Appendix E Key-mapping

Overview

NCSA Telnet for the PC incorporates many of the key-mapping elements found in the MS-Kermit program. Because of this adaptation, we've included the following Appendix, which except for minor changes, contains excerpts that appear exactly as they did in the MS-Kermit documentation. Copyright information granting the use of this segment is cited below.

Copyright Information

Kermit Verb Usage

NCSA Telnet contains a subset of the Kermit verbs listed below. Kermit verbs with a star are supported while unmarked verbs will cause an error if they are in a keyboard mapping file. Also included is a utility from the MS-Kermit 2.32 distribution which will determine what the actual kermit key code is for any combination of keys. Use this in the telnet keyboard mapping file as the code to map from. See the telnet.key file included with this release for an example keyboard mapping file.

NCSA Telnet does not support the extended SET KEY options such as:

SET KEY ON, SET KEY OFF, or SET KEY CLEAR

Also, it is impossible to map the ALT+alphabetical keys to anything with the keyboard mapping interface. NCSA Telnet traps these internally before they actually reach the mapping interface.

Set Key

Syntax

```
SET KEY key-specified {key-definition}
```

Uses of SET KEY

- You're used to having the ESC key in the upper-left corner of the keyboard, but your new PC keyboard has an accent grave (" ' ") key there. You can use SET KEY to make the accent key transmit an ESC, and you can assign accent grave to some other key.

- You send a lot of electronic mail, and always sign it the same way. You can put your "signature" on a single key to save yourself a lot of repetitive typing.

- You must set up your PC's function keys or numeric keypad to work properly with a host application.

The SET KEY command does these things and more, while SHOW KEY gives us assistance. A key can be defined to:

- send a single character other than what it would normally send
- send a string of multiple characters
- send itself again

SET KEY specifies that when you press the designated key during terminal emulation, the specified character or string is sent or the specified Kermit action verb is performed.

Using the SET KEY command, you create a key-specifier. The *key-specifier* is the identification of the key expressed in system-dependent terms. This key can be a letter, such as Q for the key which produces an uppercase Q, or the numeric ASCII value of the letter in backslash notation (e.g., "\81"), or else the numerical "scan code: observed by the system when the key is pressed (e.g., "\3856" for CTRL-ALT-SHIFT-Q on an IBM PC). Material printed on keycaps is not necessarily a guide to what the key-specifier should be.

A string definition is one or more characters, including 8-bit values expressed in backslash form, such as

SET KEY	\315 directory\13	IBM F1 key sends	"directory<cr>"
SET KEY	S X	S key sends upper case X (a mean trick)	
SET KEY	T \27 [m	T key sends three bytes: ESC, [, m	
SET KEY	\2336 {del } xxx	ALT-D sends "del"	

```
SET KEY          \324  \Kexit              F10 escapes back to Kermit-MS>                prompt.
```

The string begins with the first non-spacing character following the key identification and continues until the end of line, exclusive of any trailing spaces. You can use curly braces, {...} can be used to delimit the string in case you want the definition to include trailing spaces. The program ignores all text after the closing bracket.

This manual does not contain a list of all the scan codes for all the keys on all the keyboards on all the PCs supported by NCSA Telnet. In order to obtain the scancode for a key, you must use the scanchek utility.

Kermit Action Verbs

An action verb is the shorthand expression for a named Kermit procedure, such as "generate the proper sequence for a left arrow," "show status," "send a BREAK," and others; verbs are complex actions and each verb has a name. In a key definition precede the verb name by a backslash K (\K) to avoid being confused with a string. You cannot assign verbs and strings together on a key.

Entering the commands:

```
SET KEY \331 \Klfarr
SET KEY \2349 \Kexit
```

makes the IBM keyboard left arrow key execute the verb named lfarr, which sends the proper escape sequence for a VT102 left arrow key (which changes depending on the internal state of the VT102). The leading \K identifies the definition as a Kermit verb, so no string can start as \K or as \{K in upper or lower case (use \92K). The second example has ALT-X invoking the Leave-Connect-Mode verb "exit" (same as Kermit escape character "^]" followed by C).

Each system has its own list of verbs and predefined keys. Table E.1 shows those available for the IBM PC family (there are also some additional verbs for reassigning Heath or VT100 function keys, see section 1.17.2 of the original Kermit documentation). The SET KEY command shows the list of available verbs when a query mark (?) is given as a definition.

Table E.1 **MS-Kermit Verbs for the IBM PC Family**

Verb	Meaning
\Kupscn	Roll up (back) to previous screen
\Kdnscn	Roll down (forward) to next screen
\Khomscn	Roll up to top of screen memory
\Kendscn	Roll down to end of screen memory (current position)
\Kupone	Roll screen up one line
\Kdnone	Roll screen down one line
\Kprtscn	Print the current screen
\Kdump	Append the current screen to dump file
\Kholdscrn	Toggle hold screen mode
\Klogoff	Turn off session logging
\Klogon	Turn on session logging
\Ktermtype	Toggle terminal type
\Kreset	Reset terminal emulator to initial state
\Kmodeline	Toggle modeline off/on
\Kbreak	Send a BREAK signal
\Klbreak	Send a "long BREAK" signal
\Khangup	Drop dTR so modem will hang up phone
*\Knull	Send a null (ASCII 0)
\Kdos	"Push" to DOS
\Khelp	Display CONNECT help message
\Kstatus	Display STATUS message
\Kterminals	Invoke user-defined macro TERMIANLS, if any
\Kterminalr	Invoke user-defined macro TERMINALR, if any
\Kexit	Escape back from CONNECT mode
*\Kgold, \Kpf1	VT102 keypad function key PF1
*\Kpf2..\Kpf4	VT102 keypad function keys
*\Kkp0..\Kkp9	VT102 keypad numeric keys

Other VT102 keypad keys:
*\Kkpdot, \Kkpminus, \Kkpcoma, \Kkpenter

VT102 cursor (arrow) keys:
*\Kuparr, \Kdnarr, \Klfarr, \Krtarr

NOTE: * signifies that NCSA Telnet 2.3 supports the verb.