TELCO Terminal Emulator

Version 2.3

Reference Manual

Specifications within this manual are subject to change without notice.

This software is assumed to be “Abandon Ware” as of May 11, 2014

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INTRODUCTION

TELCO has been designed to provide the TI user with easy and convenient access to a variety of telecommunications tasks. This program has been written in TMS 9900 assembly language for optimum performance. Features include:

The ability to emulate various terminals.

A Dialer with 99 entries with automatic redialing of up to 15 selections.

A Conference mode, available in all terminal emulations.

Xmodem, Compuserve B/Quick B and ASCII transfer capability.

Macros, Device logging, Print spooling etc...

NEW IN VERSION 2

PC Pursuit Dialer
Ymodem tranfers
Compuserve B transfers (binary and ASCII)
Significantly faster Xmodem transfers
Two new terminal emulations: VT-52 and HP2392
Terminal modes improved
Select options directly from help screens
Enhanced editor
Improved Conference mode
Module capacity increased for Geneve and Super Space II users
80-column card support
Print spooler now supports RS232 and Myarc pio
512-character buffer in print spooler

I would like thank the following people and organizations (in alphabetical order) for their support and the assistance they provided, in the form of hardware loans, access time, and information. While many people have contributed to the development of TELCO, these deserve recognition, and I apologize for any possible omissions.

Tom Bentley, Chris Bobbitt (Asgard), Barry Boone, Bob Boone (Computer Download Unlimited), Jeff Guide and Delphi, Jim Horn and Compuserve, Walt Howe, Jane Laflamme (Laflamme & Wrigley), and The Ottawa TI-99/4a Users' Group

I would also like to thank all those who have already registered their copies of TELCO, both for their support and their helpful suggestions.

HARDWARE REQUIREMENTS

TELCO has been designed to operate on both the TI-99/4a and the Geneve 9640. The minimum system required to use TELCO is:

TI-99/4a console or Geneve 9640
32K Memory Expansion (TI-99/4a only)
RS232 Card
1 SSSD Disk Drive
Modem (Hayes compatible preferred)

E/A, TI Writer, Minimem, or Extended Basic cartridge

Additional Hardware (optional)

Horizon Ramdisk
Myarc Hard Floppy Disk Controller Card
Modified RS232 Cable
Printer
Additional Disk Drive(s)
Supercart or Super Space
Super Space II
80-column card

TELCO has been developed using the overlay concept. This means that TELCO will, on occasion, load a function from diskette. It is advisable to keep the TELCO diskette in the drive it was loaded from for easy access to the functions. If for any reason you removed the diskette (as single-drive users will for file transfers, etc.), and TELCO requires a function from disk, just reinsert the TELCO disk and select the function over again. TELCO will not damage your diskette.

On a basic system, up to 3 overlays will reside for use within memory. These will be the last 3 overlays used. If a minimem is used, 4 overlays are available. If a supercart or Super Space is used, 5 overlays are possible. With a 32K Super Space II, as many as 11 modules are available, a TI with an 80-column card will support 27 modules, and a Geneve will support 29. TELCO will automatically detect which type of cartridge is in use and configure the system accordingly.

TELCO FILES

TELCO consists of three types of files. The main program is called TELCO, TELCP and TELCQ. These files contain the basic functions and utilities required. The second type of file is the module file. These files start with T> and contain the logic required to perform their specific function.

T>ADM3A	ADM3A terminal emulation
T>ANSI	ANSI terminal emulation
T>ASCII	ASCII upload
T>CATALOG	Catalog a disk
T>CISB	Compuserve B transfer protocol
T>D410	D410 terminal emulation
T>DIALER	Auto redialer
T>EDITOR	Message editor
T>HP2392	Hewlett Packard 2392 emulation
T>HREVIEW	Review buffer help screen
T>MAINMENU	Main menus
T>PCPDIAL	PC Pursuit dialer
T>SETCOLOR	Set the program colors
T>SETFILEX	File transfer setup
T>SETHARD	Hardware setup
T>SETMACRO	Macro editor
T>SETMODEM	Modem setup
T>SETTERM	Terminal setup
T>TIBBSXMD	Xmodem transfer protocol - use with TIBBS
T>VT52	VT52 terminal emulation
T>VT100NET	VT100 terminal emulation - use on major nets
T>VT100VAX	VT100 terminal emulation - use with VAX/DEC
T>XMODEM	Xmodem transfer protocol - general use
T>YMODEM	Ymodem transfer protocol

No files of the third type have been provided with the package, as TELCO makes them if they are needed.

TOS/CONFIG	Configuration of TELCO
TOS/PCP	PC Pursuit Dial directory
TOS/PHONE	Phone directory

The documentation is contained in the file TELCODOC, and may be printed out using the included PRINTDOC utility. The READMEPR file is instructions for printing out the documentation. PRINTDOC may be loaded from E/A option 5, or through XB with LOADPRINT.

An extended basic loader called LOAD has been provided, which will work with the TI extended basic cartridge but may not work with the newer extended basics. A minimem loader called MINILOAD has also been provided. A CHARA1 file has been included, although TELCO will work with any CHARA1 file. If no CHARA1 file exists on the diskette, the current character set will be used.

Users of TELCO V 1.x may use their old TOS/PHONE file with TELCO 2.2, but the TOS/CONFIG file must be recreated. This means that macros and other settings from version 1.x must be re-entered when you first start using version 2.2.

GETTING STARTED

To run TELCO from the E/A environment:
Select option 5 & enter:
DSK1.TELCO

To run TELCO from the TI Writer environment:
Select option 3 & enter:
DSK1.TELCO

To run TELCO from the Minimem environment:
Select option 3 (minimem) then
option 1 (load and run) & enter:
DSK1.MINILOAD

A program called LOAD has been provided to auto-load TELCO when the Extended Basic cartridge is used.

Once the program is loaded and begins execution, it will search for a CHARA1 file. If no CHARA1 file is in the drive from which TELCO was loaded, the program will use the default character set in memory. Any CHARA1 file may be used.

After loading the CHARA1 file, TELCO will check the drive for the TOS/CONFIG file. This file did not come with your package; it is created by TELCO once the program has been loaded for the first time or if the config file has been erased.

At this point, the Title screen will be displayed. After the program has been booted thirty times, the title screen will not be displayed. The title screen may, however, be called up from the Main Menu at any time.

With some devices, the drive access detection scheme may not work properly. If this scheme fails to detect the drive number, TELCO will not be able to load modules, and the title screen will not be displayed. If this happens, reboot TELCO while holding down the [Enter] key. You will be prompted to enter the path, which must end in a period. You may use up to fifteen characters for the path. Corcomp Ramdisk users may use "DSKR.", and users of the Myarc HFDCC may use paths such as "WDS1.TELCO.". Should you wish to return to the last drive access scheme at any point, enter "DSK0.". Once you have specified your path, the file TELCO will be saved to the drive specified. Be sure that there is no write-protect tab present.

A NOTE OF REASSURANCE FOR NOVICE USERS: TELCO may seem to have an overwhelming number of options at first, but few (if any) changes are necessary for it to be immediately useful. The default selections should be adequate in most cases.

The Status Line

On the bottom line of your screen there is a status line which looks like this:

```
00:00:00  1200 8N1 F LA PA RW MAINMENU
```

The first item on the status line, from left to right, is the elapsed time clock. This clock will be reset to 00:00:00 when the dialer connects to a BBS via the autodialer, and may be reset manually within the terminals by pressing Fctn-Q.

The second item is the current system baud rate. This example is set to 1200 bps. Following baud rate is parity. In the example above, this is set to 8 data bits, no parity checking, and 1 stop bit.

Next is the full/half duplex flag. When TELCO is set to full duplex, the system expects the remote system to echo all transmissions back to the user. When it is set to half duplex, TELCO will automatically echo transmissions back to the user.

After the duplex flag is the log flag. There are four settings for this flag. Once the user opens the log, the (LW) flag will appear. This flag indicates that the log is open and waiting for the current line, the one the cursor was on when the log was opened, to scroll off the screen. Once that happens, the (LA) flag will appear. This flag is used to indicate that all lines scrolling off the top of the screen will appear in the log. When the user closes the log, the (LC) flag will appear. This flag indicates that the log is closing. If the log hold feature is selected, the (LC) flag will appear until the line at which you selected hold scrolls off the top of the screen. At this point, the (LH) flag will appear until such time as the user toggles the log hold off. When this is done, the (LW) flag will appear.

After the log flag is the print spooler flag. This flag has three possible settings, similar to those for the log. (PW) indicates Print spool Waiting to start, (PA) indicates Print spool Active, and (PC) indicates Print spool Closing.

The next flag that appears is the (R) flag for remote echo on. If this flag is set, all incoming characters are echoed back to the sender.

The last flag, (W), indicates that window lock is on. If this flag is set and the local screen size is smaller than the remote system's screen size, the local window will not scroll right or left automatically to keep the cursor on the screen.

Common Keypresses

In most cases, except where noted later, Fctn-9 will return the user to the previous function. Geneve users may also use the [ESC] key for the same purpose in many cases. Fctn-= will offer the user the option of quitting. If "no" is selected, the user will be returned to the current function. Fctn-0 will send the user to the main menu. For help, press Fctn-7. If help is available, this key is active, and options may now be selected from within the help screens.

All menus in TELCO follow the same pattern for ease of option selection. There are two ways in which the user may select an option. The first is by using the arrow keys (Fctn-X & Fctn-E) to move the bar to the desired choice, then pressing [Enter]. The second is by pressing the capital letter of the option.

Whenever the user is prompted by TELCO to enter a string, these keypresses are available for editing the string:

Fctn-1	Delete character at cursor
Fctn-2	Insert character at cursor
Fctn-3	Delete from cursor to end of line
Fctn-5	Clear input
Fctn-S	Left Cursor
Fctn-D	Right Cursor

In the Terminal mode, the following keypresses are available for quick access to functions:

Fctn-1	Autodialer
Fctn-2	Print Spooler toggle
Fctn-3	Window left
Fctn-4	Download files (Pgdn on Geneve)
Fctn-5	Window right
Fctn-6	Upload (Pgup on Geneve)
Fctn-7	Help
Fctn-8	Review buffer
Fctn-H	Hangup
Fctn-M	Macro select
Fctn-B	Terminal setup options
Fctn-Y	Screen setup options
Fctn-N	Full/Half duplex toggle
Fctn-L	Log open/close
Fctn-,	(function-,) Log hold
Fctn-J	Window lock toggle
Fctn-V	Status line toggle
Fctn-.	(function-period) Conference Mode
Fctn-Q	Reset clock
Ctrl-2	Clear screen locally

The list of available keypresses may be called up by pressing the help key (Fctn-7).

Note: In conference mode, screen controls such as cursor up or down are not transmitted to the remote system.

Terminal Emulations

Most keyboard and screen functions operate in the same manner with all of the terminals. In some cases, a special function has been included for keymapping, etc.

The emulations currently available are:

ANSI	Graphics driver used with IBM
D410	Data General 410
ADM3A	Common terminal in TI community
VT100NET	(Limited implementation this release, but improved over TELCO 1.3, for use on networks such as Compuserve and Delphi)
VT100VAX	(Limited implementation this release, but improved over TELCO 2.1, a truer implementation for use with VAX systems)
VT52	(Limited implementation this release)
HP2392	Hewlett Packard 2392 (limited implementation this release)

MAIN MENU

Most of the functions of TELCO are menu driven. The main menu provides access to these functions. The main menu has the following options:

Terminal
Review buffer
Auto dialer
Manual pc pursuit
Upload file
Download file
Catalog
Editor
Log open/close
Setup options
Intro screen
Quit program

Terminal

This function will load the current terminal. The default terminal is the ADM3A terminal unless this is changed by the user or set up by the dialer.

Review Buffer

This function allows the user to page back through the last 8K of received data. The review buffer mode is very powerful, and is not destroyed by file transfers. The following keypresses are available to use:

Fctn-1	Top of review buffer
Fctn-2	Bottom of review buffer
Fctn-3	Window left
Fctn-4	Window down
Fctn-5	Window right
Fctn-6	Window up
Fctn-7	Help
Fctn-8	Screen Dump to a device
Fctn-P	Purge review buffer
Fctn-E	Line up
Fctn-X	Line down
Fctn-S	Column left
Fctn-D	Column right

The screen dump function will dump a 23- or 24-line by 80-column copy of the screen in view, depending on whether or not the status line is visible. This function may be used with the log open and print spool active. A screen may be dumped to any device.

Auto Dialer

The dialer uses a file called TOS/PHONE on disk to keep a record of up to 99 numbers to dial. This file is not on disk when you receive the package. TELCO will create the file automatically, and does not create 99 numbers until the user pages down that far.

To view the list of numbers use:

Fctn-4	Page down
Fctn-6	Page up
Fctn-X	Line down
Fctn-E	Line up

To modify an entry, press 'M', then enter the number of the entry you wish to modify. The following information must be entered for a dial record.

A) Name:	Title or name of BBS
B) Phone:	Up to 14 characters for phone number
C) Term/mod:	If connected to bbs load this terminal or module (name of module must be typed in by user)
D) Baudrate:	Will set system to desired baud rate before dialing
E) Parity:	Will set system to desired parity before dialing
F) Duplex:	Will set system to full or half duplex after dialing
G) Width:	Terminal width for bbs you are calling.

Dialing

To dial a number, type the number of the entry and press [Enter]. To dial more than one number in the directory, type the numbers, separated with spaces, and press [Enter]. TELCO will dial a list of up to 15 numbers (as many as fit on the line) until it connects on one of the numbers.

EXAMPLE: to dial numbers 1, 15 and 63 enter: "1 16 63".

While dialing, pressing Fctn-4 will remove the current number from the redial list. The space bar will abort to the next number in the redial list. Fctn-9 will abort the entire dial and return to the Dialer menu.

For PC Pursuit dialing, autodial modem users may link to the PC Pursuit dialer with the Term/mod option. Set up a dialer entry for the local Telenet node, with "PCPDIAL" under Term/mod. The rest of the procedure is the same as for those using the manual PC Pursuit dialing option.

Manual PC Pursuit

Once you are connected to Telenet, you may redial a city with this dialer. You may have up to 99 cities in the dialing directory, and as many as 15 may be redialed. The list of numbers may be viewed with the same commands as the autodialer, and the entries are modified in a similar fashion. The following information must be entered for each dial record:

Name: Name of city
PCP: City i.d. string

Once TELCO is connected to a city, the autodialer will be reloaded, and the redial feature may be applied to any bbs within dial range of the PC Pursuit node. It is not necessary to have an autodial modem to use this feature.

File Transfer

Xmodem, TIBBS Xmodem, Ymodem, and Compuserve B protocols send files with the header Paul Charlton designed unless the file is a display/fixed 128 unprotected file. They will receive files with or without the header, and any file received without the header will be in display/fixed 128 format. If a file being received does not have a header, the number of bytes to receive will display "unknown" both for the total byte count and the estimated transfer time. The default error checking method is CRC. This error checking scheme is one of the most reliable ones. If the remote system fails to understand a request for CRC, TELCO will switch to Checksum. This process will take about 1 minute and the program will usually display 5 errors.

To abort a transfer in progress, press Fctn-9. This will abort both the local and the remote system in most cases. (Aborting a transfer during uploading may be an exception, since the request to abort the transfer may be taken in as data by the remote system. In such cases, the transfer would be aborted locally, but not at the remote system.) By default, aborted download files will be erased from your diskette. You may elect to keep aborted downloads through the file transfer setup.

TELCO's Compuserve B protocol supports both binary and ASCII transfers, and will work with the Quick B option on Compuserve. The TIBBS Xmodem should be used to transfer files to a TIBBS.

The ASCII transfer is used to send any display/variable 80 text file to the remote system. TELCO has various options which allow the user to control how fast a file is transmitted, or to send line-by-line. Carriage returns (CR) and linefeeds (LF) may be removed or altered to make the file more readable to the remote system, leading spaces can be stripped, and at the end of the line, it is possible to add CR, CR/LF, LF, a space, or nothing. If the local echo is on, the file will scroll by on the screen. The screen will be restored after the transfer is complete.

Catalog

The catalog function provides the user with the ability to delete, protect, unprotect and view files on a diskette. Once the user has selected the drive to catalog, the manager will build the directory. Once it is built, the display will show the diskname, free sectors, used sectors and number of files followed by up to ten file descriptions.

Although this manager will support several functions, only one function may be performed per catalog. This is done by marking files. To mark a file, move the bar to the file and press 'M'. To unmark, press 'U'. It is possible to mark all the files on the diskette by pressing 'A'. To clear all of the marks, press 'C'.

After marking all the files to be altered, pressing the 'P' key will allow the user to proceed to the functions menu. The functions available are:

Delete
Protect
Unprotect
Abort

All marked files will be affected by the function selected.

To view a D/V 80 file, move the highlighted bar to the desired file and press "V". While viewing a file, any key will pause the display, and any key will restart it. Fctn-9 will abort the view.

Editor

The editor may be used to edit or create small D/V 80 files (e.g. messages) to save to disk. The limit is 50 lines by 80 columns. The following keys are available:

Fctn-D	Cursor Right	CTRL-A	Clear All Tabs
Fctn-S	Cursor Left	CTRL-B	Set Bell
Fctn-E	Cursor Up	CTRL-C	Clear Tab
Fctn-X	Cursor Down	CTRL-P	Place Tab
Fctn-1	Delete a Character	CTRL-R	Set Right Margin
Fctn-2	Insert a Character	CTRL-S	Show Tab Line
Fctn-3	Delete a line	CTRL-T	Tab
Fctn-8	Insert a line		

The Set Bell, Clear Tab, Place Tab, and Set Right Margin keypresses act on the current cursor position, and the Bell sounded is the sound effect currently in use. These settings are saved in the Config file if save Changes is selected after exiting the editor.

Log Open/Close

This feature will trap incoming data and dump it to a device. While the user is in a terminal, this function may also be accessed directly by pressing Fctn-L. Unwanted text may be filtered out with the log hold function. The log hold may be toggled on and off with Fctn-comma. Note: In order to prevent the log file from becoming excessively large, after approximately 18K of data is dumped to disk, TELCO closes the log file and opens a new one with the last character of the filename incremented by 1. This is the default setting for the log feature. This feature may be turned off in the Terminal setup menu, so that a continuous log is kept. By default, multiple blank lines are compressed to one blank line in both the log and the review buffer. If multiple blank lines must be preserved, the "Squeeze blank lines" option in Terminal Setup should be set to "OFF".

Setup Options

The setup options menu provides the user with easy access to the TELCO operations which may be altered. The setup options menu consists of:

Terminal setup
Screen setup
Hardware setup
Modem setup
File transfer setup
Edit macros
save Changes

TERMINAL SETUP

The following options are available in the terminal setup menu:

```
A) Emulation mode       :ANSI
B) Terminal width       :40
C) cr translation in    :CR
D) cr translation out   :CR
E) Destructive Backspace:Off
F) Line wrap            :Auto
G) Screen scroll        :Auto
H) Screen wrap          :Off
I) Duplex toggle        :Full
J) Remote echo          :Off
K) Spooler mode         :Delay
L) xmit on/off mode     :Logic
M) xmit on chr          :017
N) xmit off chr         :019
O) Log mode             :Block
P) Squeeze blank lines  :On
Q) Baud rate            :1200
R) Parity               :8N1
```

Emulation Mode

Currently there are seven emulation modes available. These are:

ADM3A	VT52
ANSI	VT100NET
D410	VT100VAX
HP2392	

More information about these emulations is at the end of this document.

Terminal Width

The terminal width may be any value from 20 to 80. This value represents the screen size of the remote system. This allows the TI-99/4a user to view an 80-column screen through a scrolling window.

CR Translation In

If this toggle is set to CR then all incoming CRs are left alone. If it is set to CR/LF then all incoming CRs are translated in CR/LF sequences.

CR Translation Out

If this toggle is set to CR, a one-character CR is sent when [Enter] is pressed. If it is set to CR/LF, a CR/LF sequence is sent.

Destructive Backspace

Some remote systems treat all backspaces received as destructive backspaces, while others simply move one position to the left without erasing the character, relying on the terminal to erase characters which are backspaced over. The destructive backspace option should be set to "On" for the latter type, if you wish to erase as you backspace.

Line Wrap

If line wrap is set to AUTO, all lines which are longer than the terminal screen width are automatically continued onto the next line. If it is set OFF, any data beyond the terminal screen width is truncated.

Screen Scroll

If screen scroll is set to AUTO, screen scrolling is automatic when the cursor exceeds the bottom line. If it is set to OFF, the cursor will stay at the bottom line, causing data to be overwritten.

Screen Wrap

If the Screen scroll setting is "off", this option will allow the cursor to wrap through the bottom of the screen to the top, and vice versa if Screen Wrap is set "on". Some terminals use this option as a quick way to move the cursor from the bottom to the top of the screen.

Duplex Toggle

This toggle will switch the system between full and half duplex. If TELCO is set to half duplex, all characters transmitted will be echoed back to the user locally. If it is set to Full duplex, TELCO assumes that the remote system will echo the user's transmissions. The duplex may also be toggled directly from the keyboard with Fctn-N.

Remote Echo

If this feature is turned on, all received data will be echoed back to the sender.

Spooler Mode

The spooler mode may be toggled between "delay" and "imm" (immediate). In Delay mode, data is not sent to the printer until it scrolls off the screen, allowing full-screen graphics to be spooled to the printer, and preventing any terminal control codes received from interfering with your printer's operation. The default is immediate, but if you are experiencing difficulties (spurious form feeds, italics, etc.), try changing to "delay".

Xmit On/Off Mode

This may be toggled between "Logic" and "Single". Logic mode means that TELCO will attempt to send Xoff until transmission stops, up to ten times. If it is set to single, TELCO will send only one Xoff.

Xmit On Chr

This is the decimal value of the character that is transmitted for Xon. Usually this is control-q, or 17.

Xmit Off Chr

This is the decimal value of the character that is transmitted for Xoff. Usually this is control-s, or 019.

Log Mode

This is toggled between "Block" and "Cont" (Continuous). In Block mode, the log will close approximately every 18K of received data, and open a new log with the filename incremented.

Squeeze Blank Lines

By default, TELCO will compress multiple blank lines received to one blank line in the review buffer and in the log. If this option is set to "Off", multiple blank lines will be preserved as received.

Baud Rate

The baud rate options allow the user to select from 5 different preset baud rates:

300bps
1200bps
2400bps
4800bps
9600bps

There is also an "other" option, which allows the user to enter any baud rate supported by the modem in use.

Parity

The default setting for TELCO is 8 data bits, no parity check and 1 stop bit, which is often written "8N1". This option allows the user to select from the three most common parity settings of 8N1, 7E1, and 7O1, or build any combination from: 7 or 8 data bits; Even, Odd, or No parity; and 1 or 2 stop bits.

SCREEN SETUP

This menu provides the user with the following options:

```
A) foreground colour
B) background colour
C) menu inverse toggle
D) 40/80 Display          (Geneve or 80-column card ONLY)
E) status line toggle
F) sound effects:Beep
G) alarm sound  :Chime
H) window width :40
I) left column  :00
```

Menu Inverse Toggle

This toggle will switch all menus and windows used in TELCO from normal to inverse display or back again.

40/80 Display

If TELCO is being used on a Geneve 9640, or with an 80-column card, the user may select an 80-column display. This toggle switches between 40 and 80 columns. To have TELCO boot into 80 columns, simply save the changes to disk at the setup menu. On a 99/4a without an 80-column card, this option will have no effect.

Status Line Toggle

This toggle switches the terminal height from 23 to 24 lines and back. Note: in 24-line mode the status line will disappear. For Geneve or 80-column card users, this option changes the interlace and switches between 24- and 26-line mode. Geneve users should use this option instead of Ctrl-Alt-Shift, since TELCO will save the status line position properly only if Fctn-v or the menu option has been used.

Sound Effects

TELCO provides the user with three options for sound effects when a bell character is received: none (sound off), chime or beep. The default is beep. The bell character may vary depending on the emulation mode being used.

Alarm Sound

The alarm is sounded upon successful completion of file transfers and successful completion of a dial. It may be set to any of Chime, Beep, or Off. You may find it useful to set it to a different sound from the bell character sound effect, or it may be set to the same sound.

Window Width

This function allows the user to specify the size of the viewing window. The terminal screen that is being emulated will be slid through this window. Note that the maximum window width on a TI-99/4a is 40 columns, and on a Geneve in 80-column mode or on a TI-99/4a with an 80-column card, it is 80. The 40/80 Display toggle will adjust the maximum value automatically.

Left Column Shift

This feature allows the user to shift the left edge of the terminal "window" to correct problems with monitors or televisions. Note that the window width plus the left column shift should not exceed a total of 40 on a TI-99/4a, or 80 on the Geneve in 80-column mode.

HARDWARE SETUP

The following options are available:

- Spooler port
- Baud Rate
- Parity
- Modem port
- Hangup type

Spooler Port

Print spooler support is available for the TI, Corcomp, and Myarc pio ports 1 and 2, as well as RS232 ports 1 through 4. Additional hardware support may be added if demand from registered users warrants. The default setting for this option is "no printer", which will prevent TELCO from locking up if the spooler option is accidentally selected when no printer is attached to the system. Otherwise, TELCO may take up to 10 seconds to determine that no printer is in use. Since some terminals support remote requests for printer on/off, this setting should be left at "no printer" unless a printer is in use. If the pio port is in use, the Baud Rate and Parity options, used for the RS232 ports, will instead display N/A. For the RS232 port, the same Baud Rate and Parity settings are available as in the terminals. A 512 character buffer has been added to the print spooler for additional speed.

Modem Port

The modem may be on port 1, 2, 3 or 4.

Hangup Type

TELCO will support a modified cable. This cable arrangement will allow the user to utilize the DTR line hangup option. Connect the DTR line from your modem to the CTS (Clear To Send) line of the TI RS232 port being used (pin 5 for ports 1 & 3 or pin 13 for 2 & 4). Check to make sure that the dip switch for the DTR line on the modem is set so that the TR light is off if your TI is off. These pinouts should be correct for Hayes-compatible modems, but check your modem manual to verify this.

Modem		RS232:	Ports 1&3	Ports 2&4
Ground	1	Ground	1	1
Transmit	2	Receive	2	14
Receive	3	Transmit	3	16
Ground	7	Ground	7	7
DTR	20	CTS	5	13

The other hangup method does not require cable modification but instead uses the hangup string (see Modem Setup). This method is not, however, as reliable as the DTR line method. The default string setting is for Hayes compatible modems. The Myarc RS232 card cannot support the DTR hangup method, so Myarc users must select the "string" method.

FILE TRANSFER SETUP

The following options are available:

A) Aborted downloads :Discard
B) Default error check:CRC
C) Echo locally :Off
D) Blank lines :Off
E) Character pacing :00
F) Line pacing :00
G) Pace character :000
H) Strip leading space:Off
I) Line by line send :Off
J) Send at end of line:CR
K) CR translation :None
L) LF translation :None

Aborted Downloads

When a download is aborted, the system will either discard the partial file or, if this toggle is set to Save, the file will be kept.

Default Error Check

The default error checking with Xmodem transfers set by TELCO is CRC. This is the best method for error checking. The Xmodem transfer protocol will switch to Checksum in about one minute if the remote system still can not understand which error checking protocol is in use. Switch the default to Checksum if you know that the remote system is not capable of using CRC.

Echo Locally

When an ASCII file is being sent, the ASCII transfer protocol may be set to echo what it is sending back to the user. Note that echoed data while an ASCII transfer is in progress will not be put into the review buffer, nor will it be formatted in any way except for CR/LF characters. On the TI-99/4a, the terminal screen width will be ignored - all data is displayed in 40 columns. On the Geneve, all data is displayed in either 40 or 80 columns, depending on your screen setting.

Blank Lines

Some systems will assume a CR/LF CR/LF sequence (i.e. a blank line) to be an end of text marker. If this toggle is set to Expand, a CR/LF (space) CR/LF sequence will be sent for blank lines.

Character Pacing

This is the pause time between characters transmitted during an ASCII transfer in 60ths of a second. This may be used for ASCII transfers to systems that are unable to receive characters at the full speed of the transmission.

Line Pacing

This is the pause time between lines sent during an ASCII transfer in 60ths of a second and is used for reasons similar to those for using character pacing.

Pace Character

Some systems send a character after each line to indicate that the system is ready for the next line. To have the ASCII transfer do this, set the pace character to the appropriate value. If it is not required, set the pace character to zero.

Strip Leading Space

If this option is selected, during an ASCII send all leading spaces will be stripped before transmission.

Line by Line Send

If this is turned on, when an ASCII upload is started, the first line of the file will be sent, and all subsequent lines will be sent one at a time as the spacebar is pressed.

Send at End of Line

This option allows the user to select what will be sent at the end of each display/variable 80 record. If this option is set to nothing, nothing will be transmitted. It may be set to send nothing, cr, cr/lf, lf only, or a space.

CR Translation

When an ASCII file is being sent, a CR may be translated into a CR/LF sequence or even STRIPped from the file.

LF Translation

When an ASCII file is being sent, a LF may be translated into a CR/LF sequence or even STRIPped from the file.

MODEM SETUP

Strings: All strings and macros that are transmitted may take advantage of special characters. These are:

!	Transmits a carriage return.
~	Pauses transmission for 1 second.
*#	Will repeat character immediately prior to the asterisk the number of times specified by #.
^	Subtracts 64 from the ASCII value of character which follows ^ symbol. Eg) ^A sends a ctrl-A or ASCII 1.
|	Sends Character number 27, the escape character.

(To transmit the characters !, *, ^, and |, use "!!", "**", etc.)

The following options are available:

Initialization string
Dial string
Hangup string
Abort redial chr :!
Modem echo time :120
Redial pause time:120

Initialization String

This string will be sent to your modem whenever the program is booted.

Dial String

This string is sent to the modem by the dialer as a prefix to the phone number string within each dial record.

Hangup String

If the hangup type (see Hardware setup) is set for "string", this string will be used to hang up the modem.

Abort Redial Character

Some modems may require a special character for aborting a redial. Usually the default '!' (carriage return) will work.

Modem Echo Time

Some modems may echo the number being dialed back to the user quite slowly. On occasion, it is too slow for the dial to react properly. If this happens, lengthen the modem echo time until the dialer is acting properly.

Redial Pause Time

This is the time period between redials. Some modems require a pause to settle down.

Note: The preceding settings are suitable for Hayes-compatible modems. Other modems may require some experimentation to find the best settings. For the Volksmodem 12, for example, the abort character is "A", and the modem echo time should be set to 280.

EDIT MACROS

Up to 26 36-character macros are available. When a macro is used, the data is transmitted to the remote system.
For viewing the available macros, the following keys are active:

Fctn-4	Page Down
Fctn-6	Page Up
Fctn-X	Line Down
Fctn-E	Line Up

To edit a macro, select the corresponding letter (A-Z) (Note: The macro must be on screen before it can be edited.) The cursor is placed beside the letter of the macro to be edited, ready for the user to enter the string. The string is accepted once the user presses [Enter]. The same special characters that are used in the modem setup strings are available for use in macros. A macro to log a user on to a board may be set up, for example, by using the pause and carriage return characters (~ and !) with the text. Once a macro has been edited to your satisfaction, press [Enter]. If you wish to leave the macro unchanged, press Fctn-9 to abort the edit.

An additional feature of macros is the ability to link more than one macro together. Use an "&" (ampersand) at the end of the macro, followed by the letter of the macro to link to. While a bug in earlier releases of TELCO prevented this from working properly, this is corrected in V 2.2.

e.g. John Doe&B will link to macro B.

Note: While it is possible to link a macro to itself, this is unwise, as the macro will be in a permanent loop. It is possible to abort the execution of a macro by pressing Fctn-9, but this will not break out of a looping macro, nor will it break a larger loop of linking macros.

The maximum length of a macro string is 36 characters. If long macros are required, however, the multiplication feature (*#) and macro link feature can help to defeat this limitation.

To invoke a macro from the terminal, press Fctn-m, followed by the letter of the macro desired.

CAUTION: After editing any of the setup options or macros, be sure to select "save Changes" in the Setup options menu if you do not want your new settings or macros to be lost on exiting TELCO.

ADM3A Terminal

The following incoming ADM3A commands are processed:

ESC =rc	Row/Column position
CTRL-G	Bell
CTRL-H	Backspace
CTRL-J	Linefeed
CTRL-K	Cursor Up
CTRL-L	Cursor Right
CTRL-M	Carriage Return
CTRL-Z	Home and Clear

The following TI keys transmit special functions:

Fctn-E	Cursor Up
Fctn-D	Cursor Right

ANSI Terminal

The following incoming ANSI commands are processed:

ESC[pl;pc H	Cursor Position
ESC[pl;pc F	Horizontal Position
ESC[pn A	Cursor Up
ESC[pn B	Cursor Down
ESC[pn C	Cursor Forward
ESC[pn D	Cursor Backward
ESC[6 n	Device Status Report (sends RCP sequence)
ESC[s	Save Cursor Position
ESC[u	Restore Cursor Position
ESC[2 J	Erase Display
ESC[K	Erase Line
CTRL-G	Bell
CTRL-H	Backspace
CTRL-J	Line Feed
CTRL-L	Clear screen & Home cursor
CTRL-M	Carriage Return

The following TI keys transmit special functions

Fctn-S	Backspace
Fctn-D	ESC[C
Fctn-E	ESC[A
Fctn-X	ESC[B

D410 Terminal

The following incoming commands are processed:

CTRL-G	Bell
CTRL-H	Home cursor
CTRL-J	Linefeed
CTRL-K	Delete from cursor to end of line
CTRL-L	Clear screen
CTRL-M	Carriage Return
CTRL-P r c	Cursor position (row/column)
CTRL-W	Cursor Up
CTRL-X	Cursor Right
CTRL-Y	Cursor Left
CTRL-Z	Cursor Down
>1E,>46,>45	Clear screen
>1E,>46,>47	Home cursor

The following TI keys transmit special codes:

Enter	>0A
Fctn-E	CTRL-W
Fctn-X	CTRL-Z
Fctn-S	CTRL-Y
Fctn-D	CTRL-X

Keyboard mapping feature for the D410:

The D410 terminal uses a 2-byte sequence for the special function keys. To simulate the function keys, press Fctn-K followed by the key whose ASCII value is the same as the second byte in the sequence desired.

e.g. for the sequence equivalent to F1 you would type
Fctn-K Q

The following incoming commands are processed:

ESC A	Cursor Up
ESC B	Cursor Down
ESC C	Cursor Right
ESC D	Cursor Left
ESC H	Home cursor
ESC F	Home cursor Down
ESC G	Move cursor to left margin
ESC K	Erase from cursor to end of line
ESC J	Erase from cursor to end of screen
ESC &acrY	Cursor positioning
ESC &d@	Screen attributes Off
ESC &dB	Inverse On

To transmit the codes which represent the function keys on the HP2392, press Fctn-K, then one of the following keys:

1	F1
2	F2
3	F3
4	F4
etc.	

The following incoming commands are processed:

ESC A	Cursor Up
ESC B	Cursor Down
ESC C	Cursor Right
ESC D	Cursor Left
ESC H	Home Cursor
ESC Y r;c	Direct Cursor Addressing
ESC K	Erase from cursor to end of line
ESC J	Erase from cursor to end of screen

To transmit the codes which represent the VT52 keypad and function keys, press Fctn-K, then one of the letters below:

0-9	Numerics
-	Dash
,	Comma
.	Period
Enter	Enter
A	PF1
B	PF2
C	PF3
D	PF4

The following incoming commands are processed for both terminals:

ESC[n A	Cursor Up
ESC[n B	Cursor Down
ESC[n C	Cursor Right
ESC[n D	Cursor Left
ESC[r;c H	Direct Cursor Addressing
ESC[r;c f	"
ESC[H	Home
ESC[f	"
ESC[K	Erase from cursor to end of line
ESC[0J	Erase from cursor to end of screen
ESC[2J	Clear Screen
ESC[?2l	Enter VT52 mode (loads VT52 terminal)
ESC[?5i	Printer on (spooler)
ESC[?4i	Printer off (spooler)

To transmit the codes which represent the VT100 keypad and function keys, press Fctn-K, then one of the letters below:

0-9	Numerics
-	Dash
,	Comma
.	Period
Enter	Enter
A	PF1
B	PF2
C	PF3
D	PF4

The VT100NET terminal will transmit a ctrl-h when you press fctn-s (left arrow).

The VT100VAX terminal will transmit a ESC[D when you press fctn-s (left arrow).

A SPECIAL NOTE ABOUT PARITY

Since TELCO offers a truer implementation of the 8N1 protocol in the ANSI terminal emulation, 8N1 will not work on all boards in this emulation. Some programs strip the 8th bit from incoming data, but since TELCO is able to interpret a subset of IBM graphics, it requires the more complete implementation of the protocol. Currently, TELCO strips the 8th bit in all terminals except ANSI. It is always a good idea to use the correct parity for the board you are calling. If you seem to get random characters, or only some of the characters when you call a board, this indicates that your system is not set to the correct parity. Change your parity to match that of the system you are calling, and all will be well. During Xmodem transfers, you may notice that parity switches to 8N1 even if you are on a 7E1 or 7O1 board. Xmodem is an 8-bit binary transfer protocol, so both systems switch to 8N1, then back to their original settings after the transfer is complete. TIBBS and TECHIE BBS's usually run at 7E1 or 7O1, while TEXLINK BBS runs at 8N1.

ABOUT USING COMPUSERVE B/QUICK B

TELCO's Compuserve B protocol supports both Compuserve B and Quick B on Compuserve. Files may transferred with this protocol in binary, GIF, RLE, or ASCII formats. To download a file with TELCO's Compuserve B, follow these steps:

Tell Compuserve you want to download a file, by selecting "download" while browsing a file, or by naming a file to download at the main library prompt. Compuserve will prompt you for a transfer method. (Up to this point, the procedure is exactly the same as for an Xmodem download.) Select Compuserve B or Quick B. At this time, you will be prompted for a "filename for your computer". Enter the name of the file as you wish to save it, including the path for the file (e.g. DSK2.FILENAME), and Compuserve will wait for you to start the transfer at your end. In TELCO, press Fctn-4 (Or PgDn on the Geneve), choose option C for Compuserve B, and the transfer will proceed.

To upload a file with Compuserve B, tell Compuserve you wish to upload a file (UPL at the library prompt). You will have to enter the name of the file as it is to appear on Compuserve (maximum 6 characters plus a period and a 3-character extension -- no semicolons). When you are prompted for a file transfer method, select Compuserve B. You will be prompted for the "filename for your computer". Enter the name of the file as it exists on your disk (e.g. DSK2.FILENAME), then select either binary or ASCII transfer from the menu as appropriate. (The ASCII option provides error checking for the transfer of files that will be readable on line.) Compuserve will wait for you to begin the transfer, so select Fctn-6 (or PgUp) in TELCO, and select option C for Compuserve B. The transfer will proceed.

EXAMPLES

SETTING UP

The following is a step-by-step example of how to set up TELCO for the following system: TI-99/4a with Corcomp RS232 card; Volksmodem 12 modem; pulse telephone line; a string for hangup; line-by-line ASCII uploads which send a space at the end of each line transmitted, using character pacing; Xmodem transfers with the option of keeping incomplete downloads turned on; a 38-column screen offset 2 columns towards the right, print spooler changed to immediate; and the log to disk closing every 18K, incrementing the file name: (Note: These are not necessarily recommended settings, only examples of how to change settings. In most cases, the defaults will probably be adequate. To set your system up differently, simply follow the example below, making different choices.)

1. From the main menu, select "Setup options", either by moving the highlighted bar to the option and pressing [Enter], or by pressing the capital letter "S".

2. Select Terminal Setup.

3. Select Emulation mode, and choose option 1, ADM3A.

4. Select Terminal width, and type 38. Press [Enter].

5. Toggle the Spooler mode by pressing "K" or by pressing [Enter] while the bar is over that option, until it reads "imm" in the right-hand column.

6. Toggle the Log mode to "block" by pressing "O", or by pressing [Enter] while the option is highlighted.

7. Press Fctn-9 to return to the setup menu.

8. Select Screen setup.

9. Select window width and type "38".

10. Select left column, and type "2".

11. Return to the setup menu with Fctn-9, and select hardware setup.

12. Select Hangup type, and toggle it to "String".

13. Select spooler port with the highlighted bar, and press [Enter]. Move the highlighted bar to "cc pio/1" and press [Enter].

14. Return to the setup menu, and select modem setup.

15. Select Dial string, and type "ATDP" in the window. Press [Enter].

16. Select Abort redial chr, and enter "A".

17. Select Modem echo time and enter 280. Return to the setup menu.

18. Select File transfer setup.

19. Select A, Aborted downloads, and toggle it to "KEEP".

20. Select I, and toggle line by line ON.

21. Select J, and choose option e, space.

22. Select E, Character pacing, and type 10. Press [Enter].

23. Be sure to select "C" for "save Changes" before exiting TELCO.

DIALER ENTRIES

The following is a step-by-step example of adding a new entry to the autodialer for a board with the name TEXLINK, and the number 999-9999, which requires a parity of 7E1, half duplex, and an ADM3A terminal emulation with a baud rate of 1200, using a terminal simulation of 80 columns.

1. Go to the autodialer, either directly from the terminal by pressing Fctn-1, or from the main menu.

2. Press M, then type the number of the entry that you wish to modify and press [Enter].

3. Select "A", then type TEXLINK and press [Enter].

4. Select "B" then type the number 999-9999, with or without the dash, depending on your modem, and press [Enter].

5. Select "C", then type ADM3A and press [Enter].

6. Select "D", then "B" to select 1200 bps.

7. Select "E", and the parity menu will appear. Select 7E1 and press [Enter].

8. Select "G" then enter the terminal width desired for this entry.

Any of the above steps may be skipped if a particular entry (e.g. baud rate) is already correct.

The editing keys are available for use in making entries to the autodialer. They are:

Fctn-1 Delete character at cursor
Fctn-2 Insert character at cursor
Fctn-3 Delete from cursor to end of line
Fctn-5 Clear input
Fctn-S Left cursor
Fctn-D Right cursor

SAMPLE MACROS

A) !~*10USER NAME!~PASSWORD!
B) This is neat!!**&E
C) |N5
D) |O
E) LOOK at tt^Hhis!!
F)
G)

Example A, above, will send a carriage return (!), followed by a pause times 10 (~*10), followed by the string "USER NAME", then a carriage return (!), a one-second pause (~), and finally the string "PASSWORD", ending with a carriage return (!). This type of macro is useful for logging onto a board where the pause between system prompts can be accurately anticipated. It may take some experimentation to create a workable macro for such conditions. Once it is set up, however, logging on to a particular board is as simple as pressing Fctn-M and then pressing "A".

Example B will simply send the string "This is neat!*" and branch to macro E. The two exclamation marks will send one exclamation mark rather than carriage returns, and the two asterisk will transmit one asterisk. The "&E" tells TELCO to do macro E after completing B.

Example E, which may be called separately, and will always be sent after B, transmits the string "LOOK at this!", by using control-H (^H) to backspace over the extra t.

Macros C and D send escape sequences. These two macros may be used to set an Epson-compatible printer to skip perforations and back if the following method is used:

1. Set your system to HALF DUPLEX (Fctn-N).
2. Set your print spooler to IMMEDIATE, with the printer turned ON.
3. Open the print spooler.
4. Press Fctn-M, then press "C", and your printer will be set to skip perforations.

Following the same sequence, but with macro D, will set it back. Check your printer manual for escape codes that you can use this way.

TI AND GENEVE KEYPRESS TABLE

ASCII (Decimal)	TI Keypress	Geneve Keypress
0	Ctrl-, (comma)	Ctrl-, (comma)
1-26	Ctrl-a to z	Ctrl-a to z
27	Ctrl-. (period)	Escape
28	Ctrl-;	Ctrl-;
29	Ctrl-=	Ctrl-=
30	Ctrl-8	Ctrl-8
31	Ctrl-9	Ctrl-9
32-126	Normal (i.e. space, alphabetic chars, etc.)	Normal
127	Ctrl-1	Ctrl-1