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.-------------------------------------------------------------------.
|                                                                   |
|           DESTERM 128    (C) 1989, Matthew E. Desmond             |
|                                                                   |
`-------------------------------------------------------------------'
```

Copyright & Distribution Notice:
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DesTerm is being distributed as SHAREWARE and may be posted at will, provided that the individual files remain unchanged, together with the ARCHIVE that they are distributed in.

ALL rights to the program (source & executable) and fonts remain with the author: Matthew E. Desmond, except the RS232 & CRC routines which remain with Geoffrey Welsh, and are used with permission.

The author has spent much time working on this high quality software, and he will continue to do so as long there is support for it. When you send your $25 registration, you will become a registered user of this software and will be entitled to free updates and technical service. The money will go towards buying new equipment to help the author make this program even better (His C128 is limping badly!). A list of how to get in touch with him appears at the end of this document.

Disclaimer:
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This program comes with no warranty, either expressed or implied, and the Author assumes no responsibility for any damage whatsoever, caused by the use of it.

DESTERM 128
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DesTerm is a telecommunications program designed and written by M. E. Desmond, for the C128 personal computer. This terminal has a host of features to make telecommunications simple and effortless:

- Full 9600 bps support
- Full ANSI colour graphics terminal emulation
- VT100/VT52 emulation modes included
- User defined character sets may be used
- Constant 2-line status bar
- Up to 52 terminal lines on-screen
- Selectable 40/80 column line widths, plus pseudo 40 column screen
- Full support for Hayes (tm) compatible modems
- Auto dialer for up to 16 numbers
- Xmodem CRC (also checksum) uploading and downloading
- Xmodem 1K for enhanced Xmodem communications
- Ymodem (batch) for multiple file transfers
- Punter C1 protocol for full Commodore compatibility
- 50K+ capture buffer to save/print/review incoming text
- Send buffered text with controllable character timings
- Full (user configurable) 16 colour display
- 8 user definable function keys
- Hex mode for monitoring incoming characters
- Disk Operations available from terminal
- Selection of Line terminators and delete characters

## Suggested Configuration:

o Commodore 128 Personal Computer & Monitor.
o Disk Drive (1571/1581 recommended).
o Hayes compatible modem.

## Starting Up:

Once the archive has been dissolved (to read this, it must have been!), the following files should all be placed on a disk:

| FILE | WHAT DOES IT DO? |
|---|---|
| desterm | The main executable code section |
| des.keyboard | The keyboard definition table *important!* |
| des.setup | The file containing the other filenames |
| des.initialize | The current configuration |
| des.functions | The function key definitions |
| des.telephone | The telephone directory file |
| des.ibmset | An IBM style character set (incl. graphics) |
| des.vt100set | A VT100 style character set (incl. graphics) |
| des.cbmset | The standard CBM character set (no graphics) |
| filetype changer | A program to change file types |

To run DesTerm, simply load "desterm", as if it were a regular C128 basic program:

```
dload "desterm",u8
```

or just make the disk an autobootable one. Once the program is loaded, it will load all the files it needs, and enter directly into TERMINAL MODE.

## TERMINAL MODE:

When in terminal mode, most of the keyboard would act as if you were using basic. To provide certain ASCII characters and VT100 emulation, the following keys have special functions:

| KEY | MEANING |
|---|---|
| INST DEL | Send backspace character (See EMULATION MODE) |
| CLR HOME | Send delete character (See EMULATION MODE) |
| Commodore/+ | Enable capture buffer |
| Commodore/- | Disable capture buffer |
| Commodore/RIGHT | Show right portion of screen (in 40 column mode only) |
| Commodore/UP | Show left portion of screen (in 40 column mode only) |
| Shift/= | Tilde (~) |
| Shift/+ | Back Apostrophe (`) |
| Commodore/[ | Open Brace ({) |
| Commodore/] | Close Brace (}) |
| UpArrow | Caret (^) |
| BackArrow | Underline (_) |
| Shift/- | Underline (_) |
| English Pound | BackSlash (\) |
| Shift/* | BackSlash (\) |
| Commodore/N | Function key #N, where N is from {1,2,3,4,5,6,7,8} |

The most important key sequence in DesTerm allows the user to exit terminal mode, and enter the MAIN MENU. To do this, simply press CTRL and RUN STOP simultaneously. If you do this properly, then a menu will pop up. At all times, there is a two-line status bar. This gives information on the emulation mode, screen length, the status of the buffer, and the protocol settings. The four circles marked LED show the status of the LED settings in VT100 mode.

## MAIN MENU:

The main menu consists of 18 items, some of which perform actions and others that open up sub-menus. To move around this (and any other) menu, simply use the up and down cursor keys (either set of keys works). When you are at the item you want, press return (or enter). Next, either the action you chose is done, or a sub-menu is shown. That’s about all there is to it...

## TERMINAL MODE:

This selection simply re-enters the terminal mode.

## DISK OPERATIONS:

This sub-menu allows the selection of various disk-related operations. The disk device number may be selected in the USER ENVIRONMENT section.

## BUFFER OPERATIONS:

With this sub-menu, all of the capture buffer functions are accessed. The buffer may be saved or loaded in either CBM or ASCII format, so that a file-conversion may be done if the file is 50K or less. The buffer may also be sent to a printer. The user may send the contents of the buffer back over the modem. To enable this, enter the SEND BUFFER option. Once this is done, a secondary terminal screen will appear. This terminal works the same as the main one, except that the keys that would normally start and stop the capture buffer (C=/+ & C=/-) now start and stop the send buffer. That’s all there is to it. Characters are paced according to the values in the TRANSFER OPTIONS. To exit the mini-terminal, type CTRL/RUN STOP.

## PROTOCOL SETTINGS:

The items in this sub-menu allow the selection of the communication protocol. Speed (BAUD), duplex, parity and stop bits may all be set here. In some cases where it may necessary to mask the high bit in 8 bit transmissions, this may also be achieved in this menu. Support of the XON/XOFF protocol may be enabled/disabled in this menu also.

## USER ENVIRONMENT:

Some of the aesthetic qualities of DesTerm may be modified in this menu. The colours that are used for the various screen objects may be selected here, but none of the colours may be used more than once. DesTerm includes a keyclick feature that will cause the computer to make a small click when each key is pressed; this feature may be turned on or off here. The device numbers for the disk drive and (optional) printer may be selected here, as can the output format for the printer. The printer may be sent either Commodore-ASCII or regular ASCII, with or without linefeeds following carriage returns. You should consult your printer manual to find the appropriate settings.

## MODEM SETTINGS:

Certain parameters that have to do with the modems may be set in this menu. The length of time that the modem will wait after dialing before attempting a redial may be specified, as may the pause between re-dials. The Hayes Setup sub-menu allows the selection of various modem specific items. Some modem-interfaces invert the control signals -- DesTerm allows this parameter to be changed such that the modem will respond properly. When set correctly, the DTR or TR light on the modem -if it has one- should be lit. When dialing out, the modem is automatically set to its maximum speed, as set by you, so that the modem can sort out the connect speed. This maximum speed should be set here. The modem will send the connect string to DesTerm, which will then set the correct speed. Certain modems (Genuine Hayes Modems) cannot handle this speed change - in these cases, the 'set connect rate' sould be set to no. When the program is first started, it will send the initial sequence to the modem. This sequence may be changed also. It is also possible to change the hangup-sequence. The dial string allows the user to change the way in which the modem dials -- it can also allow non-hayes modems to work. The rest of the options in this sub-menu should contain the strings that the modem will return under the conditions specified. If your modem is non-standard or it returns numeric codes, these will need to be changed for auto-dial/auto-answer to work.

## EMULATION MODE:

This menu allows all of the terminal emulation features of DesTerm to be changed. The user may choose ASCII, ANSI, VT100 and VT52 emulations. When a new emulation is chosen, the screen length is automatically set to best suit the protocol -- though this may be changed again later. There is also a filter mode that means that the terminal control commands are understood, they are not acted upon. The defintions for backspace and delete may be changed. Most BBS's will expect a CHR(8) for both backspace and delete, whereas a mainframe will expect CHR(127) for delete and CHR(8) for (non-destructive) backspace. These may be changed to suit your needs. Some systems assume that a backspace will remove characters from the screen ("destructive"), and some just assume that the cursor moves back ("non-destructive"). Either one of these options may be used with DesTerm (backspace mode). In some cases it may be necessary to disable the ANSI colour display - the colour mode option allows the screen display to be in only one colour. Screen Length may be any of 23,24,25,50,51,52 -- the last three switch the display into interlace,

so watch for the flicker (brightness and contrast may be lowered to lessen the effect). NOTE: at higher speeds, or in interlace, it may be necessary to enable XON/XOFF and disable colour so that DesTerm can keep up with the input. Screen Width may be 40 or 80. When in 40 column mode, the screen lines will start to wrap at the 40th column -- even though 80 columns are displayed. If the pixel mode is set to thick, then the whole screen (when in terminal mode only), switches to 40 columns (no need to switch the monitor). In this way, 40 column BBS's can take up the whole screen. In this mode C=/UP and C=/RIGHT may be used to switch which side of the screen can be seen. This will also allow an 80 column screen to be displayed as two 40 column screens. The cursor style and blink mode may be set here, as well as the screen mode (reverse or normal). The HEX display mode when enabled, will show each character as a hexadecimal number, instead of as a character -- this allows careful monitoring of what exactly is being sent. The Reset modes option simply resets all terminal dependant features, and causes the screen to be cleared.

TRANSFER OPTIONS:
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The transfer options menu allows the selection of the pauses put between characters (and lines) when they are sent by DesTerm. These are used when sending buffered text and function keys. When using some BBS's, data can be corrupted if it is sent at full speed, and slowing it down can prevent corruption and data loss. The maximum size of a Punter-protocol block may be set, and in DesTerm this may be selected in this menu. The Default file is used in two places. When doing Ymodem downloads, the filename is sent also, but the file-type (PRG or SEQ) is not. The files all take on the default type (but can be changed later, see FILETYPE CHANGER). With Xmodem transfers, the file-type is asked explicitly -- the default is automatically pointed to.

UPLOAD FILES:
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There are currently 4 protocols available for upload. When selected, the program prompts for a filename, and then attempts to send the file. (For Ymodem, special wildcards may be used, see WILDCARDS).

DOWNLOAD FILES:
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There are currently 4 protocols available for download, but DesTerm can differentiate between Xmodem and Xmodem 1-K so there are only 3 options. When Xmodem is chosen, a filename and file-type is prompted for. For Punter, just a filename is asked for (since the type is transferred). When Ymodem is chosen, the filenames are received automatically, so no other input is required. (The file-type is selected with the default file-type - see TRANSFER OPTIONS). For Xmodem and Ymodem, any file padding is removed.

## WILDCARDS:

For Ymodem uploads,a special wildcard routine has been written. It is compatible with the regular Commodore routine, but it also goes much further:

The ? still represents any character, but * no longer means 'fill rest of name with ?', it means substitute 0 through 15 ? characters for the *. Thus a*b will match ANYTHING which starts with 'a' and ends with 'b'. Up to two *'s may be used per pattern, and as many ?'s as needed.

## DIAL DIRECTORY:

When this is selected, the user may dial a number using one of 4 methods. They may pick a number to be dialed, redial the last number again, input a new number or select many numbers to be repeatedly dialed. If you select multiple dial, simply mark off which numbers you want to dial by pressing return on them while they are highlighted by the cursor - use the up and down cursor keys to move the highlighted bar. A number will be dialed if it has a '<' beside it. There are also some options at the bottom of the list. These will select all, deselect all and toggle all entries. Once you have chosen the entries you want, simply chose the dial selected numbers option. When a number is being dialed, press ESC to abort.

## EDIT NUMBER FILE:

To edit a number, simply select it and press return. There will be several new menus and prompts. When you have edited all the numbers you need, you may save them using any name you want. This allows multiple directories.

## ANSWER PHONE:

When answer phone has been selected, DesTerm waits for the RING string to be sent. When received, the modem will be told to answer the phone. ESC aborts the wait.

## DEFINE FUNCTIONS.

There are eight user definable function keys. These may be programmed to send specific strings over the modem. Each key may have 32 characters programmed. It may be necessary to include control characters in the strings, in which case, you should precede the character equivalent with a caret (^). ie:

carriage return = CONTROL M = ^m or ^M.

It may also be necessary to insert a pause. This may be done by using a tilde (~). Each tilde is a half second pause. If you need to send a tilde or caret, simply precede each with a backslash, so:
\\ sends \, \^ sends ^ and \~ sends ~.

You may save the function keys under any name, such that you may have more than one set.

SAVE SETTINGS:
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This menu allows the current default files to be re-loaded, or to change the names of the default files:
Char Set File: When selected will prompt for a filename, and load that as a new character set.
Setup File: When selected will prompt for a filename, and load that as a new initialize set.
Function File: When selected will prompt for a filename, and load that as new function key definitions.

Telephone File: When selected will prompt for a filename, and load that as a new phone directory.
Save Setup File: When selected will save the current user settings, modem settings, transfer options etc.
Save names file: When selected will save the current filenames so that they will be loaded by default next time.

HANGUP PHONE:
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This menu will attempt to hang up the phone. First it will drop DTR. If, after a second, nothing has happened, the sequence defined in the modem settings menu will be sent.

ABOUT DESTERM:
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This menu will display information about the program, such as the version, who wrote it, and how to get in touch with the author.

EXIT DESTERM:
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When this item is selected, you are asked if you are sure. If you are then the program terminates. If there was any unsaved text in the capture buffer, you are given the opportunity to save it first.

FILETYPE CHANGER:
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Also included in the distribution package for DesTerm, is a BASIC program called Filetype Changer. This program prompts for a filename and a file-type, and then changes the given file to the file-type specified. This is useful, for example, for when a file has been downloaded with Ymodem and its file-type did not match the default file type. NOTE: this program, and this program ONLY is public domain, and may be freely distributed.

NO HAYES MODEM:
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If you do not have a hayes type modem, you will not be able to use the autodial or auto-answer facilities of DesTerm, but you may be able to do most other things. To get a connect, try dialing the number with a regular phone, and switch the modem to on-line. If all goes well the connect should go ok...

BUGS/PROBLEMS:
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If you have found a bug, or have some problems, there are several things you can do:

Write me a letter, explaining what is wrong (why not enclose your registration?)
Send me E-Mail on any of the three boards listed.
Phone me up...

Matthew E. Desmond (DesTerm),
XXXXXXXXXXXXXXXXXX,
XXXXXXXX,
XXXXXXX,
XXXXXX, XXXXXXX.

Tel: XXXXXXXXXXXXX

BBS's:
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The Spanish Inquisition XXXXXXXXXXXXX. 2400/24hr. Atredes BBS (Amiga)
The Swamp HST XXXXXXXXXXXXX. 9600/24hr. Opus BBS (MS-DOS)
City Limits XXXXXXXXXXXXX. 2400/24hr. BBS 64 (C-64)

Or send E-mail via Punternet to node X or via Fidonet to nodes XXXXXXXXX or XXXXXXXXX.

I will respond to all enquiries, time permitting.

STATISTICS:
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SOURCE: 250K Ascii. (Not Distributed)
EXECUTABLE: 35K solid machine code.
ASSEMBLER: Dasm by Matt Dillon, runs on Amiga 2000.

The performance of this terminal at 9600 (and less) blows the existing Amiga (I am not biased -- I have one!) terminals out of the water. Be proud of your C128!!

TESTING:
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This program has been used extensively by the author for many months during development. It has been used with USR HST 9600+ bps modem with no problems. NOTE: do not use 9600 bps modems in echo mode -- The RS232 routines don't like it.

WHAT NEXT?
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If there is enough support, the following features (and more) may be added:

o Kermit & Sealink transfer protocols.
o Scripting language for automatic operation.
o Support for non-hayes modems.
o Ram expansion handling for speedy downloads.
o Mouse/Joystick cursor movement.

CREDITS:
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| | |
|---|---|
| Geoff Welsh, | for advice, new CRC code and RS232 routines... |
| Matt Dillon, | for DASM... (couldn't have lived without it!). |
| Dr Nora Znotinas, | for the loan of the VT102. |
| WLU, | for access to unix & vax. |
| My Parents, | for putting up with me. |
| Commodore, | for the grand old 128. |
| YOU, | for using the program, and sending $25! |
| Ward Christensen | for writing Xmodem and making it available. |
| Chuck Forsberg | for making sure Xmodem never becomes obsolete. |
| Steve Punter | for the Punter Protocol. |
| Phil Widmeyer | for being ARMED & DANGEROUS. |


## Addendum (August 2023)

This document was updated in Summer 2023 by Matthew Desmond (the original author). The bulk of the content has not been changed save to fix a couple of spelling mistakes and omissions plus removal of outdated contact information. For more information, please visit factorofmatt.com.