

# Term Overview & Notes

## Introduction

Term is a terminal emulation program written specifically to allow a Macintosh computer to be used with an IBM VM/CMS system. Term supports both line mode and full-screen connections. In full-screen mode Term emulates a TVI950 terminal, and is especially easy-to-use. Term also supports efficient file transfer using either type of connection.

## Full-Screen Keyboard Mapping

Since the Macintosh keyboard is much different from the keyboard on a real 3270, Macintosh keyboard equivalents must be defined for the 3270 functions. The definitions for Term in full-screen mode are listed below:

### Attention Keys

<i>Name</i>	<i>Mapping</i>	<i>Function</i>
Enter	Return	transmits information on screen
PA1	Command-,	enters CP environment
PA2	Command-.	goes to next screen if MORE or HOLDING shown
SYS REQ	Command-/	puts last command back into the input area
CLEAR	Command-c	clears screen without sending changes
CURSEL	Command-l	simulates light-pen selection (seldom used)

### Program Function Keys

PF1 through PF12	Command-1 through Command-=
PF13 through PF24	Option-1 through Option-=

PF keys and other keyboard functions can also be generated using the **FKeys** menu. In addition, you can define a mouse double-click to generate any key in that menu using the **Preferences...** item of the **Special** menu. By default, double-clicking the mouse generates PF23, which most programs consider equivalent to PF11. PF23 is XEDIT in FILELIST, PEEK in RDRLIST, READ in BBOARD, and SPLIT/JOIN in XEDIT.

The keypad and enhanced keyboard mappings below also include PF keys.

### Cursor Movement

A single mouse click moves the terminal's cursor to the character position closest to the Mac's cursor. All the usual keyboard methods are also available:

cursor left	Backspace or Command-h
cursor right	Command-j or Command-k
cursor up	Command-u
cursor down	Command-m or Command-n

tab	Tab
backtab	Shift-Tab
newline	Enter or Shift-Return
home	Command-Return

### Editing Keys

erase to end-of-field	Command-e
toggle insert mode	Command-i
delete character	Shift-Backspace

### Special Keys

dup	Command-d
field mark	Command-f

### Emulation Control Keys

stop data sent from host	Command-s
resume data sent from host	Command-q
master reset	Command-g
redraw screen	Command-v
reset error mode	Command-r
unlock keyboard	Command-t
purge typeahead buffer	Command-x
send escape	Command-[

### Mapping for the Numeric Keypad and Mac Plus Keyboard

<i>Name</i>	<i>Mapping</i>	<i>Function</i>
PF1-9	1 - 9	Program Function keys
PF10	0	
PF11	.	
PF12	Enter	
cursor left	left arrow	cursor movement
cursor right	right arrow	
cursor up	up arrow	
cursor down	down arrow	
CLEAR	Clear	clears screen without sending changes
PA1	= on Mac Plus, or , on Numeric Keypad	
PA2	/	goes to next screen if MORE or HOLDING
SYS REQ	*	puts last command back into the input area
Erase EOF	-	erase to end of field
Input Mode	+	toggle insert mode

## Macintosh SE and Macintosh II Keyboards

Each of these models can use either the Apple Standard Keyboard or the Apple Enhanced Keyboard. The standard keyboard is similar to the Mac Plus keyboard, and has the same mappings as shown above.

The enhanced keyboard has additional keys, many of which are used by Term, as listed below:

<i>Name</i>	<i>Mapping</i>	<i>Function</i>
<i>F1 - F15</i>	PF1 - PF15	program function keys
<i>help</i>	PF1	often invokes CMS HELP
<i>home</i>	home	move cursor to first input field
<i>X del</i>	delete character	delete character at before cursor
<i>page up</i>	PF7	often moves toward start of file
<i>page down</i>	PF8	often moves toward end of file

## Alternate Keyboard Mappings

In the current version of Term, the last three items of the **Settings** menu are the names of keyboard mappings that may be selected. The mapping described above are for the normal setting, **TVI950**. An alternate full-screen mapping is **TVI950-num**. This mapping is the same as **TVI950**, but changes the mapping of the keypad to allow data entry. With **TVI950-num**, the unshifted keypad keys generate their usual characters, and when shifted generate PF1 through PF12. **Line mode** specifies a direct keyboard mapping which is the same as a "dumb" ASCII terminal. **Line mode** is useful when Term is used with computers that don't support a full-screen mode, and with the IBM mainframe when CALL 100 is used.

## Control Character Generation and Keyboard Menu Selection

When it does not conflict with one of the above mappings, the Command key is used either to generate control characters, or for keyboard menu selection. There is never a conflict when the **line mode** mapping is selected. When the keyboard has a *control* key, it is used in the usual way, and the Command key is used for keyboard menu selection. In this case, Command-Q may be used to select **Quit** from the **File** menu. When the keyboard does not have a *control* key, the Command key is used to generate control characters, and keyboard menu selection is not available.

## Support for Term

Please report any problems with Term or suggested enhancements to the author, Peter DiCamillo. Send electronic mail to [Peter\\_DiCamillo@brown.edu](mailto:Peter_DiCamillo@brown.edu), or call (401) 863-7582.

## Miscellaneous Notes

### *Memory Requirements*

The current version of Term requires about 328K of memory.

### *MultiFinder and System 7 Support*

Term supports being used with MultiFinder or System 7, and is pre-configured to request the proper amount of memory (currently 328K). Term will process modem data and continue file transfers while running in the background.

### *File Transfer*

erm supports file transfer using the CMS RMAC and WMAC commands. To upload a file from the Macintosh to CMS use the command:

```
RMAC fn ft <fm>
```

To download a file from CMS to the Macintosh use the command:

```
WMAC fn ft <fm>
```

Term supports text, binary, and MacBinary downloading, and text uploading. Binary and MacBinary uploading is planned as a future enhancement. For more information about file transfer options see the CMS HELP files for the RMAC and WMAC commands.

### *File Transfer Flow Control*

By default, Term's software flow control is disabled during file transfers, as this results in the best performance for most users. If you encounter many errors during file transfers, especially for large files, file transfer flow control may be required. To enable it, selected **Flow control during file transfer** under the **Compatibility** settings.

### *Printing*

Term supports printing screen dumps, and printing CMS files using the WMAC command. For either kind of printing, the **Page Setup...** item in the **File** menu may be used. Use the **Print Screen...** item in the **File** menu to print a screen dump. Screen dumps are printed using Term's 12-point screen font, and will include text highlighting when possible, according to the capabilities of the printer. For example, reverse video is not supported by the LaserWriter print driver.

To print a CMS file, use WMAC with the PRINT option:

```
WMAC fn ft <fm> (PRINT
```

The CMS file will be printed using similar formatting to the CMS PRINT command. Files with filetype LISTING will be assumed to contain ANSI carriage control in the first column, which Term will interpret. All other files will be printed with new pages started automatically, which include a header with file information and the page number. CMS files are printed using the 10-point Monaco font. The LaserWriter print driver will substitute Courier for Monaco when font substitution is in effect.

### *Large Screen Support*

When Term is used with a screen which is large enough, alternate screen formats are provided. In addition to the standard format of 24 lines in a 9-point font, 32 lines may be selected, and a 12-point font may be used. Reduced line spacing is also available, to allow more lines to fit, or a larger point size to be used. To change the screen format, select the **Screen Format...** item in the **Settings** menu.

### *Text Highlighting*

The **Highlighting...** item of the **Settings** menu displays a dialog box for controlling how Term highlights text. By default, reverse fields are displayed in reverse video. However, many users prefer setting reverse fields to be displayed using bold text. Using bold eliminates the flickering reverse video may cause. Bold is not the default because the bold font is difficult to read in the 9-point font size.

### *Color*

Although **Color** appears in the **Settings** menu, support for color is not yet included in Term.

### *Setting the Creator for New Files*

The **Set Creator...** item in the **File** menu allows the four-character creator attribute to be specified for text files which Term creates. The creator attribute is used by the Finder to associate files with the applications which own them. The creator setting affects text files downloaded by WMAC and saved session files.

### *Beep Sound Selection*

The beep sound which Term uses may be selected using the **Miscellaneous...** item of the **Settings** menu. When **System Alert Sound** is selected, the beep sound is the sound selected in the Control Panel, and is played in the usual way. When any other sound is selected, it is played asynchronously, so that text processing will not be delayed while the beep sound is being played.

### *Default File Directories*

The default directory Term uses for reading or writing a file will be the most recent directory Term has used. When Term is launched the default directory is set to the directory which contains Term. The default directory is changed when a settings file is read or written, and when a file is uploaded or downloaded.

### *Communications Toolbox Support*

Term now supports the Macintosh Communications Toolbox as an alternative to using the modem or printer port directly. Tools provided with the Communications Toolbox allow Term to automatically configure your modem, dial phone calls, and interpret responses from the modem. Directions for using the Communications Toolbox are in the document *Using Term w/the Comm. ToolBox*.