

TE L I X



Program Reference Manual

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1. INTRODUCTION

1.1 Program Description

Telix is a full-featured communications program for PCs running the PC/MS-DOS operating system, that is able to meet the needs of almost any user. Telix features include:

- an extensive range of built-in file transfer protocols, including Zmodem, Compuserve Quick B, Xmodem, Xmodem-1k, Xmodem-1k-g, Ymodem (TRUE), Ymodem-g, Kermit, SEALink, Telink, Modem7, and ASCII. Telix allows up to four 'external' protocols to be defined and called from within Telix. In this way, almost any kind of file transfer is possible from within Telix.
- powerful multiple dialing directories, holding up to 1000 entries each. An entry contains many pieces of information required for communicating with remote services, such as the phone number and communications parameters.
- automatic queue redialing for hard-to-reach numbers.
- reliable DEC VT102 and VT52 terminal emulation. Keys may be redefined by the user.
- extensive SALT script language which allows Telix to perform automated logons and many more complicated functions. As an example of the power of script files, the Telix Host Mode is written in the SALT script language.
- full access to DOS including a DOS shell, a DOS Command option, and full path support.
- A Host Mode with file transfers, operator paging, a Remote DOS shell, and two access levels.
- A Chat Mode, keyboard macros, a scroll-back buffer, session capture, usage log, translate table, and a variety of other features, detailed in this manual. Above all however, Telix is FAST, and has powerful, friendly,

user interface.

1.2 The Telix Philosophy

When Telix was written, a basic idea was kept in mind. It was felt that a powerful program could be simple to operate, with no loss of speed in order to achieve this ease of use.

1.3 Machine Requirements

Telix will run on an IBM PC, XT, AT, PS/2, or true compatible with one hard drive and one floppy drive, or two floppy drives, and with at least 180k of free memory. This is memory available after DOS has been loaded. For a few functions, such as the DOS Shell, more memory is helpful. Telix will support up to 8 defined comm ports (COM1 through COM4 are predefined), any number of disk drives, and a printer connected to the parallel port.

To get full use of Telix your modem must meet certain standards as well, especially for the Host Mode script. The Carrier Detect signal should not be forced high (on) by the modem, so that Telix can tell when you are online. This is usually controlled by the setting of a dip switch on the modem, or a modem command. The DTR (Data Terminal Ready) signal should not be ignored by the modem.

1.4 Telix Files

Telix comes with a number of files and creates more in its normal operation. Some files included in the Telix package are:

- TELIX.EXE - The Telix program itself
- TELIX.DOC - The Telix program reference manual
- CS.EXE - The SALT script language compiler
- SALT.DOC - The SALT script language reference
- CONVERTF.EXE - Converts phone directories to Telix format
- HOST.SLT - The Host Mode script file (source)
- HOST.SLC - The Host Mode script file (compiled)
- HCONFIG.SLT - Host Mode configuration script (source)
- HCONFIG.SLC - Host Mode config. script (compiled)
- *.KEY - The various key definition files for the terminals supported by Telix

Files (optionally) created and used by Telix include:

- TELIX.FON - The default dialing directory file
- TELIX.LD - The Long Distance Codes file
- TELIX.CAP - The default session capture file
- TELIX.IMG - The screen image save file

TELIX.KEY - The default user key macros definition file

HOST.CNF - The Host Mode configuration file

Telnet at one time or another can have a number of files open, especially during Host Mode and a few other instances. If Telnet tells you it is having problems opening files then it is probable that including the line:

'files=20'

in your CONFIG.SYS file could clear up the problem. This allows DOS to open more files (the default is 'files=8'). For more information on the config.sys file see your DOS manual.

1.5 Start-Up Directory

When you run Telix it will remember the disk directory you ran it from. After this point, even if you have changed the current directory with the 'Change directory' command, Telix will know that it should look for its program files on the start-up directory. Some files will also be written on this directory unless you specify another.

If you set the environment variable 'TELIX', Telix will have another (even better) way of knowing where to look for its files. The command form at the DOS prompt is:

```
set TELIX=pathname
```

where pathname is a the legal DOS pathname of the directory in which the Telix files are located. Do not leave any space between the '=' and the arguments. For example, if you used 'set TELIX=C:\TELIX\'', Telix would know to look for its files in the Telix directory on drive C. This way, no matter where you run it from, Telix will always be able to find its files. To reset this environment variable to nothing the command is:

```
set TELIX=
```

For more information on environment variables see your PC/MS-DOS manual.

2. GETTING STARTED

2.1 Starting a Telix Session

To start the Telix program type the following while at the DOS prompt:

```
Telix [O] [Q] [B] [Sfilename] [Cfilename] [Ffilename]
```

The letters in the square brackets are optional command line switches affecting what Telix will do upon start-up. The square brackets should not be entered. The order and case of the options does not matter but they **MUST** be separated by at least one blank.

Specifying the 'O' option upon start-up tells Telix that you are already online (connected to a host systems), and that it should not try to initialize the modem.

The 'Q' option in the command line chooses quiet mode for the current session. When quiet mode is on Telix will not sound any alarms (e.g., when a file transfer is over), no matter what the default setting for alarms is. This is useful for those late night sessions. Any bell characters sent by the remote system are still sounded however.

Specifying 'B' in the command line forces Telix to use the PC's BIOS for all screen write operations, whatever the default setting for screen writes might be. This is useful when you want to run Telix in a multi-tasking environment such as Topview or MS Windows for just one session. Note that Telix is DESQview aware, so you do not have to use this mode for DESQview.

The 'S' option indicates that a script file (explained elsewhere) is to be run immediately upon start-up. The 'S' should be followed immediately (no blanks) by the name of the script file to execute.

The 'C' option indicates that another Telix configuration file than the standard TELIX.CNF should be used. If it doesn't exist, it will be created. In this way, you may have multiple configurations for Telix. The name of the configuration file should immediately follow the 'C', and should include the extension.

The 'F' option indicates that another dialing directory (FON) file than the default TELIX.FON should be loaded at start-up. The name should immediately follow the 'F'. Note that another dialing directory file may also be loaded from within Telix (in the dialing directory screen).

Upon starting, Telix will display a title screen for a period of 25 seconds or until you press a key. Please read the message on the title screen carefully. After you are past the title screen, you will be in 'terminal mode' unless Telix can't find the configuration file (usually TELIX.CNF), in which case it will ask you a few questions about your machine and modem, and then will write a configuration file for you.

2.2 Terminal Mode

Immediately after starting Telix, and for most of the time while using it, you will be in Telix's terminal mode. While in this mode any normal (ASCII) characters you type will be sent to the modem port, and any incoming characters will be printed on the screen. It is from the terminal mode that most Telix commands are initiated. Most commands are selected by pressing two keys at the same time. For example, to access the dialing directory, you would press Alt-D. That is, while holding down the Alt key, you press the D key.

2.2.1 The Help/Status Screen

While in terminal mode, pressing the Alt-Z sequence will switch you to a help screen showing you a summary of all the available commands. If the key for a command is pressed while the help screen is still on, the screen will be turned off and the command will be executed.

On the bottom of the help/status screen is some information regarding some current settings and the status of the current connection, as follows (in slightly compressed form).

```
+-----+
| Time..10:39:00  Online .... No    | Capture...Off    |
| Date..06-29-88                | Printer...Off    |
| Baud..2400    Terminal .. VT102  | Script....None   |
| Comm..N,8,1    Port ..... COM1  | Reg. Key..TELIX.KEY |
```

| Echo..Off Add LF Off | Dial Dir..TELEX.FON |
+-----+

Items included are: the current time and date, the connect status, the elapsed time for the call in progress, the current communications parameters, the state of the capture file and printer, the currently executing script file (if there is one), the current dialing directory, the current keyboard macro definition file, and a few other items.

2.2.2 The Status Line

Telix has an optional status line which may be displayed at the bottom or top of the screen (it may be controlled via the Telix Configuration Menu). The status line displays the current communications setting such as baud rate and parity, the state of the Capture file, whether or not the printer is on, the currently executing script file (scripts are explained elsewhere), and whether Telix is On-line or Off-line.

2.3 Communications Parameters

Pressing Alt-P allows you to change the Communications Parameters. This is the format in which Telix sends data over the modem, and expects to receive it in. After pressing Alt-P a window is displayed with the current parameters at the top, and the options in the rest of the window. To change a value press the letter of the setting you want.

```

+-| Comm Parameters |-----+
|
| Current: 2400,N,8,1,COM1      |
|
| Speed      Parity      Data |
| A: 300     J: None     Q: 7 |
| B: 1200    K: Even     R: 8 |
| C: 2400    L: Odd      |
| D: 4800    M: Mark     Stop |
| E: 9600    N: Space    |
| F: 19200   S: 1       |
| F: 38400   T: 2       |
| F: 57600   O: N-8-1   |
| F: 115200  P: E-7-1   |
|
| 1: COM1  3: COM3  5: COM5  7: COM7 |
| 2: COM2  4: COM4  6: COM6  8: COM8 |
|
| Choice, or <Enter> to exit?    |
+-----+

```

There are a number of parameters that can be changed. The baud rate is the speed that you want to communicate at (it should really be called bps rate, which stands for bits per second).

1200 baud and 2400 baud are the two most common speeds in use, and represent about 120 and 240 characters per second, respectively. Baud rates all the way up to 115200 are supported by Telex, however a fast PC is needed for the higher rates (a stock 4.77 MHz XT can handle 9600 and possibly 19200 baud, higher rates need an AT class computer). Parity is a form of error checking. Allowable parities are None, Even, and Odd. Data bits is the number of bits in each character. Allowable values are 7 and 8. Finally, the number of stop bits parameter

can be set to either 1 or 2. The most common format for BBS use is a baud rate of 1200 or 2400, 8 data bits, no parity, and 1 stop bit. On many large networks such as CompuServe, the data format used is E71.

The communications parameters menu also allows you to select the communications port you want to use. Note that by default only the first four comm ports are defined (the last four are duplicates of COM1).

Changing any parameters changes them only for the duration of the current communications session. If you want a set of parameters to be the default when you start Telix, use the Telix Configuration Menu.

2.4 Using Telix Menus

Whenever Telix must ask you to select an item from a group of options, it uses the same basic type of menu. The options will be arranged vertically for a vertically oriented menu, and next to each other for a horizontally oriented menu. There are two ways to select the item that you want. Each menu option has one of its letters in bold text; pressing that letter will select the corresponding option. As well, one option in the menu is always highlighted in inverse video. The arrow keys on the PC's keypad will move the highlight up and down or left and right. When the highlight is over the option you want to select, press Carriage Return.

2.5 Entering and Editing Strings

While using Telix, you will often have to enter a string of characters, for example a filename, or a list of numbers to dial. Telix gives you full editing powers when you enter a string. As you type characters, you may use the Backspace key to delete previously entered characters. The Left and Right arrow keys allow you to move back and forth in the string to edit what you have entered. By default, any characters you enter overwrite any that are already there. Pressing the Ins key will place Telix in insert mode, and any existing characters are pushed ahead as you type. Pressing Ins once more places you back in overwrite mode. Finally, pressing the Ctrl-Left and Ctrl-Right arrow keys allows you to move back and forth in the string by increments of a word.

2.6 Output String Translation

In quite a few instances while using Telix, the user must specify a string to be sent out over the modem port. Sometimes this string must contain characters which can not be printed on the screen, for example, control characters, and even pauses. There has to be a way of indicating these special

characters, and it is done through the use of special characters called translation characters. When these translation characters are encountered in an output string they are translated into other characters. The default translation characters are:

^ - when this character is encountered in an output string it will make the following character a control character. For example, ^A will send out the code for Control-A. A few common control characters are ^M, which is the Carriage Return character, ^J, which is the Line Feed character, and ^[, which is the Esc character. To send out the ^ character itself, use two ^'s, as explained above.

~ - when this character is encountered it will make Telix pause for 1/2 a second. There is no way to send the actual ~ character out. Two in a row will be converted to two pauses.

There is one thing to keep in mind. These characters are only translated on strings sent out to the modem, for example, the dialing prefix, the hang-up string, a keyboard macro, the modem initialization string, and a few other cases.

2.7 Ending a Telix Session

To exit the Telix program, press Alt-X. Telix will ask you if you really want to exit. Press 'Y' to confirm the exit, 'N' or Esc to return to Telix.

If Telix detects that you are still on-line (connected to another computer), it will also present a third option, 'Hang-Up'. If this option is selected, Telix will make sure that the connection is broken before exiting.

3. PROGRAM FEATURES

3.1 Hang-Up

Pressing Alt-H will make Telix attempt to hang-up the modem. Unless this is disabled in the configuration Menu, Telix first attempts to hang up the modem by turning off a signal on the RS-232 port called the DTR line. This works with most modems. If this doesn't work, Telix then sends the hang-up string defined in the Configuration Menu to the modem. If this still doesn't work and Telix detects that you are still online, Telix will warn you. If Telix is consistently telling you that hang-ups fail even when they work, your modem is almost certainly overriding the Carrier Detect signal. See the appendix on common problems for the solution to this.

3.2 Capture File

Telix allows you to capture (record) data coming in from the comm port and printed on the terminal screen, to a disk file. To open the capture file, press Alt-L. You will be prompted for the filename to save the log to. Press Return to use the default filename. All data is added to the end of the file if it exists already. To turn off the log press Alt-L again and select the "Close" option. To temporarily pause capturing data to the file, press Alt-L and select the "Pause" option. While capturing is paused, any characters received are not saved to the file. To then un-pause capturing, press Alt-L and select the "Unpause" option.

3.3 Printer

The printer may be toggled on and off by pressing Ctrl-@ to record information coming in from the comm port and printed on the terminal screen. If Telix hangs when printer logging is turned on, the printer is turned off, and should be turned on to proceed.

3.4 Usage Log

Telnet allows a usage log to be opened, which keeps track of calls you make and file that you transfer. This is handy for keeping a record of your long distance calls, for example. The Usage Log is toggled on and off with the Alt-U key. If it is currently closed, you are prompted for the name to open it to (TELNET.USE is the default). If it is currently opened, then it is closed. You may also set the Usage Log to be opened by default at Telnet start-up (via the Configuration Menu).

Following is a sample portion of a log:

```

88-05-17 00:12:41 Telix Usage Log Created.
88-05-29 00:12:41 Telix Usage Log Opened.
88-05-29 00:13:06 Connected with : TBoard
88-05-29 00:13:06 ++ At phone # : 123-4567
88-05-29 00:13:06 ++ Settings : 2400,N,8,1
88-05-29 00:14:53 Hangup command selected.
88-05-29 00:16:25 Connected with : Joe's BBS
88-05-29 00:16:25 ++ At phone # : 1-987-654-3210
88-05-29 00:16:25 ++ Settings : 2400,N,8,1
88-05-29 00:17:17 Download using Telink protocol.
88-05-29 00:17:19 ++ File : D:\DL\ZTC100.ARC
88-05-29 00:41:09 ++ Chars per second : 165
88-05-29 00:41:11 ++ File : D:\DL\SRC100.ARC
88-05-29 00:58:26 ++ Chars per second : 165
88-05-29 00:58:28 ++ File : D:\DL\OPT100.ARC
88-05-29 01:22:54 ++ Chars per second : 165
88-05-29 01:23:11 Hangup command selected.
88-05-29 01:23:12 Exiting Telix.
88-05-29 01:23:12 Telix Usage Log Closed.

```

The log is quite simple in form and easy to understand. Lines that start with '++' are a continuation of the previous line. Following is a listing of possible entries:

Key	Log Entry
----	-----
Alt-U	Telix Usage Log Created. Telix Usage Log Opened. Telix Usage Log Closed.
Alt-D	Connected with : (entry name) ++ At phone # : (phone number) ++ Settings : (comm settings)
Alt-R	Download using (name) protocol. ++ File : (pathname) ++ Chars per second : (CPS) ++ Transfer aborted.
Alt-S	Upload using (name) protocol. ++ File: (pathname) ++ Chars per second : (CPS) ++ Transfer aborted.

Alt-H Hangup command selected.

Alt-X Exiting Telix.

The entries on the right are related to the commands shown on the left. Note that a script file has the ability to stamp text into the Usage Log, so other entries are possible.

3.5 Scroll-Back

To review past screens of characters press Alt-B. You will be in the Scroll-Back display. You will be able to move through the last one thousand to 64 thousand characters received (depending on the setting in the Configuration Menu) by using the arrow keys to scroll line by line, the Home and End keys to go to the beginning and end of the buffer, and the PgUp and PgDn keys to scroll through the buffer a page at a time.

To find a certain string in the buffer press 'F'. Telix will prompt for the string to search for. If the string is found the line containing it will be placed at the top of the screen. To search for the same string as last time press Return when asked for the search string.

To save the screen image to a file press 'I'. Telix will prompt you for the file to save the image to. If the file already exists, the screen image will be appended to it. To print out a screen image to your printer press Shift-PrtSc.

3.6 Keyboard Definitions/Macros

Telix will let you assign text to a key so that it is sent to the comm port when that key is pressed. This is usually called a keyboard macro, and is useful in saving keystrokes (for example, you can assign your name to a key). Telix actually keeps two key definitions tables in memory at all times (each table holds the text assigned to each key), the user table and the terminal table. The terminal table is used for terminal emulation key assignments. When Telix is told to start emulating a certain terminal, it loads into this table definitions specific to that terminal. Therefore, for each terminal there is a key definition file which is loaded as needed. The user table on the other hand is relatively constant. You might want to assign your name to the Atl-1 key for example. This kind of definition would be put in the user table.

When a key is pressed, Telix follows this procedure: If there is a definition for that key in the terminal key table, send that text; otherwise if there is a definition in the user table for that key, send the text; otherwise if the key represents an ASCII value, send that value; otherwise if the key is a Telix command (like Atl-D), perform that command.

The keyboard definition/macro editor is entered with the Alt-K key sequence from terminal mode. Telix will ask you if you want to access the user or the terminal key definition table. Unless you wanted to modify the keys for a specific terminal, you would always select the user table. Telix will present the following menu:

Load Save Clear Display displayKey Edit eXit

To load definitions from a previously saved key definition file into memory, select the 'Load' option. Telix will ask for the name of the key definition file (and use the extension '.KEY' if none is specified). Current key assignments will be cleared. The standard key definition file is "TELIX.KEY" and is loaded at start-up if it exists.

To save the current key definitions to a disk file, select the 'Save' option. Telix will ask what file to save them to, and use the extension '.KEY' if none is specified.

Selecting 'Clear' will clear all the current key definitions in this table.

Selecting 'Display' will show what text is assigned to each key.

Selecting 'displayKey' will allow you to look at what is assigned to one specific key, by pressing it when prompted.

To actually enter or edit the text assigned to a key, select 'Edit'. Telix will print the existing definition and allow you to edit it. Enter the characters that you want the key to send when pressed. Control characters and pauses can be included in the definition in the manner described previously in the manual under Output String Translation. Remember that if you make any changes they will be lost when you exit Telix unless you use the 'Save' option as described above, to save them to disk.

Telix also allows you to run a script file when a certain function key is pressed. If a function key definition has an '@' character as its first character Telix will assume the rest of the definition is the name of a script file, and will try to execute it. For example pressing the function key whose definition is '@logon' would run the script file called 'logon.scr'. If you really want to send out an '@' character as the first character in the key definition, then use two of them instead. e.g., the definition '@@Hello' would send out '@Hello'.

3.7 DOS Shell

Pressing Alt-J will let you jump to a DOS shell. You will see the DOS prompt and will be able execute any DOS command, for

example 'dir'. If there is enough memory left, you can even run programs. To exit the DOS shell type 'exit' and press Return. You will be back in Telix with the screen undisturbed from before your jump to the shell. In order to run the DOS shell, there must be enough memory left, and Telix must be able to find the file called COMMAND.COM. If either of these requirements is not met, Telix will tell you so. (The file COMMAND.COM is the DOS command interpreter. It is usually pointed to by the DOS environment variable COMSPEC. See your

DOS manual for more information). If you run a serial port related program in the shell, there is a good chance that it will re-initialize the com port and another piece of information called the com interrupt vector. If this happens, Telix will notice and re-initialize the port to the old values when you return from the shell.

3.8 DOS Command

Pressing Alt-V allows you to enter one DOS command or filename to run. This command is then executed and control is returned to Telix. As can be seen this is similar to the DOS shell, but is useful when you have only one command to enter. There are many uses for this command. For example, if your file viewing utility is called 'List', you could press Alt-V and then enter 'List TELIX.DOC'. This would load your file view utility and let you look at the TELIX.DOC file. After you terminated this program you would be back in Telix. Any DOS command is legal, for example 'copy a:*.arc c:', or 'ren data dat1'. If for some reason you might want Telix to pause after the command is finished, add a ';' character to the end of the command string, for example 'type TELIX.DOC;'. This stops the last screen-full typed from scrolling by too quickly when control returns to Telix.

3.9 Editor

Pressing Alt-A will allow you to run your favorite editor from within Telix. In order to do this you must go to the Configuration Menu and supply the full name and path of your editor in the 'Filenames and paths' area. As well, there must be enough memory left, and if you specified a batch file to be run, Telix must be able to find the DOS command processor COMMAND.COM.

3.10 DOS and File Functions

Pressing Alt-F will display a menu of some common DOS operations. For convenience, a few commands available elsewhere have been included.

```

+-| DOS Functions |-----+
|                   |
| Jump to DOS shell |
| Files directory   |
| Change drive/directory |
| Delete file       |
| DOS command       |
| Run editor        |
| Exit              |
|                   |
+-----+

```

- 1: Jump to DOS Shell. This performs the same function as the Alt-J command.
- 2: Files directory. Telix will prompt you for the optional filespec, for example '*.doc'. If you want to list all the files in the current directory then just press Return. Telix will then do one of two things. If you have defined a directory program to use (in the Configuration Menu), Telix will run it. Otherwise Telix will use its own internal directory program, which is similar to the DOS 'dir' command but also displays the time it would take to transfer each file shown. The time is correct for the current default upload file transfer protocol.
- 3: Change drive/directory. The current directory is displayed and you are asked to enter a new one. You can enter a new drive, a new directory, or both. This will become the current directory. Note that this is slightly different from the DOS 'chdir' command.
- 4: Delete file. You are asked to enter the filename of the file to delete.
- 5: DOS command. This performs the same function as the Alt-V command.
- 6: Run editor. This performs the same function as the Alt-A command.

3.11 Screen Image

Pressing Alt-I saves an image of the screen to the Telix Screen Image file. This file is usually called TELIX.IMG, but

can be renamed in the Configuration Menu. If the file exists, the image is added to the end of it.

3.12 The Translate Table

Sometimes it is necessary for certain incoming or outgoing characters to be changed to another value or stripped altogether. For this purpose, Telix keeps in memory and incoming

and an outgoing character 'translate table'. For every character in the ASCII set, the table defines what it should be changed to. By default, no character translation is performed, as for each character, the new value is defined to be the same as the old one. The translate table facility is entered by pressing Alt-W while in terminal mode. Telix will ask whether you want to work with the incoming or outgoing table, and then display the translate table screen with the following menu at the bottom:

```
Load Clear Save Edit Other eXit
```

Most of the screen is used to display translation values. Each column holds on the left the original character (ASCII value), and on the right the new character. Only half the ASCII set can be displayed on one screen. Select the 'Other' option to toggle the display to show the other half of the character set.

The 'Load' option is used to load a previously saved translate table definition file. Telix will ask for the filename, including extension.

The 'Clear' option is used to reset all values in the translate table in memory, so that no translation is performed.

The 'Save' option is used to save the current translate table definition to a disk file. Telix will ask for the file name to save the table to. You must include the extension if needed (a common extension for this purpose is '.XLT').

The 'Edit' option is used to actually edit the translate table. Telix will ask for the old ASCII value, and the new one. If the new value of a character is defined as 0, that character is completely striped.

It is sometimes useful to have an incoming and/or outgoing translate table load automatically when Telix is run. If the file TELIXIN.XLT exists at Telix start-up, it is assumed to be a default incoming character translate table, and is loaded into that slot. Similarly, if the file TELIXOUT.XLT exists at start-up, it is assumed to be the default outgoing translate table, and loaded.

3.13 Chat Mode

Normally while using Telix with a remote host, your characters are not echoed by Telix. When you type a character, it is sent to the remote host, which checks it and then sends it back to you, and only then is it printed on your screen. However if two users want to chat with each other this becomes a problem, because each user's software expects the other side to echo the characters back, and since it doesn't, nothing is printed. Telix has a special Chat Mode to deal with this.

When you press Alt-Y Telix enters Chat Mode. Any characters you type are printed on your screen immediately, without having to be echoed by the other side. As well, it takes only a Carriage Return to advance to a new line, a Line Feed character is not needed immediately afterwards. Telix also splits the streams of text. Any characters you type are displayed on the bottom half of the screen, while the characters coming from the remote side are displayed on the top half of the screen. When you wish to exit Chat Mode, press the Esc key.

3.14 Clear Screen

To clear the screen press Alt-C. The screen will be cleared to the default colors, and the cursor will be placed in the upper left-hand corner.

3.15 Local Echo

Pressing Alt-E will toggle local echo on and off. If local echo is on, characters you type are printed on the screen. If local echo is off characters you type are not printed on the screen, they must be sent back to you by the remote host to be printed by the screen. Most hosts are set up so that local echo should be off; they will do the echoing. This is called a full duplex host. Often however when talking to another user, or when talking to a half duplex host, local echo must be turned on to see the characters you type.

3.16 Add Line Feeds

When a line of characters is received from a remote system, it is usually terminated by a Carriage Return followed by a Line Feed character. If the Line Feed character is missing lines will overwrite each other. If this seems to be happening when you are connected to a remote host then you must make Telix add Line Feeds to each incoming Carriage Return. Pressing Shift-Tab will toggle the adding of Line-Feed characters. If this option is on, every time a Carriage Return is received, a Line Feed is added immediately after it.

3.17 Break Signal

Some hosts require the use of a special modem signal called a Break signal, to do certain tasks like end transmissions. To make Telix send a Break signal to the remote host press Ctrl-End.

3.18 DOORWAY Mode

Pressing Alt-= while in Terminal Mode will toggle DOORWAY mode on/off. DOORWAY mode is used by the DOORWAY utility, and several other applications. While in DOORWAY mode, when a key is pressed Telix simply sends its raw scan code out the serial port, as returned by the PC's BIOS keyboard function. Note that since for any key except Alt=, Telix just sends the value to the serial port, you must first switch out of DOORWAY mode to perform any Telix function.

3.19 Miscellaneous Functions

Pressing Alt-M while in Terminal Mode will cause Telix to display the Misc. Functions menu

```

+ -| Misc. Functions |-----+
|                               |
| Send Modem Init string |     |
| Send Auto-Answer string |    |
| 80x25 screen           |     |
| 80x43 screen           |     |
| 80x50 screen           |     |
| eXit                   |     |
|                               |
+-----+

```

3.19.1 Sending Modem Strings

To re-send the Modem Init string defined in the Modem and dialing page of the configuration Menu, select the first option of the Misc. Functions Menu.

To send the Modem Auto-Answer string defined in the Modem and dialing page of the configuration Menu, select the second option of the Misc. Functions Menu. If this string is properly defined, the modem will be placed in auto-answer mode.

3.19.2 Setting the Screen Size

The third through fifth options of the Misc. Functions Menu deal with setting the screen size (height). These options are valid only on EGA and/or VGA systems. Note that a standard EGA system can switch only between 25 and 43 lines, and can not handle 50. Note that some VGA cards can switch only between 25 and 50 lines, and can not handle 43. Trying to use one of

these options on a system not equipped with an EGA or VGA video card is not allowed.

4. THE DIALING DIRECTORY

Telix allows you to keep telephone numbers in files called dialing directories. A dialing directory is variable sized and can hold from 1 to 1000 entries. Besides the number, many other fields of information are stored, such as the communications parameters needed to talk to the service. All the fields are described below. The default dialing directory file is called TELIX.FON, but you can have as many directories as you want and load them as needed.

To access the dialing directory press Alt-D while in terminal mode. A small window will appear, asking you to enter the entries to dial or to press Return to see the dialing directory. For the moment just press Return. This first window is simply a very quick way to dial your most commonly called numbers. Once you have pressed Return the dialing directory will appear.

4.1 The Display

Most of the screen is taken up by a window showing 15 (or more, depending on the screen mode) of the possible 1000 entries in the dialing directory. On the bottom of the screen is a menu of options, here shown on two lines so that it will fit:

```
Dial List Toggle Find Manual Redial Add Edit Clear  
Unmark Other eXit
```

This menu works in a similar manner to the other menus found in Telix, as described in the section 'Using Telix Menus'. In addition, since dialing is such a common function, if any numeric key is pressed, it is assumed that the 'List' function is wanted and this number is carried over as the first digit entered for that function. At the same time you may view the dialing directory. To scroll through the directory one entry at a time, use the Up and Down arrow keys. Use PgUp to go back one page, and PgDn to go forward one page. Press Home to go to the beginning of the directory, and End to go to the end of the directory. It should be emphasized that whenever the line 'Scroll with Up, Down, Home, End, PgUp, and PgDn' is displayed, you may scroll through the directory.

For each entry, many items are stored. All the fields can not be displayed at the same time; you may toggle which fields are shown on the screen by selecting the 'Toggle' command. Each entry contains information under the following headers:

Name: This is the name of the remote service (i.e., CompuServe, Genie, Telix Software Support BBS, etc.).

Number: This is the phone number which Telix should dial to reach the remote service.

Line Format: These are the communication parameters (such as baud rate, parity, etc.) needed to talk to this service.

Script: A script file may be linked to each entry in the dialing directory. When Telix connects to this service, that script file is then run, and may for example automatically log-on, entering your name and password as needed, for greater convenience and speed.

LastCall: This is the date of the last successful call you made to this remote service.

Total: This is the total number of successful calls you've made to this number.

Terminal: This is the terminal Telix should start emulating when a connection has been reached to this number.

P: This is the first letter of the protocol which should be set as the default if a connection is reached to this number.

E: This controls whether local echo should be on or off when a connection is reached with this number.

L: This controls whether the Add Line Feeds setting should be on or off when a connection is reached with this number.

H: This controls whether Telix will strip the high (most significant) bit of incoming characters in terminal mode.

BD: This controls whether a received backspace sequence is destructive (that is, if the character backspaced over should also be erased).

BK: This controls what value the Backspace key sends, either Backspace, or Del.

DP: This (advanced) setting is used to tell Telix what Dialing Prefix to use when dialing this entry. One use for it is to turn on or off MNP (error correcting) support in modems, to avoid delays when the number called does not support it anyway.

Password: This field may hold a password for the remote service represented by this entry. The password may be used by a script file to automatically perform a log-on operation. Please note that this field is not encrypted, so if security is a problem, do not store your passwords in the dialing directory!

4.2 Editing an Entry

To edit the currently highlighted dialing directory entry select 'Edit' from the dialing directory menu. A window will appear with the old contents of the entry. You may edit each field, starting with the first (name). To leave the contents of a field as-is, press Return. Pressing Esc one or more times will get you out of the edit window without any changes being made.

Once all the fields have been edited, Telix will ask you if the 'Last Call' and 'Total Calls' fields should be cleared. Answer yes or no as needed. Telix will then ask for confirmation before writing any changes to disk.

4.3 Adding Entries

To add a blank entry to the end of the dialing directory, select 'Add' from the dialing directory menu. A dialing directory may hold up to 1000 entries.

4.4 Clearing Entries

To clear an entry or a range of entries select 'Clear' from the dialing directory menu. Telix will ask you to select the range of entries to clear, by moving the highlight bar and pressing Enter. After confirming your choice, Telix will clear the selected entries back to empty entries.

4.5 Finding an Entry

To search for a particular entry in the dialing directory select 'Find' from the dialing directory menu. You will be asked to give the string to search for. If Telix finds the entry with that string in it, that entry will be highlighted. If while searching for the string Telix reaches the end of the directory, it will wrap around to the beginning and continue the search. If the string still can not be found Telix will say 'Sorry, string not found'. If you want to search for the same string as last time, just press Return when asked for the search string.

4.6 Dialing

Telix allows you to dial a group of dialing directory entries repeatedly until a connection is established, or you abort the attempt. Selecting the 'Dial' function from the dialing directory menu will make Telix commence dialing in sequence all the currently marked entries.

You may also dial a user-entered list of entries, by selecting the 'List' function from the dialing directory menu. Telix will ask you to enter up to 10 entries to dial in sequence (to make List dialing even more convenient, you may also select the 'List' function by pressing a numeric key while in the dialing directory menu; this number is then carried over and entered as the first digit in the string you are asked to enter). While you are entering the list of entries to dial you may also scroll through the directory as described above. If you specify more than one entry to dial, each should be separated by a space.

Sometimes you may want to dial a number that is not in the dialing directory. To do this select the 'Manual' option of the dialing directory menu, which stands for 'manual dial'. You will be asked to enter a number to be sent to the modem. Whatever you supply will be sent out exactly as is, except for Long Distance codes (see below), which are still valid.

4.6.1 Long Distance Codes

A Long Distance code is an advanced dialing option which adds some flexibility. There are four Long Distance code characters: !, @, \$, and +, which when encountered while dialing expand to user-defined strings (see section below on revising Long distance codes).

If Telix is dialing a number from a dialing directory entry, and one of the Long Distance code characters is encountered in the number, Telix will instead send whatever string has been assigned to that code. For example, a dialing directory entry could contain the phone number '!967-1111'. If the string '9,,' was assigned to the ! LD code character, Telix when dialing this entry would first send the 9 followed by the commas, and then send the rest of the digits.

LD codes may also be used with the 'List' dial function. When you place one of them in front of or behind an entry number to dial, it will be expanded to a string. For example you could have the exclamation sign '!', be expanded to '9,', or any string you specify. You may place up to 3 Long Distances codes in front and one Long Distance code after each entry number. For example, specifying the entry '+21!' would send the string for the '+' Long Distance code, followed by the number from entry 21, followed by the string for Long Distance code '!'. The string

'10 +15 20!'

entered at the prompt would dial entry 10, then entry 15 with a Long Distance code in front of it, and finally entry number 20, with a Long Distance code after it. These numbers are redialed repeatedly until a connection is reached. To learn about the redial window see the Redial function below.

4.7 Other Functions

Selecting 'Other' from the dialing directory menu will present a menu of secondary functions, dealing with the deletion or insertion of entries in the dialing directory, with revising Long Distance Codes, and with the handling of dialing directories (Telix allows you to have as many dialing directories as needed and switch among them at will).

4.7.1 Inserting Blank Entries

To insert blank entries in the dialing directory, select 'Insert' from the dialing directory 'Other' menu. Entries will be inserted at the current position of the highlight bar. Telix will ask how many entries to insert and will ask for confirmation before proceeding.

4.7.2 Deleting Entries

To delete an entry or a range of entries in the dialing directory select the 'Delete' option from the dialing directory 'Other' menu. The range to delete is selected by moving the highlight bar. After confirming your choice, the entries will be deleted and any following entries will move up to where the deleted entries were.

4.7.3 Revising Long Distance Codes

To revise the Long Distance codes, select the option called 'Edit_LD' from the dialing directory 'Other' menu. There are four Long Distance code characters: ! @ - +. As described in the section on dialing, when you place one of them in front of or behind a number to dial, it will be expanded to a string. After selecting this option you will be shown a menu of the available long distance codes. Selecting an LD Code will let you modify the text currently assigned to it. After you have made your changes, you must save them to disk with the 'Save changes' option, if you want to use them every time you run Telix.

4.7.4 Creating a Dialing Directory

To create a blank dialing directory (which can later be modified), select the option called 'Create' from the dialing directory screen's 'Other' menu. Telix will ask you for the name the new directory should use. Any legal DOS filename is suitable, and there is no default extension. Telix will then create the blank directory on disk. The current dialing directory is not be affected and will stay in memory.

4.7.5 Loading a Dialing directory

To load another dialing directory select the 'Load' option from the dialing directory screen's 'Other' menu. Telix will ask for the name of the new directory and then load it into memory. Telix does not assume any default extension, so if the directory you want to load has one, include it (e.g., TELIX.FON). The new directory becomes the default directory for the rest of the session or until you load another one.

4.7.6 Printing the Dialing directory

Selecting the 'Print' option from the dialing directory screen's 'Other' menu allows you to print out the current dialing directory, to the printer, the serial port, or any device or disk file. Telix will ask you for the device or file to print to. Enter the name or press Return to use the 'PRN' device (printer). Since these are DOS devices, Telix has no way of knowing, for example, things such as whether or not your printer is online. So if Telix seems to lock-up here, make sure your printer is on and it is set to online.

4.8 Automatic Queue Redial

When Telix has one or more numbers to dial, it redials repeatedly until a connection is made. To keep you informed of the status of the redial Telix displays a status window, and alerts you when a connection is established. The status window is similar to the figure below.

```

+-| Redial |-----+
|
| Redial started at 20:15:33   Press: T to change dial time |
| Attempt #10    20:19:27      D to delete from list |
|
| This attempt: Dialing My Favorite BBS ... 22          |
|   number: 967-1111                                     |
| Last Attempt: Busy                                     |
|
|   Press Space to cycle to next number, Esc to exit.   |
+-----+

```

Information included in the status window is the time redial was started, the time the current attempt was started, the

status of the last attempt, the status of the current attempt, and a countdown timer for the current attempt.

If you are dialing all the marked entries with the dialing directory 'Dial' command, when a connection is reached, the mark is taken off the entry connected to, so that when you later select the 'Dial' function again, only the remaining entries are dialed. If you are dialing a list of entries selected with the 'List' dialing directory command, when a connection is es-

established the entry connected to is taken out of the list, so that when you later select the 'Redial' command from the dialing directory or the Alt-Q command from terminal mode, only the remaining entries will be shown.

While redialing, you have the option of changing the time that Telix waits for a connection, and also the option of deleting a number from the list to dial, by pressing 'T' and 'D' respectively.

Normally, when a connection has been reached, Telix sounds an alarm to alert you of this. If a script file is linked to the entry however, the alarm is skipped so that the script may immediately proceed. It is thus the responsibility of the linked script to alert the user of the fact that a connection has been reached.

Pressing Alt-Q while in the terminal mode or selecting 'Redial last' from the dialing directory menu will allow you to redial one or more numbers that you entered previously using the 'List' command, so that you do not have to re-enter them. You will be shown the list and asked to edit it until you are satisfied, and then to press Return.

4.9 The Quick Dial Bar

You may have noticed that after you press Alt-D an inverse bar is displayed on the bottom of the screen, asking you to select the entries to dial or press Return to see the Dialing directory. Up to now, you have just pressed Return to go on to the Dialing Directory, but this bar is a quick way to dial commonly called directory entries whose numbers you have memorized. You may enter a list of entries to dial just as if you had used the 'List' command of the dialing directory menu. This saves the dialing directory from having to be displayed on the screen if you already know the entry or entries you want to dial. The Quick Dial Bar can also be used to dial a number manually. To do this just preface the number with an 'm'. For example, 'm967-1111' would dial 967-1111, just as if you had used the 'Manual' dial option of the Dialing Directory. Either lowercase or uppercase 'm' is accepted. The use of the Quick Dial Bar may be disabled via the Configuration Menu.

5. FILE TRANSFERS

Sending files from one computer to another is one of the most useful things you can do with your modem. Telix supports a full assortment of the most popular file transfer protocols, including Xmodem, Xmodem-1k, Xmodem-1k-g, Zmodem, Compuserve Quick B, Kermit, Ymodem, Ymodem-g, SEALink, Telink, Modem7, and ASCII. Telix's file transfers are very fast, surpassing most programs in speed by a respectable margin. All file transfers use a 10 Kbyte buffer, and full error detection is standard.

Telix allows you to define up to four external protocols, which are completely integrated into the file transfer menus. When you select one of these protocols, Telix executes a DOS batch file or Telix script file, which must then call the appropriate external driver for the protocol. In this way, you may add virtually any file transfer protocol to Telix. Adding external protocols is defined in the section on the Configuration Menu.

5.1 Downloading (Receiving) Files

To start downloading (receiving) a file from a remote host, you must usually inform the remote host of the files that you want it to send to you. You must then start the download on the Telix side. Pressing the Alt-R key will display a menu asking which file transfer protocol you would like to use:

```
+ - | Download file | - +
|
| Which Protocol? |
|
| ASCII           |
| CIS Quick B    |
| Kermit          |
| Modem7          |
| SEALink         |
| Telink          |
| Xmodem          |
| 1k-Xmodem      |
| G-1k-Xmodem    |
```

```
| Ymodem (Batch) |  
| YmodEm-g      |  
| Zmodem        |  
| Quit          |  
|               |  
+-----+
```

If any external protocols are defined, they are also shown as part of the menu.

If you have selected Xmodem, Xmodem-1k, Xmodem-1k-g, or ASCII, as the protocol, Telix will ask you for the filename to save the file to. Telix always watches what you type while online, and will often know the name of the file you want to transfer, in which case this name will be displayed and all you have to do to accept it is press Return. Any legal DOS filename is valid, including a path. If the filename you supply already exists, Telix will ask you to confirm your choice or give another filename. If you select any other protocol, the remote sender of the file will supply the name to save the file to. If you have entered a download directory name in the Configuration Menu, Telix will automatically save download files there if you don't specify another path. Telix has automatic incoming file protection. If the name is supplied by the host and exists already the file is renamed by using numerals in the extension, as needed.

During the transfer, a full status window is displayed showing the elapsed time, the number of bytes received, and an approximate Character Per Second rating, which can give an idea of the effective speed of the transfer. Batch protocols will also display the expected file size and file transfer time. For ASCII transfers, a status window is not displayed, only a single status line at the top of the screen. To abort a file transfer at any time press the Escape key.

5.2 Uploading (Sending) Files

To start uploading (sending) a file to a remote host you must also usually inform the host of the file you will be sending it. To start the upload on the Telix end press the Alt-S key. This will display a menu asking you which file transfer protocol you want to use to send the file. After you have selected the protocol, you will be asked for the file(s) to send. You may use the wildcard characters ? and * (see your DOS manual, for more information about wildcard characters). During the file transfer, a full status window is displayed, unless you are using ASCII protocol, in which case only a status line is displayed. Information shown is the expected time the transfer will take, the time remaining, the number of bytes to send, the number of bytes left, and an approximate Character Per Second rating, which can give an idea of the effective speed of the transfer. To abort a transfer at any time press the Escape key.

5.3 File Transfer Protocols

Xmodem - This is the most popular protocol in use today, but it is slowly being replaced by quicker and more reliable protocols. Xmodem sends files in blocks of 128 characters at a time. When the receiving computer is satisfied that the block has arrived intact, it signals so and waits for the next block. Error checking is a checksum or a more sophisticated

Cyclic Redundancy Check. Telix supports both and will automatically use the right one. During a download, Telix will attempt to use the CRC, but will switch to checksum if it seems the host does not support CRC. The Xmodem protocol also needs a setup of no parity, 8 data bits, and 1 stop bit. If your communications parameters are different from these when you start an Xmodem transfer, Telix will switch to the required setup for the transfer, and back to the original setup after it is finished. In the Configuration Menu, you may enable Relaxed Xmodem timing. This is for use with remote services that can not tolerate strict timing during Xmodem transfers.

Xmodem-1k - This is a small variation of the above that uses blocks that are 1 Kilobyte (1024 bytes) in size. This protocol is still mistakenly called 'Ymodem' by many programs, but people are gradually moving over to the proper name.

Xmodem-1k-g - This is a variation of the above that is meant for error-free channels such as error correcting modems or null modem cable links between two computers. It achieves great speed by sending blocks one after another without waiting for acknowledgement from the receiver. Because of this however, it can not re-send blocks in case of errors (and thus the need for an error-free link). If an error is detected by the receiver, the transfer is aborted. This protocol is still mistakenly called 'Ymodem-g' by many programs, but people are gradually moving over to the proper name.

CompuServe Quick B - This protocol is used only on the CompuServe Information Service. It is quite fast and specially suited for the networks used in accessing CIS, which have large turnaround delays. This is a windowed protocol, which basically means that unless errors are detected, data is being sent at all times. A CIS Quick B transfer is totally controlled by CompuServe. After telling CIS what file(s) to send, the user does nothing. Telix, in terminal mode, then detects the command from CIS which tells it to start the transfer (note that CIS Quick B transfer must be enabled in the Configuration Menu, or they will not work).

Zmodem - This advanced protocol is very fast and incredibly reliable, and offers many features. Zmodem can transfer a group of files in one batch, and keeps the exact file sizes and dates. Zmodem can detect and recover from errors quickly, and can resume an interrupted transfer at a later time (this feature, called Crash Recovery, may be toggled in the

'Protocol options' page of the Configuration Menu). Zmodem is also very well suited for satellite links and packet switched networks.

SEAlink - SEAlink is an advanced version of Xmodem developed by System Enhancement Associates. It is a sliding window protocol SEAlink is 15 to 25 percent faster than regular Xmodem. SEAlink passes a file's name, size, and date when transferring it, and can be used to send more than one file at a time.

ASCII - in an ASCII transfer, it is as if the sender is actually typing the characters and the receiver is just recording them. There is no form of error detection used. Usually only ASCII files can be sent in this way, as binary files contain characters which would foul-up the screen.

Ymodem - This protocol is a variation on Xmodem, which allows for multiple files to be sent per transfer. While transferring files, it keeps the correct name, size, and date, and may use 128 or 1024 byte block sizes.

Ymodem-g - This protocol is a variation on the above, which achieves very high transfer rates by sending blocks one after another without waiting for acknowledgement. This however means that an error-free link such as an error-correcting modem or null modem cable between two computers is needed. If an error is detected by the receiver, the transfer is aborted.

Telink - This protocol is mainly found on Fido bbs systems. It is basically the Xmodem protocol using CRC checking with an extra block sent ahead of the file telling its name, size, and date. This protocol allows more than one file to be sent at a time.

Modem7 - Modem7 is a close cousin to Xmodem that passes the filename before starting the transfer, thus taking away some of the user's work. It is common on CP/M systems. This protocol allows more than one file to be sent at a time.

Kermit - The Kermit protocol; was developed to make it easier for computers of different types to send files to each other. Almost any computer using Kermit can be set up to send files to another computer using Kermit (the same can be said of Zmodem however). Various options in the Kermit protocol implemented in Telix can be tailored to the user's needs in the Configuration Menu, option 'Kermit transfers'.

5.4 Which One to Use

Telix supports a large number of built in file transfer protocols. To this can be added external protocols. It can get confusing to decide which one to use. When both sides of the connection only support one protocol, then obviously that is the one to use, no matter what its deficiencies. Otherwise some protocols are a better choice than others. On CompuServe, CIS

Quick B should be used. For most purposes, Zmodem is the best all around protocol. It is very fast and very reliable. Ymodem-g and Xmodem-1k-g are slightly faster. However these two protocols need an error-free link. After that, Ymodem, SEALink, and Xmodem-1k are quite fast and pretty reliable. The last choice would be Xmodem and its close cousins Telink and Modem7. ASCII transfers are suitable only for text files and do not perform any error detection or correction, so they are to be avoided if possible.

6. THE TELIX CONFIGURATION MENU

Telix has many features which can be customized. These include things like the screen setup, the communications parameters, and many other items. The default values for these parameters are stored in a file called TELIX.CNF, the configuration file. Telix will automatically read this file upon starting up. The first time you use Telix, this file is created for you with some standard default values. Pressing Alt-O while in terminal mode brings up the Telix Configuration Menu, which allows you to change all these default settings.

```
+ -| Configure Telix |-----+
|
| Change which default settings? |
|
|   Screen and color           |
|   Terminal Options          |
|   General settings           |
|   Modem and dialing         |
|   Filenames and paths       |
|   ASCII transfers            |
|   Protocol options           |
|   Kermit transfers           |
|   Comm port setup           |
|   Write changes to disk     |
|   Exit                       |
|
+-----+
```

The first seven options are parameter areas, the last two deal with leaving the Configuration Menu.

6.1 Screen and Color Settings

The first item of the Configuration Menu allows you to set the screen and colors default settings. After picking this option you will be shown a menu listing the various parts of the screen displays (e.g., menu foreground colors). If you pick one of these items you will be allowed to scroll through the possible colors for it by using the arrow keys. When you have selected the right colors, press Return. If you want to leave

the colors menu without selecting one press Esc.

Another setting on the 'Screen and colors' menu is the 'Screen write mode'. If you pick this option you will be asked in which way you want Telix to write to the screen. This depends on the video adapter present in your system. The first option is a direct screen write. This is the fastest mode, and should be used if you have a monochrome adapter, an EGA adapter, or another video adapter that never gets snow. The second option

is a direct screen write with port checks. This method is slightly slower. You should use this method if your screen gets snow on it or it flickers while executing the DOS 'dir' command. One card with which you should use this is the color/graphics adapter. Don't use this option if your video card doesn't need it, as it may interfere with communications. The final method is a screen write with BIOS calls. You should use this method with applications like Topview or DoubleDOS. This method is quite slow however. Note that you do not need this mode to run Telix under DESQview, since Telix is DV aware.

Another setting on this menu is 'Default screen size'. This allows you to pick an alternate default screen size of 80x43 or 80x50. Note that these modes require an EGA or VGA card. Note also that many EGA cards can not do 80x50, and some VGA cards can not do 80x43.

When you have finished picking the colors, select the 'Keep changes & exit' option if you want to keep the color changes you have made, or the 'exit' option if you want to discard them.

6.2 Terminal Options

Selecting the second option of the Configuration Menu shows a screen of settings related to Telix operation while in terminal mode (with some extending to other areas of Telix). To select a setting to change type the letter beside it. Telix will then allow you to change the old setting. Press Esc at this point to exit without changing anything. Options include:

- A: The default communications parameters. These include baud, data bits, parity, and stop bits. Note that this will not change the current settings, only the defaults the next time you run Telix.
- B: The default communications port. This can be COM1 through COM8. Note that this will not change the current port, only the port used the next time you run Telix.
- C: The terminal Telix emulates by default. Allowable terminals are "TTY", "ANSI-BBS", "VT102", "VT52", and "AVATAR". Note that this will not change the current

port, only the port used the next time you run Telix.

D: The Status Line. Telix allows a status line to be displayed at the bottom or top of the screen. The status line shows some useful information. This option controls whether Telix displays the status line at the bottom or top of the screen, or not at all.

- E: Local echo on/off. This controls whether or not Telix should echo on the screen any characters you type while in Terminal mode. This is usually off for BBS use. Local echo on is often also called Half Duplex, while local echo off is called Full Duplex.
- F: Add line feeds on/off. This controls whether or not Telix should add line feeds to incoming Carriage Returns characters while in terminal mode. If you are connected to a remote system and lines are overwriting each other, this should be on, otherwise it should be off.
- G: Strip high bit on/off. Telix can strip the high (most significant) bit from incoming data bytes while in terminal mode. This is sometimes useful because it allows the high/parity bit of incoming text to be ignored.
- H: Received backspace destructive on/off. This setting controls how Telix treats incoming backspace characters. If backspace characters are destructive, Telix backs up over the previous character and erases it, otherwise the existing character is not erased.
- I: Backspace key sends. Normally, Telix sends Backspace when the Backspace key is pressed, and DEL when Ctrl-Backspace is pressed. This option allows these settings to be swapped.
- J: XON/XOFF software flow control on/off. This controls whether or not Telix should use the XON/XOFF software handshaking protocol while in terminal mode and during ASCII file transfers. This should usually be on.
- K: CTS/RTS hardware handshaking on/off. Hardware handshaking is used with high speed modems and null modem cable links to regulate the flow of data. If the modem supports Hardware handshaking this should be on. If a null modem cable is being used and these signals are valid over the cable, this should be on.
- L: DSR/DTR hardware handshaking on/off. Hardware handshaking is used with high speed null modem cable links to regulate the flow of data. If a null modem cable is being used and these signals are valid over the cable, this should be on. Often a null modem cable will allow

one type of hardware handshaking to be used, but not the other.

M: Compuserve Quick B transfers on/off. Compuserve Quick B transfers are initiated by Compuserve, which sends a special character. Telix, upon detecting this character while in terminal mode, starts the transfer. This option allows this recognition to be disabled.

N: Zmodem auto-downloads on/off. Telix, while in Terminal Mode, can detect the packet from another computer sending files using the Zmodem protocol, and automatically begin a Zmodem download on the local end. This option allows this feature to be disabled.

O: Answerback string. Some systems require that the terminal program send an identification string when an ENQ (Ctrl-E) character is received. You may define such an 'answerback' string here. If this string is empty, nothing is sent. As well, note that the answerback string is not sent if Compuserve Quick B transfers are enabled (above), as Ctrl-E is used as part of that protocol.

6.3 General Settings

The third option of the Configuration Menu allows you to change some general default settings. They are:

A: Sound (on/off). If this is off Telix will not make ANY sounds.

B: Alarm sound (on/off). If this is off Telix will not make ANY alarm sounds, but will still beep when it receives the bell code from the remote host, unless the sound option is also off.

C: Keep aborted downloads (on/off). If this is on, Telix will keep files which were aborted during a download. Otherwise Telix will delete these files.

D: Show free space for downloads (on/off). This setting controls whether or not Telix will display the free space on the disk when you start a download. The option to turn it off is provided because the free space display takes a few seconds for large hard disks.

E: Use of Quick Dial Bar (on/off). When you press Alt-D to access the dialing directory, Telix normally first displays the Quick Dial Bar at the bottom of the screen, which allows you dial entries without having to view the dialing directory. If you would rather go directly to the dialing directory when you press Alt-D, set this option to Off.

F: Confirm Hang-up (on/off). Setting this option to on will make Telix ask for confirmation before hanging up, when Alt-H is pressed.

G: Usage Log on by default (on/off). If this option is set to on, Telix will open the standard Usage Log "TELIX.USE" at program start up. Otherwise the usage log must be manual turned on if needed.

- H: Scroll-Back buffer size. This setting controls the size of the Telix Scroll-Back buffer (in kilobytes). For changes to this setting to take effect you must save the changes to disk and restart Telix.
- I: Capture file buffer size. This is the size of the disk buffer that Telix should use for the Capture file when it is opened. Values from 0 to 4 Kilobytes are allowed. A larger buffer size means the disk is accessed less often.
- J: Date format. This is the format that Telix should use when displaying dates. Allowed formats are MMDDYY, DDM-MYY, and YMMDD.
- K: Date separator character. This is the character that Telix will print between parts of the date when displaying a date. The default character is the hyphen (-).
- L: Time format. This is the format that telix should use when displaying times. Allowed formats are 12-hour and 24-hour.
- M: Time separator character. This is the character that Telix will print between parts of the time when displaying a time. The default character is the colon (:).
- N: Enhanced keyboard support. This option allows you to turn off Telix's support for the enhanced (101) keyboard. This should normally be left on, unless there seems to be a keyboard problem.
- O: Shell: 16550 buffer on. This option allows you to specify whether the buffer on the 16550a comm chip should be left on or off during a DOS shell. If it is installed in your PC, Telix normally recognizes and enables the buffer on this chip at all times, for greater efficiency, but there are still a few comm application that users might want to run from the shell which can not handle the chip with the buffer turned on.

6.4 Modem and Dialing settings

Selecting the fourth option of the Configuration Menu shows a screen-full of default settings that Telix uses to control the

modem and its output. The default configuration that Telix comes with is set up for Hayes compatible modems. These modems use the 'AT' command set. By changing these settings Telix can work with almost any modem. The parameters are:

A: Modem initialization string. This string will be sent to the modem when Telix first starts. Different modems might need different strings. The default string is set up for Hayes compatible modems. It is:

'ATZ^M~~~AT S7=45 S0=0 V1 X1^M where:

AT is the modem attention code.

Z resets the modem to default state

^M sends the terminating Carriage Return character to the modem.

~~~ pauses to give the modem time

AT is the modem attention code.

S7=45 makes the modem wait 45 seconds for a connection.

S0=0 turns off auto answer.

V1 makes the modem respond with words.

X1 makes the modem give extended result codes. It is important that if your modem supports a higher 'X' value, you use that instead. For example, on a Hayes 2400, 'X4' enables BUSY signal detection.

^M sends the terminating Carriage Return character to the modem.

B: Dialing prefix 1. A Dialing prefix is what Telix sends to the modem when dialing, before the number, for example, 'ATDT' for Hayes compatible modems. There are three dialing prefixes allowed, and in the dialing directory you may chose which one to use for each entry. One use for this is if your modem support MNP, to define two prefixes which turn MNP support on and off, thus avoiding the delay when you call a system that doesn't support MNP.

C: Dialing prefix 2:

D: Dialing prefix 3.

E: Dialing postfix. This is the string Telix should send after the number when dialing. On Hayes compatible modems this is just a Carriage Return character, '^M'.

F: Connect string. This is the string which the modem sends upon getting a connection. e.g., 'CONNECT'

G: No connect strings. These are up to four strings which

the modem sends when it has failed to make a connection while dialing, for example 'NO CARRIER', 'BUSY', etc.

H: Hang-up string. This is the string Telex should send to the modem to make it hang up. The default string works for Hayes compatible modems and is:

'~~~+++~~~ATH0^M'     where

~~~ pauses Telix for 1 1/2 secs.  
+++ escapes the modem into command mode.
~~~ pauses Telix for 1 1/2 secs.

AT is the modem attention code.  
H0 tells the modem to hang up.  
^M sends the terminating Carriage Return character to the modem.

Before sending this string to the modem Telix always tries to hang-up the modem by a faster way that works with MOST modems. This is done by dropping (turning off) a special signal called the DTR (Data Terminal Ready) line on the RS-232 port. If dropping the DTR makes the modem hang-up then the hang-up string is not sent to the modem.

- I: Auto Answer string. This is the string that Telix should send to the modem upon entering Host Mode. This string should allow the modem to automatically pick up the phone when it rings, and initialize it in any other ways that might be necessary.
- J: Dial cancel string. This is the string Telix should send to the modem to cancel the current dialing attempt. On most modems all that is necessary is a Carriage Return character, "^M".
- K: Dial time. This is the amount of time Telix should wait for a connection while dialing. This should usually be set to be greater than the amount of time the modem waits for the connection.
- L: Redial pause;. This is the number of seconds Telix should wait between attempts while redialing.
- M: Auto baud detect (on/off). If this option is on and Telix dials a number, it will check the modem connect message for a baud rate indication. If the baud is different than was specified for the entry being dialed, Telix switches to the new baud rate. This option only works with Hayes compatible modems. This option must not be enabled when you have told the modem to maintain a constant or locked baud rate between the computer and the modem, as is often done with high-speed, error correcting modems, or modems supporting MNP (e.g. USR HST,

Hayes V-Series, etc.).

## 6.5 Filenames and Path Settings

The fifth option of the Configuration Menu allows you to change several filename and pathname defaults. They are:



- A: Download directory. This is the disk directory in which Telix should save files which are downloaded (received). The user can override this by giving a full pathname when prompted.
- B: Upload directory. This is the disk directory where Telix should look for files to be uploaded. The user can override this by giving a full filename when prompted.
- C: Script directory. This is the directory in which Telix should look for script files when trying to execute them. The user can override this by using a full pathname in front of the filename when specifying it.
- D: Default Capture file. This is the default name Telix should use when opening the capture file. The user can override this.
- E: Default Usage Log. This is default name Telix should use when opening the Usage Log. The user can override this.
- F: Directory program. This is the name of the disk directory program the Telix should run when you select the 'Files directory' command. If you do not specify a program here Telix will use an internal routine that also displays the amount of time it will take to transfer each file in the directory. An example of a program you could specify here is 'dir/p', which would use the DOS dir command with pauses at each page full, to display the directory.
- G: Screen Image file. This is the file that Telix should save screen images (generated with the Alt-I command) to. the default name is TELIX.MSG.
- H: Editor name. This should be name of your editor, including the extension of the name (EXE, COM, or .BAT for batch files), for example "c:\editor.com". The indicated file must either be in the current directory, in a directory included in the DOS Path, or the name must include the full path. You need to set this parameter only if you want to run your editor using the Alt-A, Run Editor command.

## 6.6 ASCII Transfers

The sixth option of the Configuration Menu allows you to customize Telix ASCII file transfers to your needs, so that Telix may work with almost any system. The options are:

A: Strip high bit during transfers (on/off). If this parameter is on, the high (most significant) bit of each

character sent for uploads, or received for downloads, is stripped. This can be used to ignore parity. On the other hand, the upper 128 characters in the IBM extended ASCII character set are then converted to the lower value.

- B: Remote abort character. This is the character which when received during an ASCII upload or download, is taken to mean that the remote end is wants to abort the transfer. One possible value might be 24 (Ctrl-X).
- C: Local echo. If this is on, Telix will echo characters locally while uploading. This should normally be off.
- D: Expand blank lines. If this is on, when Telix is sending a file and it encounters a blank line, it will add a space to that line. This is very useful for systems that assume a blank line means "end of file", or for uploading a message on most bulletin boards.
- E: Pace character. This is the ASCII value of the character that Telix should wait for before sending each line. If this value is 0, Telix will not wait for any character.
- F: Line Pacing. This is the amount of time (in 1/10 seconds), that Telix should wait before sending each line. This delay is often not necessary, but for some bbs's for example, it's vital.
- G: Character pacing. This is the time delay (in milliseconds) that Telix should wait between each character. As the PC's hardware clock does not have enough resolution, this is a software loop based delay. Therefore, a value of 1 here will delay a 4.77 MHz XT approximately 1 millisecond, and faster PCs for a proportionally smaller time period.
- H: Upload CR translation. This is what Telix should do with Carriage Return chars when uploading ASCII files. The three options are to do nothing, to strip them, or to add a Line Feed character afterwards.
- I: Upload LF translation. This is what Telix should do with Line Feed characters when uploading ASCII files. The three options are to do nothing, to strip them, or

to add a Carriage Return before each.

J: Download CR translation. This is exactly the same as setting E (above), but applies when downloading ASCII files.

K: Download LF translation. This is exactly the same as setting F (above), but applies when downloading ASCII files.

## 6.7 Protocol options

The seventh item of the configuration Menu allows you to configure external protocols, as well as a couple of other settings.

An external protocol is simply a file transfer protocol that is implemented outside of Telix. You specify the name of the protocol, the key used to select it on the file transfer menu, and define how it is to be called. Items 'A' through 'D' are the definitions for the four external protocols allowed. When you select a definition to edit, Telix will ask a series of questions:

**Key:** This is the key that should be pressed to select this protocol when the file transfer menu is displayed.

**Protocol Name:** This is the name Telix will display on the file transfer menu for this protocol.

**Upload Filename:** This is the name of the DOS batch file or Telix script file to call when the user selects an upload using this protocol.

**Download filename:** This is the name of the DOS batch file or Telix script file to call when the user selects a download using this protocol.

**BAT or Script:** This controls whether the above two filenames are DOS batch files or Telix script files.

**DL Name:** This option controls whether or not Telix should ask for the name of the file when performing a download using this protocol. In many protocols, the sender passes the name of the file(s) to the receiver, so Telix shouldn't ask for the download name.

See the Appendix titled 'External Protocols' for information about what information is passed to the batch or script files when an external transfer is selected.

Other settings on this page are:

**E: File xfer disk buf. size** This option allows you to set the size of the disk buffer used by telix during file

transfers from 1k to 10k (kilobytes) in size. A larger value is more efficient with floppy disk systems, while a smaller value can get around problems with disk controllers or Extended memory use on some hard-disk systems.

F: Relaxed Xmodem timing. This option controls whether or not Telix should use relaxed timing when performing an Xmodem transfer. When calling some services, this op-

tion must be turned on because they can not tolerate strict timing.

- G: Filename guessing. This option controls Telix's use of filename guessing. When you selected a file transfer to be performed, telix can often guess the name of the file to be transferred, based on your past keystrokes. This option may be turned off here. As well, you may specify that Telix gives only guesses which it is almost certain are filenames, or gives its 'Best try', which may include guesses with extra characters which are not necessarily part of the filename.
- H: Zmodem receive crash recovery. When an aborted Zmodem transfer must be resumed, this option should be turned on. While this option is on, if a file being downloaded using Zmodem already exists on the disk (and is shorter than the file the sender has), Telix will tell the sender to send only the bytes needed to complete the file. This option should be used with care. The possibility exists that a file with the same name but different contents exists on each system, in which case you do not want only some of the data transferred.
- I: Zmodem send crash recovery. When this option is on, during a Zmodem upload of files, Telix will try to tell the sender to resume aborted transfers. This option should be used with care, as some systems do not support crash recovery, and will behave unpredictably.
- J: Allow Zmodem 32 bit CRCs. Real speed freaks may turn off the use of 32 bit CRC error checking (still quite reliable 16 bit CRCs are used instead), to get on the order of a quarter to a half of a percent speed increase in Zmodem transfers.
- K: Zmodem window size. Zmodem normally sends data in streaming mode, never pausing unless the other side requests a resend due to an error being detected. In some environments, a pause for acknowledgments can be more efficient. The window size (in kilobytes) is the maximum amount of data the protocol should send before waiting for a reply. A value of 0 indicates streaming mode should be used.
- L: Zmodem file type. This option allows you to specify

whether the file being transferred with the Zmodem protocol is 'Binary', 'ASCII', or 'Either'. Binary means that Telix will make sure no end-of-line conversion is done on files received or sent. ASCII means that on a download, as long as the other side doesn't override this, Telix will assume the file being received is a text file and will make sure the end of each line has a Carriage Return followed by a Line Feed, by adding the CR if the file has only LFs at the



end of each line. An ASCII setting when sending will make Telix tell the other system to do end-of-line conversion, although the other system may override this. Finally, a setting of Either (the default), will make Telix assume the file is binary, unless the other system indicates otherwise. DO NOT use a setting of 'ASCII' for file that are not ASCII text files, as binary files will be corrupted by this option.

## 6.8 Kermit Transfers

The eighth option of the Configuration Menu allows you to configure Telix's implementation of the Kermit protocol to your needs. The options will not be described here, due to the fact that the Kermit protocol is relatively complicated, and if you must change one of these parameters, you should already know what it means.

## 6.9 Comm port setup

The ninth option of the Configuration Menu allows you to configure/define the communications ports. Telix supports definitions for 8 comm ports. By default, the first four comm ports are defined to the standards for COM1 through COM4. The last four comm ports are by default duplicates of COM1. For each port you may define the base address (in hexadecimal) of that port, as well as the interrupt request number (irq) to use. Unless you are absolutely sure about your information, do not play around with these values! Wrong values could cause unexpected and possibly disruptive results.

## 6.10 Saving Changes and Leaving

Once you have picked your default options you can save them to the configuration file by selecting the option 'Write setup to disk'. If you want to keep any changes just for the current session, then exit the Configuration Menu using the option 'Exit'.

## 7. TERMINAL EMULATION

A video display terminal is basically a relatively dumb computer which is linked up to another computer (over a cable or modem link) and displays what that computer sends to it. A mainframe or mini computer has a large amount of processing power and can drive a number of terminals at the same time.

There are many different terminal types. Each one follows its own codes for controlling how information is displayed on the screen. For example, there are sequences to clear the screen, move the cursor, scroll the display, and so on. Most terminals also have special keys which send special sequences back to the main computer.

Telix can emulate several terminals. While in terminal mode, you may change the terminal type Telix is currently emulating by pressing Alt-T. The default terminal can also be set in the 'Terminal settings' page of the Configuration Menu. Following are the choices Telix offers:

### 7.1 TTY

A TTY (Teletype) terminal is very stupid. It basically displays all the values it receives, except for about 5 or 6 Control codes (such as Carriage Return), which move the cursor and ring the bell. Telix does not have any special key definitions for this terminal type.

### 7.2 ANSI-BBS

This is a subset of the real ANSI terminal type defined by the American National Standards Institute. Many BBS programs, when told to do so, can send sequences supported by this terminal to make screen display more interesting and colorful.

The ANSI.KEY file contains definitions for the arrow keys, and is automatically read when this terminal is selected. These definitions are supported by some full screen editors, for example.

### 7.3 VT102

The DEC VT102 terminal is one of the most popular (and most emulated) terminals in existence. It was developed by Digital Equipment Corporation. The VT102 terminal has a large number of functions. Telix supports all of these except for 132 column mode and double height mode. As well, Telix only emulates double width mode, by adding a space after every character.

Telix fully supports both normal and application cursor mode in VT emulation. The VT102 keyboard layout used by Telix is stored in the VT102.KEY file, which is automatically read by Telix when VT102 terminal emulation is selected. Once Telix has loaded this into memory, the definitions can be edited through the use of the Alt-K (Keyboard/macros) function. The default layout is one used by many comm programs, in which the normal function keys (F1-F10) represent the left side of the VT's numeric keypad, while the shifted function keys (Shift-F1 - Shift-F10) represent the right side, as follows:

| Telix function Keys         | DEC VT102 Keypad            |
|-----------------------------|-----------------------------|
| F1 - F10    SF1 - SF10      |                             |
| +----+ +----+ +----+ +----+ | +----+ +----+ +----+ +----+ |
| PF1    PF2    PF3    PF4    | PF1    PF2    PF3    PF4    |
| +----+ +----+ +----+ +----+ | +----+ +----+ +----+ +----+ |
| +----+ +----+ +----+ +----+ | +----+ +----+ +----+ +----+ |
| 7    8     9    -           | 7    8    9    -            |
| +----+ +----+ +----+ +----+ | +----+ +----+ +----+ +----+ |
| +----+ +----+ +----+ +----+ | +----+ +----+ +----+ +----+ |
| 4    5     6    ,           | 4    5    6    ,            |
| +----+ +----+ +----+ +----+ | +----+ +----+ +----+ +----+ |
| +----+ +----+ +----+ +----+ | +----+ +----+ +----+ +----+ |
| 1    2     3    E           | 1    2    3    E            |
| +----+ +----+ +----+   N    | +----+ +----+ +----+   N    |
| +-----+ +----+   T          | +-----+ +----+   T          |
| 0     .    R                | 0    .    R                 |
| +-----+ +----+ +----+       | +-----+ +----+ +----+       |

The arrow keys are also defined to send the proper sequences.

There is also an alternate VT102 keyboard layout available, which may be more suitable to some users, and is much more useful on newer (101) enhanced keyboard. It is in the file VT102ALT.KEY. This layout, instead of using all the function keys to send out the codes generated by the VT's numeric keypad, will send the proper codes from the PC's numeric keypad when the Num-Lock key is depressed (F1 to F4 represent the VT's PF1 to PF4). This layout is especially handy for users with the enhanced 101 key keyboard with the separate cursor key and numeric keypads, and functions keys across the top. To make use of the alternate layout, while at the DOS prompt type:

```
ren VT102.KEY VT102OLD.KEY  
ren VT102ALT.KEY VT102.KEY
```

## 7.4 VT52

The DEC VT52 is another relatively common terminal type, that is considerably simpler than the VT102. Telix's key definitions for the VT52 are stored in the VT52.KEY file.

## 8. USING SCRIPT FILES

Telix has an incredibly powerful built-in 'script' or command language, called SALT (Script Application Language for Telix). In the simplest terms, a script file is a sequence of commands for Telix to follow, written using a certain format. Script files can do many useful things like automatically logging on to a host, setting up special parameters, performing unattended file transfers, and many other tasks. A script file can be linked to a dialing directory entry so that it is run automatically when that entry is connected to, and supplies the needed logon information.

Before a SALT script can be used, it must be 'compiled'. The CS.EXE program included with Telix takes the ASCII 'source' scripts that the user writes, and compiles or converts them to a form that is easier for Telix to process, usually takes less space, and loads more quickly. SALT scripts may actually use any name. However in standard practice the extension 'SLT' is used for SALT source scripts, and the same name with the extension 'SLC' is used for the compiled version.

Like any real programming language, SALT has a large number of features. Because of this, programming in SALT is not easy for the beginner who has no knowledge of any programming concepts. However SALT scripts can be used to different degrees. The advanced user can program complex applications, while even a novice can modify the sample scripts include with Telix, and run scripts supplied by others.

For advanced users, a separate 100+ page manual describes SALT and its syntax. The rest of this section describes how to run and compile SALT scripts.

If you have an already compiled SALT script (ending with the extension 'SLC' (for example, the HOST.SLC Host Mode script file), it is very easy to execute. While in terminal mode, press Alt-G. Telix will ask for the name of the script file to run. If you supply no extension, 'SLC' is assumed. If a special directory where script files are to be found has been defined, Telix will look there for script files, unless a path is given. To define this script directory use the Telix Configuration Menu. Telix will then load the script file and fol-

low its instructions. To abort a script while it is executing, press the Esc key. Sometimes you may have to press Esc twice, the first time to abort the current function, and the second time to abort the script itself.

You may have used your text editor to modify one of the sample scripts included with Telix (most simply require inserting your name in a clearly marked location near the top). You now need to compile the script file. To do this, the CS.EXE pro-

gram is used. While at the DOS prompt, type 'CS', followed by a space and the name of the script file you want to compile (the extension 'SLT' is assumed if none is given). CS will scan through the source file and produce the compiled version, using the same base name but the extension 'SLC'. If a syntax error is discovered while compiling the script file, CS will report it and abort. In that case the error should be fixed and CS run again. From within Telix, you may quickly run CS either by using the DOS Command function (Alt-V), or from the DOS Shell (Alt-J).

Remember, every time you make a change to the source file, you must re-compile it, otherwise Telix will still run the old compiled version. This sounds tedious, but in practice once a script is developed it doesn't change very often.



## 9. HOST MODE

Telix allows you to set up your computer as a remote host, so that others may call your system and perform operations like transferring files and chatting. In short it is like having a small BBS on your system, without all the setup work (however if your security needs are complicated you should consider using a real BBS program). There are a few requirements to running Host Mode. Your modem must be able to pick up the phone when it rings. The CD (Carrier Detect) Mask must be properly defined in the Configuration Menu, so that Telix can tell when it is connected to a caller. Telix must also be able to hang up the modem by dropping (turning off) the DTR line on the RS-232 port. If one of these requirements is not met you probably can not run Telix Host Mode on your system.

The Telix Host Mode is implemented as a script in Telix's powerful SALT script language. To run the Host Mode script, press Alt-G while in Terminal mode, and then enter 'HOST' as the script file name. The script 'HOST' will then be run. Several Host Mode configuration settings are kept in a file called 'HOST.CNF'. The first time you run the Host Mode script, it will not find this file, and automatically run the host Mode configuration script 'HCONFIG', which will create the needed file and allow you to change the default values. At any time in the future, you should run HCONFIG when you need to configure the Host Mode. HCONFIG will present you with the following parameters:

- A: Level One access password. This is the password that callers must successfully enter to be admitted to the Host Mode and have Level One access.
- B: Level two access password. This is the password that callers must successfully enter to be admitted to the Host Mode and have Level Two (Sysop) access.
- C: DOS shell password. This is the password that users of the Host Mode have to enter to use the Remote DOS Shell option.
- D: Shut down Host Mode password. This is the password that callers must enter to shut down the Host Mode, when

they press Ctrl-Z.

E: Host Download Directory. Level 1 access callers will only be able to download (have Telix send them) files that are in this directory. As well, the 'Files command will show them only the contents of this directory. Do not under any circumstances define this directory to the same name as the directory you run Telix in. If you did that, callers could download the Host

Mode configuration file, which is stored there, and see your passwords. Level 2 access callers may specify any download path, but this is the default.

F: Host Upload Directory. Level 1 access callers will only be able to upload (send to Telix) files into this directory. Level 2 access callers can specify any path, but files will go here by default.

G: Connection type. This can be either 'Modem' or 'Direct'. Use 'Modem' if your host system is being accessed through a modem, or 'Direct' if two computers are hard-wired. This stops Telix from trying to initialize a non-existent modem. or trying to determine the caller's baud.

There is one other important parameter which must be properly set for Host Mode operation. This is the Auto Answer string, which is defined in the 'Modem and dialing' page of the Configuration Menu. This string is sent to the modem when Telix enters Host Mode, and should make the modem able to pick up the phone when it rings. The default string is set up for Hayes compatible modems. It is:

'AT X1 S0=1|^M'      where

AT      is the modem attention code.

X1      tells the modem to reply with extended result codes. This means the modem indicates the caller's baud rate.

S0=1    tells the modem to answer after one ring.

^M      sends the terminating Carriage Return character.

There are two optional text files which are displayed to callers if they exist, called LOGO.MSG, and WELCOME.MSG. They are described below.

Once the Host Mode has been configured, it can actually be run. Telix will make a note in the Host Mode audit file HOST.LOG and then will immediately send the Host Mode init string to the modem. Telix then waits for a caller. While in Host Mode, on the local side, the user can always press Esc to exit Host Mode, or End to terminate the current caller. He can also enter commands for the remote caller, so that a novice

caller can be helped along by the host operator. Also, at any time, the current caller will be automatically terminated if there is inactivity for five minutes, or the connection is lost. This is all noted in the host audit file. If the caller has only access level one, references to other disk directories than the ones defined in HCONFIG are ignored, and all operations take place in those directories. As well, Telix protects your files from being accidentally overwritten by the caller.

When the Carrier Detect signal turns on Telix knows a caller is online. At this point Telix will try to determine the caller's baud rate. Most Hayes compatible modems can be initialized to send the string 'CONNECT baud' where baud is the baud rate of the caller, when they sense a connection. If Telix sees this string it will switch to the appropriate baud. If this string is not received within a few seconds of the connection, Telix will leave the baud rate at whatever it was. Also, it should be mentioned that Telix can not determine the caller's other settings like parity, data bits, and stop bits. These must already be matching Telix's settings.

At this point, if the file LOGO.MSG exists in the Telix directory, it is displayed to the caller. It should basically identify the system. Then Telix will ask the caller for his/her name. The name must be at least five letters long and is only used when indicating the caller in the Host Mode audit file. If a password has been defined Telix will ask the caller for it. The caller has three tries to complete the password. All password attempts, successful or failed, are written to the Host audit file. If the caller enters the Level One access password, he may manipulate only the disk directories defined in HCONFIG. Any other directories can not be accessed. If he enters the Level Two access password, the caller may use full pathnames in all file specifications. The level 2 password should only be kept for yourself or those you completely trust, as a Level 2 caller can access any files on your system.

If there is a file called WELCOME.MSG in the Telix directory, it is then shown to the caller. This file can contain further identification or news, that you only want valid callers to see. After each 23 lines the caller is prompted to press any key to continue. As well, the caller may press Ctrl-S to pause at any time, and Ctrl-C or Ctrl-K to abort the listing. After the TELIX.MSG file is displayed the caller is presented with a menu of options:

Files Type Upload Download Shell Chat Goodbye ?

The action to be taken is selected by entering its first letter. Case does not matter. As mentioned already, the host operator is free to enter any keystrokes for the caller.

The 'Files' option allows the caller to list the files in the current disk directory. The caller must press a key after each

screen. The output is not echoed on the local screen. If the caller has access level two s/he is prompted for a filespec, which may include the \* and ? wildcard characters (see your DOS manual), so that the contents of other directories than the 'Host download dir' may be listed.

The 'Type' option allows the caller to view any ASCII file in the Host Download Directory, or in any directory for access Level 2 callers. The same format and commands are available

during this command as for the displaying of the optional message file TELIX.MSG.

The 'Upload' option allows the caller to send a file to the host. The caller is shown the following menu (here slightly compressed so it could fit):

```
Modem7 SEAlink Xmodem 1k-Xmodem G-1k-Xmodem Ymodem Ymodem-g
Which protocol?
```

and should select the appropriate protocol by its first letter (or 'E' for Ymodem-g). If appropriate the caller is also asked for the filename. The transfer is then initiated. Level 1 callers may only upload files into the 'Host Upload Directory' defined with HCONFIG.

The 'Download' command allows a caller to receive a file from the host. The caller must select the protocol as described above, and then must tell Telix the file(s) to send. The transfer is then initiated. Level 1 access callers may only download files from the 'Host Download Directory' defined with HCONFIG.

The 'Shell' command is a very powerful but also very dangerous command. It allows the caller to run a DOS shell on your system, except that the caller receives the output, and the caller enters the keystrokes. This command is basically similar to entering 'CTTY COMx' at the DOS prompt. The remote side has complete control of your system. This is obviously very dangerous, as the caller can format disks, delete files, or perform any other operation. To provide security, a password must be entered to use the remote DOS shell. Be very careful of whom you give this password to, as they can do anything they want with your system. As well, don't leave it at the default that Telix comes with. There are a few limitations in the remote DOS shell. The caller will see program output only if the programs use standard DOS output. Programs that write directly to the video screen will work, but will not be seen by the remote caller. As well, programs that use non-DOS methods of getting keystrokes will not receive the callers keystrokes. Finally, under some systems, if the caller presses Backspace at the DOS prompt when the current line is empty, DOS will hang on the Host machine. As these are functions of DOS, there is nothing that can be done about these limitations.

The 'Chat' command allows the caller to chat with the host operator. When the caller presses 'C' the host operator is paged for 20 seconds. Press the Space bar to chat with the caller, or any other key not to. Accepting the chat will place you in Chat Mode, exactly as if you had used the Alt-Y command. The caller's keystrokes are echoed back to him/her however, so that he/she can see them.



Finally, the 'Goodbye' command allows the caller to log off the host. An entry noting the time and date is made in the host audit file, and Telix then waits for a new caller.

The caller may also use one other command that is not displayed in the menu. This is to shut down the Host Mode. If the caller presses Ctrl-Z and successfully enters the shut down Host password defined in the Configuration Menu, the Telix Host Mode is shut down and Telix returns to whatever it was doing before Host Mode was initiated.

## 10. APPENDIX A - COMMAND SUMMARY BY KEYSTROKE

Major Commands  
-----

|       |                           |
|-------|---------------------------|
| Alt-B | Scroll Back               |
| Alt-D | Dialing Directory         |
| Alt-F | DOS and File Functions    |
| Alt-G | Run Script File (Go)      |
| Alt-J | Jump to DOS Shell         |
| Alt-K | Keyboard Definitions      |
| Alt-L | Capture File              |
| Alt-M | Misc. Functions           |
| Alt-O | Configuration Menu        |
| Alt-P | Comm Parameters           |
| Alt-Q | Queue Redial Last Numbers |
| Alt-R | Download (receive) Files  |
| Alt-S | Upload (send) Files       |
| Alt-T | Terminal Emulation        |
| Alt-U | Usage Log                 |
| Alt-W | Translate Table           |
| Alt-X | Exit Telix                |

Secondary Functions  
-----

|                |                            |
|----------------|----------------------------|
| Alt-A          | Run editor                 |
| Alt-C          | Clear screen               |
| Alt-E          | Local echo On/Off          |
| Alt-H          | Hang-up modem              |
| Alt-I          | Screen Image               |
| Alt-T          | Translate Table            |
| Alt-V          | DOS command                |
| Alt-Y          | Chat Mode                  |
| Alt=<br>Ctrl-@ | Toggle DOORWAY mode on/off |
| Ctrl-@         | Printer log on/off         |
| Ctrl-End       | Send break signal          |
| Shift-Tab      | Add line-feeds on/off      |

All of these commands should be entered while in terminal mode. Many will prompt you for further courses of action.

## 11. APPENDIX B - TROUBLESHOOTING (PROBLEMS/SOLUTIONS)

### Problem:

Telix and the modem do not seem to be able to detect busy signals.

### Solution:

Some modems (especially older 1200 bps units) do not have the capability to detect busy signals. Assuming yours does, you'll still probably have to edit the default modem Init String. The X1 that Telix uses in the string to be compatible with all modems does not enable busy detection in most modems. Try a value like X3, X4, or higher.

### Problem:

When the Host Mode script is run Telix always thinks that a caller is online and immediately asks for the caller's name; or Telix always says that a Hang-up operation failed even when it did in fact successfully hang-up the modem.

### Solution:

Your modem is almost certainly overriding the true state of the Carrier Detect signal. This is the factory default on most modems, but should be disabled. For proper operation, Telix needs to see this signal on when connected to another computer, and off when not. If your modem has dip switches, as do most 1200 bps units and all US Robotics external Couriers, switch number 6 usually controls this and must be in the up position. If your modem does not seem to have any dip switches (look carefully, sometimes the front needs to be popped off), it is probably controlled solely by software commands, as are most 2400 bps units. Just a few examples of these are the Hayes 2400, ATI 2400etc., GVC 2400, and many others. For these modems, adding &C1&D2 in the modem Init String (before the final ^M (Carriage Return is a good spot)) will configure the modem properly.

### Problem:

When trying to use a multi-tasking system like MS Windows, Topview, or DoubleDOS, with Telix in the background, window displays bleed through to the active partition.

Solution:

In the Telix Configuration Menu, select the 'Screen and colors settings' option, then select as the Screen Write Mode, 'BIOS

calls used for writes'. Screen updating will be slower but will not bleed through.

**Problem:**

When redialing Telix does not seem to know when a connection has been reached.

**Solution:**

Telix knows when a connection has been reached in one of two ways: when it receives a Connect string from your modem, or when the Carrier Detect signal turns on (if it was off). Make sure that the Connect string is properly defined in the Configuration Menu, or that your modem does turn on the Carrier Detect signal regardless of whether or not there is a connection.

**Problem:**

Telix doesn't work with a certain modem.

**Solution:**

Telix is set by default to use the Hayes 'AT' modem command standard. There are modems that are not Hayes compatible however, and use other commands to dial, hang up, and perform other tasks. Make sure that if your modem is not Hayes compatible Telix has been properly configured to its commands.

**Problem:**

When trying to use the DOS Shell, or another function that uses DOS, Telix warns that it can not find a file called COMMAND.COM, and aborts the function.

**Solution:**

The file COMMAND.COM is the DOS command interpreter. Telix must be able to find it to use many DOS functions. The location of COMMAND.COM is stored in an environment variable (explained in your DOS manual) called COMSPEC. COMSPEC is set at boot-up, but if you boot of a floppy and then change to another floppy or a hard disk, it will not point to the right place anymore. In short, make sure that COMSPEC always points to the location of COMMAND.COM, or that COMMAND.COM is in the

current directory.

Problem:

When calling some systems, especially large ones such as CompuServe or the Source, all incoming characters look like garbage.

**Solution:**

The communications parameters are probably wrong. Most of these systems need a setting of Even parity, 7 data bits, and 1 stop bit. This is different from the normal standard of N81 used for most bulletin boards.



## 12. APPENDIX C - PRODUCT SUPPORT

Telix is a relatively large and complicated program. In order to support Telix and to provide a means of distribution, a BBS (Bulletin Board System) for Telix support has been set up.

The Telix Software Support BBS is available 24 hours a day at 416-439-8293. If you have a Telix question or problem, or have found a bug in Telix, give the support BBS a call. The latest version of Telix may also be found on the support BBS.

If you're calling about a problem, try to be as specific as possible when describing the problem. Include any relevant details, such as your machine's configuration, Telix version number, resident software installed, steps taken before the problem happens, and any other things you feel are important. It is very hard to answer vague questions such as, "Telix doesn't work on my PC. Do you know why?".

At the current time, the support BBS is open to all callers. Since it is extremely busy, it is almost certain that in the future it will be restricted to registered users of Telix. Registered users will also receive mailed notices of major updates to the program.

## 13. APPENDIX D - INSTALLING EXTERNAL PROTOCOLS

While Telix supports a very large number of protocols internally, it also allows users to define up to 4 external protocol implementations, for the utmost in flexibility.

External protocols are defined in the 'Protocol options' page of the Configuration Menu. Basically, based on this configuration, when the user selects a transfer with this protocol, Telix will either run a specified DOS Batch file, or a TELIX SALT script file.

### 13.1 Batch File Method

If a Batch file has been configured to be executed when the external protocol is selected, TELIX will execute it and pass to it 3 parameters (with the third sometimes being blank). The first parameter is the baud rate. This is accessed within the DOS batch file as %1. The second parameter is the comm port number. This is accessed as %2. The third parameter is the reply the user gave when asked what file(s) to transfer. If this is a download and this protocol has been defined to not need a download name, this parameter will be blank. This parameter is referred to as %3 in the Batch file.

It is now the responsibility of the Batch file to call a driver program for the protocol, using the supplied info. For example, assuming Telix didn't have built-in Zmodem support, a batch file called SZB.BAT could be defined to perform Zmodem uploads using the commonly available DSZ program with the following command it .

```
DSZ port %2 speed %1 sz %3
```

This would tell DSZ what files to transfer, and also would specify the proper baud rate and comm port.

### 13.2 Script File Method

Alternately Telix can run a SALT script file when the user se-

lects an external protocol. The script should be compiled ahead of time (as explained elsewhere in this manual). The user's reply to the question of what files to transfer is stored in the system variable '\_ext\_filespec'. The script file is free to implement the protocol in whatever way it wants to, such as calling an external driver program using the 'RUN' function, or by actually performing the transfer itself.

#### 14. APPENDIX E - DIALING DIRECTORY FILE FORMAT

For programmers who wish to write dialing directory handling utilities, a text file describing the dialing directory format used by Telix is available on the Telix Software Support BBS.

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