term

A terminal program for Amiga computers

Version 4.7
18 October 1996

by Olaf Barthel

1 Introduction

'term' is a telecommuncations program designed for use with any Commodore-Amiga computer running Kickstart 2.04 or higher. Its features include

- Fast built-in VT220 terminal emulation
- Support for custom terminal emulation modules following the *XEM 2.0* standard
- Operates in any display environment, supports all screen display modes
- Support for file transfer modules following the *XPR* standard
- File and printer capturing functions
- Review buffer support
- Powerful phonebook and dialing functions
- *Amiga User Interface Style Guide* conformant user interface
- Online help (requires AmigaGuide package)
- Built-in *ARexx* interface
- File upload list, which permits selecting the files to be transferred before the upload is started.
- Login script learn mode.
- Built-in keyword/response parser which makes it possible to have 'term' respond to BBS prompts and such with the user name, password, etc. without having to program the ARexx interface.
- Interface for external programs to rendezvous with 'term', taking over serial I/O processing (such as '`HydraCom`').

Although this program is freely-distributable, it is not entirely free. If you like it and use frequently, you are requested to send the author a donation which you suppose will do as a payment for the program. See the chapter registration (see Chapter 2 [Registration], page 3) for details.

Admittedly, 'term' is a fairly large program which consumes quite an amount of memory when running. You need to have at least 2 MBytes of system memory installed if you wish to run the program. Please note that this is the bare minimum configuration. It is recommended that you run 'term' on a faster machine, i.e. plain MC68000-driven Amigas will have trouble running the program.

2 Registration

'term' is made available under the concept of Gift-Ware, which is a variant of Share-Ware. Share-Ware software authors often release 'crippled' versions of their products, i.e. these programs do not support the same functionality as the registered versions you get when sending monetary contributions to the authors. It all comes down to 'pay for the software you are using' in Share-Ware terms. With Gift-Ware registration is different, you are not required to contribute money, but a gift will do. With 'term' you always get a fully functional program, there is no 'crippled' test release which you can try for a limited time and then have to pay for in order to receive the working registered version.

It may seem as if 'term' was free, but this is not the case. Although there is no need to pay the author in order to get a fully functional version of the program you should consider making a contribution. You don't need to feel guilty if you cannot or do not want to give me something in return for the work I have put into 'term'. Show me that it was worth spending so much time listening to users, updating, rewriting and enhancing this program. Your contributions will provide the motivation for me to keep developing the program.

If you don't have any idea yet, here is a list of items I am still looking for:

- An external memory expansion for the Amiga 1000.
- DigiView for the Amiga 1000.
- CD-ROMs for the CDTV.
- An old Cinemaware game (*Rocket Ranger*, *Sinbad and the Throne of the Falcon*, *SDI*, *It came from the Desert II*)
- An old Electronic Arts program (*The Bard's Tale II: The Destiny Knight*, *Instant Music*, *Zany Golf*, *The Immortal*, *Deluxe Paint*, *Deluxe Print*, *Deluxe Music Construction Set*, *Deluxe Video*)
- An old Rainbird or Firebird game (*Starglider I* , *Jewels of Darkness*, *Black Lamp*)
- An old game by Activision (*Tass Times in Tonetown*)
- A CD by Miles Davis, Thelonius Monk or Charlie Parker.
- Cash and checks (no credit cards – sorry) are always welcome.

Send your contribution to the following address:

<div align="center">
Olaf Barthel
Brabeckstrasse 35
D-30559 Hannover
</div>

Federal Republic of Germany

If you wish to be notified when program updates become available or wish to order the next update as it becomes available you must include enough money to cover my expenses, see the chapter entitled orders (see Chapter 4 [Orders], page 7) for more information.

3 Commercial distribution

I don't mind if you make a copy of 'term' for a customer who is looking for a decent terminal program. But if you decide to distribute the program on a larger scale, such as by including a copy with each modem you sell, I want to know about it. The reason is this: by distributing 'term' you take a certain responsability; if your customer has difficulties in installing and configuring the program she/he will most likely ask you for assistance. I want to make sure that if a 'term' user is in bad need of help there is somebody who will be able to provide it. If you wish to become a 'term' distributor and want your name displayed in the 'About' window, contact me for details.

As a general rule, no profit must be made by distributing 'term', i.e. you may charge fees for copying, disks and for providing a printed manual but no money must be charged for the software itself. I consider taking legal actions against anyone who violates this rule. Payments for using the program should be made to the author, not to the provider.

4 Orders

You can order a copy via standard mail by sending a self-addressed envelope, including postage and disks (more on this below) to the following address:

Olaf Barthel

Brabeckstrasse 35

D-30559 Hannover

Federal Republic of Germany

Either include three 3.5" double-density disks or two 3.5" high-density disks. The postage must cover the mailing costs, this should be the equivalent to DM 8,- in your preferred currency for Europe, and DM 16,- for all other countries. All orders are shipped via air mail. If you cannot provide the disks and the envelope, add DM 1,50 per double-density disk or DM 3,- per high-density disk and DM 2,- for a padded envelope. If you send a check to cover my expenses, please make sure that the fee I have to pay for cashing it (which currently is DM 3,-) does not 'eat up' the mailing costs.

As of this writing I do not distribute printed copies of the documentation.

Orders must be made by mail only, not by phone or eMail.

Whenever a new release of 'term' becomes available I will try to make it known in the telecommunications networks.

The most current 'term' release will be available through ftp from all Aminet sites, such as 'ftp.wustl.edu [128.252.135.4]'. Look into the `pub/aminet/comm/term` directory.

'term' is available for download in a number of BBSes. *Careful please!* For reasons I have always failed to understand certain individuals take pride in patching program version numbers, copying archives to disk and compressing them into .DMS files, attach silly notes to archives or extract single files from archives, just to recompress and release them later. *Hands off these files!* 'term' is always distributed only in complete LhA-archives, never as a single program or as a .DMS-file. In addition to this file lists and signatures generated using the PGP program provide authenticity. If any of these signs are missing chances are that you have found a corrupted copy which most likely was not released by me. My public key can be found in the chapter PGP key (see Chapter 35 [PGP key], page 147).

I will not distribute 'term' via eMail, the program is too large to be mailed and since I am paying both for incoming and outgoing mail it would also be too expensive for me.

Unless requested, no update notifications will be sent via standard mail. I recommend that you include an international reply coupon for each update notification you wish to receive.

The author reserves the right to discontinue development of the 'term' program.

5   Letters to the author

It is always nice to receive feedback from users, to hear about critical comments and enhancement request. If you wish to communicate with me I suggest that you try electronic mail channels first. As of this writing there only exists a single Internet address (`olsen@sourcery.han.de`) you can send mail to. I have no Fidonet accounts or such, in fact I don't even visit any BBSes regularly. If you need to put a mail through to me and don't have direct Internet access it is recommended that you use the gateway facilities most nets offer, your local sysop or postmaster will be able to tell you more. Do not send mail larger than about 64K bytes, as it may get caught on the way to me and if it in facts arrives in my mail folder it will have cost me routing fees since I pay both for my incoming and my outgoing mail. Please don't expect me to make long-distance calls to your local BBS, German phone rates are rather steep and I am not that wealthy after all.

If you happen to be registered in a BBS which has no links to any net or if you don't have any email access at all the only alternative to dropping by and paying me a visit in person is to use the standard mail facilities: send a letter, mail a package. Although such mail will usually arrive safely and unharmed there still is a problem: I am slow at responding to 'real-world mail'. If a letter can be answered with a few lines of text chances are good for a snappy answer, but if the topic is a little more complex your letter may go into my mail service stack. To give you an impression how this stack looks like: it's a large pile of unanswered mail sitting on my desk which keeps falling over each time I open the window. Such mail will usually get answered at the end of the semester or when my bad conscience tells me to.

Be sure to mention it if you want me to send you an update to 'term' or the most recent version of the program and include some money to cover my expenses. If you want me to help you or to give advice please keep in mind that even though there is no denying the fact that I have written 'term' I am by no means an expert in telecommuncations matters. So if you need to know which modem brand to choose or which Bulgarian BBSes are worth trying I strongly suggest that you ask someone else.

In any case, feel free to make comments and to ask questions.

6 Known bugs & problems

During beta testing certain software did not work very well with 'term' (nothing serious I would say, but you may have a different opinion). There are also a few problems that would show up at the last minute (and at great expense) when it was too late to find a fix. Last but not least the following list also includes a few 'features' for which I was unable to find a better solution.

- With 'MagicMenu' running in the background the checkmark and Amiga symbols overwrite some menu entries.

  Older versions of 'MagicMenu' do not notice that 'term' scales these symbols to fit the current screen display aspect ratio. Recent versions of 'MagicMenu' address this problem.

- Not all the buttons in the file transfer window do what their labels say.

  The XPR library running the file transfer is responsible for listening to the commands 'term' sends to it when the 'Stop entire transfer', 'Skip current file' and 'Stop transfer batch' buttons are pressed. Not all libraries will pay attention to these commands. So far only 'xprkermit.library' responds to all commands. The 'xprzmodem.library' included in the 'term' distribution will ignore the 'Stop transfer batch' command. All other XPR libraries either treat all buttons the same way, i.e. they stop the transfer no matter which button is pressed, or just pay attention to the 'Stop entire transfer' command.

7 Frequently asked questions

This section was written in order to answer the most frequently asked questions concerning 'term'. Although I don't suppose that the users who this section was intended for will really ready it, but it may nevertheless still be quite useful. Each entry in the following list explains why a particular feature works this way or the other and possibly why.

1. While scrolling 'term' quietly swallows characters and sometimes whole lines.

   Usually, 'term' cannot process incoming serial data while the terminal output processing is taking place. If output processing takes too much time you may end up losing incoming data. There are several way how to approach this problem. You could reduce the number of colours used for screen output, or enable the terminal emulation process via the '`Enable emulation process`' switch in the section entitled terminal panel (see Section 19.5 [Terminal panel], page 58).

2. Right after a connection is established the modem hangs up the line.

   Following your configuration options 'term' makes sure that the modem is set up correctly prior to making a call. Does the modem drop the line right after the `CONNECT` message is received your modem or the remote modem may reponsible. Not unheard of are modems which due to firmware trouble fail to negotiate correctly with the remote modem over the transmission protocol to be used. With error correction enabled such modems would drop the line right after establishing the connection. Turning off the error correction mode would correct this problem. 'term' cannot do anything about the modem behaviour, it is up to you to find the correct setup.

3. Trying to run the modem at higher BPS rates causes the modem to ignore commands, it does not even echo characters back.

   A number of modems respond only to a fixed set of BPS rates. While for example 9,600 bps are fine there is no response at 14,400 bps. I suggest that you try all available BPS rates 'term' supports until one is found to fit. Do not overdo it however, try to keep the bit rate below 57,600 bps.

4. During file transfers error #6 is reported over and over again.

   Data transfer to and from the serial hardware is a time requires quick responses by the handler routines, this is why interrupt processing is used for such time-critical jobs. Unfortunately, these interrupts cannot always be serviced as fast as possible. Read and write accesses to disk may temporarily slow interrupt processing down or even disable it in short intervals. If the send/receive buffers keep flowing over I suggest that you use a smaller file buffer size, so data gets written to disk in smaller chunks, making the intervals smaller in which interrupt processing may be affected. You can change the default file buffer size in the miscellaneous settings (see Section 19.11 [Miscellaneous panel], page 70). If this still does not have the desired

effect, turn on the switch 'Simple file I/O' (see Section 19.11 [Miscellaneous panel], page 70) and change the buffer size of the file transfer protocol you are using. Start with a small buffer size, such as 4,096 bytes and gradually increase it as long as transfers still work correctly.

Users who own a GVP SCSI controller may want to start the program 'GVPPatch' and/or add the tooltype BUSHOLD=1 to the icon of the 'GVPscsicontrol' program.

5. I have saved the phonebook and the configuration files to disk and an older 'term' release reports that it cannot read them.

   'term' stores version information with the configuration files it saves. Older 'term' releases will refuse to read files created by newer releases. Newer releases will almost always read configuration files by older 'term' releases.

6. I upgraded from an older 'term' release, but the program refuses to read my configuration and phonebook files.

   The phonebook and configuration file format was changed and greatly enhanced with the introduction of 'term' 3.1. Older files need to be converted to the new format, this is what the 'UpdateConfig' program is for that should be included in the 'term' distribution. The conversion is easy, just enter UpdateConfig <old file name> <new file name>, the program automatically determines whether it is reading a configuration or a phonebook file.

   Caution: the conversion program cannot read encrypted phonebook files, so they should be saved in unencrypted form first.

7. In some BBSes ANSI graphics and text output starts at the wrong screen position, especially after the screen contents are erased.

   The so-called BBS-ANSI terminal command set treats the 'clear screen command' different from the VT100 specs, i.e. it expects the cursor to be reset to the home position. You can enable this feature using the CLS' resets cursor position switch which can be found in the emulation panel (see Section 19.6 [Emulation panel], page 61).

8. When I upgraded from an older program release (1.6 - 2.3) to the new 'term' release the program would no longer find all its configuration files.

   In order to annoy you and make things generally irritating some of the configuration files were renamed in v2.4, and some were moved to different directories. While the files used to be present in 'ENVARC:term' 'term' now looks for them in 'TERM:config'. If 'term' finds no 'TERM:' assignments, it will create one. If no 'TERM:config' drawer can be found, it will also be created. The configuration files have been changed as follows:

   'Preferences.term'
   'term_preferences.iff'
           New name is now 'term.prefs'

   'Phonebook.term'
   'term_phonebook.iff'
           New name is now 'phonebook.prefs'

'Hotkeys.term'
'term_hotkeys.iff'

> New name is now 'hotkeys.prefs'

'Speech.term'
'term_speech.iff'

> New name is now 'speech.prefs'

'Macros.term'
'term_macros.iff'
'macros.prefs'

> New name is now 'functionkeys.prefs'

'Fast!Macros.term'
'term_fastmacros.iff'

> New name is now 'fastmacros.prefs'

In order to use 'term' and 'termcap' you need to rename the TERMPATH variable to TERMCONFIGPATH. Look into the 'ENVARC:' drawer, rename the file and reboot.

Caution: it is not sufficient just to rename the file names, you will also have to take care of the phonebook entries.

9. I have added several phone numbers to the quick dial menu, but 'term' does not make them all available.

   'term' has room for only up to 50 quick dial entries, any further entries will be ignore.

10. When transferring files between computers connected via null-modem cables the transfer always aborts immediately complaining that the DTR or the carrier signal was lost.

    During a null-modem transfer there is no carrier or DTR signals present, only modems and such offer such features. Switch the handshaking mode to 'None' and turn off the 'Check carrier' feature in the serial panel (see Section 19.1 [Serial panel], page 47).

11. The dialer skips two entries at once when pressing the 'Skip' button.

    Pressing the 'Skip' button stops dialing, most modems will respond to this with an OK message. Some modems will however send NO CARRIER, which 'term' interpretes the same way as if BUSY had been sent. If this is what your modem does, change the 'Treat 'NO CARRIER' as 'BUSY'' switch in the Serial panel (see Section 19.1 [Serial panel], page 47).

12. During ZModem file transfers using a fast modem the 'CPS' display first lists an incredibly high value, then drops sharply, followed by lots and lots of transfer errors occuring.

    This is effect is mostly seen if the 'Handshaking' mode is not set to 'RTS/CTS' when using a fast modem. The trouble is caused by data getting sent while the modem has already stopped accepting new data. It flags this states using the RTS/CTS line.

13. None of my ARexx scripts works any more.

    In v3.1 the 'term' ARexx interface was rewritten from scratch. If you wish to retain your old ARexx scripts they will need to be rewritten.

14. During file transfers errors show up while data is saved to and read from a hard disk drive.

    Some hard disk drive controllers temporarily disable interrupt processing while accesses take place. In such cases I recommend to download and upload from the ram disk or to upgrade the hard disk driver.

15. When downloading files they don't end up in the right drawer.

    The file transfer protocol usually has it's own opinion on where to place files it receives. This behaviour can be changed by editing the 'term' settings, open the transfer panel (see Section 19.13 [Transfer panel], page 73) and turn on the 'Override transfer path' switch. Now you can select the names of the directories to store files received in using the path panel (see Section 19.12 [Path panel], page 73).

16. Sometimes 'term' stops processing input and output and just beeps when a key is hit.

    Look at the status line, if it displays 'Holding' 'term' has received an xOFF character. Press Control + S to restart.

17. When I moved my configuration files into a different drawer and updated my main configuration the phonebook entries started to 'forget' about their settings files.

    'term' uses the environment variable 'TERMCONFIGPATH' to locate its configuration files. However, the local phonebook entries may have different search paths set. Check the paths settings to see where they are pointing to.

18. Even though several files are selected for transfer only the very first file is sent.

    Not every file transfer protocol supports batch transfers. There is no way for 'term' to tell whether a protocol supports batch transfers, please consult your protocol documentation for more information.

19. Even though everything is set up correctly no ARexx scripts are executed.

    In order for ARexx to work the 'RexxMast' program needs to be running. Usually, this program is located in the 'System' drawer of your system partition. Drag it into the 'WBStartup' folder in order to use it at system startup time. Also make sure ARexx knows where to find your ARexx scripts. Either give a complete path name or copy your file into the 'REXX:' drawer. Do not rely upon an Assign REXX: <drawer name> add call in your 'S:User-Startup' file to work, as of this writing ARexx does not support multi-volume assignments.

20. Even though the auto-download feature of the current file transfer protocol is enabled no auto transfer takes place while an ARexx script is running.

    Serial I/O processing only takes place if the main program takes care of terminal output.

21. Running 'term' twice from shell does not cause two 'term' processes to be started, instead only the first program is reactivated.

    By default starting 'term' more than once only brings an already running 'term' process to the front. Use the NEW keyword to suppress this feature.

(To be continued)

8 Reporting bugs

'term' is a rather complex program which is difficult to maintain, especially since there is only one person to take care of it: me. Although one tries to write correct, bug-free software, one cannot always achieve this goal. Tough, but that's life. It rains when you leave the umbrella at home. Toast falls buttered-side down. The phone rings while you are in the bath.

In case you come upon one of those nasty features which even the author was unable to track down and remove, follow these steps:

1. Keep calm. Shouting, cursing, crushing disks may help to cool your temper, but it will not help anybody (the least yourself!) if it results in a sudden cardiac infarction: you will have problems in reporting the problem.

2. Read the documentation! The bug you may want to report may be a deliberate feature.

3. Repeat previous step as often as possible. Yes, really, do so. Read the documentation. You will be glad you did.

4. Describe your problem elaborately. A comment like 'things fall down when dropped' may have inspired Sir Isaac Newton, but a similarly laconic comment 'downloads do not work' will most certainly fail to give any useful hints how to approach the problem. In case you encounter a problem with the built-in terminal emulation, try to make a verbatim file capture (i.e. turn off the `Capture filter`) of the session in which the offending codes were used and send it to me.

5. If you wish to report a bug in the ARexx interface include a sample ARexx script to produce the bug.

6. Do not forget to write it down! There is a difference between noticing a bug and reporting it (honestly!). Do not suppose that a bug will be fixed in a future program revision or rely on anybody else to report it: do it yourself. Send a letter to the author, preferably per electronic mailing services. The addresses are given at the end of this document.

7. State your system and program configuration. It helps a lot to know on which machine the program caused problems. Please include information such as memory expansion size, Amiga model (A500+, A600, A1200, A3000, A4000, etc.), graphics hardware (ECS, AGA, etc.), CPU type (MC68000, MC68020, MC68030, MC68040, etc.).

If you can please run the standard Commodore debugging tools ('`Enforcer`', '`Sushi`', '`tnt`', '`MungWall`', '`SegTracker`') in the background and capture the output. If you include '`Enforcer`' hit reports make sure that you have '`SegTracker`' running in the background or the '`Enforcer`' output will be worthless to me.

Please direct reports of problems with the file transfer and terminal emulation libraries to the respective authors, I am not responsible for maintaining the support libraries.

Error reports concerning the ARexx interface should include a sample script to illustrate what is going wrong.

9 Background

This program is a product of anger and despair; I was unable to find a telecommunications program to suit my personal needs, neither in the commercial area, nor in the public-domain.

Most programs had a lot of extras but lacked other more important, perhaps more sensible features (just to take an example: in revision 2.20c and after four years of constant development 'Handshake' still fails to use the current keymap settings and also strips the high order bit when receiving text - sorry Eric, that's why I never registered!).

I have hesitated for a long time before starting my first attempt at writing my very own telecommunications program. When Kickstart 2.x was about to become widely available I took the opportunity to create 'term' always trying to use the new OS routines wherever possible. While this started to be quite a difficult task it also was a lot of fun (imagine Columbus wrecking his fleet four times on his journey to the West Indies due to unexpected leakages in all vessels and sudden changes in the ships' sailing manuals - that's how I felt!).

As far as computer-telecommunications are concerned, Germany appears to be a developing country. This is partly due to the Deutsche Bundespost, the federal mail/phone company whose telecommunications monopoly used to be protected by federal law. Until 1989 you would risk a heavy penalty if using a non-registered modem or telephone instead of the Bundespost-supplied hardware. So, if you have any complaints or miss a few extremely important features in 'term', don't boo and hiss, I am not as long in the telecomm business as you are (I have yet seen only a single 'DEC VT101' from afar!). Tell me what you need and I will try to add it in the next revision.

10 Future

I spent almost five years of my life programming and updating 'term'. Support for new operating system features was added as soon as Commodore lifted the veil. 'term' grew both in functionality and size, it was difficult to make plans for the path development would follow. While I have no specific idea which turn development may take in the future there are a few things I definitely do not want to add:

- FAX support

  There are plenty of good commercial FAX solutions available for the Amiga. I lack both the time and the motivation to add FAX support to 'term'. However, future 'term' releases may provide interfaces to FAX programs.

- More terminal emulations

  'term' offers support for the XEM standard, making it possible to easily add external terminal emulation libraries. If you are looking for a RIP emulation or a certain Data General terminal emulation, try to find an external emulation library. The Aminet archives are a good place to start looking for one.

- Script language

  'term' supports ARexx, I don't see any reason why I should add another script language.

- More file transfer protocols

  Except for the ASCII transfer routines 'term' offers no built-in file transfer protocols. This is what the XPR interface is for, external file transfer libraries provide all the file transfer services. If you need a file transfer protocol, look for an external transfer protocol library.

- Reduced functionality

  It was 'tough' enough to implement all the features, bits & pieces that make up 'term'. Honestly, I don't have the heart to cut back features. It would not have been the first attempt to make 'term' smaller either; there have been numerous attempts to create programs to copy the functionality of 'term' or to build a smaller, scaled down terminal program based upon the 'term' source code. As far as I know none of these attempts was successful.

It is difficult to judge how the next 'term' release will look like. Also, v4.7 may be the last 'term' release, but then again maybe not. The future of 'term' depends on its users, and this includes you.

11 Acknowledgements

My thanks go to the following people for their invaluable help and assistance: Andreas Kirchwitz, Christoph Teuber, Christopher Wichura, Garry Glendown, Germar Morgenthaler, Henning Hucke, Holger Lubitz, Juergen Otte, Marc-Christian Schroer, Marko Kuechmann, Markus Stoll, Martin Berndt, Martin Taillefer, Matthias Zepf, Michael Vaeth, Michael-Wolfgang Hohmann, Oliver Wagner, Peter Fischer, Ralf Thanner, Ralph Schmidt, Roby Leemann & AUGS, Stefan Becker, Thorsten Seidel, Till 'Dill-Prince' Prinzler, Udo Wolt, Ueli Kaufmann, Veith Schoergenhummer, Volker Ulle & the Aquila Sysop Team and to all those who supplied libraries & control sequence tables.

Special thanks go to John Burton of Papua New Guinea who revised and rewrote certain parts of the program, in particular the terminal emulation routines, Leo Schwab who discovered means to use interleaved screen bitmaps in a system-integrated manner and to Nicola Salmoria whose invaluable assistance helped to reduce the incredible number of bugs lurking in the source code.

Additional user interface wizardry and advice by Martin Taillefer. The file transfer section of this manual was rewritten to incorporate several suggestions made by Mike Safer.

Bill Beogelein produced an astonishingly long list of suggestions, bug reports and enhancement requests. Some, but still not all, of the features he suggested went into the program as you see it now. There is more to follow.

The *Technical Reference for Hayes Modem Users* was supplied by Maxwell Daymon, thanks much.

The XPR libraries were created by Terence Finney ('`bplus`'), Marco Papa & Stephen Walton ('`kermit`'), Jack Rouse ('`quickb`'), Marc Boucher ('`xmodem`'), Ueli Kaufmann ('`ascii`', '`ymodem`' & '`vms`') and Rick Huebner & William M. Perkins ('`zmodem`').

The XPR standard was created by Willy Langeveld, the quicksort routine ('`QuickSort.asm`') was written by David Jones.

The current implementation of the external terminal emulation library interface was developed by Ueli Kaufmann, who also wrote the external terminal emulation libraries supplied with 'term'. Without the invaluable help of Martin Berndt the library interface would probably not be working at all.

12 Source code

Since there are still only very few well-documented examples (or general programming examples) for Kickstart 2.x and Kickstart 3.x I have decided to include the full 'C' source code with the 'term' distribution.

The source code is *not* intended for commercial use. If you are about to include portions in commercial programs you will need to ask me for permission. Still you may use parts of the source code for non-commercial software development without my consent.

I sincerely hope that the release of the full 'term' source code will give Kickstart 2.x a better start (I've overcome quite a lot of obstacles) so that more programs to use the new OS features will be available soon.

13 Documentation and online help

'term' comes bundled with a number of documentation files, these are:

'`term.doc`'
> Human-readable english program documentation in standard ASCII format.

'`term.guide`'
> English program documentation in AmigaGuide format suitable to submit to '`AmigaGuide`' or '`MultiView`'.

'`termRexx.doc`'
> Human-readable english 'term' ARexx interface documentation in standard ASCII format. This file describes all the ARexx host commands 'term' supports and also gives a brief introduction how to use them.

'`termRexx.guide`'
> English ARexx interface documentation in AmigaGuide format suitable to submit to '`AmigaGuide`' or '`MultiView`'.

'`xprascii.doc ... xprzmodem.doc`'
> Human-readable documentation on the XPR transfer libraries supplied with 'term'.

In addition to the pure ASCII files documentation files are available in TEX-DVI format and Postscript. As space requirements do not permit to include them on the distribution disks they are only available directly from the author.

'`term.dvi`'
> English program documentation in a format suitable for printing using a utility to print TEX-DVI-output files, such as supplied with the packages AmigaTEX or PasTEX.

'`term.ps`'   English program documentation in Postscript format. This file was generated from '`term.dvi`' using the '`dvips`' utility.

'`termRexx.dvi`'
> English ARexx interface documentation in a format suitable to printing using a utility to print TEX-DVI-output files, such as supplied with the packages AmigaTEX or PasTEX.

'`termRexx.ps`'
> English ARexx interface documentation in Postscript format. This file was generated from '`termRexx.dvi`' using the '`dvips`' utility.

In order to take advantage of the online-help feature, AmigaGuide and the file '`term.guide`' are required. Copy the file to the drawer the 'term' main program is located in and configure the '`'term`'

`help text file`' settings (see Section 19.12 [Path panel], page 73) to point to `PROGDIR:term.guide`.
Once this has been done, pressing the `Help` key in any window to support online help will bring up
a help window.

14 Foreign language support

'term' supports foreign language text catalog tables as introduced with Workbench 2.1 '`locale.library`'. As of this writing there are Danish, Dutch, French, German, Italian, Spanish and Swedish translations of the program text available. If you wish to create your own national translation table you should consult the program source code file '`term-blank.ct`' which is a blank translation table. Before actually starting to fill in the translation table you should contact me first; there may already be someone preparing a translation. However, you should keep in mind that once you have created a foreign language translation of the program text I may ask you to update your translation for a future program release.

Once you are finished with the translation table, send it to me on disk or via eMail, *don't compile the catalog on your own!*.

15 Workbench and Shell

The program can be started both from Workbench and from Shell. Kickstart 2.04 (revision 37.175) and Workbench 2.04 (revision 37.67) are the minimum required to run 'term'.

The 'behaviour' of 'term' can be changed by adding tool type entries to the corresponding Workbench icon or by specifying additional command line parameters when running the program from the Shell. Supported keywords are:

'WINDOW'   The console window specifier to be used when opening terminal output windows (this will override the default settings). The default is `CON:0/11//100/term Output Window/CLOSE/SCREEN %s`. The `%s` will be replaced by the name of the public screen 'term' uses.

'PUBSCREEN'
            The name of a public screen to open the 'term' window on. In case the public screen happens to be unavailable, 'term' will fall back to the Workbench screen. Note that 'term' assumes that the main window is to be opened on a public screen rather than on a custom screen if this option is in effect, regardless how the default settings may be configured.

'STARTUP'   The name of an ARexx script file to be run on program startup.

'PORTNAME'
            The ARexx host port name 'term' is to use instead of the built-in default name. The port name will be translated to upper case characters as required by the ARexx host port naming convention. The resulting name must be unique or 'term' will fall back to its built-in default name.

'SETTINGS'
            This keyword determines where to read the default configuration file from. In order to read it from 'Work:term/config', one would use `term Settings Work:term/config` from Shell or add the tooltype entry `SETTINGS=Work:term/config` from Workbench. This argument does not necessarily need give the name of a path to search, but can also specify the name of the configuration file to be used.

'UNIT'   Similar to the 'DEVICE' keyword the 'UNIT' keywords affects the serial driver settings. It determines which serial driver unit is to be used instead of the one specified in the default configuration file. In order to use unit number 4 one would use `term Unit 4` from Shell or add the tooltype entry `UNIT=4` from Workbench.

'DEVICE'   In order to use a different serial device driver than the one specified in the default configuration file, use this keyword. To use `duart.device` one would use `term Device`

> `duart.device` from Shell or add the tooltype entry `DEVICE=duart.device` from Work-bench.

'`QUIET`'   If this parameter is present, the program will not start opening a display but rather put an icon on the Workbench backdrop, waiting to be invoked. A double-click will bring it to life. This parameter will be ignored in case the `STARTUP`-Parameter is used along with it.

'`NEW (Shell only)`'
              Usually, running 'term' twice will cause the screen of the other program to be popped to the front instead of creating a second 'term' process. To avoid this effect, enter `NEW` as a calling parameter. If called from Workbench, each program will run as a separate process.

'`BEHIND`'   This option will cause 'term' to open its screen behind all other screens and not to activate its window.

'`PHONEBOOK`'
              Similiar to the `SETTINGS` option you can specify the name of a phonebook file to load upon startup.

'`AUTODIAL`'
'`AUTOEXIT`'
              These two options are used in conjunction with the Auto-Dial and Auto-Exit features. Even if the phonebook does not have these options enabled, you can nevertheless tell 'term' to enable them as soon as the phonebook file is loaded. It will then go through the routine setups for auto-dialing. Fore more information on these features see Section 20.8 [Phonebook], page 97.

'`WINDOWTITLE`'
              If you run multiple copies of 'term' at the same time, for example to control several different serial ports, you might want to see an indication which 'term' is controlling what port. You can do it by using the `WINDOWTITLE` option to tell 'term' to change the main window title.

16 User interface notes

To operate a gadget, press the key corresponding to the letter highlighted in the gadget label. Suppose a slider is labeled `BPS` with the letter `r` of the word `rate` underlined; in order to increase the slider value one had to hit the key labeled `R`, to decrease the value one is to hold down either `Shift` key while pressing the key `R`.

With some requesters and windows text gadgets will be auto-activated. Pressing the `Return` key will cycle through all the available text gadgets, holding down either `Shift` key will break the cycle.

Windows in which only a single scrolling list is present cursor keys may be used to scroll the contents.

The `Return` and `Escape` keys are respected by most windows. A button surrounded by a recessed box represents the default choice in a requester, pressing the `Return` key will select it. The `Escape` key always selects the 'stop' or 'cancel' button usually to be found in the lower right corner of a window. Most windows to feature a close gadget in the upper left corner can be closed by pressing the `Escape` key.

In control panels featuring a 'Tab' button, pressing the `Tab` key will flip the pages.

Numeric entry fields accept input several notations, namely hexadecimal (`$..` and `0x..`), octal (`&..`) and binary (`%..`).

The user interface support library tries to make all control panel windows fit on the screen. If the first attempt fails a different font is used. If this did not help either a new screen will be opened for the window. This screen will usually be larger than the visible region. Move the mouse towards the borders of the screen to reveal more of it.

17 Screen

At the bottom of the 'term' screen or window a small display shows a few basic parameters. These are:

'`Status`' The current program operating status. This includes '`Ready`', '`Holding`' (`Control + S` was pressed), '`Dialing`' (the dialing function is at work), '`Upload`' (data is being sent), '`Download`' (data is being received), '`Breaking`' (a break signal is transmitted across the serial line), '`Hanging up`' (connection is being cancelled), '`Recording`' (a script is being recorded), '`Rec.line`' (a line of text is being recorded) and '`ARexx`' (an ARexx script is currently running, which tells 'term' to wait).

'`Buffer`' Indicates whether the text buffer is currently recording incoming text or whether the current text buffer contents are frozen.

'`Protocol`'
          The currently selected data transfer protocol.

'`Emulation`'
          The currently active terminal emulation mode.

'`Rate`'   The data transfer rate in bits per second.

'`Params.`' The current serial parameters (Data bits-Parity-Stop bits).

'`Time`'   The current time of day.

'`Online`' The time elapsed after a connection was successfully established. This counter will be stopped as soon as the connection is cancelled (e.g. by hanging up) and is reset to 00:00:00 as soon as a new connection is made.

          This display will show the online time, the online cost or both (toggled every five seconds) depending on your current settings.

Unless configured different, the screen itself is opened as a public screen (called `TERM`) which is available to other programs for their purposes. If more than one 'term' process is running, the public screen name will change according to the number of the program (i.e. the first 'term' to be started will call the scren `TERM`, the second one will call it `TERM.1`, the third one `TERM.2`, etc.). The screen title bar will also display the name of the public screen.

18 Menus

For each requester and input window there exists a set of menu items to execute the commands associated with the buttons, dials and gauges in the requester/window. Press the right mouse button to have a look at the commands and their shortcuts.

The following text is to describe the menu items available in the 'term' main menu.

18.1 Project

'Save screen as Picture/Text'

        This menu serves to save the current terminal window contents either as plain ASCII text file or as a picture file.

'Print Screen (as text)/Clipboard'

        These menu entries are to output plain text on the printer. You can either print the contents of the main screen or the contents of the clipboard.

'Print Screen (as graphics)'

        Select this menu entry to make a hardcopy of the screen contents. Printing will respect screen colours and follow the on-screen bit image.

'Capture to File/Raw file/Printer'

        Selecting one of these menu entries will toggle capturing incoming text to the printer and/or a file on disk. The 'Raw file' option will capture incoming text without applying any filtering or modifications. You can get the same effect by turning off the 'Capture filter' in the capture settings (see Section 19.9 [Capture panel], page 66) and selecting the 'Capture to file' option, but probably not as quickly.

'Iconify'   Closes all screens and windows 'term' has currently open, if this feature is enabled, resets and releases the serial driver and puts an icon into the Workbench window. Double-clicking this icon will cause 'term' to wake up and to return the state is was in before iconification took place.

        While 'term' is iconified, most incoming ARexx-commands will be queued and the corresponding ARexx scripts will appear to 'hang'. In order to reactivate the program either double-click on the program icon or send the ARexx command ACTIVATE. *As soon as 'term' is 'awake' again pending commands will be processed again*

'About'   Shows some information on the program.

'Quit'   Terminates the program, hold down a Shift key to quit immediately, otherwise you will be prompted to confirm your decision.

18.2 Edit

'`Copy`'   In order to transfer any currently marked screen text to the clipboard buffer, select this
               menu item. Text can be marked by double-clicking the select button while the mouse
               is over a word or by clicking the select button and dragging the mouse. Holding down
               either shift key will append the selected text to the current clipboard contents. In any
               other case the new text will replace the previous contents.

'`Paste`'   Pastes the contents of the clipboard at the current cursor position provided that the
               clipboard contains text data. Hold down either `Shift` key to have 'term' include the
               '`Paste prefix`' and the '`Paste suffix`' (see Section 19.8 [Clipboard panel], page 65)
               along with the clipboard contents.

'`Clear`'   Any currently marked text will be released as soon as any rendering operations are to
               be executed in the main window. To release marked text manually, select this menu
               item.

'`Select all`'
               Marks the contents of the entire window.

18.3 Cmds. (= Commands)

'`Execute AmigaDOS command`'
               Enter the command you want to execute and its command line arguments here.

'`Execute ARexx command`'
               This function calls the ARexx server to execute a script file. If the first input character
               is a ' or " the input will be considered as a small program in a single line. Note that
               this function will not be available if the ARexx server isn't running.

               The ARexx command set supported by 'term' is described in the 'term' ARexx interface
               documentation.

'`Record script`'
               Select this menu item to start/stop script recording. More on script recording can be
               found under script recording (see Chapter 31 [Script recording], page 139).

'`Record line`'
               When in script recording mode this menu item will cause 'term' to temporarily switch
               into full line recording mode, rather than recording only single keystrokes. Pressing the
               `shift+return` keys has the same effect as calling the '`Record line`' menu item. More
               on the topic of script recording can be found under script recording (see Chapter 31
               [Script recording], page 139).

'`Edit traps...`'

>   This brings up the trap list editor (see Section 20.14 [Trap panel], page 105. The list includes control sequences 'term' is to look for in the incoming data stream. When a sequence is found the corresponding command sequence (see Chapter 27 [Command sequences], page 129) is executed.

>   The window contains the usual list management tools (edit, add, remove, clear and move). Please note that the order of processing occurs top-down, i.e. of two entries with the same control sequence data only the top-most will be evaluated.

>   The buttons '`Load`' and '`Save`' will let you restore and save the current trap list. The '`Load`' button appends the contents of a trap list file to the current trap list, so take care. On startup 'term' looks for a configuration file named '`trap.prefs`' and tries to load it. Thus, there can be only one global trap list. It is up to ARexx to load and modify the contents of the trap list, although this editor window provides a graphical interface to the list. Please note that the more list entries 'term' has to filter through the input data stream the slower input processing may become, affecting mostly terminal output.

'`Disable traps`'

>   This menu item provides a shortcut to stop trap list processing. On startup 'term' will enable trap list processing if the trap list loaded from disk is non-empty.

18.4 Phone

'`Phonebook`'

>   The phonebook is one of the most powerful and complex functions of 'term' and will be described later in this document (see Section 20.8 [Phonebook], page 97).

'`Redial`'   Dialing list entries which the dialing routine was unable to establish a connection to are once again passed to the dialer.

'`Dial phone number`'

>   To dial a single phone number select this menu item. The phone number entered will be passed to the dialing routine.

'`Send break`'

>   Sends a 'break' signal across the serial line.

'`Hang up`'   Tells the modem to hang up the serial line.

'`Wait`'   Will cause 'term' to emit the character sequence `<Blank space><Backspace>` every second in order to fool the remote into believing that terminal input is currently taking place.

'`Flush receive buffer`'

> Tells the serial driver to drop its input buffer contents and resets the state of the internal serial buffers.

'`Release serial device`'

> The serial driver is released for other programs to use it. A requester will appear which allows you to reopen the serial driver or to quit 'term'.
>
> If the serial driver has been released by the ARexx interface and has not been reopened yet, this menu item will do it.

If you are still online, the '`Redial`' and '`Dial`' menu entries will be disabled. In order to make another call, hang up the line first.

18.5 Transf. (= Transfer)

This menu provides access to file transfer functions. For more information on this topic, see Section 19.13 [Transfer panel], page 73, Section 19.14 [XPR options sample], page 80, Section 20.5 [Transfer progress panel], page 91, Section 20.6 [ASCII-transfer panel], page 93 and Section 20.7 [ASCII-transfer settings], page 95.

'`Upload ASCII file(s)`'

> This is a pure ASCII-file upload. It was added to allow poor BBS programs to receive text files.

'`Download ASCII file(s)`'

> This is a pure ASCII-file download. Refer to '`Upload ASCII file(s)`' for features/options of this mode.

'`Upload text file(s)`'

> Sends a file/files to the remote receiver using the current transfer protocol. If possible this command will 'ask' the transfer protocol to transmit the file(s) in text mode (whatever that means) which may include CR/LF substitution and other gimmicks. Consult the library documentation to find out if your favourite transfer library supports text mode.

'`Download text file(s)`'

> Request a file/files using the current transfer protocol. Refer to '`Upload text file(s)`' for features/options of this mode.

'`Edit & upload text file`'

> Invokes the currently selected (see Section 19.12 [Path panel], page 73) text editor on a file to be selected using a file requester. 'term' pays attention to the '`EDITOR`' environment variable and will use the program indicated by it.

'term' will block and wait until the editor has returned.

After the editor has returned, the user will be asked whether the file edited is to be transferred as plain ASCII or via text upload.

'Upload binary file(s)'

Send a file/files to the remote receiver using the current transfer protocol. True batch upload is supported both through wildcard expressions ('#?.txt' will send all files whose names end with .txt) or through multiple selection. Refer to the documentation of your favourite transfer library to find out if batch file transfer is supported.

'Download binary file(s)'

Receive a file/files using the current transfer protocol. If the protocol does not support batch download you are required to enter the name of the file to be received. Files which remain empty after the transfer are deleted automatically.

The transfer routines open an information window in which a number of transfer parameters are displayed (see Section 20.5 [Transfer progress panel], page 91).

18.6 Buffer

'Clear buffer'

Clears the contents of the text buffer (see Chapter 25 [Text buffer], page 125). Any text will be discarded and *cannot* be recovered. Capture files are not affected by this command.

'Display buffer'

Opens the text buffer screen (see Chapter 25 [Text buffer], page 125).

'Close buffer'

Closes the text buffer screen but does not free the contents.

'Freeze buffer'

This menu entry will, if enabled, stop the text buffer from filling up with new text.

'Load buffer'

Loads the contents of the text buffer from a file. If there are still text lines in the text buffer a requester will appear giving you the choice to discard the old data, append the new data, or to cancel the action.

'Save buffer as'

Saves the contents of the text buffer to a file. You will be notified if the file to save to already exists (you may discard the old file, append the new data or cancel the action).

18.7 Terminal

'`Clear screen`'
> Clears the whole 'term' screen and moves the cursor to the top left home position.

'`Reset font`'
> Will change the screen font back to the default screen font.

'`Reset styles`'
> Resets all character style attributes (bold, blinking, inverse video, underlined, etc.) and sets the text colour to the default pen.

'`Reset terminal`'
> Use this menu item to reset the state of the entire terminal emulation.

18.8 Settings

This is where you configure the standard preferences settings. If you select '`New`' in the phonebook window (see Section 20.8 [Phonebook], page 97) these standard settings will be used. Put in your most commonly used settings here. Change individual entries in the phonebook as needed.

'`Serial`'   See Section 19.1 [Serial panel], page 47

'`Modem`'   See Section 19.2 [Modem panel], page 50.

'`Screen`'   See Section 19.3 [Screen panel], page 54.

'`Terminal`'
> See Section 19.5 [Terminal panel], page 58.

'`Emulation`'
> See Section 19.6 [Emulation panel], page 61.

'`Clipboard`'
> See Section 19.8 [Clipboard panel], page 65.

'`Capture`'   See Section 19.9 [Capture panel], page 66.

'`Commands`'
> See Section 19.10 [Command panel], page 69.

'`Miscellaneous`'
> See Section 19.11 [Miscellaneous panel], page 70.

'`Paths`'   See Section 19.12 [Path panel], page 73.

'`Transfer protocols`'
> See Section 19.13 [Transfer panel], page 73.

'Default transfer protocol'

> If this item is selected, a transfer settings editor is displayed. The 'Default transfer library' in the transfer panel (see Section 19.13 [Transfer panel], page 73) determines the contents of this control panel. If the selected default transfer library does not provide these facilities, a simple text requester will prompt for input. Consult the documentation of the chosen transfer protocol for legal options and the values to which they can be set.

> As an example, see Section 19.14 [XPR options sample], page 80.

'Translation tables'

> See Section 19.15 [Translation panel], page 83.

'Function keys'

> See Section 19.16 [Function key panel], page 84.

'Fast! macros'

> See Section 20.1 [Fast macro panel], page 87.

'Hotkeys'   See Section 20.2 [Hotkey panel], page 88.

'Speech'   See Section 20.3 [Speech panel], page 89.

'Sound'   See Section 20.4 [Sound panel], page 90.

'Area codes'

> See Section 20.16 [Area code panel], page 107.

18.9 Windows

'Status'   This function opens a window to display program status information. A click on the 'Update' button will cause the information to be brought up to date:

> 'Session start'
>
> > When was the program started?
>
> 'Bytes received'
>
> > The number of bytes received.
>
> 'Bytes sent'
>
> > The number of bytes sent.
>
> 'Connection message'
>
> > The text returned by the modem when a connection was made immediately following the CONNECT message.
>
> 'Name'   If available, the name of the system the modem is currently connected to.

'`Phone number`'

> If available, the phone number of the system the modem is currently connected to.

'`Comment`' If available, the phonebook comment corresponding to the system the modem is currently connected to.

'`User name`'

> If available, the user name, as available through the phonebook, corresponding to the system the modem is currently connected to.

'`Screen size`'

> The size of the terminal output window in characters (columns and rows).

'`ARexx port name`'

> The name of the ARexx host 'term' is currently using.

'`Buffer size (bytes)`'

> The size of the text buffer (see Chapter 25 [Text buffer], page 125).

'`Free memory (bytes)`'

> The amount of free system memory.

'`Review`' A review window is opened which basically displays the same text as the text buffer screen. You can scroll through the text displayed both by mouse (see the right hand side scroller) and by cursor keys.

'`Packet`' Opens an input window in which a single line of characters to be transferred across the serial line can be entered. More on this feature is explained below (see Chapter 29 [Packet window], page 135).

'`Chat line`'

> This adds a one-line text entry field just above the status line (or the bottom of the main window, whatever is available at the moment). For more information, see Chapter 30 [Chat line], page 137.

'`Fast! macros`'

> Opens or closes the so-called fast macro panel (see Section 20.1 [Fast macro panel], page 87). For more information on fast! macros see Chapter 28 [Fast! macros], page 133.

'`Single character entry`'

> This may come in handy for serial debugging and those rare cases when there is no keyboard connected to the Amiga. On a 16 by 16 raster layout you will find every single character of the ISO-8859-1 set the Amiga uses. Click on any one to have it transmitted across the serial line. Hold down the left mouse button and drag the mouse across the matrix to see the character code displayed in the window title bar in various notations. Note that with small fonts the binary notation may be cut off.

'`Upload queue`'

> This will open a window featuring a list of files to upload. You can drag icons of files to upload on this window, their names will appear in the list. Dragging icons on the icon labeled '`term Upload queue`' has the same effect. Double-clicking this icon will open the upload list window on the Workbench screen. In order to start an upload either press the '`Binary upload`' or '`Text upload`' button.

> You can replace the icon 'term' uses by copying the icon of your choice into the drawer 'term' resides in and naming it '`term_DropIcon`'.

> For more information on the Upload queue see Section 20.15 [File upload panel], page 107.

18.10 The quick dialing menu

Note: this menu is available only in case any phonebook entries have the special `Quick menu` switch set.

Selecting any item of this menu will cause the corresponding phone number to be dialled. Extended selection and drag-selection are also available when picking services to dial. Please note that you can 'check in' single items by selecting them, but you cannot remove any items from the dial list.

Phonebook entries in groups appear in submenus, unless there is only one group all entries for the quick dialing menu reside in. In this case, there will be no single submenu, all entries will appear in one regular menu.

19 Control panels

This where all the control panels employed by 'term' are explained:

19.1 Serial panel

This is where the serial parameters may be changed.

'BPS' The transfer speed in bits per second at which 'term' communicates with the serial hardware. The minimum value allowed is 110 BPS. You may enter any value you like but keep in mind that not all modems will respond to all possible settings. Clicking on the arrows pointing to the left and to the right will cycle through a set of predefined rates.

As of this writing the standard Amiga serial hardware is capable of running BPS rates from 110 up to and including 1,000,000 bits per second. These are the basic hardware limits, but in practice reliable transfer speeds are far lower at 57,600 BPS and below. Custom serial hardware may support higher transfer rates. Do not underestimate the overhead caused by the terminal program & interrupt processing and the effects of connecting cable lengths.

Most modems will not recognize a sudden change in the BPS rate. Type `AT<RETURN>` to make the change known.

With data transfer speed greater than 2,400 BPS most modems require flow control to be used in order to guarantee reliable data transfer. In such cases it is recommended to set the 'Protocol' switch to 'RTS/CTS'. If you fail to do so you may lose data.

'Bits/char'

Number of bits per transferred character (7 or 8). As of this writing the Amiga serial hardware does not support all possible bits/char, parity and stop bits combinations.

'Parity' Serial parity (none, odd, even, mark or space). As of this writing the Amiga serial hardware does not support all possible bits/char, parity and stop bits combinations.

'Stop bits'

Number of stop bits (1 or 2). As of this writing the Amiga serial hardware does not support all possible bits/char, parity and stop bits combinations.

'Handshaking'

Serial handshaking mode (RTS/CTS 7 wire hardware handshaking, RTS/CTS with DSR signal check, none). The `RTS/CTS (DSR)` mode will make 'term' check the 'data

set ready' signal first before turning on RTS/CTS handshaking. If no signal is present 'term' will turn off RTS/CTS 7 wire hardware handshaking.

Some modems will appear to 'lock up' when the RTS/CTS handshaking protocol is enabled. This may either be due to a faulty connecting cable (not all cables properly connect the pins required for 7 wire hardware handshaking) or due to configuration problems. Some modems factory settings are incompatible with the way the Amiga handles hardware handshaking. In such a case it is very likely that the modem does not set the so-called DSR signal by default. To change this, first turn off RTS/CTS handshaking, then type the command `AT&S0` and press return, now turn RTS/CTS handshaking on again.

The RTS/CTS handshaking protocol must be used for reliable modem connections using transmission speeds of 4,800 BPS and above.

'`Duplex`'   Determines whether characters are echoed back to the terminal screen or not (full, half = local echo).

'`Buffer size`'

The number to be specified here allows to set the serial driver I/O buffer size. *Every number you enter here will result in 'term' and the serial driver allocating twice the buffer size (this is only a word of warning for those among us who prefer buffer sizes of 256K and up).*

'`Break length`'

Length of the break signal given in microseconds.

'`High-speed mode`'

Activates a special mode of the serial driver which is to skip a couple of internal parity and stop bits checks resulting in higher data throughput rate. *If this switch is turned on, the serial parameters will be reset to 8 bits per character, no parity and 1 stop bit.* Do not expect dramatic speed increases.

'`Strip bit 8`'

If this switch is effect each character received or transmitted by 'term' will have its high-order bit cleared.

'`Shared access`'

This switch allows you to run the serial driver in shared access mode. Not all driver types will allow this to happen.

'`Handle xON/xOFF internally`'

This switch enables the internal processing of the flow-control characters `xON` (= `Control + S`) and `xOFF` (= `Control + Q`). Whenever you press `Control + S` 'term' will change its state to 'holding' and stop terminal input and output processing. Press `Control + Q` in order to restart.

'`Pass xON/xOFF through`'

>If this switch is enabled, 'term' will pass the `xON/xOFF` characters through to the modem rather than quietly discarding them.

'`Check carrier`'

>'term' will recognize the `NO CARRIER` message a modem emits when the carrier line signal drops back to low. For maximum safety, 'term' will also check the carrier signal line after receiving the `NO CARRIER` message if this switch is enabled. This is to make sure that no accidentally appearing text causes confusion.

>If this switch is enabled, 'term' will check the carrier signal during file transfers and will stop the transfer if the signal is lost. It will also check the carrier signal at program startup and if the signal is detected will start the online timer. If offline, 'term' will check the carrier signal periodically and go into online state if the signal is detected.

>*Note: Be sure to switch the carrier detect check off in case you wish to transfer files using a null-modem cable!*

'`Direct connection`'

>You can directly connect the Amiga to other computers, such as by using a nullmodem cable. In such a case it does not make good sense to enforce a carrier signal check or to warn you if the transmission speed requires that you enable RTS/CTS handshaking. This switch disables both features.

'`Quantum`'   The number of bytes 'term' tries to read in one chunk at a time. The more bytes read, the more time it takes to process them. While the text is processed, mouse and keyboard input are delayed. Choose this value with care.

'`Use OwnDevUnit`'

>This switch controls whether Christopher Wichura's '`OwnDevUnit.library`' will be used to schedule access of multiple programs to the currently selected serial device driver.

'`Do not use if device is in shared mode`'

>It may not be a good idea to lock the device driver for exclusive access through Own-DevUnit.library while 'term' is trying to share the driver with other applications in non-exclusive mode. For such cases, enable this switch.

'`Release device when online`'

>This option is potentially dangerous. By default 'term' will yield control over the serial device driver only if offline, i.e. if no carrier signal is detected, etc. With this switch enabled 'term' will let go of the device driver even if a connection is active and you are online. This may cause the device driver to drop the line, you have been warned.

'`Release device when dialing`'

>If your uucp netcall catches you off guard while 'term' is still dialing, here is your chance to give the netcall precedence. Please note that although 'term' will exit the

dialing procedure as quickly as possible and yield control over the serial device driver, it will not automatically start to redial when the device driver becomes available again.

'Satisfy requests'

When a program requests access to the serial device driver, 'term' is supposed to let go of the driver if possible. This switch controls what 'term' will do in this case:

'Release device'

The driver is released, just as if you would select the main menu item of the same name.

'Release device, attempt to reown'

The device driver is released, but 'term' will retry every four seconds to reopen and thus 'reown' it again.

'Keep device open'

'term' always ignores requests to release the device driver.

'Serial device'

The name of the serial driver to be used by 'term'. This is usually 'serial.device' ('modem0.device' for the internal Supra modem, 'sxbios.device' for ASDG's serial IO card, 'vectorser.device' for the VectorConnection card, 'duart.device' for the MultiFaceCard, etc.; consult your hardware manual for more information).

'Device unit number'

The device unit number of the serial driver selected above. This is usually left '0' but can also be used to address multiple serial IO ports.

'Use'   Accept the current settings.

'Default (phonebook only)'

Drop the current settings, making a connection to the corresponding phone number will leave the corresponding main configuration entry unchanged.

'Cancel'   Don't use the current settings.

19.2 Modem panel

This is where modem control text and other related parameters are configured.

'Modem initialization command'

The text to send to the modem after successful program initialization. This text is optional and thus does not need to be present.

The default modem initialization command 'term' uses is ATE1V1Q0\r which will do the following with a modem that complies to the Hayes Standard AT Command Set Specification:

1. [E1] Command state character echo is enabled, so the modem echoes back every character you send to it until it makes a connection.

2. [V1] Result codes are displayed as words, so the modem will respond with messages such as `CONNECT`, `NO CARRIER`, etc. rather than numeric codes.

3. [Q0] Result codes are enabled, so that the modem will send a response to any command it receives.

For more information on these commands, consult your modem manual.

The dialing routine will use the initialization text entered here before dialing a phone number. You can separate multiple initialization commands with vertical bar (|) characters. Only the dialer will use them.

'`Modem exit command`'

The text to be sent to the modem shortly before the program terminates. Just like the modem init text it is optional and does not need to be present.

There is no default exit command 'term' uses.

The dialing routine will use the initialization text entered here before dialing the next telephone number.

The dialing routine will use the exit text entered here before dialing a phone number. You can separate multiple exit commands with vertical bar (|) characters. Only the dialer will use them.

'`Hang up command`'

The text to be sent to the modem when asked to hang up the line. This text does have to be present if the '`Drop DTR on hangup`' switch is enabled.

By default 'term' uses the following hang up command: `~~~~+++~~~~ATH0\r`. This will cause 'term' to wait exactly two seconds, to transmit the `+++` escape sequence, wait another two seconds and eventually transmit the hangup-command. The small delay before and after the escape sequence is necessary to put the modem into command state. The tilde characters are part of a set of special characters 'term' uses, these do not get sent through to the modem. Specifically, each tilde character causes 'term' to wait for half a second. For more information on the command sequences the tilde character belongs to see Chapter 27 [Command sequences], page 129.

'`Do not send modem init/exit commands.`'

You may have placed special commands in the init/exit text fields that should be executed only when starting and terminating 'term'. Still chances are that these will also get executed when the phonebook dialer dials the selected phonebook items unless you enable this switch.

'`Command character send delay`'

You will only rarely use this feature. Some of the more modern high-speed modems with rather unreliable firmware which support BPS rates of 28,800 bps and up cannot

quite make sense of modem initialization and dialing commands if sent at this speed. However, small delays between the single characters sent to the modem can help. Just set the number of microseconds to wait here.

‘‘No carrier’ message’

The message the modem emits if the data carrier is lost. The program uses this to determine the length of the connection and to calculate how much the user is to pay for it.

‘‘No dialtone’ message’

The message to be returned by the modem in case it does not detect any dialing tone on the phone line.

‘‘Connect’ message’

The message the modem emits after detecting a carrier signal. ‘term’ uses this input to determine successful telephone connection, to reconfigure itself and to start the online timer.

‘‘Voice’ message’

The message ‘term’ is expected to receive if the modem detects a voice call. If in dialing mode, ‘term’ will stop the process. The user will in any case be notified of the event.

‘‘Ring’ message’

The message the modem emits if it receives a call, same effects as with the ‘Voice’ message.

‘‘Busy’ message’

The message the modem returns if the number which has just been dialed is busy.

‘‘Ok’ message’

The message the modem returns if a command was successfully executed.

‘‘Error’ message’

The message the modem returns if a command was not to be executed successfully.

‘Dial command prefix’

The text to be used to prefix each dialing command. By default ‘term’ uses `ATD\w` as the prefix. This command contains the special escape sequence `\w` ‘term’ will expand to either `T` or `P`, depending on what the ‘Dial mode’ switch is set to.

‘Dial command suffix’

The text to be used to append to each dialing command. This is usually the carriage-return character `\r`.

‘Dial mode’

This switch affects whether dialing commands will use touch tone or pulse dialing. Touch tone dialing usually is quite a bit faster than pulse dialing, but not all phone networks support it. This switch requires that either the dial prefix or dial suffix commands include the `\W` command sequence (see Chapter 27 [Command sequences], page 129). By default ‘term’ will use pulse dialing.

‘`PBX dial command`’

> If you are dialing out through a PBX you may need to dial an extra number and wait a bit before dialing the rest of the phone number. Enter the extra number and any other special modem control characters here. By default ‘term’ will use `0,,`, as the PBX dial command. If enabled, this dial command is put between the ‘`Dial prefix`’, the phone number to dial and the ‘`Dial suffix`’. The default command first dials a 0, then tells the modem to wait a bit (each comma causes the modem to wait for a small amount of time, see your modem manual for more information) for the dial tone to occur and eventually dials the rest of the phone number.
>
> Note that you may need to change the 0 to a 9 in the US.

‘`Use PBX dial command`’

> This switch enables the PBX dial command describe above.

‘`Delay after dialing whole list` (‘`Redial delay`’)’

> The time to wait after walking through the whole dialing list without making any successful connection before another attempt is started.

‘`Redial each list entry` (‘`Dial retries`’)’

> The number of times the dialer walks through the dialing list trying to make a successful connection before giving up. Setting this value to ‘unlimited’ will cause the dialer to retry over and over again until it either makes a connection or the dialing procedure is aborted.

‘`Wait for connection` (‘`Dial timeout`’)’

> The time to wait for a successful connection during dialing. After this time has elapsed, the dialer will skip to the next entry in the list.

‘`Delay after each busy signal` (‘`Delay between calls`’)’

> Some modems impose a limit on how many times you may dial out in a minute or just get hopelessly lost if dial commands come in in rapid succession. Here is where you set the time to wait between two successive calls. This value also has a profound effect on the redial delay which will be extended a bit if it is smaller than the delay between calls.

‘`Show modem responses`’

> By default, ‘term’ will not display any modem response text that is received while it is dialing. If you enable this switch no modem output will be swallowed, it will even find its way into the review buffer.

‘`Treat ‘NO CARRIER’ as ‘BUSY`’’

> If this switch is in effect, the dialing function will treat the modem response code `NO CARRIER` exactly as the `BUSY` response code.

‘`Connect auto-baud`’

> Most modems echo the BPS rate upon successful connection. If enabled the BPS rate will be read and set for the serial driver.

> *Use this feature with care as it may have certain negative side-effects (such as the modem dropping the line just after connecting to a BBS)! If you happen to use a modern high-speed modem you will most certainly not need this feature. If in doubt whether you need to enable this feature you should rather disable it!*

'`Dialer abort hangs up`'

Unless this switch is enabled the dialing procedure will try to stop a modem dial command by sending a plain carriage return character. If the '`Dialer abort hangs up`' switch is enabled the usual modem hang up procedure will be used instead.

'`Time to connect`'

'term' cannot measure the time to pass between the remote modem picking up the line and the local modem sending the `CONNECT` message. This slider allows to set the length of this interval. Upon connection, it will be added to the total online time.

'`Drop DTR on hangup`'

Some modems will track the `data terminal ready` line in order to make sure that the terminal program is listening. Once the line goes back to low potential, these modems will drop the line and hang up. Use this button to make 'term' take advantage of this feature.

'`Redial after hanging up`'

If this switch is in effect, 'term' will redial all the phone numbers still in the dialing list as soon as the line is hung up or the carrier signal is lost.

'`Connect limit`'

This gauge is to set a certain period of time to be counted after a connection is made. When elapsed, a command sequence (see Chapter 27 [Command sequences], page 129) will be executed as to be set using the `Limit macro` settings. If set to `0:00` this function will be disabled.

'`Limit macro`'

A command sequence to be triggered when the time to be set using the `Connect limit` gauge has elapsed. If no text is entered this function will be disabled.

'`Use`'   Use the current settings.

'`Default (phonebook only)`'

Drop the current settings, making a connection to the corresponding phone number will leave the corresponding main configuration entry unchanged.

'`Cancel`'   Keep original settings.

19.3 Screen panel

'`Display mode`'
> Choose the display mode 'term' is to use for the main screen here.

'`Screen font`'
> This is where you choose the user interface font 'term' is to use for the main screen.

'`Faster layout`'
> Activating this switch will slow down display updates and window management. Oh well, not always, there may be a speed increase with some configurations, such as with external emulations activated or when using more than four colours on the screen.

> I suggest to experiment with the effects of this button before actually using it permanently.

'`Make screen public`'
> If this switch is enabled, the 'term' main screen will be made available as a public area other programs may open their windows on.

'`Use public screen`'
> 'term' does not necessarily open a custom screen, this switch will make the main and auxilary windows appear on a named public screen. 'term' will try to adapt colours and text rendering modes to its new environment. It will share the screen palette with other applications which makes it possible to run the built-in terminal emulation in eight or sixteen colours provided that enough shareable screen pens are available (note: Kickstart 3.0 required). 'term' will inherit the text font to be used for user interface layout from the public screen it will open its window on.

> *Note: only the built-in terminal emulation is guaranteed to take advantage of pen-sharing facilities, external emulation libraries will most likely fail to display text correctly!*

> Take care when resizing the 'term' main window as a size change will reset the terminal emulation.

'`Public screen name`'
> The name of the public screen 'term' is to open windows on. 'term' will fall back to the Workbench screen if no proper name is given (i.e. no name is entered) or the desired screen is unavailable.

'`Screen title`'
> If this button is enabled, the 'term' screen will contain a draggable title bar, if not, the title bar will be disabled, leaving more space for the terminal output window.

'`Window border`'
> The main window will be opened on a custom screen, featuring a drag bar and depth gadgets.

'`Separate status window`'
> A separate window will be opened for the status display window.

'`Status line`'

> This switch allows to disable the status line display or to change between two alternative status line displays:
>
> '`Disabled`'
>
> > No status line is displayed.
>
> '`Standard`'
>
> > The standard two status lines are displayed.
>
> '`Compact`'   A very condensed version of the status line is displayed, only the data is shown but no captions. The data is displayed in the following order:
>
> > 1. Status
> > 2. Terminal type
> > 3. Transfer protocol
> > 4. BPS rate
> > 5. Serial parameters
> > 6. Time of day
> > 7. Online time

'`Online display`'

> This switch determines what type of information is to be displayed in the bottom right corner of the status display:
>
> '`Online time`'
>
> > The time online
>
> '`Online cost`'
>
> > The amount of money to be paid for the connection
>
> '`Time & cost`'
>
> > Both time and money, the display will toggle between both of them every five seconds.

'`Colour`'   This button determines the colour mode the terminal emulation is going to use. Until now, four modes have been implemented:

> '`4 Colours (Amiga)`'
>
> > Four colours, optionally blinking.
>
> '`8 Colours (ANSI)`'
>
> > Eight colours, optionally blinking.
>
> '`16 Colours (EGA)`'
>
> > Sixteen colours, as the EGA-palette, optionally blinking.
>
> '`2 Colours (Mono.)`'
>
> > Monochrome, two colours.

'`Blinking`'
> If selected the VT100 blinking option is enabled. This may require to allocate more colours for a specific colour mode than with blinking disabled, so do not be surprised if display performance suddenly drops like a brick.

'`Palette`'   These buttons are used to select a colour of the screen palette that is to be changed.

'`Red/Green/Blue`'
> Use these sliders to modify the red, green and blue components of the currently active colour.

'`Use default colours`'
> Press this button to have the current colour palette set to the built-in default colours.

'`Use standard pens`'
> The user interface look is determined by the choice of on-screen rendering pens, i.e. which colour to use for highlighted text, active windows, inactive windows, etc. If this button is enabled the screen will be opened using a predefined standard set of drawing pens.

'`Edit pens...`'
> Pressing this button will open the pen panel (see Section 19.4 [Pen panel], page 57) which permits editing the drawing pens to use for this colour mode.

'`Use`'   Use the current settings.

'`Default (phonebook only)`'
> Drop the current settings; making a connection to the corresponding phone number will leave the corresponding main configuration entry unchanged.

'`Cancel`'   Keep the old settings.

19.4 Pen panel

This control panel is available under Kickstart 3.0 and above only. Its functionality is not supported under previous operating system releases!

The user interface look is determined by the choice of on-screen rendering pens, i.e. which colour to use for highlighted text, active windows, inactive windows, etc. Changing the screen colour palette also affects the look of the user interface, this control panel permits to compensate for such changes: even if you reverse the terminal colours you can still retain the correct user interface look by adapting the pens. The controls available are similar to the Workbench Preferences editor program '`Palette`':

'Background'

> The screen background colour to use, by default this is colour 0.

'Text'   The default colour to render common text, such as in control panel labels.

'Important text'

> The colour to draw important text in, this should put a certain emphasis on the text rendered so the colour should be different from the 'Text' colour.

'Bright edges'

> The colour to use to render the bright edges of windows.

'Dark edges'

> The colour to use to render the dark edges of windows.

'Active window title bars'

> The colour to mark the currently active window and selected buttons and list entries.

'Active window titles'

> The colour to use when printing text over active window title bars, selected buttons and list entries.

'Menu background'

> The colour to render pull-down menus in.

'Menu text'

> The colour to use when printing the menu text.

'Use standard pens'

> Reset the current pen selection to default values.

'Use'   Keep the current settings.

'Cancel'   Return to previous settings.

19.5 Terminal panel

These settings control the basic behaviour of the terminal emulation 'term' uses. More specific emulation options are available in the emulation window (see Section 19.6 [Emulation panel], page 61).

'BBS-ANSI compliant'

> This button serves as a shortcut to select terminal settings that comply with the BBS-ANSI "standard": the terminal text font is set to "IBM PC style" and the terminal size is set to 80 by 25 characters.

'Text font'

> The name of the standard or default terminal text display font. Please note that this font cannot be proportional-spaced.

'IBM PC font'

> The name of the font to use if the terminal is in IBM PC mode. Please note that this font cannot be proportional-spaced.

'Font'   Here the type of the font to be used for text display in the terminal window can be selected:

> 'Standard'
>
> > The standard text font selected under the 'Text font' settings in this control panel.
>
> 'IBM PC style'
>
> > A font similar to the IBM PC text font will be used. No matter how the translation tables (see Section 19.15 [Translation panel], page 83) are configured, outgoing Amiga characters are translated into PC character values. The terminal window will use the font selected under the 'IBM PC font' settings in this control panel.
>
> 'IBM PC style (raw)'
>
> > This selection has very much the same effect as 'IBM PC style' but no character translation is performed. The terminal window will use the font selected under the 'IBM PC font' settings in this control panel.

'Columns'   The number of columns to use for the terminal window. The minimum value is 20 columns, the maximum value is defined by the actual screen size.

'Lines'   The number of lines to use for the terminal window. The minimum value is 20 lines, the maximum value is defined by the actual screen size.

'Emulation'

> This is where you select the terminal emulation. Choose one of the following:

> 'ANSI/VT220'
>
> > This emulation is a 'melange' of three terminal command sets which themselves are supersets or subsets of one another. Most of the VT220 command set is supported, including some additions made in the ANSI X3.64 specifications. With VT220 its subsets VT100 and VT102 are supported. However, not all the VT52 commands are supported.
>
> 'Atomic'   A plain text-only terminal mode which filters out terminal commands and special control characters.
>
> 'TTY'   Also a text-only terminal mode but which displays all control codes and commands it cannot handle on-screen, great for debugging.
>
> 'Hex'   Another debugging mode which displays all incoming data in hexadecimal notation. If possible the corresponding glyphs will be displayed as well.

'`External`'

>>This enables the use of external terminal emulation libraries following the XEM v2.0 specifications. In this mode you need to specify the library to use, otherwise 'term' will return to '`ANSI/VT220`' mode.

'`Emulation name`'

>The name of an external terminal emulation library to be used by 'term' instead of the built-in emulation code. Requires that the emulation mode is set to '`External`'

'`Use emulation process`'

>If you are bold and daring you can have an external process handle the terminal text output, just turn on this switch. Please note that the external process will consume additional memory and text throughput speed is likely to suffer with fragmented memory. On the other hand the emulation process will relieve the main program of the tedious task of having to process the incoming data which. This helps the main program to keep up with the incoming data stream and makes it less likely that incoming text is lost.

'`Bell`'   This is where you select the action(s) 'term' is to take whenever a '`bell`' character turns up in the data stream:

>'`Visual`'   The screen will flash.

>'`Audible`'   An audible signal will be generated.

>'`Visual & audible`'

>>A combination of both effects.

>'`Ignore`'   Nothing will happen.

>'`System default`'

>>The system beep routines will be used.

'`Keymap file`'

>If your installation requires that 'term' is to use a custom keymap layout, enter the keymap file name here.

>*At the time of this writing the program will not support custom keymap layouts with the packet window (see Chapter 29 [Packet window], page 135) due to operating system limitations.*

'`Send CR`'

'`Send LF`'

>These buttons determine the sequences that are sent to the remote if a carriage return (CR) or line feed (LF) character is to be transmitted. Both characters serve as end-of-line indicators.

>'`_`'

>>The character is suppressed.

'<<CR>>'   A carriage return character is sent.

'<<LF>>'   A line feed character is sent.

'<<CR>><<LF>>'

          A sequence of two characters (carriage return followed by line feed) is sent.

'<<LF>><<CR>>'

          A sequence of two characters (line feed followed by carriage return) is sent.

'Receive CR'
'Receive LF'

          These two buttons have largely the same effect as the `Send CR/LF` buttons, they are
          different in that they affect the incoming data rather than the data transmitted.

'Use'   Use the current settings.

'Default (phonebook only)'

          Drop the current settings, making a connection to the corresponding phone number
          will leave the corresponding main configuration entry unchanged.

'Cancel'   Keep the old settings.

19.6 Emulation panel

The buttons found here allow you to change the internal parameters of the selected emulation.

The following text only describes the parameters to change when using the built-in terminal
emulation; if an external terminal emulation is in effect, this menu will conjure up the corresponding
parameters menu as supported by the external terminal emulation module.

'BBS-ANSI compliant'

          If you enable this switch, the emulation configuration will be changed to support the
          BBS-ANSI "standard": this affects text output parameters and the way the terminal
          responds to identification queries.

'Terminal identifies as'

          If the remote application requests that 'term' identify itself, stating which terminal
          it emulates, 'term' can respond with various identification signatures. It can identify
          itself as being a DEC VT200, VT102, VT101 or VT100 terminal. You may only rarely
          want to change this option, it is mainly used to trick old or not-quite-that-well-behaved
          applications into being a little friendlier towards the 'term' terminal emulation.

          Note: this switch does not affect how 'term' operates, it only changes the signature
          'term' responds with when asked to identify itself, i.e. even if you switch to VT100,
          'term' will still understand and process VT220 specific commands.

'`Wrap characters`'

> This function activates the automatical carriage return function which is triggered as soon as the cursor crosses the right screen margin. To avoid unpleasant side-effects, this switch should be activated all the time.

'`Lock line wrapping`'

> If this switch is enabled, any requests to change the end of line text wrapping mode will be rejected.

'`Insert mode`'

> Normally, 'term' is in overwrite-mode (characters entered overwrite the contents of the screen). If this gadget is activated, typed characters are inserted by pushing all the characters right of the cursor towards the right margin.

> *The insert-mode does only work for lines. If characters are pushed out of the screen they cannot be restored.*

'`New-line mode`'

> This gadget activates a special mode in which some VT100 control sequences cause 'term' to perform a linefeed instead of clearing the screen or other serious changes of the contents of the screen.

'`'CLS' resets cursor position`'

> As per the VT100 specs, the control sequence to clear the screen is not to change the current cursor position. However, several applications expect it to be moved to the top left corner of the screen. This button will activate this behaviour.

'`Printer control enabled`'

> 'term' supports the standard VT220 printer control commands. If you do not want the remote application to play with the printer the corresponding support commands can be disabled with this switch. If disabled 'term' will act like a VT220 terminal with no printer attached.

'`Lock text style`'

> If this switch is enabled, any requests to change the text rendering attributes (underlined, highlight, blinking, inverse) will be rejected.

'`Lock text colour`'

> If this switch is enabled, any requests to change the text rendering colour will be rejected.

'`Wrap cursor moves`'

> According to the VT-100 specifications the cursor movements have to stop at the edges of the screen. In spite of this the cursor may leave these borders, especially in ANSI-mode, and may appear at the other side of the screen. This button activates a more 'tolerant' mode.

'`Cursor keys`'

> If in 'applications mode' the cursor keys will cause a command sequence to be transmitted instead of a cursor move event. This mode is usually activated by special applications on the remote side.

'`Lock cursor key mode`'

> Certain applications may excessively change the cursor key mode from standard to applications mode. If you do not want this to happen you can forbid it by using this switch.

'`Numeric keypad`'

> If in 'applications mode' the numeric keypad will cause a command sequence to be transmitted instead of the characters indicated by the key labels. This mode is usually activated by special applications on the remote side.

'`Lock keypad mode`'

> Certain applications may excessively change the keypad mode from standard to applications mode. If you do not want this to happen you can forbid it by using this switch.

'`Swap [Backspace] and [Del] keys`'

> If this switch is in effect the backspace and delete key codes are swapped. *This also applies to sequences such as* `Control + H` *which will produce a delete character instead of a backspace character.*

'`Lock font mode`'

> If this switch is turned on, any terminal commands to change the font scale will be ignored.

'`Scrolling`'

> This button selects one of two different scrolling modes: smooth or jumping.

'`Destructive backspace`'

> Determines if the `Backspace` code, which will delete the character left from the cursor, only moves the cursor to the left or removes the character from the screen. '`Off`' turns this feature off, '`Overstrike`' clears the character below the cursor and '`Shift`' shifts the line contents to the right of the cursor to the left.

'`Answerback message`'

> The text to send across the serial line whenever an `ENQ` character is received. The text is - as usual - a command sequence.

'`Maximum prescroll lines`'

> This is where you set the maximum number of lines the terminal emulation will scroll the screen contents up in one single 'jump'. This feature is often referred to as 'prescroll'. *Note: the data throughput rate plays an important part when counting the number of lines to scroll. The higher the rate, the more lines will be scrolled.*

'`Maximum scroll jump`'
> Here is where you set the number of lines to move the screen contents up when the cursor moves beyond the last terminal screen line.

'`Use standard pens`'
> The built-in terminal emulation makes use of up to sixteen text rendering pens and four text rendering attributes. For each colour mode supported (see Section 19.3 [Screen panel], page 54) a specific pen order and text attribute assignment is predefined. You can select your own pen order and attribute assignment if this switch is not enabled by pressing the button labeled '`Edit pens...`'.

'`Edit pens...`'
> Pressing this button will open the text pen panel (see Section 19.7 [Textpen panel], page 64) which permits editing the drawing pens to use for this colour mode.

'`Use`'   Use the current settings.

'`Default (phonebook only)`'
> Drop the current settings, making a connection to the corresponding phone number will leave the corresponding main configuration entry unchanged.

'`Cancel`'   Keep the old settings.

19.7 Textpen panel

For each colour mode (monochrome, 4, 8, 16 colours) the terminal emulation uses a specific order of text pens and text attribute assignments. The text pens determine which text rendering colours to use. The text attribute assignments define how blinking, inverse, underlined and highlighted text should be displayed. This control panel is divided into two parts. One part serves to select the text pens, the other part will let you assign the text attributes. At the left hand side of each control you will find a label which indicates the emulation's default value.

There is a limitation in the number of text colour you can choose. While there is a colour mode which makes use of 16 colours, only a maximum of eight colours can be selected. The reason for this limitation is found in the terminal control commands which allow for only eight colours (0-7). The remaining eight colours (8-15) are selected via a text rendering attribute, known as 'highlight'. This means, if text is to be printed in colour 7 and the highlight text rendering attribute is enabled the text will be printed in colour 15. The 'highlight' text rendering attribute always has a special meaning. In all colour modes except 16 it causes text to be output in boldface.

'`Drawing pens`'
> Here you select the text drawing pen order to use.

'`Attributes`'

>   Here you select which text rendering attribute to use instead of the default. You can
>   also choose to disable an attribute.

19.8 Clipboard panel

'`Clipboard unit`'

>   The clipboard supports several units (0-255) which can be accessed independently. It
>   can make sense to change this value but generally you will probably leave it as unit '0'.

'`Paste prefix`'

>   If enabled, the text to send before the clipboard contents are fed into the input stream,
>   see Chapter 26 [Clipboard], page 127.

'`Paste suffix`'

>   If enabled, the text to send after the clipboard contents are fed into the input stream,
>   see Chapter 26 [Clipboard], page 127.

'`Convert <<LF>> to <<CR>>`'

>   On the Amiga, new lines end with the LF (line feed) character. To simulate typed text,
>   these characters should be converted to CR (carriage return characters) when pasting
>   the contents of the clipboard. If this switch is enabled, the conversion will take place.

'`Text pacing`'

>   The mode to determine how text is sent to the remote:
>
>   '`Direct`'   Each line will be sent without any delay.
>
>   '`Wait for echo`'
>
>   >   The program will wait for each single character sent to be echoed by the
>   >   remote.
>
>   '`Wait for any echo`'
>
>   >   The program will wait for the remote to return any character in response
>   >   to any character sent. Typically, this is the case with password prompts
>   >   issued by BBSes.
>
>   '`Wait for line prompt`'
>
>   >   The program will wait until the remote sends a certain line prompt text.
>
>   '`Character/line delay`'
>
>   >   The program will respect the character/line delay values to be set using
>   >   this control panel.
>
>   '`Keyboard delay`'
>
>   >   The program will send character separated by a delay to be determined by
>   >   the current system keyboard repeat delay.

Note: the 'echo' text pacing modes are to be used with greate care. Certain online services do not echo characters back to the sender as they run only in half-duplex mode. On the other hand most BBS programs will not echo certain characters, such as escape codes, etc.

'`Character delay`'
> When sending text this number determines how many seconds to wait before sending the next character.

'`Line delay`'
> When sending text this number determines how many seconds to wait before sending the line-termination character (carriage return).

'`Line prompt`'
> The character(s) to wait for the receiver to issue after a line of text is send. This text may include command sequence tokens.

'`Send timeout`'
> If the '`Text pacing`' mode is set to '`Wait for echo`' or '`Wait for line prompt`' the maximum time to wait for echo/prompt before the insertion is aborted.

'`Use`'   Use the current settings.

'`Default (phonebook only)`'
> Drop the current settings, making a connection to the corresponding phone number will leave the corresponding main configuration entry unchanged.

'`Cancel`'   Keep the old settings.

19.9 Capture panel

'`Log actions`'
> If enabled will write a protocol of each program action (uploads, downloads, dial attempts, etc.) to a file. Each action is listed along with time and date. Carrier-lost events will also note the approximate cost of the call. The log file created by this function is **not intended** for postprocessing via call-log file analyzers. Use the '`Log calls`' feature for this purpose.

'`Log file`' The name of the file in which the information on the actions executed by 'term' will be stored if '`Log actions`' is enabled.

'`Log calls`'
> If this switch is enabled, 'term' will create call-log files in a format compatible with the '`CallInfo`' program. Sometimes this format is referred to as 'NComm format'.

‘`Call log file`’

> The name of the file in which the information on calls made by ‘term’ will be stored if ‘`Log calls`’ is enabled.

‘`Log file format`’

> When writing the call logging information to a file, ‘term’ can use one of to different storage formats:
>
> ‘`CallInfo`’
>
> > This format is compatible with the call log files NComm writes.
>
> ‘`PhoneLog`’
>
> > This is a platform independant format devised by Kai Hofmann.

‘`Connect-auto-capture`’

> If enabled will automatically open a capture file after successfully making a connection. Any other already open capture file will be closed before proceeding. The files created will bear the names of the corresponding phonebook entries.

‘`Filter enabled`’

> If selected, command sequences are filtered out before the incoming characters are captured to disk or printer. This makes good sense with noisy lines generating random characters which might scare your printer. It also produces a text file that is much more readable than with all the control sequence codes cluttering up the text.

‘`Convert characters`’

> This switch works in conjunction with the ‘`Filter enabled`’ option. When using the ‘`IBM PC style`’ terminal font, ‘term’ receives characters which normally do not have a place in the standard Amiga character set. If the ‘`Convert characters`’ switch is enabled, these characters will be converted into their Amiga equivalents, if there are any, before they go into the capture buffer. Note that this character conversion is always enabled for text captured to the printer.

‘`Creation date`’

> By default ‘term’ will append the date of the call made to the name of the auto-capture file created (‘`Add to name`’). Alternatively, ‘term’ will leave the name untouched and store the creation date within the file (‘`Write to file`’).

‘`File drawer`’

> This text gadget contains the path in which the the capture files will be created if ‘`Connect-auto-capture`’ is enabled.

‘`Enabled`’   This switch works in conjunction with the ‘`Freeze buffer`’ menu entry (freezing the text buffer contents). In fact, the menu entry is adjusted according to the configuration settings whenever a new configuration is invoked (that is, whenever a new connection is made through the dialing panel or at program startup time). *‘term’ will only freeze the buffer if this switch is set, it will leave the buffer state (frozen or not) untouched if this switch is not enabled.*

'`Maximum size`'

> To save memory, a high-water mark concerning the maximum amount of memory the text buffer (see Chapter 25 [Text buffer], page 125) will allocate for text may be specified. The minimum value to be entered here is 2,000 bytes which are roughly equivalent to two text buffer pages of text. A value of 0 will cause the text buffer to always allocate as much memory as required to buffer all the incoming text.

'`Buffer memory safety limit (bytes)`'

> The text buffer will stop allocating new memory if there are less that this number of bytes available for allocation. This limit makes sure that 'term' does not dry up all the memory available, bringing other applications in danger of collapsing.

'`File drawer`'

> The path the file requester will bring up when saving the contents of the text buffer.

'`Line width`'

> The text buffer stores lines at a fixed size, this slider determines the maximum line width.

'`Buffer operation mode`'

> The incoming data can be stored in the buffer in two different ways. The default is to filter out control sequences but largely to store the text as it came in (this is the '`Data flow`' mode); if the same text is printed over and over again in the same line, it will show up more than once in the text buffer. The alternative is the '`Review`' mode in which the text is stored right as it appears on the screen. Although this is more faithful to the general concept of the review buffer, this has its drawbacks; text will only appear in the buffer when it has either scrolled out of view or if the screen gets cleared.

'`Search history size`'

> The text buffer search function maintains a backlog of all the search text entered. The number of texts to remember, before the oldest is discarded, can be set using the '`Search history size`' control. In the search text entry field you can use the `Cursor up` and `Cursor down` keys to scroll through the previously entered search strings.

'`Open window`'

> This switch controls which part of the text buffer contents the review buffer window will display when opened:

> '`Top`'   Displays the top of the buffer contents.

> '`End`'   Displays the end of the buffer contents.

'`Remember position`'

> If this switch is in effect, the program will remember the text display position between calls rather than jumping to the top or the end of the text buffer.

'`Open screen`'

> This switch controls which part of the text buffer contents the review buffer screen will display when opened:

> '`Top`' Displays the top of the buffer contents.

> '`Remember`'
> > Keeps the previous buffer position.

> '`End`' Displays the end of the buffer contents.

'`Remember position`'

> If this switch is in effect, the program will remember the text display position between calls rather than jumping to the top or the end of the text buffer.

'`Screen position`'

> The buffer screen will usually not be quite as wide as the system overscan settings permit. This switch determines the horizontal placement of the screen:

> '`Left`' The screen will be left-edge aligned.

> '`Centre`' The screen will be centred.

> '`Right`' The screen will be right-edge aligned. This will bring the screen depth arrangement gadget in line with the other screens.

'`Display mode`'

> This is where you choose the screen display mode the buffer screen should use.

'`Use`' Use the current settings.

'`Default (phonebook only)`'

> Drop the current settings, making a connection to the corresponding phone number will leave the corresponding main configuration entry unchanged.

'`Cancel`' Keep the old settings.

19.10 Command panel

Here you will find entries for four command sequences which serve four functions:

'`Startup command`'

> At the beginning of every session with 'term' and after a connection has been established by the dialing routine a command-sequence is executed. Do not use this command for auto-login scripts and such, this is what the '`Login command`' is for. Note that the dialing procedure executes the '`Startup command`' after the '`Login command`'.

'`Login command`'
> This command will be executed immediately after the dialing procedure has established
> a connection. You should use this command for login scripts and such. Note that the
> dialing procedure first executes the '`Login command`' and then the '`Startup command`'.

'`Logoff command`'
> The command to execute when the line is hung up or the carrier signal is lost.

'`Upload command`'
> 'term' will execute this command after a successful upload has been made.

'`Download command`'
> 'term' will execute this command after a successful download has been made.

'`Use`'   Use the current settings.

'`Default (phonebook only)`'
> Drop the current settings, making a connection to the corresponding phone number
> will leave the corresponding main configuration entry unchanged.

'`Cancel`'   Keep the old settings.

19.11 Miscellaneous panel

This is the place where options can be set which would not fit into other control panels

'`Backup configuration`'
> By default the local program configuration saved along with a phonebook entry will
> replace the global configuration as soon as a successful connection is made. If this
> switch is enabled, 'term' will remember the global configuration in effect before the
> configuration data of a phonebook entry is adopted. As soon as the serial driver loses
> track of the carrier signal or the user chooses to hang up the line, 'term' will restore
> the previous global configuration.

'`Show fast! macros`'
> If this switch is enabled, the fast macro window (see Section 20.1 [Fast macro panel],
> page 87) will be opened whenever the current configuration becomes active (e.g. at
> startup time). Please note that if this switch is not enabled, this does not cause the
> fast macro window to be closed.

'`Release serial device when iconified`'
> By default the serial device driver is released when 'term' is iconified. Unfortunately,
> some modems drop the line when the device is closed so this switch allows you to keep
> the link.

'`Simple file I/O`'

> This switch controls whether 'term' is to use double-buffered file management routines or not.

'`Protective mode`'

> With this switch enabled 'term' tries to be nice and will notify you in case file/drawer/program names you have entered probably are invalid, data was not saved when the program is to be terminated, files are about to get overwritten and also if some program settings combinations are likely to cause trouble. Some users may find this appealing, while some may find it appaling.

'`Create icons`'

> If this switch is in effect 'term' will try to provide icons for all files it receives. The following file types (and the corresponding icon files) are supported:

> - Text file   icon '`ENV:sys/def_text.info`'
> - Sound file
>   > icon '`ENV:sys/def_sound.info`'
> - Picture file
>   > icon '`ENV:sys/def_picture.info`'
> - Tool   icon '`ENV:sys/def_tool.info`'
> - Archive file
>   > icon '`ENV:sys/def_archive.info`'
> - Preferences file
>   > icon '`ENV:sys/def_pref.info`'
> - Other file types
>   > icon '`ENV:sys/def_project.info`'

> Text and pictures saved by the program will also get icons attached.

'`Program priority`'

> Use this slider to determine the priority under which the 'term' main process is to operate. Adjusting this value can make 'term' perform more reliably in a system which experiences heavy task loading. It is recommended to experiment with this value until a satisfactory state is found. Setting the program priority too high or too low may affect the performance of coprocess services such as the double-buffered file I/O routines.

'`Disk I/O buffer size`'

> This slider controls how much memory the double-buffered file management routines will allocate for each buffer. This means a value of 4096 bytes will result in an allocation of 8192 bytes in total.

'`Console output window`'

> Whenever an AmigaDOS/ARexx command is executed an output window is opened. Here is where you configure the size and position of the window to be opened (consult

your AmigaDOS manual for a description of the window position string). If the `%s` formatting parameter is used in the output specification it will be replaced by the name of the public screen 'term' uses.

'`Suppress output`'

If you do not want the default AmigaDOS/ARexx command output window to appear, enable this switch. All command output will be redirected to '`NIL:`'.

'`Alert`'   'term' notifies the user of certain events, such as a connection being established or a file transfer action which has just been finished. This switch allows you to select the type of notification:

'`Bell`'   A bell signal will be given.

'`Screen to front`'

The 'term' screen will be brought to the front.

'`Bell & Screen to front`'

A combination of the two actions above.

'`None`'   Nothing will happen.

'`Requester dimensions`'

File, font and screen display mode requesters can be made to appear at specific positions and in specific sizes on the screen. This switch controls how they should appear:

'`Ignore`'   The default position and size won't be touched.

'`Centre`'   The requester will be centered within the limits of the main window.

'`Relative`'

The requester will appear at a specific position relative to the top left corner of the main window.

'`Edit...`'   Pressing this button opens a standard file requester, prompting you to resize and move the window to a position where you want to have it appear the next time it is opened. Click on the '`Use`' button when finished.

'`Use`'   Use the current settings.

'`Default (phonebook only)`'

Drop the current settings, making a connection to the corresponding phone number will leave the corresponding main configuration entry unchanged.

'`Cancel`'   Keep the old settings.

19.12 Path panel

In this part of the settings all paths, which 'term' uses to save or load any data, can be determined.

'`...Upload drawer`'
'`...Download drawer`'
>   The directories in which the functions contained in the '`Transfer`' menu will search and create files.

'`Configuration storage drawer`'
>   The drawer that will contain all configuration files (phonebook, macro keys, etc.). The default configuration file is called '`term.prefs`' and will be searched in the path defined by the enviroment variable '`TERMCONFIGPATH`' (see Chapter 34 [Environment variables], page 145).

'`Default text editor`'
>   Contains the name and search path of the editor used by '`Edit & upload text file`' in the transfer menu (see Section 18.5 [Transf.], page 40).

''`term`' `help text file`'
>   This is where the name of the online-help text file is stored. By default this is '`PROGDIR:term.guide`'.

'`Use`'   Use the current settings.

'`Default (phonebook only)`'
>   Drop the current settings, making a connection to the corresponding phone number will leave the corresponding main configuration entry unchanged.

'`Cancel`'   Keep the old settings.

19.13 Transfer panel

This is where the protocols to be employed for file transfers are to be selected. You will also find a handful of additional options here which one way or the other fit into the cathegory of file transfer related data.

'`Override transfer drawer`'
>   Each batch file transfer protocol allows you to specify the name of the drawer to place the files it receives in. By default 'term' will redirect the files to a drawer to be specified in the path panel (see Section 19.12 [Path panel], page 73). If this switch is disabled,

the internal settings of the current transfer protocol will be used. This may cause files
to appear (or rather disappear) in the wrong drawers.

Note: if you turn on this switch, 'term' will deny the file transfer protocol to delete
any files as it may remove them from the wrong drawer.

'Set 'archived' bit'

> If enabled, this switch will cause 'term' to mark files sent as `archived`.

'Transfer file icons'

> This switch works in conjunction with the drag & upload feature (see Section 20.5
> [Transfer progress panel], page 91). By default, 'term' will upload only the files whose
> icons are dragged on the main window or found in the upload queue. If this switch is
> in effect the icon files will be transferred as well.

'Mangle filenames for upload'

> Certain transfer protocols running under MS-DOS get into serious trouble if told to
> receive files with names which do not match the local naming scheme (8 characters
> for the name + "." + 3 characters for the extension). For example, in such situations
> ZModem will restart the file transfer over and over again in a row without getting any-
> where. To steer clear of trouble you can turn on the 'Mangle filenames for upload'
> switch which will cause the file transfer protocol to report 'condensed' file names to
> the remote receiver. A special algorithm will shrink the file names to the MS-DOS file
> name template, clearing potentially dangerous character combinations on the fly. This
> switch has no effect on external programs. *Note: the algorithm may map two different
> Amiga file names to the same MS-DOS file name, so watch out!*

'Hide upload icon'

> The file upload panel can be invoked by double-clicking on the corresponding icon
> placed in the Workbench window (see Section 20.15 [File upload panel], page 107). If
> you do not want the icon to apear, turn on the 'Hide upload icon' switch.

'Notify user after <n> errors have occured'

> Here you select after how many file transfer errors you want to be notified. The errors
> are counted separately for each file. When the given number of errors have accumulated,
> an error notification sound will be played. Setting this value to 0 suppresses this feature.

'Notify user'

> This switch controls when the file transfer window should be brought the front and a
> notification sound should be played:

> 'only when an error occurs'

>> The 'term' screen and the file transfer window will stay in the background
>> until a serious problem occurs.

> 'when transfer begins/ends'

>> Screen and window will be brought to the front at the beginning and at
>> the end of a transfer.

'when transfer begins'

> Screen and window will be brought to the front at the beginning of a transfer.

'when transfer ends'

> Screen and window will be brought to the front at the end of a transfer.

'File comment'

This is where the action to perform on downloaded files can be set:

'Ignore'   The file comment will not be touched.

'File type'

> The file will be examined and a guess will be made which type of file it is. The file comment will be set to the name of the file type.

'Source and time'

> The current BBS name and the time the file was received are placed in the file comment.

'File identification command'

This AmigaDOS command or ARexx script will be executed for each file that is downloaded. If you include %s in the command line, it will be replaced by the name of the file that was downloaded. If you omit these two characters, the name of the file just downloaded will be appended to the command line given here.

'Default protocol'

> Select your most often used file transfer protocol here, make individual changes to the ASCII, text and binary transfer protocols only if you really need them. Most users may never need a different transfer protocol than the default protocol. The default protocol will also handle automatic invocation of downloads if necessary.
>
> 'Type'   You can either select XPR library or External program here. XPR library will use an external transfer protocol library, such as 'xprzmodem.library'. This library will be kept open all the time and may for example handle download session automatically. For more information on how to use XPR libraries see Section 22.1 [Data transfer via XPR library], page 113.
>
> External program will invoke a program when necessary. This program has to temporarily take over serial I/O processing. Special facilities are available to pass parameters such as the name of the device driver 'term' uses to the program. For more information on how to use external programs see Section 22.2 [Data transfer via external program], page 113.
>
> 'Name'   This text entry field either holds the name of the XPR library to use or the name of the external program. Clicking on the

select button at the right hand side of the text entry field will bring up either a file requester or another control panel to select the program name and to edit the program parameters.

'Send signature'

Many file transfer protocols transmit characteristic data to the remote at the beginning of a transmission. This data is called a signature and when found in the incoming data stream 'term' will automatically invoke the protocol in question. This is particularly useful with external programs. This text entry field holds the signature which will when received start an upload using the current default protocol. For more information on protocol signatures see Section 22.3 [Protocol signatures], page 114.

'Receive signature'

This text entry field holds the signature which will when received start a download using the current default protocol. For more information on protocol signatures see Section 22.3 [Protocol signatures], page 114.

'Edit settings...'

Press this button to edit the settings of an XPR library. For an example of how these settings can look like, see Section 19.14 [XPR options sample], page 80.

'ASCII transfer'

This is where you set up the transfer protocol that is invoked when you select the Upload ASCII file(s) and Download ASCII file(s) menu items.

'Type'   You can either select XPR library, External program, << Default >> or Internal here.

XPR library will use an external transfer protocol library, such as 'xprzmodem.library'. This library will be kept open all the time and may for example handle download session automatically. For more information on how to use XPR libraries see Section 22.1 [Data transfer via XPR library], page 113.

External program will invoke a program when necessary. This program has to temporarily take over serial I/O processing. Special facilities are available to pass parameters such as the name of the device driver 'term' uses to the program. For more information on how to use external programs see Section 22.2 [Data transfer via external program], page 113.

<< Default >> will use the default file transfer protocol.

`Internal` will use the built-in ASCII transfer protocol. For more information see Section 20.7 [ASCII-transfer settings], page 95.

‘`Send`’ This text entry field either holds the name of the XPR library to use or the name of the external program for sending ASCII data. Clicking on the select button at the right hand side of the text entry field will bring up either a file requester or another control panel to select the program name and to edit the program parameters.

‘`Receive`’ This text entry field either holds the name of the XPR library to use or the name of the external program for receiving ASCII data.

‘`Signature`’

Many file transfer protocols transmit characteristic data to the remote at the beginning of a transmission. This data is called a signature and when found in the incoming data stream ‘term’ will automatically invoke the protocol in question. This is particularly useful with external programs. This text entry field holds the signature which will when received start a transfer using the current ASCII transfer protocol. For more information on protocol signatures see Section 22.3 [Protocol signatures], page 114.

‘`Edit settings...`’

Press this button to edit the settings of an XPR library. For an example of how these settings can look like, see Section 19.14 [XPR options sample], page 80.

‘`Text transfer`’

This is where you set up the transfer protocol that is invoked when you select the `Upload text file(s)`, `Edit & upload text file` and `Download text file(s)` menu items.

‘`Type`’ You can either select `XPR library`, `External program` or `<< Default >>` here.

`XPR library` will use an external transfer protocol library, such as ‘`xprzmodem.library`’. This library will be kept open all the time and may for example handle download session automatically. For more information on how to use XPR libraries see Section 22.1 [Data transfer via XPR library], page 113.

`External program` will invoke a program when necessary. This program has to temporarily take over serial I/O processing.

Special facilities are available to pass parameters such as the name of the device driver 'term' uses to the program. For more information on how to use external programs see Section 22.2 [Data transfer via external program], page 113.

`<< Default >>` will use the default file transfer protocol.

'`Send`'   This text entry field either holds the name of the XPR library to use or the name of the external program for sending textual data. Clicking on the select button at the right hand side of the text entry field will bring up either a file requester or another control panel to select the program name and to edit the program parameters.

'`Receive`'   This text entry field either holds the name of the XPR library to use or the name of the external program for receiving textual data.

'`Signature`'

Many file transfer protocols transmit characteristic data to the remote at the beginning of a transmission. This data is called a signature and when found in the incoming data stream 'term' will automatically invoke the protocol in question. This is particularly useful with external programs. This text entry field holds the signature which will when received start a transfer using the current text transfer protocol. For more information on protocol signatures see Section 22.3 [Protocol signatures], page 114.

'`Edit settings...`'

Press this button to edit the settings of an XPR library. For an example of how these settings can look like, see Section 19.14 [XPR options sample], page 80.

'`Binary transfer`'

This is where you set up the transfer protocol that is invoked when you select the `Upload binary file(s)` and `Download binary file(s)` menu items.

'`Type`'   You can either select `XPR library`, `External program` or `<< Default >>` here.

`XPR library` will use an external transfer protocol library, such as '`xprzmodem.library`'. This library will be kept open all the time and may for example handle download session automatically. For more information on how to use XPR libraries see Section 22.1 [Data transfer via XPR library], page 113.

`External program` will invoke a program when necessary. This program has to temporarily take over serial I/O processing. Special facilities are available to pass parameters such as the name of the device driver 'term' uses to the program. For more information on how to use external programs see Section 22.2 [Data transfer via external program], page 113.

`<< Default >>` will use the default file transfer protocol.

'`Send`' This text entry field either holds the name of the XPR library to use or the name of the external program for sending binary data. Clicking on the select button at the right hand side of the text entry field will bring up either a file requester or another control panel to select the program name and to edit the program parameters.

For your convenience, 'term' will by default place the standard invocation command for the Hydra protocol here.

'`Receive`' This text entry field either holds the name of the XPR library to use or the name of the external program for receiving binary data.

For your convenience, 'term' will by default place the standard invocation command for the Hydra protocol here.

'`Signature`'

Many file transfer protocols transmit characteristic data to the remote at the beginning of a transmission. This data is called a signature and when found in the incoming data stream 'term' will automatically invoke the protocol in question. This is particularly useful with external programs. This text entry field holds the signature which will when received start a transfer using the current binary transfer protocol. For more information on protocol signatures see Section 22.3 [Protocol signatures], page 114.

'`Edit settings...`'

Press this button to edit the settings of an XPR library. For an example of how these settings can look like, see Section 19.14 [XPR options sample], page 80.

'`Use`' Use the current settings.

'`Default (phonebook only)`'

Drop the current settings, making a connection to the corresponding phone number will leave the corresponding main configuration entry unchanged.

'`Cancel`'   Keep the old settings.

Settings for each transfer library are saved in text files in the '`ENVARC:`' and '`ENV:`' drawers.

Leave the default transfer library set to the one you intend to use most.

19.14 XPR options sample

You will find an excerpt of the '`xprzmodem.doc`' documentation file for the ZModem file transfer protocol below which is the default transfer protocol 'term' is shipped with. Please note that other file transfer protocols will sport different options and controls, you should consult the corresponding documentation for more information.

'`Text translation mode:`'
        '`Y = Text Yes`'

                If receiving, translate CR/LF pairs or solo CR chars to normal Amiga LF chars. Ignore data past `^Z`. If sending, suggests to receiver that they should receive this file in text mode.

        '`N = Text No`'

                Receive file verbatim, without changes. If sending, suggest to receiver that they receive this file verbatim, without translations.

        '`? = Text status unknown`'

                If receiving, use sender's suggestion as to whether to do end of line translations or not. If sending, tell receiver to use default mode, since we don't know either.

        '`C = Text mode set by Comm program`'

                The library asks the communications program whether or not to use Text mode for each file. If the communications program does not support the necessary '`xpr_finfo()`' call, or if the call fails, this option acts like T?. From the user's point of view, what this option normally does is set the Text mode to match the communications program's built-in text/binary/end-of-line/translation mode, if any.

'`Overwrite mode:`'
        '`Y = Overwrite Yes`'

                If about to receive file with same name as one which already exists, delete the old file and receive the new file in its place.

'N = Overwrite No'

> If about to receive file with same name as one which already exists, append ".dup" onto the name of the new file to keep them separate.

'R = Overwrite Resume'

> If about to receive file with same name as one which already exists, resume receiving file data from the current end of the existing file.

'S = Overwrite Skip'

> If about to receive file with same name as one which already exists, skip this file, we don't want it. Batch transfers will move on to the next file in the set, if any.

'Buffer size:'

> 'xprzmodem.library' adds a layer of file I/O buffering in addition to whatever the comm program may or may not provide. This option sets the size of XPRZModem's file I/O buffer in kilobytes. The minimum value is 1 KB, for those using RAM drives or fast hard drives, or those whose comm programs already provide sufficient buffering. The maximum value is as much contiguous RAM as you have available in your Amiga. If you specify more than is actually available, XPRZModem will keep decrementing the buffer size requested by 1 KB until the memory allocation works. That way, if your RAM is too fragmented to use the amount you request, XPRZModem simply uses the largest block available. Buffering is especially helpful for floppy drive users; it keeps your drive from continuously gronking and slowing things down all through the transfer.
>
> *Additional note for 'term' users: this option is practically replaced by the 'I/O buffer size' settings in the miscellaneous panel (see Section 19.11 [Miscellaneous panel], page 70).*

'Frame size:'

> Although normally avoided, ZModem has the ability to require an ACK to be sent from the receiver to the sender every X-many data bytes. Normally you don't want to use this feature, because not waiting for ACKs is part of how ZModem works so fast. However, this feature can be very useful in conjunction with file I/O buffering on slow devices (namely those floppy drives). If you set up a large I/O buffer to avoid gronking your floppy so often, you'll find that when the buffer finally *does* get around to being flushed that it can take a looonng time; so long, in fact, that the delay can cause timeouts and errors. But if you set your ZModem to require the sender to wait for an ACK every buffer's-worth of data, the sender will politely wait for you to flush your buffer to the slow floppy and send it an ACK saying it's OK to continue now. This value should be set to 0 to disable ACKs (normal mode), or set it to the actual number of data bytes allowed between ACKs. For example, if you set the Buffer size to 64KB because of your floppy, you should also set the Frame size to 65536 bytes.

'Error limit:'

> This allows you to set the number of sequential errors which will be required to convince ZModem to abort the transfer. The normal value is 10, meaning that 10 errors must happen in a row with no valid data being transferred in order to cause an abort. This setting is provided for those using XPRZModem with a BBS, who may wish to use a relaxed setting, or those with really lousy phone lines who are desperate and patient enough to want the transfer to continue in spite of horrible performance.

'Auto-activate mode:'

> 'Y = Auto-activate Yes'
>
> > If the comm program supports the ability, the library will automatically go into receive mode when the start of a ZModem download is detected.
>
> 'N = Auto-activate No'
>
> > Don't try to automatically start downloading, make the user activate it.

'Delete after sending:'

> 'Y = Delete Yes'
>
> > Delete each file after it has been Successfully sent.
>
> 'N = Delete No'
>
> > Don't delete files after sending them.

'Keep partial files:'

> 'Y = Keep Yes'
>
> > Keep the fragment of a file received so far if file reception is aborted. This allows you to use the Overwrite Resume option above to pick up where you left off on your next attempt.
>
> 'N = Keep No'
>
> > Delete any partially-received file after an aborted transfer.

'Send full directory path:'

> 'Send path Yes'
>
> > Send full filenames including drawer path to receiver.
>
> 'Send path No'
>
> > Send only simple filenames, not including drawer path.

'Default received path:'

> Store all received files in this drawer, if option "Use received path" is not checked. Ignored entry if option 'Use received path' is checked. The path can be any valid existing drawer, with or without trailing / (e.g. 'df0:', 'Comm:hold', etc.).
>
> *Additional note for 'term' users: the default received path option is ignored if the* 'Override transfer path' *switch in the miscellaneous panel (see Section 19.11 [Miscellaneous panel], page 70) is enabled.*

You will also find the familiar 'Use' and 'Cancel' buttons here which will either keep or discard the changes you made to the settings.

19.15 Translation panel

'term' is capable of replacing any incoming and outgoing character with custom text. This may come in handy with the numerous incarnations of the dreaded IBM PC font. The control panel to be opened features a large list of buttons, each single one representing a single character. Some characters are shown with their corresponding glyphs, some with their symbolic names and some as plain numbers. Clicking on one of the buttons will bring up a control panel which allows setting the text to be received by the terminal emulation when a certain character is received and the text to be sent when a certain characters is transmitted. Alternatively, you can press the key combination corresponding to the character whose translation you wish to change.

Both receive and send translation texts can consist of standard command sequences (see Chapter 27 [Command sequences], page 129), except for the following commands which are not supported: '\a', '\c', '\d', '\g', '\i', '\p', '\u' and '\x'.

Please note that the translation does not come for free, terminal input and output speed may suffer.

As of this writing only a few translation table files (see below) are included in the distribution. If you wish to create translation tables for IBM doorway mode, national IBM PC style font variants, etc. feel free to send them to me. I will try to include them in the next 'term' release.

Currently included in the 'term' distribution are the following translation table files:

'ISO-4-(GB).prefs'
        British 7 bit (ISO code 4) character set.

'ISO-10-(S).prefs'
        Swedish 7 bit (ISO code 10) character set.

'ISO-11-(S).prefs'
        Swedish 7 bit (ISO code 11) character set.

'ISO-15-(I).prefs'
        Italian 7 bit (ISO code 15) character set.

'ISO-16-(P).prefs'
        Portuguese 7 bit (ISO code 16) character set.

'`ISO-17-(E).prefs`'

>   Spanish 7 bit (ISO code 17) character set.

'`ISO-21-(D).prefs`'

>   German 7 bit (ISO code 21) character set.

'`ISO-60-(N).prefs`'

>   Norwegian 7 bit (ISO code 60) character set.

'`ISO-61-(N).prefs`'

>   Norwegian 7 bit (ISO code 61) character set.

'`ISO-69-(F).prefs`'

>   French 7 bit (ISO code 69) character set.

'`PC-8.prefs`'

>   Character translation for standard IBM PC style font. If you wish to use these translation tables, make sure to set the '`Font`' type in the terminal panel (see Section 19.5 [Terminal panel], page 58) to '`IBM PC style (raw)`'.

Unfortunately, there is no translation available for the Norwegian and Danish variants of the PC-8 character set as I do not yet have a fitting Amiga font available. Similar reasons have yet prevented to implement PC-850 character set support.

19.16 Function key panel

This control panel allows setting user definable texts for all ten function keys. All texts are considered command sequences (see Chapter 27 [Command sequences], page 129), a topic which will be covered later in this document.

'`Modifier`'

>   All in all 40 keys may be covered with user defined command sequences (Chapter 27 [Command sequences], page 129). As the Amiga keyboard only has ten function-keys this button switches between the modifier keys (`Shift`, `Control`, `Alt`) which, if pressed in addition which a function key, will execute one of the 40 command sequences.

'`Load`'   Load the function key settings from a file.

'`Save`'   Save the function key settings to a file.

'`Discard`' This discards the current settings in memory, pretending that none had ever been loaded, and closes the window.

'`Use`'

'`Close`'   Closes the window, but keeps the settings.

As the definition of the function keys with command sequences contradicts the standard definition of the four functions keys of a VT100 terminal, the keys `F1-F4`, which may be executed by pressing the `Shift` key and the approriate function-key simultaneously, are mapped to the standard sequences for function-keys. The user may - of course - change these settings.

If an external terminal emulation happens to be active, those function keys the emulation has allocated for itself will be disabled and cannot be edited.

The traditional VT100 PF-keys (programmable function keys) are mapped to the top row of the numeric keypad. Hold down the `Control` key and press a top row key to produce the corresponding PF key code.

20 Cursor key panel

This control panel both works and looks similar to the function key panel (see Section 19.16 [Function key panel], page 84), the only difference is that it is to assign command sequences to the cursor keys rather than to the function keys. Displayed are the assignments for all four cursor keys and the following buttons:

‘`Modifier`’

Any cursor key can be pressed along with one of the modifier keys (`Shift`, `Control`, `Alt`). This button will switch between the different assignments.

‘`Load`’   Load the cursor key settings from a file.

‘`Save`’   Save the cursor key settings to a file.

‘`Use`’   Use the current settings.

‘`Discard`’   This discards the current settings in memory, pretending that none had ever been loaded, and closes the window.

‘`Cancel`’   Keep the old settings.

20.1 Fast macro panel

The design and implementation of the settings to be configured in this menu are closely related to the menu entry function key panel (see Section 19.16 [Function key panel], page 84) discussed before. The only difference to be seen in the fact that the fast! macros are mapped to buttons rather than function keys (more on this topic later in this document, see Chapter 28 [Fast! macros], page 133).

‘`Macro list`’

The list of macros entered yet, to edit one of these, select it by clicking the mouse button with the mouse pointer on it.

‘`Macro`’   The name of a macro by which it is listed in the fast! macro list.

‘`Macro text`’

The command sequence (see Chapter 27 [Command sequences], page 129) associated with a fast! macro. Command sequences are discussed later in this document.

‘`New`’   Appends a new macro to the list. The user may then select and customize it.

‘`Remove`’   Removes the currently selected macro from the list.

‘`Clear`’   Removes all the macros from list, clearing it.

‘`Load`’   Loads the macro list from a file.

‘`Save`’   Saves the macro list to a file.

‘`Discard`’   This discards the current settings in memory, pretending that none had ever been
               loaded, and closes the window.

‘`Close`’   Closes the window, but keeps the settings.

‘`|<`’   Places the currently selected macro at the top of the list.

‘`<`’   Moves the currently selected macro one entry up.

‘`>`’   Moves the currently selected macro one entry down.

‘`>|`’   Places the currently selected macro at the end of the list.

20.2 Hotkey panel

This is where the key sequences used to arrange screens and to execute special functions are to
be configured.

‘`term screen to front`’
               The keys to press to bring the ‘term’ screen to the front.

‘`Buffer screen to front`’
               The keys to press to bring the screen of the text buffer to the front.

‘`Skip dial entry`’
               As an alternative to the ‘`Skip`’ button, pressing these keys will skip a dialing entry if
               the dialing function is currently active.

‘`Stop ARexx command`’
               An ARexx script started from within ‘term’ can be aborted by pressing these keys. Use
               this function only if pressing `Control + C` does not stop the program execution.

‘`Commodity priority`’
               The commodity priority to assign this task to. You may want to change this value if
               you have more than one program running which uses the same key sequences as ‘term’.
               The program with the higher commodity priority will receive the keystrokes first.

‘`Hotkeys enabled`’
               Whether the hotkeys are enabled or not can be toggled by clicking on this button, or
               by using the ‘`Exchange`’ program to be found in the ‘`Tools/Commodities`’ drawer.

‘`Load`’   Loads the hotkey settings from a file.

'`Save`'   Saves the hotkey settings to a file.

'`Use`'   Use the current settings.

'`Discard`'   This discards the current settings in memory, pretending that none had ever been loaded, and closes the window.

'`Cancel`'   Keep the original settings.

'term' will refuse to accept invalid keyword combinations. You will be notified by a brief screen flash/bell signal and the cursor will reappear in the text entry field whose contents are rejected.

20.3 Speech panel

If enabled, the Amiga speech synthesizer will be used to alert the user of certain actions, such as carrier lost, connection made, etc. This feature makes sense if 'term' is running in the background where the user cannot see what is actually happening on the main screen. By default this feature is disabled.

Note: speech synthesis is no longer available since Workbench v2.1 was introduced!

'`Rate (words/minute)`'
        Speaking speed in words per minute.
'`Pitch (Hz)`'
        The greater this value, the higher the voice appears to be speaking.
'`Frequency (Hz)`'
        Voice frequency in Hertz.
'`Volume`'   The volume of the voice in percent.
'`Sex`'   Enabled female or male voice.
'`Speech enabled`'
        Toggles the activity of the speech synthesizer.
'`Speak!`'   Speaks a small sample text, note that speech must be enabled for this function to work.
'`Load`'   Loads the speech settings from a file.
'`Save`'   Saves the speech settings to a file.
'`Use`'   Use the current settings.
'`Discard`'   This discards the current settings in memory, pretending that none had ever been loaded, and closes the window.
'`Cancel`'   Keep the original settings.

20.4 Sound panel

As an option 'term' will associate sounds with special program functions and events. This is where the sounds are configured:

'`Terminal bell sound`'

> The sound to be played whenever a `BEL` character is output on the terminal screen.

'`'Connect' sound`'

> The sound to be played when a connection is established.

'`'Disconnect' sound`'

> The sound to be played when a connection is lost.

'`'File transfer finished' sound`'

> The sound to be played when a file transfer is finished successfully.

'`'File transfer failed' sound`'

> The sound to be played when a file transfer is finished unsuccessfully.

'`Modem 'ring' sound`'

> The sound to be played when the modem detects a call by a different modem.

'`Modem 'voice' sound`'

> The sound to be played when the modem detects a phone call.

'`Error sound`'

> The sound to be played when a number of file transfer errors have occured (see Section 19.13 [Transfer panel], page 73).

'`Volume`'   This slider affects the volume of all sounds produced by 'term'. Setting it to zero suppresses sound output.

'`Preload sound files`'

> If this switch is enabled 'term' will load all sound files immediately rather than accessing and loading them on demand. This may save access time when a sound is to be played but may eat up precious memory.

'`Load`'   Load the sound settings from a file.

'`Save`'   Save the sound settings to a file.

'`Use`'   Use the current settings.

'`Discard`'   This discards the current settings in memory, pretending that none had ever been loaded, and closes the window.

'`Cancel`'   Keep the old settings.

There is no fixed size limit to sound files, the amount of available system memory matters. The sound files may be compressed, mono or stereo files.

As of Workbench 2.04 'term' will only load plain IFF-8SVX format sound files. With Workbench 3.x any sound file can be loaded for which there exists a datatypes class. Please note that due to an operating system bug sound files larger than 102,400 bytes will not play correctly under Workbench 3.0.

20.5 Transfer progress panel

The transfer routines open an information window in which a number of transfer parameters are displayed. Additionally, the file transfer can be aborted by clicking either of the three buttons ('`Stop entire transfer`', '`Skip current file`' or '`Stop transfer batch`'). *For most transfer protocols all buttons have the same effect.* Consult the documentation to see if different levels of abort are supported by your favourite transfer protocol.

The following information is displayed in the transfer window:

'`Protocol`'
> The name of the transfer protocol currently running.

'`Information`'
> A list to contain error message, the names files transferred and miscellaneous other messages addressed to the user. Error messages are printed in a special colour.

'`File`'   The name of the file being transferred.

'`Next file`'
> The name of the next file to be sent.

'`Space left`'
> The space left on the destination device. 'term' will try to calculate the number of blocks the file being received will take on the destination device and display a warning the file in question is probably not going to fit.
>
> *Caution: 'term' only makes a very likely guess which may or may not come true. The guess may be wrong if the destination device happens to be a kind of Ram-Disk which shrinks and expands as memory requirements come and go. Such devices are usually 100% full. In most other cases you will probably be able to make room for the file being received before any space problem turns up.*

'`Completion time`'
> If the corresponding information is available, the point of time when the current file will be transferred completely.

'`File size`'
> If available, the size of the file.

'`Bytes xfered`'
>   Number of bytes transferred yet.

'`Total size`'
>   The total size of all files to be transferred.

'`Total bytes xfered`'
>   The total number of bytes transferred yet.

'`Files xfered`'
>   The number of files transferred yet and the number of files to go.

'`Blocks xfered`'
>   Number of data blocks transferred yet.

'`Characters/second`'
>   The effective transfer speed in characters per second.

'`Character delay`'
>   The delay between two character being sent.

'`Packet delay`'
>   The delay between two packets being sent.

'`Packet type`'
>   A short description of the data block type employed for data transfer.

'`Block check type`'
>   The method employed to verify the integrity of the data blocks being transferred (this usually is a form of cyclic redundancy checking).

'`Block size`'
>   Size of a data block in bytes.

'`Expected time`'
>   The time the transfer protocol expects the transfer will take.

'`Elapsed time`'
>   The time elapsed during transfer.

'`Number of errors`'
>   The number of errors occured during file transfer.

'`Number of timeouts`'
>   The number of timeouts occured during file transfer.

If the currently active transfer protocol provides the necessary information, two bars will be displayed at the bottom of the transfer window indicating the amount of transferred data and of time to go before the transfer is finished.

'term' knows about the Z-Modem data-inquiry sequence the remote receiver issues when expecting files. If recognized, this sequence will cause 'term' to display a requester asking for the

type of data upload: text or binary. One could call this feature 'auto upload'. You also have the opportunity to select 'Abort' which will transfer the ZModem abort sequence or to click on the 'Ignore' gadget which will plainly ignore the fact that the ZModem inquiry sequence has been recognized. *The Z-Modem abort sequence will also be transferred if you select the 'Cancel' button in the file requester to appear after selecting text- or binary-upload.* If the 'Upload from queue' option is in effect the contents of the transfer queue will be uploaded.

Some transfer protocols will allow you to enter a default receive path the library is supposed to create files it receives in. On request (see Section 19.11 [Miscellaneous panel], page 70) 'term' will ignore these settings and use the settings to be changed in the 'Settings/Paths' (see Section 19.12 [Path panel], page 73) menu instead.

Each file that is received and which does not remain empty is examined briefly to find out about the file type. If recognized successfully and the corresponding feature is enabled, a small comment indicating the file type will be attached to the file. 'term' currently knows about 83 different file types.

If the 'term' main window is opened on the Workbench screen, you can select and drag icons on it in order to upload the corresponding files. A requester will be opened to ask for the upload style (either binary or text).

In case a file transfer terminates with an unrecoverable error (*note: the transfer protocol is responsible for reporting error conditions to 'term'*) the file transfer window will stay open until explicitly closed by the user so the transfer error report list can be viewed.

20.6 ASCII-transfer panel

The built-in ASCII transfer routines as to be enabled in the transfer panel (see Section 19.13 [Transfer panel], page 73) display transfer progress information in a special window (note that sending and receiving will open different windows). Here is a description of the controls and displays:

'Bytes xfered'
>   The number of bytes sent/received.

'Lines xfered'
>   The number of text lines sent/received.

'Information'
>   Transfer progress information and error display.

'`Character delay`'

> When sending text this number determines how many seconds to wait before sending the next character.

'`Line delay`'

> When sending text this number determines how many seconds to wait before sending the line-termination character (carriage return).

'`Text pacing`'

> The mode to determine how text is sent to the remote:
>
> '`Direct`'   Each line will be sent without any delay.
>
> '`Wait for echo`'
> > The program will wait for each single character sent to be echoed by the remote.
>
> '`Wait for any echo`'
> > The program will wait for the remote to return any character in response to any character sent. Typically, this is the case with password prompts issued by BBSes.
>
> '`Wait for line prompt`'
> > The program will wait until the remote sends a certain line prompt text.
>
> '`Character/line delay`'
> > The program will respect the character/line delay values to be set using this control panel.
>
> '`Keyboard delay`'
> > The program will send character separated by a delay to be determined by the current system keyboard repeat delay.
>
> *Note: the 'echo' text pacing modes are to be used with greate care. Certain online services do not echo characters back to the sender as they run only in half-duplex mode. On the other hand most mailbox programs will not echo certain characters, such as escape codes, etc.*

'`Quiet transfer`'

> This switch controls whether incoming text will be displayed in the terminal window. You may want to watch how the remote responds to the data sent/received.

'`Skip current file`'

> Stops sending the current file and proceeds to the next.

'`Stop entire transfer`'

> Stops the ASCII data transfer.

In case a file transfer terminates with an unrecoverable error the file transfer window will stay open until explicitly closed by the user so the transfer error report list can be viewed.

20.7 ASCII-transfer settings

'Text pacing'

> The mode to determine how text is sent to the remote:

> 'Direct'   Each line will be sent without any delay.

> 'Wait for echo'

>> The program will wait for each single character sent to be echoed by the remote.

> 'Wait for any echo'

>> The program will wait for the remote to return any character in response to any character sent. Typically, this is the case with password prompts issued by BBSes.

> 'Wait for line prompt'

>> The program will wait until the remote sends a certain line prompt text.

> 'Character/line delay'

>> The program will respect the character/line delay values to be set using this control panel.

> 'Keyboard delay'

>> The program will send character separated by a delay to be determined by the current system keyboard repeat delay.

> *Note: the 'echo' text pacing modes are to be used with greate care. Certain online services do not echo characters back to the sender as they run only in half-duplex mode. On the other hand most mailbox programs will not echo certain characters, such as escape codes, etc.*

'Character delay'

> When sending text this number determines how many seconds to wait before sending the next character.

'Line delay'

> When sending text this number determines how many seconds to wait before sending the line-termination character (carriage return).

'Line prompt'

> The character to wait for the receiver to issue after a line of text is send. These character may include command sequence tokens.

'Send timeout'

> If the 'Text pacing' mode is set to 'Wait for echo' or 'Wait for line prompt' the maximum time to wait for echo/prompt before the insertion is aborted.

'Send CR'

'Send LF'

These buttons determine the sequences that are sent to the remote if a carriage return (CR) or line feed (LF) character is to be transmitted. Both characters serve as end-of-line indicators.

'_'

      The character is suppressed.

'<<CR>>'   A carriage return character is sent.

'<<LF>>'   A line feed character is sent.

'<<CR>><<LF>>'

      A sequence of two characters (carriage return followed by line feed) is sent.

'<<LF>><<CR>>'

      A sequence of two characters (line feed followed by carriage return) is sent.

'Receive CR'
'Receive LF'

      These two buttons have largely the same effect as the Send CR/LF buttons, they are different in that they affect the incoming data rather than the data transmitted.

'Expand blank lines'

      Some text editors treat lines that consist only of the carriage return/line feed character as an indication to stop processing input. You can enable this switch to send an additional [Space] character if a line would otherwise have remained blank.

'Ignore data past terminator'

      With this option enabled the receiver will search for a termination character in the incoming data stream. If this character is found the transfer will be terminated.

'Terminator character'

      Enter the ASCII code of the terminator character to be used for the 'Ignore data past terminator' feature here.

'Quiet ASCII transfer'

      If this switch is not enabled, the built-in ASCII upload/download routines will display the outgoing/incoming data in the terminal window. This option is to let you watch the progress of the file transfer, so that, for example, if the remote does not respond to the data you send, you may want to stop and restart the upload.

'Strip bit 8'

      If this switch is effect each character received or transmitted by 'term' will have its high-order bit cleared.

With ASCII uploads it is important to make sure that end-of-line characters such as carriage return and line feed are properly set up for the remote. While on the Amiga it is common to end a line of text with a line feed character, most editors and such expect a carriage return character to be transferred. This can easily be arranged by setting the 'Send LF' switch to '<<CR>>'.

20.8 Phonebook

The functions described in the following can be found in the 'Modem' menu and relate to the menu entries 'Phonebook', 'Dial' and 'Redial'.

'term' is equipped with a telephone number management system, the phonebook, which is described in the following lines.

'Group button'

    At the top of the window you will find button which displays the name of the group whose contents are displayed below in the list. By default, you will find the name '<< All entries >>' here, which indicates that not a specific group is displayed, but rather all entries the phonebook consists of. You can switch between groups by pressing the [Tab] key.

'List'   Below the group button the list of phonebook entries belonging to the group in question are displayed. You can move through the list using the [Cursor up] and [Cursor down] keys. To tag any entries for dialing, hold down and [Shift] key and click on the entries using the mouse, alternatively, highlight the entry, then press the [Space] key. To untag them, repeat the procedure again. A double-click on a single entry will tag the entry and immediately start dialing.

'Comment display'

    For each entry you highlight its associated comment is displayed in the area below the list.

'|<'   Press this button to move the highlighted phonebook entry to the beginning of the list.

'<'   Press this button to move the highlighted phonebook entry one slot up in the list.

'>'   Press this button to move the highlighted phonebook entry one slot down in the list.

'>|'   Press this button to move the highlighted phonebook entry to the end of the list.

'All'   To tag all entries visible in the list above, press this button.

'Toggle'   This button tags all visible entries that were untagged before the button was pressed and untags all entries that were tagged.

'None'   Press this button to untag all visible entries.

'Pattern'   This button brings up another window to tag/untag entries matching a pattern:

    'Mode button'

        This is where you select if you want to untag or tag the entries matching the pattern below. You can press the [Tab] button to switch modes.

    'System name'

'`Comment`'

'`Numbers`'   Any phonebook entries whose name matches this name, comment and number patterns will get tagged/untagged.

'`Apply`'   Tags/untags phonebook entries matching the pattern. The pattern window will stay open.

'`Apply+Close`'
              Tags/untags phonebook entries matching the pattern and closes the pattern window.

'`Close`'   Closes the pattern window, does not tag/untag phonebook entries.

'`Edit...`'   Brings up the phonebook entry editor, for more information see Section 20.9 [Phonebook entry panel], page 99.

'`Dial`'   Merges all tagged entries by the order in which they were tagged into a list and hands it to the dialer.

'`Copy...`'   Makes a copy of the currently highlighted phonebook entry and brings up the phonebook entry editor, for more information see Section 20.9 [Phonebook entry panel], page 99.

'`Use`'   Copies the settings associated with the highlighted phonebook entry into the global program settings and closes the phonebook window.

'`Add...`'   Adds a new phonebook entry and initializes it with default values, then brings up the phonebook entry editor, for more information see Section 20.9 [Phonebook entry panel], page 99.

'`Delete`'   Removes the highlighted entry from the phonebook.

'`Group`'   Brings up the group window:

               '`Select group`'
                       From this list, pick the group you wish to add the tagged entries or the highlighted entry to.

               '`Or enter group name`'
                       Alternatively, you may enter the name of a new group to add the entries to.

               '`Use`'   If there are entries tagged, they will be added to the group you have specified, the group will be created if it does not yet exist. If no entries are tagged, the highlighted entry will be used instead. The group window will be closed and the group button and list will be updated.

               '`Cancel`'   The group window will be closed.

'`UnGroup`'   The currently displayed group will be deleted. This does not delete the entries in the group.

'`Auto dial`'

> This feature corresponds to the switch of the same name in the phonebook entry editor (for more information see Section 20.9 [Phonebook entry panel], page 99). If enabled, 'term' will put all the entries in the phonebook that have the '`Auto dial`' option set into a dialing list and immediately start to dial after 'term' starts up.

'`Auto exit`'

> If the '`Auto dial`' switch is enabled, this switch will make 'term' exit after all the entries in the auto dial list are dialled. To avoid exiting, hit the '`Cancel`' in the dialer.

'`Load...`' Loads the contents of a telephonebook from a file.

'`Merge...`'

> Loads phonebook entries from a file and merges them with the currently loaded phonebook.

'`Save...`' Saves the contents of a telephonebook to a file.

'`Print...`'

> This button will cause another control panel window to be opened, see Section 20.13 [Printing panel], page 105 for more information.

'`Sort...`' Opens the sort window:

> '`Criteria`'
>
> > This is where you select by which criteria the visible phonebook entries should be selected. '`Name`', '`Number`' and '`Comment`' should speak for themselves, '`Selection`' will sort the entries by the order of tag numbers.
>
> '`Reverse order`'
> > Enable this switch to reverse the sort order.
>
> '`Sort`'   Sorts the entries, keeps the sort window open.
>
> '`Sort+Close`'
> > Sorts the entries and closes the sort window.
>
> '`Close`'   Closes the sort window, does not sort.

'`Copy config...`'

> A lot of time can be saved by copying selected parts of the global configuration to a local configuration which is part of a phonebook entry. Selecting this button will invoke a control panel which allows to select which parts of the global configuration should be copied. The control panel also remembers which parts were copied when it was invoked the last time, see Section 20.11 [Copy panel], page 103 for more information.

20.9 Phonebook entry panel

'`System name`'
:   This is where you pick the name under which this entry should show up in the list.

'`Comment`'
:   A comment to associate with the entry, it will be displayed in the main window below the list.

'`Numbers`'
:   The telephone numbers of the entry.

    If a system supports multiple lines, the phone number of each line may be entered, each one separated by a vertical bar | character (example: '`123456|654321`' would cause the dialing routine to dial the numbers '`123456`' and '`654321`'). The dialing routine will process all these phone numbers before proceeding to the next phonebook entry.

    The | character also works for the modem init, modem exit and dial prefix sequences. Whenever the dialing routine dials another phone number from a list separated by bars, it will try to find a matching init/exit/dial prefix sequence. If more phone numbers are specified than sequences are available, it will use the last sequence given (an example: a phone number may be given as '`123456|654321|12345`', the dial prefix text may be '`ATDP|ATDT`'; the dialing routine will call the first number using '`ATDP123456`', the second number using '`ATDT654321`' and the third number, since no special dial prefix is available, again using '`ATDT12345`').

    Note: if you do not enter a phone number you will be unable to use the entry for dialing.

'`Quick menu`'
:   If this switch is in effect, the corresponding phonebook entry will be put into the '`quick dialing menu`' (see at the right hand side of the main menu). Selecting the menu entry will dial the corresponding phone number. Note: only up to 50 phone numbers can be put into the list.

'`Auto dial`'
:   Marks this entry for auto dialing. For more information on this feature, see Section 20.8 [Phonebook], page 97.

'`Hide`'
:   If this switch is enabled, the contents of the '`User name`' and '`Login password`' text entry fields below will be obscured. If you wish to edit these, you must disable this switch.

'`User name`'
'`Login password`'
:   Here you can store information to be used later for login scripts and such.

'`Settings`'
:   This group contains entries which consist of a checkbox and a button. If the button is disabled, the phonebook entry will not use the settings controlled by the button.

    This concept is central to how the phonebook works and stores, which is why it needs a bit more explanation.

When you start up 'term', it loads its global configuration data from a certain file. This global configuration normally reflects the most frequently used settings, they do not necessarily need to change between different phonebook entries. For example, if you only use one modem the modem settings will probably be the same for all phonebook entries. If it's the same, disable the checkbox corresponding to the modem settings in every phonebook entry. Repeat for every other settings item that never needs to change. When the dialer eventually makes a connection, it copies all the settings items of the entry it has connected to into the global configuration that have the checkboxes enabled. If you want to use special settings for a phonebook entry, enable the checkbox you want, press the button next to it and edit the settings.

'|<'   Moves to the first tagged entry.

'<'   Moves to the previous tagged entry.

'>'   Moves to the next tagged entry.

'>|'   Moves to the last tagged entry.

'Close'   Closes the edit window.

20.10 Rate panel

'term' will count the minutes you are online and connected to a BBS as soon as a connection is made through the dialing routine. As soon as the connection is lost or you hang up, 'term' will use the information to be specified in this control panel to calculate the amount of money to be paid for the call.

'Pay/unit'
            The amount of money to be paid for each single time unit when online. This fee must be given in the smallest currency unit available (pence, cents, centimes, etc.).

'Sec./unit'
            This is where you enter how many seconds each time unit lasts.

There are two different groups of the two entries listed above available: one for the first unit and one for all following units. So, if you only pay for the call you make but not for the time you spend making it, just enter the fee in the first group and set the second group to zero.

'Days and dates'
            This list contains the default rate settings and exceptions for certain dates and days of the week. Each line displays the type of the entry and a comment (separated by the '>>' character). The following types are available:

‘Day(s)’   Settings for certain days of the week

‘12. Jan (example)’
                   Settings for a specific date

If there is no special type available for an entry, it's probably the default settings you
are dealing with. These settings are used whenever 'term' cannot find an entry for the
current day.

For each entry in this list there is at least one associated starting time available which defines
when the associated rate settings are to be used. You will find the time settings in the list titled
‘Time’. To add a new time use the ‘Add’ button. To edit an existing entry use the ‘Edit’ button.
To remove an entry, press the ‘Remove’ button.

‘Add date’ Will invoke a control panel to create a new rate entry to be used on a specific date.
                   Use the sliders and button to select the day the settings will be valid for.

‘Add day(s)’
                   Will create a new rate entry referring to one or more days of the week. Use the buttons
                   of the control panel to select the days the current settings will be valid for.

‘Import’   Much work can be saved if the rate settings for the current phonebook entry are im-
                   ported (or copied) from a different phonebook entry. To do so, select this button. The
                   control panel to be opened will display the list of phonebook entries available and three
                   buttons:

                   ‘Replace rates’
                                     The rate settings of the current phonebook entry will be replaced by the
                                     settings of the selected entry.

                   ‘Append rates’
                                     The rate settings of the selected entry will be appended to the current
                                     phonebook entry.

                   ‘Cancel’   Will abort the selection.

Whenever a rate entry is selected, the corresponding parameters (‘Pay/unit’ and ‘Sec./unit’)
can be edited. If the entry refers to a certain date or a specific day of week three additional buttons
are made available:

‘Edit’   Just as the labels says, will allow you to modify an entry after it has been created.

‘Clone’   Will duplicate the current rate entry and append it to the list.

‘Remove’   Removes an entry from the list.

20.11 Copy panel

This control panel allows you to select which parts of the global configuration to copy into the currently selected phonebook entry.

'To all entries'

The selected parts will be copied to all phonebook entries. If any phonebook entries are selected when this action is to be performed, only the selected entries will be affected.

'Copy'   This is where you select from which source the configuration information will be copied:

'Global configuration'

Parts of the currently active global configuration will be copied.

'Defaults'

When going online, instead of overriding the currently active global configuration with the supplied local phonebook configuration the corresponding global configuration will be left unchanged.

'Select all'

Selects all parts.

'Clear all'

Clears the current selection.

'Use'   Copies the selected items.

'Cancel'   The window is closed, no items are copied.

20.12 Dial panel

The following information about the dialing process is displayed:

'Calling'   The name of the telephonebook entry belonging to the number being dialled. If it is just a telephone number the text '<< Unknown >>' is shown, indicatinging that the name of the BBS is unknown.

'Comment'   This is where the comment corresponding to the current dialing list entry is displayed.

'Number'   The telephone number being dialed or just dialed.

'Next'   The name of the phonebook entry which will be processed next if no connection is established. If no further entry exists, "-" will be displayed.

'Timeout'   A counter which is decreased every second and which reflects the time remaining to establish a connection or to cycle through the dial queue again.

'`Attempt`'   This field shows the number of unsuccessful cycles made through the dialing queue to
                establish a connection.

'`Message`'

                A message to the user. This can be:

                '`Dialing...`'
                        A dial is in process.

                '`Line is busy.`'
                        The dialed number is engaged.

                '`Incoming call!`'
                        The modem has been called from another modem.

                '`Incoming voice call!`'
                        The modem is receiving a call which was not originated by another modem.

                '`No dialtone detected!`'
                        The modem was unable to detect any dialing tone on the line, it may
                        possibly be not connected.

                '`Connection established.`'
                        Just as the name says...

                '`Maximum number of dial retries reached!`'
                        Just as the name says...

                '`Dial attempt timeout.`'
                        The time available to establish a connection has been reached or exceeded.

                '`Redial Delay...`'
                        Pause until the next cycle through the dialing queue.

        Additionally, the following controls are available:

'`Skip`'   With this function the current dialing attempt is cancelled and the next number is
                processed. If no succeeding telephone number exists 'term' waits for the next cycle
                through the dial queue or until '`Skip call`' is pressed again.

                There also is a hotkey combination available to accomplish the same task.

'`Remove`'   This button works in part similar to the '`Skip call`' button. Additionally, it removes
                the current phonebook entry from the dialing list.

'`Go to online`'
                If the line is very noisy, the connection to a mailbox may have been made, but the
                `CONNECT` text may be got lost. Pressing this button will cause 'term' to assume that
                the modem is in fact online now, start the rates accounting and return you to the main
                window.

'`Stop dialing`'

> Operation of this button exits the dial queue (leaving the the dial queue intact) and ends the dialing process.

'`Start script recording on connection`'

> As soon as the connection is establish 'term' will start recording incoming text and your responses to it, thus making it possible to create auto-login scripts and such. For more information on this topic see Chapter 31 [Script recording], page 139.

'`Skip login macro`'

> After the connection is established, 'term' will not execute the login macro if this switch is enabled.

If a connection is successfully made the corresponding entry in the dial queue will be removed.

Selecting the close gadget will close the window and cause the phone book panel to be reopened.

20.13 Printing panel

This control panel is part of the phonebook. It is opened whenever the '`Print`' button is selected and allows for setting the output options.

'`Output file or device`'

> This is where you enter the name of the file or device (such as '`PRT:`') the phonebook printout is to be sent to.

'`Plain text`'

> If enabled only the plain and bare information text will be printed, else text attribute control sequences will be sent as well.

'`Include...`'

> Each switch determines whether the corresponding phonebook entry information will be included in the printout.

'`Use`'   Will start printing the phonebook contents.

'`Cancel`'   Returns to the phonebook.

20.14 Trap panel

By default 'term' scans the input data stream for a set of special character sequences, such as '`NO CARRIER`', '`RING`' and '`VOICE`', depending on how your modem settings (see Section 19.2 [Modem

panel], page 50) are set up. The trap panel permits adding custom character sequences which if found cause 'term' to execute the corresponding command sequences (see Chapter 27 [Command sequences], page 129). This makes it possible to write auto-login procedures by just adding traps for the user name and password prompts. For example, suppose your BBS prompts you to enter your user name with the text 'User name:' and to enter your password with the text 'Password:'. You would create two trap entries, one with 'User name:' as the sequence and '\u\r' as the command and one with 'Password:' as the sequence and '\p\r' as the command. Provided the phonebook entry is set up correctly (see Section 20.8 [Phonebook], page 97, User/Password) connecting to the system will log you in 'automatically'.

The trap settings editor consists of the following controls:

'Trap list'
> This list contains all the trap sequences 'term' knows.

'Sequence'
> This text entry field contains the currently selected sequence.

'Command'   This text entry field contains the command sequence (see Chapter 27 [Command sequences], page 129) to be executed when the corresponding trap sequence is found.

'|<'   Move the currently selected entry to the beginning of the list.

'<'   Move the currently selected entry up in the list.

'>'   Move the currently selected entry down in the list.

'>|'   Move the currently selected entry to the end of the list.

'New'   A new trap list entry is added, prompting you to edit it.

'Remove'   Removes the currently selected list entry

'Clear'   Removes all entries from the list, clearing it.

'Discard'   This discards the current settings in memory, pretending that none had ever been loaded, and closes the window.

'Use'   Closes the window, using the current trap settings.

'Load'   Loads the trap settings from a file.

'Save'   Stores the trap settings in a file. *Note: 'term' reads the default settings from the file trap.prefs, so make sure your trap settings are named accordingly if you wish to use them upon startup.*

20.15 File upload panel

'term' permits building a list of files to upload before the upload is started. This list can be built in many ways, such as by dropping the icons of the files to send on the icon labeled 'term Upload queue', by dropping the icons on the upload panel window, by entering the names of the files in the upload panel window or by using the file requester.

There are two ways to open the file upload panel. You can double-click on the 'term Upload queue' icon or use the main menu entry 'Upload queue'. It includes the following controls:

'Files to upload'
> This is the list of files to be sent. The text entry field below serves to add new file names or to edit the currently selected file name.

'Add files'
> Clicking on this button brings up a file requester to add new files to the list. You can select files from one drawer at a time. The file requester will pop up over and over again asking you to add more files until you press the 'Done' button.

'Add'   Click on this button to add another file name to the list, you will be prompted to type in its name.

'Remove'   Press this button to remove the currently selected entry from the list.

'Clear'   In order to remove all entries from the list, clearing it, press this button.

'Binary upload'
> Use this button to upload the listed files in binary mode.

'Text upload'
> Press this button to upload the listed files in text mode.

'Hide'   Click on this button to hide the file upload panel. The list contents will be stored.

20.16 Area code panel

In the phonebook (see Section 20.8 [Phonebook], page 97) phone rate accounting information can be assigned to individual entries. The area code panel permits to assign phone rate accounting information to the phone numbers themselves, so even the 'Dial phone number' menu function will take advantage of it. The area codes in each phone number determine the rates accounting information to associate with it. In the area code list you assign a name to each entry and a pattern to match a single or multiple area codes; next you configure the rates parameters to use for this entry.

The area code rates accounting settings are not meant to replace the individual rates settings in the phonebook, but they have priority over them.

The area code panel sports the following controls:

'Groups'   This is the list of area code groups, the single entries are edited below.

'Name'   A name or title for an area group entry.

'Pattern'   The area code patterns are configured here. If you wish to have an entry correspond to area codes starting with '009' you would enter 009#? here. The pattern syntax follows the AmigaDOS wildcard pattern syntax, so for example multiple area codes can be easily combined, e.g. '009' and '007' could be combined as (009|007)#?. See your *Using the system software* manual for more information.

            'term' scans the area code list top-down, i.e. for two consecutive entries 009#? and 0097#? the number 00971324 would match the first entry, but not the second.

'|<'   Moves the currently selected entry to the beginning of the list.

'<'   Moves the currently selected entry up in the list.

'>'   Moves the currently selected entry down in the list.

'>|'   Moves the currently selected entry to the end of the list.

'New'   Creates a new area code entry and prompts you to edit it.

'Remove'   Removes the currently selected area code entry from the list.

'Clear'   Removes all area code entries from the list, clearing it.

'Edit'   Brings up the rates editing window for the currently selected entry. See Section 20.10 [Rate panel], page 101 for more information.

'Discard'   This discards the current settings in memory, pretending that none had ever been loaded, and closes the window.

'Use'   Closes the window, keeps the current settings.

'Load'   Loads the area code & rates accounting information from a file.

'Save'   Saves the area code & rates accounting information to a file. Upon startup 'term' will read the default area code & rates accounting information from a file named 'rates.prefs', so make sure that your settings file is named correctly for 'term' to find it.

20.17 Parameter panel

When 'term' invokes an external program which is to handle the job of transferring files it can pass special parameters to the program on the command line, such as drawer names. This control panel helps you to build a command line for the program in question.

'`Command`' This is where you enter the command to invoke, such as '`run hydracom`'.

'`1 File`'   This adds `%f` to the command line. When the program is invoked a file requester will prompt you to select one single file. Its name will appear in place of the `%f` characters in the list of arguments passed to the program.

'`Files`'   This adds `%m` to the command line. When the program is invoked a file requester will prompt you to select a list of files. Their names will appear in place of the `%m` characters in the list of arguments passed to the program.

'`Port`'   This adds `%p` to the command line. When the program is invoked the name of the ARexx port 'term' uses will appear in place of the `%p` characters in the list of arguments passed to the program.

'`Device`'   This adds `%d` to the command line. When the program is invoked the name of the serial device driver 'term' uses (see Section 19.1 [Serial panel], page 47) will appear in place of the `%d` characters in the list of arguments passed to the program.

'`Unit`'   This adds `%u` to the command line. When the program is invoked the unit number of the serial device driver 'term' uses (see Section 19.1 [Serial panel], page 47) will appear in place of the `%u` characters in the list of arguments passed to the program.

'`Source`'   This adds `%<` to the command line. When the program is invoked the name of the drawer files to send should be found in (see Section 19.12 [Path panel], page 73) will appear in place of the `%<` characters in the list of arguments passed to the program.

'`Dest.`'   This adds `%>` to the command line. When the program is invoked the name of the drawer files should be placed in when received (see Section 19.12 [Path panel], page 73) will appear in place of the `%>` characters in the list of arguments passed to the program.

'`Screen`'   This adds `%s` to the command line. When the program is invoked the name of the public screen 'term' uses (see Section 19.3 [Screen panel], page 54) will appear in place of the `%s` characters in the list of arguments passed to the program. *Please note that instead of the name of a screen an empty string may appear.*

'`BPS rate`' This adds `%b` to the command line. When the program is invoked the currently selected BPS rate (see Section 19.1 [Serial panel], page 47) 'term' uses will appear in place of the `%b` characters in the list of arguments passed to the program.

'`Connect. rate`'

> This adds `%c` to the command line. When the program is invoked the BPS rate the modem made the connection with will appear in place of the `%c` characters in the list of arguments passed to the program. *Please note that if the modem is not currently online `%c` will produce the same number `%b` does.*

'`Use`'   Keeps the current settings.

'`Cancel`'   Discards the current settings.

For more information on the escape sequences introduced by `%` see Section 22.4 [Escape sequences], page 116.

21 Signature panel

‘term’ will let you choose from a number of predefined signatures for use with file transfer protocols. Just pick the signature you need. Please note that different signatures will be presented for upload and download protocols. For more information on signatures, see Section 22.3 [Protocol signatures], page 114.

22 Data transfer

One of the important features 'term' offers are means to transfer data from one computer to another conveniently. This is accomplished by using so-called XPR libraries and external programs which 'term' will invoke when necessary.

22.1 Data transfer via XPR library

The so-called XPR libraries implement one or more file transfer protocols in the form of an Amiga shared library. They offer a standardized interface for settings their protocol options and for transferring data. Some XPR libraries will handle file transfers all on their own, e.g. if the remote initiates an upload the XPR library will respond by automatically starting a download.

Of particular importance is the 'Default protocol' (see Section 19.13 [Transfer panel], page 73). If you have selected an XPR library for this protocol, the library will remain open during the entire 'term' session. For the Z-Modem protocol as implemented through 'xprzmodem.library' this means that the XPR library will automatically handle downloads when initiated by the remote.

22.2 Data transfer via external program

'term' can make use of external programs for the purpose of transferring data. Whenever the corresponding file transfer function is invoked, 'term' will try to run the selected program. While the program is running 'term' will temporarily halt its serial I/O processing, so programs which permit sharing the serial device driver with 'term' can immediately pick up the ball and start transferring data. Please note that this feature requires 'term' to open the serial device driver in shared access mode (see Section 19.1 [Serial panel], page 47).

Almost every external program will need a few command line options to know its whereabouts, such as the serial device driver to use or which files to transfer. You can provide this information by editing the command line (see Section 20.17 [Parameter panel], page 109) to include special escape sequences 'term' will expand into data. The following line could be put into the binary `Receive` text entry field:

```
run hydracom device %p speed %b line %c nocarrier rec %> get
```

This will invoke the 'Hydracom' program which implements the Hydra protocol which sports bidirectional file transfer and also adds a chat option. This is what the line can expand into when 'term' runs the program:

```
run hydracom device TERM speed 38400 line 14400
    nocarrier rec Work:Downloads get
```

`%p` expands into the ARexx port name 'term' uses, `%b` into the BPS rate currently used, `%c` into the BPS rate the modem made the connection with and `%>` into the name of the drawer files received should be placed in.

To complete this example, the following line could be put into the binary **Send** text entry field:

```
run hydracom device %p speed %b line %c nocarrier rec %> send %m
```

When 'term' runs this program, it will first prompt you to select the files to send, this is what `%m` does. The files names will then appear in place of the `%m` characters.

For more information on the escape sequences introduced by the `%` character, see Section 22.4 [Escape sequences], page 116.

Please note that for 'term' to find the external programs they must either reside in the Amiga-DOS Shell search path or need to be prefixed by the complete AmigaDOS path their are located in.

'term' runs the programs in synchronous fashion. Some protocols, such as 'hydracom', however need to be run asynchronously. For such programs it is recommended to prefix the command line with the 'run' command.

22.3 Protocol signatures

Some file transfer protocols sport automatic download and upload functions. At the beginning of a data transmission they send a special data sequence to the remote, indicating that the local side is ready for action. This data is called a signature. With 'term' you can assign a specific signature to each upload and download protocol (see Section 19.13 [Transfer panel], page 73). When 'term' sees this signature in the incoming data stream the corresponding protocol will be invoked.

A signature usually consists of a unique sequence of characters, some of which may not be printable or visible on the screen. This is why the standard command sequence syntax is employed for entering signature text (see Chapter 27 [Command sequences], page 129).

You should avoid using a single signature for more than one protocol. As 'term' scans the input data stream it will always invoke the first protocol which sports a matching signature. Signatures are scanned in the following order:

```
Default protocol (upload)
```

```
Default protocol (download)
```

```
ASCII upload
```

```
ASCII download
```

```
Text upload
```

```
Text download
```

```
Binary upload
```

```
Binary download
```

Most transfer protocols use different signatures for uploads and downloads. Hydra for example is an exception as it uses the same signature for both purposes. Take care, it is recommended to use the Hydra signature only for downloads. Some signatures, such as the CompuServe Quick B protocol, use very simple signatures which consist only of a single character. In the case of the Quick B protocol this would be the `ENQ` character which is easily generated by spurious line noise. In this case the protocol may start up expecting a file transfer and find out rather soon that none is taking place. Although single character signatures are supported it is recommended not to use them.

Some XPR libraries implement auto-upload and auto-download functions all on their own. A common feature is that the signatures that trigger these functions will not turn up in the input data stream 'term' receives as the protocols will filter them out. Consequently, the 'term' supplied protocol auto-invocation may not work. Be prepared to handle this.

22.4 Escape sequences

When invoking external programs to use for transferring data 'term' will build a command line based upon the template given in the transfer settings editor (see Section 19.13 [Transfer panel], page 73). This template can include special tokens, known as escape sequences. Unlike the so-called command sequences (see Chapter 27 [Command sequences], page 129) they are introduced by a percent character (%) and can only be used with external file transfer programs. Please note that you cannot mix command sequences with escape sequences.

The following escape sequences are supported:

'%f (Single file name)'

> Inserts a single file name when the program is run. A file requester will open if necessary. If there are still files in the upload queue (see Section 20.15 [File upload panel], page 107) and an upload is to take place the first file name will be inserted and no file requester will appear.
>
> **Note: Case matters; %f inserts the file name along with its complete path, %F inserts the plain file name only, omitting the path.**

'%m (Multiple file names)'

> Inserts a list of file names when the program is run. A file requester will open if necessary. If there are still files in the upload queue (see Section 20.15 [File upload panel], page 107) and an upload is to take place their names will be inserted and no file requester will appear.
>
> **Note: Case matters; %m inserts the file names along with their complete paths, %M inserts the plain file names only, omitting their paths.**

'%p (Port name)'

> Inserts the ARexx port name 'term' is currently using.

'%d (Device name)'

> Inserts the name of the serial device driver 'term' is currently using (see Section 19.1 [Serial panel], page 47).

'%u (Unit number)'

> Inserts the unit number of the serial device driver 'term' is currently using (see Section 19.1 [Serial panel], page 47).

'%< (Source drawer)'

> Inserts the name of the drawer files to be uploaded should be found in. This name will be different for ASCII, text and binary transfers. The default protocol will always use the binary upload path (see Section 19.12 [Path panel], page 73 and Section 19.13 [Transfer panel], page 73).

'**%>** (Destination drawer)'

>   Inserts the name of the drawer files to be received should be placed in. This name will be different for ASCII, text and binary transfers. The default protocol will always use the binary download path (see Section 19.12 [Path panel], page 73 and Section 19.13 [Transfer panel], page 73).

'**%s** (Screen name)'

>   Inserts the name of the public screen 'term' is using.

>   **Note: This may be an empty string. Be prepared to handle this.**

'**%b** (BPS rate)'

>   Inserts the BPS rate 'term' is currently using (see Section 19.1 [Serial panel], page 47).

'**%c** (Connection rate)'

>   Inserts the BPS rate the modem made the connection with.

>   **Note: This value may be the same as given by %b if the modem is not currently online.**

'**%%** (Percent sign)'

>   Inserts the percent sign.

22.5 How to set up Hydracom?

In case you don't know already what Hydracom is: it is a bidirectional file transfer protocol which also sports a chat option. It permits to send and receive data at the same time. So far, Hydracom versions exist for the IBM-PC, the Atari ST and the Amiga of course.

With the introduction of 'term' v4.0 an interface was added to the Hydracom Amiga port to allow it to take over the serial I/O processing from 'term'. Note that this requires the Hydracom Amiga port revision 2 or higher to work.

'term' v4.3 will let you choose external programs for use as file transfer protocols. Hydracom falls into this cathegory.

Please open the transfer settings editor (see Section 19.13 [Transfer panel], page 73) now and press the button labeled `Page` three times until the page `Binary transfer protocol` becomes visible. This page is divided into two parts. The top half controls the upload protocol and the other half controls the download protocol. To use the Hydracom external protocol, now do the following: there are two buttons labeled `Type`. Press them both twice until they show `External program`. This will make the `Send` and `Receive` text entry fields available. In the `Send` field enter the following line:

```
run hydracom device %p speed %b line %c nocarrier rec %> send %m
```

In the `Receive` field enter the following line:

```
run hydracom device %p speed %b line %c nocarrier rec %> get
```

The `Hydracom` command must be prefixed with the `Run` command due to the way the protocol interacts with 'term'. For other protocols the `Run` prefix may be omitted.

Now close the window by pressing the `Use` button. Now Hydracom is configured as the binary file transfer protocol. To receive files using the protocol, select the menu item `Download binary file(s)`, to send and receive files at the same time (Hydracom is a bidirectional file transfer protocol) select `Upload binary file(s)`.

If you wish to use the Hydracom signature (see Chapter 21 [Signature panel], page 111 and Section 19.13 [Transfer panel], page 73) to auto-start transmissions, you need to keep a few things in mind. The signature is identical both for uploads and downloads, but using it for both purposes is not a good idea. 'term' will always pick the upload signature first. Hydracom is a bidirectional file transfer protocol which allows you to send and receive files at the same time. This works only when invoking an upload, but not when running a download. If you select a download signature you will lose the bidirectional transfer feature. It is recommended to start transmissions manually.

This setup will always let you transfer data only in one direction. In order to take advantage of the bidirectional transfer feature Hydra offers you will need to make use of two ARexx scripts that should have accompanied 'term'. You only need to modify the commands for `Send` and `Receive` a little:

For `Send` enter:

```
AskUpload.term device %p speed %b line %c nocarrier rec %> send %m
```

And for `Receive` enter:

```
AskDownload.term device %p speed %b line %c nocarrier rec %> get
```

Before the transfer starts you will be asked whether you wish to send and receive data at the same time or whether data should be transmitted only in one direction.

23 Configuration hints

Admittely, 'term' has more configuration options and settings than you can shake a stick at. I have received a number of request to explain where to start after installing the program:

1. Start with the serial settings (see Section 19.1 [Serial panel], page 47). 'term' will usually copy your current system preferences settings. If you happen to know that they are correct and worked fine for you in the past you probably don't need to make any changes. But if you never were quite happy with the setup this is your chance to make it fit.

   As the lucky owner of a high speed modem to support all those nifty compressing transfer protocols nobody knows how to pronounce correctly (v.32/v.32bis/MNP/etc.) you will probably want to run it at BPS rates around 9,600-19,200 bps. If you choose to do so make sure that the 'Handshaking' switch is set to 'RTS/CTS' or data is easily lost during transmissions.

   Note: some modems will lock up if the 'RTS/CTS' handshaking protocol is enabled although they should support it. In most cases the modem behaviour can be changed. First turn off 'RTS/CTS' handshaking (set it to 'None'), then enter AT&S0 *and press return, and finally turn on 'RTS/CTS' Handshaking on again. Your modem should now respond properly to your commands. To make this change permanent, enter* AT&W *and press return to store the current modem profile in its nonvolatile RAM.*

   Older modem hardware usually supports only a fixed number of BPS rates, mostly up to 2,400 bps. Do not enable 'RTS/CTS' handshaking, leave it turned off. In fact if you don't turn it off 'term' will have trouble sending and receiving data.

   Make sure that the BPS rate fits and your modem supports it. Modern modem hardware usually can adjust to the BPS rate you choose, older modems will send & receive illegible gibberish if addressed at the wrong BPS rate. Not unheard of are modems which can communicate with the terminal program only at fixed BPS rates: while they are happy with 9,600 bps they might find 14,400 bps not at all worth responding to. I recommend that you try several BPS rate settings until one is found to fit.

   If you don't want to use the built-in Amiga serial port hardware you will want to change the device name and unit number settings. Your I/O expansion hardware manual will tell you which name to choose and which device unit numbers are valid.

   The serial panel (see Section 19.1 [Serial panel], page 47) sports a number of additional options. *Do not change them right now!* In particular stay away from that sexy 'High-speed mode' button and don't let the 'Buffer size' slider tempt you. Return from the serial settings to the main menu by clicking on the 'Use' button and save your current setup back to disk using the 'Save settings' menu item.

2. Proceed to the modem settings (see Section 19.2 [Modem panel], page 50) and take a look at the switch labeled 'Dial mode'. A modem usually dials phone numbers either using a technique

called 'tone' or 'pulse' dialing. Technically, tone dialing requires your local phone net operator (some kind of computer) to listen to a sequence of sounds which represent the single digits of the phone number dialled. Pulse dialing involves getting a number of electric pulses, each of which represents a digit of the phone number, transmitted across the line. Tone dialing is usually much faster than pulse dialing, but it isn't supported all over the world. If the receiver of your phone reports a number of beeping sounds when you dial a number you can use tone dialing. If you hear rattling sounds it's probably pulse dialing for you. Let's get back to the 'Dial mode', if you wish to use pulse dialing, set it to 'Pulse', otherwise set it to 'Tone'.

Leave the rest of the modem setup as it is, do not change the 'Connect auto BPS' switch.

3. Next, take a look at the screen settings (see Section 19.3 [Screen panel], page 54). This is where you choose the terminal screen/window look and colours. By default 'term' is configured to open a plain four colour screen using the Amiga default font. This should be sufficient unless you plan to spend most of your modeming time in PC-driven BBSes which keep throwing lots of colours at you.

   Choose how many colours the terminal should use, the switch labeled 'Colour' will let you choose between '4 Colours (Amiga)', '8 Colours (ANSI)', '16 Colours (EGA)' and '2 Colours (Monochrome)'. Each of these settings has a particular default palette attached. The 'Amiga' mode will use your current system default colours. 'ANSI' represents the choice of colours the ANSI committee responsible for standardizing a certain terminal command protocol to be the best given the constraints they had. 'EGA' reflects whatever the engineers who designed the first Enhanced Graphics Adaptor card for the PC considered to be an enhanced colour palette. 'Monochrome' is my idea how an extremely simplistic, while still readable colour choice could look like. Choose what you find appropriate, but keep in mind that the more colours to use the slower screen updates, scrolling and text output will get. Also, a 16 colour high resolution screen will put your system under additional stress if you are running an older Amiga model which is not equipped with the AGA chip set. Careful please, any changes you make will affect the performance of the program!

   You might want to change the screen mode or the user interface font. When you are satisfied with the setup, return to the main menu.

4. Now it's time to edit the terminal settings (see Section 19.5 [Terminal panel], page 58). This is where you control the basic behaviour of the terminal emulation. If you wish to use an IBM PC style font for the terminal display you can do so by changing the 'Font' switch to 'IBM PC style'. Alternatively, you might find it worth changing the 'Text font' instead which is the font to be used for terminal text output. Note that if the 'Font' switch is set to anything else but 'Standard' your 'Text font' settings will be ignored. Well, actually they will not be entirely ignored, but the IBM PC style font will be opened in the point size you selected.

   Don't touch any other controls, return to the main menu when you are finished.

5. If you are likely to visit a lot of PC BBSes, edit the emulation settings now (see Section 19.6 [Emulation panel], page 61). You might want to turn on the switch labeled ''CLS' resets

cursor position', otherwise the terminal screen might not get cleared properly when the BBS sends the control codes it considers appropriate for this purpose.

Leave the rest of the setup as it is and return to the main menu.

6. The next step involves changing the path settings (see Section 19.12 [Path panel], page 73). When receiving files on your machine you might want to have them stored in a special drawer. You can do this by editing the default download paths. Most important is the 'Default binary download path', I suggest to create a drawer called 'Downloads' within the drawer 'term' resides in. Once this is done simply type the name PROGDIR:Downloads and return to the main menu. The next binary file downloaded will go into the 'Downloads' drawer.

If you followed these steps 'term' should be configured for the first session. Save the current settings to disk now so you can always return to this working configuration later in case the changes you made to the current setup did not have the desired effect. You can try to fine-tune your 'term' setup now and change some of the options not covered in this brief introduction, but please remember to keep your original configuration file in a safe place, you will be glad you did.

24 Built-in terminal emulation

The 'term' built-in terminal emulation implements the VT220 command set with a few exceptions. There are no country specific character sets, no down-line-loadable character sets, no user defined keys, no keyboard language support and only ten function keys, not twenty (many of these features are supported through the Amiga operating system). Most VT102 and VT52 commands should be supported as well, but since my documentation on these command sets is rather incomplete I cannot be entirely sure all the features are covered.

The numeric keypad and the four cursor keys can be switched into applications mode if requested by the remote. The four programmable function keys (also known as PF keys) are mapped to the top row of the numeric keypad. When in applications mode these keys will generate the codes produced by the PF keys on a VT102 terminal. If in standard mode, you will need to hold down the `Control` key in order to make theses keys generate the correct PF key codes.

The `Tab` and `Space` keys receive special treatment if a qualifier key is held down when they are pressed. `Shift + Tab` will generate two `Escape + Tab` characters. `Control + Space` generates the ASCII `NUL` byte.

25 Text buffer

The text buffer implements a service which continually stores text displayed on 'term's main screen, so the user can refer to it lateron.

25.1 General characteristics

The size of the text buffer is managed dynamically so that for every new line which is read new memory must be allocated. So the size of the text buffer is limited only by the amount of the available memory. It is recommended that the text buffer is emptied periodically to avoid using the entire free memory.

If there is insufficient memory to place a new line into the text buffer, the first line will be deleted to make room for the new line.

25.2 Operation

The contents of the text buffer can be paged through using the keys for moving of the cursor (`Shift + Cursor` keys moves page by page, `Control + Cursor` key jumps to the beginning or end of the text buffer). Additionally, the numeric keypad keys are overlaid with jump and paging functions (corresponding to the inscriptions/graphics on the front of the keys).

There also is a pull-down menu available which is briefly described below:

'`Search`'   A search function is called which scans from the topmost line on the screen for the search text entered. If the search text is found it is displayed and highlighted.

'term' remembers search strings entered. You can use the `Cursor up` and `Cursor down` keys to recall previous input.

In addition to the search text there are a number of options which may be specified when searching:

'`Search forward`'

If this switch is enabled 'term' search from the topmost line on the screen downward to the end of the buffer, otherwise it searches upward to the beginning of the buffer.

'`Ignore case`'

>
With this switch enabled the search does not distinguish between lower case and upper case characters, i.e. `TEXT` = `Text` = `text`, etc.

'`Only whole words`'

>
If this switch is enabled, 'term' will search for whole words only, not for parts of a word. For example, searching for `term` with the '`Only whole words`' option enabled would stop at the word `term`, but ignore the word `terminal`.

'`Repeat search`'

>
Continues the search process started with '`Search`'. The previously entered search text is carried over.

'`Go to main screen`'

>
Switches to the main screen of 'term'.

'`Clear buffer`'

>
Clears the contents of the text buffer.

'`Close buffer`'

>
Closes the text buffer screen but leaves the contents unchanged.

26 Clipboard

Cut & paste functions are available on the main screen, the buffer screen and the review buffer. Here is how to use them:

Use the mouse to point to the first character you wish to send to the clipboard, hold down the select button, drag the mouse to the last character you wish to select and release the button. Select the 'Copy' menu item (see Section 18.2 [Edit], page 38) to transfer the text to the clipboard. Instead of dragging the mouse you may also double-click on a single word to select it.

On the main screen, holding down the Control key while clicking on a character will feed the single character into the input stream, it will not be buffered in the clipboard.

To paste the clipboard contents, i.e. feed them into the terminal input stream, either select the 'Paste' menu item (see Section 18.2 [Edit], page 38) or press Amiga + V. In order to send the clipboard contents along with a 'Paste prefix' and 'Paste suffix' hold down any Shift key when selecting the 'Paste' menu entry or when selecting text with the mouse (this works both with the main screen and the text buffer screen).

Hold down one of the Alt keys and press the left mouse button to make 'term' emit a number of cursor move sequences which will position the on-screen cursor at the spot where you clicked the mouse.

27 Command sequences

Each text sent directly to the modem is a command sequence. This includes telephone numbers, modem initialisation strings, function key assignments, etc. In addition to the normal text strings various other commands are supported which will be described in the following section.

27.1 Backslash

'\'   Generates a single backslash.

'\0'   Resets the text pacing mode (see Section 19.8 [Clipboard panel], page 65) to the settings defaults. Any changes of the text pacing mode affect only the line to be sent. The next following line will be sent using the default text pacing mode.

'\1'   Sets the text pacing mode to '`Direct`'.

'\2'   Sets the text pacing mode to '`Wait for echo`'.

'\3'   Sets the text pacing mode to '`Wait for any echo`'.

'\4'   Sets the text pacing mode to '`Wait for line prompt`'.

'\5'   Sets the text pacing mode to '`Character/line delay`'.

'\6'   Sets the text pacing mode to '`Keyboard delay`'.

'\a'   Executes an ARexx command (all text to follow this character).

'\b'   Generates a backspace (deletes the character to the left of the cursor).

'\c'   Calls a main menu entry, the menu entry to be called is determined by the argument to follow; this is either a six digit number (example: '`\c 010203`' would call subitem 1, item 2, menu 3) or the name of the menu entry enclosed in single quotes to call (example: '`\c 'about''`' would call the '`About...`' menu entry, the search is case-insensitive and only compares the characters given).

'\d'   Executes an AmigaDOS command (all text to follow this character).

'\e'   Generates the escape character (ASCII code 27).

'\f'   Generates a form feed (skip to beginning of the next page or clear the screen).

'\g'   Places the text to follow this character in the clipboard.

'\h'   Appends the text to follow this character to the current clipboard contents.

'\i'   Feeds the contents of the clipboard into the input stream.

'\n'   Generates a line feed. *Note: must be in lower case!*

'\N'   Generates a line feed character, or whatever the current end-of-line translation settings are configured to (see Section 19.5 [Terminal panel], page 58). *Note: must be in upper case!*

'\p'   Feeds the password of the currently active telephonebook entry into the input stream. *The password is automatically cleared for security reasons when the connection is lost.*

'\r'   Generates a carriage return. *Note: must be in lower case!*

'\R'   Generates a carriage return character, or whatever the current end-of-line translation settings are configured to (see Section 19.5 [Terminal panel], page 58). *Note: must be in upper case!*

'\t'   Generates a tab jump.

'\u'   Similar to the \p command, the \u command will feed the current user name into the input stream.

'\w'

              Depending on how the 'Dial mode' switch is set in the modem settings, this command either produces P for pulse dialing or T for touch tone dialing.

'\x'   Generates a break signal (as with the 'Send break' menu entry).

'\^'   Generates a caret character.

'\~'   Generates a tilde character.

'*'   The code to follow the asterisk determines the character to produce. This can be any three digit number or a symbolic name from the following list[1]:

              'NUL', 'SOH', 'STX', 'ETX', 'EOT', 'ENQ', 'ACK', 'BEL', 'BS', 'HT', 'LF', 'VT', 'FF', 'CR', 'SO', 'SI', 'DLE', 'DC1', 'DC2', 'DC3', 'DC4', 'NAK', 'SYN', 'ETB', 'CAN', 'EM', 'SUB', 'ESC', 'FS', 'GS', 'RS', 'US', 'SP', 'DEL', 'SS2', 'SS3', 'DCS', 'CSI', 'ST', 'OSC', 'PM', 'APC', 'NBS' and 'SHY'

       If none of the mentioned combinations is recognized the character which follows the \ will be fed into the input stream without any changes.

---

[1] 'EOU' may be implemented in a future release

27.2 Caret

This character is used to change the following character to a 'control character'. So the sequence '^J' will become a Line feed and '^I' becomes a tab jump. The character which follows the ^ has to be located between @ and [, otherwise it is fed into the input stream without changes.

27.3 Tilde

This character causes the program to pause for exactly half a second before it continues to process the following commands.

28 Fast! macros

In implementation and design the fast! macros are closely related to the function key macros (see Section 19.16 [Function key panel], page 84). If invoked by selecting the corresponding menu entry, a window will open on the right hand side of the screen sporting a scrollable list of macros (the contents of this list can be edited using the fast! macro panel). When a list entry is selected, the associated command sequence (see Chapter 27 [Command sequences], page 129) will be executed.

By using the fast! macros it is theoretically possible to control a BBS just by mouse, provided that you have the approriate macros in your fast! macro list.

The fast! macro panel can be resized and acts just like the main 'term' window: menu items can be selected and characters entered are sent to the serial driver.

29 Packet window

In this window a line can be edited before it is sent. All the usual editing functions known from standard input fields are available (`Shift + cursor left/right` jumps to the start/end of the line).

Additionally, some extended functions exist which are performed by pressing a cursor key together with the `Shift` or `Control` key:

'`Cursor up`'
> Shows the last entered command in the input line.

'`Shift + Cursor up`'
> Shows the very first command entered so far.

'`Cursor down`'
> Shows the next entered command (if you moved back for some commands before).

'`Shift + Cursor down`'
> Shows the very last command entered so far.

This text gadget has a buffer where all previously entered commands are stored ('Command history'). You can page through this buffer, load and save it and individual lines can be recalled. As with the text buffer this buffer is managed dynamically. The same memory restrictions that apply to the text buffer are valid for this buffer.

The input line also has a menu which offers the following functions:

'`Load history`'
> Loads the contents of the input line buffer from a file. Each stored line in this file can be recalled and sent.

'`Save history as...`'
> Saves the contents of the input line buffer to a file.

'`Clear history`'
> Simply releases all previously stored commands and the memory used by them.

'`Other window`'
> Switches to the main screen of 'term'.

'`Show output`'
> If not enabled, this causes the input line not to be echoed in the terminal window.

'`Quit`'   Closes the window (corresponds to clicking the close gadget of the window).

Every character entered into this window is shown immediately so that those things where it is better that they should not appear on the screen (like passwords for a mailbox) should be entered in another way.

The contents of every input line are interpreted as a command sequence and therefore can also contain control characters.

If a line taken from the input buffer is sent without change it is *not* stored in the buffer again ('true history' such as known from 'ConMan').

The contents of the input buffer are cleared automatically after the window is closed. *Under no circumstances are the contents maintained until the next call!*

Provided that the packet window is large enough, a list to contain the command line history will be displayed.

30 Chat line

The chat line is roughly functionally equivalent to the packet window (see Chapter 29 [Packet window], page 135). However, there is no special pull-down menu and no option to save or load the command history. Unlike the packet window the command history is kept between invocations.

The chat line is, as the name says, a text entry field which allows one single line of text to be entered. Except for the optical appearance and the handling of control characters (the text entry field appears as a single line above the status line, it's also a tad smaller than the packet window) it is virtually identical in handling with the packet window. The only exception is the special key combination to use when clearing the entire past command history. To clear the history, hold down either `Amiga` key and then press either the `Del` or the `Backspace` key.

The chat line always passes control characters, such as `Control + C` and `Tab` straight through to the modem.

31 Script recording

'term' offers a feature called 'Script recording' which lets you record incoming data sent by a
BBS or a remote host and your response to it, i.e. the text you typed, such as login name and
password. The recorded data can then be saved to an ARexx script file which can be used as an
auto-login script. In order to record a script you can either use the dialing panel button labeled
'`Start recording on connection`' or the menu item '`Record`'.

Once 'term' is recording terminal output and your input the status display will show '`Recording`'
or '`Rec.line`', depending on the text entry mode. By default 'term' will only record single
keystrokes, which makes it difficult to enter whole words. If you want 'term' to remember the
entire line of text you are about to enter either use the '`Record line`' menu item or press the
`shift+return` key combination: the status will change to '`Rec.line`'. To return to keystroke
recording just press the `return` key or select the '`Record line`' menu item/press `shift+return`
again.

'term' only remembers the last ten characters sent and a maximum of 256 characters you can
enter per line. If you enter more than this number of characters older keystrokes will be discarded.

When you are finished recording the script select the '`Record line`' menu item. A file requester
will ask you for the file name to save the script under. If the file is successfully saved you may be
asked whether you want the script file to be used as a login script for the currently active phonebook
entry.

*To make sure that the script associated with the phonebook entry will be called the next time
you dial it the phonebook file must be saved to disk before you quit 'term'.*

The script file generated will consist of ARexx commands 'term' understands, mostly `TIMEOUT`,
`WAIT` and `SEND`. The text to be waited for and to be sent is given in standard 'term' command
sequence notation. For more information consult the chapter entitled Chapter 27 [Command se-
quences], page 129. The 'term' ARexx interface documentation provides the necessary background
to explain how the script commands work, it should also give you hints how to customize the
recorded scripts.

Caution: scripts recorded by 'term' usually need additional editing, don't expect a script to
work right away. You may want to change the timeout values, remove extra characters and input.

32   term and Emplant

You need to keep a few things in mind before you actually try to use 'term' with Emplant, the Apple Macintosh emulation and the on-board serial ports:

1. Both the emulation and 'term' are very demanding programs in terms of memory usage. The Macintosh emulation will allocate a fixed memory area for itself which normally should be as large as possible. 'term' has to use the amount of memory that remains, which may not be much. It is recommended that at least 3-4 MBytes of memory should be available when you start 'term'. Although the program will show an error message if it cannot allocate enough memory the external modules (terminal emulation libraries, file transfer libraries, serial device driver, etc.) may not work properly under low memory conditions and thus can cause software failures. You should reduce the sizes of the many memory buffers 'term' uses to perform its functions, such as transfering files and capturing text. For example, the text buffer will keep growing until all available memory is exhausted unless you set a maximum limit for its size (see Section 19.9 [Capture panel], page 66).

2. 'term' can share the device driver selected for the I/O ports with Emplant. For example, if you select 'serial.device' as the driver to use for Port A Emplant will open the driver in shared mode. In 'term' you would select the 'Shared access' switch in the serial settings (see Section 19.1 [Serial panel], page 47). When both programs are up and running you must make sure that only one program at a time will access the serial device driver, or data may be lost. For example, if you have 'ZTerm' and 'term' running and wish to use 'ZTerm' for communications you **must** make 'term' release the serial device driver (use the 'Modem' menu item 'Release serial device' for this purpose). Likewise, if you wish to use 'term' instead of 'ZTerm' or some other terminal program on the Macintosh side, make sure you quit the Macintosh terminal program first.

   Take care, LocalTalk can have a negative effect on the serial data transfer performance.

3. If you connect one of the Emplant serial ports to your modem you should know whether the connector pins that are used for 7 wire hardware handshaking (RTS/CTS handshaking) are properly connected or not. Some cables that are sold for use with Hayes modems or the Apple ImageWriter do not have the necessary pins connected. If you wish to use the RTS/CTS handshaking protocol (see Section 19.1 [Serial panel], page 47), set the handshaking mode to 'RTS/CTS (Check DSR)'. This insures that 'term' will run properly even if your cable cannot be used for RTS/CTS handshaking. Your Amiga may lock up if the cable does not support RTS/CTS handshaking and you have 'RTS/CTS' selected as the handshaking protocol.

4. It is unwise to use 'empser.device' while the Macintosh emulation is running. Since the Macintosh drivers are unaware of the Amiga side trying to access the serial port hardware conflicts are not to be avoided. Either use 'term' with 'empser.device' or run the Macintosh emulation, you cannot do both at the same time.

33 term and SLIP

If you are brave enough to use 'term' to dial into your SLIP account, you should make sure that your modem does not hang up when you leave 'term' and hand control over to your SLIP software. Typically, closing the serial device driver causes the DTR signal to drop which some modems interprete as an immediate command to abort the connection. This signal is automatically dropped when 'term' is terminated.

To avoid this problem, consult your modem manual for information on a command that controls how the modem reacts when the DTR signal is dropped. For a ZyXEL modem this would be `AT&D0`. Put the command `AT&D0\r` into the modem init command field (see Section 19.2 [Modem panel], page 50) of the phonebook entry you use to dial into your SLIP account.

34 Environment variables

Information which is to be available the next time the program is run is placed as AmigaDOS variables in the directories 'ENV:' and 'ENVARC:' by 'term'.

The variables used by 'term' can be used and manipulated by other programs transparently. In detail these variables are:

'TERMCONFIGPATH'

> The name of the drawer in which all information used by 'term' is placed (standard configuration, phonebook, etc.). The default settings path name is 'TERM:config'.

'xpr...'   The standard settings used for the corresponding transfer protocol ('xprzmodem', 'xprkermit', etc.).

'xem...'   The standard settings used for the corresponding external terminal emulation library ('xemvt340', 'xemascii', etc.).

35 PGP key

Below you will find my signed public key. Save it to a disk file and enter `PGP <file name>` to decode it. This will produce a file called '`public_key`'. To add my key to your PGP keyring now enter `PGP -ka public_key` and follow the instructions on the screen. To verify my signature, now enter `PGP <file name>` again. It's probably pretty paranoid to rely upon PGP signatures and keys, but then again you might want to have a somewhat unambiguous proof that the distribution archives you have downloaded are intact. Security can still be compromised, if you don't trust the key below you can still contact me to ask for an official key.

Note: this document does not include the public key, look for an ASCII text file, such as '`term.doc`' or '`term.guide`' instead.

PGP-encoded mail is not welcome at my internet site!

36 Revision history

Changes introduced with v4.7 (18 October 1996):

- The hotkey panel did not accept control key codes.

- The code that sets up the quick dial menu did not allocate enough room for the complete menu strip and thus could trash innocent memory.

- Added a tool type to suppress Workbench search path cloning. This might fix some deadly crashes connected with the program startup. The tooltype is "NOPATHFIX". The path cloning now only kicks in if the process 'term' was launched from is in fact Workbench.

- Some cleanup work in the configuration storage code. Simplified polished the code a bit.

- Put in some improved memory allocation tracking and debugging code.

- More changes to support DICE and StormC.

- Changed the way Hook structures are initialized. All the work is now done in a setup routine rather than by initializing the hooks statically.

- Fixed the last memory leak I could find. There also was some code in the phone rate accounting code that used the wrong routine to free memory it had allocated. This could have lead to a crash.

- Simplified the code that deals with reading, writing and parsing IFF streams.

- Replaced TextLength() loops with calls to TextFit().

- Correctly initialized a variable in the code that brings the 'term' screen to the front at the start of a file transfer. As it happened, the variable was never initialized.

- The Shell auto-detach code now cleans up the program segment list in a less offensive way than before.

- The menu setup code no longer removes menu items of functions that are not available at the moment. Rather, it disables them.

- Simplified the program cleanup and shutdown code.

- Reworked some of the phonebook cleanup code that dealt with groups. Might be the reason for the crash was hidden here.

- I broke the text buffer search code in v4.6.4 when changing the hook init code. It now works again as advertized.

- All new phonebook and dialing code. I finally kissed the ancient code goodbye and rewrote it from the ground up. It is much smaller and should be much cleaner now. The question still remains if the code will work correctly in this form.

- When 'term' is polling OwnDevUnit.library to regain access to the serial device driver it will block access to the user interface now.

- The sound control panel now sports "play" buttons to test the sounds.

- The ARexx upload list and the upload window file list are now identical and no longer separate lists.

- The program should no longer fail to receive and send files in binary mode after doing a text mode file transfer.

- The program now sends ZModem cancel command sequences only when necessary.

- The "window shanghai" option is gone now and will never return.

- Simplified the file transfer setup code.

- Fixed a long standing bug in the external terminal emulation code. The processed text now properly ends up in the buffer instead of getting mangled beyond recognition.

- The program can now write call log files in Kai Hofmann's PhoneLog standard format.

- The program no longer changes the order of files to transfer unless you picked the files using a file requester.

- If you enable the "Window border" option in the screen settings and pick a colour mode other than "monochrome" or "Amiga" 'term' now tries to fall back to a suitable colour mode if it fails to allocate enough colours for the requested mode.

- Removed the standard window close gadgets from all those windows that already feature regular "Close/Use/Cancel" gadgets.

- Removed the last references to old gtlayout code.

- The quick dial menu now sports menu items whose checkmarks can be toggled.

- The number of retries slider in the modem settings editor now has the "unlimited" entry in the righmost position instead of the leftmost.

- In the XPR interface 'term' now checks if the carrier signal is still present if a read request has timed out without producing any data.

- The program now remembers and uses the stored positions and sizes of the following windows: status, review buffer, packet, fast macros and upload queue (only if opened on a custom screen). To make 'term' remember the position and size, put the window where you want it and close it, then save the current program settings to disk.

- The text buffer code should be better protected against modification of the buffer contents now. The buffer process should not longer crash while data is going in and display output is taking place.

- The phonebook group labels were getting freed twice, leading to all kinds of nuisance.

- The program should no longer crash on 68060 machines.

- All main menu manipulations now go through one common interface.

- If control passes through the phonebook, one of the following two things will happen:

- If you hit the "Dial" button the old dial list that was active before you entered the phonebook will be discarded. It will be rebuilt with the currently tagged phonebook entries.

- If you don't hit the "Dial" button all the entries of the old dial list that got into the list because phonebook entries were tagged the last time the phonebook was open will be removed from the list.

- If no phonebook entry is tagged for dialing and you hit the "Dial" button the currently highlighted entry will end up getting tagged for the dial list.

- Double-clicking on a phonebook entry that doesn't have a name or number no longer starts dialing it.

- The phonebook "Dial" button becomes available now only if any one of the following conditions becomes true:

  - No phonebook entries are tagged for dialing AND the user has selected a phonebook entry AND the highlighted entry has a name and a number AND the program is not online.

  - Some phonebook entries are tagged AND the program is not online.

- Rewrote most of program status tracking code, plus the code that handles xON/xOFF.

- Cleaned up the serial I/O code and also rewrote the low level text output routines.

- With an empty phonebook clicking the groups button could cause Enforcer hits and crashes. Fixed.

- More cleanup work with the help of the GNU 'C' compiler.

- BitMap creation under Kickstart 2.04 now uses AllocRaster again. I also changed the user interface support library to use AllocRaster() rather than AllocVec(). Note: this can cause trouble with CyberGraphX, but it's actually The Right Way to do it.

- Rewrote the entire program startup procedure. As a consequence 'term' will no longer automatically detach itself from the calling shell. If you really need this feature, use "run >nil: term" instead. The old "sync" parameter is still there, it just doesn't have any effect any more. I also rewrote the iconification code which is now far less complex.

- Rewrote all the parts of the program that deal with list displays. Also rewrote the phone rate GUI code.

- The memory allocation code no longer rounds allocation sizes to multiples of four. This may expose bugs in the program.

- Added a workaround for CyberGraphX and its planes2fast environment variable which could cause the tab gadget labels to remain blank. Note: with CyberGraphX V40 this cannot work on the DraCo.

- Even more cleanup work, assisted by the GNU 'C' compiler.

- Dialing a number by entering it in the requester now clears the previously active dialing list first.

- It's traditional to muck with the program and Rexx script launching code in every new release. That's what I did, let's keep our fingers crossed the code works this time.

- Moved the console output window specifier out of the main menu and the global environment variables. The string is now part of the miscellaneous settings.

- The text buffer screen now uses four colours rather than just two and the screen title is now set through the OS routines rather than printed manually.

- Rewrote the core of the event processing code. This greatly simplified the main input loop and opened the door to a multithreaded design.

- Rewrote the serial I/O processing code, the ASCII transfer code, the data flow scanner and the text send/pacing routines. One benefit of this action should be that 'term' no longer continues with its terminal display output after making a connection until the terminal display has been reopened. It also simplified most of the code that does serial I/O.

- Rewrote most of the ARexx commands. These still have to be tested.

- The program now changes its task priority back to its initial priority before returning to the Shell.

- Rewrote the home-grown environment variable management routines to use the operating system routines.

- Now uses a different technique to obtain the name of the current directory. The old approach could return the wrong name in case 'term' was started from Shell.

- Code that uses formatted output routines, such as sprintf() now makes sure that the output buffer will not overflow.

- Yet more cleanup work with the help of the GNU 'C' compiler. Some local variables are declared as "static" now rather than get allocated on the stack due to their sizes; some would allocate several thousand bytes of stack space.

- Adding new entries to an empty phonebook now works again and entry name changes are again propagated to the displayed list [Stefan Becker].

- GetFile() is no longer the central entry point of the code that deals with file and drawer requesters. There are now several different routines which each just take care of one single job (request a file name for reading, request a file name for storing, request several file names, request a drawer name for reading and request a drawer name for storing).

- The new, safer text formatting routines caught a bug in the locale number conversion routine. The call costs would not be displayed correctly due to an output buffer being too small. In older 'term' releases the program would have trashed its stack [Martin Berndt].

- The built-in catalog text now uses proper number formatting control sequences (e.g. "%lD" instead of "%ld"). If running under Kickstart 2.04 with no locale.library patches installed, 'term' will update the built-in catalog text to use the old format control sequences.

- The numbering of the tagged phonebook entries could be off by one. This has been fixed.

- Removed some more window close gadgets where they were redundant.

- Removed dead code from the fast! macro save & restore routines. The reason why the fast! macro window wouldn't stay where you put it when you saved the macro file to disk was the fact that there was no code to save the window position to complement the code that would read it. While I was on it, I also rewrote the way fast! macros are written to disk and how their in-memory representation looks like.

- When a file transfer is aborted, 'term' now tries to throw away any pending serial input until the remote has finally stopped sending data. I'm interested to hear if this really works as it should.

- Trouble with the decimal point when formatting numbers for display on the screen. It should work again now.

- The program could attempt to query an environment variable with an empty name. Fixed [Stefan Becker].

- I broke the code that loads the fast! macros in v4.6.8, it now works again [Jari Karjalainen].

- ARexx command processing was broken due to the rexx job handler not getting activated. Fixed [Andreas Kirchwitz and Jari Karjalainen].

- Rewrote large parts of the dial list management code. I'm not finished with it yet, there is still work to be done in the dialer code. One of the changes is that for phonebook entries with multiple phone numbers separated by vertical bars ("|") multiple dial nodes will go into the dial list.

- Rewrote the copy panel and large parts of the code that deals with configuration data management.

- Cleaned up all the code that mucks with the program configuration and associated data. All the routines that know how large the configuration data structures are are now located in one central module.

- Finished with rewriting the dial panel, or at least that's what I hope. It's smaller, it's faster, it's more responsive. I haven't tested it yet, though.

- The special modem dial escape sequence "\w" was never expanded properly in the dial panel. It should work now.

- Yet more cleanup work with the GNU 'C' compiler.

- Changed the way the main menu labels are set up.

- The dialer would send the modem initialization command and proceed too quickly with sending the dial command. It now waits for up to ten seconds for the modem to respond to the initialization command before either putting up an error message or proceeding with the dial command.

- Before dialing a list of entries picked from the quick dial menu, 'term' now clears the old dial list [Klaus Dürr].

- Rewrote the string gadget editing hooks and the code that uses them. This made things considerably simpler and the editing work is no longer done on the schedule of input.device.

- Launching external protocols could cause the usual kind of violent crashes. Memory was getting freed twice.
- Simplified and polished the file transfer code.
- Small changes to the XPR code (as usual).
- The ARexx serial input scanner could run over the end of its scan node list. Fixed [Andreas Kirchwitz].
- Rewrote the string gadget editing hook code of the user interface support library. The library no longer supports FRACTION_KIND objects.
- Most text entry fields did not use the maximum number of characters to be entered. This could, for example, cause the names of phonebook entries to be trashed very easily. Some numbers were simply as wrong as they could be, such as the keyboard macros which would allow only up to 127 characters to be entered while there was room for 255 characters.
- The OwnDevUnit handler was not getting activated. Fixed.
- Double-clicking on the default phone rates entry no longer brings up the editor window.
- The code to flush any incoming random garbage after a file transfer was stopped now works as it should. You will notice a small delay while the code flushes the buffer.
- Rewrote the code that loads the traps and reworked a number of other modules for better readability.
- The date editor, as used by the rates editor, now uses a cycle gadget in place of the slider gadget.
- All-new fast! macro window.
- Encrypted phonebook files now load again properly [Markus Schmall].
- For external transfer protocols, "%m" and "%M" will again allow you to select more than one single file.
- Integrated the new and improved text marker code. Not everything is working as it should yet.
- Removed some more dead code from the serial input processor.
- Now both the main window and the text/review buffer use the same text marker code. You can drag-select the text and eventually hit Amiga+C to copy the selected text to the clipboard. This should be much more consistent than it used to be.
- The text buffer code now uses TextFit() to find out how many characters fit into the window. This should help multibyte character displays [Tetsuo Tawara].
- No longer tries to change the output window specifier until the data structure it should go into is ready [Jari Karjalainen].
- If the phonebook fails to load before memory is allocated for all its data structures, the program will no longer throw Enforcer hits [Markus Schmall].
- If there are less lines in the text buffer than the text buffer display will hold, selecting text will no longer cause Enforcer hits.

- Blank lines in the text buffer now show up as blank lines in the clipboard, rather than getting omitted altogether.

- Added a "Select all" menu item to the "Edit" menus.

- While 'term' is busy processing a synchronous ARexx command, it now says so in the status window "Status" field [Bill Beogelein].

- The program now rembers and stores the position of the file transfer window [Bill Beogelein].

- The former "I/O Buffer" settings now read as "Disk I/O Buffer" [Bill Beogelein].

- The phonebook now remembers which entries were marked when it was saved to disk. After loading it, 'term' will again select these entries and get ready to dial them. This means for example that unless you use the "Auto dial" feature you will be able to use the "Redial" menu after 'term' has started [Bill Beogelein].

- The ARexx commands "PARITY", "BAUD", "DUPLEX", "OPENDEVICE", "PROCES-SIO", "PROTOCOL" and "STOPBITS" now return the settings values that were in effect before they were changed [Bill Beogelein].

- Introduced a new ARexx command "RESET", which is a superset of the "RESETSTYLES", "RESETSCREEN", "RESETTEXT" and "RESETTIMER" commands. There are more options to come, stay tuned [Bill Beogelein].

- In the misc settings, the "Bell & Screen" alert type now reads "Bell & Screen to front" [Bill Beogelein].

- Added two new control sequences:

  - \R (note: must be an uppercase letter)

    Sends a carriage return character, or whatever the terminal settings EOL translation is currently set to.

  - \N (note: must be an uppercase letter)

    Sends a line feed character, or whatever the terminal settings EOL translation is currently set to.

  [Bill Beogelein]

- The ARexx commands "WAIT" and "READ" now sport new "TIMEOUT" options which override the global timeout value while the wait and read commands are active [Bill Beogelein].

- Replaced all references to "Baud" with "BPS". The only exception is the "Connect auto-baud" switch [Bill Beogelein].

- The text buffer now has a memory safety limit. If a new line is to go into the buffer, it now checks first if there is still that much memory available before making the allocation. This is still not perfect; checking the amount of memory available can take more time than it currently takes to allocate it [Bill Beogelein].

- In the status window, the text buffer status is now reported as "Open" rather than "Recording" [Bill Beogelein].

- In log files "connect" entries now include the DTE rate [Bill Beogelein].

- In the phonebook, if no entry is currently active selecting entries by pattern will make the first entry to match the pattern the active entry [Bill Beogelein].

- The dialer now tells you how many entries are still to be dialed before it reaches the end of the list [Bill Beogelein].

- The ARexx "CAPTURE" command now sports three new options:

  - APPEND

    If the named file exists, append the new capture data to it.

  - OVERWRITE

    If the named file exists, delete it before adding new capture data to it.

  - SKIP

    If the named file exists, don't overwrite it. Do not open the capture file.

  [Bill Beogelein]

- In the transfer settings panel you can now specify the name and command line options of a command to invoke in order to identify a file just received. So for example, "foo -bar %s" will expand to "foo -bar baz" if the file just received bears the name "baz" [Bill Beogelein].

- Selecting phonebook entries by pattern didn't always work as it should. The contents of the string gadgets didn't always make it into the text buffers that would later be used for compiling the search pattern. This has been fixed.

- The program now uses the localized date and time formatting routines. This leaves one problem: in the status window there is not enough room left for the "AM" and "PM" indicators.

- You no longer need to set the console window output specifier to "NIL:" if you do not want console output to show up. You can now use the "Suppress output" switch in the misc settings.

- Removed the close gadget from the file transfer window.

- Changed labels in the modem settings panel:

  Redial delay -> Delay after dialing whole list Dial retries -> Redial each site Dial timeout -> Wait for connection Delay between calls -> Delay after each busy signal

  [Bill Beogelein]

- In two more places FreeVec() had to be replaced by FreeVecPooled() in order to avoid crashing the machine. I'm becoming sloppy.

- Added an "Expand blank lines" option to the built-in ASCII transfer settings [Bill Beogelein].

- The ARexx "PROCESSIO" command was not working properly. This would lead to race conditions with programs such as "smodem" having to fight with 'term' over the ownership of the serial interface. There is still a catch: if shut down with "processio off", serial I/O processing must be turned on with "processio on" as soon as possible. If not turned on again, 'term' will appear to be deaf to any serial input coming in [Jari Karjalainen].

- There were still remnants of the old gtlayout support code left, which had to be removed.

- The file transfer window now shows its text right-aligned. I'm interested to hear how you think this looks like.

- Hanging up the line by dropping the DTR signal could leave the serial device driver in an undefined state. 'term' would appear to play dead [Russ LeBar].

- Multiple selection in the phonebook list no longer changes the scope of the list [Andreas Kirchwitz].

- 'term' now requires gtlayout.library V35 to work.

- The phonebook grouping window did not close when hitting the "Use" button; it now does [Russ LeBar].

- Removed the main window Workbench AppWindow() support. If you want to send files, use the queue window.

- The text buffer marker code would change the rendering mask before highlighting text and change it back afterwards. This could leave artifacts behind when scrolling the display. Fixed.

- The file transfer window doesn't come up centered within the bounds of the main window. I can't change that, sorry. But the window should at least come up within the bounds of the main window (which is what it does now).

- Selecting a keymap file or dropping icons on the upload queue window could instantly crash the machine. This has been fixed.

- The dialer now has an option to skip the login macro after making a connection. Great for testing login scripts [Russ LeBar].

- Highlighted text in the text buffer window and screen did not properly update the line limit information the text rendering code uses to optimize display updates. Subsequent drawing operations could fail to erase the highlighted areas. This has been fixed.

- The terminal emulation no longer mucks around with the display write mask unless it is really necessary. Previously, the mask changes could introduce bitmap fluff that would never be erased. I never noticed that until I tested 'term' on a vanilla machine that doesn't have CyberGraphX installed. Note: this change affects the colour of the cursor.

- Removed some sneaky rendering optimizations that turned out to be counter productive with interleaved bitmap displays.

- Integrated experimental ZModem code into the program. This is still kinda crufty, so watch out. To use the integrated protocol, hold down any [Shift] key while selecting the "Binary upload" and "Binary download" menus. I don't know exactly how compatible and complete the implementation is, but it should do everything xprzmodem.library does plus a few extras from the original ZModem implementation. What it does not do is support RLE/LZW compression or any of the ZModem-90 features.

- The fast! macro window did not open in active state. It now does.

- Finally (!) fixed the last case in which the terminal emulation could start printing in spite of the "printer control enabled" settings being set to "off".

- The "space free on destination device" display as used in the XPR window was not properly localized. Fixed.

- Did some more device I/O fine tuning in support of the NSD concept.

- The single translation panel character translation settings window now sports a "Default" button [Bill Beogelein].

- Changing the terminal window size from the terminal settings panel could end up doing nothing. Fixed.

- The ARexx command "READ" now sports a "Terminator" parameter. With this parameter you can use a different line terminator than the default "carriage return". For example, "terminator '\n'" will use the "line feed" character [J. Henry Priebe Jr.].

- In the XPR and XEM settings window, the "Use" button now reads "Save". This is more appropriate as the XEM and XPR settings have always been global.

- Reworked the built-in ZModem GUI. It still doesn't do everything the regular XPR does. 'term' now requires gtlayout.library v36.

- The built-in ZModem code now hides behind the regular binary and text transfer protocols. Just hold down any [Shift] key to invoke it (this also works with the auto-upload and auto-download). This is a little unorthodox, but then I can't promise that the built-in protocol will make it into the final release.

- Removed some unnecessary calls to layer locking routines.

- The text scrolling code as used by the About... requester and the text buffer now cleans up the layer damage caused by the scrolling operation. 'term' didn't care about it anyway, since the windows in question have always been smart refresh windows.

- By public request, brought back the old style cursor. This time it should be more clever when dealing with the display write mask.

- The main window now opens in active state if it must. Previously, the window would open in inactive state and get activated later. This saves one extra rendering pass.

- The text buffer window now opens in active state and the screen opens in the foreground. This saves one extra rendering pass.

- Removed the home grown Strcoll() routine.

- Got rid of the last "goto .." loops. The weird zmodem code still uses them, though.

- Added a smarter routine to open disk resident fonts that does not require diskfont.library to be open all the time.

- The built-in ZModem code can now be enabled only through an environment variable. Use "setenv terminternalzmodem 1" to enable it. Note that when you request the internal protocol you will lose the option to use any other text or binary transfer protocol.

- Added a very rudimentary zmodem options control panel.
- Found yet another layer locking call that didn't really belong where it would end up.
- Removed the last layer locking calls.
- Changed the way the online limit timer works. Instead of decrementing a counter periodically 'term'~now takes the current time and adds the number of seconds it takes for the time limit to pass. It then checks periodically if the current time is past this time limit.
- The status display now also uses timer arithmetics to determine when to run routine jobs.
- Made the built-in zmodem code a compile time option. It's no longer included in the regular version.
- The new style sliders did not respond to keyboard input. They now do.
- 'term' did not do its routine check actions in sensible intervals. It now does them every two seconds.
- The right-aligned text in the file transfer window did not appear with the leading space getting erased. This was most visible when the packet size dropped.
- Simplified the user interface gadget keyboard activation code.
- Found a bug in the OS code that stores the global environment variables. It didn't save them to ENVARC:.
- The buffer display did not get cleared along with the contents of the buffer. It now does.
- Ha! Got one of the last deadly bugs in the terminal emulation code. There may be more, but they will have to wait. The IL and DL routines could clear too much memory at a time, trashing just about everything in the way. Now 'term' even survives the vttest.
- The fast! macro window would not render properly if just one single macro was in the list. Fixed.
- Reordered the program initialization code to allow for a safer termination in case something goes badly wrong before all the relevant data is set up.
- Removed a ancient rendering optimization from the text buffer display code which could really screw things up badly when selecting text and scrolling the display. This would include the occasional crash or would leave the display in an undefined state, delaying the crash until later.
- Whilst printing, 'term' now shows that it is busy.

Changes introduced with v4.6:

- Adding the first entry to an empty phonebook did not make the list available, it would stay ghosted.
- The transfer window accidentally did not receive any window refresh events, causing it to stay more or less blank when zooming/unzooming it.

- Removing phonebook entries from existing groups through the "Group" feature did not move them, it merely changed the name of the group.

- Ghosting colours as used by the gtlayout.library created tapedeck and default buttons were "wrong" in a sort of way; the UI style guide suggests to use the shadow pen to draw the ghosting patterns, but there was still some experimental code in the library to use the background pen, really "ghosting" the gadgets.

- Finally got the font style rendering bits right with gtlayout.library (and also saved a few bytes on the way).

- A few changes in the font size setup code used by gtlayout.library and the status line box layout process now allow fonts with broken kerning and width table data to be used, such as the Scala FuturaB font which has trash in place of the \ and | glyphs. Caution please, although the layout routines now allow the screen layout to proceed in an orderly fashion, Intuition may fail to render pull-down menus correctly.

- Horizontal sliders (LEVEL_KIND) as used by 'term' now render much smoother and faster.

- Stripped grouping frames from windows in which only one single group was displayed.

- Changed the 16 colour window backfill code back to use RectFill() rather than the Saturday Night Special BitMap. No longer crashes CPUBlit or gets into trouble with CyberGraphX.

- Stripped some more old and dead code from the phone panel.

- Tagging entries in the phonepanel moved the list display around, which was both nasty and not necessarily a good thing to do [Andreas Kirchwitz].

- Fixed the "Copy" crash & burn bug in the phone panel (how comes I'm feeling so stupid?).

- Adding a new phonebook entry did not update all the gadgets that should get updated.

- All-new notification requester, smaller & more powerful. It's a shame it only pops up when running 'term' for the first time or when upgrading from an older release.

- Removed all "Default" button code from the settings editors, the new phonebook editing scheme made these buttons redundant anyway.

- In the phonebook edit window, the edit buttons are no longer ghosted if the checkboxes next to them are disabled. This is to allow for browsing the settings without having to enable the checkboxes. The functionality of the checkboxes however is still the same. Please note that selecting "Use" will keep the settings displayed and cause the checkbox to get enabled. Selecting "Cancel" will leave the checkbox state untouched.

- Shortened some more tab labels, although it didn't really improve things much.

- Changing the settings of any XPR protocol through the transfer protocol editor could get you into real trouble, code was commented out that should have been there but wasn't.

- The XEM interface was still using the 'new' code that eventually was replaced by the v4.3 xpr_sread code.

- In the phonebook, if no entry is selected hitting "Toggle" or "All" will make the first list entry displayed the selected entry [Russell LeBar].

- The phonebook "Toggle" button never got enabled when the window was opened.

- Moved up to the v4.4 style xpr_sread code, also caught one case in which XProtocolHostMon() may have trashed its buffer.

- In groups, the phonebook sort function did not really sort the contents, it just mucked with the visible list; essentially, when closing the phonebook after a sort operation and reopening it again the list order would not appear to have changed. There also was a nasty side effect in that after performing a sort operation the list nodes would point to the wrong phonebook entries ("Your guide to trashing the phonebook in 3 ez pieces") [Marius Sundbakken].

- The size of vertical separator bars as used by gtlayout.library is now adapted to the display aspect ratio [Marius Sundbakken].

- Misc housekeeping changes.

- The rates/date/time/etc. editors which get opened by the phonebook settings editor now come up properly centered over the window that brought them up.

- Massive space optimizations in gtlayout.library, the 68k version is once again smaller than 100K, actually it's even smaller than the optimized 030 library that should have shipped with 'term' v4.5.

- The asl requester centering code was getting into trouble as the tag array holding the position data was not terminated.

- First attempt at getting rid of unused program text. I do not know exactly if I managed to zap them all, but I caught most of them. If you spot a label/text that consists of a single dot only (".") please let me know and tell me where you found it.

- Moved the "Text buffer services" page contents in the capture panel to the third page [Russell LeBar].

- If the speech synthesizer is not available, the speech settings menu item is no longer appears.

- Unified the screen mode selection code used by the screen and capture settings editors.

- Small fixes to the custom requester code, it no longer uses hardcoded system gadget sizes.

- The rates editor could come up with an empty list if the checkbox next to the rates button was not ticked.

- gtlayout.library font fallback didn't fall for default and multiline buttons.

- The tab gadget tags now have rounded caps. I finally settled with the first two octants of the Bresenham circle drawing algorithm. Essentially, this makes it difficult to create a resolution-adaptive arc. The 'shoulders' of each tab are too small, especially in low resolutions, to create edges that look sufficiently rounded. Consequently, the arc rendered is always based upon a square aspect ratio, but beefed up a bit to look good with an 1:2 aspect ratio.

- Replaced the last remaining hardware dependant code with different stuff: the status display code could drop into creating a user copper list and attaching it to the screen for the purposes of the providing a visual bell signal. It now simply loads and restores the colour palette.

- The single character entry was using the wrong colour when doing the first text rendering pass [Göran Åberg].

- The transfer upload queue now uses the default binary upload path as its home directory [Göran Åberg].

- The area code panel was not allowing you to save the list after loading a new list [Göran Åberg].

- The area code panel, fast! macro panel and the trap panel would get into big trouble when removing the last entry from the list. [Göran Åberg].

- For similar reasons the phonebook "Remove" function was broken.

- Shortened the labels in the upload/download window [Bob Maple].

- The same bug that used to wreck the phonebook "Copy" code was having a good time in the "Remove" code. It no longer does.

- Shortened the labels in the upload/download window some more [Bob Maple].

- Moved the columns/lines settings from the terminal settings page #2 to page #3.

- The hair lines between single tabs in tab gadgets are now resolution adaptive.

- The terminal settings editor now also sports an "BBS ANSI compliant" button.

- Moved the pages with the "BBS ANSI compliant" buttons as featured in the emulation and terminal settings to the first pages.

- The "Toggle" button could get the highlighting order of phonebook entries dead wrong [Russell Woodford].

- Part of the colour palette loading code was so screwed you could have hung several chandeliers to it.

- The fix I put in to avoid having XProtocolHostMon trash its buffer turned out to be doing not much (read: nada). Fixed.

- Rewrote all the code that used the one single open timer, including all instances in which TR_GETSYSTIME was invoked rather than calling GetSysTime() directly.

- Finally (!) arrived at a safe, slick, transparent and crystal clear xpr_read() implementation. If this one still breaks serial.device and friends I'm really going to cry...

- Cleared out more old and dead code.

- Changed the order of pages in the path and protocol settings editors, they now read binary, text, ascii. In the serial settings editor, moved the device driver page to #2.

- Checked all the places in which file requesters were opened and made sure that whenever they are associated with actions which will cause files to be written to, they will come up with the "Save" mode set.

- No longer limits font sizes to 24 points.

- The picker glyph size is now adapted to the screen resolution.

- Finally went through the great renaming, none of the program source modules bears the name "term" in its name any more. I also went through the prototypes and all the header files with a fine tooth comb. 'term' now compiles much faster, and it is using regargs parameters throughout the program.

- The next step in trying to fix the "stuck download" problem; the file transfer window is now opened on the schedule of another process, so it doesn't block the file transfer progress.

- The cursor key settings editor consistently looked at the wrong buffer. "Use" never really worked.

- Cleared out even more dead and unused code & data.

- Corrected a bunch of callback-routines which needed their data on the stack rather than in registers.

- Reduced stack size requirements for subprocess creation to reasonable amounts, which in this case means a maximum of 8000 bytes per process.

- Unified the most frequently used process creation procedures, the whole creation business now runs through one single routine.

- Now properly remembers the position of the review buffer window instead of always using default values.

- Now properly sets its own program name when getting run from Workbench [Petri Nordlund].

- No longer tries to pull input from the transfer window MsgPort until the window is ready and open. This avoids responses to refresh events until the window is ready for them.

- Put in some experimental code to delay trap scanning until after control sequences and such have been filtered out. I'm not sure if I should make this a configurable feature.

- The serial settings editor was not allowing you to change the buffer size or the quantum value [Peter Popanda].

- Similar effects could cause trouble with the modem settings.

- Big phonebook code cleanup, things should still work, though.

- The experimental trap filter code was not doing things right, it did whatever it wanted to do, but could end up rolling the marbles on the schedule of the emulation task which was not allowed to play with the serial port and his friends...

- The XPR code could miss single xpr_update() events, simply because the display window was not yet open. It now tries to buffer the data it displays until the window is open and ready. The next following call to xpr_update() will then do the work necessary to get the cached data displayed.

- Simplified the final program cleanup code a lot, after all there is memory tracking built into the pools. Also, a lot was gained by taking advantage of the fact that many operating system routines are tolerant to NULL parameters.

- Cleaned up the header files a bit.

- The incrementer arrows are now resolution adaptive. I also polished the picker images a bit.

- Removed all absolute address references to data items. As the data hunk size revealed, the amount of static and bss data compiled with the program is well below the magic 64K boundary (24K so far). This brought the total gain in program size compared to v4.5 to a stunning 36K...

- Removed the silly "locale library not installed correctly" requester, as well as the busy mouse pointer code which was easily replaced with gtlayout.library/LT_Lock/UnlockWindow.

- More space optimizations in gtlayout.library, which is now more than 4K smaller than the release that shipped with v4.5

- Recompiled 'term' and gtlayout.library with SAS/C 6.56.

- A variable was being shadowed in the text buffer screen creation code which could lead to all kinds of funny effects, including the window opening being 0 pixels tall. I guess that this finally fixes the last possible buffer crash problem.

- When clearing the text/review buffer, the buffer percent displays are also updated.

- Fixed a very nasty bug in the user interface library code that would draw the text boxes in the about window and frequently crash the machine with an invalid RectFill() call. I also managed to save even more space on the way.

- 'term' now requires gtlayout.library v26 to run.

- On a heavily loaded system (speaking of DMA), the blitter could run wild, trashing the display while the phonebook was being displayed. I came up with a workaround which involves making the phonebook window simple refresh [Russell LeBar].

- Ran another test on the A500+, 'term' now even fits into 1.5 MBytes of memory and will do file transfers at 19,200 BPS without complaining.

- On very slow computers it can take several ten seconds for the transfer window to open. If a transfer error occured while the window was still closed 'term' would crash, it no longer does.

- More fixes for very slow computers. Still, in very unlucky cases a download can come to a grinding halt and tilt itself along with the operating system over the edge. I have no solution for this stuff right now, I guess it's just a bad habit to keep such an utterly slow computer around (tested with the A500+ in 16 colours, non-interlaced; don't do it).

- Fixed an Enforcer hit in the gtlayout.library menu creation code I had overlooked. Feeling adventurous, I optimized the object layout code and ran it through the optimizer.

- Made the phonebook use a simple refresh window to avoid weird blitter effects [Russell LeBar].

- Small fixes to the gtlayout.library keyboard shortcut picking code [Kai Iske].

- The phonebook could present you the hardcoded settings defaults rather than copies of the global configuration [Martin Steigerwald].

- More fun with gtlayout.library, aligned most variables to long word addresses, optimized bits & pieces and replaced the horizontal and vertical line drawing code with calls to RectFill(). Lots of changes here, have fun.

- The listview ghosting code was rendering into the main terminal window, not into the listview, oops.

- No longer displays the OwnDevUnit settings page if OwnDevUnit.library is not around.

- The new gtlayout.library had *some* rendering problems when running under Kickstart 2.04, or should I say that Kickstart 2.04 had some rendering problems with gtlayout.library? Area fill patterns did not get cleared for RastPorts passed to the rendering code, ghosting did make a bit hit.

- I guess nobody noticed this yet, but the popup gadget could lose refresh events after cleaning up the popup menu.

- The string/command 'term' sends to the remote after invoking the "Wait..." command is now configurable in the misc settings [Russell LeBar].

- Just found out that the popup gadget doesn't work so well under Kickstart v2.04, so it's back to cycle gadgets then...

- Threw in some binary search code for the locale string lookup procedure.

- Some of the user interface layout fallback routines could kick in too late, i.e. after the window was already open.

- The transfer performance window now opens on the same screen the transfer window opens.

- The "Duplex" switch in the serial settings now reads "Local echo".

- 'term' could still crash upon exit, this should be fixed now.

- Had to return to using a smart refresh phonebook window due to massive window refresh problems, sorry Russ :(

- 'term' should now be more robust when getting run from Workbench. It properly cleans up after itself when exiting and before the big initialization is done makes sure that enough stack space is around.

- Some settings editors were using vars of the wrong size, this has been fixed.

- After the startup changes I made 'term' could rerun the initial setup procedure, causing the usual kind of nuisance. Also, very rarely it could call the wrong cleanup procedure when run from Shell.

- 'term' no longer forces the Workbench screen or the default public screen to stay open while it is running using a custom screen [Brad Harder].

- Added a configurable delay for the "Wait..." command [Russell LeBar].

- The popup gadget now places a checkmark in front of the currently active entry, i.e. the entry that was displayed before you hit the gadget and the popup menu was opened. Also, the popup layout code no longer forces the menu to come up with the last active entry below the mouse.

- The phonebook access password entry no longer consists of two string requester popping up after one another, and hitting return in the first meaning "clear the current password". There is a proper interface for this purpose now with two string gadgets to enter and to repeat the new password (for safety reasons), plus a button to clear the current password.

- In the phonebook, 'term' no longer complains if the default translation/cursor/etc. file cannot be found when you first edit the settings of an entry.

- When copying entries in the phonebook, each new entry gets a tag "copy of ..." prepended so you can tell the original and the copies easier apart.

- Made the dial window smart refresh again. Popping it to the front did not refresh it.

- The single character entry window now uses the current terminal font. Should I make this a configurable feature?

- Finally got the status line layout right, the space left and right of the display boxes should be the same now.

- 'term' could miss window size changes, the IDCMP_SIZEVERIFY flag got enabled only for the fixed-size window, not for the one with the size gadget. Silly me...

- 'term' no longer crashes violently if gtlayout.library does not open.

- When opening its window on a public screen, 'term' now opens it as a visitor window.

- In the capture settings, the review buffer settings are now on the last tab page [Russell LeBar].

- Made the wait command text entry field a bit wider [Russell LeBar].

- The wait command implementation is a bit smarter now. The command is now sent (a) before the event loop is entered, (b) reliably every n seconds as specified in the misc prefs and (c) when you close the requester [Russell LeBar].

- Changed the order in which the tabs are drawn by the user interface support library. This has the benefit that the beginnings of the labels on overlapping tabs are shown rather than the endings [David Göhler].

- The "Wait" feature now listens to the serial port and processes incoming data while the wait loop is running [Russell LeBar].

- Shortened the transfer panel labels even further, I also merged the two top groups into a single group. I separated the gauge displays from the two vertical text displays and put them back into the bottom region of the window, just like in the old v2.4 version :) [Chris Hanson].

- As an experiment, I put all the xpr, transfer and serial code of 'term' v4.4 into this beta release and also turned off the compiler register parameter passing option. Please tell me if this makes things better or worse. Some users still reported problems with downloads, in particular small ISDN transfers would cause big trouble.

- Added new dial modes (tone, pulse, modem, ISDN) in support of the ZyXEL 2864ID model [Christoph Lückel].

- In popup menus, a bullet is used in place of the checkmark. This is more consistent, as the menu choices are mutual-exclusive anyway [Russell LeBar].

- The user interface layout library now does a binary search when looking up gadgets in its internal database. It used to do a straight linear search which could really cost time. This approach should be much better. Should be. Comments welcome.

- The script recording code needed to treat leading, trailing and single spaces and double quotes differently. The old implementation just dumped the entire string, which could cause the spaces to get lost and the double quotes to confuse the parser. It now expands those spaces into *32 and the double quotes into *34 [Salvatore V. Barrera].

- The new and improved "Wait" code was busy-waiting, a loop flag was not getting reset [Russell LeBar].

- In the "Wait" loop, 'term' no longer processes ARexx commands, it ignores and rejects them. Getting the ARexx processing to work correctly would be too hairy.

- Tabs as supported by the user interface support library are now drawn right to left again.

- Removed the entire transfer performance meter code.

- Recompiled 'term' with register parameters.

- Made the XEM interface more robust and also managed to save some code on the way.

- Recent changes made the close gadget of the single char entry window unusable. Fixed.

- The menu layout code now accounts for very wide submenu items, such as may appear in the dial menu [Russell LeBar].

- The key macro settings editor did not restore the original settings when hitting the Cancel button.

- The area code settings editor did not properly dispose of the code list when hitting the Clear button.

- All the 'special' settings editors (character translation, key macros, cursor keys, hotkeys, speech, sound, area codes, traps) now follow a common interface model. They all sport a Discard button now which, if hit, will cause the configuration they belong to to drop the settings. This solves the problem of picking a settings file and not being able to ever get rid of it again.

- The XPR transfer window creation code is now much smarter when deciding whether to activate the window or not.

- Went through another great renaming. The configuration files 'term' will read by default now must be using the following names:

  Now Old —————————— —————————— phonebook.prefs term_phonebook.iff hotkeys.prefs term_hotkeys.iff speech.prefs term_speech.iff fastmacros.prefs term_fastmacros.iff functionkeys.prefs term_macros.iff macros.prefs

  The old naming conventions were obsolete anyway, but 'term' used to support these names in previous releases. I just removed all the code which was concerned with providing name backwards compatibility. You will need to rename these files yourself or make copies of the files under the new names.

- Just like with every other 'term' release I noticed that the tool and script launching code was broken and started to rewrite the whole damn thing again. This time I really have reason to

believe that I got it right. I also removed the 1.2 style kludge code to fix console task and output streams.

- As usual, the ARexx commands GETATTR and SETATTR were broken to a certain degree. Chances are good I fixed them this time. The translationprefs.x.send and translationprefs.x.receive items now also return much more sensible data.

- At the very last minute and at really great expense, this very 'term' release now supports fractional costs when doing phone rate accounting. Um, take care, this feature made it necessary to change the rates file format, it's not backwards compatible. Happy New Year :)

- Rearranged rates settings edit controls. This arrangement should be more logical than the old one. I also fixed a few all-time nuisances, such as most of the control deactivating themselves when you least expect them to.

- The area code panel now finally sports a "Copy" button. I also fixed the case in which either pattern or title could get lost when jumping between list items.

- The "lost string gadget contents" problem could also show up with the trap editor, the fast macro editor and the phonebook, so I added extra code to take care of that.

- The setup code lost the locations of phonebook, fast macros, function keys, etc. and always assumed it was safe to look into term:config. This was a bug which affected the entire setup code. Fixed. [Martin Berndt].

- You can now assign a specific title to the terminal window if it opens on a public screen.

- Changed the phone rate format again. Now even the time per unit can be a fractional value. This is how it was originally supposed to be.

- Small fixes to the user interface support library. The most prominent feature affected is the password entry gadget; previously, you had to hit return in order to make 'term' accept whatever you had entered.

- Big changes to support proper phone rate accouting. All the old code is gone and has been replaced by an all new accounting task. Hey, it even appears to work correctly.

- Whilst hacking at the accounting code I also rewrote the online state tracking and update code. I'll be mighty suprised if it works...

- Changed the way 'term' creates its own command search path when getting launched from Workbench. The current implementation should be much more compatible than the old way used to be. This should fix the odd "Execute command" and ARexx script launch crashes.

- Updated the terminal window resizing code; it now takes the status line into account and updates the window contents as soon as possible.

- The new switch "Auto-adapt window size" in the terminal settings should simplify setting the number of columns and rows the terminal window uses. Previously, in order to make the window size affect the number of terminal columns and rows you had to set the columns/rows sliders to "Max.". Now you just have to enable the switch.

- Fixed an Enforcer hit in the menu creation code.

- Tried to make the phonebook copy & add code more robust. Still, something is not right here...

Changes introduced with v4.5:

- Added a bunch of new OwnDevUnit options:

  'Do not use if device is in shared mode'

  > This used to be the default in v4.4. I've had a few good ideas in my life, this wasn't one of them. Now it's a configurable option [Andreas Kirchwitz].

  'Release device when online'

  > The default behaviour used to be not to let go of the device if you are still online. But perhaps this is just what you want. Now you can.

  'Release device when dialing'

  > If your uucp netcall catches you off guard while 'term' is still dialing and not getting anywhere, this switch will tell 'term' to let go of the device driver. Please note that 'term' will not start to redial when the device becomes available again.

- The OwnDevUnit choices are now radio buttons rather than one wide cycle gadget [Chris Hanson].

- The character conversion tables now show the numeric codes of the characters in several flavours (binary, octal, hex, you name it) [Chris Hanson].

- The text buffer screen now gets the colours right even if it opens in 32K/64K/16M colours [Frank Mariak].

- The "RTS/CTS (DSR)" handshaking mode now causes the device to be opened with RTS/CTS handshaking enabled before the DSR signal is checked. As it turns out, it didn't work the other way round.

- Major new addition: for easy debugging and the shocking good looks of it, there is a new window to enter single characters graphically. It's called "Single character entry" and sports a button for every ISO-8859-1 character on this world. Click on the character you want (yes, there's a neat BOOPSI gadget behind it) to get it sent [Chris Hanson].

- The XPR interface now uses a different approach to read data from the serial line. The overhead involved is much lower than in all previous 'term' releases.

- The dialer sent the modem exit commands on very rare occasions only, it now does it consistently.

- Lots of minor changes in the user interface code.

- The single character entry window came out black on black in 16 colour mode [Frank Dürring].

- While I was updating the single character entry window I added a code display. While you pick the character its code appears in decimal, hexadecimal, octal and binary in the window title bar.

- The "SEND LITERAL" ARexx command now works as it should [Maxwell Daymon].

- The windows menu now gets properly updated after the main screen/window is closed and reopened.

- Freezing the buffer via the capture settings and saving them as your default settings never caused 'term' to start up with the buffer frozen, it now does [Geoff Seeley].

- There are now two different ways of getting data into the capture buffer. The old way of doing things (data flow) and a special procedure that stores all the data that gets scrolled or erased from the screen (review). The latter is more faithful to the general concept of a review buffer, but the catch is that you won't see the current contents of the main window. Not all the hooks & lines are in there yet, for example erasing characters in a single line is something the buffer does not track. The code is already in there, but it's commented out. Please let me know if you need it.

- Another addition to the modem settings: if your phonebook entries don't use special modem configurations (in other words, they use the main modem configuration) and you have some modem initialization and cleanup commands in the main modem configuration you do not want the modem to receive while it is dialing, you can now tell 'term' not to send them.

- Mucked around some more with the character raster code that backs cut & paste in the main window. Some optimizations in the code, responsible for clearing the screen when scrolling or erasing text, were not that reliable.

- The dialer was releasing the device driver by request of the OwnDevUnit.library even if it had been configured not to yield it. Even worse, the dialer did not pay attention to whether it should release the device on request while dialing or not [Andreas Kirchwitz].

- Another one bites the dust: the text cut & paste feature supported by the main window no longer gets the terminal emulation into trouble when double-clicking on a word while there is still text selected [Andreas Kirchwitz].

- The transfer panel now finds resident commands given for the external transfer protocol programs to invoke [Andreas Wolff].

- The transfer menu no longer gets ghosted if the default protocol is not an XPR library but an external transfer protocol [Andreas Wolff].

- The 'Upload' buttons found in the upload queue window now cause the current transfer queue to be sent even if it consists of only a single file [Andreas Wolff].

- Changing the default transfer protocol from xpr library to external program can no longer bring the machine down.

- 'term' no longer bangs its head if you accidentally pick an external transfer program and leave the type of transfer protocol set to "XPR library". It now manages to display the error requester without crashing or trashing its own stack [Sven Reger].

- The 'improved' XPR serial I/O code was pulling far too much CPU time. Bob Maple reported about 45%, on my setup it was about 25% which I thought was pretty normal. I went back to

the old code and streamlined it a bit, it's now down to about 5%, so the 25% were not that normal after all [Bob Maple].

- 'term' no longer tells you that the function keys, translation tables, cursor keys or hotkeys have been changed on exit if this is not really the case [John Yeung].

- The translation table editor lost the "Cancel" gadget, there really was no code backing it and thus Use and Cancel always got the same treatment.

- Finally fixed the "No DSR signal detected" problem. I promise.

- The modem dialing prefs now sport two new options which will hopefully simplify dialing through a local PBX. The "PBX dial command" will get inserted between dial prefix and phone number if the "Use PBX dial command" switch is enabled. By default the PBX dial command is set to "0,,," which will first send a 0 to dial out, then wait about six seconds (each comma tells the modem to wait a certain number of seconds; exactly how many seconds to wait can be configured through a modem register, on the ZyXEL U-1496 this is register S8 which is by default set to 2) before starting to dial the 'real' phone number.

- Renamed "Verbose dialing" (silly name) to "Show modem responses".

- Another rogue attempt at improving data throughput in the XPR sread routine. I'm wondering if this has any positive effects, or as usual does not work as reliably as it really should.

- Caught some more cases in which the return code of ModifyIDCMP() was plainly ignored. Now all of them are covered.

- The transfer performance window now gets properly backfilled, especially if the window opens on a 16 colour screen under Kickstart 3.x.

- The Fast! macro window now always opens in a useable state. This was not always the case in previous releases if the main window had the wait pointer set while the new window was about to get opened [Andreas Wolff].

- Put the old code back into xpr_sread. Somehow none of my attempts to improve things in this area seem to bear any fruit [Martin Berndt].

- Fixed the delete line ("Esc [<n> L") and insert line ("Esc [<n> M") commands which were really broken in one special case, which is if more lines were to be deleted/inserted than the current scrolling region would hold. This code never worked in all previous 'term' releases (it would clear the entire screen, not just the part covered by the scrolling region), but this time it really crashed [Andreas Kirchwitz].

- Unified review buffer and text buffer. Both services now share the same code and more or less the same features. This has its drawbacks and advantages. I really don't want to return to the old console.device style review buffer implementation, so you better get used to the new way of doing things ;)

- Changed the layout of the translation panel buttons [Stellan Klebom].

- When using an external transfer protocol program, prefixing the program name with "run" no longer causes the name of the transfer protocol to be reported as "Run". The "run" command is now skipped, hopefully causing the name of the program to be executed to show up.

- The transfer configuration now by default gets the standard Hydra invocation commands copied into the binary protocol entries.

- Changing the default transfer protocol to an external program did not always cause an immediate update of the status line, it does now.

- Better ARexx script recognition within the transfer settings control panel. Previously, in order to have ARexx scripts recognized they had to have their executable file protection bits cleared.

- Changed the way the default buttons look like. Now, what do you think?

- Removed some historic rubble from the screen settings editor which caused screen display modes to be sorted out that would offer less than 640 columns in their default resolution [Russ LeBar].

- Shuffled the controls in the serial and modem settings editor a bit [Russ LeBar].

- New sort algorithm for phonebook and friends.

- All new phonebook. This change is massive and most likely to attract the usual kind of trouble. No documentation exists for this new part of the program yet, sorry. I haven't decided yet how to implement certain features, such as what the checkbox next to the "Rates" settings will do.

- Fixed another load of bugs in the user interface support library.

- If the single character entry window fails to open, the checkmark near the menu item gets cleared.

- The phonebook now uses the brand new popup gadgets.

- Reassigned some keys in the phonebook [Russ LeBar].

- Brought back the v4.3 style xpr_sread routine. Please give this a test and tell me if file transfer reliability improves.

- The phonebook window will no longer expand to display 20 lines of text if there are less than these few entries in the phonebook list [Chris Hanson].

- The phonebook window will grow in the horizontal direction to make more room for the single phonebook entries [Andreas Kirchwitz].

- Just for fun, added support for VT52 escape sequences. Except for "<ESC>^" and "<ESC>_" all should be properly implemented.

- Duplicating an entry in the phonebook would discard special item tracking information in the new entry created, this has been fixed.

- When saving a phonebook file, the currently highlighted group will be saved along with it. The next time the file is loaded, this very group will appear in the listview as the active group again.

- 'term' now reads the system screenmode, serial and font preferences to establish its power-up defaults.

- The "RECEIVEFILE" ARexx command never paid any attention to the file name you could optionally provide, now it does [Stefan Falke].

- If the serial device driver is released on request by OwnDevUnit.library you now get the choice to return to 'term', to iconify 'term' and to quit the program [Christian Hechelmann].

- New options for the phonebook: you can now define which phonebook entries should go into an auto-dial list which 'term' will start dialing right after startup. In addition to that, you can also tell 'term' to keep redialing each entry in the list until it hits the last entry, which will cause it to exit. In order to stop this, either hit cancel in the dialing window, or turn off the "auto exit" feature in the phonebook/clear the dialing list. Last but not least there are new command line options/tooltypes to select a particular phonebook file to use and to turn on the auto dial and auto exit features even if the phonebook was saved without having these enabled [Don Schmelling].

- The emulation settings now allow you to select how 'term' responds to device attributes and identify commands. The options include VT200 (the default), VT102, VT101 and VT100. This option does in no way affect how the terminal emulation operates, i.e. if you switch to VT100 'term' won't ignore VT220 commands. Only the responses are affected [Rich Jesse].

- Phonebook loading severly broken when using file prefs, fixed now [Martin Berndt].

- With the phonebook file format changes the XPR library name was left blank. This in turn caused an unsigned counter variable to flip, and 'term' enventually started to spin into the void... Fixed.

- Changed the look of default buttons again. They are no longer quite that bold, but now the label text is.

- Creating a new group now also updates the group label.

- Page #3 of the emulation settings was missing, it's back again now.

- Changed the layout of the phonebook buttons again [Chris Hanson].

- Moved the phonebook sort options into a separate control panel [Russell LeBar].

- Added memory allocation debugging code. To enable it, do the following:

  setenv termprealloc <byte count> setenv termpostalloc <byte count>

  For <byte count> insert the number of bytes to put before and behind all memory allocations 'term' makes. The numbers will be rounded to multiples of 16. Please note that if you don't choose a prealloc value, the debugging code won't kick in. If you omit the termpostalloc but specify a prealloc value, 'term' will use a default of 16 bytes as the postalloc value. To make things more interesting, once you've enabled the debugging code 'term' will fill all its memory chunks not allocated with MEMF_CLEAR with $DEADBEEF. When using the debugging code, please run SegTracker and Sushi (preferably with a 128K buffer) in the background and capture its output to a file. Oh, by the way, 'term' will also remember the largest and smallest allocation made. I plan to add texture mapping to the spheres in the future.

- Implemented DECANM and VT52 "Enter ANSI mode" commands. Both the VT52 and the VT220 emulation use the "<ESC>H" command for different purposes. The implementation now honors the mode in which the emulation operates [Andreas Kirchwitz].

- 'term' no longer forgets about the location of the cursor key, translation, etc. files and assumes that they are to be found in the default locations [Andreas Kirchwitz].

- Added a new raw file capture mode, so one can make verbatim file captures without having to go through the capture settings and locate the right switch.

- Phonebook entries tagged to go into the quickdial menu which are placed in groups now appear in submenus of the quickdial menu. If all the entries come from just one single group, however, no submenus will be created.

- Fixed some more bugs in the popup and menu layout code.

- You can now rename groups by tagging all members of the group and clicking the "Make group" button. In the requester to pop up, enter the new name of the group [Russell LeBar].

- The text buffer display code crashed under v2.04. After chasing it for three hours it finally surfaced in the scrollbar creation code. Thanks go to Peter Banville for being so persistant :)

- The XPR init code was throwing the wrong library names in case the setup went wrong. Fixed.

- In the phonebook, clicking on the "rates" settings checkbox now does something sensible. If the button gets ticked, it will receive default rates settings. If the checkmark is cleared, all the rates settings associated with it will get zapped.

- "Dial" is now the default button for the phonebook user interface, I also edited some phonebook gadget labels a bit [Chris Hanson].

- The phonebook window title now keeps track of the number of phonebook entries and those which are tagged [Andreas Kirchwitz].

- The "Select by pattern" code had the selection mode reversed, i.e. "tag matching entries" would untag entries, even if they weren't tagged – with all the usual consequences (can you say "BANG"?).

- Sorting single groups would trash large amounts of memory (Russ was right), as the array to be sorted would hold only a single entry, a memory allocation of the wrong size took place.

- The editing window now responds to the cursor left/right keys, hold down any shift key to move to the beginning or the end of the list.

- "Sort" is now the default button for the phonebook sort panel, this used to be "Sort+Close".

- Rebuilding the main menu did not protect itself well enough against changes in the quick dial menu area, which could cause lots of Enforcer hits and worse.

- The menu builder would depend on the order of phonebook entries to go into groups. It no longer does, I also removed the limitation of the maximum number entries to go into the quick dial menu. Watch out, if 'term' runs out of space it will fall back to the default menu layout without telling you what went wrong.

- The phonebook entry edit window now sports a "Hide" checkbox which is by default checked. If checked, the window won't display or let you edit the user name and password [Russell LeBar].

- Cleared out a lot of dead code, this cut the program size a bit.

- In sixteen colour mode the default text rendering colour is now colour #7, this used to be #15 (i.e. #7 with highlighting). This makes colouring more consistent with the ANSI specs and avoids silly "white on white" rendering.

- 'term' now requires gtlayout.library v24 to run, so make sure you have it installed.

- Replaced all cycle gadgets that were acting as page selectors by the new tab gadgets. I'm still not entirely happy with the visual design of these, point & click is also a bit difficult if the tabs are overlapping one another. The [Tab] key still moves you through the single pages, plus there is a new feature known as "strumming", i.e. you can hold down the mouse button and drag the pointer across all tab tags to see which choices are available. The tags will appear to be plucked out a bit while you review them. When you let go of the mouse button the tag you are currently viewing will become the active tag and the page will be rebuilt. FYI, the tab gadgets will eat a lot of chip memory, please keep an eye on this and let me know if this is a problem for you.

- At the end of an upload through the built-in ASCII transfer routines 'term' would invoke the download macro [Mirko Lukas].

- Flipping through groups in the phonebook did not update the "current" entry counter, in fact the code was forgetting about it but did not show this in the user interface.

- No longer uses buffered I/O when talking to the printer device.

- Shuffled the buttons in the phonebook window again [Russell LeBar].

- The tab key wasn't flipping pages properly in the transfer protocol editor panel [Russell LeBar]. The same was true for the internal ASCII send/receive setup panel.

- More label and menu changes to support the tab gadgets [Russell LeBar].

- Small visual changes to the tab gadget tags; there are now fine separators lines around the edges.

- Added a shortcut to the emulation settings to make the emulation BBS-ANSI compliant. Just hit the checkbox to have the relevant options updated. It ought to update the terminal options as well, as a typical BBS-ANSI display measures 80x25 characters and most likely uses the IBM PC style font. However, it doesn't since this goes beyond the scope of this settings editor.

- The menu layout code did not handle submenu items properly that would end up at the end of the menu list and would need to be shifted around in order to avoid having their hit boxes hang over the right screen border. This was tough to fix and even tougher to find in the first place...

- Finally (!) caught the not-quite-that-rare-but-still-very-surprising case in which the font sensitive layout gadget procedure within gtlayout.library would loop forever without getting anywhere. This was happening frequently when using topaz/8 as the user interface font and with screen resolutions that did not support overscan. Note that 'term' will try to open a screen in the right size, but if the requested screen size is unavailable, it may decide to open the window anyway, even if this causes gadgets to hang over the window borders. Much better than not opening the window at all, or what do you think?

- The tapedeck control button images now have a minimum size limit, so they look proper on low resolution displays.

- The single menu strips are once again placed closer together. A total of two pixels in between neighbouring strips is used.

- Fixed the other control sequence that was used both by the VT220 emulation and the VT52 code ("<ESC> D") [Matthias Scheler].

- Caught a very rare bug in the phonebook. If no phonebook file was loaded, and if you were loading a new phonebook file to include groups, using a special default group, 'term' did not get the group display and the phonebook list right. Hitting any entry would invariably cause two more or less harmless Enforcer hits.

- The screen displaymode picker revisited. I killed the filter, but the minimum size tags remained.

- The commands to change the text size (DECHDL through DECDWL) could enable the text cursor too early, which would leave ugly artifacts on the screen. This would rarely happen in real life as the speed at which data had to be fed into the emulation was far beyond 100,000 chars/second to make the bug manifest itself.

- Alas, more changes. This time I combed the screen settings editor for dead code and indeed found a lot, plus certain routines I must have written while I apparently was not fully conscious. The editor frequently cancelled the wrong pages, did not update the colour palette when switching colour modes and moved in utterly strange and mysterious ways when trying to determine whether the user should be allowed to change the colour palette. In a nutshell, your basic waste of code, time & reliability.

- Minor changes to the serial and terminal settings editors.

- Part of the list management was badly broken, this affected in particular the upload list handling (the ARexx upload list, not the upload queue that has its own window). I'm not absolutely certain, but after going through the code for more than three hours I am no longer able to get the machine to crash through the ARexx "SENDFILE" command. It appears that the bug is fixed. Could you give this a try, Chris?

- Caught some more cases in which list and node management routines could corrupt memory.

- The ARexx "SENDFILE" command was sending the upload macro twice on exit.

- Some text buffers handed over to dos.library in order to retrieve file names were not quite as long as 'term' told dos they were. This could cause the usual kind of trouble, but only with very long file names.

- The dialer did not update its OwnDevUnit watcher status when the serial device driver or the ODU options were changed.

- Untag/tag by pattern was still broken, leading to weird select states in the phonebook.

- Swapped the "Use" and "Copy" buttons in the phonebook [Chris Hanson].

- Made the left button row of the phonebook a little smaller by changing the "Exit when finished" checkbox label to "Auto exit". Not that elegant and doesn't even avoid that the phonebook

comes up on its own screen with a 640x200 sized display, but at least there is no longer so much of the window hidden from view. The only way to make the window a bit smaller would be to rename "Pattern..." to "Select..." or something, but I cannot do this anymore as the catalogs have been sent to the translators already :(

- The checksumming code did not hit a nul-character, causing the startup to take much longer than necessary. It could also cause 'term' to crash upon startup for no apparent reason.

- Finally (!) managed to fit the phonebook on a 640x200 sized screen. The button size precalculation was using the wrong button data. It did not take the modifications of the phonebook button arrangement into account that took place in the previous betas.

- Squeezed a few more bytes out of the user interface support library code.

- Fixed non-reentrancy problem with the user interface support library.

- Gave 'term' a test on an old A500plus. It runs on an 68k Amiga with 2 MBytes of main memory, but not very comfortably.

- The grouping window in the phonebook did not always close when it had better closed down. Now it does.

- Removed the font scale button from the emulation setings which came back when I restored page #3.

Changes introduced with v4.4:

- Threw out the optimized scrolling code. It could slow things down on slow computers and wasn't working particularly well either.

- Removed the code that did the jump scrolling by taking a look at how many line feeds were received in one go. This could slow things down and interfere with on-screen rendering, such as with on-line games like "Perihelion".

- Now uses gtlayout.library v13 to layout the menus; now many more menu items and menus fit onto small screens.

- Screens and windows now open large enough for the status line display to fit.

- Put the optimized scrolling code back in. It should now be able to behave itself in an orderly fashion.

- The screen saving/printing code is now smart enough not to include the status line in the bitmap that it is going to be output.

- The phonebook now uses a fixed-width font when running under Kickstart 2.04.

- The status line display boxes are a bit wider now, so hopefully no data will be cut off any more.

- Simplified the jump scrolling code a bit, eliminating another level of data filtering. This should remove the odd slowdown that would occur when the modem delivered a large chunk of data.

- Changed the way the download procedure queries how much space is still left on the destination filing system. This time it should get it right.

- Fixed a weird memory alignment problem in the double-buffered file handling code.

- Saving/loading the fast macro settings is now properly remembered, so 'term' will no longer tell you that the settings have been changed upon exit unless they have really been changed and not saved to disk yet.

- In the paged settings editors for screen, terminal and capture prefs the displays for screen mode and font no longer auto expand with their contents.

- Insert mode now works properly again [Andreas Kirchwitz].

- Fixed an Enforcer hit in the emulation settings when called from the phonebook [Matthias Scheler].

- Fixed locale string lookup bug in file identification code, also added PNG file signature.

- 'term' no longer refuses to dial out if the modem is still online and the 'protective mode' is enabled. In this case, a requester will pop up and ask you if you want to hang up the line before dialing out.

- Small fixes for deep CyberGfx screens (15 bits and up).

- The check to see if the serial device driver you picked from the list did really exist was looking at the wrong buffer.

- The dialer checked for modem errors, but the scanner responsible for catching the modem message never actually passed this information to the dialer.

- Changed the machine readable version number string; it now includes information to explain for which type of machine the program was compiled.

- Added new "Direct connection" option to the serial settings. If enabled, this switch suppresses RTS/CTS warnings and disables the carrier check. This is useful for direct nullmodem connections and for using the Amiga as a dumb terminal.

- Moved the "Alert" switch from the terminal settings to the miscellaneous settings. This made it necessary to bump the program revision number to v4.4.

- You can now configure the opening size and position of the standard asl requesters (file, font, display mode) in the misc settings. Just select the positioning mode you want (centered or placed relative to the top left corner of the main window) and click on the "Edit..." button. A file requester window will open. Drag it to the position you want and change its size if necessary, then click on "Use". 'term' will keep position and size as default values for the requesters to open.

- Rearranged some settings editors, made some room between neighbouring radio buttons and checkboxes, added 'Tab' key support to some editors which were missing this feature.

- The notorious screen cloning feature did not work in previous releases, in fact gtlayout.library was broken in many ways and badly needed updating [Klaus Dürr].

- Added LZX archive file type.

- Sorry, no speedbar in this release, I just currently don't have the time to do it :(

- Added another character send delay option, this time to the modem settings. Some weird east-asian built v.34 compliant modems will happily operate at 57600 BPS, but get into real trouble when receiving plain modem dialing and initialization commands. The characters come in just too fast. A little delay between the characters being sent may help.

- The 'about' window now sports scrolling credits.

- The phonebook will no longer load empty configuration items (key macros, fast macros, etc.) to edit if the names of the files are not given.

- Due to a bunch of internal changes in order to support scaled characters in more consistent fashion, the option to select half-width characters was removed from the emulation settings. Cut & paste with non-normal sized characters still does not work properly on the screen.

- Redid the logic for the RTS/CTS (DSR check) handshaking mode. 'term' now opens the serial device driver with RTS/CTS handshaking disabled, checks the DSR signal and then if necessary closes the device driver and reopens it with RTS/CTS handshaking enabled.

- 'term' no longer locks the serial device driver for exclusive access through OwnDevUnit.library when told to open the driver in shared mode.

- Loading the configuration and then choosing "Save configuration" from the main menu will save the current settings under the name of the configuration file loaded last.

- The cursor key control panel now sports a "Default" button.

Changes introduced with v4.3:

- Fixed an Enforcer hit in the code that would open the file transfer window in case of error.

- Colour palettes are now 24 bits wide (in reality even 96 bits, but the user interface does not support this precision).

- Added support code for AmigaUW terminal window resizing.

- Fixed another bug in gtlayout.library which would cause trouble with palette editor gadgets using only two colours.

- Fixed another Enforcer hit in the XEM settings editor.

- Updated the screen settings editor. It no longer displays options that cannot be changed.

- The "Dial number" function would use the wrong temporary buffer when prompting to enter the number to dial.

- Opening the status window no longer causes crashes. It was the call to DateStamp() and DateToStr() which caused the Task to handle the status window to crash. It's a process now.

- Cut & paste while the chat line is active now works properly.

- The chat line is now unavailable if an external terminal emulation is active.

- The dialing menu items now get properly disabled if the program starts up in online state.

- Made the only (!) call in gtlayout.library which could cause AmigaDOS to be called an option for Processes only. It will no longer crash when called by a Task.

- When running under Kickstart 2.04, the screen overscan mode is by default set to the text overscan size.

- The built-in ASCII transfer windows now also get size- adjusted in order to avoid overlapping the status line.

- Added a startup notice to explain that *this* really is a beta test release.

- The program now consists only of load hunks smaller than 100000 bytes each. This should make it possible to load the program even if the system memory is greatly fragmented.

- Finally discovered why the rate panel editor would swallow the first cost entry. Turning off the SAS/C global optimizer did the trick.

- The chat line text could become unreadable with some text pen choices. According to the BOOPSI documentation my original code was correct, but I discovered that the ROM code actually expects a different data format.

- The colour palette management code would not work properly under Kickstart 2.04.

- Fixed three long standing bugs in the terminal emulation code. If a command would erase/clear more lines/characters than the screen would hold memory trashing was not to be avoided. This has been fixed.

- An uninitialized variable in the colour palette setup code could cause real trouble, crashing the machine almost instantly.

- The review buffer process did not protect itself against sudden removal, leading to crashes after the review window was closed.

- The "READ CR" ARexx command now does again what it should do.

- The code that would cause Enforcer hits within rexxsyslib.library was rewritten to use a different technique to tell free messages and Rexx messages apart.

- The AmigaUW TTY resizing code would crash the machine if the serial device was unavailable. This would happen for example if the serial device driver did not open upon startup.

- The dialing window now displays which dial list entry will be dialed next when in redial delay mode.

- 'term' now properly allocates its work bitmaps when running under Kickstart 3.x, previously it would occasionally fall back to constructing bitmaps on its own which could cause speed penalties.

- Another one bites the dust. Found a really long standing bug in the double-buffered file routines. Can you say buffer trashing, memory losses, crashes? The code used to be very vulnerable to memory shortages. I fixed this and also threw in some extra code to make the buffers quad-longword aligned to help '040 systems with DMA hard disk controllers.

- There is now a bit of new code in the program which opens gtlayout.library. If there still is an old library release in memory it gets flushed first, then the library is reopened. This has the effect of forcing the library to get reloaded from disk.

- Even more changes to the terminal emulation code; previous releases always ignored the current background colour when clearing lines, the screens or moving text around. This has been fixed. Some code also did BitMap peeking which is strictly speaking not allowed. When using fonts with an odd height smooth scrolling could leave pixel trash behind. Some routines, notably those responsible for scrolling and erasing display text, never made sure that the area to scroll/erase was within valid bounds. As the low-level routines always counted upon this data to be correct nasty crashes could result. Some of the new code is far from being highly efficient, but should be much more robust than the old routines. Anyway, those folks looking for a high-speed terminal emulation probably have already chosen a different program.

- The screen settings editor would occasionally assign the wrong colour palette to phone book entry configurations. This has been fixed.

- The routine to reset the text colours to something readable did not take the new emulation pen settings into account. This has been fixed.

- To aid debugging, there is a new switch in the modem settings which tells the dialer to echo commands sent to the modem and to show the modem responses.

- Added another switch to the misc. settings editor. You can now disable those annoying "File ... already exists, do you want to replace it?" requesters.

- Major revamp of the file transfer settings editor. First off, it's no longer that tall. The "Page" cycle gadget cycles through all the individual entries. As there are: the default protocol, the ASCII transfer settings, the text transfer settings and the binary transfer settings. For each protocol you will find another cycle gadget, a text entry field and a big, friendly button labeled "Edit settings...". The cycle gadgets will let you choose between 2..4 possible settings for each protocol. "XPR library" uses the good old XPR interface, the text entry field holds the name of the library to use. "Internal" uses the built-in code. "Default" uses the default protocol. "External program" selects an external program to handle the file transfer, the text entry field holds the name of the program and possible program parameters. If using the "External program" mode clicking on the downward pointing 'select' button will bring up another editor. Here you can choose the program to use and you can edit the command line options it should use. Pressing a button will append the corresponding escape sequence:

'1 File (= %f)'

Inserts a single file name when the program is executed. A file requester will pop up if necessary.

> *NOTE: Case matters; %f inserts the file name along with its complete path %F inserts the plain file name only, omitting the path.*

`'Files (= %m)'`

> Inserts a list of file names when the program is executed. A file requester will pop up if necessary.
>
> *NOTE: Case matters; %m inserts the file names along with their complete paths, %M inserts the plain file names only, omitting their paths.*

`'Port (= %p)'`

> Inserts the ARexx port name 'term' is currently using. Very useful in conjunction with HydraCom.

`'Device (= %d)'`

> Inserts the name of the serial device driver 'term' is currently using. This comes in handy with external programs which permit sharing a device driver with other programs.

`'Unit (= %u)'`

> Inserts the serial device driver unit number 'term' is currently using. This comes in handy with external programs which permit sharing a device driver with other programs.

`'Source (= %<)'`

> Inserts the name of the upload path for the current transfer mode (ASCII, text, binary).

`'Dest. (= %>)'`

> Inserts the name of the download path for the current transfer mode (ASCII, text, binary).

`'Screen (= %s)'`

> Inserts the name of the public screen 'term' is running on.
>
> *NOTE: May be an empty string.*

`'BPS rate (= %b)'`

> The currently selected transfer speed in bits/second.

`'Connect. rate (= %c)'`

> The transfer speed your modem made the connection with.
>
> *NOTE: this will be the same value as given by %b if the modem is not currently connected.*

The escape sequence %% expands into %, in case you need it. The file transfer functions support the upload list window and the ARexx file transfer list: if %f/%F/%m/%M escape sequences are found in the command line text they will be replaced by the upload list if necessary. Please note that when using an external program no file names will be removed from the ARexx upload list. Here are two examples to get you started:

```
run hydracom device %p speed %b line %c nocarrier rec %> get
```

This will invoke hydracom and start downloading into your download drawer. Put this in to the "Receive" field of your binary transfer settings.

```
run hydracom device %p speed %b line %c nocarrier rec %> send %m
```

This will also invoke hydracom. First you will be asked to select the files to send, then hydracom will transmit them. Put this into the "Send" field of your binary transfer settings.

'term' runs these commands in synchronous fashion, this is why the "run" command is necessary above. Hydracom needs to interface to 'term' while it is running and not currently waiting for the command to complete its task. Aside from the fact that commands are executed in synchronous fashion, they are started just as if you would invoke them using the "Execute AmigaDOS command..." function.

- Fixed a security hole in the review buffer processing code. Previously, the review buffer window could easily lock up when receiving new data.

- Rewrote most of the carrier tracking code. If the carrier is lost during a file transfer 'term' will now properly notice that it is no longer online and run through the usual cleanup procedures.

- More changes to the file transfer settings; for each protocol you use you can now define a specific signature. If 'term' sees this signature in the input data stream it will automatically invoke the protocol in question. The exception is the default protocol which is handled a bit differently. There is no distinction between an upload and a download protocol, since this is how the default protocol works. If the default protocol is an XPR library the library will be open all the time. Whenever the default protocol is invoked, you will be prompted to select the transfer type (text or binary as usual). For auto-activating XPR protocols the signatures will probably be ignored.

  IMPORTANT: If you are using the Z-Modem auto-upload feature you *MUST* invoke the transfer settings and pick the send signature for the default protocol. Click on the select button at the right side of the "Signature" text entry field. From the list that pops up select "Z-Modem" and save your settings back to disk. If you fail to do so, Z-Modem auto-uploads will *NOT* work.

  The signatures are scanned in the following order:

  Default protocol (upload) Default protocol (download) ASCII upload ASCII download Text upload Text download Binary upload Binary download

  This means that if you use the same signature for the Default protocol and the Binary upload then the Default protocol will be invoked.

  For now, there are only three signatures built into the program that can be picked from a list: Z-Modem, Hydra and QuickB. QuickB really is not a true signature since it consists only of the ENQ character. Please note that different built-in signature lists will be presented for the upload and download settings.

For xprzmodem.library it only makes sense to use the upload signature. Starting with v2.0 the library will always filter out the download signature and start the download process all on its own.

Hydra is a bit of a problem as it uses the same signature both for uploads and downloads. Take care; if things don't work as they should it may be better to delete the Hydra signature.

And before I forget to mention it: the signatures are entered in the (hopefully) familiar command sequence syntax, e.g. ^X stands for Control+X and \ stands for the backslash.

- The "\c <Menu name>" control sequence now checks if the menu function it is about to call is enabled.

- Even more changes to the file transfer settings; I moved some data from the misc settings over here. However, this beta version does not move your misc settings values over into the transfer settings. You need to to this manually.

- Renamed "Overwrite warning" to "Protective mode". Now this is what it does: in every situation (overwriting files, clearing the buffer, quitting the program, releasing the serial device driver, choosing a file/drawer/program) 'term' now runs a test to see if either the settings are valid or asks if the user really wants to do what he is about to do (it's not that we don't trust you). Using the "Protective mode" switch you can turn off all those sanity checks.

- Added another two terminal emulation control sequences for "ANSI" compliance.

- The menu "Wait" command requester can now be closed with a single keystroke.

- The program now uses special magic to make sure that all AmigaDOS and ARexx programs started receive proper search paths.

- The button labels "|<", "<", ">" and ">|" have been replaced by proper glyphs.

- The code to build the command line for external transfer protocols did not handle empty strings correctly. It does now.

- The Hydracom example invocation commands listed in the previous section of this document were not correct. If you are using this protocol, please update the command lines as described in the previous section.

- Any requester that shows just a single "Continue" button can now be closed with a single keystroke.

- The status window now properly displays the name of the currently connected BBS.

- Slight changes and enhancements to the user interface code.

- String gadgets are now properly aligned in columns in the path and command settings editors.

- The prescrolling/jump scrolling code now gets 'out of the way' if the background colour is currently nonzero.

- Slightly improved low-memory stability, especially during the initial setup procedure.

- The "You don't have RTS/CTS handshaking enabled..." request now enables RTS/CTS handshaking with DSR checking if the user decides so.

- The emulation pen selection now supports public screens again. Please note that the implementation is not perfect (which was the primary reason for disabling it in v4.2) and may not work properly when using the keyboard to pick the colours, i.e. keystroke activation may produce unexpected results.

- Added new tooltype/shell argument to specify the language the program is to use.

- Some of the settings windows are now resizable. Please tell me if this causes any problems. The code is still a bit weird, for example some window sizes can cause the gadgets to overlap the window borders by one or two pixels.

- Small changes to the user interface code. Fixed the notorious double-click bug.

- The AmigaUW terminal resizing code would get invoked before the internal lines/columns variables were set up properly, causing the display to get messed up. This has been fixed.

- When invoking an external file transfer protocol the program now checks if the file name given refers to an ARexx script (it reads the first 256 characters and looks for the comment that identifies an ARexx script), a plain AmigaDOS script (it takes a look at the script file attribute) and eventually accepts the program name as it is. If a file is identified as being a script file it receives special treatment.

- Added another friendly reminder in case the user has enabled the "Connect auto-baud" switch. Apparently, a lot of users have this switch enabled without really knowing what it does and will get into real trouble when making a connection.

- The chat line now gets activated when invoked via menu.

- When failing to allocate enough colours for the terminal window 'term' now falls back to four colour mode.

- Rewrote the dialer (again). If you press skip/abort it will now do what it should do rather than ignoring your commands. The original serial configuration also gets properly restored if the dialer fails to make a connection. Various nice side effects are included. For example, if in waiting state pressing the abort button immediately exits.

- After finding out that the window resizing code did not work properly in programs derived from the review buffer window handling code I gave the original resizing routine another rewrite.

- The ARexx "SEND" command now sports a new "LITERAL" option. With this option the text to send will be transmitted literally, no embedded command sequences or special characters will be evaluated.

- The chat line text entry field no longer filters control characters, even if you enabled this feature in the IControl system preferences editor.

- The text buffer screen could hang when choosing to clear the buffer contents from the menu. This has been fixed.

- The colour remapping that usually took place only in two colour mode (which tries to avoid mapping the same colour to text background and foreground) now also gets applied in four and eight colour modes. Previously, it would ignore the colour mode the user had chosen and

just take a look at the depth of the screen the program was using. This could cause all kinds of trouble when running on a 256 colour public screen.

- When running on its own public screen with a window border 'term' could crash if there were still visitor windows open on the public screen.

- 'term' now opens screens as large as possible if the screen settings indicate a specific screen size, but the user has no means to change them. In previous program releases you would get whatever was found in the screen settings, even if you didn't have asl.library v38 or higher handy to change the dimensions.

- The xON/xOFF handling code works a bit differently now. If you have the "Internal xON/xOFF handling" switch enabled in the serial settings 'term' will now go into 'holding' state when you press Control+S (= xON). To return to normal operation, press Control+Q (= xOFF). If the "Pass xON/xOFF through" switch is enabled, both xON/xOFF characters will be sent through to the remote, otherwise 'term' will swallow them. The big difference between this handling and the old style of doing things is that 'term' will no longer drop into 'holding' state when receiving an xON character from the remote. The only way to bring 'term' into 'holding' state is by pressing Control+S.

- The chat line now passes control characters and function key macros through to the main program as you type them, i.e. they will not show up in the text you type. The Tab key is special; if pressed, the tab character will be passed through to the main program. If you press Control+I the character will show up in the chat line.

- Added a shortcut to select between pulse dialing and tone dialing. This requires that your dial prefix or suffix command includes the special command sequence \W. This sequence will translate into P for pulse dialing and into T for tone dialing. So in order to take advantage of this feature, you should change your dialing command to ATD\W and select the dialing mode you want. Please note that the dial mode option will be disabled if there is no \W in the dial prefix and dial suffix.

- The default serial and modem setups are a bit different now. As always, the program first tries to read the global system serial settings and converts them if necessary. If RTS/CTS handshaking is enabled, it now enables the RTS/CTS handshaking mode with DSR test in order to avoid lockups. If the serial settings could not be read the default setup now is 19,200 BPS, 8-N-1 and RTS/CTS handshaking with DSR checking. The modem settings no longer include "ATZ\r" as the modem init command, the dial prefix now reads "ATD\W" and the default dial mode is tone dialing.

- The default screen display mode settings are now taken from the default public screen.

- Added another friendly reminder that is displayed whenever you upgrade from an older program release or start the program for the first time. The reminder will be displayed every time you start the program until you save the program settings.

- Pasting the current clipboard contents now optionally converts line feed characters into carriage returns (there is a new option in the clipboard settings for this purpose).

- 'term' used to fake an immediate XPR abort by returning a read error in xpr_sread() in case the user had pressed the abort button. This really should not be necessary, I just rewrote the code to abort the read prematurely and to return whatever came in so far. This implies the hope that the protocol will eventually drop into xpr_chkabort() and find out what's cooking.

- The chat line now gets properly redrawn even if the status line is currently turned off or sitting in a separate window.

- When copying the contents of the screen to the clipboard 'term' now converts alien IBM characters into ISO characters. This is a) required for the IFF FTXT format in which text gets stored in the clipboard and b) no longer causes invalid data to show up in the output stream when pasting the contents of the clipboard. Put another way, in earlier releases the IBM style characters would go unmodified into the buffer. When pasting the clipboard contents, they would then get 'converted' into IBM style characters as 'term' always expected ISO characters to be found in the clipboard (garbage in -> even more garbage out). Nasty, isn't it? Thanks go to Stephen Bowman for telling me about the problem.

- Under some circumstances the text buffer would get the text font width all wrong, causing characters to be left behind when scrolling the page. This has been fixed.

- Cleaned up gtlayout.library for release, window resizing now works a tad better, although the visual effects are not quite that striking. But then perhaps they are striking, which is why they haven't returned to work yet.

- 'term' also takes care of the screen size now when falling back to a usable screen mode. This should cure the notorious "half height screen" problem.

- The cancel button now does what it should do in the date panel and the modem panel.

- Changed the way how colours are assigned to drawing pens if the selected colours cannot be displayed. The previous method only made sure that there is no black text on a black background, the changes now also take care of white text on white background.

- More changes to the XPR abort handling code; the first request to cancel the transmission while xpr_sread() is being executed now properly follows the rules of how to do things (it stops the read request prematurely and gives the protocol a chance to call xpr_chkabort() and to eventually find out what the user wanted). If you hit cancel again it will – as 'term' used to do in previous releases – abort the read request, send a bunch of CAN characters and return with an error. Martin Berndt suggested this.

- I know some of you won't like it, but the following settings editors are now 'paged' to save much space: serial, modem, screen, terminal, emulation, capture and transfer. The nice thing about the new look is that it allows me to save on something else: cryptic abbreviations.

- Discovered some old code left over from prehistoric program releases. The local museum wasn't interested, so I just discarded it. Unfortunately, the total program size did not drop sharply after I did so.

- Whoops, the sound settings editor did not check for 'empty' strings and could tell you that it was unable to locate the file "".

- The picker button of the "Help file" text editing field in the path panel now does what it should do.
- More changes to gtlayout.library, it now respects the window bottom border size gadget and allows the Tab key to be used for cycling through paged settings editors.
- The clipboard and paths settings editors are now paged.
- In paged settings editors, pressing the Tab key cycles through the pages.
- Shortened the english friendly startup reminder message so it fits on NTSC screens.
- When starting up for the first time, 'term' no longer complains about missing DSR signals or notifies the user that RTS/CTS handshaking should be enabled. This is done in order to avoid confusion, the reminders and messages will follow later when the user makes the first changes and saves them to disk.
- The XPR transfer window no longer warns about files not fitting on filing system which look suspiciously like ram disks, i.e. are not clearly identified as block mapped filing systems.

Changes introduced with v4.2:

- Did not set up serial parameter correctly (nasty, those typos!).
- HydraCom could cause 'term' to hang upon startup.
- Increased the width of all the integer gadgets in the rates settings panel.
- Incrementer arrows did not work properly in all settings panels, this was due to a bug in the SAS/C optimizer which caused gtlayout.library to run into trouble.
- When called from the phonebook, the "Standard" button as shown by the translation table settings panel will cause the translation settings to be reset to standard values.
- Text stored in the buffer did not get bit 7 stripped if this feature was enabled in the serial settings.
- New look slider gadgets (requires gtlayout.library v5).
- Numerous bug fixes in the user interface support library.
- Rewrote the text buffer capture routines, there should no longer be extra, unwanted data in the buffer.
- Fixed the overly wide incrementer arrow bug which caused so much trouble in previous releases.
- Reloading the fast macros when making a new connection did not update the fast macro window.
- In the area codes editor, creating a new entry and moving it around no longer leads to unexpected results.
- There was a typo in the source code which prevented the EOL translation settings from getting changed via ARexx.

- For a phonebook entry dialed, the startup and login macros are now executed in sequence rather than in parallel.

- New capture settings options "Convert characters": if enabled along with the capture filter, text stored in the text buffer and the capture file will be converted into proper ISO characters. This effectively discards unprintable IBM font style characters. Note that this option will do nothing if you are using the standard text font rather than the IBM text font. Also keep in mind that this special text filter will always be enabled for printer captures in order to avoid nasty side-effects. The text and review buffers will no longer use the IBM PC style font if this option is in effect.

- In the emulation settings you will find a new switch labeled "Lock wrapping" which will let you lock the current line wrapping mode so that application software and terminal resets will no longer modify it.

- Added another two 'lock' options. Now you can choose to lock the current text colour and the text rendering style. Take care, the 'Reset styles' and 'Reset terminal' options will no longer change colour and style once they are locked.

- Made sure that interleaved screens work properly. They do now. If you still see text scrolled or erased plane by plane you're either hallucinating or you have the PICASSO monitor driver installed which has the systemwide effect of making the operating system ignore requests to use interleaved bitmaps.

  Closer examination has revealed that the interleaved bitmap stuff did not work properly when using Kickstart v2.04. In fact, Kickstart v3.0 is the first operating system release which fully supports interleaved bitmaps for all graphics rendering calls. Previous releases did not take advantage of them, even if set up properly. Sorry folks, you won't be able to use this feature under Kickstart v2.04 any more: I removed the necessary support routines.

- Added pen and text attribute translation. In the emulation settings you will find an option to select nonstandard pens. In this case, these pens refer to the terminal emulation rendering pens and text attributes.

- Tweaked the terminal emulation parser to swallow the Amiga specific commands to turn the cursor on or off (aSCR).

- The device/library selection now also includes ROM-resident modules. At least one multiserial board includes a driver in its ROM rather than on disk. In older releases, this particular driver did not show up in the list, causing users to believe their boards to be damaged.

- Changed the audio channel allocation priority. In previous program releases the channels could be stolen, causing 'term' to hang or crash. Now it's DeliTracker to break down, not 'term' ;-)

- Cloning a phonebook entry did not duplicate the corresponding transfer settings. This has been fixed.

- The serial settings now sport an additional OwnDevUnit control switch. You can now choose to ignore requests to release the serial device driver or to have the device released, causing

'term' to check in intervals of 4 seconds if the device has become available again. The default behaviour (the device driver is released) is still supported.

- There is another sound options, called 'Error sound'. 'term' will play this sound if a certain number of transfer errors have occured. The number of errors to occur can also be set in the transfer settings editor.

- You can now select when the file transfer routines should notify you. You can be notified both at the beginning and the end of the transfer, just at the beginning, just at the end or even never.

- The program no longer reports phone rates after losing a connection if there is no sensible data to report.

- The "WAIT" command did apparently pay attention to the case of characters passed in when scanning the wait list for matching entries. This has been fixed.

- For some strange reasons, the VT100 supplementary graphics character set never got loaded. This has been fixed.

- Rewrote the status line display code (yet again). When running on a custom screen you probably won't see any difference, but: open 'term' on a public screen and watch your system performance. No more deadlocks, no more sluggish mouse movements, no more CPU hogging. The display window is a bit larger, but this hopefully won't be a problem. After all, the window mode is usable now. The old BOOPSI code is gone and will probably never return. The new code is in many ways quite a bit nicer than the old code. For example, it is synchronized with the window size changes. As soon as the terminal adapts itself to the new window size, so does the status line display.

- The review buffer window text rendering colours would also get set to some value when opening the program on a custom screen. It now leaves the text colour untouched in this case.

- The main window position is now saved along with the main settings.

- Finally added the one-line chat text entry field which surely is no replacement for the packet window, but nevertheless I hope at least some folks will find it useful. No split-screen chat yet, sorry.

- The 'dial number' requester now remembers phone numbers between calls.

- The quick dial menu now gets disabled if the modem is online.

- The ASCII transfer menu items no longer get disabled if the internal transfer routines are selected and the XPR ascii transfer lib names are blank.

- Updated the font selection code for text and review buffer displays. The review buffer now runs as a Process, so it can open disk resident fonts if it needs to.

- Fixed a few bugs in the SETATTR ARexx command.

- Auto-expanding control panels, such as the phonebook and the file transfer window no longer obscure the status line display.

- The program now properly pays attention to the number of lines to use for the terminal display. Thanks go to Russ for his persistence ;-)

- In monochrome mode text is no longer printed in inverse video mode.

- The screen settings editor now allows you to change the colour mode even if 'term' is running on a public screen.

Changes introduced with v4.1:

- Fixed an Enforcer hit in gtlayout.library caused by the text gadget handling code.

- If possible child windows are now opened within the bounds of their parent windows.

- Fixed an Enforcer hit caused by the ARexx interface building dialing lists.

- Reordered the parameters of the "ADDITEM" ARexx interface command.

- Rewrote the entire data capturing process. I somewhat opened a can of worms, making it necessary to rewrite the code that handles the translations for the "Receive CR as..." and "Receive LF as..." options as well. Careful please, although I am sure the code works correctly I may have knocked over some china cups.

- Added some more safety catches to the upload queue handling. Using the auto-upload panel with the upload queue could leave you locked out, blocking 'term'. Generally, not a very nice thing to do. Under the same conditions the code will now fall back to presenting the standard file requesters.

- Fixed a bug in the capture panel which could turn up if the editor was invoked from the phonebook.

- Corrected some few typos in the english user interface text.

- Turning off script recording did not reset the program status to 'ready'. This has been fixed.

- Heaven knows why, but v4.0 did not permit changing the screen colours if running in monochrome mode.

- The 'Freeze buffer' menu now properly toggles the state of the capture buffer.

- The terminal settings now take the maximum possible values into account when setting the selection ranges for the number of columns and lines.

- When using a startup script or a startup command the program no longer displays its 'about' window on program startup.

- The ARexx command "GOONLINE" now sets up some more of status variables than it used to do in v4.0.

- Upon startup the carrier signal is checked (provided your serial configuration says that the carrier should be checked) and if it is present the online timer is started.

- Added a bunch more of serial BPS rates. Don't overdo it, a standard Amiga won't go faster than 115K BPS.

- Replaced the serial rate slider with an integer gadget featuring incrementer arrows. Clicking on the arrows will cycle through all standard BPS rates. Note: requires gtlayout.library 1.97 or higher.

- When offline detecting a carrier signal will bring 'term' into online state, provided the 'Check carrier' flag is enabled in the serial settings.

- ^Q now works again.

- The end-of-line character translation scheme was changed into one single unified concept. Both carriage return and line feed characters can now be translated into <cr>, <lf>, <lf><cr>, <cr><lf> or can be ignored.

- The phone rates management is moving from the individual phone book entries into a separate global settings editor. The old rates management style will continue to work, but the new management scheme has priority over it.

  Here is how the new scheme works: you now assign the rates accounting data to area codes rather than to single phone book entries. Suppose you want a special set of rates settings to be used for all phone book entries and phone numbers which start with the area code "009". In this case you would add another group entry, assign a name to it and put "009#?" into the pattern field. The next time 'term' makes a connection to a phone number starting with the digits "009" the corresponding rates settings will be used. 'term' scans the list top-down, so the default settings should be put into the last list entry. The patterns follow the AmigaDOS syntax.

- Finally discovered why so many old phonebook files would cause trouble: the internal conversion routine was *never* called.

- Horrors! The sound.datatype saves invalid sound files with the playback size set to zero, causing 'term' to crash with a 'division by zero' error. The replay routine now handles such odd files.

- The sliders for redial delay and time to connect now finally sport a resolution of a single second rather than ten seconds.

- Shortened gadget labels & texts and rearranged the gadget layout to make sure all windows will fit on a plain 640 x 400 sized screen with topaz/8. Sorry folks, 640 x 200 is right out of the question. These are the days of miracle and wonder and all modern Amiga hardware is capable of displaying screens this size in non-interlaced modes. If things still don't seem to fit try a different font, preferably proportional-spaced, or a different screen resolution (change the overscan size if necessary).

- Whilst reworking the documentation discovered that I forgot to add the 'Alert' control to the terminal panel.

- With Workbench v2.04 the screen mode requester automatically resets the screen size and overscan values to defaults.

- The text buffer search requester now sports another option, "Whole words only".

- The jump scroll option code had a control switch set in the 'wrong direction'. Nothing serious, 'term' would only scroll too many lines.

- The jump scrolling routines did not take the size and position of the currently active scroll region into account. This could knock out the emulation since the cursor could cross the legal position limits.

- Added some more control key codes as per the VT 220 Programmer Pocket Guide, such as ^2, ^3, ^4, ^5, ^[, ^/, ^].

- Fixed another bug that would cause 'term' to busy loop if it stumbled upon a non-printable character in IBM PC style font mode.

- 'term' now supports context-sensitive help with AmigaGuide v34. I finally discovered a set of AmigaGuide commands that would not crash when told to change the currently displayed context.

- Changing XEM options will save them back to disk.

- Rewrote the hangup/carrier lost/online/offline handling procedure. The online/offline status tracking is protected by semaphores now, the code to modify the status was reduced to a great deal, it's only in termDial.c, termARexxCommands.c and in termMain.c. The hang up command and carrier lost actions now go through the same code, i.e. backup config & redial on logoff now work both for logoff & hangup.

- The phone rates accounting by area codes did not work since the routines were commented out. I removed the comments, they should work now.

- The buffer management no longer collapses if you try to clear the contents while there is still data coming in.

- Reread the "VT 220 Programmer Pocket Guide" and added most of the remaining unsupported control sequences. Not supported are the programmable function keys and data transfers bracketed by DCS..ST. A number of control sequences are still no-ops, such as the national/multinational font support operations.

- Double-clicking on a phonebook entry with no phone number attached no longer starts dialing.

- Changed numeric keypad applications mode and PF key handling. I hope it works with all keymappings now.

- Cloning a rates settings entry did not properly duplicate all data associated with the original entry.

- Creating a new phonebook entry will set the rates accounting data connected with it to zeroes.

- Rewrote the prescrolling/jump scrolling support code which now should get the job more quickly than before.

- Resetting the terminal emulation no longer clears the state of the 'Wrap cursor moves' option.

- Rewrote and simplified serial I/O processing, I hope it still works.

- Dialing commands no longer make it into the text buffer.

- The 'Cancel' button in the phonebook panel was relabeled, now showing 'Use' instead.

- The program no longer puts the upload queue icon into the Workbench window by default, there is a new option to turn it off.

- You can finally edit all the settings to be changed in the phonebook, this includes function keys, cursor keys, translation tables and fast macros. Hold down either shift key to bring up the old file requesters. Note that you will also get the old file requesters if something goes wrong reading and setting up the settings data.

- Added an option to make a hardcopy of the screen contents, invoking the printer graphics dump function.

- All the windows sporting pull-down menus now support menu help, i.e. if you press the help key while a menu item is being selected 'term' will bring up the online help page for the corresponding menu.

- Duplicating a phonebook entry now properly duplicates the corresponding rates settings.

- Added new keyboard shortcuts to the phonebook controls. Pressing 'Del' untags the currently selected entry, 'Shift+Del' untags all entries.

- 'term' now looks up the "Fonts" and "Libs" drawers in the current directory and adds them to the "Fonts:" and "Libs:" assignment list. At least for me, this greatly simplifies the installation procedure. Just copy the contents of all distribution archives into a single drawer and let 'term' do the rest.

- The fast! macro button list now properly responds to Alt+Amiga key clicks. I also thinned out the code a bit, causing the buttons to render a little faster.

- Relabeled the button in the bottom left corner of the phonebook window again. It now reads "Close".

- The buffer search requesters are now non-modal so you can have them open and continue to use the text buffer display.

- I reworked some parts of the user interface, trying to clarify the functions of menus and buttons. I also removed some redundant button labels and changed all references to 'directories' to 'drawers'.

- Shortened the button labels for the phonebook and the rate panel, so they will finally fit on a 640 x 400 screen using topaz/8. Some button labels now look fairly obscure, sorry about that. I guess I'll rething the part about the "clarification" again...

- More weird & wonderful changes to the serial device interface code. I hope it still works.

- When hanging up the line using the corresponding menu command the online state is no longer reset to 'offline' if in the serial settings the "Check carrier" feature is enabled. This leaves the test for the carrier to the usual routines which will detect if the carrier is really gone.

- With multi-number phonebook entries the dialer now displays how many of these numbers have been dialed already.

- There was something really wrong with the way clipboard text was pasted as the 'end of line' character conversion would be applied twice.

- The "Time to connect" data was never used for phone rates accounting, it only played a minor role in the "Connect limit" settings.

- The pop-up 'About' window no longer is GimmeZeroZero, which is both sexy and uses less memory.

- Beep & action sounds are now loaded via datatypes if available. Under v39 this may not work well for large sound files due to a bug in sound.datatype. Plain IFF-8SVX format sound files will still be played using the built-in routines since they are more flexible than sound.datatype and can replay stereo sound.

- Non-standard-sized system imagery (sizing gadgets, arrow gadgets, etc.) is now supported whereever it is used.

- The phonebook window no longer sports a 'Close' button, all that's left is the 'Dial...' button.

- Phonebook entries which lack a phone number can no longer be used for the dialing list.

Changes introduced with v4.0:

- The window status line is no longer 'misplaced' under Kickstart v2.x.

- Font, file and screen requesters are no longer quite so tiny.

- Different font scales as by the VT100 specs (half width, double width, top double size, bottom double size) work again.

- All memory allocations now go through memory pools, reducing memory fragmentation greatly. Note: Kickstart 3.x owners *should* have SetPatch 40.16 installed as the memory pool code might have trouble freeing empty memory pools until the program exits. This memory allocation scheme should also help to get 'term' to work with certain virtual memory system extensions.

- In the XPR transfer window the error/message list will no longer hold more than 100 entries in order to save memory. I have received reports of users who ran large file transfers overnight and when getting up in the next morning the transfer error/message list had accumulated so much memory it was no longer possible to move the mouse: Intuition was unable to allocate enough memory to create new input events. If 100 messages have accumulated and a new one is about to be added the first and oldest entry will be removed.

- The status line display now properly reflects the name of the current file transfer protocol.

- The quick dial menu checkmarks would get cleared only on some rare occasions, i.e. if the first phonebook entry had the 'Quick dial menu' feature set. Now it gets the job done no matter which phonebook entry is the first one in the quick dial menu.

- The main window menus used to have the command shortcut 'W' assigned twice.

- If running on the Workbench dropping icons on the 'term' window would ask for the type of file transfer (text or binary), but it would get the selection wrong, i.e. if you chose text you got a binary upload and the other way round. This has been fixed.

- When in zoomed state the XPR transfer window will display the name of the file currently being transferred and how much of it has already been transferred (if available). This display will be updated about once a second.

- If icons are to be created for files downloaded it is no longer necessary to turn on file type identification to actually get the icons attached.

- Freezing the text buffer contents now properly updates the text processing routine variables.

- Calling the 'Print clipboard' function twice will no longer result in a general system lockup.

- The double-buffered I/O routines now let you configure the buffer size to use. The memory allocation also is a lot more 'forgiving' than it used to be: if necessary it will shrink the buffer size until it can allocate enough space.

- To keep naughty applications from switching the cursor key and numeric keymap into applications mode you can lock both key sets now, so they will not to change their current modes.

- The old AmigaGuide release (v34 to be accurate) is supported now, but with limited functionality. The help text is not context sensitive and you need to shut down the AmigaGuide server manually (by closing the AmigaGuide window) if the screen its window resides upon is to be closed.

- 'RING' and 'CONNECT' messages from the modem are now reported along with the time when they came in.

- The program now complains loudly about outdated catalog files and incorrectly installed locale.library.

- The hotkey settings panel now checks each hotkey description text after it is entered and complains if it is unuseable.

- The 'QUIET' command line option (makes 'term' start up iconified) no longer crashes if Workbench isn't running.

- The program now features an all-new user interface.

- There is a new command line option called 'BEHIND' which causes the main screen to stay in the background and the main window not to become active upon startup.

- If 'term' fails to open a screen and finds out that the requested screen display mode is unavailable it will copy the screen mode the default public screen is in and retry.

- No more trouble with mixed-case device and library names. As you pick them from the list the files are validated, i.e. 'term' tries to load the file in question and hunts for the library/device resident tag included. If the tag is found the 'real' device/library name is copied from it, replacing the original name the file was opened with. This means that you can select 'XPRZModem.Library' using the file requester and 'term' will look into the file to find

out that the library wants to be opened under the name of 'xprzmodem.library'. Also included are a type check (i.e. if a library is to be opened only files with a library type resident tag are included in the list) and a brief name comparison (i.e. only name case differences are allowed, so 'XPRZModem.Library' = 'xprzmodem.library', but 'foo.device' != 'bar.device').

- The external emulation and the external protocol support routines no longer share the same code and the same set of error messages/options texts.

- A transfer protocol such as xprkermit.library will no longer leave 'term' in a 'half-dead' state if it opens a new window in the protocol setup phase. In previous releases this window was never closed.

- The label text of XPR/XEM command options which accept a parameter and thus cause the settings window to be closed after text is entered is now drawn in the current highlight colour. This helps to distinguish regular string gadgets and command option parameters.

- If 'term' fails to set up the XPR protocol properly, i.e. the setup routine does not flag success, the library is closed right away. This is how it has always been in previous 'term' releases. But this time the main menu is also updated to keep you from starting a file transfer or changing the transfer options while the library base pointer is invalid.

- In order to support external protocols which write data to or read data from the serial line serial I/O processing is temporarily disabled while the corresponding setup routines are running. Although this behaviour isn't quite that nice it should avoid serious trouble with xprkermit.library which could otherwise disrupt the serial device request queue.

- There are now three buttons in the file transfer panel which correspond to different abort levels:

  * Skip current file Skips just the file currently being in transfer (level 2)

  * Stop transfer batch Cancels the entire batch transfer (level 1)

  * Stop entire transfer Emergency stop (level -1)

  These abort levels are supported by xprkermit.library and a number of other file transfer protocols.

- Opening the transfer protocol settings editor will cause the currently selected default XPR protocol to be reopened in case it is not open yet.

- Holding down the control key and clicking with the mouse on a space character will now correctly send it.

- Double-clicking on a phonebook entry will no longer start dialing if the program is still online, i.e. if the regular 'Dial' button is disabled.

- If the line is hung up or the carrier is lost the call log file (human readable, not the one that is intended for postprocessing using call log analyzers) will include the costs for the call. In previous releases 'term' would only look for the 'NO CARRIER' message.

- The destructive backspace option now removes the character to the left of the cursor but does not move the rest of the line one step to the left. This makes the terminal emulation behaviour more consistent with how real video terminals handle this job.

- The translation table settings panel now features a 'Default' button which resets the current translation settings to defaults.

- Just like the text buffer screen the review buffer window is handled by a coprocess now.

- The packet window now supports function keys.

- For technical reasons I dropped the string gadget clipboard support. I suggest that you use StringClip or a similar program instead.

- Clipboard pasting from the review buffer window no longer requires that you activate the main window.

- In the phonebook the edit list (right hand side listview display) indicates whether an entry uses default settings or whether it actually uses custom settings. Custom settings are indicated by asterisks ('*').

- The packet window now uses the current terminal text font.

- Pressing Amiga+- in the packet window no longer transmits the current string but changes to the main window while leaving the current string intact.

- Fixed a potential bug in the generic list management module.

- With some file requester patches installed, such as old ReqTools or MFR, the file requester code could fail to notice if a single file was selected in multiselect mode.

- The phone rates are now reported according to the current locale settings, i.e. they take the grouping and special attributes of the local currency into account.

- The IFF-8SVX sound file player code now handles stereo and compressed sound files gracefully (all flavours including uncompressed stereo, compressed stereo, uncompressed mono and compressed mono).

- The ARexx 'WAIT' command could fail to report how many characters it pulled from the data stream when a matching string was found. This could result in random characters showing up in the terminal text output.

- The routine to attach the wait mouse pointer to windows and to block input to them was easily losing track of its nesting count. In theory the nesting count could have wrapped around, locking you out. The harmless side-effect was that sometimes windows would not get blocked.

- The ARexx 'WAIT' command argument and the wait list may include control sequences now. These are expanded as soon as they go into the list. This feature makes it possible to wait for sequences such as 'login:\rpassword\r' but will return result strings which include control characters, so watch out!

- The ARexx 'READ' command now allows you to combine the 'CR' and 'NUM' options. Also, the maximum number of characters to read with the 'CR' option is no longer limited to 255 characters.

- The file transfer window will at startup display the name of the currently selected transfer protocol. It displays a default value, leaving the protocol identification to the XPR library.

- The ARexx 'GETATTR' command would run into serious trouble if told to put information into a stem variable. The result would be Enforcer hits or crashes.

- If you put 'term' into iconified state and press the hotkey combination to bring its screen to the front you will no longer get an Enforcer hit. Instead 'term' will exit its iconified state and return to normal action.

- The status line display now coexists much nicer with MagicMenu and the like.

- The status line no longer displays what text mode the terminal window is in (this was rather a silly feature) but rather if the text buffer is currently recording or if it's frozen.

- The status line looks a bit different now (there is a proper separation bar now instead of the hair line).

- Just like the v3.0 preferences palette editor 'term' now permits to select the screen rendering pens. This will *not* work under v2.04 since gadtools.library v37 cannot handle it (actually it can, but the default glyphs do not support it). This feature permits you to change the screen colours while you can still keep the window new look.

- The ARexx 'READ' command could return random characters since the return buffer was not set up correctly.

- Both the ARexx 'READ' and 'WAIT' commands now allow you type text on the local console and have it sent across the line. As for the 'WAIT' command this is of great help if the script 'hangs'. Note: halting scripts and and such still requires pressing the 'Shift + Shift + Esc' key combination.

- The ARexx 'READ' command would, if used with the 'NUM' option, always return a NULL-terminated string, no matter what kind of data came in. It now returns the entire amount of data transferred, including NULL-bytes.

- The phonebook list now clearly shows which entries are selected for dialing and which are not (it flips the background and text colours). Note: this works only with Kickstart 3.0 and above.

- I increased the possible number of dial retries in the modem panel to 1000. In addition to that you can set the number of dial retries to 'unlimited' now.

- For those nasty MS-DOS based file transfer protocols which choke on file names longer than 12 characters (eight for the name, one for the dot, three for the extension) the file transfer options now permit to have filenames shrunken before they are handed to the transfer protocol. Internally, the XPR interface will still refer to the file under its original name. The routine responsible for shrinking the file names also takes care of the extension separator dot. If there is more than one dot in the file name all the others get replaced by underscore characters. Also, if there is no dot extension it will be added.

- The packet window is handled by a coprocess now.

- If you're bold and daring you can make 'term' handle the terminal output on the schedule of a terminal emulation task. Please note that this requires additional memory and will slow down the emulation if your memory is fragmented. But on the other hand the coprocess will stop serial input getting munged before it arrives in the terminal emulation output buffer. Such things can happen with systems which experience heavy DMA bus or task loading

- Turning on the 'faster layout feature' no longer drops the screen & window newlook.

- Due to an oversight the terminal emulation process could get enabled even when using an external emulation, this has been fixed.

- The ARexx command 'SENDFILE' would never remove the names of files transferred from the upload list.

- Yet another new option: by default the dialer sends a '\r' string when skipping an entry and when hanging up the line. You can change this behaviour via the 'Dialer abort hangs up' option now. If enabled the dialer will go through the routine hang up procedure (dropping the DTR signal, sending the hangup string, you name it). This should convince even the most stubborn modems to stop doing what they are currently thinking to be fun and to return to normal operation.

- Clicking on the main window in order to activate it will no longer trigger the character snapping function.

- Rewrote the ARexx 'WAIT' routine to a great deal. It could easily forget to turn serial input processing back on for the main program. After a script would exit you would get stuck with data coming in from the serial line, but none of it would be displayed or worked upon.

- Clicking on the text buffer screen window in order to activate it will no longer trigger the character snapping function. Since there is no safety catch, i.e. the clipboard contents are immediately replaced by what you selected after you let go of the mouse button, this will reduce the chance of losing your current clipboard contents.

- Subtle change in the dialer procedure: if an entry would use the default serial settings they did not replace the current serial settings, even if the previous dial list entry had altered them. However, the original purpose of the default settings was to use the unmodified global settings. The dialer behaviour now respects this, changing the current serial settings back to the global settings, not keeping the changes the previous dial list entry had made.

- In previous program releases trying to make certain phonebook entries not use the default settings was somewhat difficult: you had to change the corresponding settings entries to something different from the global defaults. Things are much easier now, just open the settings editor and click on the 'Use' button.

- The 'Startup/Login macro' has been split into a startup macro and a login macro. The dialing routine will first invoke the login macro and then the startup macro. Only the dialing routine makes use of the login macro.

- Small cosmetic changes to the user interface code: cycle gadgets are a few pixels wider now in order to keep 'CycleToMenu' happy.

- When hanging up the line the logoff macro was never executed.

- Finally discovered why the serial read quantum and all the scheduled events were never processed again once they reported that no further data was available. Now the event response loop updates the signal mask again when it reaches the bottom of the loop to see if any new data came in.

- You can now configure the screen depth, permitting to use the Picasso II chunky display mode with 'term'. Note: asl.library v38-v40 fails to handle nonstandard background pen colours correctly, i.e. the depth slider text may be illegible.

- External emulation libraries, namely xemvt340.library, should work again. I changed the memory allocation call for the XEM support interface, but I have no idea why it did the trick.

- The status window is handled by a coprocess now.

- Some ARexx interface commands now run asynchronously.

- Yet another visual gimmick (sorry, couldn't resist): menu checkmarks and Amiga keys are now scaled according to the current screen display ratio. Note: not really compatible with utilities such as MagicMenu or Silicon Menus. Although the programs will run the menu layout may look odd.

- The phonebook list can be scrolled with cursor keys now. You also get a visual feedback if running under Kickstart 3.x.

- Fixed a nasty bug in the user interface code to pick the gadget shortcuts: it would prefer to pick the last letter of gadget labels and ignore any preceding letters.

- Scrolling lists such as the phonebook list will size-adapt to the screen 'real estate' available.

- The screen settings now give you full access over display overscan mode and screen dimensions. Note that asl.library v38 or higher is required to use these features.

- Changed the cursor key control in listviews, making it possible to use the Shift/Alt/Control qualifier keys in Style Guide compatible fashion.

- Rewrote certain dos.library related parts of the user interface code, permitting plain tasks to call the routines. Consequently, a number of coprocess-driven routines was rewritten to run on the schedule of a task. Note: this may conflict with the ChangeScreen utility included in the Picasso II distribution.

- Old style XPR settings entered using the old style prefs interface (i.e. those that would pop up a text entry requester) were never saved.

- The transfer library selection panel now allows you change the settings of all selected protocols, you no longer need to select all individual protocols as the default protocol and invoke the 'Protocol settings...' menu function on them.

- The text and review buffer search requesters maintain backlogs of the previous search patterns now (use the cursor keys to scroll through the patterns). Use the capture settings to change the number of patterns to keep.

- The text buffer search function no longer enforces a case-insensitive search.

- Most time and date displays now use the current locale settings. It did not make sense to make all such displays use this text formatting scheme. All remaining displays will use the common dos date/time formatting parameters.

- Modified OwnDevUnit.library support: if another task wants to gain access to the locked device 'term' will release it unless the modem is still online. The device is released by calling the 'Release serial device...' menu entry.

- Oops... the XPR options editing code did not flag changes in numeric arguments to the main program. Also, old style XPR options were always reported as 'changed'.

- Not all memory allocations went through memory pools, this has been fixed.

- The 'Printer control enabled' switch was omitted from the emulation panel, sorry about that.

- Some windows would not be moved into the foreground when opened, so you had to play 'hide and seek' to see on which screen they appeared.

- With display aspect ratios that aren't even remotely square incrementer arrows for integer gadgets are no longer larger than their container boxes.

- The program no longer crashes if the XPR protocol feels about displaying a message before any other window is open.

- By public demand the highlighting scheme in the phonebook window was changed to yield better contrast.

- The speech volume is given in percent now, but the ARexx interface 'GETATTR' command did not reflect this.

- The sound settings now sport a volume slider which affects all sounds played. Suppose a sound is to be played at maximum volume, i.e. 64 for the current Amiga hardware and the volume slider is set to 25%, then the sound will be played at volume level 16. Setting the volume slider to 0 will cause 'term' not to produce any sound.

- The transfer panel message list dimensions are now auto-adjusted to the screen size. The layout code also tries hard not to make the window overlap the status line.

- Added some bells & whistles to the phonebook window. I hope it still works.

- Moved the user interface code into a shared library in order to make things more complicated.

- The OwnDevUnit feature is no longer linked to the 'Shared access' option.

- All sounds are now replayed in the same fashion as the bell sound, i.e. if a sound is currently being played a request to play another sound will not be satisfied.

- Important file transfer notification messages are now printed in the current highlight colour.

- The destructive backspace mode now offers three choices: off, overstrike and shift. Overstrike mode clears the character below the cursor and shift mode will shift the line contents to follow the cursor to the left.

- The screen panel now features some more options which permit to open the main window on a custom screen as though it were a public screen and an option to split the status line from the main window.

- Tried to squeeze some space out of the control panels with mixed results.

- The text buffer screen no longer uses the main screen display mode by default, it is possible to select the display mode now.

- The built-in ASCII file transfer routines no longer draw upon the current clipboard settings to determine how to send and receive text. There is an all-new preferences editor for this purpose now.

- Added an upload list editor, permitting to collect the files to be transmitted in a list before the transfer is started. You can enter the file names, drop icons on the editor window or on the AppIcon. When you are finished, just press the upload button.

- The packet window string gadget now has room for more than 1000 characters. Note: the 'Load history' command only supports 255 characters per line.

- Added a prescroll option to the emulation settings. The system is not very smart but should get the job done rather quickly; if the cursor is positioned on the last terminal line the number of line feeds in the input data stream is counted. The number of line feeds or the max.prescroll number (whatever is smaller) will determine how many lines to scroll the screen contents up.

- With an empty phonebook loading a new phonebook file would not enable the phonebook list, this has been fixed.

- Added another option to complement the prescroll settings. Testing revealed that the conditions leading to the prescroll feature to be used were met only rarely. The 'max. jump' option will give you roughly the same functionality as the 'max. prescroll' option, the difference is in the handling of the input data stream: the prescroll option counts the number of line feeds, the jump option only looks for a single line feed and then scrolls up the screen the given number of lines.

- The program now remembers the window position and size before going into iconified state. When the window is reopened it will reappear at the position and in the size remembered

- The ARexx `ADDITEM` command supports a new keyword `RESPONSE` to be used for entries added to the wait list. Suppose you want all `More (Y/n)?` prompts of the BBS login procedure to be skipped during your auto-login script. Then you would call `ADDITEM TO wait NAME "More (Y/n)?" RESPONSE "\r"`, add the other keywords you would want to wait for and then finally call `WAIT`. Whenever the `More (Y/n)` prompt shows up the `WAIT` command will all by itself send the `\r` string (or in other words, the carriage return character) without exiting until the login string it was watching for is found. Please note that this feature only makes sense with the wait list but not with the `WAIT` command itself.

- Added login learn mode controls. If the option is enabled in the dial panel incoming text and your responses to it will be recorded. When you are finished with your usual login procedure, call the 'Record script' menu item in order to save the recorded data to an ARexx script. By default the recorder only watches for single keystrokes. If you wish to enter an entire line use the 'Record line' menu entry, calling this item a second time will transfer the line you entered into the recording buffer. Pressing the return key has the same effect. Pressing Shift+Return will also put you into line recording mode, no need to use the cryptic menu shortcut. Note: the 'term' main menu now uses all available printable 7-bit ASCII characters for keyboard shortcuts :-(

- Reworked the error reporting scheme, one of the weak spots of 'term'. In previous releases you would be told that a file could not be saved or loaded, but no explanation would be given why the action failed. Where possible 'term' will now tell you the cause of the error.

- The printer support code was not particularly sensible to printer trouble, such as reported by the infamous printer.device requester. Even if this requester was cancelled 'term' would happily continue to print, causing the printer trouble requester to pop up over and over again. This has been fixed.

- The ARexx `DIAL` command is no longer synchronous by default, there is a new `SYNC` option which causes the ARexx script to wait until the dialer has made a connection/has failed to make a connection. The `RC` (result code variable) will be set to 5 if no connection was made, it will be 0 if a connection was made. Now control can pass right through the `DIAL` command.

- ARexx support is no longer a compile-time option but an integral part of the program.

- Fixed a couple of bugs in the user interface library which dealt with odd alignment of slider level strings under v39. Some few strings still break the rules, but the results are less devastating than they used to be. Thankfully, most of the gadtools.library bugs that caused such trouble were fixed in v40.

- Added the 'trap' feature which implements the functionality of the ARexx wait list in an asynchronous fashion. For each sequence found a command sequence is executed. This should make it much easier to write UUCP scripts, BBS programs and such. Please note that the trap list is not identical to the wait list.

- Rewrote the ARexx/AmigaDOS command execution routines which now execute their commands in truly asynchronous fashion, i.e. once their processes are spawned they keep to themselves and notify the main program when they are finished. This made it possible to remove the odd command handling workarounds and the special ARexx interface code that would take care of ARexx/AmigaDOS command execution.

- The upload queue window code did not get the upload buttons enabled if icons were dropped on it.

- The trap list loading code mixed up the order of commands and sequences, this has been fixed.

- Fixed a monetary quantity formatting bug in the locale support code.

- A malformed text formatting string was causing Enforcer hits in the action logging routine.

- Added a few more 'safety catches' to the screen opening code in order to make sure it does not open screens 'too deep'.

- Changing the screen size in the screen panel did not cause the screen to be reopened, this has been fixed.

- Realized that it was not such a good idea to make most windows simple refresh and changed them to smart refresh. I've probably seen too many Macintosh programs forced to redraw their window contents over and over again.

- The auto-upload panel now sports a button labeled 'Upload from queue' which if enabled will cause the current upload queue to be transferred. Thanks to Bob Maple for pointing me into the right direction.

- Fixed a truly nasty bug in the user interface code: integer type gadgets did not remember their original values when created, they would forget about them when queried and only would report them correctly when the values were changed. There is something I forgot to mention: integer gadgets understand hexadecimal (both 0x.. and $.. notation), binary (%..) and octal (&..) notation. The idea came from Martin Taillefer.

- The date and time entries in log files are now printed in DOS format again.

- Recorded scripts and such no longer include *SP codes instead of plain spaces. This should improve readability.

- With the 'shared screen' feature enabled 'term' would not respect the screen depth settings. This has been fixed.

- The XPR routines no longer queue more than one IORequest, this should help to avoid trouble with some few device drivers.

- The ARexx QUIT command really works now.

- Removed the fixed-width font dependencies for Kickstart 2.04. Although windows may look funny if you use a proportional-spaced font, the program should deliver the same functionality as if it were using a fixed-width font.

- Triggering the iconification function with the 'Release serial device when iconified' option enabled will ask you for confirmation if the modem is still online.

- Just for the fun of it added datatypes support. The IFF-ILBM saving routines of picture.datatype are used when saving the window contents to a file.

- If the console output window specifier includes the %s string formatting parameter it will be replaced with the name of the public screen 'term' resides upon.

- New ARexx command PROCESSIO permits to turn off serial I/O processing by the main program. This will let ARexx programs receive & process all incoming data, without having 'term' pull single strings from the input data stream.

- Keymap strings to include null-bytes should be properly processed now, previous 'term' releases would stop at the null-bytes and ignore the rest of the input lines.

- Changes in the serial buffer size now cause the serial driver data to be updated as well.

- Added facilities for external programs to rendezvous with 'term', allowing them to take over the serial driver. This was added primarily to support my HydraCom Amiga port (please note that you need revision 2 of my HydraCom port to interface to 'term'), but it may also help to support other file transfer protocols, such as the original rz/sz programs.

- Whether trap list processing is enabled or not is now saved along with the trap list itself.

- You can now lock the cursor keys and the numeric keypad separately.

Changes introduced with v3.4:

- Raised the maximum number of quick dial menu entries to 50.

- Fixed a small bug connected with the text display screen.

- XPR protocols which do not support batch transfers now work again as they did in v2.4.

- Corrected a spelling mistake in the call logfile creation routine.

- Fixed a memory allocation error in the review buffer code.

- Fixed a major bug in the file transfer routines. In previous releases (say 3.1 and above) 'term' used to throw invalid file locks around (seems I will have to use less ambiguous identifier names in the future...).

- Fixed an Enforcer hit in the quick-dial menu creation.

- Rarely, the program could fail to rebuild the quick-dial menu after leaving the phonebook.

- As required by the specs, the XPR interface now switches BPS rates and serial parameters.

- Enhanced the capture functions.

- Changed the user interface layout for some windows, such as the modem settings window.

- When running on a public screen will no longer cause lockups and trouble with Workbench. Rendering errors are still possible.

- The very first characters to follow a modem connect message are no longer quietly discarded.

- Finally solved the truly mysterious case of the missing screen line.

- Fixed yet another Enforcer hit in the packet window code.

- The standard beep routine would not work.

- Libraries and devices can now be selected using simple menus rather than the file requester.

- The program now flushes capture files to disk every minute in order to insure that at least fragments of the captured session will be safe when disaster strikes.

- Finally got the cross-hatch pattern to draw ghosted list views right.

- The terminal hex mode would write too many bytes per line.

- The program would not pay attention to any icon tool type settings.

- Upon making a connection the dialing routine will no longer drop the line by accident.

- The review buffer window will filter out unprintable characters before displaying text lines.

- The program no longer knocks itself out if an initialization error occurs during the startup phase.

- You can now select the name of the public screen the 'term' window is to be opened upon using a menu.

- If using a public screen the program will make use of the corresponding screen font and no longer try to modify it in any weird way.

- The ARexx command `READ` did not pay attention to the translation table settings.

- A configuration file to be loaded upon startup as specified using tooltypes or command line options will no longer be ignored.

- The positions and sizes of certain program windows will be stored in the main configuration file.

- Initially, when a file was received the information window would not display the space left on the output device.

- Introduced the 'time to connect' interval.

- Added the serial read quantum.

- The phonebook window will now be opened large enough to hold all its gadgets inside.

- Blinking text display is no longer restricted to eight colour screens, provided the display architecture permits high-resolution screens in more than 4 bit planes.

- The program now exists cleanly if vital resources such as the output screen cannot be opened.

- The file transfer routines should run a tiny little bit faster now.

- Added the transfer performance meter.

- The clear screen control sequence now optionally resets the cursor position.

- Rarely, the text buffer screen would not update the first text line properly. Also, the screen display mode will no longer fall back to HIRES/HIRES_INTERLACED.

- Rarely, the review buffer window would render text in the wrong colours.

- The pen/palette sharing code was submitting incorrect colour codes.

- The review buffer window now responds to the same keypresses as the text buffer screen and the main input window.

- Not all packet menu items were to be invoked using menu shortcuts.

- Added 'Completion time' display to the transfer progress window.

- Introduced special transfer library settings. You can now select which library to use for ASCII, text or binary transfers.

- Added built-in ASCII transfer routines.

- You can now search forwards or backwards through the text buffer.

- Text stored in the buffer no longer gets trailing spaces stripped in order to keep weird uuencoded data intact.
- The menu items featured in the 'Edit' menu now properly reflect the state of the clipboard.
- A menu shortcut would be used twice in the main window menus.
- Rarely, the colour choices for the bar charts in the transfer progress window would be wrong.
- The quick dial menu would not be rebuilt if the phonebook was sorted or new entries were added.
- The ARexx commands `DELAY` and `SEND` would not turn off the text cursor prior to text processing.
- Unless it is absolutely necessary, the text display scope is no longer moved automatically.
- As for the text display screen and window the 'Alt' keys now have the same effect as the 'Control' key.
- If new text is added to the text buffer the buffer screen and the review window are properly updated now.
- A dialing list built using the quick dial menu was not enumerated properly.
- Building a dialing list using the quick dial menu via extended selection, then selecting the phonebook control panel, clearing the dialing list and leaving the phonebook will no longer start dialing the list just cleared.
- Checkmarks now indicate which entries in the quick dial menu are to be dialed.
- The bar charts displayed in the transfer progress window are now updated in a more efficient manner (the text colour has changed, too). Also, unzooming the window will properly update the bar charts now.
- A hardware buffer overrun error is no longer considered a fatal error.
- With some requesters and windows string gadgets are auto-activated now. Pressing the `Return` key will cycle through all the available strings gadgets, holding down either `Shift` key will break the cycle.
- Trying to quit the program will no longer ask for confirmation if there is no reasons to ask for.
- The bar charts in the transfer progress window will be omitted if the remaining screen space would not permit the entire window to be displayed.
- The fast! macro window contents would be rendered in the wrong colours.
- The phonebook window did not support any online-help features.

Changes introduced with v3.3:

- Added the quick dialing menu.

- Enhanced the modem and screen settings
- Fixed a few bugs in the ARexx interface commands `REQUESTFILE` and `REQUESTRESPONSE`
- Unfortunately a single line was missing in the XPR option setup, causing them program not to save the transfer protocol options.
- No longer forces the creation date of an auto-capture file to be included in the file. As an option, will use the naming convention used in previous program releases.
- The program now optionally creates icons for files.
- Added a terminal hex-mode for debugging purposes
- Fonts are now opened using properly initialized DPI and aspect ratio values which results in much better scaled outline font rendering.
- The name of an external emulation library is no longer quietly suppressed.
- It is possible to disable the double-buffered file management routines now.
- Added the text pacing option.
- Apparently, external and internal terminal emulations tried to turn on/off each other's cursors.
- Copying text to the clipboard now permits to append the text to the current clipboard contents.

Changes introduced with v3.2:

- Could not enter phonebook passwords
- The XPR interface now states much more clearly what the likely cause of a serial I/O error might have been
- New sound support functions added
- Added 'OK' and 'ERROR' modem response codes
- The order of messages displayed in the file transfer window has changed (now works top down rather than bottom up).
- The ARexx interface routines did not check whether the serial device handles were available or not (boom!)
- Redid the fast! macro handling
- The text buffer screen did not notice when the buffer contents were cleared
- Retuned the phonebook and dial list routines which could generate Enforcer hits and trash innocent memory
- Boldface/italics characters will no longer leak into the window borders
- The cursor image now reflects the state of the terminal window
- The program would generate an Enforcer hit when files were to be transferred by dropping their icons on the main window

- When opening a capture file the program could ask twice whether an already existing file should be replaced.

- Paste operations triggered from the review buffer window would not start any paste operation until the main window was reselected

- Reworked the character translation table format. Translation table files should be smaller now and should load a lot faster

- The screen/output window size now changes to the number of columns specified in the terminal settings

- Rarely, the file transfer window would be opened very narrow and tall. So tall in fact that display elements would overlap each other, no text could be displayed in the big listview and Enforcer hits were not to be avoided.

- The file transfer interface would produce Enforcer hits when to transfer files using an old-style XPR library.

- The phonebook dial list handling would select single entries when a shift key was pressed during keyboard selection.

- The review buffer window no longer loses track of the text area it ought to display after resizing the window.

- Rewrote much of the keyboard/mouse/peanut butter handling loop. No longer quite so complex.

- Thanks to user persistence the 'Password' text entry field available through the password/user panel no longer hides the actual password text.

- 'Hang up' menu item did not cause a backed-up configuration to be restored.

- Naughty XPR protocols which would issue error reports through xpr_update() during XPRSetup() would cause the transfer window to be opened not to close afterwards.

- No more odd happenings in the status line online time display. The code responsible would misinterprete a string index. This has been fixed.

- It is no longer possible to dial phonebook entries which have no name or phone number attached.

- The terminal emulation code no longer leaves background colour artifacts when scrolling text with a background colour other than the default background colour enabled.

- Calls to BeginIO() rather than SendIO() were giving some – if not most – device drivers hard times. According to the few tests I have run so far the program now performs more reliable when doing file transfers. 'term' now works again in conjunction with isdn.device.

- The program no longer encodes the creation date into the name of an auto-capture file but rather writes creation time and date to the first new line in the file.

- New tooltype/command line option 'Quiet' will cause 'term' to start up iconified.

Changes introduced with v3.1:

- Previous releases of the phonebook would not clone single phonebook entries correctly.

- The configuration copying routine will now selectively copy config information to the currently selected phonebook entries.

- The phonebook encryption/decryption routines are a tad faster now.

- The program will now prompt twice for a phonebook access password.

- Comment, phone number, user name and password can be much longer now than they used to be in previous releases.

- The phonebook now only contains the configuration information to differ from the global configuration.

- Previous releases would not save any rate information along with encrypted phonebook files, this has been fixed.

- The configuration copying routine now allows to 'drop' parts of the phone book configuration rather than replacing them with parts of the global configuration. This feature works in conjunction with the new phonebook file format.

- A new feature has been added: as an option, the program will immediately start to redial the currently configured dialing list as soon as the line is hung up or the carrier is lost.

- The program finally includes context-sensitive online help implemented through amigaguide.library (note: Kickstart 3.0 required). Any window to offer a help text will display it when the 'Help' key is pressed.

- The ARexx interface documentation was entirely rewritten. The main program documentation was updated and slightly enhanced. Be sure to reread it!

- Both the text buffer screen and review buffer window now feature new and improved scrollers. Scrolling and screen refreshes are also quite a bit faster now.

- The text searching routine has been enhanced and now works much faster than in previous releases. It also happens to find multiple occurences of a string in a single line.

- Improved text buffer handling, reduced memory fragmentation if running under control of Kickstart 3.0.

- The text buffer will no longer quietly swallow single characters and will finally correctly wrap lines longer than 80 characters.

- The review buffer window now also sports a search function just like the text buffer screen, other useful menu items have been added as well.

- In previous releases the program would miscalculate the number of bytes left on a filing device when receiving a file. It would not take the number of bytes received into account, this has been fixed.

- In order to transfer files one can simply drag the corresponding icons on the 'term' main window (requires that the 'term' window is opened on the Workbench screen).

- Instead of identifying the type of a file received, the program will optionally attach a file comment to show the name of the BBS the file was received from and the time and date when the file was received.

- In case a file transfer is terminated due to errors the file transfer window will remain open until explicitly closed.

- The XPR interface will disable the xpr_unlink() routine if the 'override transfer path' option is in effect.

- The XPR interface will no longer sort files to be uploaded by size and name as most users found this feature annoying. It now sorts the files by name.

- The file transfer window now correctly displays the names of all files sent and received.

- The file transfer server was removed as it would not lead to a performance gain but a performance loss.

- 'term' now finally also runs as a window on the Workbench or any other public screen (that's what you always wanted, right?). If running under control of Kickstart 3.0 will attempt to share screen colours with other applications, making it possible to run the terminal emulation in eight or sixteen colours if enough shareable pens are available.

- 'term' will refuse to run on a public screen if running under control of Kickstart 2.x and if the screen font happens to be proportional-spaced.

- Some minor and some major bugs in the built-in terminal emulation have been fixed.

- The program distribution now includes the 11 point IBM.font donated by Bernhard F. Muller.

- I was surprised to discover that in previous releases the terminal emulation server would never get activated as the conditions it would be enabled would very rarely be met. Since the file transfer server would actually lead to a performance loss rather than a performance gain I chose to remove the terminal server along with it. Both may be implemented in a future release.

- The terminal emulation should work a tad faster now.

- The program now requires diskfont.library to be installed in order to work correctly.

- The program will ask for a confirmation prior to resetting the serial device driver while the program is still online. Most seasoned JR-Comm had trouble to adjust to the fact that the JR-Comm command 'send password' would use the same menu shortcut as the 'term'¿release serial device' command.

- The name of the call log file can now be configured completely. Previous releases would use the call file path and use the name 'term-call.log'.

- The status window now displays the name of the ARexx host port, the BBS name, phone number, comment and current user name.

- In order to confuse and annoy you, the menu layout has been changed once again.

- A new feature has been added: the 'wait' menu item will repeatedly send the sequence <Space><Backspace> in order to simulate terminal input.

- The program now requires a bit more memory than before (program size has climbed by about 50 KBytes).

- New command line options and tool types have been added, some have been renamed.

- The program is now much smarter in determining the sizes of the phonebook and file transfer window.

- The lists used by the phonebook and the date panel no longer look quite so weird if using a proportional-spaced font.

- The main screen text snipping scheme has changed a bit and now resembles the standard console device snipping. Also supported is double-clicking on single words in order to snip them.

- The ARexx interface has been entirely rewritten from scratch.

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