Chapter 2 Using the Keyboard

Chapter Overview

Using Keyboard Commands

Emulating Menu Commands

Setting the Functions of BACKSPACE (or DELETE), OPTION, and Backquote

Emulating a VT102 Terminal

Changing the Assigned Keys for Interrupt, Suspend, and Resume

Defining Macros

Reverting to the Previous Macro Definition

Entering Macro Key Sequences

Chapter Overview

This chapter discusses the special keyboard features of NCSA Telnet. It explains, for example, how to use command key equivalents of menu commands; set the functions of the BACKSPACE (or DELETE), OPTION, and Backquote keys; use the Macintosh keyboard to emulate a VT102 keyboard; and define your own macros.

Using Keyboard Commands

NCSA Telnet understands both menu and key commands. Some key commands are optional equivalents of menu commands; others are equivalent to key commands on a VT102 terminal. The following sections discuss keyboard options and list the keyboard commands understood by NCSA Telnet.

Emulating Menu Commands

If you want to be able to use command key equivalents for menu commands:

1. Select Preferences from the Edit menu. The Preferences dialog box appears (see Figure 2.1).

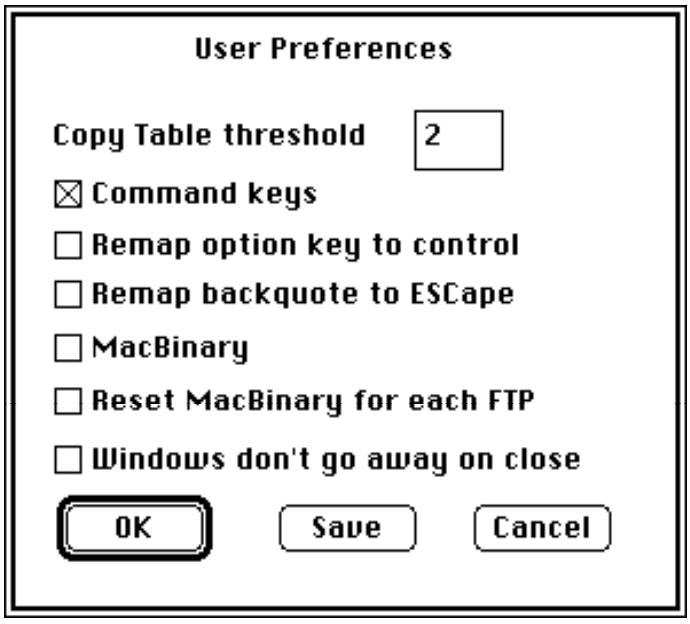
2. Check the box labeled Command keys by clicking on it. When the

Command keys option is checked, as shown in Figure 2.1, the command keys are listed in the menus next to their corresponding menu commands.

3. Click OK or press RETURN to activate the command keys option for the current telnet session only. Click Save if you want the option to be activated every time you invoke NCSA Telnet.

For more detailed information about the Preferences dialog box and the options it contains, refer to "Using the Preferences Dialog Box" in Chapter 3.

Figure 2.1 Preferences Dialog Box



Setting the Functions of BACKSPACE (or DELETE), OPTION, and Backquote

NCSA Telnet lets you change the functions of the BACKSPACE (or DELETE), OPTION, and Backquote keys to accommodate your needs or preferences—a feature you may find especially useful if you are using a Macintosh Plus keyboard.

BACKSPACE (or DELETE)

NCSA Telnet automatically translates BACKSPACE keypresses into delete codes, for compatibility with systems that prefer delete to backspace. If you find that your backspaces are not being accepted, the host you are using may only accept backspace codes.

To test this possibility, change the setting of the BACKSPACE (or DELETE) key to backspace according to the instructions below. This resets the default translation, so that the key sends a backspace code. If your

backspaces are accepted, then the host prefers backspace codes.

There are four ways to set the function of the BACKSPACE (or DELETE) key to backspace when you open a connection.

- the Configuration dialog box
- the Backspace and Delete options in the Session menu
- a saved set that includes your preferred setting
- the keyword `erase` in your configuration file

To use the Configuration dialog box:

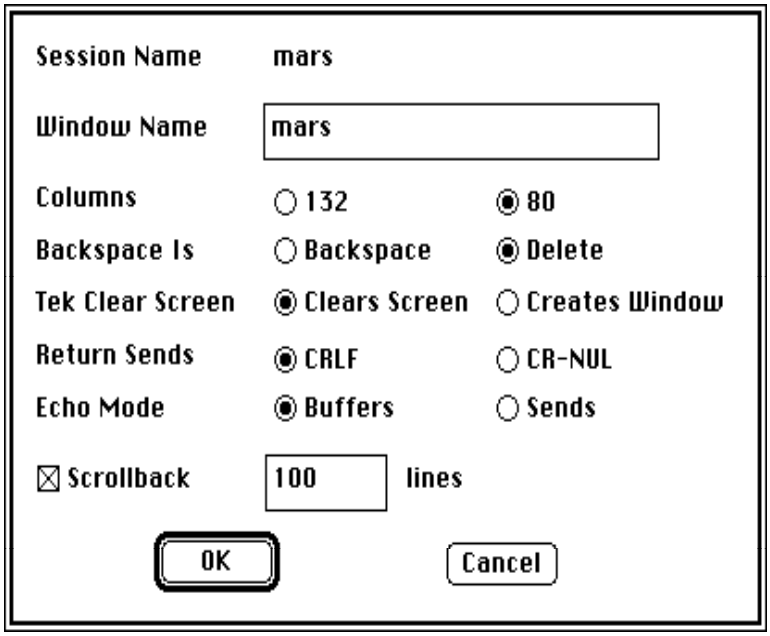
1. Click the Configure button in the Connection dialog box that appears when you first open a connection. The Configuration dialog box appears (see Figure 2.2).

2. Click the radio button labeled Backspace in the row Backspace Is.

3. Click OK or press RETURN.

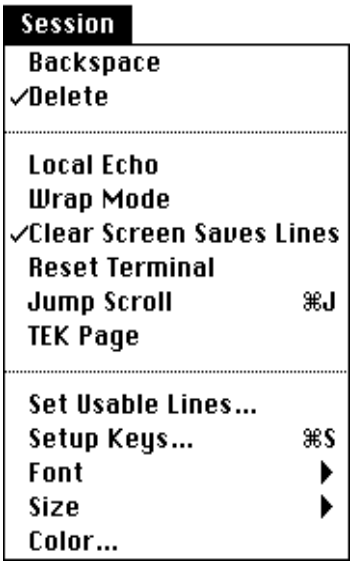
For information regarding the other options contained in the Configuration dialog box, refer to “Using the Configuration Dialog Box” in Chapter 3.

Figure 2.2 Configuration Dialog Box



You can also set the function of the BACKSPACE (or DELETE) key by enabling the Backspace or Delete option in the Session menu. A checkmark appears in the menu beside the active function (see Figure 2.3). In this manner, you can change the function of the BACKSPACE (or DELETE) key during a telnet session.

Figure 2.3 Session Menu



If you use this host frequently, you may want to save your BACKSPACE (or DELETE) setting according to the instructions presented in the section entitled “Saving Session Characteristics” in Chapter 4. Then, whenever you load the saved set, the function of the BACKSPACE (or DELETE) key is automatically set to your preference. Alternatively, your system administrator can “permanently” reset the Backspace function for this session or for all sessions, using the configuration file as instructed in Chapter 8, “System Administrator Information.”

OPTION

In some instances, you may need to be able to use the OPTION key as a substitute for the CONTROL key—for example, if you are using a Macintosh Plus, whose keyboard has no CONTROL key.

To set the OPTION key as a substitute for the CONTROL key:

1. Select Preferences from the Edit menu.

2. Check Remap option key to control.

3. Click OK or press RETURN if you want the setting to apply to this telnet session only. Click Save to make this the default setting for the OPTION key.

NOTE: If you are working on a Macintosh Plus and want to use the Command keys option, you should also check the Remap option key to control option; otherwise, you will not be able to generate control characters.

If you have a CONTROL key on your keyboard, it is not recommended that you use the Remap option key to control option because it changes

the standard Macintosh key assignments.

NOTE: When the Command keys option is disabled, the key may also be used as the CONTROL key.

Backquote

If you want to substitute the Backquote key (shown in Figure 2.4) for ESC; that is, if you want the Backquote key to send the ASCII character ESC:

1. Select Preferences from the Edit menu.

2. Check Remap backquote to ESCape.

3. Click OK or press RETURN if you want the setting to apply to this telnet session only. Click Save to make this the default setting for the Backquote key.

Figure 2.4 Backquote Key

NOTE: When the Remap backquote to ESCape option is checked, the only way you can send the ASCII character backquote (‘) is to press - Backquote or OPTION-Backquote. The capability of SHIFT-Backquote to send a tilde is unaffected by the setting of this option.

Emulating a VT102 Terminal

When NCSA Telnet is running, the Macintosh appears to the host as a VT102 terminal. NCSA Telnet transmits keystrokes for keys common to the Macintosh and VT102 keyboards without modifying them; however, the VT102 keyboard has some keys that the Macintosh keyboard does not have, and treats or labels other keys differently. In addition, many VT102 keys have special meanings when they are transferred to the host.

You can use the Macintosh keyboard to provide full VT102 functionality. Table 2.1 lists the Macintosh keys commands that correspond to key commands on a VT102 terminal. Note that the numeric keypad on the Macintosh is identical in position to that of the VT102, although the labels differ. If you are accustomed to typing on a VT102 keypad, you can ignore the Macintosh labels and type as usual.

Table 2.1 Macintosh Keys Used for VT102 Terminal Emulation

VT102 Key	Equivalent Keystroke on Macintosh Plus Keyboard	Equivalent Keystroke on Apple Desktop Bus Keyboard
Backquote	-Backquote or OPTION-Backquote †	-Backquote or OPTION-Backquote †
ESC††	Backquote	ESC or Backquote

DELETE†††	BACKSPACE	DELETE or DEL
BACKSPACE†††	-BACKSPACE or † OPTION-BACKSPACE	-DELETE or † OPTION-DELETE
LINE FEED	CONTROL-J	CONTROL-J
PF1	Clear on keypad	Clear on keypad (or F1)
PF2	\ on keypad	\ on keypad (or F2)
PF3	= on keypad	= on keypad (or F3)
PF4	* on keypad	* on keypad (or F4)
CONTROL-SPACE(NUL)	OPTION-SPACE	CONTROL-SPACE or OPTION-SPACE
Keypad keys	Keypad keys	Keypad keys

† Use of or OPTION depends on setting of Command keys option in the Preferences dialog box.
†† Use of Backquote as ESC is governed by the setting of the Remap backquote to ESCape option in the Preferences dialog box.
††† See the discussion of backspace and delete in the section entitled " Setting the Functions of BACKSPACE (or DELETE), OPTION, and Backquote."

Changing the Assigned Keys for Interrupt, Suspend, and Resume

NCSA Telnet uses certain key combinations for the telnet functions Interrupt, Suspend, and Resume functions, which are discussed in the following sections.

To change any of the key combinations assigned to these functions:

1. Select Setup Keys from the Session menu, as shown in Figure 2.5. The Setup Keys dialog box appears (see Figure 2.6).

2. Change the key assignments for the functions to any other control characters by typing the character(s) in the appropriate box, or disable a function altogether by deleting the entry in its respective box.

3. Click OK or press RETURN.

The key assignments to Interrupt, Suspend, and Resume may also be set in the configuration file (see Chapter 8).

Figure 2.5 Session Menu

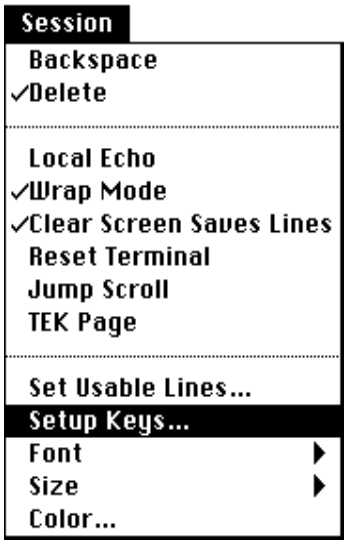
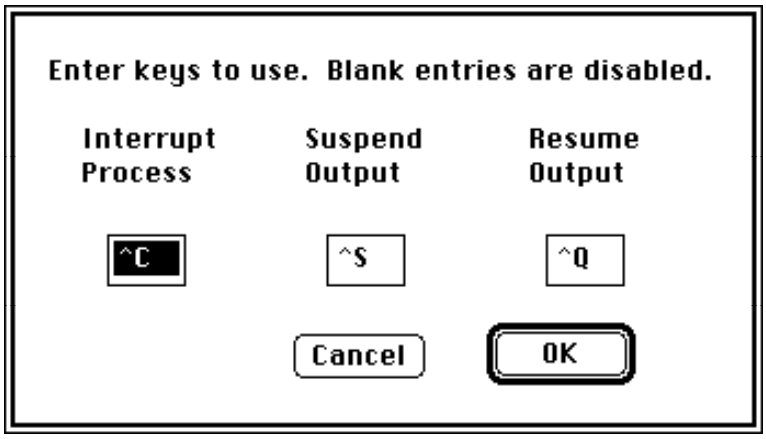


Figure 2.6 Setup Keys Dialog Box



The initial key assignments for Interrupt, Suspend, and Resume and their functions correspond to the traditional interpretation of the ASCII character, as described in the following sections.

Interrupt (CONTROL-C)

Interrupt sends a telnet interrupt process character, equivalent to the Interrupt Process command in the Network menu (see "Network-Related Commands" in Chapter 4). The host implementation of telnet is required to listen for and interrupt the current application when this option is received.

Interrupt also does a *timing mark* operation. In many implementations of telnet, you press CONTROL-C and often wait several minutes before the

text stops scrolling on your screen. This occurs because the TCP protocol has buffered up to 16K or even 32K bytes of data, which is waiting in the pipeline to be delivered even before you press CONTROL-C. To remedy this situation, NCSA Telnet initiates a process known as timing mark flush when you issue an interrupt command.

To do timing mark processing, NCSA Telnet sends a special character to the host which the host echoes back. While waiting for the host to echo, all characters for that session are thrown away. It appears that the session pauses for up to 15 seconds and then resumes as usual. During the pause, NCSA Telnet is throwing away all of the buffered data so that you do not have to wait for it to be displayed.

Suspend (CONTROL-S)

Suspend instantly interrupts all output coming from the network. The current session will not produce any more characters on the screen until you issue the Resume command.

Resume (CONTROL-Q)

Resume allows character printing to resume to the current session. Resume does nothing unless a Suspend command is in effect.

Defining Macros

NCSA Telnet allows you to use the key combinations -0 through -9 as macro keys. You can program these keys to send from 0 to 255.

To define a macro:

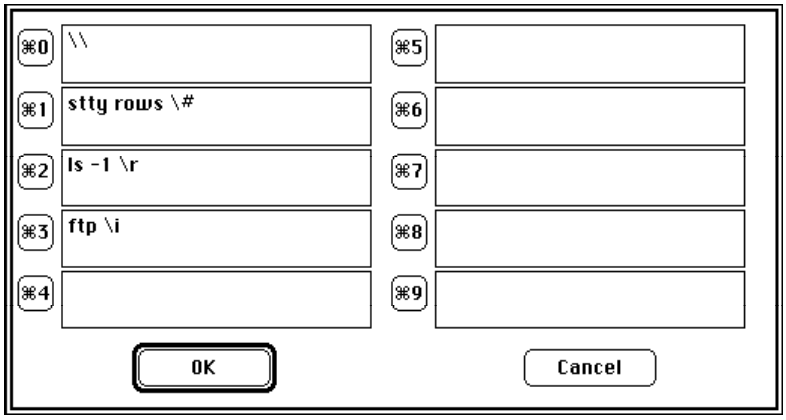
1. Select Set Macros from the Edit menu or press -M. The Macro Configuration dialog box that appears is shown in Figure 2.7 with several sample macro definitions.

2. Click on the button of the command key you wish to define or select the box next to that button.

3. Enter the appropriate macro key sequence as instructed in the following section.

3. Click OK to activate the new macros, or click Cancel to invalidate the additions or changes you made. When you click OK or Cancel, you are returned to the application.

Figure 2.7 Macro Configuration Dialog Box



NOTE: Your macros are saved when you save your set as instructed in the section entitled "Saving Session Characteristics" in Chapter 4.

Reverting to the Previous Macro Definitions

While you are working in the macro configuration dialog box, you can undo changes you made to a macro and revert the associated command key to its previous setting by clicking the button that corresponds to that command key. For example, if you want to undo changes to the definition for -2, click the button labeled 2. If you want to simultaneously abandon all of the changes that you have made, click Cancel.

Entering Macro Key Sequences

The key sequences used to generate special control characters in a macro may seem somewhat strange, unless you are familiar with the C programming language. To define a special character, you must first enter a backslash (\). Indicate nontypable control characters with octal numbers. Table 2.2 shows some special characters you might enter.

Table 2.2 Common Macro Key Combinations

Desired Character	Definition
Backslash (\)	`\\`
TAB	`\t`
CR LF	`\r` or `\n`
ESC	`\033`
CONTROL-C	`\003`
CONTROL-D	`\004`
CONTROL-E	`\005`
CONTROL-H or BACKSPACE	`\010`
Size of current window†	`\#`
Internet number of this Macintosh††	`\i`

† pertains to setting the number of usable lines in a session window (see the section entitled "Using the Session Menu" in Chapter 3).

†† see also the discussion of the Show Network Numbers command contained in "Network-Related Commands" in Chapter 4, and of the Send IP Number

command contained in “Transferring Files” in Chapter 5.