ◆ Support of display enhancements for color or monochrome, including inverse video, underlining, blinking, and security.
- ◆ Eight user-definable function keys display on screen, including support for System function key hierarchy.
- ◆ Support for COM1, COM2, COM3, and COM4. Baud rate support from 300 through 38,400.
- ◆ Comprehensive Command Language, including auto login, auto logoff, modem dialing, disk backup, and DDE commands.
- ◆ Multi sessions through one LAN connection.
- ◆ ASCII and binary file transfer between the HP minicomputer and PC through a modem or direct connection with data compression. Xmodem protocol for file transfers with BBS (bulletin board systems) and Unix host machines. FTP (File Transfer Protocol) client included.
- ◆ Run host applications in the background while a Windows word processor or spreadsheet is being used.
- ◆ PC to host printing. Direct output of most Windows-based word processing, graphics, and spreadsheet packages to host printers.
- ◆ Support for WinSock, TCP/IP, NSVT, and Telnet network connections.
- ◆ HP 2392A, 700/92 terminal emulation support for both character and block mode operations, configurable terminal memory.
- ◆ DEC emulation, allowing 25-line display, keyboard remapping, and color configuration for VT52, VT100, VT220, and VT320 terminals.

-
- ◆ Type-ahead, destructive backspace, keyboard remapping.
 - ◆ Capture screen display to local disk file.
 - ◆ DDE (Dynamic Data Exchange).
 - ◆ Modem dialer and phonebook.
 - ◆ Script/macro recorder.

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CHAPTER 1

Introduction

MS92 VERSIONS

The product as a whole is called Minisoft 92 or MS92; otherwise, specific versions are referred to as:

- ♦ WS92 for Windows Sockets (WinSock) version. WS92 comes in 32-bit version.

If you have used an older version of Minisoft 92, previous names for WS92 included Win92.

- ♦ If your PC does not have Windows, but runs under DOS, contact Minisoft for a DOS92 manual.

HARDWARE AND SOFTWARE REQUIREMENTS

WS92 REQUIREMENTS

WS92 has the following hardware and software requirements:

- ♦ IBM or compatible PC, 486 (minimum)
- ♦ Standard VGA video card or better
- ♦ 8 MB RAM
- ♦ Windows 95/98/ME or NT/2000
- ♦ WinSock-compliant TCP/IP stack—which includes a WINSOCK.DLL file—must be present for *network* connections

INSTALLATION

Files on CD include:

- WS92 Software
- WS92 manual in PDF format
- Adobe Acrobat Reader executable software
- NFT

INSTALLING WS92 VIA WINDOWS

To install WS92 using the Windows setup program:

1. Insert the WS92 CD into your CD-ROM drive.
2. From the taskbar select *Run*.
3. In the Command Line text box, type:

drive:\SETUP.exe

Where *drive* is the letter of your CD-ROM drive.

4. The default installation directory is C:\Minisoft\WS92.
5. Respond to the setup program prompts as directed.

Setup performs the following:

- Creates a directory for the WS92 software. Default is C:*Minisoft\WS92*.
- Extracts files from the distribution CD to your hard drive.
- Creates a Minisoft entry in the Start > Program menu to Run and uninstall MS92_32.
- Creates user icons on the desk top.
- Installs the Win92 display font in the System Font Directory.
- Registers the font.

ELIMINATING THE SPLASH SCREEN AND SETTING A ONE COPY EXECUTABLE

Special naming of the WS92 executable can do the following:

- ♦ Eliminate the Splash screen. Rename WS92_32.EXE to:
 WS92_32Q.EXE
- ♦ Allow only one copy to be executed (one session). Rename WS92_32.EXE to:
 WS92_32S.EXE
- ♦ Eliminate the Splash screen and allow only one copy to be executed. Rename WS92_32.EXE to:
 WS92_32QS.EXE

WINSOCK-COMPLIANT TCP/IP STACK

WS92 relies on a WinSock-compliant TCP/IP stack for making network connections. If you wish to make a *network* connection, you must have a WinSock-compliant TCP/IP stack before you can use WS92. Serial and modem connections are also supported.

ADDING SET STATEMENT FOR WS92

In addition to installing WS92 for Windows 95 and 3.11, you may need to edit your AUTOEXEC.BAT file for Windows 3.1, 95 and 98 or environment for Windows NT so that MS92 can find its configuration, message, and script files anywhere on the PC.

Where *dir* is the directory where the program is installed, you will need to set the directory of WS92. For Windows 3.1, 95 and 98 you can edit the Autoexec.bat file and add the set statement:

```
SET WS92=[The Directory where WS92 is installed]
```

example:

```
SET WS92=c:\minisoft\ws92
```

You must reboot Windows 95 and 98 after editing the Autoexec.bat file to finish the modification.

For NT, right mouse click on My Computer, select Properties, select the Environment Tab in the box labeled 'Variable'. Type WS92 then tab to the next box labeled 'Value' and type in the directory where WS92 was installed.

Example:

```
C:\minisoft\WS92
```

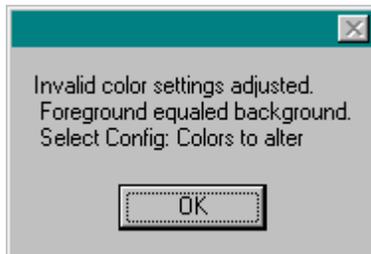
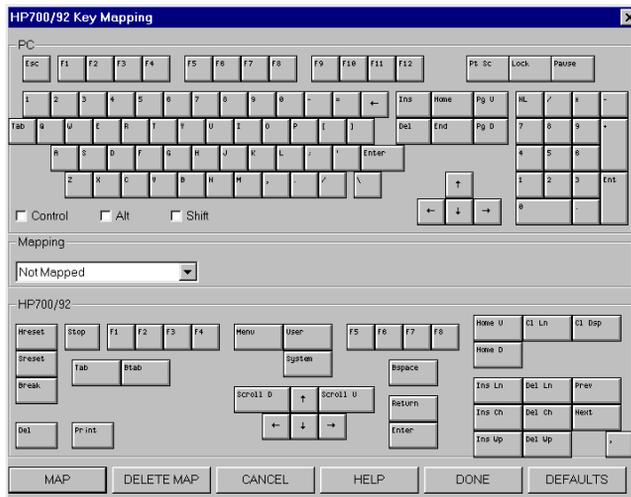
After setting the WS92 directory you can check to see that it was set correctly by going to the DOS command and typing SET followed by a carriage return. An entry will appear and read as WS92=C:\minisoft\WS92, if C:\minisoft\WS92 is the directory where you installed WS92.

Note: You must have a WINSOCK.DLL installed on your PC in order for WS92 to execute.

STARTING WS92

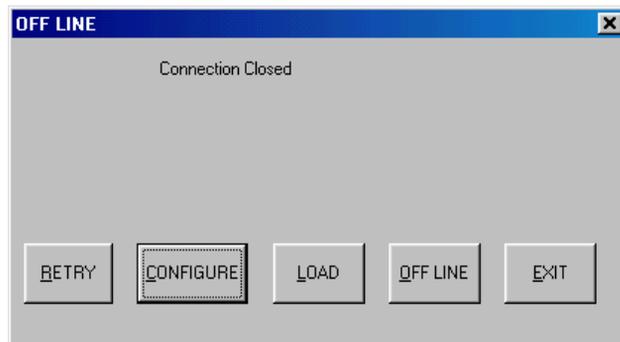
To run WS92:

1. Select *Minisoft / WS92* from the START > Program shortcut menu or select the WS92 icon on your desktop.
2. If the *default.w92* file is not found, the following set of dialog boxes will be displayed.



3. Select OK. Later change the colors to the default, followed by a Config Save to create the *default.W92* to be used in subsequent connections.

4. If you have not yet established a connection, an offline message may appear:



5. Click *Configure*. The Communications Type dialog box appears.
6. Select:

Serial - Makes a modem, direct, or MUX connection.

Telnet - Your PC will connect to a Unix or Telnet-capable system.

NS/VT - Connects to an HP e3000.

OFFLINE - Waits for action, when an action is prompted the OFFLINE dialog box appears giving you the options to Retry, Configure, Load or Exit WS92.

Note: If you have seen any of the previous dialog boxes, or have changed any of the above settings, be sure to do a Config Save.

NEED FURTHER INFORMATION....

Chapter 2	Configuration Instructions
Chapter 4	Making a Serial Connection
Chapter 5	Making a Telnet or NS/VT connection



CHAPTER 2

Configuring MS92

WS92 CONFIGURATION

When running WS92 for the first time, you must establish configuration settings in order to connect to a host computer. Configuration settings will allow you to control many options including colors and fonts of the WS92 display, and function keys that initially display.

Configuration settings for WS92 are stored in a configuration file, which has the extension *.W92*. The configuration file saves the settings you specify under the *Config* menu, current screen size and position.

For example, if you position the WS92 window in the upper right corner of the monitor and save the configuration, the WS92 window will display at that size and position the next time you run the configuration. In this way, you can display multiple WS92 sessions by saving separate window positions to separate configuration files (mainly network connections).

DEFAULT CONFIGURATION

The first time you run WS92, the software runs a default configuration file, *DEFAULT.W92*. Adjust the default configuration so the settings correspond to your system. Save the settings by selecting the Save command from the Config pull down menu.

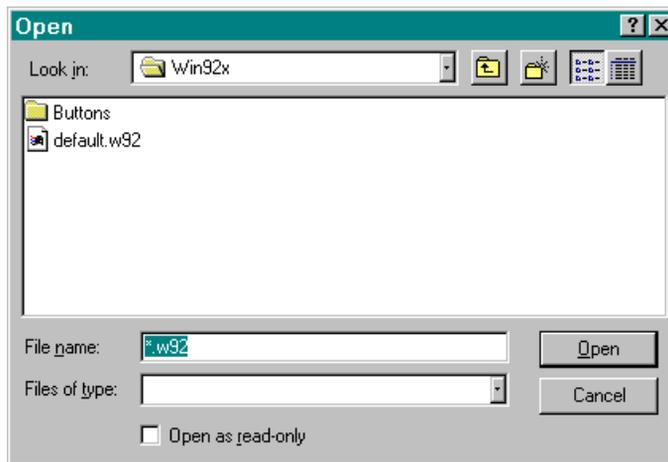
Unless a configuration file is associated with a shortcut, the default configuration file is used.

LOADING A NEW CONFIGURATION FILE

Note: Loading a new configuration file with the connectivity changed will cause WS92 to initiate a new host session, disconnecting your current network session.

To run a new configuration from within WS92:

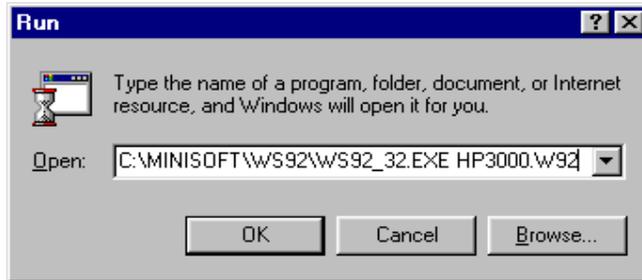
1. Select *Load* from the Config menu. The *Open* dialog box appears:



2. Select the name of the configuration file you wish to run, then click *Open*.

RUNNING FROM COMMAND LINE

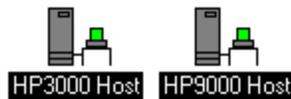
When installing WS92 as a Program Item through Windows Program Manager, include a configuration file name in the Command Line field, similar to the Windows 95 example shown below. In this example, the configuration file HP3000.W92, located in the WS92 subdirectory, will be loaded automatically when you run WS92.



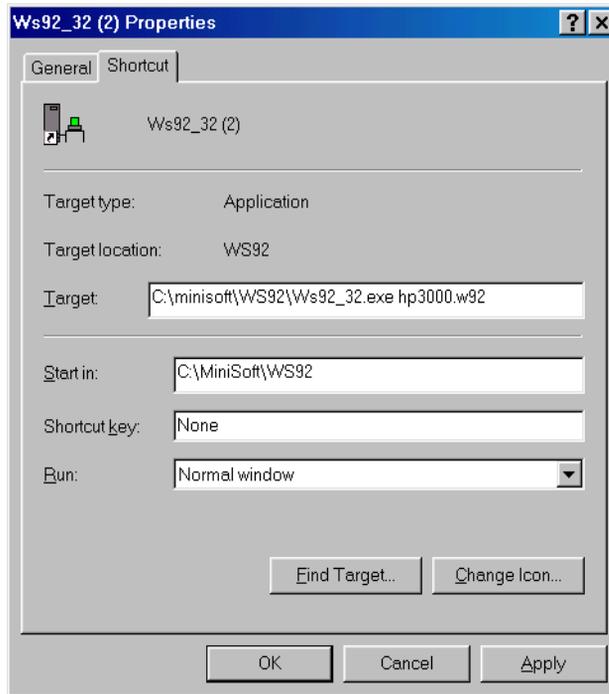
CREATING SHORTCUT ICONS WITH DIFFERENT CONFIGURATION FILES

Create separate WS92 icons to run separate configuration files. For example, if your PC has a serial connection to an HP e3000 host and a network connection to an HP9000 host, setup two separate WS92 icons to make these connections, as follows:

1. From Windows Program Manager, create two separate short cut items similar to the following:



2. Under the Short cut properties, insert the correct configuration file after the *Ws92_32.exe*, as shown in the following dialog box.



3. To run either configuration, double-click the icon of your choice.

SAVING A CONFIGURATION

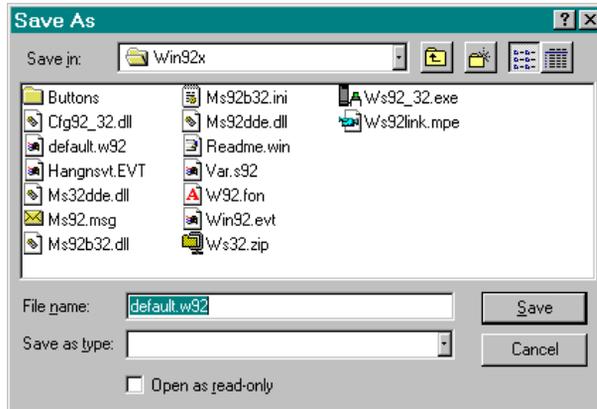
To save a configuration, select *Save* from the Config menu. The current configuration settings are saved to the configuration file currently in use. If this is the first time you have run WS92, the settings are saved to DEFAULT.W92.

SAVING A NEW CONFIGURATION

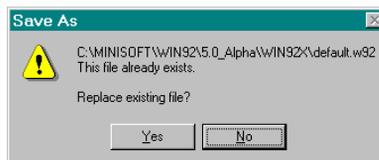
WS92 allows you to create alternative configurations for various connections. For example, you may have separate configuration files to run serial, network, HP e3000 or HP9000 host connections.

To save a new configuration:

1. Select *Save As* from the Config menu. The following dialog box appears:



2. Enter a file name, such as HP e3000, in the File Name text box. The .W92 extension is appended automatically. You can also select the name of an existing file. This causes WS92 to prompt you for whether to overwrite the existing file, as shown in the following dialog box.



CONFIGURING THE CONNECTION

Your connection type will be serial or network. If it is a network connection, you must configure the network type and HP e3000 node name or IP address in WS92.

If you plan to use WS92 to dial a host computer over a modem or connect using a DTC, configure for a serial connection.

TERMINAL CONFIGURATION IN HP MODE

Terminal option information helps the host computer identify your terminal. Handshaking and screen options are also included in order for the data from the host to display properly on the PC's monitor.

Note: Terminal options differ according to whether you are running in HP or VT mode. For HP terminal settings, use the default settings unless you have had problems and have been advised to use special settings.

To configure terminal options for HP mode:

1. From the Config menu select *Terminal*. The Terminal Configuration dialog box appears as shown in the following dialog box.
2. Configure the following settings. For default settings, click *Defaults*. When you have finished customizing your settings, click *OK*.

NEED FURTHER INFORMATION....

Chapter 3	Emulating a DEC Terminal
Chapter 4	Serial and Modem Connection Instructions
Chapter 5	Network Connection via WinSock

Options for Handshaking should be off for HP e3000, as most applications will set them as needed. HP9000's running certain applications may need to have straps Inh DC2 (H) and Inh HndShk (G) selected.

Options Available:

Terminal ID: Enter the ID number of the terminal you are emulating.

The 2392A and 700/9x are more recent HP terminals, which certain HP software may not recognize. You may change the terminal ID by typing: 2624A, 2622A. This will not change the emulation features of WS92 but will allow the HP host software to recognize the terminal.

Some HP software packages support the 132 column on-screen display features of the 700/92 terminal. You must enter 70092 in the Terminal ID box for this feature to work in WS92.

Screen Options: Select the following variables for your terminal display screen:

Start Col: Defines the horizontal column in which to begin displaying text (a value of 0 begins at the far left).

Local Echo: Causes type to appear immediately on your PC screen. Default is OFF.

Caps Lock: Capitalizes all typed characters. Default is OFF.

Bell: Activates your PC's audio alarm. Default is OFF.

InhEolWrp (C): Inhibits line wrapping. Default is OFF.

Line/Page Mode (D): Select Line or Page to transmit data to the host by line or page; Default is LINE.

Handshaking: Select options to regulate the flow of data between WS92 and the host:

XmitFnctn (A): Transmits functions associated with control characters. Default is OFF.

SPOW (B): Causes the spacebar to write spaces over characters. Default is OFF.

InhHndshk(G): Makes a connection with *InhDC2* to control handshaking. Default is OFF.

Inh DC2 (H): Works in conjunction with *InhHndShk* to control handshaking. Default is OFF.

Esc Xfer (N): Controls the transfer of escape sequences to a printer. Default is OFF.

CONFIGURING THE INTERFACE

BUTTON BAR AND STATUS BAR CONFIGURATION

WS92 allows you to configure specified buttons to be used in the toolbar across the top of the screen, and define items you wish to have tracked in the status bar across the bottom of the screen.

Note: In VT emulation mode, VT function keys are displayed in the button bar. You can hide the button-bar display while in VT emulation mode; select *Hide the Button Bar* from the Config Bar-menu.

To configure the button bar and status bar:

1. From the Config menu select *Bars*.
2. The *Configure Menu Bars* dialog box appears. The appearance of this dialog box varies according to the type of emulation you are running.

See Figure 2-1 for VT mode menu bar configurations and Figure 2-2 for HP mode menu bar configurations.

NEED FURTHER INFORMATION....

Chapter 2	Custom Menu - Enabling Customer Menu Items
Chapter 3	Emulating a DEC Terminal

Figure 2-1

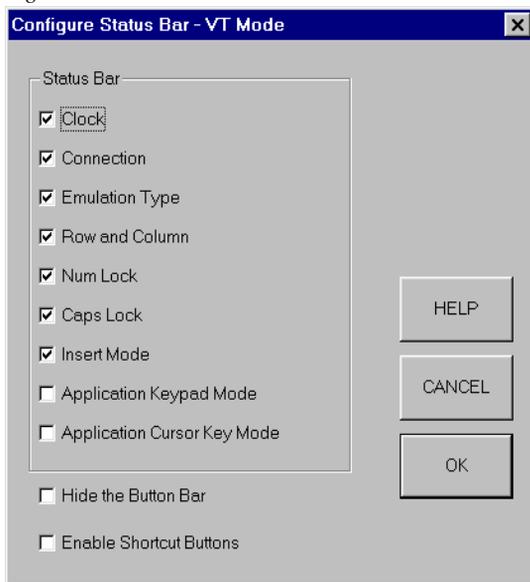
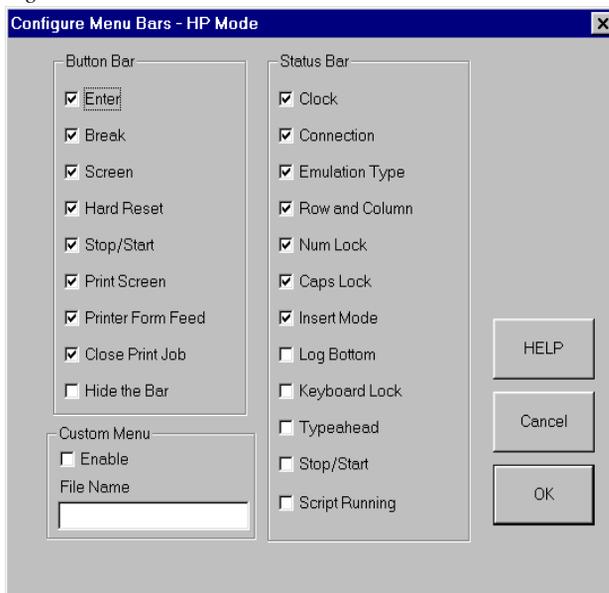


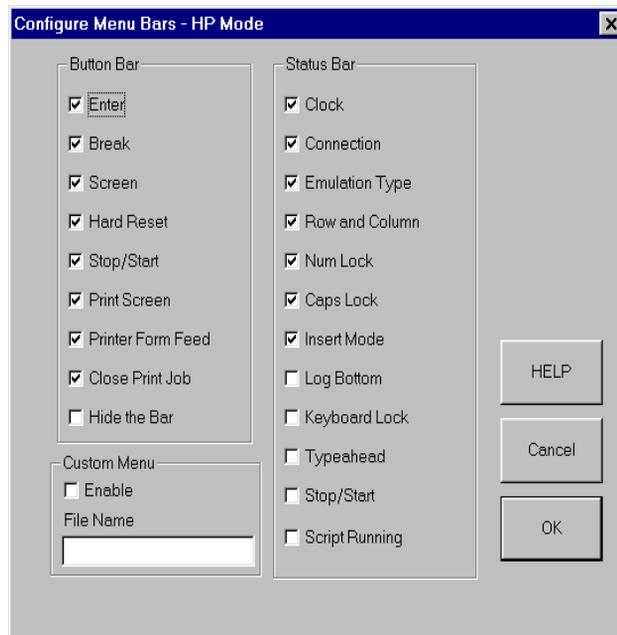
Figure 2-2



3. The buttons listed above are shortcuts to commands that are available from your pull-down menus. Select the items you wish to have displayed in the button and status bars. If you do not want the button bar to be displayed, click *Hide the Bar*.

CUSTOM MENU

From the Configure Menu Bar dialog box, the Custom Menu box must be selected to allow items to be added to the Menu Bar. Enter the name of a .BUT file in the file name box. For an example of a .BUT file, see MS92B32.BUT from the WS92 directory.



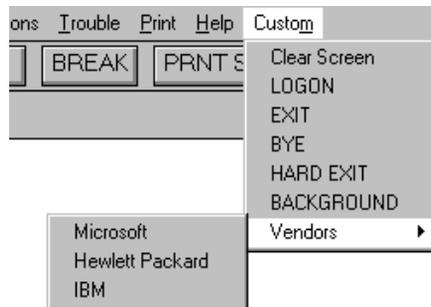
EXAMPLE .BUT FILES

Each line in a .BUT file is a separate menu line. The item to the left of the '=' is the label or description. The item to the right of the '=' is the command or script file to be executed. Any letter in the description preceded by an ampersand (&) will cause that letter to be displayed with an underline. This allows keyboard selection of the item. If the item is a script file, it should have an extension of .S92.

If you plan to implement a pop-up submenu for your Custom Menu define the items for the custom menu. Precede the name of the main or popup menu with a **_P** and sub menus under the main menu with an **_S** (see following example).

EXAMPLE 1

The following example generates a Custom Menu that looks like the following. Note that the custom section is case sensitive.



```
[buttons]
Clear Screen=DISPLAY “^[H^[J”
LOGON=LOGON.S92
EXIT=SEND “EXIT”
BYE=SEND “BYE”
HARD EXIT=HARDEXIT
BACKGROUND=BACKGROUND
_PVendors=
_SMicrosoft=Tell Microsoft
_SHewlett Packard= Tell HP
_SIBM= Tell IBM
```

EXAMPLE 2

In addition to the file described above the following commands have been added to the Minisoft scripting language.

1. MAINMENU [title] adds a new option to the main menu bar. Only one option can be added. If the command is executed again, it will overwrite the previous menu title. This would show on the Menu bar instead of the word Custom.
2. SUBMENU [title] adds a sub-menu option under the heading specified under MAINMENU. Up to 24 may be added.
3. ONMENU [number] [action] specifies the action to take when sub-menu [number] is selected. Any letter preceded by an ampersand (&) will cause that letter to be displayed with an underline. The following example will generate a Custom Menu with the following:

```

Tasks
Clear
Go To Background
Logon Script

```

```

MAINMENU Tas&ks
SUBMENU &Clear
SUBMENU Go To &Background
SUBMENU &Logon Script
ONMENU 1 DISPLAY “^[H^[J]””
ONMENU 2 BACKGROUND
ONMENU 3 LOGON.S92

```

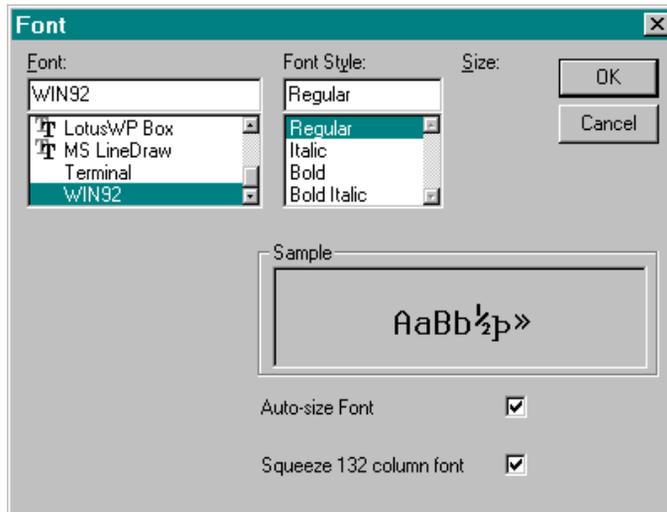
Note: The custom section is case sensitive.

FONT CONFIGURATION

WS92 allows you to choose the font that displays on the terminal emulation screen. The default font is Win92, which resides in the *W92.FON* file.

To configure the WS92 display font:

1. Select *Font* from the Config menu. The Font dialog box appears:



The *Font* dialogue box will allow the choosing of different fixed pitch fonts with the option to change the Font Style. Further options available are *Auto-size Font* and *Squeeze 132 column font*.

When *Auto-size Font* is selected, the font will be resized to fit the window. This will happen when the window is resized and/or the number of columns to be displayed changes. If the window is too small for the selected font, a different font will be used. When the window is made larger and/or the number of columns changes so the selected font will fit, the font will revert to the original selection. If no font is found, a message will be displayed and the window size will not be changed.

If *Auto-size Font* is not selected, the Font Size will be available. If the selected size is larger than what can be displayed in the window, scroll bars will be added.

Squeeze 132-column font will only be used with low-resolution display (640 x 480). This calls for a special font that will be smaller in the last 20 columns so a full 132 columns can be displayed. For this special font to be used, this option must be checked, display must be in 132 columns, and *Config... Screen Configuration... 'Suppress Scroll Bar on Maximized Screen'* must be selected.

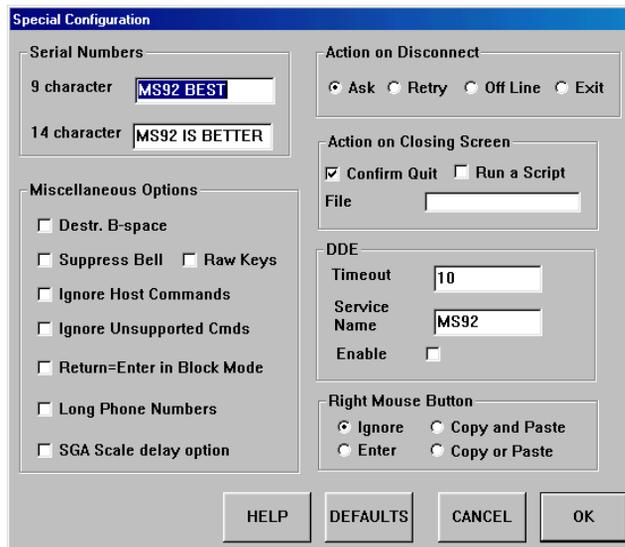
- When you have made your selections, click OK. The Screen displays the button bar and status bar as you specified. Note, selecting OK activates your choices for just the current session. WS92 does not save any configuration changes permanently until you select Save or Save As from the Config menu.

SPECIAL CONFIGURATION

The special configuration settings allow you to configure for destructive backspace, ignoring host commands, and other options.

To set special configurations:

- Select *Special* from the Config menu. The Special Configuration dialog box appears:



2. When you have finished customizing your settings, click *OK*.

Note: Clicking *OK* activates your choices for the current session only. WS92 does not save any configuration changes *permanently* until you select *Save* or *Save As* from the *Config* menu.

Options available in the Special Configuration dialog box are as follows:

Serial Numbers: Specifies a string identifying WS92 as the terminal emulator. Some host applications emit an escape sequence that asks the emulator to respond with a 9-byte or 14-byte string. WS92's default 9-byte string is *MS92 BEST* and default 14-byte string is *MS92 IS BETTER*. Some host applications, however, expect a string that represents a valid WRQ serial number (Reflection emulator). In this case, configure the WS92 serial number according to the WRQ syntax shown in the following table.

Host Escape Sequence	Default Serial Number	WRQ Syntax
[Esc]*s12345^	MS92 BEST	WRQ-55448
[Esc]*s12347^	MS92 IS BETTER	W01-521L05548

For example, the number WRQ-55448 is a valid WRQ serial number for the 9-byte string, and W01-521L05548 is a valid WRQ serial number for the 14-byte string.

Some host software assumes Reflection to be the terminal emulator if any character sequences respond. If no response is received, the software assumes the terminal emulator to be an HP Terminal. To emulate the HP Terminal and not WRQ, leave the 9-byte and 14-byte fields blank and enable the *Ignore Host Commands* option (see *Miscellaneous Options*). When these fields are blank and host commands are ignored, WS92 does not respond to any escape sequence, thereby reacting as an HP terminal.

Miscellaneous Options:

Destr. B-Space: Causes the backspace key to erase characters as it moves the cursor to the left.

Suppress Bell: Allows you to disable the PC bell, which many applications use to report error conditions or sound warnings to the user.

Raw Keys: Allows you to use extended ASCII codes without translating them into equivalent HP characters.

Ignore Host Commands: Forces WS92 to ignore all host commands of the type [esc]& oC and [esc] & OF. This configuration allows some host applications to treat WS92 as a terminal rather than an emulator.

Ignore Unsupported Cmds: Forces WS92 to ignore the host commands it does not support.

Return = Enter in Block Mode: Allows the PC Return key to emulate the HP Enter Key when in block mode. This is best used when the ENTER key is mapped as a CR. By using this feature, less training time is required for first time HP Terminal users.

Long Phone Numbers: This option requires a new phone number file (Ldial92) that can hold numbers up to 45 digits. When selected the Dial92 file is not available otherwise when unselected the Dial92 file is used. No changes are made to the Dial92 file.

SGA Scale delay option: When <ESC *dr> , turn off cursor, is received WS92 waits 1 second for keyboard input before reading the comms. This allows Ecometry's scale input device to complete writing through the keyboard, since Ecometry host software does not wait.

Action on Disconnect: Select one of the following options to specify the action WS92 will take when a network line is disconnected.

Ask: Presents you with a dialog box for Retry, Configure, Load, or Quit.

Retry: Always attempts to reconnect after the connection has been dropped or lost.

Offline: Disconnects you from the host through the network line but leaves the terminal window open. When you select the Enter key the terminal window then opens the Offline dialog box with the options of: Retry, Configure, Load, Offline, or Exit.

Exit: Takes you completely out of the terminal emulator without prompting for any actions.

Confirm Quit on Close Screen: Displays a dialog box asking you to confirm the exit. Uncheck this option if you do not wish to be asked. This option is only in effect when attempting to quit WS92 using the top right corner X button (close window).

DDE: (Dynamic Data Exchange) Allows you to create a real-time link between WS92 and other Windows applications that support DDE. Changes to data in the original application will then appear when accessed by the linked application.

The application in which the data originates is called the *server application*, and the application that uses the data is called the *client application*. WS92 can be either a client or server application. A DDE link requires that both the server and client applications be active at the same time.

Not all Windows applications support DDE; consult your application's user manual for further information on how it supports DDE. For details on using WS92's DDE commands, see Chapter 9.

Timeout: The maximum number of seconds WS92 will wait for an acknowledgment after sending a DDE message.

Service Name: The name by which DDE client applications identify WS92 as a DDE server application.

Enable: Select this box to use DDE.

Right Mouse Button:

Ignore: Ignores the Right Mouse button.

Enter: Treats the Right Mouse button as numeric ENTER key.

Copy and Paste: Copies selected data to the clipboard, then pastes information where the cursor is presently located. If a selection has not taken place, data from the clipboard will be pasted.

Copy or Paste: If selected, data will be copied. If not, data will be pasted where the cursor is located.

DESTRUCTIVE BACKSPACE

There are differences in the implementation of destructive backspace on various hosts. You can implement a destructive backspace in one of two ways, special configuration or keyboard remapping.

Note: For special configuration of the destructive backspace, see *Destr. B-Space* under the heading *Special Configuration* in this chapter. For keyboard remapping, see heading *Keyboard mapping* in this chapter.

HP e3000 MPE/MPEiX

MPE does not directly implement a destructive backspace. To simulate this function, MS92 will transmit the following three characters:

`^H ^H [CHR(8)+CHR(32)+CHR(8)]`

Select the destructive backspace option under *Config : Special*, or map a key to this string sequence.

HP9000 HPUX

Use the normal unmapped backspace key.

DEC Alpha

Default destructive backspace character on DEC Alpha systems is the Delete CHR(127):

`DEL [CHR(127)]`

A VT DEL map button will be  Del and a Backspace key will be added.

Other UNIX

Use:

^H ^H [CHR(8)+CHR(32)+CHR(8)]

or

DEL [CHR(127)] or ^H [CHR(8)].

Note: Clicking *OK* activates your choices for the current session only. WS92 does not save any configuration changes *permanently* until you select *Save* or *Save As* from the *Config* menu.

SCREEN CONFIGURATION

The Screen Configuration settings allow you to configure cursor shape, function keys, screen size, screen page memory, and other factors affecting screen appearance.

To set the screen configuration:

1. Select *Screen* from the Config pull down menu. The Screen Configuration dialog box appears as shown below.
2. Refer to the list of options below to customize your settings. For default settings, click *Defaults*.
3. Click OK. Note, selecting OK activates your choices for just the current session. WS92 does not save any configuration changes permanently until you select Save or Save As from the Config menu.

Screen Configuration

Cursor Shape
 Box Underscore

FnKey Default Setting
 Modes User

Screen Size
 Rows (24 to 66) 24
 Cols (80 to 255) 80

Bypass Windows Scrolling

Show Scroll Bar
 Always
 If screen is not maximized
 Never

Title

Suppress True Underlining Screen Pages 20
 Center Screen Scroll Jump 2

Suppress True Blinking
 Squeeze in 132 columns Wrap Keyboard Selections
 Map Form Feeds to Line Feeds Wrap Mouse Selections
 Text Font for Function Keys Wrap Shift Mouse Selections

HELP CANCEL DEFAULTS OK

Options available:

Cursor Shape: Selecting *Box* displays your cursor as a vertical rectangle. Selecting *Underscore* displays your cursor as a horizontal base line.

FnKey Default Setting: Configures WS92 System function keys (*modes keys*) or User-defined function keys (*user keys*) to display at start-up.

Screen Width: Select 80 - 255 column width. You can also specify 80, 132, or 200 column width from the dropdown Options pull down menu.

Screen Height: Allows you to specify a display screen of 24 through 66 rows.

Title: The name that is displayed on the title bar of the window, also shown in the TASK bar (72 Character limit).

Screen Pages: Configures the amount of terminal display memory. The more screen pages you configure, the greater amount of terminal memory you will have. For example, 10 pages of screen memory is equal to 240 lines of text. You can use the vertical scroll bar, Page Up / Page Down, and CTRL -↑/CTRL-↓ keys to view text in terminal memory that has scrolled off the top of the display screen. The maximum number of screen pages available is 99.

Note: You must save the configuration, exit WS92, and then restart WS92 with this configuration in order to activate your changes to the screen pages.

Scroll Jumps: This option controls the number of new lines that will be displayed simultaneously. Under the default of 0, new lines are displayed one by one and scrolled up. Scroll Jumps can be used to increase the scrolling speed. This is only used when Bypass Window Scrolling is selected.

Note, when several new lines are displayed and scrolled at once, the perceived speed can *appear* slower than the actual speed. Try displaying a large file with scroll jump set at 0 and then at 24, timing each for how long it takes to see the end of the file. Though 24 might appear slower, you may find it is significantly faster.

Suppress True Underlining: Select this option to turn off text underlining that is being transmitted from the host computer. This will allow the underlining enhancement configured in the color configuration to be the only active enhancement. For information on configuring enhancements for underlining, see *Color configuration*, later in this chapter.

Center Screen: Enabling this option centers the screen within the window size, framing the screen. If disabled, the screen displays within the window, top left justified with unused space toward the bottom left.

Bypass Windows Scrolling: By default scrolling is controlled by the video card. To bypass the video card scrolling, select this option and WS92 will do the scrolling within its own code.

Show Scroll Bar: Displays vertical and horizontal scroll bars. The horizontal scroll bar appears at the bottom of the screen when auto-size font is not selected and the WS92 window does not have the room to display all columns requested.

Enabling the “*Always*” option, will cause a scroll bar to appear at all times. Selecting the “*If screen is not maximized*” option, shows your scroll bar only when unmaximized. Choosing “*Never*”, causes your scroll bar never to be shown. The CTRL-↑ or CTRL-↓ or Page Up and Page Down buttons on the enhanced keyboard can be used for scrolling when the scroll bar is hidden. Not displaying a scroll bar allows larger fonts to be used in 132 / 200 column screens.

When in 132 column mode with display properties of 640 by 480 resolution, either “*Always*” or “*If screen is not maximized*” options must be selected.

To quickly move around in the screen memory, press one of the following key combinations:

HOME	Beginning of current line (far left)
END	End of current line (far right)
CTRL-HOME	Home Up (top left of screen)
CTRL-END	Home Down (bottom left of screen)

Suppress True Blinking: Selecting this option turns off blinking that is being transmitted from the host computer. This will allow the underlining enhancement configured in the color configuration to be the only active enhancement. For information on configuring enhancements for blinking, see *Color configuration*, later in this chapter.

Map Form Feeds to Line Feeds: Converts form feeds that a host application sends to the screen into line feeds. This setting does not affect printing. Default setting is OFF.

Text Font for Function Keys: Uses the currently default windows font as the font for function key labels. This setting is particularly useful for non-English character sets.

Wrap Keyboard Selections: Selecting this option allows Inverse Video selection when using shift > arrows keys. Otherwise Rubber Band selection is applied.

Wrap Mouse Selections: Allows Inverse Video selection when using a left mouse selection.

Wrap Shift Mouse Selections: Selecting this option allows Inverse Video selection when using shift > left mouse selection. Otherwise Rubber Band selection is applied.

NOTE....

Minisoft allows two selection types: Inverse Video and Rubber Band. Rubber Band allows outline selection without line wrap. Inverse Video, line wraps from line to line.

COLOR CONFIGURATION

Color configuration settings allow you to make separate selections for foreground and background colors for all the configuration options available for your terminal mode: HP or VT. For information on enabling VT mode see *Emulating a DEC terminal* in *Chapter 3*.

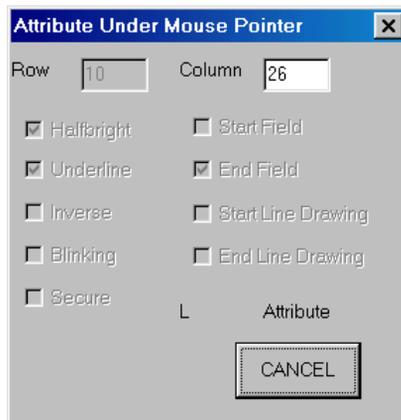
HP MODE: For HP 2392A and HP 700/9x terminals, configure enhancements for halfbright, inverse, underline, blinking, and any combination of these.

VT MODE: For VT52, VT100, VT220 and VT320 terminals use the ANSI Color settings.

The *Show Attributes* utility, accessed via the Trouble menu, can aid you in configuring color enhancements in HP mode.

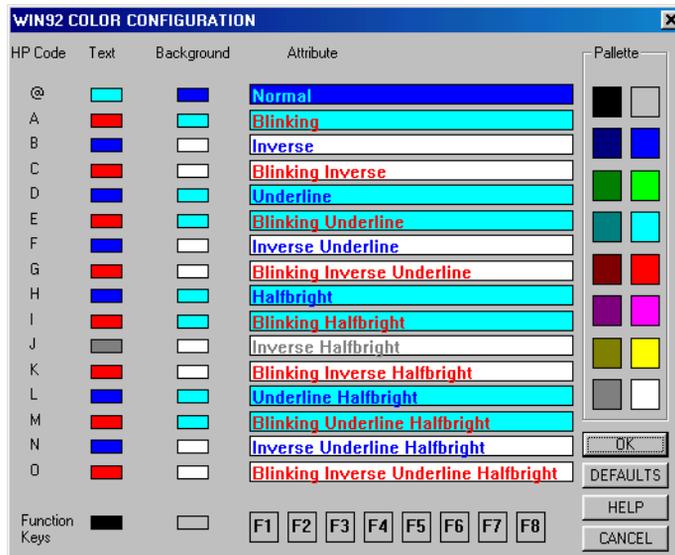
To configure the color enhancements of your terminal emulation screen:

1. Open a host session in WS92, and run a host application that uses screen enhancements intensively.
2. Select *Colors* from the Config menu.
3. In the Color Configuration dialog box, select *Default Colors*, and then click *OK*. The host application's enhancements are shown in the default color scheme.



To identify the type of terminal enhancements on your screen, select *Show Attributes* from the Trouble menu. As you move the pointer across the screen, the status box tells you whether the field is halfbright, underline, inverse, blinking, or secure — or a combination of these. The Attribute dialog box also describes whether it is the start or end of a field, or start or end of a line drawing. The pointer's row and column position is also reported, as well as the name of the enhancement attributes. Use the information in the status box to help you choose the enhancements that need to be changed in the Color Configuration dialog box as shown in the attributes dialog box.

4. Customize the color configuration by selecting *Colors* from the Config menu which displays the Color Configuration dialog box:



Note: The Color Configuration dialog box in VT mode differs slightly from the HP mode shown here. The process for configuring color enhancements is the same in HP and VT modes.

5. Match the enhancement attribute reported in the Attribute field of the status box in step 3 to the enhancement combination in the Color Configuration dialog box, shown above. For example, if the enhancement attribute from step 3 is the @ symbol, this would be the normal attribute. This should also match the first entry of the (HP Code) column in the color configuration dialog box.

Note that enhancements for the function keys are not defined by a character, but the label, “Function Keys”.

Each combination of enhancements is comprised of text and background color. Think of each enhancement as a block on the screen, where the color of the text appears on a background color.

6. Click a text or background color block for the enhancement you wish to change, and change the color by clicking one of the colors from the palette. Click *OK* to see the results of your changes. You may need to repeat steps 4 through 6 several times to arrive at the exact configuration you desire.

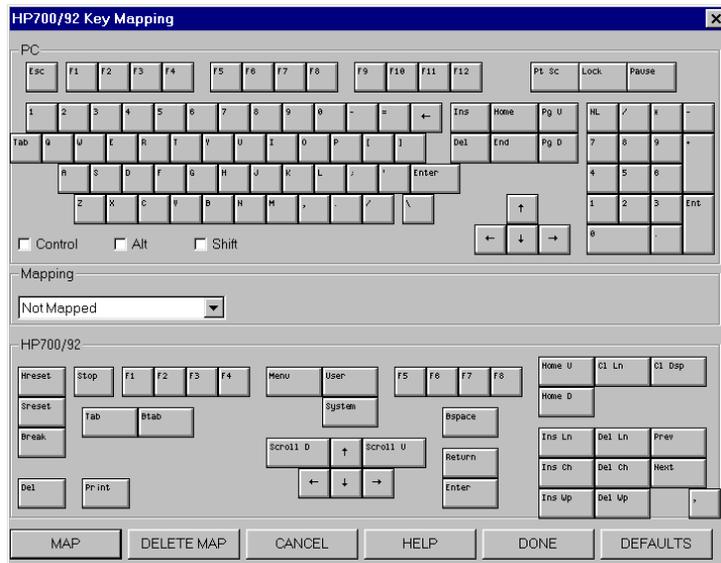
Note: Clicking *OK* activates your choices for the current session only. WS92 does not save any configuration changes *permanently* until you select Save or Save As from the Config menu.

KEYBOARD MAPPING

There are keys that exist on a terminal that do not exist on a PC keyboard, you must map terminal keys to PC keys in order to send certain commands that are available on a terminal. WS92 allows you to configure keyboard mapping for both HP and VT terminals, depending on whether you are running HP or DEC emulation (see *Emulating a DEC terminal* in Chapter 3).

To map the keyboard:

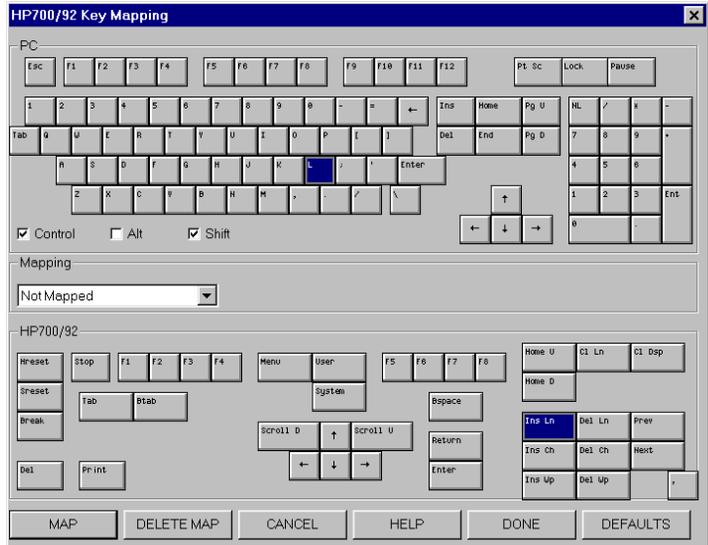
1. From the Config menu, select *Keyboard: Mapping*. The following dialog box will then be shown:



2. To map all keys to a default configuration, click *Defaults*.
3. To map keys manually, select a PC key you wish to map.
4. Then click *Delete Map*.
5. Select an option from the *Mapping* list box. For example, to map the PC key to a terminal key, select *Map to Terminal Key*.

6. Click the terminal key you wish the PC key to map. Then select *Map*.
7. Click *Done*.

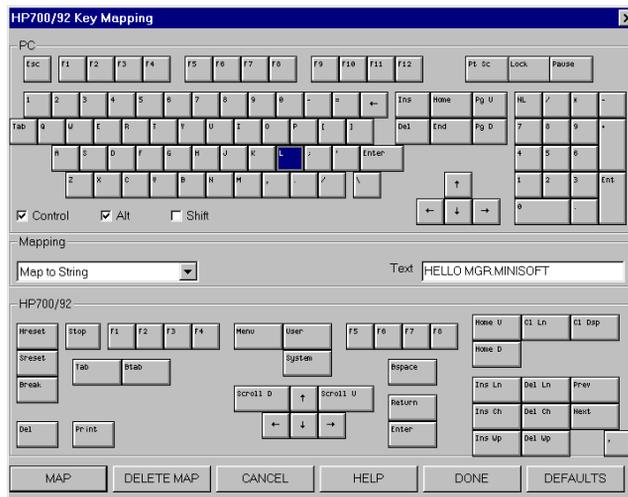
Extend the number of PC keys available by clicking the Control, Alt, or Shift options to create a key combination. For example, map the PC key combination Ctrl-Shift-L to the HP Ins Ln key, as shown below.



Map keys to send a string of characters, script command, or action to the host computer.

To send a string of characters:

1. Select a PC key.
2. Select *Map to String* in the Mapping list box.
3. Type a string in the text box, as shown below, which maps the PC key combination CTRL-ALT-L to the string “*Hello MGR.MINISOFT*” to the host. In order for CR to work you will need <^M>. You could also use the string text to send an escape sequence (see *Appendix C* for the ^[escape code).



NOTE....

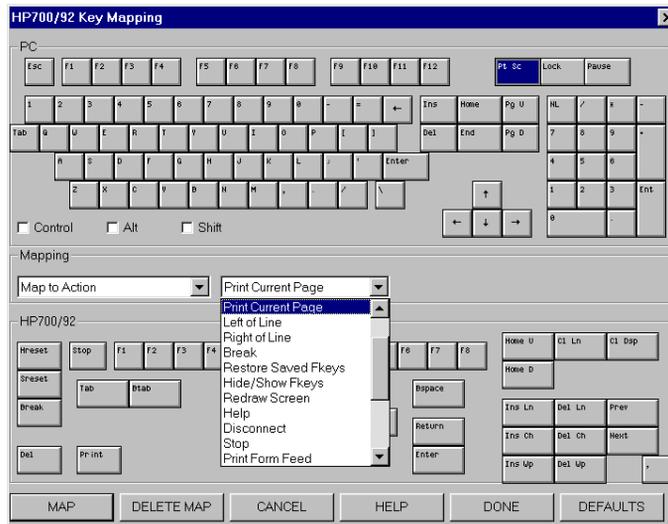
You can map more than one PC key or key combination to a single terminal key, string, command, or action. However, you cannot map multiple terminal keys, strings, commands, or actions to a single PC key or key combination.

To send a script command or file:

1. Select a PC key.
2. Select *Map to Script Command* in the Mapping list box.
3. Type the script command or script file name in the text box. This will map the PC key combination to the script command.

To send an action:

1. Select a PC key.
2. Select *Map to Action* in the Mapping list box.
3. Select an action from the list of options. For example, you can map the PC Print Screen key to the terminal action “*Print Current Page*,” as shown in the following screen shot.



You can map more than one PC key or key combination to a single terminal key, string, command, or action. However, you cannot map multiple terminal keys, strings, commands, or actions to a single PC key or key combination.

TRANSLATION TABLES

Note: If you need non-U.S. English fonts and plan to use Windows True Type fonts, you will need font conversion tables.

WS92 uses Character Set Translation Tables to convert between different character sets on PCs and the host computer. The size of these tables is always 256 bytes. The tables reside in the same directory as WS92, where WS92 looks for them during start-up. The tables may also be loaded dynamically, without having to stop and restart WS92. To do this run a script file that includes the TABLOAD command. For more information, see *TABLOAD* in the Script Language Manual.

The following shows the preset tables for MS92 for Windows available with the TABLOAD command:

Function	Translation Table	TABLOAD Value
PC keyboard to host computer	HP_CHARS.TBL	1
Host computer to PC monitor	PC_CHARS.TBL	2
ASCII file transfer from PC to host	XLAT1.TBL	3
ASCII file transfer from host to PC, and capture to disk	XLAT2.TBL	4
Host computer to PC monitor; for function key labels	FK_CHARS.TBL	5
Host computer to PC slaved printer (local print functions)	PT_CHARS.TBL	6
Copy-and-paste from WS92 to other Windows applications	CUTCHARS.TBL	7
Paste from other Windows applications to WS92	PASTE_CH.TBL	8

Default character sets in most Western European countries are as follows:

HP3000 - MPE/iX	HP ROMAN9
PC - MS-DOS	IBM Codepage 850 (Multinational)
PC - MS-Windows	Windows ANSI

Appropriate translation tables are included in the zip file called XLAT.zip. The WS92 setup program copies this file to your hard disk. The translation tables in the XLAT.zip file are used to convert between different character sets, as follows:

PC8ROM9.TBL	from MS-DOS	to HP ROMAN9
ANSIROM9.TBL	from Windows ANSI	to HP ROMAN9
ROM9ANSI.TBL	from HP ROMAN9	to Windows ANSI

If none of the translation tables are present in the PC's working directory, WS92 performs this conversion by default:

PC to host computer: Code Page 850 to Roman-9

No conversion is required for the host computer to the PC monitor when using the default font Win92, as it is based on the Roman-9 character set.

Using the EURO Symbol

In the character sets that are relevant for MS92, the EURO symbol has the following values:

Character Set	Decimal Value	Hex Value
Windows ANSI	128	80
HP Roman8	Not Available	Not Available
HP Roman9	186	BA

The HP Roman9 character set (standard on HP e3000 servers) is an exact copy of the HP Roman8 set except for the one character decimal 186 that is used to be the currency sign ¤ and that is now used for the EURO sign. To generate the EURO symbol in MS92, please do the following:

1. Verify that the font file W92.FON (C:\WINDOWS\FONTS) is dated March 27, 2000 or later.
2. Copy the files from XLAT.zip to your MS92 directory, default C:\MINISOFT\WS92.

3. Run MS92.
4. Generate the symbol in one of the following ways:
 - a. With NUMLOCK on, hold down the left ALT key and type 0128 on the numeric keypad.
 - b. Select *Config > Keyboard > Mapping* . In the PC area select the key combination that you wish to generate the EURO symbol, usually Control + ALT + the letter E.

Select Map to String. Then enter the decimal value of the EURO symbol in HP Roman9, by holding down the left ALT key and entering 0186 on the numeric keypad.

Press the Map button, then select Done and save the configuration. Now when you press ALTGR-E key combination you will generate the EURO symbol.

Note: WS92 will also correctly convert the EURO symbol between HP Roman9 and Windows ANSI in ASCII file transfer operations.

USING TRANSLATION TABLES WITH NFT

NFT (and FTP) use a MDMFT.INI (or MDMFTP.INI) file to set translation table values. For example, to have extended characters convert correctly between Windows ANSI and HP-ROMAN9 when using NFT, add the following lines to the file C:\WINNT\MDMFT32.INI:

```
[Translation]
UploadTable=C:\MINISOFT\WS92\ANSIROM9.TBL
DownloadTable=C:\MINISOFT\WS92\IROM9ANSI.TBL
```

Note: Use the appropriate Table.

MAKING XLAT FILES

The size of these tables is always 256 bytes. The characters in this file are substituted for the equivalent (indexed) character requested. If the file contains the binary values zero through 255, no change would take place.

EXAMPLE

If the 33rd character (Decimal value 32, Hex 20) is replaced with the 66th character (Decimal value 65, Hex 41), all blank spaces will be replaced with the letter A.



CHAPTER 3

Running a Host Session

THE WS92 SCREEN

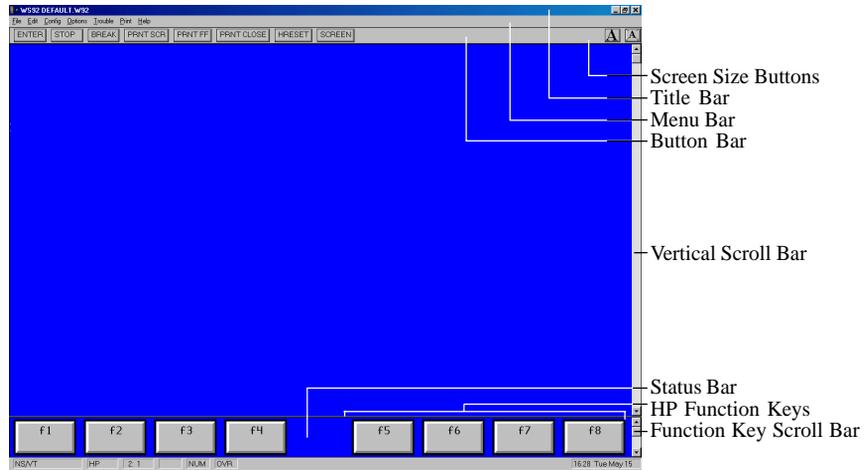
WS92 allows you to run a host session from your PC as if your PC were a terminal connected directly to the host computer. WS92 also allows you to take advantage of the PC's CPU, data storage capacity, and printer while you are running a session on the host.

To run WS92, double click the WS92_32 icon. The terminal emulation window displays, as shown below. You will notice it has the same properties as any standard window in the Windows environment:

- ♦ sizable borders
- ♦ control boxes
- ♦ minimize/maximize buttons
- ♦ scroll bars and boxes
- ♦ title and menu bars

NEED FURTHER INFORMATION....

Chapter 6	Transferring Files
Chapter 7	Printing from WS92



TITLE BAR

Click and drag the title bar to move the WS92 window anywhere on your screen.

MENU BAR



The Menu Bar is located at the top of the WS92 window, below the title bar. You may choose from the following menus: File, Edit, Config, Options, Trouble, Print, Help and Custom. Click on a menu title to display all the menu items available. Users without a mouse can pull down a menu by pressing the ALT key in combination with the underlined letter in the desired menu title. For example, press ALT-F to pull down the File menu; then press U to upload a file. Choosing any menu item that appears with an ellipsis after it (...) causes a dialog box to appear. The ESC key will allow you to exit from any menu or screen.

CONFIGURATION BUTTONS FOR FONTS



When clicked the Font Dialog box will appear, allowing you to choose a different fixed pitch font with the option to change the font style. For further information see Chapter 2 *Font Configuration*.



This will correct the font size for the window if Auto-size Font is not selected. This is a one time basis and does not turn on Auto Size.

POINTER

The pointer changes shape depending on its position and the current activity. While in the terminal screen area, the pointer is an arrow. Use it to position the cursor at a specific character position, or to locate a starting position for text that is to be copied or cut to the clipboard. When over the Function Keys, the pointer changes to a hand. Position the hand over the key you wish to click and “press”.

BUTTON BAR / STATUS BAR

The button bar consists of shortcut commands that are available from the pull-down menus. These buttons, and the items that appear in the status bar, are user selected. For more information on these items, see *Button bar and status bar configuration* in Chapter 2.

USER-DEFINED KEYS

The user-defined keys, F1 through F8, display along the bottom of the screen as shown in the following dialog box. A label for each key appears in a box that represents the key. The keys and labels are programmable (see *Configuring user-defined keys*, later in this chapter).



To hide the user-defined keys:

1. Select *Hide Function Keys* from the Options menu.
2. To display the Function Keys reselect *Hide Function Keys*.

CONFIGURING USER-DEFINED KEYS

To load the menu of user-defined function keys press F11. This command corresponds to the SHIFT-User System key combination on the 2392A and 700/92 terminals. User-defined keys can be set locally or programmatically. Default label keys are F1 through F8.

Note: You must be logged onto the host system in order to program user-defined function keys.

To have WS92 start up with the user-defined keys visible:

1. Select *Screen* from the Config menu.
2. The Screen Configuration dialog box appears, select *User* as the *FnKey* default setting.
3. Then click *OK*.

Note: Clicking *OK* activates your choices for the current session only. WS92 does not save any configuration changes *permanently* until you select *Save* or *Save As* from the Config menu.

To program user-defined keys:

1. From the Config menu select keyboard, then select HP Function Key. You can also define VT Mode keys, see *Emulating a DEC terminal* later in this chapter.
2. Using the tab key, move through the fields and position the cursor at the function key you wish to program. The first programmable field for each function key is the attribute field, which defaults to **T**.
3. Press *F2 Next Choice* or *F3 Previous Choice* to set the key's attribute. Attribute choices are as follows:

T (Transmit-only): In remote mode, WS92 transmits the user key string and automatically transmits a carriage return. In local mode, this key has no effect.

N (Normal keyboard input): This string is treated exactly as if it had been entered from the keyboard. A carriage return is not automatically transmitted. If WS92 is in local mode, the string is displayed on the screen, and embedded escape sequences are executed locally. In remote mode, with local echo off, the string is transmitted to the host computer, and is executed and displayed only if the host system echoes.

L (Local-only): The user key string is executed locally but is not transmitted to the host system.

4. Press the tab key to move to the Label fields.
5. In the first Label field, enter up to eight characters as you wish them to appear on the top line of the key's label in the function key window. If the label continues to the second line, add this text in the second field.

If your function key labels displays only one line, WS92 will display only what you enter in the first Label field.

Note: When entering data into the label and definition fields, you can use all the editing keys (INS, DEL, clear line, etc.) as if format mode were active.

6. Press the tab key to move to the program entry field.
7. Using no more than 80 characters, enter the exact character string the user key is to generate. Include escape sequences and ASCII control codes within the string by pressing *F7 Display Functions* before entering the control codes. Disable display functions mode immediately after entering the desired control code by pressing *F7* again.

For example, enter a carriage return by pressing *F7*. Then press the Enter key. A carriage return character appears. Press *F7* again to turn Display Functions off.

8. When you have finished defining the function keys, press *F8 Exit Config*. The keys you defined should appear across the bottom of the screen, in the function key window.
9. To save this set of user keys to the current configuration file, select *Save* from the Config menu. To save this set of user keys to a new configuration file, select *Save As* from the Config menu and enter a new file name (see *Saving a Configuration* in *Chapter 2*).
10. If the user-defined keys are lost for any reason (for example, while running a host application), press *F11*, or select *Keyboard* from the Config menu, and select *HP Function Key Strings*. Then press *F5 Restore Saved*. User-defined keys are restored to the values initially loaded by the user.

FUNCTION KEYS

The Function key scroll bar gives you access to the various sets of function keys. In HP emulation mode if the appropriate keyboard mapping defaults have not been changed, you may use the following:

F9 - toggles the function key display ON and OFF.

F10 - block-mode enter key.

F11 - displays user-defined keys.

F12 - refreshes the screen.

To activate a key, press F1 through F8 on your keyboard or click the key with the mouse pointer. An asterisk appears in the lower right corner of the key when its function is activated.

Scroll through the hierarchy of function keys by using the function key scroll bar or pressing CTRL-PgUp and CTRL-PgDn.

In VT emulation mode, the VT320 PF keys are displayed across the top of the screen. For information on VT emulation mode, see *Emulating a DEC terminal*, later in this chapter. For information on configuring the button bar, see *Button bar and status bar configuration* in *Chapter 2*.

MODES KEYS

Modes keys control the mode of communication between the keyboard and the host. Access the Modes keys from the menu of System function keys (see *System keys*, in this chapter). To have WS92 start-up with the Modes keys visible:

1. Select *Screen* from the Config menu.
2. The Screen Configuration dialog box appears, select *Modes* as the FnKey default setting.
3. Then click *OK*.

To access the Modes keys, click the arrows for the function key scroll bar or press CTRL-PgUp or CTRL-PgDn until the Modes keys are visible. The Modes keys are as follows:



F1 - Line Modify: Corrects a line of text without having to retype the complete line. You may edit the line of text containing the cursor. This line is transmitted to the host as a block when you press RETURN or ENTER.

F2 - Modify All: This mode is similar to Line Modify mode except it is not deactivated by the RETURN or ENTER key. The block of text you edit is transmitted to the host when you press *F2 Modify All* again.

F3 - Block Mode: Toggles between Block Mode and Character Mode (Asterisk indicates Block Mode is ON). In Block Mode, the characters are not sent to the host until you press RETURN, whereas in character mode, each character is sent to the host as soon as the key is pressed.

F4 - Remote Mode: Toggles the terminal between Remote Mode and Local Mode. (Asterisk indicates Remote Mode is ON.)

F5 - Type-ahead: Turns Type-ahead ON and OFF. Type-ahead allows you to type characters before the HP host is ready to receive them. WS92 stores the characters and transmits them when the host is ready. Notice the letter T appears in the status bar when this option is ON.

Note: If you are connecting to an HP9000 or Unix machine, leave type-ahead off.

F6 - Memory Lock: Turns Memory Lock ON and OFF. Memory Lock can be used in Overflow Protect Mode or Display Lock Mode. Overflow Protect prevents data loss due to memory overflow. Display Lock is used to lock lines of text on the screen so it does not move using Roll Up or Roll Down.

F7 - Display Functions: Turns Display Functions ON and OFF. In this mode, control characters and control codes are displayed as symbols on the screen. You must use Win92 font to display the control code symbols correctly.

F8 - Auto Linefeed: Turns automatic line feed ON and OFF. Auto Linefeed causes a line feed with every carriage return.

DEVICE CONTROL KEYS

The device control keys allow you to store a block of screen memory temporarily, in order to send it to a specified destination. To access the device control keys, click the arrows in the function key scroll bar or press CTRL-PgUp or CTRL-PgDn until F1 is the Device Control key; then press F:



F1 - Device Modes: Toggles between Device Mode and Device Control keys.

F2 - Record Mode: Sends incoming data directly to the destination(s) specified by the device control keys.

F3 - Log Bottom: Sends data to the printer and/or disk file one line at a time as it is received in display memory.

F4 - Log Top: Sends data to the printer and/or disk file a line at a time as it is forced off the top of display memory.

DEVICE MODES KEYS

Device modes keys allow you to control how data is sent to the destination specified by the device control keys. To access the device modes keys, press F1 from the device control keys. The device modes keys, are as follows:



F1 - Device Control: Toggles between Device Modes keys and Device Control Keys.

F2 - To External Device: Selects the local printer as the destination device.

F3 - To Display: Selects the screen as the destination device.

F4 - Advance Page: Sends a form feed character to the printer.

F5 - Advance Line: Sends a line feed character to the printer.

F6 - Copy All: Copies all display memory, starting with the position of the cursor to the last line of the screen and sends it to the device specified by F2 or F3.

F7 - Copy Page: Copies display memory from the position of the cursor to the last line of the screen and sends it to the device specified by F2 or F3.

F8 - Copy Line: Copies the line containing the cursor and sends it to the device specified by F2 or F3.

SYSTEM KEYS

Use the System function keys to access other menus of keys, such as Device Control, Margins/Tabs/Col, and Modes keys. The System keys also allow you to capture displayed text to a PC file or print a PC file on a host-based printer.

To access the System keys, click the arrows in the function key scroll bar or press CTRL-PgUp or CTRL-PgDn until the System keys are visible. Keys available are as follows:



F1 - Device Control: Displays the set of function key labels used to control an external printer (see *Device control keys*, later in this chapter).

F2 - Margins/Tabs/Columns: Displays a set of function key labels used to control margins, tabs, and column settings:

F1 - START COLUMN: Press this key to set the start column where the cursor is for data transfers to the computer using labels LINE MODIFY and MODIFY ALL.

F2 - SET TAB: Sets a tab stop in the column containing the cursor. Any number of tabs can be set per line up to 79. The cursor can be moved to the next tab stop by using the tab key.

F3 - CLEAR TAB: Clears the tab stop from the column containing the cursor.

F4 - CLEAR ALL TABS: Clears all tab stops.

F5 - LEFT MARGIN: Sets the screen's left margin in the column containing the cursor.

F6 - RIGHT MARGIN: Sets the screen's right margin in the column containing the cursor.

F7 - CLEAR ALL MARGINS: Clears all margins set by the user. The left margin is reset to column 1 and the right margin is reset to column 80.

Notes: A CTRL +PgUp or PgDn will return you to the system keys.

F4 - Modes: Displays the set of function key labels used to control operating modes. The Modes function key can also be accessed from the System keys.

F5 - Capture to Disk: Directs everything that displays on the screen to a disk file on your PC.

F7 - Print to Host: Directs any PC disk file to a host-based printer for printing.

OPENING AND CLOSING A SESSION

Open and close a session on the host computer just as you would from a terminal: logging on and off the host.

To logon:

1. Start WS92 and configure a connection.
2. Press RETURN and wait a moment for a system prompt from the host.
3. If no system prompt appears, check the configuration settings discussed in *Chapter 1 and 2*, and make any necessary adjustments; then, press RETURN. Make one adjustment at a time (for example: change the handshaking, then change the baud rate for a serial connection; or change the network driver, then the IP address for a network connection), until you get a system prompt from the host.
4. At the system prompt, type your usual log-on.

When exiting WS92 be sure to log off the host before exiting. To log off and exit, we suggest one of the following ways:

1. At the system prompt, type your log-off, usually BYE or EXIT.
2. From the File menu, select Exit (ALT-F4).
3. Select Exit from the Off Line dialog box.
4. Click the  at the far right of the title bar.

Reminder: WS92 does not save any configuration changes *permanently* until you select Save or Save As from the Config menu.

NEED FURTHER INFORMATION....

Chapter 2 Configuring a Connection

MANIPULATING TEXT

To manipulate text on the display, use the commands from the Edit menu to copy and paste blocks of text, delete and insert lines, clear text from the current line or entire screen.

COPY AND PASTE

WS92 allows you to copy and paste from the Windows clipboard.

Copy a block of text from WS92 display in one of the following ways:

1. Select a block of text by positioning the mouse pointer in one corner of the area you wish to select and:
 - ♦ drag the mouse diagonally to the opposite corner (for example, from upper left to lower right). If the text you wish to select extends beyond the display area, drag the mouse toward the boundary, and the window scrolls to make the selection.
 - ♦ press SHIFT with the appropriate arrow key(s) to select text character-by-character and line-by-line. You can also press SHIFT HOME or END to select all text in the document.
2. Select *Copy Selection* from the Edit menu (CTRL-INS). Note that CNTL C can be remapped to *Map to Action: Copy Selected*.

NEED FURTHER INFORMATION....

Chapter 2	Screen Configuration: Wrap Keyboard Selections, Wrap Mouse Selections, Wrap Shift Mouse Selections
Chapter 7	Capture to Disk
Chapter 7	Print to Host

To copy the entire contents of display memory:

1. Select *Copy All* from the Edit menu (ALT-A). Everything currently in display memory is copied to the clipboard. You can increase or decrease the amount of display memory by configuring the number of screen pages in the Screen Configuration dialog box (see *Chapter 2*).

Note: If the clipboard is empty or contains something other than text, the Paste command is disabled (grayed out).

To paste text in the display area:

1. Position the cursor on the point at which you wish to paste the text.
2. Select *Paste* from the Edit menu (SHIFT-INS). Note that CNTL V can be remapped to *Map to Action: Paste*. Text currently in the Windows clipboard is pasted to the screen.

Note: If right mouse button is configured to paste, the right mouse button can be used to do both, copy selection or paste. If no data is selected the right mouse button will paste from the clipboard. (See Special Configuration in Chapter 2).

DELETE AND INSERT LINES

To delete a line of text from the display:

1. Position the cursor in the line of text to be deleted.
2. Select *Delete Line* (ALT-D) from the Edit menu. The line disappears, and subsequent lines scroll up one line to take the place of the deleted line.

To insert a line of text:

1. Position the cursor on the line below to allow a blank line to be inserted above.
2. Select *Insert Line* from the Edit menu (ALT-I).
3. A blank line appears above the line where the cursor is located. The Line in which the cursor is located and all subsequent lines scroll down one line, and the cursor moves to the left margin of the inserted line.
4. Type text on the new blank line.

CLEARING TEXT

Clearing a line or display differs from deleting, in that text below the erased line does not scroll up to replace the deleted text; the line remains blank.

To clear a line:

1. Position the cursor in the line of text to be cleared.
2. Select *Clear Line* from the Edit menu (ALT-K). The line is erased, and the cursor moves to the left margin of the blank line.

To clear the display:

1. Position the cursor in the area to be erased.
2. Select *Clear Display* from the Edit menu (ALT-J). Everything from the current cursor position to the end of display memory is erased from the screen.

GETTING HELP

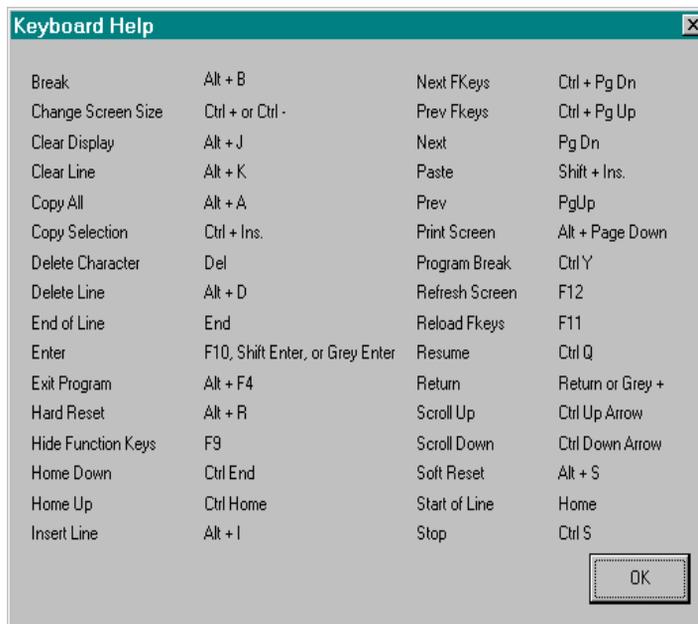
The Help menu provides information about the version of WS92.

About WS92 for Windows

Displays the version number of WS92. After clicking OK, press SHIFT + ALT + X simultaneously to display a Debug dialog box with the subversion number.

Keyboard help in WS92

Displays a list of keyboard equivalents for commonly used actions in WS92:



Script language in WS92

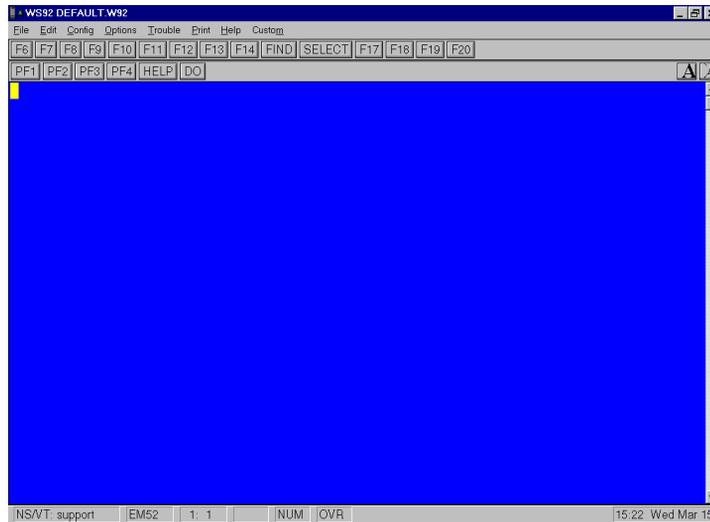
See the *Script Language* manual for further information.

EMULATING A DEC TERMINAL

Emulating a DEC terminal enables you to run VT applications and display data in ANSI. ANSI is a common mode for dial-in bulletin boards and modem connections.

When selecting a VT terminal type, choose VT220 or VT320 for connections to VAX and Unix systems. Use VT100 when dialing into bulletin boards that require ANSI support.

When running WS92 in VT mode, selecting *Ansi Color* from the Config menu allows you to configure the color specifically designed for VT terminals. In addition, function keys appear at the top of the screen.



NEED FURTHER INFORMATION....

Chapter 2	Color Configuration
Chapter 3	VT Terminal Option
	VT Status Bar Configuration
	VT Keyboard Mapping

To configure DEC emulation:

1. From the Config menu select Emulation. Select VT52, VT100, VT220, or VT320.
2. If you have not already mapped your VT keys the *VT Key Mapping* dialog box appears. If you do not wish to remap these keys select *Defaults* and then *Done*.
3. Save your configuration.
4. If you change the setting during a session, WS92 resets the function keys and runs the new setting.
5. To change back to HP mode, you must select *Emulation* from the Config menu, then select *HP*.

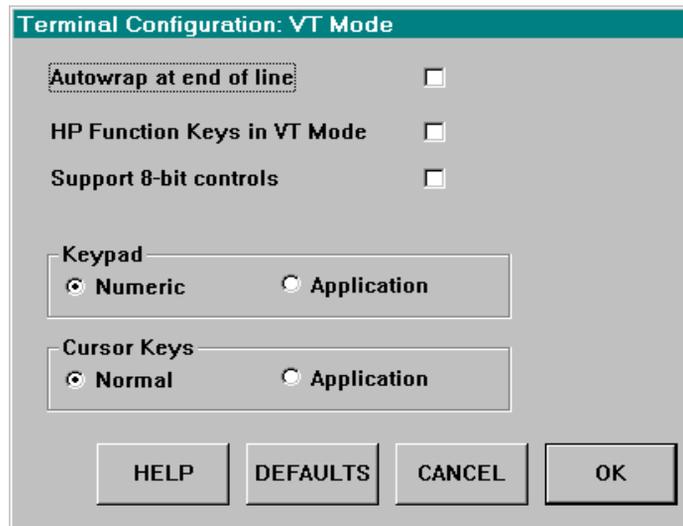
If you have activated the *Emulation Type* option in the Configure Status Bar box, WS92 displays the emulation setting in the status bar at the bottom of the screen (for example, “EM220” for VT220 mode).

TERMINAL CONFIGURATION IN VT MODE

When you select *Terminal* from the Configuration menu while running WS92 in VT mode, the options available for configuring the terminal are specific to VT.

To configure terminal options for VT mode:

1. Select *Terminal* from the Config menu. The Terminal Configuration dialog box appears:



2. Configure the following settings:

AutoWrap at End of Line: Enables line wrapping automatically. Default leaves this option disabled, causing a hard line break at the end of each line.

HP Function Keys: Default is disabled. Displays the HP function keys across the bottom of the screen while in VT mode. Use this option for HP applications that operate in EM220 mode, such as UDMS and Oracle. These applications, while requiring VT220 screen display, still use the HP terminal F1 through F8 keys.

Support 8-bit controls: If you are having problems with DEC terminal screen display, select this option and try again.

Keypad: Default is *Numeric*. Selecting *Numeric* uses the PC keyboard's numeric keypad. Selecting *Application* uses the host application's keypad configuration.

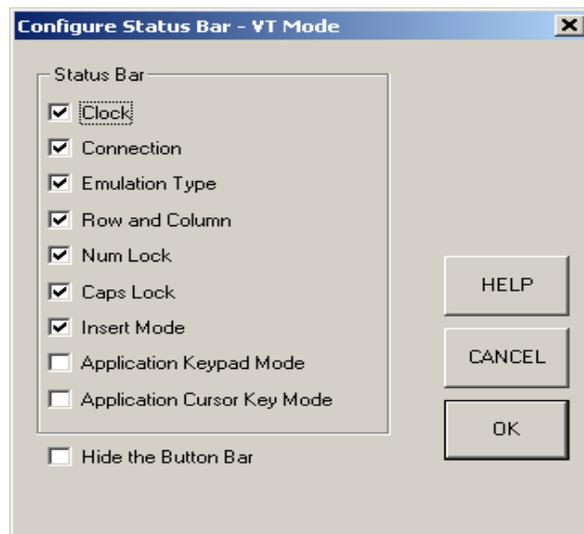
Cursor Keys: Default is *Normal*. Selecting *Normal* uses the PC keyboard's conventional configuration. Selecting *Application* uses the host application's cursor key configuration.

3. For default settings, click *Default*.
4. When you have finished customizing the settings, click OK.

Note: Selecting OK activates your choices for just the current session. WS92 does not save any configuration changes permanently until you select *Save* or *Save As* from the *Config* menu.

CONFIGURING THE STATUS BAR IN VT MODE

Status bar items are specific to the capabilities of the VT terminal. Configure the Status bar only when you select *Bars* from the *Config* menu while running in VT mode.

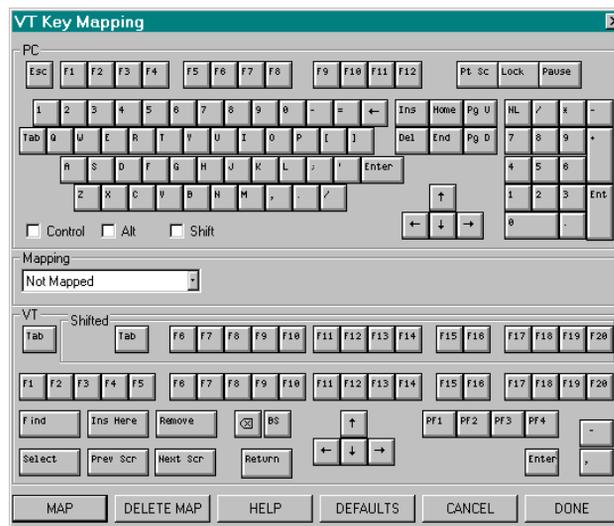


MAPPING VT KEYS

DEC terminals contain keys that do not exist on a PC keyboard. To configure your PC keys to map DEC VT220 or VT320 functions, select *Keyboard > Mapping* from the Config menu.

To define VT keys:

1. Select *Keyboard > Mapping* from the Config menu. The VT Key Mapping dialog box appears:



2. Click *Defaults* to activate the default keyboard mapping or customize your keyboard mapping using the instructions given in Chapter 2 under the heading *Keyboard Mapping*.
3. When you have finished mapping the keys, click *Done*.

Default settings for VT key Mapping are as follows:

VT220 Key	PC Function Key
Find	CTRL-F
Insert Here	Ins
Remove	Del
Select	CTRL-P
Prev Screen	Page Up
Next Screen	Page Down
Backspace	Backspace
PF1	NumLock
PF2	/
PF3	*
PF4	-
F6 through F10	F6 through F10
F11 through F20	SHIFT-F1 through SHIFT-F10
,	CTRL+
-	CTRL—



CHAPTER 4

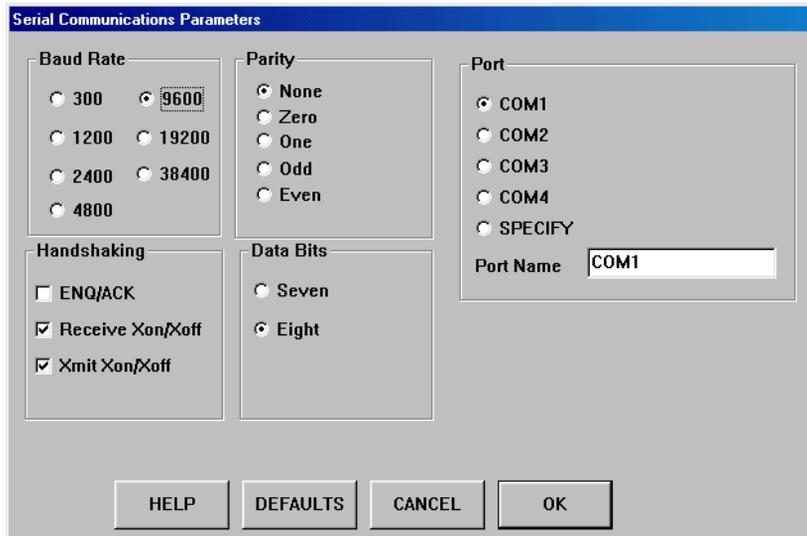
Connecting Serially

DIRECT SERIAL CONNECTION

A serial connection between MS92 and the host computer requires a direct cable between the PC and host. Similar to making a serial connection, connecting via modem requires data communications configured to match the host computer's modem.

To configure WS92 for a serial connection:

1. Run WS92.
2. Select *Comms and Network* from the Config menu.
3. From the Connection Type dialog box, select *Serial*. The Serial Communications Parameters dialog box appears:



Options Available:

Baud Rate: The speed at which telecommunicated data is transmitted. Measured in bits per second. Select a setting that matches your host computer.

Parity: An error checking mechanism for the transmission of data. Default is None for most host computers. Select None when installing the host file transfer program (WS92LINK) to the HP e3000 (For further information see *Chapter 6*).

Data Bits: Units of data. Default for most host computers is eight. Select eight when installing the host file transfer program (WS92LINK) to the HP e3000 (For further information see *Chapter 6*).

Handshaking: The procedures and standards (protocol) used by two computers or a computer and a peripheral device to establish communication. MPE/iX users should select *Receive Xon/Xoff* and *Xmit Xon/Xoff* handshaking options.

Port: WS92 supports serial communications through COM1, COM2, COM3, and COM4. If you have configured a different port other than the ones described above, select *Specify* and name your valid port name in the '*Port Name*' field.

4. For a configuration of default settings, click *Default Values*.
5. Modify the default settings as desired. When you have finished customizing the settings, click *OK*. Selecting *OK* activates your choices for just the current session. MS92 does not save any configuration changes permanently until you select *Save* or *Save As* from the *Config* menu.

WS92 MODEM CONNECTION

MS92 provides support for any Hayes-compatible modem.

To dial a remote host computer via MS92:

1. Run WS92, and configure for a serial connection. Set the baud rate, parity, etc., to be compatible with the settings of the host computer's modem.

2. At the Cursor, type:

ATZ

The modem responds: *OK*

3. Type *ATDT* and the telephone number of the modem you are dialing.

ATDT 15551212

4. Press RETURN. As the modem dials, you will hear a modem tone and then see the message *CONNECT 2400* on your screen (this message may or may not match your baud rate on your computer).
5. Press RETURN to receive a prompt from the remote computer.

If the host prompt does not display, check to see that the correct baud rate and com port have been specified. Also, try resetting your modem with the command *ATZ* (resets most modems) or *AT&F* (resets most modems back to their factory defaults).

MS92 includes a command language that can be used to automate this procedure. The command language is especially useful when you are repeatedly dialing the same modem number.

Note: Some WinModems do not talk to a host modem but are designed to use the dial-up network adaptor. To get a WinModem to talk to a Host modem may take changes to the modem settings - some WinModems WILL NOT communicate over a serial (COM Port) connection. Please try the following steps below if you are having difficulty with your modem.

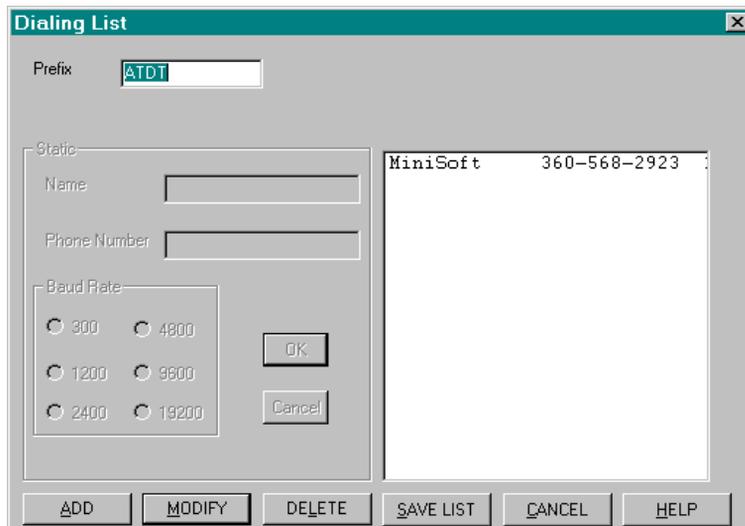
1. From the Windows Control Panel, open *Modems (Phones and Modems Options* for Win2000 users).
2. Highlight the Modem you are using, then click *Properties*.
3. Take note of the port the Modem is using.
4. Select the Connection Tab, and then click *Advanced*.
5. Select Use Error Control, Required to Connect, Compress Data, Use Flow Control and Hardware (rts/cts). Then click *OK*.
6. From the Connection Tab, click *Port Settings*.
7. Select *Use FIFO Buffers* and, move the *Receive Buffer to Low (1)*, then click *OK*.
8. Select the General Tab. Set the Maximum speed to 9600 and click *OK*. Then close the Modem dialog box.
9. At the cursor prompt in WS92, type:

AT&F&K3DT (PHONE NUMBER YOU ARE TRYING TO CONNECT TO)

WS92 MODEM DIALER

The WS92 modem dialer supports Hayes-compatible internal and external modems.

1. From the Config menu, select *Dialing List*. First time users will see the following message: *DIAL92 file not found: will create new one*. Click *OK*.
2. The Dialing List dialog box appears:



3. Enter the appropriate Prefix, default is ATDT.
4. Then click *ADD*. Insert the name, phone number, and baud rate. When finished click *OK*, the entry is shown to the right.
5. When you have finished adding the needed entries, click *Save List*.
6. To dial a number on the Dialing List, select *Dial* from the Options menu. Select the appropriate entry, and click *Dial Now*.

Note: The Modem Dialer can only support a phone number up to 13 digits. For longer numbers, select *Special > Long Phone Numbers* from the Config menu. This will create a new file called Ldail.92 that holds sets of numbers up to 35 digits. A script can also be used to dial numbers (see Sample Script in the Help file).



CHAPTER 5

Using WinSock

WINSOCK REQUIREMENTS

Certain software components are required on the PC and the host computer in order to connect your PC to a host computer via WinSock.

WINSOCK PC REQUIREMENTS

The following desktop operating systems are supported:

- ♦ Windows 95/98/ME
- ♦ Windows NT 4.0 and Windows 2000

Windows comes with its own TCP/IP protocol stack, which you can install and configure manually. To install the TCP/IP protocol stack check with your network Administrator or contact Minisoft support for any questions.

NEED FURTHER INFORMATION....

Windows On-Line Help TCP/IP Configuring

HOST REQUIREMENTS

Host server software is also required for the HP e3000, HP9000, or Unix system according to the host protocol, Telnet or NS/VT.

TELNET

For Telnet connections, you must have a software package called ARPA Services. ARPA Services is available for both the HP9000 and HP e3000. Most Unix systems come with the Telnet protocol bundled with their operating system.

NS/VT

For NS/VT connections (Network Services), check to make sure VT (Virtual Terminal) and VTA (Virtual Terminal Access) are running, and Ethernet II frame type has been enabled on the host computer.

To verify and run VT (incoming virtual terminal) and VTA (incoming stream mode virtual terminal) services:

1. Verify that the services have been started.
2. Logon as system manager.
3. At the system prompt, type:

```
NSCONTROL STATUS=SERVICES
```

and press RETURN.

4. The STARTED column for VT and VTA should indicate YES.
5. If not, start VT and VTA by typing the following:

```
NSCONTROL START=VT,VTA
```

and press RETURN.

To verify and enable the Ethernet II frame type:

1. Logon to the host as system manager, and run NMMGR by typing:

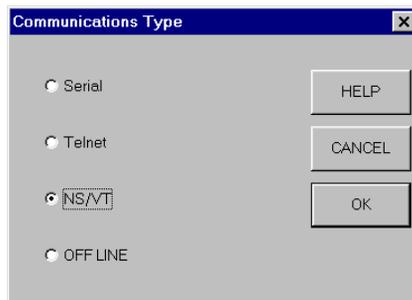
RUN NMMGR.PUB.SYS

2. Press the *Open Config* key, then press the *NS* key to open the NS Configuration screen.
3. Press the *Guided Config* key, then the *Config Network* key to display the configuration screen for your network.
4. If Enable Ethernet is set to N, specify Y.
5. Press *Save Data*, and exit from NMMGR.

CONFIGURING THE WINSOCK CONNECTION

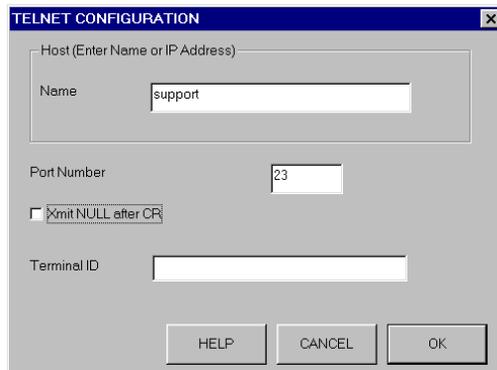
If you already have the WinSock-compliant TCP/IP protocol stacks installed, configure a WinSock connection as follows:

1. Run WS92, and select *Comms and Network* from the Config menu.
2. The Communications Type dialog box appears:

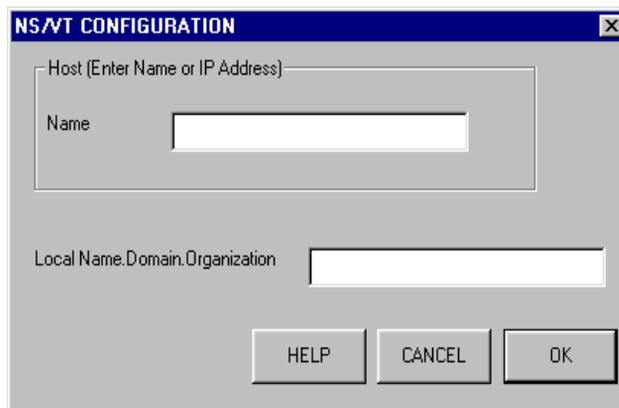


3. Select Telnet or NS/VT (Network Services) as the virtual terminal protocol.

3. Selecting Telnet causes the following dialog box to appear:



Selecting NS/VT causes the following dialog box to appear:



4. Enter the name or IP address of the host computer; for example: 164.231.9.17.
5. If the configuration is via *Telnet* do the following:
 - Default Port number is 23. Only in rare cases with a few communications servers will you need to enter a different port number.
 - If your Terminal ID is required, enter a valid Terminal ID in the 'Terminal ID' field.
 - Select Xmit NULL after CR, only if connecting to an HP e3000.

6. If the connection is via *NS/VT*:

Enter the local name, domain, and organization of your PC (run *NMMGR* and press the *Open Config* key to determine the domain and organization). This field is optional—fill it in if you wish to have a *NSCONTROL STATUS=USERS* command to display the user's session name. If you leave this field blank, the user will be listed as *\$Back*.

7. When the settings are configured as desired, click *OK*. The connection is established.
8. From the *Config* menu Select *Save*.



CHAPTER 6

File Transfer

FILE TRANSFER PROTOCOLS

- ♦ *WS92LINK* - Minisoft proprietary protocol for transferring files to and from HP e3000s over serial or network connections. If you use this protocol, you must install the host link program on your host computer. For installation instructions see the following heading in this chapter, *Uploading WS92LINK to the Host*.
- ♦ *Network File Transfer (NFT)* - Minisoft's utility for transferring files across the network. Unlike Minisoft's proprietary WS92LINK, which operates *within* WS92, NFT is a stand-alone product that requires a network connection. You do not have to be running WS92 in order to use NFT. (See Network File Transfer (NFT) in Chapter 6).
- ♦ *Xmodem* - A common protocol for transferring files to and from bulletin boards and Unix systems. If you use this protocol, there is no additional Minisoft software to install on your PC. However, BBS, Unix systems, or HP e3000 hosts must have the Xmodem protocol installed in order for it to transfer files (HP9000 comes with an Xmodem called "Umodem" already installed).

Protocol	PC system	Host
WS92LINK	Windows	HP3000; MPE/iX only, not MPE-V
Network File Transfer (NFT and FTP)	Windows	HP e3000, HP9000, Unix network connection only
Xmodem	Windows	BBS Unix HP9000

WS92LINK

WS92 uses WS92LINK, its own Minisoft proprietary protocol, to transfer files to and from an HP e3000 by a serial or network connection.

Note: If the connection is serial, set parity/data bits to None/8 in order to install the host program (see *Direct Serial connection* in *Chapter 4*, for data communication settings).

CONFIGURING WS92LINK

To configure WS92LINK:

1. Run WS92.
2. Select *File Transfer* from the Config menu. The File Transfer Configuration dialog box appears.

The settings you define in the File Transfer Configuration dialog box determines your global file transfer configuration. You may adjust these settings as needed to affect file transfers temporarily, for the duration of the current session.

3. Configure the following settings. For a configuration of default settings, click *Defaults*.
4. When you have finished configuring your settings, click *OK*. Clicking *OK* activates your choices for the current session only. WS92 does not save any configuration changes *permanently* until you select *Save* or *Save As* from the Config menu.

Options Available:

Protocol: Select *Minisoft* to use Minisoft's proprietary file transfer protocol; select *Xmodem 128* or *Xmodem 1K*, depending on the copy of Xmodem you are running when using the Xmodem protocol; select *NFT* to use Minisoft's utility for transferring files across the network.

Minisoft Protocol Options

Add trailing spaces: Select this option if you wish to keep spaces at the ends of lines (spacebar characters).

Timeout: Length of time in seconds that WS92 waits for data from the host before assuming the item has been lost. The number of seconds should be increased if the host is known to be slow.

Default Record Size: Number of bytes per record; use on uploads only. Default bytes per record is 80.

General Options

Default to ASCII: If this option is enabled, files will be transferred in ASCII mode unless the binary mode is selected during a file transfer.

Ctrl Z for End of File: Sends the CTRL-Z character at the end of an ASCII file.

List Host Files: Allows you to view the files in the group you logged onto.

Strip Carriage Control: Strips the carriage control character from the first position of a record, when file is downloaded as an ASCII file and the Host file has a file code of VAC or FAC selected.

Suppress Run Command: The RUN command will not be inserted in the Host Program Name field, which is shown toward the bottom of the File Transfer Configuration dialog box. The host program file will therefore not automatically be run. Instead, you will have to manually enter the RUN command at the beginning of the file. *Required for Xmodem transfer.*

This option allows you to run the Host Program file when you are not at the prompt or in an application that may not require a RUN command.

Spaces per tab: Enter the number of spacebar characters to replace a tab character in the file being transferred.

If File Exists: If a file with the same name as the file being transferred already exists on the receiving computer, you have the following options:

Overwrite: Overwrites the existing file with the contents of the file being transferred.

Append: Appends the contents of the file being transferred to the end of the existing file.

Cancel: Cancels the transfer of the file.

Host Program Name: WS92LINK.group.account; default is WS92LINK.PUB.SYS. WS92 returns an error message, *Could Not Connect to Host*, if the host program could not be found or the location for the host program was specified incorrectly.

Host Printer Name: This field is optional. Enter the device name or device number of your host printer, such as LP/S or 66/S. WS92's *Print File to Host Printer* feature uses this field (see *Chapter 7*). If the host printer

is connected serially, add /s to the device name or number. If the host printer is a parallel device (line printer), *do not* add /s.

Note: If you wish to print to a file on the host rather than on a printer, enter DISC in the Host Printer Name field. On the host, the file will be called MWLIST.

UPLOADING WS92LINK TO THE HOST

To upload WS92LINK:

1. At the host computer, logon as MANAGER.SYS.
2. By default WS92LINK installs in PUB.SYS. You must have write and save access.
3. Once you have configured the File Transfer Configuration window press *Upload Host Program*. When pressed, you will be prompted with the following:



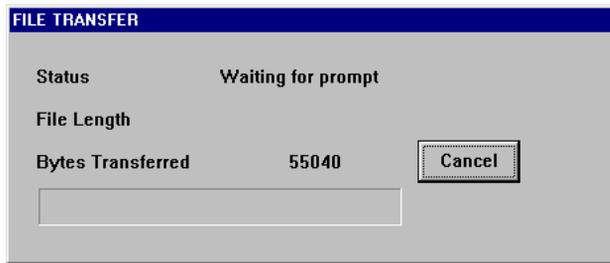
NOTE....

WS92LINK can transfer large blocks of data without a change in configuration.

WS92LINK automatically uses data compression if the connection is serial; compression is not used over a network connection.

WS92LINK performs its own test to see whether expanded control characters are needed, and automatically enables these settings if they are.

4. Select Yes and the File Transfer status window appears:



5. Verify the WS92LINK program has been accepted or uploaded to your Host by typing the following at the system prompt:

VERSION WS92LINK.PUB.SYS

6. Press RETURN. The following message will appear if the host program has been uploaded successfully:

WS92LINK - 2.0.5.7

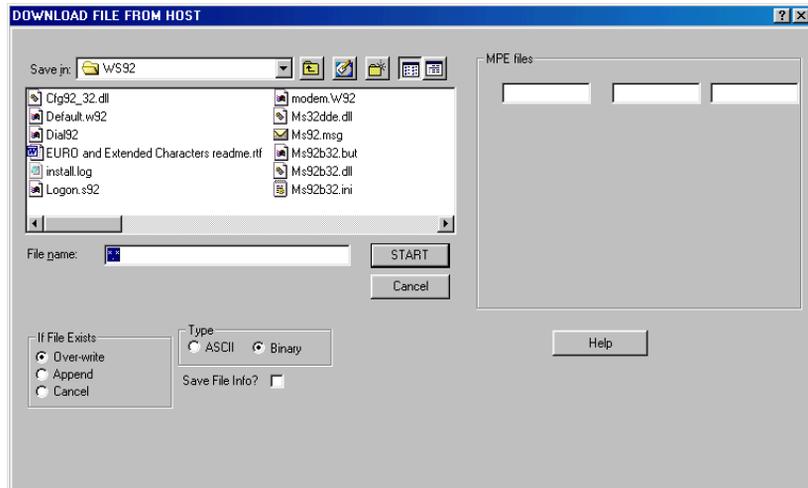
The version number 2.0.5.7 is subject to change when changes have been made and a new version is applied.

Note: The WS92Link needs to be uploaded only once for each HP e3000 Host.

DOWNLOADING A FILE

To download a file from your host computer to your PC or workstation:

1. From the File menu, select *Download File from Host*. The following dialog box appears.



2. Enter a file name for the local PC file, and specify the HP file name to be downloaded in the MPE File field.

If needed you may override any of the default settings.

3. Click *START*. The host file is transferred to your PC according to your specifications.

Required Options:

MPE File: Name of the file on the host that is to be downloaded.

File Name: Name of the PC file. From the Directories tree, select the appropriate directory the file will be put in.

Available Options:

Save file info: Saves the file information in the first 128 bytes of the destination file. This option is useful if you are transferring a file from one minicomputer/host to another via a PC. If you save file information, then the file on the destination minicomputer/host will have the same file attributes (record size, block size, etc.) as the original file. Some emulators refer to this as label file transfer.

If File Exists: If the receiving file you specified already exists on your PC, select one of the following options:

Overwrite - Replaces the existing file with the downloaded file.

Append - Attaches the downloaded file to the end of the existing file.

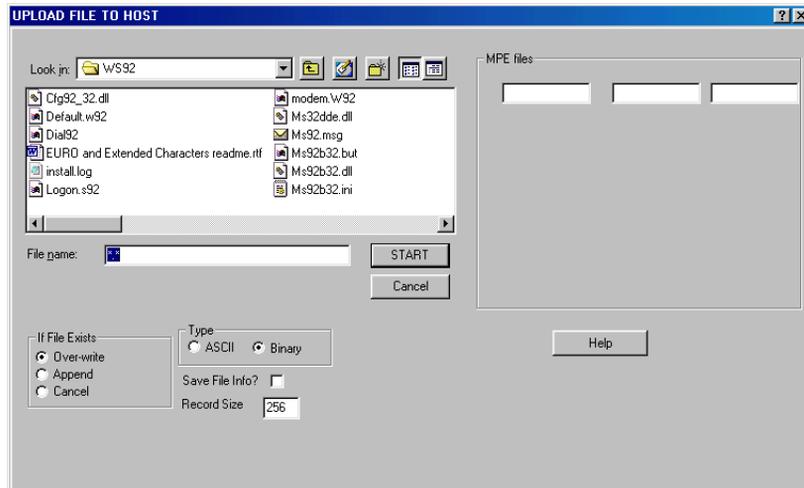
Cancel - Preserves the existing file and cancels the file transfer.

Type: Select *ASCII* for a character-based file; *Binary* for a binary image of the file being transferred, no CRLF will be added to the PC file.

UPLOADING A FILE

To transfer a file from the PC to the host computer:

1. Select *Upload File to Host* from the File menu. The following dialog box appears:



2. Under File Name, specify the local PC file to upload. Under MPE File Name, specify the name of the file on the Host.
3. If needed, override any of the default settings.
4. Then click *START*. The PC file will be transferred to your Host according to your specifications.

Available Options:

Save file info: Saves the file information in the first 128 bytes of the destination file. This option is useful if you are transferring a file from one minicomputer/host to another via a PC. If you save file information, then the file on the destination minicomputer/host will have the same file attributes (record size, block size, etc.) as the original file. Some emulators refer to this as label file transfer.

Record Size: Must include record size.

If File Exists: If the receiving file you specified already exists on your PC, select one of the following options:

Overwrite - Replaces the existing file with the downloaded file.

Append - Attaches the downloaded file to the end of the existing file.

Cancel - Preserves the existing file and cancels the file transfer.

Type: Select *ASCII* for a character-based file; *Binary* for a binary image of the file being transferred, no CRLF will be added to the PC file.

UPLOADING LARGE ASCII FILES

WS92LINK version 2.0.5.6 supports large ASCII file transfers, prior versions of the host link require you to create a file equation at the system prompt.

1. To determine the version of WS92LINK on your host, type the following at your system console:

```
VERSION WS92LINK.PUB, SYS
```

2. Press RETURN. The following message will appear, specifying the version number, such as:

```
WS92LINK.PUB.SYS - 2.0.5.7
```

3. If the host file version is prior to 2.0.5.6, upload the newest WS92LINK (refer to *Upload WS92LINK to host in WS92* previously in this chapter).
4. If you do not run the 2.0.5.6 version of WS92LINK, you must create a file equation at the system prompt. Type:

```
FILE filename; DISC=# of records
```

where *# of records* is equal to the number of lines in the file. For example, if a file has 60,000 lines, enter DISC=60000.

If a file equation is used, then an * must proceed the file name in the remote filename. Without the * the file equation is not used.

NEED FURTHER INFORMATION....

Appendix F	NFT's OLE Automation Interface
README.TXT	Installation procedures for NFT (\Minisoft\UTILS folder)

NETWORK FILE TRANSFER

Minisoft's Network File Transfer program is contained on the MS92 distribution CD. Those who purchase MS92 also receive NFT. Installation of Network File Transfer is a two-step process, Client and Server. All other Servers should have FTP already installed. NFT requires Windows, and a WinSock-compliant server TCP/IP stack. It runs on MPE/XL or MPE/iX.

INSTALLING THE NETWORK FILE TRANSFER

The Client portion of the Network File Transfer is installed automatically when selecting *NFT_PC_SETUP.exe*. It will install in the C:\Minisoft\Utils folder by default.

Note: NFT uses client/server technology to transfer files between your PC and the HP e3000 host. The software installed on your PC is the *client* portion; you must install the *server* portion on the HP e3000.

INSTALLING NFT ON THE HP e3000.

Install the Server Utility by running *NFTSETUP.exe* from windows and following the on screen instructions. The Server Installation Utility will create the default Account, User and Group needed for NFT on the HP e3000.

The server portion must be installed by transferring the server programs to the HP e3000, and then running the server in a JOB stream.

Note: In order to have extended characters converted correctly between Window ANSI and HP-ROMAN9 when using NFT see Chapter 2 *Using Translation Tables with NFT*.

OPERATING NFT ON THE HP e3000.

After the server programs have been uploaded to the HP e3000, the Network File Transfer server is started by streaming the following command. This JOB must be running for Network File Transfer to operate:

```
:STREAM NFTJOB.MM.MINISOFT
```

To disable the Network File Transfer, abort the JOB from the console. Streaming NFTJOB.NFT.MINISOFT should become part of your normal system start-up procedures.

The file NFTJOB.NFT.MINISOFT contains the following:

```
!JOB FTJOB,MGR.MINISOFT,MM;OUTCLASS=LP,1  
!RUN SERVER.MM.MINISOFT;PARM=512;INFO="30001  
NFTSRVR.MM.MINISOFT"  
!EOJ
```

If you wish to change the location of the server programs from NFT.MINISOFT to a different group and account, then you must change the group and account names in the above JOB file.

The first parameter in the INFO string above contains a TCP/IP port number. This is any number between 1 and 32767. Each server using TCP/IP must have a unique port number. We recommend using 31001, since we have not found any other software on the HP e3000 that uses this number. All clients must set this same port number in their configuration in order to connect to the server program.

If you wish to have more than one server active, then each server must have its own unique port number. Remember that one server can service any number of clients simultaneously, so only one active server is required. You may, however, wish to have more than one server for accounting or security reasons.

AUTOMATING NFT

Use Visual Basic or Visual C++ to automate the use of NFT.

NFT objects are used by the NFT client to communicate with a file server program on the host. This gives NFT the ability to transfer files to and from the host as well as execute MPE commands, MPE command files, and programs.

In order to access the NFT server software, the client program must create the NFT client Session object, as follows:

Visual Basic:

```
Dim FTSession As Object
...
Set FTSession = CreateObject("NetFT.Session")
```

Visual C++:

```
CreateDispatch( "NetFT.Session" );
```

When the client program wishes to stop using the NFT server, you must delete the Session object as follows:

Visual Basic:

```
Set FTSession = Nothing
```

Visual C++:

```
ReleaseDispatch();
```

NEED FURTHER INFORMATION....

Appendix F NFT OLE Automation Interface

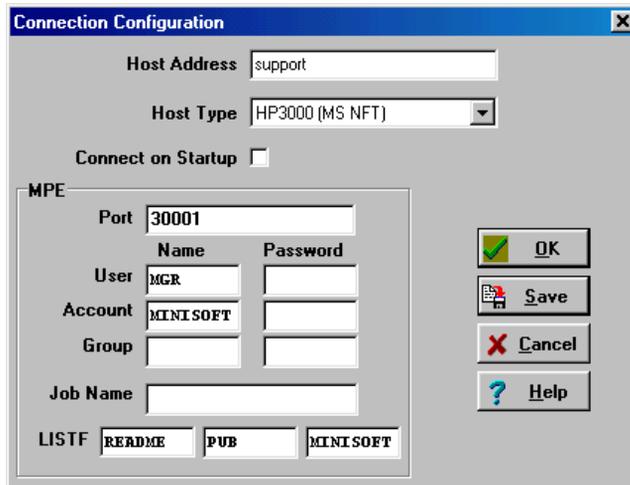
RUNNING NFT

Network File Transfer uses WinSock technology to transfer files across the network between your PC and an HP e3000 host. The host computer must be running the MPE/iX or MPE/XL operating system.

To run Network File Transfer:

1. Double click the Network File Transfer icon:  .

NFT's Connection Configuration dialog box appears:



Note: See *Appendix F*, for references to NFT's FTP module. The NFT protocol is used to communicate with the HP e3000; FTP communicates with the other host types listed in the paragraph above. In this manual, both protocols are called NFT.

2. The drop down *Host Type* box lists these available types: HP e3000 (MS NFT), Unix, IBM VM, VMS/Multinet, VMS/UCX, FTP's PCTCP, CUTCP/NCSA, NOS/KA9Q, WinQVT/Net, IBMPC TCP/IP, Chameleon, SuperTCP, SINT/FTPD, IBM MVS, Unisys 5000, MPEiX Posix, and SunOS.
3. Enter the host computer's IP address and click *OK*.
4. Enter the required logon and password names.
5. Once connected to the host, use Network File Transfer to upload and download files to and from the host computer.

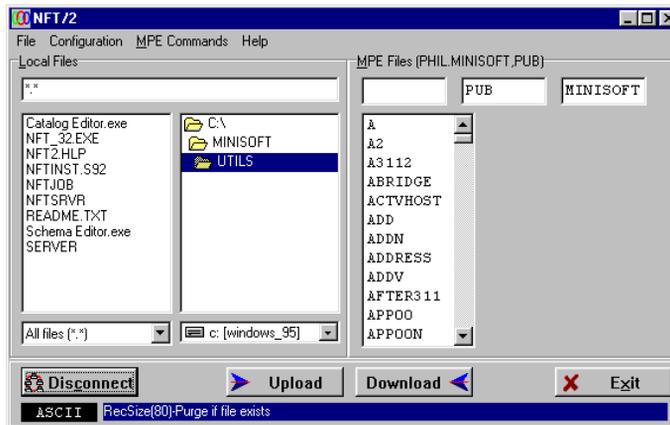
NFT has the same data-compression capabilities that are featured in WS92LINK.

UPLOADING A FILE

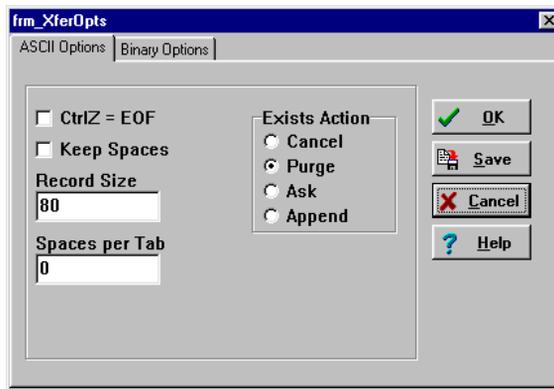
To upload a file:

1. From the *Local File* list box, select a PC file. If necessary, use the directory tree to navigate to the file.
2. In the *Host File* text box, enter the name of the file to be uploaded.

If you wish to upload a file somewhere other than your logon group and account, highlight the group and/or account name in the Group and Account text box. Enter the desired name. Then click the Host File text box and enter the file name. The list of host files is updated to the new group and account.



For Transferring files as ASCII characters, select the following options:



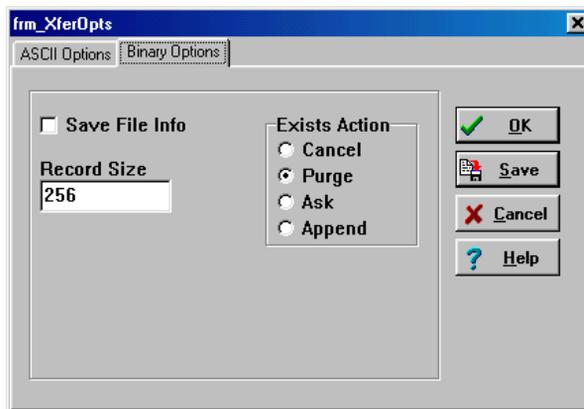
Control Z as EOF: Causes the CTRL-Z character to be interpreted as an end-of-file marker.

Keep Spaces: Causes lines to be padded with spaces.

Spaces per Tab: Select a number of spacebar characters to be used to replace a tab character in the file. A value of 0 does not replace tab characters.

Record Size: Default is 80 bytes.

For Transferring files as Binary, select the following options:

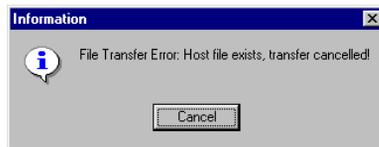


Save Info: Saves information such as record and block size in the first 128 bytes of the destination file. This choice is useful if you are transferring a file from one host to another via a PC.

Record Size: Default is 256 bytes.

- For ASCII or Binary transfers select one of the following options if the file already exists on the host:

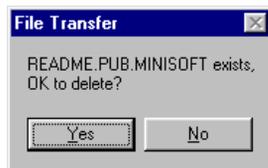
Cancel: Cancels the file transfer.



Purge: Writes over the existing host file with the file being transferred.

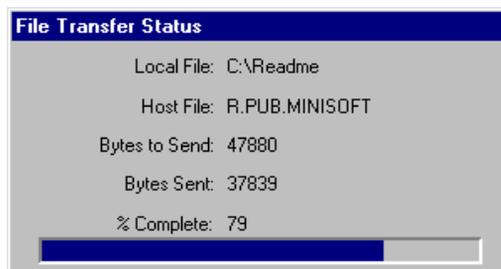
Append: Attaches the file being transferred to the end of the existing file.

Ask: Causes Network File Transfer to prompt the following:



- Click the right-pointing arrow  to upload the file to the host.

NFT's File Transfer Status box informs you of the transfer's progress:



DOWNLOADING A FILE

To download a file using NFT:

1. Select a host file. If necessary, enter a different group and account name.
2. In the Local File text box enter the file name to be used on the PC. If necessary, navigate to a different path by clicking the directory tree.
3. Select transfer mode.

On downloads, the *Use Control as EOF* option writes a CTRL-Z character to the end of the file if the option is enabled.

4. Select the course Network File Transfer should take when the destination file already exists on your PC.

See *Uploading a file with NFT*, above, for further information on these options.

5. Click the left-pointing arrow  to download the file from the host.

CONFIGURING YOUR LOGIN

To change the default login:

1. Select *Connection* from the Configuration menu. NFT's Connection Configuration dialog box appears.
2. Depending on your Host Type, replace user, group, account, and/or job name with necessary passwords.
3. Click *OK* and the list of available host files changes to reflect the new login.
4. Select *Save* or *Save As* from the Configuration menu to make the new login the default login the next time you run Network File Transfer with this configuration.

CHAPTER 7

Printing from MS92

PRINTING CONFIGURATIONS

MS92 allows these printing options:

- ♦ *Host to local printer.*
- ♦ *Host to a file on your PC*
- ♦ *PC to host-based printer.*

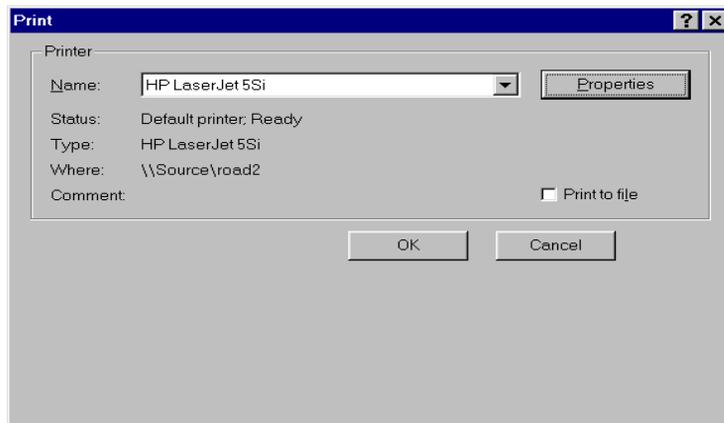
Before printing from MS92, make sure the printer has been configured properly in MS92. When printing host data on a printer attached to a PC, check the configuration of the local printer. When printing from a PC to a printer attached to the host computer, check the configuration of the host printer.

PRINTER SETUP

To configure the printer when using windows default as your print driver:

1. Select *Printer* from the Config menu. Click *Windows Default* from the Printer Configuration dialog box and then select *Printer Setup*.

The Printer Setup dialog box appears. The dialog box that you see may differ from the example below, according to your active print driver.



2. Configure the following options for *your* printer. This is a general description of options that may appear:

Default/Specific Printer: Select an available printer from the list of printers attached to your computer.

Paper Size: Specifies the size of paper you wish to use. Select custom if you wish to use a nonstandard size paper.

Paper Source: Specifies where the paper you wish to use is located in the printer. Different printer models support different paper sources, such as upper tray, manual feed, and continuous feed.

Orientation: Specifies the document position when printed.

Fonts: If the dialog box has a Fonts option, additional fonts are available in either font cartridges or downloadable soft font files supplied by the printer vendor.

Options: If available, select unique options for your printer.

LOCAL PRINTER

In WS92, configure the local printer by selecting *Printer* from the Config menu.

The Printer Configuration dialog box displays. By default, Pass Through Printing is selected, Figure 7-1 will display. If Windows Default is selected, Figure 7-2 displays.

Figure 7-1

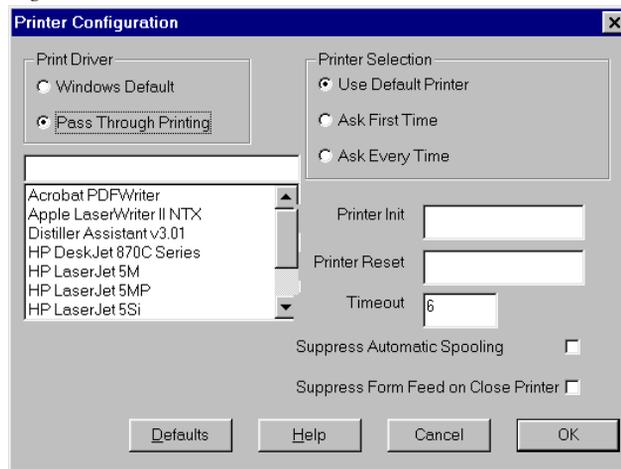
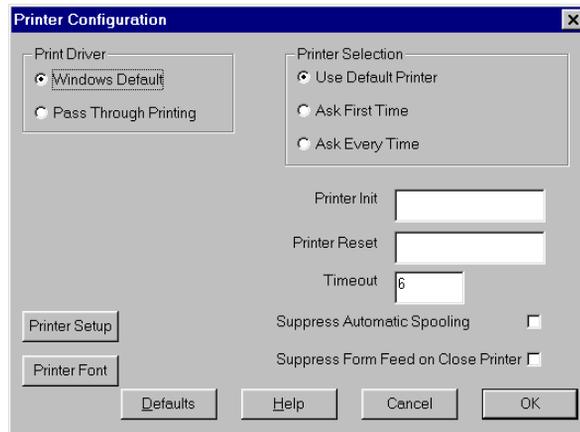


Figure 7-2



Available Options:

Print Driver:

- a. **Windows Default:** Uses the Windows default print driver. To use this you must select the current font size from your printer. See *Printer Setup*.
- b. **Pass Through Printing:** Minisoft's recommended print driver. Uses the Windows print driver to send all data including escape sequences to the printer. Selecting this option allows the host application to control the printer.

Printer Selection:

Use Default Printer:

Windows Default: Data you select for printing will automatically be printed on the default printer, as specified in the Print Setup dialog box. You will not be prompted to select a printer.

Pass Through Printing: Allows different configuration files to have different default printers. The printer selected at configuration will be the default printer. You will not be prompted to select a printer.

Ask First Time: If this option is selected, the first time you issue a print command in each WS92 session, the Print Setup dialog box will display.

Ask Every Time: If this option is selected, the Print Setup box will appear every time you issue a print command.

Printer Init: When Pass Through Printing is selected as the print driver a string is prefixed to the data being sent to the printer.

Printer Reset: When Pass Through Printing is selected as the print driver a string is sent to the printer prior to closing the port.

NEED FURTHER INFORMATION....

Chapter 6 Configure WS92LINK

Timeout: Length of time, in seconds, to wait for data until the spool file is automatically closed.

Suppress Automatic Spooling: Spoolfile will not close—regardless of the timeout value selected in the previous option. You must select *Close Print Job* from the Print menu in order to send data to the printer.

Suppress Form Feed on Close Printer: Option available for tractor feed dot matrix printers. Has no effect on LaserJet printers.

Printer Setup: Option available under Windows default. Allows you the option to change the current Windows printer.

Printer Font: Allows you to view and change available fonts under the Windows default.

PRINTER FONTS WHEN USING WINDOWS DEFAULT

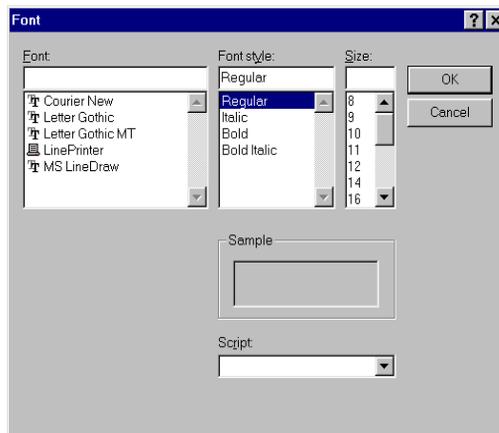
If you are printing via Windows Print Manager, specify the font WS92 will use for local output to a slaved printer.

This command allows you to select printer fonts that will allow 132-character output. Choose a small font size, such as 8 or 9 point, to fit 132 column display output on 8 1/2 by 11 inch paper.

To configure printer fonts when using windows default as the print driver:

1. Select *Config, Printer* from the menu bar. Select *Windows Default* from the Printer Configuration dialog box, then select *Printer Font*.

The Font dialog box appears:



2. Select the desired font, font style, and size.

SENDING HOST DATA TO A LOCAL PRINTER

HOST PRINTER

In WS92, select Host Printer in the File Transfer Configuration dialog box.

MS92 allows several ways of printing data from the host computer to a printer attached to a PC:

- ◆ Send data to the printer as the display scrolls.
- ◆ Record data as it is received.
- ◆ Copy data from the display.

LOGGING TOP AND BOTTOM

Sending data to the printer as the display scrolls depending on whether the data is being sent from the beginning or the end of the scrolling region is called Log Top or Log Bottom.

LOG TOP

WS92 Menus

To use Log Top from WS92 pull-down menus:

1. Select *Log Top* from the Print menu. A checkmark appears next to the command, indicating that Log Top is active.
2. Continue your host session. WS92 sends data to the printer as it scrolls off the top of memory.
3. When the data you want to print has scrolled off the top, select *Log Top* again. The checkmark disappears, indicating that Log Top has been disabled.

4. To flush any remaining data from the printer select *Advance Page* from the Print menu to send a form feed command to the printer. The printer prints any remaining data.

Note: If you are printing through Windows Print Manager, select *Close Print Job* instead of *Advance Page* from the Print menu to send an end-of-file form feed to the printer so that a print process can begin (see *Special configuration* in *Chapter 2*).

WS92 function keys

Log Top using the HP function keys:

1. To access the system keys, use the function key scroll bar in WS92.
2. Press *F1 Device Control*.
3. From the Device Control keys, press *F2 To External Device*. An asterisk appears in the function key label, indicating that the external device is active.
4. Press *F1 Device Modes*.
5. From the Device Modes keys, press *F4 Log Top*. An asterisk appears in the function key label, indicating that Log Top is enabled.
6. Continue your host session. MS92 sends data to the printer as it scrolls off the top of the display region.
7. When the data you want to print has scrolled off the top, press *F4 Log Top* again. The asterisk disappears, indicating that Log Top has been turned off.
8. Press *F1 Device Control* from the Device Modes keys.
9. Press *F4 Advance Page* to send a form feed command to the printer. The printer prints any remaining data.

LOG BOTTOM

WS92 menus

To Log Bottom, using the pull-down menus:

1. Select *Log Bottom* from the Print menu. A checkmark appears next to the command, indicating that Log Bottom is active.
2. Continue your host session. WS92 sends each line that is terminated by a Line Feed to the printer.
3. Select Log Bottom again. The checkmark disappears, indicating that Log Bottom has been disabled.
4. To flush any remaining data from the printer, select *Advance Page* from the Print menu to send a form feed command to the printer. The printer prints any remaining data.

WS92 function keys

Log Bottom using the HP function keys:

1. Follow steps 1 through 4 in the *WS92* portion of the *Log Top* section above.
2. Follow steps 5 through 9 in the *WS92* portion of the *Log Top* section above, only press *F3 Log Bottom*.

USING RECORD MODE MANUALLY

MS92 allows you to send host data to the printer without sending it to your screen. This is known as using record mode. To use record mode:

1. Access the system keys using the function key scroll bar in WS92.
2. Press *F1 Device Control*.
3. From the Device Control keys, press *F2 To External Device*. An asterisk appears in the function key label, indicating that the external device is active.
4. Press *F1 Device Modes*.
5. Type the command you wish to send to the host computer, but *DO NOT* press RETURN.
6. From the menu of Device Modes keys, press *F2 Record Mode*. An asterisk appears in the function key label, indicating that record mode is enabled.
7. Press RETURN. The host sends data directly to your printer without sending it to your screen.
8. When the data has been printed, press *F2 Record Mode* again. The asterisk disappears, indicating that record mode has been disabled.
9. To flush any remaining data from the printer press *F1 Device Control* from the device modes keys, then press *F4 Advance Page*. Or, select *Advance Page* from the Print menu. This command sends a form feed command to the printer, which causes the printer to print any remaining data.

Note: Some applications on the host will use escape sequences to turn record mode off. This is controlled by the program and does not require the user to set up anything. When the Host program controls the record mode the print driver should be set to Pass Through.

COPY LINE, COPY PAGE, AND COPY ALL

Copy a block of display memory and send it to the printer, using the HP function keys or commands from the Print menu.

COPY LINE

To copy a line of display memory and send it to the printer, follow the instructions below.

WS92 menus

1. Select *Print Line* from the Print menu. The line where the cursor is positioned is sent to the printer.
2. Select *Advance Page* from the Print menu, to send a form feed character to the printer.

WS92 function keys

Use the HP function keys to print a line of display memory on the printer:

1. To access the system keys, use the function key scroll bar in WS92.
2. Press *F1 Device Control*.
3. From the menu of Device Control keys, press *F2 To External Device*. An asterisk appears in the function key label, indicating that the external device is the active output device.
4. Position the cursor somewhere in the line you wish to print.
5. Press *F8 Copy Line*. The line where the cursor is positioned is sent to the printer.
6. Press *F4 Advance Page*, or select *Advance Page* from the Print menu, to send a form feed character to the printer.

COPY PAGE

To copy a page of display memory and send it to the printer, follow the instructions below.

WS92 menus

1. Select *Print to end of Page* from the Print menu.

or

Select *Print Current Page* from the Print menu (ALT-PgDn) to send the currently visible contents of the screen to the printer.

2. Select *Advance Page* from the Print menu, to send a form feed character to the printer. The printer prints the page.

WS92 function keys

Use the HP function keys to print a page of display memory on the printer:

1. Follow steps 1 through 3, above, for Copy Line with HP function keys.
2. Scroll the display so the text you want printed is visible.
3. Press *F7 Copy Page*. All text currently visible on the screen is sent to the printer.
4. Press *F4 Advance Page*, or select *Advance Page* from the Print menu, to send a form feed character to the printer. The printer prints the page.

COPY ALL

To copy the entire contents of display memory and send it to the printer, follow the instructions below.

WS92 menus

1. Select *Print Memory from Cursor* from the Print menu.

or

Select *Print All Display Memory* from the Print menu to print the contents of the display memory.

Note: Increase or decrease the amount of display memory by configuring the number of pages in the Screen Configuration dialog box. (See *Chapter 2*)

2. Select *Advance Page* from the Print menu to send a form feed character to the printer. The printer prints the text.

WS92 function keys

Use the HP function keys to print the contents of display memory to the printer:

1. Follow steps 1 through 3, above, for Copy Line with HP function keys.
2. Position the cursor at the beginning of the block you wish to print.
3. Press *F6 Copy All*. All display memory, from the current cursor position to the end, is sent to the printer.
4. Press *F4 Advance Page*, or select *Advance Page* from the Print menu, to send a form feed character to the printer. The printer prints the text.

SENDING HOST DATA TO A PC FILE

With MS92, store host data directly on your PC in the following ways:

- ◆ Capture data to file.
- ◆ Select a block of text and paste it into a document.

CAPTURE TO DISK

You can write data to a file as it is displayed to the screen using the Capture to Disk utility.

To Capture to Disk:

1. Access the system keys using the function key scroll bar in WS92. Press *F5 Capture to Disk*. An asterisk in the key label indicates that this utility is active.

or

Select *Capture to Disk* from the File menu. A checkmark appears next to the command.

2. Enter a fully-qualified PC file name (for example, C:\WS92\HPFILE.TXT), and press RETURN. Everything displayed to the screen is sent to the specified file.
3. To stop capture data, press *F5 Capture to Disk* from the System keys. The asterisk disappears.

or

Re-select *Capture to Disk* from the File menu.

COPY AND PASTE

The Edit menu in WS92 includes commands that allow you to copy blocks of text to the Windows clipboard, where you can paste them into any Windows application.

PRINTING FROM A PC TO A HOST PRINTER

MS92 allows you to print PC files on a printer attached to the host. To print to a host-based printer:

1. Be sure your host printer is defined in the File Transfer Configuration dialog box.

Enter the logical device number or device name in the “*Host Printer Name*” field. If your host printer is connected serially, you must add */s* to the device name (for example, *lp/s*). You can also direct PC files to a diskfile on the host by entering *DISC/S* in this field. On the host, the file will be called MWLIST.

2. Logon to the host, if have not already.
3. Verify that a MS92 host link program exists on the host computer (see *Chapter 6* for information on host link programs).
4. Use the function key scroll bar to access the System keys, and press *F7 Print to Host*.

or

Select *Print File on Host Printer* from the Print menu.

When MS92 prompts you for a file to print, type a fully qualified path designation (for example, *C:\WS92\HPFILE.TXT*) and press RETURN. You may direct spreadsheets, PC graphics, and word processing documents to printers attached to the host computer.



CHAPTER 8

Troubleshooting

BREAKING AND RESETTING A CONNECTION

While running a host connection, you may need to break or reset the connection if for example the connection “hangs”.

Break the connection by selecting *Break* from the Trouble menu (ALT-B), or select *Disconnect* from the Trouble menu.

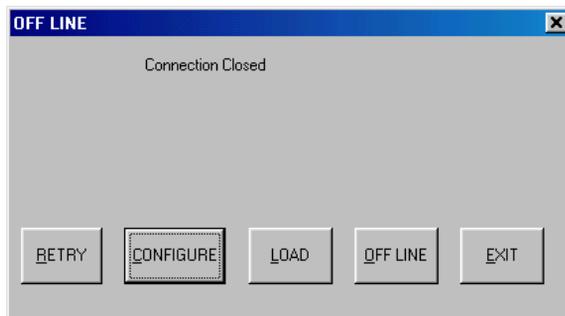
Reset the connection by selecting Soft Reset from the Trouble menu (ALT-S), or select *Hard Reset* from the Trouble menu (ALT-R).

BREAK

Selecting Break or pressing ALT-B while in remote mode breaks the computer operation to the host computer; you may need to abort your host session after issuing this command. Break transmits a 200ms space on the asynchronous transmit-data communication line. This serves as a signal to interrupt computer operations between the PC and host computer.

DISCONNECT

Selecting Disconnect breaks the connection over a modem or network. For a modem connection, Disconnect lowers DTR for two seconds. On a network connection, Disconnect breaks the connection and WS92 responds with this message:



Available Options:

Click *Retry* to reestablish the connection.

Click *Configure* to configure a different connection.

Click *Exit* to exit from WS92.

Click *Load* to open a configuration.

Click *Offline* to disconnect from the host and keep current WS92 window open.

SOFT RESET

Selecting Soft Reset or ALT-S:

- ♦ Rings the terminal bell.
- ♦ Halts any device operations currently in progress.
- ♦ Enables the keyboard (if disabled).
- ♦ Clears any existing error conditions and removes the error message display (if present) from the bottom of the screen.
- ♦ Disables display functions mode (if enabled).
- ♦ If record mode is on, a soft reset will turn it off.
- ♦ Halts any datacomm transfers currently in progress and clears the datacomm buffer.

HARD RESET

Selecting Hard Reset or pressing ALT-R has the same effect as turning the terminal power off and then back on. A hard reset:

- ♦ Rings the terminal bell.
- ♦ Halts any device operations currently in progress.
- ♦ Enables the keyboard (if disabled).
- ♦ Clears all display memory.
- ♦ Clears any existing error conditions and removes the error message display (if present) from the bottom of the screen.
- ♦ Halts any datacomm transfers currently in progress and clears the datacomm buffer.

DEBUGGING PROBLEMS

WS92 can be run in debug mode, allowing you to diagnose problems and program failures. In addition, WS92 includes a number of trace utilities used by Minisoft technical support personnel for debugging problems.

WS92's debugging utilities consist of:

- ♦ Debug mode
- ♦ Event trace
- ♦ Connection trace
- ♦ Packet capture
- ♦ Comms status report

NOTE.....

It is recommended to use the above options only after consulting Minisoft technical support.

DEBUG MODE

To run WS92 in debug mode:

1. Select *Debug* from the Trouble menu. A checkmark appears next to the command, indicating that Debug Mode is active.
2. Continue your session. WS92 displays debug messages to your screen as it runs.
3. Reselect *Debug* from the Trouble menu to turn Debug Mode off. The checkmark disappears.

EVENT TRACE

Event Trace tracks problems between WS92 and a host application. If WS92 does not seem to be handling a host application properly, use this utility.

To run Event Trace:

1. At a colon prompt (prior to running the application), select *Event Trace* from the Trouble menu. The Save As dialog box appears.
2. Enter a name for the trace file in the File Name box and click OK. The extension for event trace files is .EVT.
3. Run your host application so the trace utility can record the activity, including errors.
4. When the problem has occurred, select Event Trace to turn off the trace utility.
5. Send the trace file on a diskette to Minisoft, or email the file as an attachment to support@minisoft.com with a note pertaining to the problem. The trace file allows a technician to identify any problems between WS92 and the host application.

CONNECTION TRACE

Connection Trace activates messages that inform you of the status of your attempt to connect to the host computer.

To run Connection Trace:

1. Select *Connection Trace* from the Trouble menu. A checkmark appears, indicating that the Connection Trace is active.
2. Attempt to make a connection, using *Comms and Network* selections from the Config menu.
3. When you click *Activate*, WS92 reports its status as it attempts to make the connection.
4. Note each message and click OK. When calling Minisoft for technical support, report the contents of these messages to your technician.

PACKET CAPTURE

Packet Capture records activity on a network. If WS92 does not seem to be communicating properly on a network, use this utility.

To run Packet Capture:

1. Select *Packet Capture* from the Trouble menu. The Save As dialog box appears.
2. Enter a name for the packet capture file in the File Name box, and click OK. The extension for packet captures is .WPK.
3. Run your session on the network so the packet capture utility can record the activity, including errors.
4. Send the packet capture file on a diskette to Minisoft, or email it as an attached file to support@minisoft.com. The packet capture allows a technician to identify any problems between WS92 and your network.

COMMS STATUS REPORT

This utility generates a screen report of communication problems relating to the network. A technician at Minisoft may ask you to run this utility if your system appears to be experiencing data communication problems.

PRINTING FROM NMCONFIG

In order to troubleshoot data communication problems that involve an HP e3000 on a network, it may be useful to print configuration information from the NMCONFIG utility. The MPE utility NMCONFIG allows for simple and safe printing of configurations from a command line interface. These instructions are provided because improper use of the NMMGR screen interface can result in the loss of use of devices upon the next re-boot.

The following procedures produce an output that is formatted for easy transmission by fax. Replace the reference to *LP* with an appropriate printer for your site.

- For NETXPORT (TCP/IP) configuration:

```
:FILE FORMLIST;DEV=LP;REC=-80,,F,ASCII
:FILE NMMGRCMD=$STDINX
:NMMGR
NMMGR>OPENCONF NMCONFIG
NMMGR>SUMMARYCONF NETXPORT
NMMGR>EXIT
```

- For complete DTC configuration:

```
:FILE FORMLIST;DEV=LP;REC=-80,,F,ASCII
:FILE NMMGRCMD=$STDINX
:NMMGR
NMMGR>OPENCONF NMCONFIG
NMMGR>SUMMARYCONF DTS ALL
NMMGR>EXIT
```

- Subsets of the DTC configuration are also available:

```
NMMGR>SUMMARYCONF DTS DTC

NMMGR>SUMMARYCONF DTS LDEV

NMMGR>SUMMARYCONF DTS PROFILE
```



APPENDIX A

Error Messages

LOSING A CONNECTION

Sometimes, a network problem will cause your PC to be disconnected from the host. You will also lose a connection if you fail to log on to the host. If this happens, an offline message appears with the following options:

- Select *Retry*, and MS92 will attempt to reconnect you to your host.
- Select *Configure* to configure the connection. Select the settings to match your network in the Type of Connection and the Network Configuration dialog box.
- Select *Quit* or *Exit* if you wish to exit MS92.
- Select *Load*.
- Select *Offline*.

RUNNING THE COMMAND LANGUAGE

While MS92 is carrying out commands from a script file, it will report error messages regarding problems it encounters:

Invalid Script Line

- This error occurs when you execute a command that is not valid.
- Make sure the last line of your script contains the END command. This command marks the end of the script.

***T* RANSFERRING FILES**

MS92 may report one of several errors if there is a problem transferring a file. Some error messages specifically address uploading of the host program.

***F* ILE TRANSFER ERRORS**

Could not connect to host program / Could not open host file:

- WS92 must access the host program from the system prompt. Make sure you are logged on to the host, and that you are not running a host application. Your session must be at the CI (Command Interpreter) Level .
- The host program(s) may have been corrupted during the upload procedure. Confirm that the uploading of the host program(s) was done with parity set to None/8. Any other parity settings during a host program upload will result in corrupted host program(s). Upload the host program again with the correct parity.

***U* PLOAD HOST PROGRAM ERRORS**

Error writing to host file:

- This error signals that you may not be logged onto your host computer system. Be sure you have logged on before attempting to upload the host program.
- The term type (terminal type) is not 10. Logon HELLO USER.ACCOUNT;TERM=10 to force the term type.
- Indicates that there may be a conflicting FCOPY UDC set on the host computer system. Remove the FCOPY UDC and upload the host program again.

- ♦ Attempting to upload the host program through an X.25 network or data switch can cause this error to occur. If possible, upload the host program through a direct serial or LAN connection.

File WS92LINK.PUB.SYS not found:

The file WS92LINK does not exist on the PC or WS92 cannot find it to upload.

INSTALLING WS92

If MS92 will not run after you first install, there may be a problem with the WinSock connection (WS92 only) or the serial connection was not configured properly.

FONT

Mismatch in Font. Family: Height Requested: 12702, Actual Height: 15361:

This error indicates that you are using an old version of the W92.FON font file from a previous version of WS92. Select Fonts in the Windows Control Panel to remove the old file from the hard disk, and install the current W92.FON from your latest version of WS92. You can not copy a current version of W92.FON over the existing version.

WINSOCK CONNECTIONS

Cannot find WINSOCK.DLL:

The WINSOCK.DLL file is missing, has been changed, or is not in the correct path. This message may also appear if more than one WINSOCK.DLL is on your system.

- Delete any extraneous WINSOCK.DLL files.
- Install one and only one WINSOCK.DLL.
- Make sure the WINSOCK.DLL you are using is meant to be used with the TCP/IP stack you are using. WINSOCK.DLLs can be used only with the TCP/IP stack they were designed for.

INITIAL EXECUTION OF MS92

The first time you run MS92, there is no existing default configuration file. In addition, there may be cases where foreground and background color enhancements are the same. The following messages are commonly displayed on the initial execution of MS92:

File DEFAULT.W92 not found / File MS92.CFG not found:

DEFAULT.W92 is the WS92 default configuration file.

Press RETURN or click OK to dismiss the message. After you configure your settings, save them using the Save command. These settings become your default configuration, which WS92 runs the next time you execute it.

Invalid color settings adjusted. Foreground equaled background:

One or more color enhancements are configured so that foreground and background are the same (for example, white text on a white background). Go to Color Configuration and adjust the settings so foregrounds are different from their background enhancements.

APPENDIX B

IP Router

CONFIGURING A ROUTER/GATEWAY IN NMMGR

The HP e3000 refers to routers as internet gateways. This does not necessarily mean that you will be connecting to the Internet, although connection to the Internet could be one of the reasons routers are being added to networks.

The HP e3000 needs to be configured with information about where the routers are and what it can find on the other side of them.

GLOSSARY

- A *Local Area Network (LAN)* is what you have in a single facility of one or more buildings. You will likely have one or more IP networks on each LAN.
- A *Wide Area Network (WAN)* is two or more LANs tied together. The LANs' areas are usually in different cities or states. It would be very rare to have only one IP network on a WAN.
- *Nodes* are devices that have network interfaces. Nodes include HP e3000s, PCs, routers, servers, communication servers, and just about anything else that needs to communicate across the network.
- Each network interface has a unique *IP Node Address*. You can either set up a server that will assign the number for each device at boot-up or you can maintain a list and assign users from it. Some devices can have more than one IP node address.
- *IP Networks* are groups of nodes separated by routers. An IP network address is distinguished from a device IP node address by ending in one or more zeros.
- *IP Addresses* are formed of four numbers separated by periods with each number having a range of 001 to 254. The values of 000 and 255 are used by the protocols and cannot be used in the fourth place. A sample IP node address is 192.168.001.025. A leading zero in each of the four parts of an IP address is optional; most systems will recognize either form of the address, but some systems are sensitive to this and may not work if it is included.

- ♦ *Subnet or network mask* is a term used for dividing an A, B, or C class address into multiple smaller networks.

EXAMPLE

Suppose a network has several PCs, one HP e3000 and a Novell NetWare 4.1 file server acting as an IP router. The IP addresses are as follows:

Net A	192.168.001.000
Net B	192.168.002.000
HP e3000	192.168.001.001
NetWare(1)	192.168.001.002
NetWare(2)	192.168.002.002
PC1	192.168.001.003
PC2	192.168.001.004
PC3	192.168.002.005
PC4	192.168.002.006

Note that the NetWare server has two IP node addresses; one for each of the two network adapters, each on its own IP network.

We have found that if the number of devices on the total network is not going to exceed 254, and if they are all located in the same facility, it is easier to manage numbering them if each device has a unique last number in the address. In this example, all the nodes have unique numbers and the only repeat is for the file server. The file server's two cards use the same last digit but different network numbers.

PROCEDURES

Logon as MANAGER.SYS and edit the NMCONFIG file with NMMGR. Include information about where the routers are located and what networks are available. Validate the information and use JCONFJOB.NET to update the permanent MPE network tables. Use NETCONTROL UPDATE to activate the new settings.

MPE/iX STEP 1

```

:HELLO username,MANAGER.SYS
:NMMGR
Open Config          F1
NS                   F2
Unguided Config     F2
Go To NETXPORT      F1
Go To NI             F3

```

The Network Interface Name is probably *LAN1*. If some other name is presented, *take note of it. You will need to substitute this name in other commands.*

Then press:

```

Modify              F6
Go To INTERNET     F3

```

- ♦ If you are modifying an *existing* gateway/router; type the name as shown in the list into the field labeled Gateway Name. Then press:

```

Modify    F6

```

- ♦ If you are adding a *new* gateway/router, type the name in the field labeled Gateway Name. Then press:

```

Add      F5

```

Type the IP address of the network card or interface that is on the same section of the network as the HP e3000 into the field labeled Neighbor Gateway IP Internet Address. Using the example network, 192.168.001.002 would be entered.

Type the IP network address(es) for the networks that are on the other side of this router into the field labeled IP Network Address. Include all networks that can be reached through this router. The example network would use 192.168.002.000. If this is the only router or the default router, use an *at* sign, @, in this field in place of any specific address.

In most cases leave the IP Mask field blank. You may need to use this if you use a subnet of a class A, B, network.

Hops refers to the number of routers that must be crossed to reach the network specified. Most networks will use the value of one for Hops. This value can go as high as 1024 for special cases. If you are configuring this as the default router, use 1024. Packets going to a network specified on this line must go through other router(s), using a value greater than one.

After you have entered all the network values, press:

SAVE CONFIG	F6
Prior Screen	F8 (7 times)
UTILITY	F5
Go To VALIDATE	F3
Validate NETXPORT	F1

After you verify that the validation was successful, press:

	RETURN
Prior Screen	F8 (3 times)
Exit Program	F8
:	

MPE/iX STEP 2

Use the following command to update the DSDAD (DADCONF.NET.SYS) file.

```
:STREAM JCONFJOB.NET
```

Wait for this JOB to complete and check the STDLIST. If there are no errors, continue with the last step.

MPEi/X STEP 3

You do not need to restart your system or stop virtual terminal access to enable the new configuration. The NETCONTROL command has an UPDATE option that allows this information to be added dynamically.

Do not use this command if you are changing existing routes that are currently in use.

```
:NETCONTROL NET=LAN1;UPDATE=INTERNET
```

Your system should now be ready to use through your router(s).



APPENDIX C

HP Escape Sequences

TYPOGRAPHICAL CONVENTIONS

^

Control character, which stands for the CTRL key. The ^ control character combined with another character forms a control code, as shown in *Appendix F*.

^[

Escape code. See *Appendix C* for escape sequences, and the GOSUB command for an example.

To display a control character (^) in a string as a non control character, use a double caret (^^) to neutralize it as a control character. See the following example:

```
DISPLAY "This is a ^^"  
END
```

TERMINAL FUNCTIONS

The following table lists HP terminal control functions and their PC keyboard equivalents in MS92. The terminal control functions are often activated by a series of up to three terminal keys, as shown in the Terminal Key(s) column.

Terminal Keys(s)	Code	PC Key(s)	Function
ENTER (as used in local mode)	ESC0	Keypad Enter	Copy memory to destination(s)
SYSTEM, margins/tabs/col, SET TAB	ESC1		Set tab
SYSTEM, margins/tabs/col, CLEAR TAB	ESC2		Clear tab

Terminal Keys(s)	Code	PC Key(s)	Function
SYSTEM, margins/tabs/col, CLR ALL TABS	ESC3		Clear all tabs
SYSTEM, margins/tabs/col, LEFT MARGIN	ESC4		Set left margin
SYSTEM, margins/tabs/col, RIGHT MARGIN	ESC5		Set right margin
SYSTEM, margins/tabs/col, CLR ALL MARGINS	ESC9		Clear all margins
	ESC@		Delay one second
↑	ESCA	↑	Cursor up
↓	ESCB	↓	Cursor down
→	ESCC	→	Cursor right
←	ESCD	←	Cursor left
Hreset	ESCE	Alt-R	Hard reset (power on reset)
Home Down	ESCF	Ctrl-End	Cursor home down
RETURN (with Auto LF disabled)	ESCG	ENTER (with Auto LF disabled)	Move cursor to left margin
Home Up	ESCH	Ctrl-Home	Cursor home up
Tab	ESCI	Tab	Horizontal tab
Clear Display	ESCJ	Alt-J	Clear display from cursor to end of memory
Clear Line	ESCK	Alt-K	Clear line from cursor to end of line
Ins Line	ESCL	Alt-I	Insert line
Del Line	ESCM	Alt-D	Delete line
Del Char	ESCP	Delete	Delete character

Terminal Keys(s)	Code	PC Key(s)	Function
Ins Char	ESCQ	Insert	Start insert character mode
Ins Char	ESCR	Insert	End insert character (ESC Q)
Scroll Up	ESCS	Ctrl-5	Scroll up
Scroll Down	ESCT	Ctrl-6	Scroll down
Next Page	ESCU	Page Down	Next Page
Prev Page	ESCV	Page Up	Previous Page
	ESCW		Format mode on
	ESCX		Format mode off
Modes, DISPLAY FUNCTION	ESCY		Display Functions mode on
Modes, DISPLAY FUNCTIONS*	ESCZ		Display Functions mode off
	ESC[		Start unprotected field
	ESC]		End unprotected field
	ESC^		Primary terminal status request
	ESC'		Sense cursor position (relative)
	ESCa		Sense cursor position (absolute)
	ESCb		Unlock keyboard
	ESCc		Lock keyboard
	ESCd		Transmit a block of text to computer
	ESCf		Modem disconnect
	ESCg		Soft reset
Home Up	ESCh	Ctrl-Home	Cursor home up
Btab	ESCi	Shift-Tab	Backtab
Shift-User Keys	ESCj		Begin User Keys Definition mode

Terminal Keys(s)	Code	PC Key(s)	Function
User Keys or SYSTEM or MODES	ESCk		End User Keys Definition mode
MODES, MEMORY LOCK	ESCi		Begin Memory Lock mode
MODES, MEMORY LOCK*	ESCm		End Memory Lock mode
F1	ESCp	F1	Default definition for user definable function key F1
F2	ESCq	F2	Default definition for user definable function key F2
F3	ESCr	F3	Default definition for user definable function key F3
F4	ESC s	F4	Default definition for user definable function key F4
F5	ESCt	F5	Default definition for user definable function key F5
F6	ESCu	F6	Default definition for user definable function key F6
F7	ESCv	F7	Default definition for user definable function key F7
F8	ESCw	F8	Default definition for user definable function key F8
SYSTEM, service keys, TERMINAL TEST	ESCz		Initiate terminal self test
MODES, TERMINAL TEST	ESC^		Primary terminal status request
	ESC~		Secondary terminal status request

CURSOR CONTROL OPERATIONS

The following table lists HP terminal control functions and their PC keyboard equivalents in MS92. The terminal control functions are often activated by a series of up to three terminal keys, as shown:

Escape Sequence	Operation
ESC&a <col>c <rows>Y	Moves the cursor to column <i>col</i> and screen row <i>row</i> on the screen (relative addressing).
ESC&a <col>c <row>R	Moves the cursor to column <i>col</i> and row <i>row</i> in memory (absolute addressing).
ESC&a± <col>c ± <rows>Y	Moves the cursor to column <i>col</i> and row <i>row</i> (on the screen) relative to its present position (<i>col</i> and <i>row</i> are signed integers). A positive number indicates right or downward movements and a negative number indicates left or upward movement.
ESC&a ± <col>c ± <rows>R	Moves the cursor to column <i>col</i> and row <i>row</i> relative to its present position in memory (<i>col</i> and <i>row</i> are signed integers). A positive number indicates right or downward movements and a negative number indicates left or upward movement.

CONFIGURATION OPERATIONS

The following table lists escape sequences for HP configuration operations, where replacing the value of <*x*> with the value shown in the X= column yields the switch value shown.

To unlock a configuration, use this escape sequence: esc&q 0L

To lock a configuration, use this escape sequence: esc&q 1L

Escape Sequence	Operation	Switch Value	X=
ESC&k <x>A	AUTO LF	Off On	0 1
ESC&k <x>B	BLOCK	Off On	0 1
ESC&k <x>C	Caps Lock	Off On	0 1
ESC&k <x>J	FrameRate	60 50	0 1
ESC&k <x>L	LocalEcho	Off On	0 1
ESC&k <x>M	MODIFY ALL	Off On	0 1
ESC&k <x>N	SPOW	No Yes	0 1
ESC&k <x>P	Caps Mode	Off On	0 1
ESC&k <x>R	REMOTE	Off On	0 1
ESC&s <x>A	XmitFncn(A)	No Yes	0 1
ESC&s <x>B	SPOW(B)	No Yes	0 1
ESC&s <x>C	InhEolWrp(C)	No Yes	0 1
ESC&s <x>D	Line/Page(D)	Line Page	0 1
ESC&s <x>G	InhHndShk(G)	No Yes	0 1
ESC&s <x>H	Inh DC2 (H)	No Yes	0 1

TERMINAL

There are two escape sequences to define the RETURN key on the 700/94 terminal. These escape sequences allow a one-character or, acting in combination, a two-character value to be mapped to the RETURN key. The characters each have an ASCII value of 0-127.

ESC&q8te 1 {<x>A	Sets the first character of the RETURN key definition; x=0-127.
ESC&q8te 1 {<x>B	Sets the second character of the RETURN key definition; x=0-127.

For example,

`esc&q8te1{67A and esc&q8te1{114B`

would yield a value of Cr.

DATA OPERATIONS

The following table lists escape sequences that control data transfer to and from the integral printer and display memory of the HP e3000 host. These sequences are effective only if a printer is present.

Escape Sequence	Operation	Device	Action
ESC&p <a>d <Y>	Copies data specified by Y to destination devices a. As many destinations as desired can be specified.	a= 3: display 4,6: printer	Y= B: Copies the line in which the cursor is located (cursor line). F: Copies the display screen from the line in which the cursor is located to the last displayed line. M: Copies the contents of display memory from the cursor line to the end of memory.
ESC&p <x>^	Requests the status of device x.	x= 4,6: printer	--
ESC&k <x>S	Enables Expanded, Compressed, or Normal Character mode for the integral printer as designated by x.	--	x= 0: Disable both Expanded and Compressed Character modes. 1: Initiate Expanded Character mode. 2: Initiate Compressed Character mode.

Escape Seq.	Operation	Device	Action
ESC&l <x>O	Enables page orientation to print portrait or landscape as defined by <x>.		x= 0: Portrait 1: Landscape.
ESC&p <y>u <z>C	Performs the action specified by z on device y.	y= 4,6: printer 3: display	z= 0: Generates one form feed. 1: Spaces x lines. 2-10: Generates one form feed. 11: Turn on Log Bottom mode. 12: Turn on Log Top mode. 13: Turn off any logging mode. 14: Print normal characters. 15: Print expanded characters. 16: Print compressed characters. 17: Turn on Report mode. 18: Turn on Metric Report mode. 19: Turn off any Report mode.
ESC&p <num>p 20C	Turns on Record mode. "<num>p" is optional <num> is the decimal equivalent of an ASCII character that will turn off record mode.	--	--
ESC&p <x>W <data string>	Transfers x bytes of the data string from the computer to the selected destination device in binary form.	--	--
ESC&p W <data string>	Transfers the <i>data string</i> , in ASCII form, from the computer to the printer selected as the destination device. The string is terminated either by the 256th byte or by an ASCII line feed character.		

FUNCTION KEY OPERATIONS

The following section shows the escape sequences necessary for using and defining the function keys.

ENABLING AND DISABLING FUNCTION KEYS

To enable and disable the function keys (F1 through F8), use this escape sequence:

ESC&j <X>

where the value of *x* is one of the following:

X=	Operation
A	Displays the Modes set of function key labels.
B	Enables the User function keys (user key labels are displayed).
C	Clears the error message from the screen and returns the last displayed level of function key labels.
@	Removes the function key labels from the screen, but leaves the keys enabled.
S	Disables the System, Modes, and User keys; in other words, disables changing the function keys.
R	Enables the System, Modes, and User keys.

DEFINING FUNCTION KEYS

You can use escape sequences to customize the labels of the function keys and to program the action that the function keys perform.

To customize function key labels, use this escape sequence:

ESC&j <*string length*>L <*message*>

where *string length* is a number up to 160, indicating the number of characters in the string. *Message* is the label to appear on the function key.

To define functions for the function keys, use the following escape sequence:

ESC&f <attribute>a <key>k <label length>d
<string length>L <label><string>

where the values of the terms are as follows:

Term	Value	Meaning
<i>attribute</i>	0	Normal (N)
	1	Local only (L)
	2	Transmit only (T)
<i>key</i>	1	F1 function key
	2	F2 function key
	3	F3 function key
	4	F4 function key
	5	F5 function key
	6	F6 function key
	7	F7 function key
	8	F8 function key
<i>label length</i>	0 through 16	Number of characters in the label.
<i>String length</i>	0 through 80	Number of characters in the string.
	-1	Clears the content of the string.
<i>Label</i>		Characters to appear on the function key.
<i>String</i>		Character string to transmit when key is pressed.

ESC&f <x>E

Executes the action assigned to Function Key **x**.

x	Key
1-8	F1-F8
-1	block mode enter

Example:

^[[&f-1E

DISPLAY ENHANCEMENT OPERATIONS

The following table shows the escape codes used for display enhancements. To start and end display enhancements, use this escape sequence:

ESC&d <*char*>

Where *char* is one of the following:

	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Half-Bright									•	•	•	•	•	•	•	•
Underline					•	•	•	•					•	•	•	•
Inverse Video			•	•			•	•			•	•			•	•
Blinking		•		•		•		•		•		•		•		•
End Enhancement	•															

The display enhancement specified by *char* in the escape sequence begins at the current cursor position. For example, to select the underline, inverse video, blinking enhancement, use this escape sequence:

ESC&d G

HOST-INITIATED COMMANDS

There are three host-initiated commands:

ESC&oB	Allows the host to initiate a script command and return a result code.
ESC&oC	Allows the host to initiate a script command and return a result code.
ESC&oF	Allows the host to initiate a script command without returning a result code.



APPENDIX D

Ecometry MACS Support

Versions 5.2 and later of WS92 have been enhanced to specifically support the Ecometry MACS software package.

To take full advantage of Ecometry/MACS, use 5.2 or later along with the included predefined Minisoft configuration files. Refer to the instructions below on how these configuration files should be used. Remember these files are already configured to work with Ecometry. You should not have to make any significant changes to these files.

EIGHT CONFIGURATION FILES

There are eight Minisoft configuration files that are used with Ecometry/MACS. Be sure and place all eight files in the directory where the WS92.EXE is located. See table shown below:

DEFAULT.W92	Default configuration for standard MACS operation
R1.CFG	Used for many SGA screens - on special key mapping
R1ENTER.CFG	Used for SGA Accounting screens - Return=Enter
SGA.CFG SGA2.CFG SGA4.CFG SGA5.CFG	Extensive key mapping - 80 or 132 column
SGA9.CFG	No key mapping - 132 column

When making changes to these files, be sure to make the identical changes in all versions. If something does not work correctly after the changes, start by making the changes to SGA9 then remove the differences, such as column and key-mapping, to make a functional duplicate of the other files. Select Save As when the settings match.

To configure the eight files use the script file SetupSga.s92. From the File menu select Run a Script, then select SetupSGA.S92. For further information see the SGAReadme.rtf file.



APPENDIX E

Control Codes

ASCII	Hex	Scripts and keymapping	Abbreviation	Action
0	00	^@	NUL	null
1	01	^A	SOH	start of heading
2	02	^B	STX	start of text
3	03	^C	ETX	end of text
4	04	^D	EOT	end of transmission
5	05	^E	ENQ	enquiry
6	06	^F	ACK	acknowledge
7	07	^G	BEL	bell
8	08	^H	BS	backspace
9	09	^I	HT	horizontal tab
10	0A	^J	LF	line feed
11	0B	^K	VT	vertical tab
12	0C	^L	FF	form feed
13	0D	^M	CR	carriage return
14	0E	^N	SO	shift out
15	0F	^O	SI	shift in

ASCII	Hex	Scripts and keymapping	Abbreviation	Action
16	10	^P	DLE	delete
17	11	^Q	DC1	device control 1 (x-on)
18	12	^R	DC2	device control 2
19	13	^S	DC3	device control 3 (x-off)
20	14	^T	DC4	device control 4
21	15	^U	NAK	negative acknowledge
22	16	^V	SYN	synchronous idle
23	17	^W	ETB	end of block
24	18	^X	CAN	cancel line
25	19	^Y	EM	end of medium
26	1A	^Z	SUB	substitute
27	1B	^[	ESC	escape
28	1C	^\ ^_	FS	file separator
29	1D	^]	GS	group separator
30	1E	n/a	RS	record separator
31	1F	^-	US	unit separator



APPENDIX F

NFT's OLE Automation
and Macro Language

Appendix F contains information on NFT and NFT's FTP module.

- The NFT protocol communicates with the HP e3000.
- The FTP module communicates with Unix, IBM VM, VMS/Multinet, VMS/UCX, FTP's PCTCP, CUTCP/NCSA, NOS/KA9Q, WinQVT/Net, IBMPC TCP/IP, CHAMELEON, SuperTCP, SI NT/FTPD, IBM MVS, and Unisys 5000.

NFT's OLE AUTOMATION INTERFACE

Client programs can access WS92's Network File Transfer (HP e3000 MPE/iX) and/or FTP (Unix, etc.) module(s) via OLE automation. Any client may create a Session object and use the object's properties and methods to communicate with the server program.

Note that the following two sections, *File transfer engine (HP e3000 MPE/iX)* and *FTP engine*, are very similar but not identical.

NEED FURTHER INFORMATION....

Chapter 6 Network File Transfer [NFT]

FILE TRANSFER ENGINE (HP E3000 MPE/iX)

The File Transfer Engine objects are used by the client program to communicate with the file transfer server program on the host. This gives the client the ability to transfer files to/from the host as well as execute MPE commands, MPE command files and programs. In order to access the File Transfer Engine from a client program, the client program must create the Session object of the File Transfer Engine as follows:

Visual BASIC:

```
Dim FTSession As Object
...
Set FTSession = CreateObject("NetFT.Session")
```

Visual C++:

```
CreateDispatch( "NetFT.Session" );
```

When the client program wishes to stop using the File Transfer Engine, then it must delete the Session object as follows:

Visual BASIC:

```
Set FTSession = Nothing
```

Visual C++:

```
ReleaseDispatch();
```

SESSION OBJECT

Once the Session object has been created the client can access its properties and methods to access the host's file transfer server program. Typically the properties specifying the host's IP address, TCP/IP port number, and login information are set, then the Connect method is called to connect the host's file transfer server program.

PROPERTY REFERENCE

AccountPassword, type String, write access

String used for the account password when connecting to the host's file transfer server program.

ConnectStatus, type Boolean, read access

Contains True if the last connection attempt was successful, else False.

CtrlZIsEof, type Boolean, write access

This property specifies whether the end-of-file of a PC file is marked with a CTRL-Z character or not. A value of True indicates that a CTRL-Z found in the file will be interpreted as the EOF on uploads, and that a CTRL-Z will be written at the end of the file on downloads. A value of False indicates that a CTRL-Z found in the file will be interpreted as normal data on uploads, and that a CTRL-Z will not be written at the end of the file on downloads. This property only applies to ASCII transfers. The default is False.

Direction, type integer, write access

Specifies the direction of the next file transfer. A value of 0 indicates uploading, while a value of 1 indicates downloading. The default is uploading.

DisplayStats, type Boolean, write access

This property specifies whether a dialog box showing the status of the transfer should be displayed during the file transfer. The default is False.

ErrorMessage, type String, read access

Contains the last error message generated.

ErrorNumber, type integer, read access

Contains the last error number generated.

ExistsAction, type integer, write access

This property specifies what action to take if the destination file already exists. A value of 0 indicates that the transfer should be canceled. A value of 1 indicates that the destination file should be deleted and the transfer should continue. A value of 2 indicates that the user should be prompted whether to delete the file or cancel the transfer. A value of 3 indicates that the destination file should be appended to. The default is 0.

FileTransferStatus, type integer, read access

This property indicates the status of an in-progress or completed file transfer. A value of 0 indicates that the last transfer was completed successfully. A value of 1 indicates that the last transfer failed. Any other value indicates that a file transfer or some other operation is in progress.

GroupPassword, type String, write access

The string used for the group password when connecting to the host's file transfer server program.

HostAddress, type String, write access

The host name or IP address used when attempting to connect to the host.

HostFile, type String, write access

This property specifies the name of the host file involved in the transfer. It may be fully qualified with the group and account if necessary. If the file is in or should be created in the temporary domain, the string “;TEMP” should be appended to its name.

HostFileList(String ListMask), String, read access

This property returns a comma-delimited list of files on the host. The ListMask parameter specifies a valid LISTF filename argument used to compile the list with.

JobName, type String, write access

The string used for the job name when connecting to the host's file transfer server program.

KeepTrailingSpaces, type Boolean, write access

This property specifies what to do with the trailing spaces on each record during ASCII downloads. A value of True indicates that trailing spaces should be kept, while a value of False indicates that trailing spaces should be deleted. Default is False.

LocalFile, type String, write access

This property specifies the name of the local file involved in the file transfer. It may be fully qualified with the drive letter and path if necessary.

LoginAccount, type String, write access

The string used for the account name when connecting to the host's file transfer server program.

LoginGroup, type String, write access

The string used for the group name when connecting to the host's file transfer server program.

LoginInfo, type String, read access

This property contains the current user name, group name, and account name the server is running from. The first 8 characters contain the user name, the next 8 characters contain the group name, and the last 8 characters contain the account name.

LoginStatus, type Boolean, read access

Contains True if the login information supplied when connecting to the host file transfer server program was valid, else False.

LoginUser, type String, write access

The string used for the user name when connecting to the host's file transfer server program.

Port, type integer, write access

A number that uniquely identifies the program on the host that the client wishes to connect to. This number is typically 31001 for the file transfer server, but may be any numbered between 1 and 32767.

RecordSize, type integer, write access

This property specifies the record length of the host file for uploads. Valid values are between 1 and 4096. Default is 80 for ASCII transfers, or 256 for binary transfers.

SpacesPerTab, type integer, write access

This property sets the distance between tab stops and enables changing tab characters to spaces to fill the next tab stop. It is used only on ASCII uploads. A value of 0 disables the replacement of tab characters. Valid values are between 0 and 9. Default is 0.

TransferMode, type integer, write access

This property specifies the mode of the file transfer. Valid values are 0 for an ASCII file transfer, 1 for a binary file transfer, and 2 for a binary transfer that saves the file information in a file header.

UserPassword, type String, write access

The string used for the user password when connecting to the host's file transfer server program.

METHOD REFERENCE***Boolean Connect()***

This method attempts to connect to the host's file transfer server program at the IP address specified by the HostAddress property. The Port property is used to identify the requested host program. Connect sets the ConnectStatus property and returns True if the connection request succeeded, else it returns False.

void Disconnect()

This method disconnects from the host's file transfer server program.

integer HostCommand(String CommandString)

This method executes a MPE command or MPE command file. The CommandString parameter specifies the command or command file to be executed. A return of 0 indicates the command was executed successfully, while a return of 1 indicates that the command failed.

Boolean HostLogin()

This method changes the host server login to that specified by the LoginUser, UserPassword, LoginGroup, GroupPassword, LoginAccount, AccountPassword, and JobName properties. A return of True indicates that the login was changed successfully.

void SaveConfig()

This method saves the writable session object properties to a file. This file can later be use to initialize a session object when created.

Boolean LoadConfig(String FileName)

This method loads the session object properties from the named file. A return of True indicates the properties were loaded successfully.

Boolean SetSessionConfig()

This method displays the "Session Configuration" dialog of the File Transfer Access Engine. This dialog allows the user to set the following properties: HostAddress, Port, LoginUser, UserPassword, LoginGroup, GroupPassword, LoginAccount, AccountPassword, and JobName. A return of True indicates the user clicked on OK to exit the dialog, else a return of False indicates the user clicked on Cancel to exit the dialog.

Boolean SetTransferConfig()

This method displays the “File Transfer Configuration” dialog of the File Transfer Access Engine. This dialog allows the user to set default file transfer options. A return of True indicates the user clicked on OK to exit the dialog, else a return of False indicates the user clicked on Cancel to exit the dialog.

integer StartTransfer()

This method initiates a file transfer. A return of 0 indicates the file transfer was successful, while a return of 1 indicates that the file transfer failed.

FTP ENGINE

The FTP engine objects are used by the client program to communicate with a FTP server program on the host. This gives the client the ability to transfer files to/from any host that supports FTP. In order to access the FTP engine from a client program, the client program must create the Session object of the FTP engine as follows:

Visual BASIC:

```
Dim FTPSession As Object
...
Set FTPSession = CreateObject("MdmFTP.Session")
```

Visual C++:

```
CreateDispatch( "MdmFTP.Session" );
```

When the client program wishes to stop using the FTP Engine, then it must delete the Session object as follows:

Visual BASIC:

```
Set FTPSession = Nothing
```

Visual C++:

```
ReleaseDispatch();
```

SESSION OBJECT

Once the Session object has been created the client can access its properties and methods to access the host's FTP server program. Typically the properties specifying the host's IP address and login information are set, then the Connect method is called to connect the host's FTP server program.

PROPERTY REFERENCE

AccountPassword, type *String*, write access

The string used for the account password when connecting to the host's FTP server program. Some hosts require account information.

ConnectStatus, type *Boolean*, read access

Contains True if the last connection attempt was successful, else False.

CtrlZIsEof, type *Boolean*, write access

This property specifies whether the end-of-file of a PC file is marked with a CTRL-Z character or not. A value of True indicates that a CTRL-Z found in the file will be interpreted as the EOF on uploads, and that a CTRL-Z will be written at the end of the file on downloads. A value of False indicates that a CTRL-Z found in the file will be interpreted as normal data on uploads, and that a CTRL-Z will not be written at the end of the file on downloads. This property only applies to ASCII transfers. The default is False.

DirectoryList, type *String*, read access

This property contains a list of subdirectories contained by the current host directory. It is updated after every successful call to the RefreshFileList method.

DisplayStats, type *Boolean*, write access

This property specifies whether a dialog box showing the status of the transfer should be displayed during the file transfer. The default is False.

ErrorMessage, type *String*, read access

Contains the last error message generated.

ErrorMessage, type integer, read access

Contains the last error number generated.

FileList, type String, read access

This property contains a list of files contained by the current host directory. It is updated after every successful call to the RefreshFileList method.

FileTransferStatus, type integer, read access

This property indicates the status of an in-progress or completed file transfer. A value of 0 indicates that the last transfer was completed successfully.

HostAddress, type String, write access

The host name or IP address used when attempting to connect to the host.

HostType, type integer, write access

This property specifies the type of host your connecting to. Valid types are:

- 1 - Unix
- 2 - IBM VM
- 3 - VMS/Multinet
- 4 - VMS/UCX
- 5 - FTP's PCTCP
- 6 - CUTCP/NCSA
- 7 - NOS/KA9Q
- 8 - WinQVT/Net
- 9 - IBMPC TCP/IP
- 10 - CHAMELEON
- 11 - SuperTCP
- 12 - SI NT/FTPD
- 13 - IBM MVS
- 14 - Unisys 5000

LoginStatus, type Boolean, read access

Contains True if the login information supplied when connecting to the host's FTP server program was valid, else False.

LoginUser, type String, write access

The string used for the user name when connecting to the host's FTP server program.

SpacesPerTab, type integer, write access

This property sets the distance between tab stops and enables changing tab characters to spaces to fill the next tab stop. It is used only on ASCII uploads. A value of 0 disables the replacement of tab characters. Valid values are between 0 and 9. The default is 0.

UserPassword, type String, write access

The string used for the user password when connecting to the host's FTP server program.

METHOD REFERENCE*Boolean ChangeDirectory(String Directory)*

This method attempts to change the current directory of the host's FTP server program to the directory specified by the Directory parameter. A return of True indicates that the current directory was changed.

Boolean Connect()

This method attempts to connect to the host's FTP server program at the host name or IP address specified by the HostAddress property. The LoginUser, UserPassword, and AccountPassword (optional) properties should be set before calling the Connect method. Connect sets the ConnectStatus property and returns True if the connection request succeeded, else it returns False.

String CurrentDirectory()

This method returns the name of the current directory of the host's FTP server program.

Boolean DeleteFile(String FileName)

This method deletes the host file specified by the FileName parameter. A return of True indicates that the file was deleted.

void Disconnect()

This method disconnects from the host's FTP server program.

Boolean Login()

This method changes the host server login to that specified by the LoginUser, UserPassword, and AccountPassword (optional) properties. A return of True indicates that the login was changed successfully.

Boolean RefreshFileList(String ListPath)

This method retrieves a list of all files and directories matching the ListPath parameter. The ListPath parameter may contain any valid path and/or file wildcard characters. The DirectoryList and FileList properties are updated upon successful completion of this method.

Boolean RenameFile(String OldName, String NewName)

This method renames the file specified by the OldName parameter to the name specified by the NewName parameter. A return of True indicated that the rename was successful.

integer RetrieveFile(String HostFileName, String LocalFileName, integer Type, integer ExistsAction)

This method transfers the file specified by the HostFileName parameter from the host to the file specified by the LocalFileName parameter on the PC. The Type parameter is either 0 for an ASCII transfer or 1 for a binary transfer. The ExistsAction parameter specifies what action to take if the PC file already exists. A value of 0 indicates that the transfer should be canceled. A value of 1 indicates that the PC file should be deleted and the transfer should continue. A value of 2 indicates that the user should be prompted whether to delete the file or cancel the transfer. A value of 3 indicates that the PC file should be appended to. A return value of 0 indicates that the transfer was completed successfully.

Boolean SetSessionConfig()

This method displays the “Session Configuration” dialog of the FTP Engine. This dialog allows the user to set the following properties: HostAddress, HostType, LoginUser, UserPassword, and AccountPassword. A return of True indicates the user clicked on OK to exit the dialog, else a return of False indicates the user clicked on Cancel to exit the dialog.

Boolean SetTransferConfig()

This method displays the “File Transfer Configuration” dialog of the FTP Engine. This dialog allows the user to set default file transfer options. A return of True indicates the user clicked on OK to exit the dialog, else a return of False indicates the user clicked on Cancel to exit the dialog.

integer StoreFile(String LocalFileName, String HostFileName, integer Type, integer ExistsAction)

This method transfers the file specified by the LocalFileName parameter from the PC to the file specified by the HostFileName parameter on the host. The Type parameter is either 0 for an ASCII transfer or 1 for a binary transfer. The ExistsAction parameter specifies what action to take if the host file already exists. A value of 1 indicates that the host file should be deleted and the transfer should continue. A value of 3 indicates that the host file should be appended to. A return value of 0 indicates that the transfer was completed successfully.

CALLING OLE AUTOMATION ENGINES FROM VISUAL C++

Type libraries to describe the API for the File Transfer Engine and the FTP Engine are included in the installation directory. They are called MDMFT.TLB and MDMFTP.TLB respectively. They can be used with the Read Type Library option under the OLE automation tab of the ClassWizard dialog box of Microsoft Visual C++.

When a type library is read this way, a new class derived from COleDispatchDriver is created which will contain member functions to access the properties and methods of the requested OLE automation engine.



APPENDIX G

Character Set Code

Roman 9 Character Set Codes				
ASCII	HEX	DEC	OCT	DESCRIPTION
NULL	00	0	000	Null
SOH	01	1	001	Start of heading
STX	02	2	002	Start of text
EXT	03	3	003	End of text
EOT	04	4	004	End of transmission
ENQ	05	5	005	Enquiry
ACK	06	6	006	Acknowledge
BEL	07	7	007	Bell
BS	08	8	010	Backspace
HT	09	9	011	Horizontal tabulation
LF	0A	10	012	Line feed
VT	0B	11	013	Vertical tabulation
FF	0C	12	014	Form Feed
CR	0D	13	015	Carriage Return
SO	0E	14	016	Shift out
SI	0F	15	017	Shift in
DLE	10	16	020	Data link escape
DC1	11	17	021	Device control 1 or X-ON
DC2	12	18	022	Device control 2
DC3	13	19	023	Device control 3 or X-OFF
DC4	14	20	024	Device control 4

ASCII	HEX	DEC	OCT	DESCRIPTION
NAK	15	21	025	Negative acknowledge
SYN	16	22	026	Synchronous idle
ETB	17	23	027	End of transmission block
CAN	18	24	030	Cancel
EM	19	25	031	End of medium
SUB	1A	26	032	Substitute
ESC	1B	27	033	Escape
FS	1C	28	034	File separator
GS	1D	29	035	Group separator
RS	1E	30	036	Record separator
US	1F	31	037	Unit separator
	20	32	040	Space
!	21	33	041	Exclamation point
"	22	34	042	Quotation mark
#	23	35	043	Number sign (hash mark)
\$	24	36	044	Dollar sign
%	25	37	045	Percent sign
&	26	38	046	Ampersand
'	27	39	047	Apostrophe (closing single quote)
(	28	40	050	Opening parenthesis
)	29	41	051	Closing parenthesis
*	2A	42	052	Asterisk
+	2B	43	053	Plus
,	2C	44	054	Comma
-	2D	45	055	Hyphen (minus)
.	2E	46	056	Period (point)
/	2F	47	057	Slant (solidus)

ASCII	HEX	DEC	OCT	DESCRIPTION
0	30	48	060	Zero
1	31	49	061	One
2	32	50	062	Two
3	33	51	063	Three
4	34	52	064	Four
5	35	53	065	Five
6	36	54	066	Six
7	37	55	067	Seven
8	38	56	070	Eight
9	39	57	071	Nine
:	3A	58	072	Colon
;	3B	59	073	Semicolon
<	3C	60	074	Less than sign
=	3D	61	075	Equal sign
>	3E	62	076	Greater than sign
?	3F	63	077	Question mark
@	40	64	100	Commercial at
A	41	65	101	Uppercase A
B	42	66	102	Uppercase B
C	43	67	103	Uppercase C
D	44	68	104	Uppercase D
E	45	69	105	Uppercase E
F	46	70	106	Uppercase F
G	47	71	107	Uppercase G
H	48	72	110	Uppercase H
I	49	73	111	Uppercase I
J	4A	74	112	Uppercase J

ASCII	HEX	DEC	OCT	DESCRIPTION
K	4B	75	113	Uppercase K
L	4C	76	114	Uppercase L
M	4D	77	115	Uppercase M
N	4E	78	116	Uppercase N
O	4F	79	117	Uppercase O
P	50	80	120	Uppercase P
Q	51	81	121	Uppercase Q
R	52	82	122	Uppercase R
S	53	83	123	Uppercase S
T	54	84	124	Uppercase T
U	55	85	125	Uppercase U
V	56	86	126	Uppercase V
W	57	87	127	Uppercase W
X	58	88	130	Uppercase X
Y	59	89	131	Uppercase Y
Z	5A	90	132	Uppercase Z
[	5B	91	133	Opening square bracket
\	5C	92	134	Reverse slant
]	5D	93	135	Closing square bracket
^	5E	94	136	Caret (circumflex)
_	5F	95	137	Underscore (low line)
'	60	96	140	Opening single quote
a	61	97	141	Lowercase a
b	62	98	142	Lowercase b
c	63	99	143	Lowercase c
d	64	100	144	Lowercase d
e	65	101	145	Lowercase e

ASCII	HEX	DEC	OCT	DESCRIPTION
f	66	102	146	Lowercase f
g	67	103	147	Lowercase g
h	68	104	150	Lowercase h
i	69	105	151	Lowercase i
j	6A	106	152	Lowercase j
k	6B	107	153	Lowercase k
l	6C	108	154	Lowercase l
m	6D	109	155	Lowercase m
n	6E	110	156	Lowercase n
o	6F	111	157	Lowercase o
p	70	112	160	Lowercase p
q	71	113	161	Lowercase q
r	72	114	162	Lowercase r
s	73	115	163	Lowercase s
t	74	116	164	Lowercase t
u	75	117	165	Lowercase u
v	76	118	166	Lowercase v
w	77	119	167	Lowercase w
x	78	120	170	Lowercase x
y	79	121	171	Lowercase y
z	7A	122	172	Lowercase z
{	7B	123	173	Opening brace (curly bracket)
|	7C	124	174	Vertical line
}	7D	125	175	Closing brace (curly bracket)
~	7E	126	176	Tilde
	7F	127	177	Delete (rubout)
	80	128	200	--to be defined--

ASCII	HEX	DEC	OCT	DESCRIPTION
	81	129	201	--to be defined--
	82	130	202	--to be defined--
	83	131	203	--to be defined--
	84	132	204	--to be defined--
	85	133	205	--to be defined--
	86	134	206	--to be defined--
	87	135	207	--to be defined--
	88	136	210	--to be defined--
	89	137	211	--to be defined--
	8A	138	212	--to be defined--
	8B	139	213	--to be defined--
	8C	140	214	--to be defined--
	8D	141	215	--to be defined--
	8E	142	216	--to be defined--
	8F	143	217	--to be defined--
	90	144	220	--to be defined--
	91	145	221	--to be defined--
	92	146	222	--to be defined--
	93	147	223	--to be defined--
	94	148	224	--to be defined--
	95	149	225	--to be defined--
	96	150	226	--to be defined--
	97	151	227	--to be defined--
	98	152	230	--to be defined--
	99	153	231	--to be defined--
	9A	154	232	--to be defined--
	9B	155	233	--to be defined--

ASCII	HEX	DEC	OCT	DESCRIPTION
	9C	156	234	--to be defined--
	9D	157	235	--to be defined--
	9E	158	236	--to be defined--
	9F	159	237	--to be defined--
	A0	160	240	--to be defined--
À	A1	161	241	Uppercase A grave accent
Â	A2	162	242	Uppercase A circumflex
È	A3	163	243	Uppercase E grave accent
Ê	A4	164	244	Uppercase E circumflex
Ë	A5	165	245	Uppercase E umlaut or diaeresis
Î	A6	166	246	Uppercase I circumflex
Ï	A7	167	247	Uppercase I umlaut or diaeresis
´	A8	168	250	Acute accent
`	A9	169	251	Grave accent
^	AA	170	252	Circumflex accent
"	AB	171	253	Umlaut (diaeresis) accent
~	AC	172	254	Tilde accent
Û	AD	173	255	Uppercase U grave accent
Û	AE	174	256	Uppercase U circumflex
	AF	175	257	Italian lira symbol
—	B0	176	260	Over line (high line)
Ý	B1	177	261	Uppercase Y acute accent
ý	B2	178	262	Lowercase y acute accent
°	B3	179	263	Degree (ring)
Ç	B4	180	264	Uppercase C cedilla
ç	B5	181	265	Lowercase c cedilla
Ñ	B6	182	266	Uppercase N tilde

ASCII	HEX	DEC	OCT	DESCRIPTION
ñ	B7	183	267	Lowercase n tilde
¡	B8	184	270	Inverse exclamation mark
¿	B9	185	271	Inverse question mark
€	BA	186	272	EURO symbol
£	BB	187	273	British pound sign
¥	BC	188	274	Japanese yen symbol
§	BD	189	275	Section sign
f	BE	190	276	Dutch guilder symbol
¢	BF	191	277	U.S. cent symbol
â	C0	192	300	Lowercase a circumflex
ê	C1	193	301	Lowercase e circumflex
ô	C2	194	302	Lowercase o circumflex
û	C3	195	303	Lowercase u circumflex
á	C4	196	304	Lowercase a acute accent
é	C5	197	305	Lowercase e acute accent
ó	C6	198	306	Lowercase o acute accent
ú	C7	199	307	Lowercase u acute accent
à	C8	200	310	Lowercase a grave accent
è	C9	201	311	Lowercase e grave accent
ò	CA	202	312	Lowercase o grave accent
ù	CB	203	313	Lowercase u grave accent
ä	CC	204	314	Lowercase a umlaut or diaeresis
ë	CD	205	315	Lowercase e umlaut or diaeresis
ö	CE	206	316	Lowercase o umlaut or diaeresis
ü	CF	207	317	Lowercase u umlaut or diaeresis
Å	D0	208	320	Uppercase A degree
î	D1	209	321	Lowercase i circumflex

ASCII	HEX	DEC	OCT	DESCRIPTION
Ø	D2	210	322	Uppercase O crossbar
Æ	D3	211	323	Uppercase AE ligature
å	D4	212	324	Lowercase a degree
í	D5	213	325	Lowercase i acute accent
ø	D6	214	326	Lowercase o crossbar
æ	D7	215	327	Lowercase ae ligature
Ä	D8	216	330	Uppercase A umlaut or diaeresis
ï	D9	217	331	Lowercase i grave accent
Ö	DA	218	332	Uppercase O umlaut or diaeresis
Ü	DB	219	333	Uppercase U umlaut or diaeresis
É	DC	220	334	Uppercase E acute accent
ï	DD	221	335	Lowercase i umlaut or diaeresis
ß	DE	222	336	Sharp s
Ô	DF	223	337	Uppercase O circumflex
Á	E0	224	340	Uppercase A acute accent
Ã	E1	225	341	Uppercase A tilde
ã	E2	226	342	Lowercase a tilde
Ð	E3	227	343	Uppercase D with stroke
ð	E4	228	344	Lowercase d with stroke
Í	E5	229	345	Uppercase I acute accent
Ì	E6	230	346	Uppercase I grave accent
Ó	E7	231	347	Uppercase O acute accent
Ò	E8	232	350	Uppercase O grave accent
Õ	E9	233	351	Uppercase O tilde
õ	EA	234	352	Lowercase o tilde
Š	EB	235	353	Uppercase S with caron
š	EC	236	354	Lowercase s with caron

ASCII	HEX	DEC	OCT	DESCRIPTION
Ú	ED	237	355	Uppercase U acute accent
ÿ	EE	238	356	Uppercase Y umlaut or diaeresis
ÿ	EF	239	357	Lowercase y umlaut or diaeresis
þ	F0	240	360	Uppercase Thorn
þ	F1	241	361	Lowercase thorn
	F2	242	362	--undefined--
	F3	243	363	--undefined--
	F4	244	364	--undefined--
	F5	245	365	--undefined--
—	F6	246	366	Long dash (horizontal bar)
¼	F7	247	367	One fourth (one quarter)
½	F8	248	370	One half
	F9	249	371	Feminine ordinal indicator
	FA	250	372	Masculine ordinal indicator
«	FB	251	373	Opening guillemets (angle quotes)
•	FC	252	374	Solid
»	FD	253	375	Closing guillemets (angle quotes)
	FE	254	376	Plus/minus sign
	FF	255	377	--undefined--

GLOSSARY

Some of the networking and data processing terms in this documentation may not be familiar to some users. To help we have provided descriptions of some of the most common networking and data processing terms below.

802.3

IEEE protocol covering the data link layer. (The international standard is known as 802.3.) While 802.3 is physically compatible with standard Ethernet (it can operate concurrently with standard Ethernet over the same cable), 802.3 uses a slightly different form of packet header, so not every computer using Ethernet hardware can support both standard Ethernet and 802.3.

access method

The way in which a device on a LAN achieves access to the LAN to transmit data. Examples include token-passing and CSMA/CD.

ACK

(acknowledgment). A response sent by a receiver to indicate successful receipt of information. Acknowledgments can be implemented at any level including the physical level (using voltage on one or more wires to coordinate transfer), the link level (to indicate successful transmission across a single hardware link), or higher levels (for example, to allow an application program at the final destination to respond to an application program at the source).

address

A numeric identification for a particular node, storage location, or device.

address resolution

The conversion to the address of a physical location from a virtual address, such as on the Internet.

ALT

Alternate. A key that, when pressed, signals the computer of a change in the meanings of other keys struck in conjunction with it.

ANSI

(American National Standards Institute). A U.S. group that establishes standards in the computer industry.

API

(Application Program Interface). The transparent interface used by a software application for communications between a programming language and the application's files and processes.

application layer

The highest layer in the seven-layer Open Systems Interconnect (OSI) model. It controls application programs.

architecture

How the hardware and software in a computer or network are set up to work together.

ARP

(Address Resolution Protocol). A process used by the TCP/IP protocol to map IP addresses to Ethernet addresses. Required for TCP/IP use with Ethernet.

ASCII

(American Standard Code for Information Interchange). The most common coding system for converting letters, numerals, and other symbols into a form usable by computers and peripherals.

ASCII file transfer

A seven-bit transfer of text files that are presented in ASCII form.

asynchronous transmission

A method of communication in which the intervals between characters are of uneven length.

background

A background program is one that is not currently the focus of user input via a keyboard or mouse, but which remains operating while the user works on another program.

background processing

Work performed by a program while in background.

bandwidth

A term used to describe the range of transmission frequencies used by a network. A wider bandwidth transmits more data in the same time than a narrower one.

baud rate

The rate at which data is transmitted, approximately equivalent to bits per second.

binary file transfer

A file transfer mode that transmits a file containing binary characters without loss of data.

block mode

A facility, available only on some terminals, whereby data on a screen can be edited locally and transmitted as a block when the user has finished, rather than character by character.

bps

(bits per second). The rate at which data flows in communications.

broadcast

A delivery system that broadcasts a given packet to all hosts attached. Implemented in hardware or software.

carrier signal

A signal that is set by a modem on pin 8 of an RS-232 cable to indicate that a connection has been established with another modem, thus permitting data communication.

CCITT

(Consultative Committee for International Telephony and Telegraphy). An international organization that develops communications standards.

character mode

A terminal operation mode where each character is transmitted to the host as its key is pressed on the keyboard.

CI

(Command Interpreter). A program that reads lines of text from standard input (entered at the keyboard or redirected from a file) and interprets them as requests to perform functions or execute other programs.

clear to send (CTS)

A signal transmitted from modem to terminal stating that the modem is ready to accept data for transmission.

command language

A language that is specific to a particular application and that is generally used to provide a simplified way of executing a series of common commands, such as log-on sequences, dialing modems, initiating file transfers, and other tasks.

control character

A non-text character that directs the computer to take an action, such as line feed or carriage return.

Ctrl

The Control key, also expressed as \wedge . Holding down the Control key changes the meaning of other keys struck in conjunction with it.

cursor

A symbol on the screen, in the form of a blinking line or rectangle, that indicates where the next typed character will be displayed.

datacomm

Short for data communications, the act of transmitting data from its source to peripheral equipment or to another computer.

data set ready (DSR)

A signal that is set by a modem on pin 6 of an RS-232 cable to indicate that the modem is ready to receive and transmit data. Most modems automatically set this signal *on* as soon as power is applied to the modem.

data terminal ready (DTR)

A signal set on by a terminal on pin 20 of an RS-232 cable to indicate that the terminal is ready for data communication. Some modems terminate a telephone connection after this signal has been absent for a certain period of time.

DCE

(Data Communications Equipment). Modems and other intermediate communications devices (distinguished from DTE).

DDE

(Dynamic Data Exchange). A protocol for data exchange between Microsoft Windows programs.

device

Also known as hardware. Any physical piece of electronic equipment, such as a PC, terminal, or component.

device driver

A section of code that acts as a gateway between the operating system and a physical device, such as a serial port.

disconnect

To terminate a network session. Disconnecting does not necessarily log you off a host computer.

display memory

That portion of a terminal's memory that stores received data. Display memory is what is shown on the screen.

DLL

(Dynamic Link Library, also known as Data Link Layer). A set of program routines that are available to applications at run time.

domain

A name used to identify a group of machines. Also used by NS/3000 on HP e3000 computers as part of a fully qualified network interface name.

DOS

Disk Operating System. Operating system developed by Microsoft for personal computers.

DOS device driver

A program, such as a LAN card driver, that can be loaded into memory with a `DEVICE=` command in the `CONFIG.SYS` or `AUTOEXEC.BAT` files.

download

The process of transferring data from another system to your own.

DTE

(Data Terminal Equipment). Terminals and other devices that are the source or final destination of data; as opposed to DCE devices, which are intermediate communications devices.

echo

A function whereby a computer immediately returns each character as it is received. Echo can be used to confirm receipt.

ENQ

(Enquiry). A special character, ASCII code 5, used to ask for ACK or NAK. It may be part of the initialization sequence or the final character of a polling sequence.

environment

A computer's specific configuration, CPU model, installed software collection, or operating system.

escape sequence

A character string that begins with the ASCII escape character and that contains a command, such a printer or modem initialization.

field

A part of a record designed to hold one category of data. For example, a mailing list would contain fields for name, address, and zip code.

file

A body of data stored at one location on a hard disk or floppy diskette under a unique filename. A file can contain random data, such as text, or can be organized as records, which in turn would contain one or more fields.

fixed-length record format

A file format in which all records have the same length.

flow control

A stop-and-start mechanism used to govern the flow of data to make sure the receiver can process what has already been sent before further data is transmitted.

full duplex

The data communications mode that allows simultaneous two-way communication.

gateway (router)

A machine that connects two or more networks using different network protocols, performing the necessary protocol conversions.

half duplex

Communication in two directions but not at the same time.

handshake

An 'agreement' between two computers that sets up how they will communicate with each other and exchange data.

host

A server, minicomputer, or mainframe that can be accessed by a terminal or PC.

hostid

The part of a network address that is exclusive to a particular host. Also known as an IP address.

host name

A textual identification for a particular machine. The fully qualified form usually consists of “name.domain.organization”.

Hosts file

An ASCII file of Internet addresses of hosts.

IEEE

(Institute of Electrical and Electronic Engineers). A standards-setting body that is responsible for 802-series standards. (802.3 refers to CSMA/CD [Ethernet]; 802.4 refers to a token-passing bus; 802.5 refers to a token-passing ring [e.g., IBM's Token-Ring].)

internet

A linked network of networks.

Internet

A worldwide network of networks that uses the TCP/IP protocol suite.

Internet address

The specific 32-bit address assigned to each host participating in the Internet.

IP

(Internet Protocol). A public standard that specifies the format of data for transmission on the Internet. Commonly used in conjunction with TCP to form TCP/IP.

IP address

See *Internet address*.

ISO

(International Standards Organization). The international organization that develops standards for computers and other fields.

LAN

(Local Area Network). A system connecting a number of communication devices in one location.

LANIC

(Local Area Network Interface Controller). A hardware card that fits into an HP e3000 and provides a physical interface for IEEE 802.3 local area networks.

line driver

A device that extends the distance over which digital transmissions can be made from terminals and computers that are linked via private lines.

linefeed

An ASCII control character that moves the cursor or the form (paper) to the next line.

local mode

A loopback operation where data entered at a terminal is not transmitted to a host computer, but is displayed on the terminal's screen.

local node

A PC or workstation attached to a host computer.

modem

A modem converts digital signals from a computer to analog (sound) signals for transmission over a phone line, and converts analog signals received through a phone line to digital signals.

MPE

Operating system of the HP e3000 minicomputer. MPE stands for *Multi Programming Executive*.

multicast

A technique that allows copies of a single packet to be passed to a selected subset of possible destinations, i.e., to those devices that are "listening" for it.

multicast address

An address used to designate all nodes that “listen for” a particular message.

multiplex

A method whereby several devices can share a single communications channel.

multitasking

Running two or more programs or performing two or more functions at the same time.

NAK

(Negative Acknowledgment). A character (ASCII code 21 decimal) sent to indicate errors in a received transmission. See *ENQ*, *ACK*.

name

In the NS/VT environment, one of three address components, along with domain and organization, that define a node.

NDIS

(Network Driver Interface Specification). A specification that defines the interface between the transport protocols and the network card. NDIS was developed by Microsoft and 3Com.

NetBIOS

(Network Basic Input Output System). A standard network interface specification for PC local area networks introduced with IBM’s PC Network and used by Microsoft’s LAN Manager.

netid

The first portion of a TCP/IP network address, consisting of network identification bits that are shared by the network the machine is on (as opposed to the hostid which identifies the host).

NetWare

Novell’s line of network operating systems. NetWare uses Novell’s proprietary IPX protocol to route messages.

network address

A special address that refers to a network as an entity, consisting of a netid and hostid, with the hostid consisting of all zero bits.

node

Nodes are devices that have network interfaces. Nodes include HP e3000s, PCs, routers, servers, communication servers, and just about anything else that needs to communicate across the network.

NS/VT

(Network Services/Virtual Terminal). A protocol from Hewlett-Packard used on HP e3000 machines for an IEEE 802.3 LAN or inter-network.

null modem

A cable arrangement in asynchronous serial communications directly connecting two pieces of terminal equipment with RS-232 cable so that the sending wire on one end becomes the receiving wire on the other end.

ODI

(Open Datalink Interface). Novell's specification for a protocol-to-driver interface. ODI is a set of specifications that lets multiple communication protocols such as IPX/SPX and TCP/IP share the same driver and network interface card adapter.

operating system

A master control program for a computer that manages basic operations, including apportioning memory, ordering tasks, and managing the flow of information into and out of the main processor. The central core remains in memory at all times. The operating system sets the standards for application programs running on it.

OSI model

(Open Systems Interconnection model). A seven-layer model for describing network protocols developed by the ISO.

packet

A group of data elements transmitted together than generally forms part of a larger transmission made up of a number of packets. A packet is made up of additional information, such as packet number and error-detecting codes.

packet header

The portion of the packet that contains the control information: destination, origin, length, etc.

packet switching

A method of communication that involves splitting a transmission up into packets. Successive packets along a given channel can belong to different transmissions.

parallel port

A communication port through which data moves more than one bit at a time.

parallel transmission

The movement of data more than one bit at a time. This is accomplished by a cable that has a separate line for each bit position. For example, the IBM PC's parallel printer interface sends eight bits (one byte) in parallel.

parity

An error-detection method that adds a non-information bit to each character transmitted. The parity bit is computed from the data bits by both the transmitting and receiving devices, and the result is then compared. The bit may be always 0 (space parity), always 1 (mark parity), or either 0 or 1 so as to make the sum of the bits odd (odd parity) or even (even parity).

peer

A functional unit that uses the same protocol layer as another.

peer-to-peer communications

Communication from one user to another user on a network.

peer-to-peer network

A local area network in which all machines have equal access to the others' resources for cooperative processing.

PING

A program that tests a TCP/IP network node by sending an echo request and waiting for a reply. (Also used as a verb.)

port

A jack or outlet on a computer where connectors to peripheral devices or networks are attached; a virtual point-of-connection into TCP or UDP.

Probe protocol

A Hewlett-Packard protocol used by nodes on NS3000 IEEE 802.3 networks to obtain information about other nodes on the network. Probe translates between HP Network Services node names and both Internet and Ethernet addresses.

protocol

A formal set of standards covering data communications.

protocol stack

Protocols that specify the rules for computer-to-computer communications.

proxy ARP

A TCP/IP technique in which one machine; usually a gateway, answers address resolution protocol requests intended for another machine by supplying its own physical address. Used as a way to avoid forming a subnet.

remote mode

A mode of terminal operation in which data is transmitted to and received from a host computer.

request to send (RTS)

A signal from a terminal to a modem indicating that the terminal is wanting to send data.

router (gateway)

A network computer that makes decisions about which path, out of several, network traffic is to follow; the computer then moves packets along the selected path.

RS-232

A standard cable type used to connect data communications equipment. A 9-pin or 25-pin connector is typically used. (Also known as RS-232-C.)

serial port

A communications port through which data moves over a single wire, one bit after another.

serial transmission

The transmission of data as a sequence of bits, one bit at a time.

server

In the client/server model, a server is the application that provides the service requested by another application. On a PC LAN, a server is usually a dedicated PC that offers services such as disk space, printers, host computer access, and applications.

session layer

The OSI layer concerned with providing a way for session users to establish connections (sessions) and transfer data over them in an orderly way.

SLIP

(Serial Line Internet Protocol). Allows IP to operate over serial (dial-up) lines. It requires a relatively high speed (9.6Kbps or faster) connection.

socket

An IP socket is created when an IP port on a host machine makes a connection to an IP port on a client machine. IP sockets are ephemeral by nature. When a standard request port has formed a socket connection to a standard services port, additional requests for access to that port may be denied, returning the Socket request denied error message, which is often seen when attempting connections to popular Internet WWW host sites.

star topology

A LAN architecture in which the network devices connect to a centralized controller or hub.

start bit

A bit sent in asynchronous communications indicating the start of a new character.

status request

A request issued by a host computer for information from a terminal. An aid to communication between terminal and host.

stop bit

A bit sent in asynchronous communications indicating the end of a character.

string

A set of characters transmitted or received together, such as a password.

subnet

Subnet or network mask is a term used for dividing an A or B class address into multiple smaller networks.

subnet address

An extension of the Internet addressing scheme that allows a site to use a single Internet address for more than one physical network.

subnetid (or subnet address)

The assignment of bits in a portion of the host id to designate a particular physical network as a site with a single network identification and multiple physical networks. Only the local gateways recognize the subnet address.

synchronous transmission

The transmission of a sequence of data elements at regularly spaced intervals without the use of start and stop bits framing each character.

TCP

(Transmission Control Protocol). The Internet standard transport-level protocol, providing reliable full duplex stream service. TCP allows a process on one machine to send a stream of data to a process on another. Software implementing TCP uses the IP protocol to transmit information. TCP establishes a virtual circuit and provides reliable end-to-end data transmission.

TCP/IP

(Transmission Control Protocol/Internet Protocol). Specifically, this term denotes the combination of TCP and IP; more generally, it refers to the Internet Protocol Suite, which includes TCP and IP, as well as several other protocols. TCP/IP has been implemented on several operating systems.

Telnet

An Internet protocol, used in conjunction with TCP/IP, that allows a computer to act as a terminal on a network.

terminal

A device that can be used to input, to receive, and to display data from a host computer.

terminal emulator

A software program that allows a personal computer to behave as though it is a terminal. A desktop computer running a terminal emulation program may be used in place of a terminal.

terminal server

A device that allows the input/output of multiple terminals to be multiplexed onto LAN cable.

text file

A file consisting only of readable data; it contains no formatting information.

timeout

The process in which an intended operation is assumed to have failed because it was not completed within the time allotted.

Token-Ring

An IBM-designed local area network that has ring topology and uses token passing (a method of network transmission in which network devices pass along a certain sequence of bits (“token”) from device to device. Only the device that has the token can transmit information along the network at a given point in time.)

topology

The general physical layout of a network (although it does not specify cable type, number of nodes, etc.). Examples include star topology, ring topology, and bus topology.

transport layer

The OSI layer concerned with controlling a communication transaction between nodes (user-to-user communication).

twisted pair cable

Telephone wire; sometimes referred to as RJ 11, although an RJ 11 is actually a connector. Ethernet can be run on twisted pair cable.

type-ahead

A feature that allows a user to enter data at the keyboard before being prompted by the host computer.

UART

(Universal Asynchronous Receiver/Transmitter). A chip with serial/parallel conversion, parallel/serial conversion, and other facilities designed for use in asynchronous serial communications.

upload

The process of moving data from your computer to another system.

vector

Short for interrupt vector. PCs provide over 250 different interrupt vectors that may be used to pass control to software routines. Some vectors are associated with hardware interrupts (IRQs).

virtual circuit

A communications link that acts as though it is a dedicated point-to-point circuit. Also, a system that delivers packets so that they appear in sequence as though they were sent over a real point-to-point circuit.

virtual disk

A disk simulated in random access memory (RAM).

virtual network

A network that is programmed, not hard-wired, to a customer's specifications. Also called a Software Defined Network by AT&T.

WAN

A Wide Area Network (WAN) is two or more LANs tied together. The LANs' areas are usually in different cities or states. It would be very rare to have only one IP network on a WAN.

wildcard

In MS-DOS, the symbol ? is used in place of single characters in filenames or extensions, and * is used in place of whole or partial filenames or extensions, indicating *all* for the given field.

WinSock

Windows Sockets (WinSock) is a specification for network programming of Berkeley Software Distribution (BSD) style sockets in the Microsoft Windows environment. The sockets programming interface was introduced in 4.1 BSD Unix and was designed to eliminate the need to program the lower-level details of a network interface. Many Unix and non-Unix network platforms adopted this interface, providing a *de facto* standard for network programming.

Both network stack providers and application developers recognize that in order for network application developers to support multiple protocol stacks, they would have to program to each vendor's proprietary Application Programming Interface (API). Because of sockets' API popularity and the popularity of Microsoft Windows, a group of network programmers that gathered at Interop91 decided there was a need for an open specification for network programming, and that a common binary interface could be achieved through the use of a Windows dynamic link library (DLL). The WinSock specification allows application developers to write one application that can be executed over any vendor's TCP/IP stack. This meeting planted the seed that is now the WINSOCK.DLL.

Xmodem

A protocol designed for transfers between microcomputers.

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