

LineLink

COLLABORATORS

	<i>TITLE :</i> LineLink	
<i>ACTION</i>	<i>NAME</i>	<i>DATE</i>
WRITTEN BY		April 16, 2022
<i>SIGNATURE</i>		

REVISION HISTORY

NUMBER	DATE	DESCRIPTION	NAME

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Chapter 1

LineLink

1.1 LineLink and ProModem (Prometheus) FAQ

LineLink-Promodem144e Frequently Asked Questions Version 1.4.9

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Version 1.5: December 13, 1994.

This document gives information on the following Data/Fax/Voice modems:

- * Prometheus Promodem 144e (roughly spring 1994 or later only)
- * LineLink144e 14.4K (Sold by MacWarehouse only)
- * PowerUser 14,400 Data/Fax/Voice Modem. (Sold by MacWarehouse)
- * VividLink 144e (Sold by MacMall).
- * Performantz series modems (Sold by Mac Zone: Recent only)

Prices range from \$89 to \$169 (November 1994). When comparing the same firmware/ROM revision, these modems are identical in terms of hardware (according to multiple sources at Prometheus). Warranty, versions of software included and technical support will vary widely! Looks like they are ****NOT**** selling the modem under the "Linelink" label as of mid November 1994.

This FAQ also does not cover the other Prometheus modems, only the 144e model. It MAY or may NOT apply to some degree on the internal versions of the modem sold as the Prometheus Promodem 144i (theres a Mac powerbook model and a PC model). The Magnum modems are ****NOT**** made by Prometheus and are ****NOT**** covered by this FAQ even though they are \$99 modems sold by MacWarehouse! Though this FAQ does cover a lot of generic things about 14.4K modems so it may be of some limited use to other modem users.

What's a LineLink144e Modem?

The LineLink144e/Promodem/PowerUser/VividLink/Performantz etc is a modem with v42bis (compression), v42(error correction), v32bis (operates at a true 14,400 bps), has Class 2 Fax and Voice mail support in hardware. In other words pretty much everything you could want in a 14.4K modem, ****EXCEPT**** Caller ID, silent answer, Class 1 or Class 2.0 fax support.

To avoid using Linelink/Promodem/PowerUser/VividLink/Performantz to refer to the modem. I will always refer to the modem later as a Linelink or LineLink144e since these were the first Prometheus made modem to use the chipset (I think!). As the Linelink becomes less popular I may change this to the Promodem144e in later FAQ's.

Most CURRENT Linelinks combined with the CURRENT MaxFax software allows you to send and receive fax documents and do voice mail. One telephone line can be used for both features. Specifically it recognizes incoming Faxes via the Fax CNG tones. This is a major improvement over previous versions of the modem (Firmware revisions 1.0, 1.3). ****Note**** As I am writing this ****NO ONE**** who is NOT associated with Prometheus has reported that this feature actually works reliably. I would greatly appreciate email telling me if it actually does.

More details can be found in "Specifications" and "Ordering" section

Legal Crap

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****DO NOT DISTRIBUTE MODIFIED VERSIONS OF THIS FAQ****
****DO NOT REMOVE THIS NOTICE OR THE TEXT ABOVE****

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You may upload or download this file anywhere including BBS's, ftp, gopher, WWW sites etc. to your heart's content. It may be placed on CD-ROM's including the info-mac CD-ROM. However do ****NOT**** upload to major internet sites (macgifts, info-mac ,umich). I do that myself. If you wish to upload to AOL or CompuServe please contact me first so they don't get three dozen copies!

Exceptions to the above: Sections of this FAQ not exceeding 7000 characters in TOTAL length may be reprinted, modified or used for any purpose. Anything larger requires prior approval (which is likely to be given). Also do not upload DRAFT versions of the FAQ, they are likely to contain more errors than normal versions!

Please send your corrections and comments to the editor, Loudon Campbell, at loudon@uts.cc.utexas.edu. The FAQ does not improve otherwise!

About the FAQ itself

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After reading this FAQ read the Linelink mailing list for help and check the ftp/gopher archive site mentioned later. For newest versions of the FAQ always check the ftp/gopher archive site first. If you have a world wide web client you can also check via my personal page at

<http://uts.cc.utexas.edu/~loudon/main.html>

Still to do

Cleanup MaxFax voice mail section and add more comments. Same with Communicate Lite, Mark/Space Zmodem Tool and comm toolbox. Some ftp site listings still need to be checked and changed to more consistent URL's.

Versions and History

Version 1.5: December 13, 1994.

The LineLink was first sold in beginning of Aug/Sept 93.

First FAQ for the LineLink was done in early September 93 by Jorn Barger (jorn@genesis.MCS.COM). John E. Bossom (jebossom@cognos.COM) then added to it. I had started my own FAQ for personal use and incorporated a lot from their FAQ (and a lot of other posts) in mid October 1993. These guys said they were dropping it, so I took it up. Yes, they had a few things correct that I didn't include and found out the hard way!

Previous Versions:

- (1.5 Dec. 13 1994) Fixed a few minor things.
- (1.4.9 Dec. 12 1994) Major reformatting- line length 68.
- (1.4.8 Nov. 15 1994) Release Version on ftp gopher site
- (1.4.5 Sept 9 1994) Public Draft on ftp gopher site
- (1.4.1 May 10 1994) Version sent to AOL.
- (1.4 March 30 1994) Version on info-mac and ftp sites.
- (1.3.3 March 21 1994) Private Distribution Only
- (1.3.2 March 10 1994) Corrupt version posted to info-mac!
- (1.3.1 March 9 1994) First version posted to macgifts.
- (1.3 March 2 1994) Very limited circulation.
- (1.2.1 Dec 3 1993) First good version.
- (1.1 Oct. 30 1993) First version by Loudon Campbell
Sept 1993 First version by John Bossom and Jorn Barger

* Changes Since 1.4.5

Much better and more correct section on Communicate Lite. Apologies to Brian Hall and the Mark/Space people. Interslip and many other program sections updated. Updated ftp site info.

* Changes Since 1.4.1:

Too many for detailed list, highlights are: Info on new version of

ROM/firmware. New version of MaxFax. Communicate Lite is now bundled with modem. Upgrade to Prometheus Promodem available (New Roms and MaxFax). Gopher and ftp server for Linelink. Comments on ValueFax Fax shareware software.

Internet and this FAQ

This FAQ is biased to internet users. This is mainly in terms of giving locations of programs on the internet for download and email addresses. As of October 1994 AOL has started beta testing their ftp software and other major services are moving in that direction. Mail servers on the internet can automagically send some of these files via email even without that capability. See near end of this FAQ for details. Note that AOL and compuserve can search for files by name in **THEIR** databases and are likely to have the files I am mentioning here under similiar names.

To get most of the free/demo/shareware programs listed in this FAQ you can ftp from various computer sites. You can also send email to a listserver to obtain these files. By the time you read this , these files may well be updated or moved but they probably will be in a similiar location. Lists of mirror sites of the info-mac and umich archives are in the ftp section. A mini primer on ftp and related topics is at the end of this FAQ.

Format of the FAQ

For best results in viewing this file use a small monospaced font (9 or 10 point Courier or Monaco are good choices). View it with any word processor or editor capable of reading a plain ASCII text file this large.

Better yet use an setext format reader. "setext" format, stands for Structure Enhanced Text format. Which is just an ordinary text file that follows simple formatting rules so that programs will be able to view this file in outline format. As well as the use of **bold** , underlined and ~italic~ text. Using a setext reader will let you find what you are looking for in a few seconds (I hope!) instead of scrolling through 50+ pages. For more information about setext format send email with the single word "setext" (no quotes) in the Subject: line to <fileserver@tidbits.com> A file should be returned shortly via email.

The macintosh "setext" viewer is EasyView. Its available at info-mac mirrors or on umich mirrors as

info-mac/text/easy-view-250.hqx
umich/util/text/easyview2.50.sit.hqx

an extension that allows you to directly access URL's via anarchie or MacWeb from within Easyview (or BBedit) is

info-mac/text/bbedit-get-url-11.hqx
umich/util/text/bbeditgeturl.cpt.hqx

The setext reader for Microsoft MS Windows 3.x is at

<ftp://ftp.halcyon.com//disk2/tidbits/misc/EASYVIEW.uue>

The unix setext reader is at

<info-mac/help/cutil/setext-viewer-05-unix.uu>

or

[ftp://ftp.halcyon.com//disk2/tidbits/tisk/util/
setext-viewer-03-unix.uu](ftp://ftp.halcyon.com//disk2/tidbits/tisk/util/setext-viewer-03-unix.uu)

You can also find these programs on the "LineLink" ftp/gopher site

<ftp://spinfree.cm.utexas.edu/>
<gopher://spinfree.cm.utexas.edu/>

Or the world wide web page at

<http://hospex.icm.edu.pl/hospex/setext-clients.html>

List of major contributors

Special thanks to:

****Stan Hall****

In charge of the LineLink Mailing List/Digest

* Very large contributions from:

****Milt Sagen****

One of authors of MaxFax (Prometheus). Poor soul who answered far too many questions from me. Has left company since!

****Darryl Harvey****

Lots of Fax info, one of the first people to try voice version of MaxFax, its bugs, and more importantly its limitations and quick hacks, as well as proofing the FAQ.

****Brian Hall****

(Mark/Space Communications) Communicate Lite info.

* List of other contributors:

****Scott Traurig****

Great early suggestions (Oct. 6 1993) on init string AT&FW1\V1 for data calls

****Miles Abernathy****

S7 register fix , other Fax info, proofing FAQ

****Brian Bechtel****

Suggesting the trm20.zip (i.e. Hayes documentation) file for use as a substitute "Manual"

****Chris Baker****

Another MaxFax author, who sent the voice mail documentation and caller ID, LONG before it would have been available otherwise.

****Peter Lewis****

Author of FTPd, Anarchie, MacTCP patch, MacTCPwatcher and other Mondo COOL stuff and for explaining MacTCP bugs and patches.

****Timothy Sherburne**** (Prometheus)

Info on MaxFax 2.5.x and 1.4g ROMS.

Many many others too numerous to list (or I plain lost track) !

About the LineLink FAQ editor

Please inform me of any information you find that is incorrect. Also contributions of information are greatly appreciated especially settings for programs not listed (including IBM software and Amigas) are especially appreciated.

I am not a modem guru, just a reasonably happy LineLink owner. I have no special relation with MacWarehouse or Prometheus, beyond bugging their tech support and getting answers from some of their employees. I am largely just compiling information from usenet news groups, email and personal experience.

I purchased my Linelink in September or October of 1993. Hence I have original version 1.0 of the ROMS/Firmware. Information on other ROMS/Firmware is all second hand.

Most of the information for using the LineLink as a data modem on the Macintosh below was ****VERIFIED**** by myself (i.e. there may have been someone else who deserves the real credit). This includes the more popular terminal emulation programs such as zterm, ClarisWorks, Communicate Lite, MacKnowledge, etc as well as the internet tools Macslip, InterSlip and MacPPP. I will try to help on problems with applications such as these.

I have used and own a copy of MaxFax 3.3.1L, beta tested ValueFax, and own (temporarily!) a copy of FaxSTF 2.2.3. However, I am only a light user of Fax. I almost NEVER send a Fax and only receive Faxes on occasion. Hence for both Fax and voice I am largely relying on second or third hand information for real life experiences.

Loudon Campbell email: loudon@uts.cc.utexas.edu

Why this FAQ is geared to Macintosh users.

I will happily include init strings and the like for IBM programs or Amigas. **BUT I NEED PEOPLE TO SEND THEM TO ME** I now have one volunteer for the Amiga section so things MAY improve for Amiga owners in the next major version of this FAQ.

Reasons:

- * Current LineLinks sold for the Mac market have an internal jumper between DTR and RTS. You should buy the LineLink from MicroWarehouse not MacWarehouse for either an IBM, Amiga, or UNIX box.
- * I don't want to get into UART chips, interrupts, port addresses, BIOS versions, config.sys, win.ini etc. Yes, I own a 386 I pieced together from junk parts as well as a quadra 605. I don't use PC's for modem or Fax though OS/2 Warp looks interesting!
- * Expensive UNIX boxes justify expensive V34 28.8K modems.
- * The FAQ is getting too big and too much work as it is!

Specifications

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The various CURRENT modems have the same feature set which is as follows

- * FULL Error correction and data compression (v.42/v.42bis/MNP-5) In theory speeds can get up to an effective rate of 57,600 bps. But please don't expect any real data go this fast.
 - * Has all the old standards (V.21/V.22/V.23, Bell 103). As well as modern V.32 (9600) and V.32 bis (14400). It works from 75 bps all the way up to full 14,400 bps.
 - * Truly useless manual and documentation. Manual is 28 pages. This is the worst feature of buying this modem. S-Registers, Fax and Voice commands for this particular modem are detailed in documents found on the Prometheus BBS. This info is also on the Linelink gopher ftp site.
 - * HARDWARE capable to 14.4K faxes Uses Class 2 Fax which is better than Class 1 and as of late 1994 the most common Fax standard for modems. (Class 2.0 is current). If you own Fax Software it will probably work with correct init strings. Works with FaxStf 2.2.3, ValueFax, QuickLink II, FaxPro 1.5 and MaxFax 3.3.1 and above. FaxStf 2.6.x and 3.0.x however, have problems with receiving
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Faxes. No cure in sight as of Nov 4 1994!

- * FIRMWARE as of this moment the current firmware version is 1.4g. Versions previous to this do NOT have Fax CNG tone recognition! Be sure to ask when you purchase if its the most current Firmware!
 - * Macintosh Communication Software CURRENTLY supplied is Communicate Lite by Mark/Space Softworks. This is a very competent Comm Toolbox based program. There is detailed info in the seperate section on Communicate Lite found later in the FAQ.
 - * Owners of OLDER modems were stuck with MacKnowledge software, which is **NOT** associated with Communicate Lite's authors. THAT software was old, didn't support modern standards like the comm toolbox or zmodem, had poor online manual and didn't work in 32bit mode. Mark/Space is now doing a competitive upgrade to Communicate Lite for MacKnowledge owners at \$29.95 (includes a full featured Zmodem tool). Competitive upgrades to other commercial software are Sitcomm (\$45) and Microphone Pro 2.0 (\$79). Also consider the shareware alternatives Zterm (\$30 or \$40) and Telefinder Pro (\$15) which are quite good also but are not Comm Toolbox based.
 - * Fax/Voice software Most CURRENT modems being sold INCLUDE MaxFax software. In the past the software was an extra price purchase most of the time! In the past and currently there were two versions of MaxFax. One is Fax only and one is Fax and Voice. When purchasing a NEW modem be careful that you get the Fax and Voice version if thats what you want! And make sure its version 3.5.1 or later! MaxFax is good Fax/Voice software. It has multiple mailboxes, fax mailing lists, good user interface (for most part).
 - * With the current MaxFax and current modems, you can receive both Fax and voice calls on one phone line correctly! (I.e. the modem detects the difference!). Voice quality is also improved over the older modems. Reports as of Nov 5, 1994 indicate these features do not work as reliably as Prometheus claims however.
 - * Uses Seirra chip set
 - * Uses a digital signal processor and permanent ROMS/firmware (no flash ROM, you have trade in your old modem for upgrades which cost significant amounts of money).
 - * Includes power supply . Its a 120 volt transformer. Output Rated at 9 Volts AC at 1 amp, 15 watts. International users please note you will need to purchase a 240 volt AC to 9 volt AC adapter.
 - * Dimensions: Cheap, clean white plastic, rectangular 1.75"x7"x8" Size of hard cover novel. Has cheap "feel" a little bigger than it should be but looks OK.
 - * The modem has a cheap built-in speaker that sounds horrible.
 - * Has fewer LEDs (lights) than most modems do. The lights it has are
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AA (Auto Answer), CD (Carrier Detect), OH (off hook), MR (modem ready) and IO (Instead of separate Receive Data and Send Data lights). Some people find this a big deal, most could care less.

- * The relay also chatters extremely noisily on pulse dialing.
- * LineLinks use slide on/off switch (in theory prone to wear).
- * Includes a Mac to modem hardware handshaking cable.**HOWEVER**, if you bought a modem before Jan 1994 or are planning on using your modem on a PC or your cable on another modem read the subsection later on the cable!
- * Comes with AppleTalk Remote Access scripts that seem to work with ARA 1.0. Unknown success rate with ARA 2.0. Current MaxFax supports (but does not include) Lineshare software. So with MaxFax, Lineshare and ARA you can use one phone line to do just about everything.
- * Technical Support is provided by MacWarehouse for the Linelink and PowerUser modems via a 800 number. Prometheus handles tech support for their modem directly. Since Prometheus tech support does NOT have an 800 number use email if at all possible! Saves time on hold!
- * Warranty varies with model. The Linelink from MacWarehouse has a 120 day warranty from Macwarehouse. The PowerUser has 1 year warranty. The Prometheus Promodem has a 5 year warranty. Don't know about other modems.

The following are **non-features** of the Linelink. The firmware and chipset supports these features but a relay is not included in the modem itself to implement these.

- * You can't use the telephone hooked up to your modem to record your outgoing announcement. If you don't have a Mac with a sound input (or can't borrow someones), you must call your mac from another phone to record outgoing messages.
- * Almost Supports Caller ID (You can use it for some purposes though)

Modem Ordering Information

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****WARNING**** It is conceivable some of these companies have old stock they are trying to sell. They all appear to include MaxFax. What versions of MaxFax or ROMS are being sold by which companies is unknown and is currently changing. ****BE SURE TO CHECK IT OUT YOURSELF!**** Especially whether the voice mail version of MaxFax is

included or the Fax version. For addresses, phone numbers etc see company address section.

Editors two cents: At current prices buy the Prometheus Promodem 14.4. Its now cheaper, has 5 year warranty and the better "name"!

- * From catalog 25cd MacZone (November 1994) sells

Performantz Upgradeable 14.4 Data Modem \$99.98 Part #96571 with "Free Fax Upgrade"

14.4 Performantz S/R Data Modem, \$129.98 Part #99322 Includes Compuserve and eWorld starter kits.

- * MacZone also sells the Prometheus 144e with MaxFax three different ways.

Prometheus 14.4 S/R External Fax Modem. Includes MaxFax for \$79.98 part #93360 but catch is you have to buy the Prodigy Membership Kit part #93359 for \$19.98. Five year warranty.

Prometheus 14.4 S/R Fax Modem w/America Online Membership for the Mac. \$99.98 Part #93371. Five year warranty.

Prometheus Promodem 144e (Definitely includes MaxFax 3.5.x voice version, almost surely current ROM) Part # 00062, \$129.98. Five year warranty.

- * MacWarehouse (Catalog 36 November 1994) sells:

PowerUser 14,400 Data/Fax/Voice Modem. \$169 Part # MOD 0181 1 year warranty.

Prometheus Promodem 144e Voice Modem with MaxFax \$119.95 Part # MOD 0064

Prometheus Promodem 144e (No voice) \$89.95 Part # DMD 1352

- * MacMall sells:

VividLink 14.4K Fax Modem \$99 Part #65304 Includes MaxFax but unknown version, firmware and warranty.

Prometheus 14.4 ProModem with Voice \$129.99 Part # 65173 Five year warranty. Current MaxFax and ROMS apparently

- * Also, Prometheus Promodem 144e for the Mac is \$89.47 part #31-10362 from Computer City (Its a national chain owned by Tandy/Radio Shack) . They sold out locally by the time I got around to checking on details.
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Company Addresses, Phone Numbers and email
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In general use email for technical support questions and international orders. Use 1-800 numbers to order and to get prices and sales info (in the US and Canada).

Prometheus

Prometheus Sales 1-800-477-3473 , 1-503-692-9600
Prometheus Tech Support: 1-503-692-9601
Prometheus BBS: 1-503-691-5199
Prometheus FAX: 1-503-691-1101

Email addresses for technical support are
AppleLink: d2407
AOL : promethean
Internet: d2407@applelink.apple.com or promethean@aol.com

They also have a conference area on America Online.

Mark/Space Softworks

For questions on Communicate Lite which is now included with the Prometheus modems contact:

Mark/Space Softworks
111 West Saint John 2nd Floor
San Jose, CA 95113

sales 1-800-799-1718 and works from the US and Canada.

techsupport 1-408-293-7299
fax 1-408-293-7298
bbs 1-408-293-7290

Internet: mspace@netcom.com
AppleLink, AOL: MARKSPACE
eWorld: MarkSpacel
CIS: 73244,3333

Mark/Space also sells a CommToolbox Zmodem Tool, and PageNow which forwards messages from your modem to a text pager.

They also will have a Telnet Tool and PC-ANSI tool coming out shortly.

The demos of these programs, updates and other goodies can be had at the bbs or at their anonymous ftp site whose URL is

<ftp://ftp.netcom.com/pub/mspace/>

MacWarehouse

Macintosh Hardware and Software: Mail Order.
Sold the "original" Linelink Modem
Order phone number: 1-800-255-6227
International order phone number: 1-908-370-4779
Fax: 1-908-905-9279
Express Customer Service 1-800-925-6227 (Returns, technical support)
Compuserve: 70007,1616
Or GO MW on compuserve itself.
Internet: 70007.1616@compuserve.com

MacMall

Macintosh Hardware and Software: Mail Order
MacMall order phone number: 1-800-222-2808
MacMall customer service phone number: 1-800-560-6800

MacZone

Macintosh Hardware and Software: Mail Order.
Order phone number: 1-800-248-0800
International order phone number: 1-206-883-3088
Fax order phone number: 1-206-881-3421
They also have many international offices.

Mac'sPlace

Macintosh Hardware and Software: Mail Order.
Orders 1-800-913-0009
International 1-406-758-8000
Fax 1-800-881-3090
Compuserve: 76635,660
America Online: MacsPlace

STF Technologies

FaxSTF Fax software

STF Technologies, Inc.
P.O. Box 81
Concordia, MO 64020

Phone (800) 783-2002 or (816) 463-2021;
Fax (816) 463-7958.

CompuServe: 74740,1244
Internet: 74740.1244@CompuServe.COM

Delrina

Delrina FaxPro software

6830 Via Del Oro
Suite 240
San Jose, CA 95119-1353.

Phone (800) 268-6082 or (416) 441-2457;
Fax (416) 441-0774.

Technical Support

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See previous section titled "Company Addresses, Phone Numbers and email" for addresses phone numbers etc.

Technical support questions on Communicate Lite are handled by Mark/Space Softworks. Macknowledge questions are handled by Prometheus. Questions on the modem itself go to Prometheus if you bought a Prometheus Promodem. If you bought another "House brand" modem contact the company you bought it from.

The technical support number of MacWarehouse is 1-800-925-6227. MacWarehouse can be reached at: 70007.1616@compuserve.com. I am sorry to say this but Macwarehouse has disseminated more misinformation than valuable information. They are courteous and they do try so they may be able to help.

Online groups

In general ask questions on AOL, Compuserve, the LineLink mailing list. I believe there is a forum/area for Prometheus on AOL.

The following internet Usenet newsgroups would be helpful also
comp.dcom.modems
comp.dcom.fax

For Mac users also look at
comp.sys.mac.comm
comp.sys.mac.hardware

For Amiga owners also look at
comp.sys.amiga.comm

Documents and Manuals

If you got Macknowledge Software instead of Communicate Lite the "Manual" was on disk and outdated. If they had bothered to update the manual to be specific for the Linelink modem they could have saved a lot of grief for early buyers.

The MaxFax software manual is quite good. It answers most questions about MaxFax. However, it may take you a while to find the answer to your question, for that reason I suggest actually

reading the manual cover to cover a couple days after you get MaxFax.

The Communicate Lite Manual is very good. It explains things very well and is highly organized. (Would be nice if it covered the Apple supplied Comm Toolbox tools, but those are Apple tools after all) If you are using System 7.01, you will be quite pleased with the Balloon Help. I would say the Balloon Help is almost more complete than the manual!

If you decide to buy the Mark/Space Zmodem Tool the manual and the Balloon Help is at least as good as Communicate Lite's.

However the MODEM manual is next to useless. It does not cover any command in detail. Does not cover S registers, Fax or Voice commands AT ALL!

The Prometheus BBS is at 1-503-691-5199. Documents on the Sregisters, Fax and Voice commands are something like 144E_SREG.TXT, CLASS2.TXT, and VOICE231.TXT. (or VO231.TXT) . Its been a while since I called you may need to look around.

The voice and fax documents really are not of general use. The are useful only if you are writing Fax or Voice mail software from scratch, or perhaps trying to do Resedit hacks to existing software.

The S register document is (almost) essential. I only found two outright errors. Part of description of S12 seems wrong and default value on S1 appears to be typo i.e. its 0 not 43.

Shishin "Squish" Yamada wrote his own " Linelink Manual". Its available on info-mac archive. Version 1.0 of his manual states the Linelink has Silent Answer which to the best of my knowledge is NOT true. Its available at info-mac, umich as

linelink-144e-commands-10.txt

Its also the document V001N081.TX on the mailing list archive server. Version 1.1 should be available soon.

If you want DETAILED info on AT commands in a more readable format. Get the "The Hayes command set" including S-registers. Its written by Hayes for THEIR modems. It can be found at following sites.

ftp://rigel.acs.oakland.edu:/pub/msdos/modem/trm20.zip
ftp://ftp.uu.net:/systems/ibmpc/msdos/simtel20/modem/trm20.zip
ftp://wuarchive.wustl.edu:/systems/ibmpc/msdos/modem/trm20.zip
ftp://ccsun.unicamp.br:/pub3/simtel20/modem/trm20.zip
ftp://plaza.aarnet.edu.au:/micros/pc/oak/modem/trm20.zip

You will need to unzip the file either on a PC or Mac. Again this document (unzipped, sit and reformatted versions) can be found on the Linelink ftp/gopher site.

Another good place to look at files outlining commands for both data and FAX is the site

<ftp://ftp.halcyon.com/pub/supra/>

Keep in mind this is a Prometheus manufactured modem. Their implementation is not Hayes' or Supra's. Use the Prometheus documents to determine what is implemented and the other documents for further detailed explanation. Note the LineLink does not strictly adhere to the Hayes command set (Minor differences). &R0 and &R1 are particular examples as well as TIES behavior.

With the above documents you should be nearly fully informed on the data Fax and voice features of your modem. In fact for most people you will have too much information.

Gopher Server FTP archive

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I have set up a gopher and ftp site. ****IF**** you have access to the internet you can get files stored on this site via either gopher or anonymous ftp (or indirectly through the world wide web). The URLs are

<ftp://spinfree.cm.utexas.edu/>
<gopher://spinfree.cm.utexas.edu/>

The site IP address is

128.83.163.58

This site is NOT sponsored or supported by Prometheus in any fashion. It contains no commercial software. It contains only INFORMATION on the Linelink, including

- * The most current "official" Linelink FAQ and older versions.
 - * Linelink modem documentation (S registers , Fax, Voice)
 - * The Linelink mailing list digest articles. Stan Hall kindly provided me with all the back issues!
 - * A few important or critical files for Macintosh users.
 - * Setup files, modem and ARA scripts etc.
 - * Misc documents. Possibly patches in the future.
 - * Gopher menus have links to important ftp and gopher sites on the
-

internet of particular interest to communication on the Macintosh and major archive sites for Mac, PC and Next. Use gopher to this site if you have any choice, its easier, faster and more automatic!

To use gopher on a unix box you would just type

```
gopher spinfree.cm.utexas.edu
```

and follow the menus / lists from there.

If you don't have gopher, to use ftp on a unix box just type

```
ftp spinfree.cm.utexas.edu
```

Then when it prompts you for a user name type anonymous and when asked for your password type in your mail address. The site is tricky to use ftp on if you are trying to get IBM PC binaries but is easy for Mac users or Unix users getting files for their Macs.

A short primer on ftp can be found near the END of this document.

At present you can log in at anytime. However please avoid its use between 11AM and 5PM Central Standard Time. Its a lowly Macintosh SE/30 being used for other tasks. So it may be overwhelmed or crash at any time etc. So please be courteous and expect the unexpected.

Email me at loudon@uts.cc.utexas.edu for problems with the server or the content of the files on the server. Such as if you have more current files than I do!

LineLink Mailing List

=====

"This list is for discussion of the LineLink 144e modem sold by MacWarehouse and manufactured by Prometheus. All discussions concerning this modem are welcome especially those about using it on platforms other than a Macintosh."

This is the best place to ask questions and get/give current info on the LineLink modem. It doesn't get much traffic now though. If you need info on using the Linelink with a PC, Amiga, NeXT computer or whatever try here first!

The mailing list and list server for the LineLink was established by Stan Hall, whose email address is <kilgore@pylon.pillar.com>.

If you wish to send a message to all of the list members, mail your message to:

LineLink@pylon.pillar.com

However, before you do that your really should join the list!

If you would like to join the mailing list (highly suggested) send an email message to listserv@pylon.pillar.com with the following in the body , ****NOT**** in the subject line

```
JOIN LINELINK
QUIT
```

Within a day or so you will be added to the mailing list.

To unjoin the list just substitute UNJOIN above for JOIN in the example.

The old digests and the Linelink FAQ are archived on the listserver also. In the past I have not kept good track of what is on the mail server. I often assumed certain files were archived there that were not. That was my fault not Stan Hall's.

The address for the archive server is:
archive-server@pylon.pillar.com

The commands used for the archive server(s) are:

HELP

Returns command summary.

REPLYTO

Responses from the server will be sent to this address instead of the address in the "From: " line.

INDEX

Will send a listing of files available from this server.

GET <filespec> [uue[ncode] | xxe[ncode]]

Sends the specified file <filespec>. UU or XXencoding can be specified.

QUIT

Causes anything after this command to be ignored.

To get a list of all files on the server send an email message to
archive-server@pylon.pillar.com

the email should have in its body, NOT the subject line, the following two commands:

```
INDEX
QUIT
```

Within a day or so you will get an email message back with the

file listing.

****Example:****

Lets assume the Linelink FAQ is listed as
/public/LineLink/LineLink.faq

To get that file send an email message to
archive-server@pylon.pillar.com the email should have in its body,
the following two commands:

```
GET /public/LineLink/LineLink.faq
QUIT
```

****DON'T**** put the commands in the subject line. Within a day or so
you will get an email message back with the file.

Firmware/ROM revisions (And their BUGS)

=====

At this writing current chipset is ABC, and current ROMS are 1.4g.
I don't know how to determine the chipset.

To determine which ROMS/firmware you have first get into command
mode.

Then type command ATI3I4I6

Version 1.0 of the ROMs give result

```
Copyright (c) 1993 SSC, V1.0 - 08/27/93
SERIAL * V32BIS * V42BIS * VOICE 2.2 * TIES * CID * V23 * SRFAX *
DSP Version: V1.20
MCP Version: V1.3 - 07/07/93, Copyright (c) 1993 SSC
```

The "Copyright (c) 1993 SSC, V1.0 - 08/27/93" above gives the
ROM/Firmware revision as 1.0.

Version 1.3 of the ROMs give results

```
Copyright (c) 1994 SSC, V1.3B.2 - 01/19/94
SERIAL * V32BIS * V42BIS * VOICE 2.2 * TIES * CID * SRFAX *
DSP Version: V1.30
MCP Version: V1.3 - 07/07/93, Copyright (c) 1993 SSC
```

Version 1.4g of the ROMS give results (to ATI3I4 ?)

```
Copyright (c) 1994 Prometheus, V1.4G LL4.1 - 06/24/94
SERIAL * INT-HYB * V32BIS * V42BIS * VOICE 2.3 * TIES * V23 *
CLASS2 FAX *
DSP Version: V1.20
```

I need the I6 command results yet on the 1.4g ROMS! Any one care
to supply it?

Version 1.3 of the ROMS have real problems connecting at high speed to various other brands of modems. (Telebits for instance). See separate section on this problem. Similiar problems MAY exist on other versions of the ROM but no where near as severe as 1.3 ROM modems!

Voice features on version 1.0 and 1.3 ROMS are essentially identical. They are limited as follows when used with ANY version of voice/fax MaxFax used in voice mode.

- * The CALLER must punch 77# to enable Fax during the outgoing message. The modem DOES NOT recognize Fax CNG tones.
- * No volume control. (Actually I think you can get around this limitation)
- * Fair to Poor voice quality. (Understandable but not good)

Version 1.4g of the ROM/Firmware combined with MaxFax 3.5.1 , **ACCORDING** to Prometheus eliminates the data, fax and voice bugs and nonfeatures listed above. Check the user comments section on MaxFax 3.5.1 however. The reports I have from users so far indicates there are still problems with voice and Fax CNG tone recognition.

In any case the new software and the OLD ROMS do NOT give you these features! Whether new bugs are present only time will tell.

All versions of the modems do NOT include a second relay that would

- * Allow full use of Caller ID.
- * Allow recording off the phone connected to the Linelink.
- * Perhaps allow silent answer. (Voice mail makes this Redundant!)

Upgrades: Hardware and Software

Upgrades from Prometheus

Facts are either from Prometheus sales 800 number or other Prometheus employees.

If you purchased a Prometheus modem AFTER May 15, 1994 the upgrade to MaxFax 3.5.x is FREE. If you purchased a modem BEFORE May 15, 1994 there are two upgrade paths:

MaxFax 3.5.x with Fax & Voice is \$24.95 + \$5 shipping.

MaxFax 3.5.x with Fax only is \$19.95 + \$5 shipping.

Users of older modems (Linelinks or Promodem or any of the other Prometheus manufactured modems) can upgrade to the ProModem 144e for \$99 + shipping. This modem has the newer firmware (1.4g or later) You DO have to trade in your old modem. You DO get the new 3.5.1 MaxFax software and Communicate Lite. The offer ends December 1994. I don't know for sure about a manual and warranty (they sent the wrong info via US mail).

For more info on these upgrades, call 1-800-477-3473.

In combination with the latest 1.4g firmware in the MODEM this gives better quality and faster voice recordings, volume control, Fax/Voice discrimination (That's THE BIG NEW FEATURE) and a lot of bells and whistles (like multiple mailboxes per caller, etc). Its also has better support for AV's, PowerMac's, System 7.5 etc.

(See however the user comments later on some problems)

They now use DPCM sound compression rather than CVSD, which improves the voice recording quality and makes the codec times much faster. Translation: Its quicker and better at voice recording.

It adds support for Lineshare (which for instance allows ARA and FAX to be received on one phone line) but does NOT include Lineshare software itself which would require a separate purchase. (A demo version of Lineshare is available that allows a limited number of connections)

Bad news is the MaxFax 3.5.1 software upgrade does NOT add the Fax / Voice discrimination or better voice quality to the 1.0 or 1.3 firmware versions of the modem. You need a firmware (aka ROM) revision to the latest 1.4g firmware for these. Since they are part of the board you have to do the \$99 modem swap! You can use the new software on the old firmware Linelinks, though and get the other improved features.

Communicate-Lite Upgrade

For owners of Linelinks/Promodem etc. Mark/Space Softworks has an upgrade to the full featured ZMODEM tool for \$19.95 plus shipping. (There was a coupon in the box). For owners of MacKnowledge you can upgrade to Communicate Lite and the ZMODEM Tool for \$29.95 plus shipping. Call 1-800-799-1718 to purchase. For company info and location of the demos of this software see corresponding sections.

The editors two cents on upgrades

For recent and FUTURE purchasers of modems this is very good news. Prometheus have (in theory!) addressed most users major beefs with the modem! Though it looks like there are some teething pains on the new versions of MaxFax.

For owners of Linelinks that NEVER purchased MaxFax or similiar software, I think you would be foolish not to get the software upgrade. Its as cheap as the shareware program ValueFax and better Fax software, PLUS you get Communicate Lite which is a BIG improvement over Macknowledge.

For owners of Linelinks that did have MaxFax previously its a tough call. Weigh in the fact that the PowerMacs, AVs, ARA and System 7.5 are better supported with the new software. If you don't fit that profile it doesn't sound like its worth upgrading (i.e. if its not broke don't fix it). I don't know anyone who bought the software only upgrade yet, so I may be completely wrong!

For owners of Linelinks that never purchased a better communication program than Macknowledge you should definitely consider getting Communicate Lite with the Zmodem tool.

Given that Prometheus is charging \$99 + shipping for a hardware upgrade on the modem and I now see the Prometheus Promodem is being sold locally for \$89.47 (Nov 12, 1994) it would be stupid for anyone to do the hardware upgrade. Note: The price on new 14.4K modems has fallen about \$45 the past three months so Prometheus does NOT deserve flames on this policy since it was initiated then not NOW.

If you have the old ROMS (1.0 or 1.3) you may be somewhat upset about the hardware upgrade. We KNEW the ROMS were probably NOT upgradeable since the Linelink came out!

On the other hand, I think people who bought a Linelink and MaxFax with Voice when it was advertised by MacWarehouse as discriminating the Fax CNG tone from voice mail probably have a very legitimate gripe with either MacWarehouse or Prometheus! However, they only did that in one or two catalogs, for about a month or so and usually included a paper in the box noting the problem. So only a very small percentage of owners fit that bill.

Undocumented Modem Features

=====

Some S registers seem to have larger ranges than indicated in the documentation.

ATW2

Command ATW2 works. The corresponding register (S95) that Hayes uses is not present however. ATW2 just reports the carrier speed instead of the serial port (DTE) speed in the CONNECT message reported by the modem. Personally, I find ATW1 much nicer.

Caller ID (the feature that is sort of there)

Please note this is not a bug its a non-feature. Many people report the modem doesn't crash as Chris Baker says in some

situations so its occasionally usable. A relay is not included as a cost cutting measure (reasonable since so few people have Caller ID at present and modems are at cutthroat prices now). I think the missing relay MIGHT also have been used for other features such as recording outgoing messages from the local phone.

From Chris Baker (a co-author of MaxFax):

The LineLink firmware DOES support caller id detection. The modem will display the caller id it receives from the phone co. The only problem is the modem will then crash and require a powercycle to get it back because the LineLink doesn't have the necessary relay switch onboard.

To try the caller ID yourself do the following: 'AT#VS4' after the OK set your DTE to DCE (port) speed to 19.2k and enter 'AT#CC1' to indicate formatted caller id output.

Modem Bugs and Misfeatures

=====

People have reported that the LineLink is about 15% slower than other modems in side by side comparisons. At present I discount this claim, it appears to be about dead even with the majority of other 14.4K modems.

Some of the S registers are NOT saved to non-volatile memory that you might ASSUME should be saved. Most notably register S7 is not saved to non-volatile memory. (Thanks to Neil Schulman for pointing this out). This is NOT a bug, what is saved or not saved is largely up to the manufacturer.

CNG FAX tones are only recognized for modems with version 1.4g ROMS or later.

One person bought 4 LineLinks, after about 8 Hours of being on unattended they had to be reset manually. This seems to be generic problem with LineLink in that only power on and power off seems to solve strange problems. (It seems particularly prone in Fax and voice modes). I have personally managed to get the Linelink in these types of states but mostly when trying out undocumented or poorly documented commands voice commands.

My Modem only doesn't connect at XXXX baud. Whats Wrong?

If the modem never connects to ANY modem at any speed check the obvious (i.e. cables are plugged in to correct places, phone cord is good etc). If you set your modem at 9600 bps and get a 9600 bps connection but can't work above that speed I suspect you do NOT have hardware flow control working correctly. See cable , hardware handshaking and software setup section and not this section. If the modem works with at least one other high speed modem at all speeds but not all high speed modems you call continue reading here.

95% of the time the factory defaults work perfectly. 9 out of 10 times of the remaining 5% its you screwing up the software. But sometimes all hell breaks loose. The techniques that follow apply to all versions of the ROMS but are most useful on the 1.3 ROM modems.

Version 1.3 of the ROMS have real problems connecting at high speed to various other brands of modems (Telebits, Zooms, Supra, Microcom, Avtek). See the ROM/firmware section for details on how to determine which ROM you have.

** No real cure yet exists! We have bandaids only! **

Typically you get a connection at 4800 bits per second instead of 14400. Sometimes its no connection at all. Sometimes its works on dialing in but not out and sometimes its the reverse.

People in Australia and New Zealand are particularly prone to this problem, or maybe those "down under" are just more vocal!

If you get a connection at all then try this technique that people have used successfully in many situations:

Aftering connection you can try getting into command mode by escaping (i.e. typing + + + and then AT <return>) Then type AT01. (That is a letter "O" not the number zero!) This tries to retrain equilization in the connection. It often produces a better connection! (i.e. 14400). This technique seems to help with ZOOMS and a few other brands on occasion.

If instead you try AT03 instead of AT01 above this forces the modems to renegotiate their speeds, protocols and compression. This technique gets a 14400 connection with Avtek modems which normally only get 4800 bps. It disconnects Telebits however!

The above is easy and often effective "bandaid". You do have to get a connection though!

These results strongly indicates there is a problem in either v32bis or v42bis negotiation!

By trial and error Doug Bonar (bonar@lagrange.rutgers.edu) tried several settings I suggested based on other peoples previous attempts. He used a Linelink with 1.3 ROMS to call into a bank of Telebit Worldblazers modems.

The Telebits have been one of the more troublesome cases. So the hope is that the experience here carries over elsewhere.

* The EXACT best initialization string he came up with is :

```
AT &F0 &F3 W1 L1 T N3 S37=9 S46=138 S48=0
```

* His comments are:

" I get a 9600 baud, LAP-M, V.42BIS connection with the local Telebits Worldblazers. Unfortunately, it seems to be somewhat unstable. My modem ready light sometimes turns off and then carrier is lost. I presume that something (line noise maybe) forced the modems to go into a recalibration of features, and that that bombs. Basically, while the modem seems workable at 9600 buad over the lines with Telebits modems, it is still not reliable."

* Explanation of elements in the string (for purposes of further experimentation):

&F0 &F3 - starts with factory defaults doing both &F0 and &F3
MIGHT be overboard but who knows!

W1 - So modem reports what type of connection we get!

L1 - Just a low speaker volume control, I prefer loud myself

T - Use touch tone dialing. (Personal preference)

N3 - This forces the modem to use the speed specified by register S38 when originating a call.
I suspect N5 (the default) may not work since it allows fallbacks (i.e. the 4800 people usually get).
I suspect that N0 (thats "N" and the number 0) might help This forces the speed to be specified by register S37 for both the originating and answering cases. This might be needed for when a Telebit calls a Linelink. It may also help when the Telebit asks to renegotiate the connection.
Lets see if this helps the carrier drop problems.
(I don't know!)

S48=0 - disables v42, v42bis feature negotiation.

S46=138- forces v42bis compression. s46=138 is the default so this is redundant. (Doug tried S46=136, i.e. no v42bis compression and it didn't help or hurt, so the compression itself looks like its not the problem but perhaps only the feature negotiation)

S37=9 - forces a maximum 9600bps connection.
Trying S37=11 (i.e. a 14000K connection) DID NOT WORK!
However if the above string works for you go ahead and try S37=11 at least once. It may work differently with N0 command even. (S37=10 is PROBABLY an illegal value).

In THEORY I think the string that might be better is

```
AT &F &C1 W1 N0 S7=60 S10=30 S37=9 S48=0
```

that SHOULD give a 9600 (v32), LAPM (v42), v42bis connection. If that works try:

```
AT &F &C1 W1 N0 S7=60 S10=30 S37=11 S48=0
```

that SHOULD give a 14400 (v32bis), LAPM (v42), v42bis connection. Also you can add any personal preferences to the string like L2.

Now for the rational on those choices. I already explained why N0 should be tried. S7=60 gives more time to get initial connection / carrier. S10=30 gives more tolerance for longer periods of bad carrier. &C1 just lets the light on the modem tell you when carrier is lost.

We need feedback on these settings!! Tell me how they work or don't!

The following are a typical cross-section of cases, I am including these to see if anyone else brighter than I am can see some patterns or has some good ideas!

- * Case 1: Mike Markzon MARKZON%HWS.bitnet@CUNYVM.CUNY.EDU
The problem I have is that when I try to connect to BBS's that use Zoom brand 14.4 modems I am only able to connect at 4800. I have tried to force the connection using the init string AT &Q5 S37=11 N0. No connection takes place when I use this.
 - * Case 2: courtn@cs.uregina.ca
When I connect to US Robotics, I don't seem to have much of a problem. I always seem to get a solid 14.4 connection, with no retraining or anything. With Zoom's, I connect at 4800/ARQ/LAPM/V42BIS, and I stay at 4800, no retraining happens. (It is a solid 4800 connection though. I get no errors and don't lose carrier or anything like that). I've know some other LineLinker's have this problem too, but on the flipside of the coin, many LineLinker's connect with Supra's and other modems flawlessly, and absolutely love their LineLink's. In fact, there's was a thread on the Supra Fido echo about this very problem. One sysop (who has a Supra) had two callers (who had LineLinks) that had problems connecting (same problem's I have), but he also had 4 other users with LineLinks that had no problems connecting. And they were all using the same init string and had the same config! Anyway, I've found a kind of half-assed solution to the problem. If, after I connect, I go to command mode (with the 3 plusses), then do a AT01 (which tells the modem to return to data mode and initiate equalizer retrain equalizer sequence), I seem to get a solid 14.4 connection after that.
 - * Case 3: I.Orchard@irl.cri.nz (Ian Orchard)
After a series of disasters with Linelink 144e modems, I'm wondering if I should bail out. I'm on to my 4th sample and it still won't raise it's carrier speed higher than 4800 baud when communicating with First Class or ARA. Comms with Zterm sometimes manage higher speeds but it's spasmodic. A small test file that other 144 modems (even other LineLinks) transfer in 15secs or thereabouts, takes me 45sec. I have tried different Macs, different software, different locations. No luck. (Sample #1 did have a different problem)
 - * Case 4: Similiar unknown modem. awaji@gokumi.j.kisarazu.ac.jp
-

(AWAJI Yoshimasa)

- * Case 5: Chris Riker CHRSRIKER@AOL.COM
AOL tech support says that the LineLinks are having problems in some cities. They suggested I call D.C. where they know there are no Microcom modems. The connection was all I hoped it would be (except the long distance charges!). I believe the AOL people in that my LineLink is having trouble connecting with SprintNet's Microcom modems. Is there anybody else whose had problems with Microcom modems? How did you get around it (strings please....)? I had a Microcom QX v.32 once and it did not like at all dealing with the v.42 query tone from any modem. I eventually got rid of it, cause it would just stop negotiating if v.42 even asked it if it had it. Wonderful piece of work that...
 - * Case 6: David A. Smith" <smithd@cs.csee.usf.edu>
For dialing into the school here I have to set some S-Reg's, (I can put that doc up too) so that it doesn't connect using MNT protocol (We have Microcomm 28.8k's here and they SUCK!!!! they won't connect to normal v.42/bis modems (including zooms, Linelink, Hayes, etc) reliably unless you force the v.42/bis settings)
 - * Case 7: ang@sortr.incyte.com (Angelo Delegeane)
Using my LineLink 144e, I have called and connected to the Telebit T3000 on the Sun workstation at work. For security reasons, we have set the T3000 to callback the appropriate person after their password is entered. Thus, after being queried for my password and typing in the appropriate response, the T3000 hangs up and then tries to call me. I have tried both automatic and manual methods to answer the incoming call using both Zterm 0.9 and Microphone Pro and it seems that a link is never established with the T3000. I have tried linking up at 2400, 9600 and 14400 and haven't been able to make a link even though I have no problem establishing links on outgoing calls. My partner at work also purchased a LineLink 144e and has the same problem (outgoing calls connect, incoming calls don't). We haven't tried linking up our modems to each other yet but that will be tried. [By the way, I don't see this problem with my SupraFAXModem.]
 - * Case 8: murchison@psu.edu (Penn state)
Here at Penn State, we are experiencing problems between the LineLink and our Telebit T3000 modems. For reasons yet determined we cannot establish LAPM and/or V.42bis connections, and the LineLink falls back to MNP(1-4, 5). We do not want MNP to be used with the PPP dialup service and users should enter the following command to ensure that MNP does not get enabled:
AT&F3\N5\C0 We are currently looking into a solution so that users of the LineLink will be able to participate in the benefits of LAPM/V.42bis connections with the Telebit T3000's.
 - * Case 9,10: ihochman@mail.sas.upenn.edu (Ian Hochman)
tjprester@ucdavis.edu (Timothy Prestero) writes: The modem dials fine. Once it gets to the connect phase, I get the familiar static of the connect phase. The static part goes through three sort of noise levels (at 14,400 connect speed or better), but on the third set of static, where my modem usually stops and connects, it
-

keeps going until the other phone line hangs up. You're probably trying to connect to a Telebit 2500 or 3000 modem. Tech at Prometheus told me that the newer LineLinks (read: any manufactured later than 1993) are incompatible with the Telebits. They claim to be working on a fix, but I wouldn't hold my breath at \$99 a pop.

****Note:**** Ian has both ROM version 1.0 and 1.3 Linelinks. 1.0 ROM Linelinks apparently don't have this problem, 1.3 ROMs do.

* Case 11: harry@hjwmac.DIALix.oz.au wrote:

I'm having troubles connecting to a Rockwell chip'd MODEM (Avtek) at anything greater than 4800. I have successfully connected @ 14400 to various other MODEM's such as a Maestro 288FM, Netcomm M11F and a Dataplex 596 (all of which are Australian manufactured). The setup string I use is as follows ;
AT&FS37=11M1W2B0\V1&R1

* Case 12: Orchard@irl.cri.nz (Ian Orchard)

I'm on to my 4th sample and it still won't raise it's carrier speed higher than 4800 baud when communicating with First Class or ARA. Comms with Zterm sometimes manage higher speeds but it's spasmodic.

* Finally: From ROB WINIKE (Prometheus Tech support):

> My manager says ATI3 is the only command that gives the ROM
> version of the LineLink. The v.2.2 you are referring to must
> have something to do with Sierra's notation about voice commands.
> They just don't apply to the ROM that's used in the modem. I know
> that's true, because when we get non-connect problems with the
> v.1.3, we cross-ship a new LineLink with ROM v.1.0.

Power Supply/ FCC license

The LineLink itself is in a plastic case so is more prone to RF noise than a modem in a metal case. The modem itself only has a FCC Class A license as opposed to a Class B rating. (Apparently this means commercial rather than residential use.)

Keeping the modem away from other devices is a reasonable precaution though so far I personally have had no trouble in that area.

The included power supply "brick" is a 120 volt AC input to 9 Volt AC, 1 amp, 15 watts output transformer. Its UL listed, however one person reported that his power supply burned up (literally!).

One person in Norway used a 9 volt DC, 300 milliAmp transformer. The modem responded to commands but the MR and CD light went out when the modem went off hook. Some people think the power supply is too weak, given that the modem works at all this grossly underpowered, this is probably just a wild conjecture at this

moment. No one has reported substituting a higher amperage power supply.

Interference and RF noise could easily occur with any transformer so the idea that placing the transformer far away from other noise sources might help is again reasonable.

People have cited following problems

- * Modem stops working when nearby appliance turns on/off.
- * Modem MR light goes off and stays off , or just flickers.
- * AM station are being played over modem speaker.
- * LineLink causes interference with television.

The above examples represent real hardware problems. Specifically overloaded wall outlets with power spikes and RF noise. Plugging your LineLink into good noise/surge suppresser might help but garbage in garbage out still applies. On my Linelink it has a 2200 microfarad capacitor on the circuit board which was much larger than I expected which is good!

If the MR light goes off for short periods of time (i.e. a few seconds say every few minutes) don't worry too much. Otherwise start thinking about where you might be getting noise and do something about it.

NOISE ON PHONE LINES

People have reported that :

- * Modem works with v42bis connections but not MNP
- * Modem won't work over phone lines with appletalk on other phone line pair.
- * Rewiring phone cable fixes problems.
- * Long distance calls unreliable.

Usually these symptoms are accompanied with the MR light going on and off.

Some of the problems may be associated with the 1.3 version of the ROMS.

The majority of "noise" problems seem to be poor software setup. Some "noise" problems seem to be incompatible modems on other end. Some seem to be real problems with the modems. The Linelink seems to be similiar to other modems near its price in handling noise. It may be slightly below average.

Keep in mind there is a lot of noise and very limited bandwidth on many existing telephone lines. Note that ISDN will help in the future making present modems obsolete. Some telephone companies are now digitally compressing (lossy) so they can cram more calls into the available bandwidth while claiming better sound quality. This essentially translates into more (effective) noise from the modems point of view.

The LineLink is MUCH better than a conventional 2400 bps modem or even a 9600 bps modem without V.42 error correction in its ability to handle noise on the phone line. All high speed modems are sensitive to noise, its only a matter of degree.

On my modem I have successfully transferred data even when I pick up the portable phone and keep it off the hook. It retrains (MR light goes off and modems renegotiates, MR light comes back on). It then transfers at a slower rate. If I talk into the phone too long it will disconnect. This is exactly what it should do. I have even used it during lightning storms (Yeah I know I shouldn't do that!).

Bottom line is if you are using average or better phone lines and don't expect miracles you should be quite happy.

Noisy lines MAY give trouble. Avoid this modem if you do much long distance, unless you plan on buying , trying it and returning it if you are not satisfied. (Most people ARE satisfied)

Cables and Hardware Handshaking

Your modem "talks" to your modem at the serial port "DTE" speed typically 19200, 38400 or 57600bps set in your terminal program. Your modem then "talks" over the phone line to the remote modem at the "DCE" speed (typically 14400bps but compression can effectively increase the useful speed) and finally the remote modem can talk to the remote computer at a possible different "DTE" speed.

Handshaking is a method for the modem to tell the computer to stop sending data to it or the other way around. Its needed because at the modems and computers are transferring data at different speeds. Note its not NEEDED at 9600bps and below though it sure helps.

Imagine, a road ending at a river with a ferry crossing. If the traffic on the road is light and slow so the ferry always makes it across in time for the next car you don't need a gate, or a stop sign or stop light for traffic! If its heavy or fast traffic or if the ferry operators go out for lunch you better have one, or the cars will end up in the river!

Software control has the computer and modem sends the DC1 and DC3

characters and is called XON/XOFF flow control. Software control is less reliable than hardware flow control and also those two characters can't be used for other purposes.

The analogy above would be stop lights and a gate at the ferry crossing are hardware flow control and stop signs are software flow control. Both serve the same purpose but stop lights and a gate are clearly better than stop signs in both speed and safety.

Modern software allows you to use hardware flow control and there is little reason to use software flow control if you have an option. Unfortunately you may NOT have an option with some software. In any case hardware flow control uses two pins on the modem, CTS and RTS.

The CTS pin on the modem is used to output a signal to the computer to indicate if the modem is ready or not to receive data. Since the modem is normally MUCH slower than the computer serial port at sending data this flow control is almost ESSENTIAL at speeds above 9600. This type of hardware flow control is called CTS hardware flow control.

The computer outputs a signal that is received on the modem's RTS pin. This is used to indicate if the computer is ready to send or receive data. This type of hardware flow control is called RTS hardware flow control. Its not quite so critical as the CTS hardware flow control since computers are much faster than modems. However the computer may be busy doing something else and not have time available to get the data before it overruns the buffers.

For data connections always use CTS and RTS flow control if available. However for Fax the situation is a bit trickier. The following information is from several sources:

- > During fax mode, the DTE-DCE port speed is 19200 bps.
- > The DCE provides a speed buffer of 1024 bytes and provides
- > DC1/DC3 (XON/XOFF) or RTS/CTS method of controlling the data
- > into the buffer. This flow control is controlled by AT&K3 or
- > AT&K4 command. This method of data flow control is available only
- > for DTE to DCE direction of data. There is no provision for data
- > flow control from DCE to DTE.

In english, DTE to DCE data means Mac to Modem data. This means the modem can signal the Mac to stop (via CTS or XON/XOFF). RTS isn't being used for flow control contrary to what the term "RTS/CTS method" might indicate. So for faxes in fax mode the RTS pin is not functional. This factoid will be important as we discuss hardware hangup later on the Macintosh.

The modem also has a pin called DTR that can be set to hangup the modem (via command &D2) when its activated or go into command mode or other neat stuff.

On a PC, Amiga, or Unix box you connect the RTS pin on the

computer to the RTS pin on the modem, the CTS pin on the computer to the CTS pin on the modem, DTR to DTR etc etc. Thats just a standard RS232 serial cable. Usually just called a PC modem cable. PC users should just use factory defaults and add &D2&C1 in their init strings and set hardware handshaking, hardware hangup, hardware carrier detect, etc all ON in their programs. But keep reading anyways if you use a Mac or bought a Linelink sold for use in the Macintosh market.

On the Mac things are a bit of a mess (PC users don't gloat yet, at least we don't have to replace UART chips!) In 1984, Steve Jobs chose to use a subset of the RS422 standard when the Mac was first introduced and a nonstandard 9 pin connector (DB9). Macs since the MacPlus use a still weirder 8 pin mini-din connector (or a backwards compatible 8 +1 mini-din connector on AV's , PowerPCs and newer Quadras). The names of the handshaking pins on a Mac are now called HSKout and HSKin (Handshake in and out). HSKout stands for handshaking out, HSKin stands for handshaking in. In full hardware handshaking HSKout is used for RTS flow control and HSKin is used for CTS flow control.

On the original Mac 128, 512K, and 512KE only have the HSKout (CTS) pin for handshaking. Later with the advent of the MacPlus the RTS pin was added. Early documentation from Apple (i.e. the MacPlus) called the HSKout pin on the MACINTOSH side the DTR pin. The reason for that was that old 1200 and 2400bps modem cables used that pin to connect to the DTR pin on the modem side for hanging up the phone. RTS handshaking wasn't used at all at that time since the fastest speed you would ever likely use at the time was 9600bps. That same HSKout pin is NOW being used for RTS flow control on a modern modem. So some old (and not so old!) software will refer to RTS handshaking as DTR handshaking! Yes its confusing, which is probably why apple changed the names to HSKout and HSKin.

A correctly wired Hardware Handshaking Cable for a Macintosh is as follows. (Apple Recommended) Zterm manual and the Apple Modem Tool have nicer pictures.

Macintosh Mini DIN-8 (male end of cable that plugs into Mac)

```
>         6   7   8
>         o   o   o
>         o3  o4  o 5
>         o   o
>         1   2
```

```
> Mac DIN-8           Modem (DB-25)
> 1 (HSKout)         -> 4 (RTS) + (optionally) 20 (DTR)
> 2 (HSKin)          <- 5 (CTS)
> 3 (TxD-)           -> 2 (TxD)
> 4 (GND)            <-> 7 (Signal Gnd)
> 5 (RxD-)           <- 3 (RxD)
> 6 (TxD+)           NO CONNECTION
> 7 (GPi)            <- Pin 8 (DCD)
```

> 8 (RxD+) <- 7 (Gnd)

The above cable has no real disadvantages ****IRREGARDLESS**** of what modem you are using. It has many advantages which is why Apple has recommended this cable for years.

Modem 20 (DTR) pin ON the modem is used to hang-up the modem and/or go into command mode. Pin 20 MUST obviously be hooked up to have hardware hang-up of the modem work. At any given time IF the modem is setup correctly and you have a cable like above or equivalent, you can use either RTS flow control or hardware hangup but not both.

Software hangup works just fine 99% of the time so hardware hangup is VERY optional. RTS flow control is much more important in most situations so use it!

Hard and fast rules on the Macintosh for data calls.

- * You can always use &D0 in the init string (the default) and software hangups.
- * If you use either &D1,&D2,&D3 then you must use &K0 (no flow control) or &K4 (software flow control) or corresponding /Q commands when using data calls.
- * If you use &K3 (the default) then you MUST use &D0 (the default).

Generally the simplest way to work is to set the modem to always ignore DTR (AT&D0 which is the default anyways) for data calls and always use CTS and RTS flow control. And always use software hang-up to hang up the phone. (See section "Escaping, Software Hangup and TIES") If you do this then fact pin 20 is hooked up is immaterial (and why it is labeled optional above).

For faxing, since RTS is ignored the rules change slightly. &D2 is quite safe in fax mode until you return to data mode. Also because the DTE (serial port) speeds are 19200 or less for fax Xon/Xoff flow control isn't so bad. Some fax software also doesn't do hardware flow control.

So far the above applies to ANY high speed modem on the Mac. The problem is the serial ports on the Mac, not the modem.

Now here is where it gets interesting in terms of the LineLink. There is a big mix up of cables, modems and misinformation.

For unknown reasons Prometheus generally sends out modems sold for

the Macintosh market with pins 4 and 20 jumpered and a cable with only pin 4 or pin 20 connected. That's equivalent to the Apple recommended cable for purposes of using it on a Mac but bad news if you want to use your Mac modem on a PC or use the Prometheus supplied cable with another modem even a LineLink sold for the PC market.

There are at least 3 correct but different Mac to Modem cables that were shipped with the LineLink. At least 2 wrong styles also. Two "correct" cables require an internal jumper to be in the modem. I suspect that modems that shipped after roughly DEC 15 1993 will have the jumper. The jumper is reported to be blue but I strongly recommend you look carefully before messing with your modem, they may not all be BLUE! Instead use an ohmmeter to determine what the jumper does. If you don't know how you shouldn't be doing the modification!

The first cable I received was wired exactly as above except the Mac GPI pin was not connected to modem (DCD) pin. This is only a very minor inconvenience except when the modem is used unattended.

The second cable I received did not have the modem DTR pin hooked up. This second type of cable seems most common of those people who actually checked the wiring (though this may be biased sample). This is an OK cable if hardware hang-up is NOT used (i.e. default &D0). It's fine on most LineLinks that have internal jumper installed (see later). Do NOT use this cable on other modems if you want to use hardware hangup!

The third type of cable that has been reported to me is one where the modem RTS pin isn't hooked up but DTR is. This type of cable is real bad news!!! Yes it works fine on LineLinks with internal jumpers but it won't on LineLinks without the jumper or almost any other modem. Do NOT use this cable on other high speed modems!

That's the actual observations. The following info is summary of info received from Milt Sagen at Prometheus.

- > There are three cables whose inventory tracking numbers are
- > CBL-06, CBL-10, "ZOOM cables". All SHOULD be wired as above
- > except the jumper between 4 (RTS) and 20 (DTR) may or may not
- > be present. CBL-06 cables will only work with the modems that
- > have the internal RTS-DTR jumper. To determine if yours does
- > look on bottom of modem. These modems are marked "LineLink 14.4
- > (MAC)" on the label. Gpi is supposed to be hooked up on all
- > cables that met specs. All cables are hardware handshaking.

In my case my modem has "LineLink 14.4" on the label on the bottom of modem case. It should not have the jumper. Its factory default is &R0 not &R1 as the manual states.

From the manual

&R0 PC Mode. DTR and RTS signals function normally.
&R1 Mac Mode. When the modem is configured for bi-directional RTS/CTS flow control (&K3 or \Q3) the DTR signal is recognized as RTS by the modem. DTR and RTS signals function normally with all other &K or \Q settings.

****ACTUALLY**** &R0 and &R1 are equivalent , i.e. they both do nothing (Milt Sagen from Prometheus). Official word from Prometheus (Mark Smith) is "At this point, the &R command is not an implemented command. It is one of those things that they planned to put in and so the documentation refers to the command - but the modem does not actually respond to this command in the manner described."

Bottom line is that if you have a modem with label LineLink 14.4 (Mac) on bottom any of the above cables should work since you should have the jumper internally. If you want to use the LineLink with a PC , then buy the PC version from MicroWarehouse and buy a cable built to Apple specs for your mac. (Your PC software definitely won't like the jumper). If you have one of the earliest LineLinks then check your cable.

Now to provide a speculative (but educated) guess as to the problems. The CBL-06 cable may have mac pin 1 to mac pin 20 (DTR) but rest like Apple recommends. Any one care to confirm? ASSUME CBL-06 cables were ordered with the intent that &R would be implemented and default set at &R1 (as per manual). ASSUME the cables were wired with Mac (HSKout) -> 20(DTR). Which would have worked if &R1 were implemented. Now the cables and the modems went out without &R1 implemented some other cables (CBL-10 etc) were sent out with this first batch of modems. People who received CBL-06 cables couldn't use Hardware handshaking since RTS wasn't hooked up. (Ouch!!). ASSUME Prometheus has a ton of CBL-06 cables in the warehouse, they start manufacturing LineLinks with the internal jumper connected i.e. "LineLink 14.4 (MAC)" these LineLinks work as they should with CBL-06 (or CBL-10 or ZOOM). All's great except for the old stock with "LineLink 14.4" which gets mixed up.

End speculation , back to facts.

If the modem works and connects with another modem with init string AT&F&Q0, NO handshaking and terminal program set at 9600 bps at speeds up to an including 9600 bps, then the modem is probably OK. Also do the self tests mentioned elsewhere.

If at 19200 bps and AT&FW1L3&C1S7=60 as the init string if it doesn't connect and stay connected using hardware handshaking then suspect a bad cable and a good modem

Prometheus was good about trying to get this straightened out, it was a real mess the first two months It actually dragged out far longer than it should have however. To be fair most modem manufacturers seem to get this wrong at least periodically and

most sales droids in apple dealers are clueless and will sell you any cable that looks the same. Its a common , common problem!

Escaping, Software Hangup and TIES

Escaping is the process of making the modem going into command mode to accept modem commands when the modem is actually in data mode (i.e. transferring files etc).

In order not to accidentally trigger some nasty behavior in Linelinks and other TIES modems, I am going to write three pluses +++ as + + +, i.e. with spaces. This is only so the file can be easily uploaded, don't include spaces when typing.

Using the notation in the manual:

<CR> represents the carriage return (or enter) key.
(ASCII code 13, Control M)

<GT> represents a guard time which is a delay before and after the escape sequence. The guard time is stored in register S12 in 50th of a second. Hayes standard has 1 Second (S12=50). LineLink has S12=40 by default. You can reset S12 to 50 if you like. Note that the S-register info on S12 given in the document on the Prometheus BBS contradicts the manual on the behavior of the second guard time.

The Hayes standard escape sequence "<GT>+ + <GT>" lets you return to command mode without breaking your connection with a remote modem. So to escape you wait a second or two, type three pluses then wait a second or two. You will then see an OK (unless you were already in command mode to start!)

The Linelink also uses a second method of escaping called **Time Independent Escape Sequence** (TIES) that consists of
+ + +AT<CR>
typed at any speed with anything before or after it.

It would be **IMPOSSIBLE** to upload this file with a Linelink if the TIES string in it because it would make the modem go in command mode! In other words if you are trying to transfer a file that "happens" to have this sequence of 6 ASCII characters it will stop in mid transfer. The program you are using is then likely to hang (because it still thinks the modem is in data mode). This is dangerous behavior. There is no warning and if it happens on a file it happens each and every time. To be fair the half life is gigabytes of random ASCII data before you would expect to trigger the behavior. But real data is not random! None of this behavior is really that important in practice. Just be aware of the remote danger. Ignoring Hayes propaganda test files and documents on modems you are unlikely to trigger the behavior accidentally with real data. Avoid getting in the habit of using this second method of escaping since its also nonstandard.

Rumor has it that TIES was created to avoid paying Hayes a royalty (3% of modem price according to a Hayes employee) on the patent it

holds. For more details, look at the July 1993 issue of Byte , page 184. "Escape sequences ..."

Two nice things about TIES are that the escape sequence gets you the OK response message even if you start out in command mode, also the sequence is quick so that you don't have to wait very long.

Do the following sequence for normal software Hangup

- 1) Wait a second or two
- 2) type + + +
- 3) wait a second or two
- 4) Type ATH then the return key.

The notation that is used in the manual for this is

```
<GT>+ + +<GT>ATH<CR>
```

The Linelink is the only modem I have heard of that uses both the TIES and Hayes escape methods. It seems it produces some quirks! My experiments with the LineLink using Zterm produce the following. With S12=200 (the default value of 50 is too fast for me to type and be sure I am doing it right!), I got the following behavior

```
+ + +AT<CR> escapes largely independent of where and when EXCEPT
```

```
+ + + +AT<CR> doesn't escape.
```

```
+<GT>+ + +<GT> doesn't escape either!
```

The Linelink then has truly weird behavior when doing combinations involving four pluses in a row. That means the Linelinks will escape when other modems would not escape (TIES) and will NOT escape in other situations that other modems would (four pluses in a row).

Setting up your linelink for the first time!

=====

Obviously plug every thing in like the manual shows. The phone line from your wall goes in the LINE phone socket not the PHONE socket. (Easy to do when you aren't looking at the back!) Turn on the power etc.

Load any communication program. If needed install your communication program(s) including any needed resources.

When you first get your modem, do the following commands. Redo these commands if your modem "Misbehaves" for no apparent reason.

If you are using a Commtoolbox based program (Like Communicate Lite or ClarisWorks or Sitcomm). Select the Serial Tool and NOT the Apple Modem Tool for these commands. Open a connection. (Which

is now letting you "talk" directly to the modem I hope!) Other communication programs not based on the Commtoolbox will normally "talk" directly to the modem.

```
ATZ
AT&F
AT&F0
AT&F3
AT&W0
AT&W1
AT&Y0
```

The command ATZ resets the modem. It resets data settings based on non-volatile memory settings. It does NOT reset all Fax and voice settings but it does reset some. Furthermore it does NOT necessarily restore data factory defaults unless you do the above procedure. The commands &F , &F0 and &F3 resets the active profile to factory defaults. Prometheus says they are identical but it pays to be paranoid at least once. AT&W0 and AT&W1 save the active profile to the two permanent storage locations (non-volatile memory) so next time you power on your modem (or use command ATZ) you will be at factory settings automatically. AT&Y0 selects the first non-volatile memory settings as the default on next power up.

****DO THE ABOVE OR YOU MAY REGRET IT!!**** You have been warned!!

The command AT&V will display the present settings. For reference on my modem at 57600 bps (which was purchased in Sept. 93) at&v gives the following for the ACTIVE PROFILE (slightly reformatted to fit)

```
ACTIVE PROFILE: B1 E1 L2 M1 N1 P Q0 V1 W0 X4 Y0 &C0 &D0 &G0 &J0 &K3
&L0 &P0 &Q5 &R0 &S0 &T4 &U0 &X0 &Y0 \C0 \G0 \Q3 \T000 \V1 \X0 %A000
%D2 %E1 S00:000 S02:043 S03:013 S04:010 S05:008 S06:002 S07:040
S08:002 S09:006 S10:014 S11:075 S12:040 S14:AAH S16:00H S18:000
S21:00H S22:76H S23:11H S25:005 S26:001 S27:49H S36:007 S37:000
S38:020 S46:138 S48:007 S49:010 S50:200 S63:000 S82:128
```

There are some differences between shipping modems, you can compare it with the manual defaults, &R0 is commonly different as well as \V1. Don't worry if you have &R1 instead. If \V0 is your default then anywhere you see &F in this FAQ use &F\V1. I will NOT include it since the vast majority of modems are set at \V1.

You ~can~ substitute &F plus your personal preferences for the default settings above. Specifically to reset with ~my~ personal preferences try the following

```
ATZ
AT&F\V1&C1W1L3
```



```

AT&F0\V1&C1W1L3
AT&F3\V1&C1W1L3
AT&W0
AT&W1
AT&Y0

```

where the reasons why I chose the string &C1W1L3 is explained elsewhere in the FAQ. S7=60 would be included also but isn't saved to nonvolatile memory on the Linelink.

Testing Your LineLink

How to test your modem . Most of Procedure is from tech support First this is a very incomplete test. If it fails send the cable AND modem back. If it passes you still may have a bad cable or more rarely a bad modem . First follow procedure in section "Setting up your linelink for the first time"

Use provided Mac to modem cable. Turn power on Modem , Mac etc. You need not plug in phone line to do test. Start up terminal program.

If you are using a Commtoolbox based program (Like Communicate Lite or ClarisWorks or Sitcomm). Select the Serial Tool and NOT the Apple Modem Tool. Open a connection. (Which is now letting you "talk" directly to the modem I hope!) Other communication programs not based on the Commtoolbox will normally "talk" directly to the modem.

Set your terminal software to 9600 bps (or lower). 14400 bps won't work at all. 19200 will work on some of this but not all. Don't enable hardware or software flow control in your software. {Should work with flow control but if your cable is miswired it will complicate the test of the modem }

The test procedure is shown below.

I added some comments and put prompts "You>" and "Modem>" in. Don't type "You>" and "Modem>" or the comments. + + + should be typed without spaces and a short delay before and after it. Type in carriage returns on input.

```

You> Means you type the stuff that follows.
Modem> Means the modem responds with this line.
!      Means this is a comment I added to clarify what is going
on.

```

Excluding prompts and comments this is exactly what happened on mine (at 9600 bps)

```

You>ATZ                !resets modem as if it was turned off
Modem>OK
You>AT&F3              !loads factory default settings
Modem>OK
You>AT&F               !loads factory default settings
Modem>OK
You>AT&Q0              !This puts it in asynchronous mode.

```

```
Modem>OK
You>AT S18=0          !Should be redundant
Modem>OK
You>AT&T8            !Self test. Modem flashes MR light.
You>+ + + AT&T      !escape + + + (No spaces) Turn self test off.
Modem>000            !000 means zero errors were detected.
Modem>OK
You >AT&T1          !Another test where it echos what you type
Modem>CONNECT 9600
You >This is stuff I typed in. + + +
                        ! Should echo everything you type until you
                        ! escape with + + + (No spaces)

Modem>OK
You >AT&T          !Turn self test off.
Modem>OK
You>AT&F          ! Just putting it back to factory defaults
Modem>OK
```

Typical Session

The following is Hayes BBS's phone number which is obviously a good place to call to test your modem. Please do try local phone numbers first and read some of Hayes advertising out of courtesy.

Hayes BBS (800-874-2937).

I used zterm, with hardware flow control on. Hardware hangup OFF. bps rate set to 57600 (try 19200 or 38400 on a slow mac). Here is EXACTLY as it appears on the Hayes BBS as I dialed in.

```
AT&FW1L3&C1S7=60
```

```
OK
```

```
ATDT 18008742937
```

```
CARRIER 14400
```

```
PROTOCOL: LAP-M
```

```
COMPRESSION: V.42BIS
```

```
CONNECT 57600
```

Note we have a LAP-M error correction and V.42BIS compression . The carrier is 14400 which means we have v32bis. The connection between my Mac and modem is 57600 (which is what I set it to). If you get different responses above it is very likely that the modem on the other end doesn't support one of the above standards, or is not set up correctly.

Know what you are dialing into. If you get a 9600 bps connection on a modem that someone claims to be 14.4K , maybe the modem on

the other end doesn't use V32bis but an older proprietary format. Flow control problems at EITHER end often allow connections at lower speeds and unreliable connections at high speeds. As 28.8K modems become more common though who knows!

Basic Data Communication Software Setup on the Macintosh

=====

Intoduction and Background

First read section about setting up your LineLink for the first time. In both the manual and this FAQ. Then precede. Be ****sure**** to start from factory defaults. You did read the above section "Setting Up your LineLink for the first time" right? Also remember some programs mess with your nonvolatile modem settings so it pays to be paranoid.

Any mac can handle 19200 bps comfortably (EVEN the 128, 512, 512KE). Even a MacPlus can comfortably handle 57600 bps if using finder, no appletalk on, disk cache below 128K etc. So start with 19200 bps and move up if everything works.

- * In programs there is generally a dialog box that lets you input a string that is sent to initialize the modem. Call this the init string. You may have to type the string manually. Generally the string that works and gives you what you want is

AT&F

a better string is

AT&FW1L3&C1S7=60

- &F MUST be FIRST in the string after the AT. (ESSENTIAL)
- W1 Gives more detailed info on the connection especially error control and compression. May confuse very old and stupid programs that just look for CARRIER instead of NO CARRIER. but not very likely. (VERY VERY useful)
- L3 Turns up the volume to highest level. (L2 is default, Very Optional)
- &C1 Makes the carrier detect light on modem do exactly that. More and more programs can also detect carrier (on the GPI pin) Hence its used (or needed) in some modern programs. For older programs its ignored. In any case its helpful and can't hurt NO reason not to use it, I ALWAYS do

S7=60 means modem has 60 seconds when calling out to get a valid carrier before hanging up. The default is 40

seconds. My LineLink connects in about 17 seconds after the other modem answers the call so 40 seconds is usually enough. 60 seconds eliminates many problems and adds no new ones. (ESSENTIAL for some people). For international FAX calls S7=120 is suggested.

Linelink documents indicate 60 is maximum, 90 seems to work but be conservative and try 60 before trying 90.

- * Often the program needs a "Modem Reset" string. I generally use the same string as above possibly with H at the end to hangup. You can use ATZ (or ATZ1, ATZ2) but it ****may**** introduces problems in Fax or Voice. Some Fax and Voice settings are reset by ATZ and a few are NOT. You can end up in very unstable situation.

- * If the program needs a "Hangup string" just use ATH.

Also be aware some programs DON'T want the AT in the string (i.e. they put the AT in by default). Look at an example in the software manual.

- * You want hardware handshaking enabled for both input and output. CTS handshaking is output hardware handshaking. RTS is input hardware handshaking. A few programs call this DTR handshaking (UGH). If the program just has a setting called hardware flow control its about a 50/50 chance whether its CTS only or both CTS and RTS handshaking. The point is that ALL available hardware flow control should always be used IF available.

One exception is on the Mac 128K, 512K and 512KE there is no HSKout pin so you can't use RTS handshaking on those models. (Actually you can still set it but since the pin isn't there so it has no effect). People have reported running at 57600bps with a 512KE even with this handicap.

- * Don't use SOFTWARE handshaking (also known as XON/XOFF flow control) unless Hardware Handshaking is NOT available. Add &K4 to init string of the offending program and use XON/XOFF flow control in software, in zmodem protocol use the "escape control characters" option. Now pray because you will need help for this to work reliably.

- * Don't use both software (Xon/XOFF) and hardware handshaking !!!

- * Don't use hardware hangup to hang up the phone for data calls use software hangup. (Might be called DTR hangup or such) Yes, DTR is used for two different things which is why there is such a mess on the Mac. (Apple also renamed the pinouts a couple of times!) A lot of people/software include &D1, &D2, &D3 etc in init string these are all some form of hardware hangup using the DTR pin. The mac output pin is being used for the RTS pin so its not available when doing high speed transfers! (&D2 is OK in the Fax software itself but don't use it in your high speed data programs!).

Generally if there is an option for hardware hangup the software already knows how to hangup with software so just turn off hardware hangup and don't go messing with the &D commands, leave it at the default of &D0! To manually use software hangup see section "Escaping, Software Hangup and TIES"

If you get garbage on your screen after the other modem answers

Double check to see if hardware handshaking is being used.

Double check the parity etc. used in terminal emulator /comm program.

Most computer systems use 8 data bits , 1 stop bit and no parity.

IBM mainframes commonly used 7 data bits and even parity.

Check to see if your terminal type is correct.

Generally Unix systems will use either VT52, VT100, teletype etc. If you are calling an IBM-PC or most bulletin board systems generally either TTY or ANSI or ANSI graphics will be the appropriate terminal type.

The voice mode does this also so try turning the modem off and disabling the voice software and see if that fixes your problems.

More exotic data settings

Some people prefer to use W2 instead of W1. This could confuse some dumb programs. Programs that autobaud generally look at the connect speed as the DTE (Mac) speed which is the only relevant info for the serial port connection to work. W2 returns CONNECT 14400 even if the DTE speed is 57600. W1 gives the most information. W0 gives the least confusing information from the Mac programs point of view, i.e. minimal information. W2 gives less information than W1 and a different interpretation of CONNECT. If W2 works in your software then go ahead and use it if you like it. Largely a personal taste issue.

If you want to disable v42bis data compression while still using

error correction add S46=136 to the string. Using v42bis compression will NOT significantly slow down data transfers even when sending pre-compressed data. Only MNP compression has that problem. Disabling compression is not recommended except in unusual situations. Since ARA uses MNP IN SOFTWARE its usually recommended that v42bis be disabled in that case. (That almost always done in the ARA script file so don't look for it in any dialog boxes!).

Disabling v42 (error correction) is almost always a bad idea in my opinion.

If your phone line is an old leased PBX system or some other weird system you may need to add S63=x where x=0 to 15 and represents how much to decrease the carrier output. The default is 0 and should be increased by 3's. Very unlikely to be needed. This may be needed in countries other than the USA also.

If you are in the United Kingdom or HongKong add &P1 to the string. Have no idea what other countries this applies to!

You could save these settings using AT&W0. For instance
AT&P1&FW1L3&C1 S46=136 S7=60
AT&W0
AT&Y0

Would save personal settings appropriate for someone in the United Kingdom who dislikes compression. Note S7=60 still needs to be in any future init strings since S7 register is ****NOT**** saved in non-volatile memory on the LineLink.

If you have a very noisy phone line you can add S10=30 to your init string. This allows up to $(30-6)/10 = 2.4$ seconds of really bad noise before losing your connection. The default is 0.8 seconds. Increase only if you must and only by as small amount as you can get away with!

Check section "My Modem only doesn't connect at XXXX baud" on problems with version 1.3 ROMS and for examples of more detailed control of speed, error control and compression features.

Macintosh System Software

Remember all software has bugs, until proven innocent!

Inits/Extensions/cdevs can cause problems and slow the system down. Mouse , appletalk have higher priority than serial port. Hence activity there can cause trouble in downloading/uploading.

So if possible turn off appletalk and all inits as well as networking software.

If you are using system 6.x , use Finder instead of Multifinder.
If you are using system 7.0 , try 7.0.1 with system tuner 1.1.1

If you are using system 7.1

- * Use a small disk cache less than or equal to 128K. (Set it in memory control panel). There is a known bug in Apple's disk cache. Not fixed in hardware update 3.0. This effects network software also. They claim its fixed in System 7.5.
- * Avoid virtual memory if possible.
- * Use hardware update 3.0. which includes fixes for the serial port on some models.

Generally , faster macs respond faster and have fewer problems. However, I have used a MacPlus by using system 6.05 under finder. The MacPlus is only 25% slower than a quadra 605 for downloads and uploads under favorable conditions.

Are there any system 7.5 tricks??

How do I set up Macintosh Program "XXX" for the LineLink?

MacKnowledge

==
***** Warning!!!! MacKnowledge is not 32bit clean Warning!!!! **

- * If you are using system 7 or later go to the memory control panel and turn off 32bit addressing!
- * Install software as per instructions in manual. Start your Mac with extensions off (i.e. shift key held down if system 7.xx).

Lots of people have been using the string that MacKnowledge auto configures for use in Macknowledge and other programs. **Come on people** look at the copyright (~1989!~) on the splash screen.

Settings are under the "Phone" menu i.e selection "Modem Control and Configuration"

On my modem after auto configuring MacKnowledge suggests
ATL2M1X4Q0V0W1E1S0=0H0

AT&FV0W1H0 would have done exactly the same thing and been much safer. V0 gives numeric responses which is what MacKnowledge

REQUIRES which is unusual for modern software but common years ago.

H0 hangs up, which isn't a bad idea to put in an init string but not a good idea if you switch between telecom programs on the same call. MacKnowledge suggests \N3\V1\Q3 for turning on error correction. N3 turns on MNP error correction but not V42 or LAPM. So real bad !!!

The right way to do it.

- * First select Hardware Handshaking.
- * Init string AT&FW1L3&C1S7=60 Nothing for either error string.
- * If you want to be fancy
 - \N6 for error control string
 - \N0 for non error control string.

Actually why would you not want error control ?

Works fine even at 57600 bps.

Not much good without zmodem protocol or commtoolbox features but it works fine as a terminal emulator and for xmodem transfers. Use this program to download other better communication programs such as zterm, TelefinderPro or Communicate Lite demo. Check out the Communicate Lite section especially. As of this writing Mark/Space was considering an aggressively priced competitive upgrade to Communicate Lite for MacKnowledge owners. (Call for details). Competitive upgrades to other commercial software are Sitcomm (\$45) and Microphone Pro 2.0 (\$79). Also consider the shareware alternatives Zterm (\$30 or \$40) and Telefinder Pro (\$15) which are quite good also but are not Comm Toolbox based.

ZTERM 0.9 or 1.0 beta

The zterm program and the zterm FAQ may be found on info-mac or umich archive mirrors as

```
/infomac/Communication/term/zterm-10b3.cpt  
/infomac/Communication/info/zterm-faq-16.txt  
/umich /mac/util/comm/zterm1.0b3.cpt.hqx
```

as well as probably a zillion other places such as

<ftp://ftp.utexas.edu/pub/mac/comm/zterm-10b3.hqx>

Zterm is a shareware terminal program that supports Xmodem, Ymodem, Zmodem file transfers. Automatic MacBinary format recognition. Very easy to use , highly reliable, good (not excellent)terminal emulation. If you are going to use this read the manual and follow directions. Its a very good manual. Also get

the zterm FAQ written by Leslie Jones. Between these two sources it covers most problems that can occur.

For those of you who don't read manuals.

Under the "Settings" menu select submenu "Connection" and do the following.

TURN ON Flow control: Hardware Handshaking

TURN OFF Flow control: XON/XOFF flow

Set bps to 57600 or 38400 (For a slow mac use 19200).

Again under "Settings" menu select submenu "Modem Preferences"

Set dial timeout to 60

Turn OFF hardware hangup (DTR)

So far everything was in the manual!

For those who have hanging-up problems check what the "seconds to redial" box in the dialog which appears when dialing is done through the Dial menu, and if it is saying one or two seconds, then set it higher to say 5. BTW, you can still see the negotiation messages in Zterm if you manually dial using the ATDT command in the terminal window instead of using the dialout dialog box. Otherwise you won't see them.

For initialization string.

AT&FW1L3&C1S7=60^M

AT&F^M does work fine also but doesn't give you as much information.

(the ^M is the way that zterm handles the return key)

For deinitialization string just use nothing. If you use MaxFax and want to experiment try AT&FW1L3&C1S7=60+FAA=1;+FCR 1 ^M If you use other Fax software or Apple Remote Access (ARA) and want to experiment try to duplicate its FULL init string it wants.

Fastest speed I have personally seen for compressable text files is

- > 3000 bytes per second on MacPlus (2.5 Megs, System 6.05, Finder)
- > 3400 bytes per second on a MacIIsi (5 Megs, System 7.01 tuned)
- > 3800 bytes per second on Quadra 605 (6 Megs, System 7.1)

For a compressed file the range is from 1200 bytes per second on the MacPlus to 1690 bytes per second on the Quadra.

For binhexed compress files its rather disappointing i.e. the same as compressed files (it should be (8/6) times better i.e. 33% faster).

The zterm faq and zterm manual cover most problems so read them.

(Notice a pattern yet?)

However one problem isn't covered and is common. If you are having trouble uploading to a unix system note the following.

NOTES from rz man page:

- > The Unix "ulimit" parameter must be set high enough to
- > permit large file transfers.
- > The TTY input buffering on some systems may not allow long
- > blocks or streaming input at high speed. You should
- > suspect this problem when you can't send data to the Unix
- > system at high speeds using ZMODEM when YMODEM with 128
- > byte block works properly. If the system's tty line
- > handling is really broken, the serial port or the entire
- > system may not survive the onslaught of long bursts of high
- > speed data.

To fix the problem on the Unix end , buy the system administrator a dinner. In the mean time you can get it working but with VERY slow uploads. If you have this problem try Ymodem 128 byte protocol. If that works then go to the zmodem settings in zterm and set the window size to 128. If that works then try 256, if that works then try 512 etc.

TelefinderUser TelefinderPro

Telefinder-User is a FREE client to Telefinder Bulletin Board's.

Telefinder-Pro is \$15 shareware that is a client also and a fairly full featured terminal program.

Both files may be found at

info-mac/comm/bbs/tele-finder-pro-222-to-223-updt.hqx
info-mac/comm/bbs/tele-finder-pro-222.hqx
info-mac/comm/bbs/tele-finder-tcp-host-demo.hqx
info-mac/comm/bbs/tele-finder-tcp-user.hqx
info-mac/comm/bbs/tele-finder-user-322.hqx

Both programs have two default setting for the Linelink. Use the hardware handshaking setting i.e. " LineLink 144e-HH". You access this in the Modem Port dialog (double click on the Modem Port icon). The settings are essentially &F. You can customize it if you choose to &F&C1W1L3 or whatever. The user interface is VERY professional, however it uses the same interface as the Mac's Finder. It MIGHT violate a lot of user interface rules. You will probably love it or hate it but probably nothing in between.

While TelefinderPro ~appears~ to be much more sophisticated than zterm 0.9 or Communicate Lite its really not. For instance,

zmodem window size cannot be adjusted in Telefinder Pro, its also not comm toolbox based. Nevertheless TelefinderPro 2.2.2 would be an excellent choice for a terminal program, well worth the \$15.

Microphone II version 4.0.3

(Demo version is what I tried)

Microphone is a full featured commercial telecommunication program.

Go to Settings menu and select communications. Select Hardware Handshaking on. You can use Hayes V-Series/Ultra for the driver or just use init string AT&FW1L3&C1S7=60

MacKermit 0.99

If you don't know what kermit is then you don't need this program. You can find it on info-mac archives or its mirrors. In directory info-mac/comm

Set bps to 19200, or 38400 or 57600 Hardware flow control. ENABLE: DTR input flow control. ENABLE: CTS output flow control. Disable: Drop DTR on quit. Disable: Xon/Xoff flow control.

You can type the init string

AT&FW1L3&C1S7=60

in the terminal window or create a macro to make it easier.

Terminal 2.2

This program is only listed here since the "C" source code is available. It also lets you directly inspect the CTS value and toggle the DTR/RTS pin. (Lets you partially check that your cable is correct).

Terminal 2.2 is a free terminal program that supports Xmodem, Ymodem, Zmodem QuickB file transfer. Automatic MacBinary format recognition. Scripts written in a subset of C. You even get C source code for the program!

Where to get it? You can find it on info-mac archives or its mirrors. In directory info-mac/comm

Bad news is the terminal emulation is a plain TTY. I.e it doesn't do ANSI BBS or VT102 or even VT52. However it is better than Macknowledge for file transfers since it supports Zmodem.

I have used the program for Zmodem downloads and uploads and it works fine but is a little flaky in general. Its also hung on me more than a few times. Good enough for occasional use, not a program for every day use however.

Again use AT&FW1L3&C1S7=60 or plain AT&F. You will type it manually each time or open the macro.m file with teachtext or any text editor and change the modem reset string ATZ to AT&FW1L3&C1S7=60. You will still have to select it from the macro menu unless you write a script (I am not going to teach you C).

Go to Options menu select Communications. In the dialog box select the setting CTS & DTR. Try 19200 bps to start. You can try 57600 bps but slower speeds may be needed to make this particular program work at all.

Prodigy

I tried version 2.1 of the software. First, set your chooser to your printer. Turn off the 68040 cache (if so equiped). Go through the idiotic installation.

There is no modem specific info to modify (other than selecting 9600 baud if the local phone number(s) support it).

This is a joke right? Have fun runing a poor imitation of a "Windows 3.0" interface on your Mac. No desk accesories, control panel, standard dialog boxes etc.

America Online

My experience was with version 2.1 of the Mac software as of May 94.

First the AOL Tech Support BBS is 1-800-827-5808

You can download the current AOL software at 14.4K bps. (Free call and much faster than 2400 bps)

There is an ftp site with the AOL software, the AOL FTP software and the complete set of modem drivers. The addresses are

```
ftp://ftp.aol.com/aol_mac/Install_America_Online_v2.5.1.bin
ftp://ftp.aol.com/aol_mac/READ_ME_for_Mac_AOL_2.5.1.txt
```

The windows software is

```
ftp://ftp.aol.com/aol_win/icn-aol-logo.gif
ftp://ftp.aol.com/aol_win/icn-text.gif
```

```
ftp://ftp.aol.com/aol_win/icn-write.gif
ftp://ftp.aol.com/aol_win/readme.txt
ftp://ftp.aol.com/aol_win/readme.wri
ftp://ftp.aol.com/aol_win/waol15.exe
```

Follow installation instructions. Remember the Help menu (in the apple menu). Read the instructions there about modem settings. Create a modem setting as below.

The "official AOL" linelink driver uses:

```
Attention: AT
Initialization: Leave it Blank
Configuration:Q0E0V1X4 Reset:Z
Enable Hardware Handshaking: &F&C1
Disable Hardware Handshaking: &F&C1%C0&K0\N3
Future Use String #1: Leave it Blank
Future Use String #2: Leave it Blank
```

These settings do work but they are not quite optimal. Quoting the Help file:

The Initialization String is needed only if you must initialize your modem into the Hayes Command Mode. Usually, this box is left empty.

The Configuration String is used to optimize your modem settings for connection to America Online.

The Reset String restores your modem to the settings it was using before signing on to America Online. For reset I highly recommend you use &FW2L3&C1S7=60 instead of Z. You can also use &FW2L3&C1S7=60 for your "Configuration:" string. The "Z" can easily interfere with Fax/Voice mail.

If you have problems be sure to check you are calling a 9600 bps access number. Also as of April/May 94 they just don't have the network capacity to handle the load. So for your first attempts try calling on weekday in the morning or very late at night. If you get in occasionally with no problems, it is the network not the modem. Also the AOL software likes to think the serial ports are locked. So to avoid that reboot with no extensions on, start AOL and have fun. If you still are having trouble try disabling Error control i.e. add \N0 to Configuration string and forcing the modem to initiate at 9600 bps.

Communicate Lite and Communicate Lite Demo

Mark/Space Softworks
111 West Saint John, 2nd Floor
San Jose, CA 95113

sales 1-800-799-1718 and works from the US and Canada.

Techsupport 1-408-293-7299
Fax 1-408-293-7298
BBS 1-408-293-7290

Internet: mspace@netcom.com
AppleLink, AOL: MARKSPACE
eWorld: MarkSpace1
CIS: 73244,3333

Communicate Lite is now bundled with Linelinks and Prometheus manufactured modems. Unlike the previous communication software (Macknowledge) this is actually solid and modern.

See "Comm toolbox based applications" section for setup.

Macintosh Communication Software CURRENTLY supplied is Communicate Lite by Mark/Space Softworks. This is a very competent Comm Toolbox based program. It includes a current copy of the Apple Modem Tool, Serial Tool, the VT102 terminal tool, XModem file transfer Tool, and appropriate Apple Modem settings for the Linelink. Prometheus chose not to license the zmodem tool but there is a publicly available demo of the tool (fully functional except you can't upload). A discount coupon is included on the full zmodem tool when purchased directly from Mark/Space. (\$19.95 plus shipping) The program is functional and the user interface is uncluttered, which is the way a term program should be in my opinion. The manual is a real printed one. 64 pages long. Has an index, table of contents, background info, tutorial and full reference. (Actually the Balloon Help in the program is quite sufficient!). Demo versions of Communicate Lite and other Mark/Space products can be obtained via the BBS. The most recent versions of support files and the demos can always be obtained via ftp at

ftp.netcom.com in directory pub/mspace

at present the relevant demo versions of the files are
ftp://ftp.netcom.com/pub/mspace/communicate-lite-demo-102.hqx
ftp://ftp.netcom.com/pub/mspace/zmodem-tool-demo-102.hqx

The updaters are
ftp://ftp.netcom.com/pub/mspace/communicate-lite-101-update.hqx
ftp://ftp.netcom.com/pub/mspace/zmodem-tool-101-update.hqx

****Note:**** Versions 1.01 and 1.02 are identical except for the about box and other places with the company address and phone numbers. So don't worry about updating to 1.02 from 1.01.

You will also need the apple modem tool definitions if updating from a previous version.
ftp://ftp.netcom.com/pub/mspace/amt-modem-definitions.hqx

and while you are there pick up
ftp://ftp.netcom.com/pub/mspace/linelink-to-AOL-110.hqx
ftp://ftp.netcom.com/pub/mspace/pagenow-demo-091.hqx
ftp://ftp.netcom.com/pub/mspace/tge-tcp-tool-200.hqx

PageNow is a program for using your modem to call a text pager.

The demos can also be found on AOL (keyword "MCM"), AppleLink (Third Party Demos folder), CompuServe ("go maccom", download area 4) and GENie and BIX (somewhere) as well as on the Mark/Space support BBS at 1-408-293-7290.

or you can ftp on info-mac archives or its mirrors as

info-mac/comm/term/communicate-lite-102-demo.hqx

The demo of the zmodem tool is

info-mac/comm/CommToolbox/zmodem-tool-102-demo.hqx

and on umich as

umich/util/comm/commtoolbox/markspacezmodemdemol.02.sit.hqx
umich/util/comm/commtoolbox/modemdefinitions.sit.hqx

Mark/Space is also planning to have a Telnet tool and PC-ANSI tool out later this year.

The amount of scripting available in Communicate Lite is simple but adequate for simple logons. If you want more then get the Calypso Modem Tool which is free and use that (in theory at least) with Communicate Lite.

SITcom

SITcom does sidegrades so SITcom can be had for \$45 by "upgrading" from MacKnowledge.

Sitcomm , FaxPro and Connectix utilities WERE bundled for \$79.95 at Macwarehouse (Catalog 34, Part # BND 0401 or 0402)

My understanding is that SITcom is Comm toolbox based. I don't have the software personally. For setup then see "Comm toolbox based applications" section.

Termy

See "Comm toolbox based applications" section for setup.

The major feature of this software is its free and CommToolbox based , also version 3.2 has many file conversions built in.

You can get the most recent version from the Authors site as

<ftp://nigel.msen.com/pub/vendor/ice/Termy-3.2.hqx>

Old version is on info-mac as

<info-mac/comm/termy-23.hqx>

Clariss Works 2.0 and 2.1

See "Comm toolbox based applications" section for setup.

This a commercial "Works" package thats commonly bundled with
Macs.

Comm toolbox based applications

First a program that just supports "ports" registered by the
CommToolbox is NOT a CommToolbox application. (For instance Zterm
is not CommToolbox).

If a program uses the CommToolbox it can use any CommToolbox Tool.
You can choose the tools you need and not install the tools you
don't use. Programs don't need to be updated to use New tools.
There are some unusual tools available (i.e. TCP, AppleTalk, ISDN
etc). Many are free, unfortunately a few things are not free and
some things don't even exist.

The Apple tools are "free" and usually included with other
software. If they aren't you can get it directly from Apple. The
directory is

<[ftp://ftp.support.apple.com/pub/Apple SW Updates/Macintosh/
Networking & Communications/Communication Toolbox Tools/](ftp://ftp.support.apple.com/pub/Apple%20SW%20Updates/Macintosh/Networking%20&%20Communications/Communication%20Toolbox%20Tools/)>

All the common tools (i.e. VT102, Xmodem, Serial Tool, TTY, Text)
are in whats called the Basic Communications Setup. Whose current
file name is BCS (1.1.1).hqx The Apple Modem Tool is usually
needed and is file Apple Modem Tool (1.5.3).hqx There are other
Apple supplied tools in that directory also.

The demo of the Mark/Space Z-Modem tool is at

<info-mac/comm/CommToolbox/zmodem-tool-102-demo.hqx>

For other tools (i.e. YMODEM , TCP, etc) check out directorys

<[ftp://ftp.tidbits.com/pub/tidbits/tisk/CommToolbox/
umich/util/comm/commtoolbox/](ftp://ftp.tidbits.com/pub/tidbits/tisk/CommToolbox/umich/util/comm/commtoolbox/)>

The Calypso Modem Tool adds CCL scripting to CommToolbox programs. (So if you can do extensive login scripting). The CCL modem tool does the same thing for the dialin scripts.

The modem settings of CommToolbox based programs are based on the modem tool settings ONLY. I will assume you are using the Apple Modem Tool. The way of accessing the modem tool might vary with program but will be the same after you have the tool selected.

Getting into command mode: The apple modem tool does not normally allow you to enter AT commands. So select the serial tool to do that. Select the speed, and open a connection. (In the menu for ClarisWorks, NOT the icon). You will need to do that to completely reset your modem to factory defaults but not much else.

The instructions for setting up are almost identical for ClarisWorks 2.0 and Communicate Lite. Other CommToolbox programs are also similiar.

For Claris Works 2.0 after starting the program in communications mode go to the Settings Menu and select Connection. You now get a dialog box. Select the Apple Modem Tool under Method. You are now in the Apple Modem Tool.

The Linelink setting is already available in the Apple Modem Tool distributed by the Communicate Lite people (Mark/Space) and Prometheus. If you don't have that then do the following.

Under the pop up menu for "modems" select custom or modify menu. If you use modify menu, then name your new modem LineLink 144e or your favorite nickname.

Check the box for "Modem Auto-Buffers Connect Speeds". If there is a box for "Hardware Error Correction" check the box for it. Use initialization string AT&FW1L3&C1S7=60 (or AT&F or whatever you REALLY think is better). Put nothing in for the "RING RESPONSE" string.

Save your settings. Thats all folks!

Hermes and MacKannel BBS

From billk@Kuentos.Guam.NET (Bill Kochman)
MacKannel:

Initialize: ATSO=0Q0V0E0M0S2=1X4&C1W2&D0
Hang Up: ATH0
Busy Out: ATH1

These are the strings which are included in the Line Link 144e driver included with Hermes II 3.1.1 which I'm now using. The modem is set to its factory defaults as Lloyd suggests when using this driver:

BBS Initialize: ATSO=0Q0V0E0M0S2=1X1&C1W2

```
Terminal Initialize:    ATQ0V1E1S2=43M1S11=50W1
Hardware Handshake On: &K3&D0
Hardware Handshake Off: &K4&D2
Answer Modem:         ATA
Lock Speed:           &Q5
Variable Speed:       &Q0
Reset:                AT&F
```

As far as the other Hermes pref settings, I have hardware handshake &allow crashmail both checked as well as DCD pin 7/chip. Min. baud rate is set to 2400 and max to 57600.

ARA - Apple Remote Access

The linelink includes ARA scripts on the Macknowledge disk as well as the MaxFax disks. These apparently are OK but not great for ARA 1.0. ARA 2.0 MAY be a problem. Checkout the demo version of Lineshare for newer scripts (not from Prometheus). Also there are some generic dial scripts you can get from ftp.tidbits.com. The documentation that comes with interslip covers a subset of the ARA scripts. Also check out the documentation on Calypso Modem Tool. You can use resedit to change the type of the ARA script file to TEXT. Edit it with a word processor, then change the TYPE back to what it was. Generally, ARA works fine for most people or they just keep trying scripts for different modems until one works. One day real soon I may try to make a good one! (Sure you are!)

Internet programs and the Linelink (Macintosh)

=====

The internet revolves around the TCP protocol. The TCP stack for the Mac is called MacTCP. To connect to the internet you need a slip or ppp account on a computer somewhere and a slip or ppp program on your mac and MacTCP.

MACTCP

First like it or not you need MacTCP from Apple or a competing product. MacTCP is included with System 7.5 so you may already have it. The rest can be found for instance at info-mac archives. Directory to look in is info-mac/comm/MacTCP/

MacTCP itself you will have to get legally. Once upon a time Eudora included MacTCP 1.x.x , though you weren't suppose to use it except with Eudora. If you don't have MacTCP and no site license at your location this is the cheapest way to get MacTCP 2.0.x legitimately is to buy

The Internet Starter Kit for Macintosh, by Adam C. Engst.
Published by Hayden Books. ISBN# 1-56830-064-6. \$29.95 U.S.A.

The most current versions of the software included with that book (excluding MacTCP) can be found at

```
ftp://ftp.tidbits.com  
<192.135.191.2>
```

```
http://www.tidbits.com/tidbits/
```

you can also find many of these items at info-mac or umich archives or plugging a local site ftp.utexas.edu

This book covers a lot of internet stuff. It includes a disk with MacTCP (2.02 at last printing) , Fetch, Interslip, Telnet, etc etc. You can get just about everything you need from the book and disk. Its also reported to be very good introductory book. I have glanced at it in book stores and its pretty good (Adam can write, read tidbits!). You can get the book for less than \$20 (such as Sam's clubs, MacWarehouse). Updaters from 2.0.2 to 2.0.4 are available online. Updaters to MacTCP 2.0.6 from 2.0.4 are also available.

```
info-mac/comm/MacTCP/mactcp-20x-to-204-updt.hqx  
/info-mac/comm/tcp/mactcp-204-to-206-updt.hqx
```

```
<ftp://ftp.tidbits.com/pub/tidbits/tisk/tcp/  
mactcp-204-to-206-updt.hqx>  
<ftp://ftp.tidbits.com/pub/tidbits/tisk/tcp/  
mactcp-20x-to-204-updt.hqx>
```

The second edition is now available also and includes more of everything especially on slip and ppp. If you are clueless spend the \$20 on the book. It will probably save you hours of frustration.

In any case versions of MacTCP before 2.0.4 had what was known as the MacTCP timeout bug. If you are stuck using MacTCP 1.1.1 then use the following patch

```
/info-mac/comm/mac-tcp-retrasmit-patch.hqx
```

This is a little application that will alter the MacTCP driver to incorporate Peter Lewis' patch. You will need a virgin copy of MacTCP, version 1.1.1 for this process.

InterSlip

I have tried Interslip 1.0 , 1.0.1 and beta version 1.0.2d2.

Use

* Hardware handshaking

- * Speed of 57600 or 38400.
- * An init string of AT&F&C1W1L3S7=60.
- * For the dialing script use the built in Hayes Compatable Setting.

For the gateway script and other settings read the Interslip documentation and ask your slip provider how to setup MacTCP and the gateway script accordingly. There are several other gateway and dialing scripts available at the above ftp site as well as the tidbits ftp site directory

<ftp://ftp.tidbits.com/pub/tidbits/tisk/MacTCP/>

The file names all start with "scr"

The Hayes Compatable dialscript doesn't hangup the phone. If you must have that feature then consider the dialscript

scr-freds-zen-interslip-script.txt
scr-minimal-dialing-script.txt

in the above directories. I also wrote one myself called RobustDialScript in directory

<ftp://spinfree.cm.utexas.edu/MacSpecificFiles/InterSlipScripts/>

Interslip is very good but it has serious problems on its scripts. I found many bugs relating to the dialscript I made. ARA files won't work as dial scripts in general contrary to the Interslip documentation because of those bugs. There seem to be similiar problems in the gateway scripting but not as severe. At least Interslip has scripting unlike MacPPP.

In any case if it doesn't hook up to the server , it may require changing the provided login script.

MacSlip

MacSlip is commercial, made by a guy here at the University of Texas.

I have used MacSlip 1.01, 2.0, 2.0.2, 2.0.4 note that 2.0.2 has some bad bugs so upgrade to 2.0.4 from other 2.0.x versions.

info-mac/comm/MacTCP/mac-slip-202-to-204-updt.hqx
info-mac/comm/MacTCP/mac-slip-203-to-204-updt.hqx

I used hardware handshaking and AT&F&C1W1 as init string. You can also use the modem setup "Generic V32bis/V42bis". I had next to nothing to change in the gateway script. (I.e at most the same changes needed in Interslip).

MacSlip has better scripting and MUCH, MUCH better script debugging than Interslip. Its also more configurable and faster.

Ignoring price then MacSlip wins on all other counts.

MacPPP

MacPPP is available on info-mac.

info-mac/comm/MacTCP/mac-ppp-201.hqx

or

ftp://merit.edu/pub/ppp/macppp2.0.1.hqx

Version 2.0 had a bug causing it to not send the modem init string if the "AT" was included in the modem init string.

Settings I am personally using are

- * Port Speed: 57600
- * Flow control: CTS & RTS (DTR)
- * Modem Init: AT&FW1L3&C1S7=90
- * Modem Connect Timeout: 90 seconds

Set Idle timeout to maximum amount of time you want your modem to be connected to your server without sending or receiving data. (15 minutes is a good choice in my opinion).

To have MacPPP detect the line drop, change the "Echo Interval" in ConfigPPP from "Off" to some number of seconds (20 is what works well for me).

And all LCP and IPCP options set to default values.

Use the terminal window for figuring out how to login. ****THEN**** do the Connect Script.

InterPPP and PacerPPP

Caveat: I know nothing personally about these products.

InterPPP is a commercial product. For sales information and a demo check the same ftp site as InterSlip.

PacerPPP is bundled with Pacer's PacerTerm 3.0. (Different company)

- * InterPPP and PacerPPP support both SLIP and PPP
- * InterPPP and PacerPPP support both IP and AppleTalk over PPP

- * InterPPP and PacerPPP support (require) CCL scripts to describe the modem configuration (as does AppleLink and ARA). The scripts SHOULD be modified to use compression and error correction. I suspect dialing scripts made for InterSlip will work. So see that section.

Speed Comparisons

On a MacIIsi with MacSlip 1.0.1 or Interslip 1.0.1: File transfer rates of binhexed and compressed files are around 1200cps. For text files I think I saw a maximum of 2000cps.

On a Quadra 605 with MacSlip 2.0.4 and MacTCP 2.04: File transfer rates of binhexed and compressed files are around 1400cps typical to just under 1600cps. For text files about 3400cps. This was with 1500 byte compressed header packets.

On a MacPlus (Finder, System 6.0.5, 2.5Meg) MacSlip 2.0.4 and MacTCP 2.04. Essentially the same results as the MacIIsi with the older software.

Keep in mind SLIP uses small packets (1500 bytes or less). Hence v42bis compression is not as useful as it normally is. I would disable v42bis compression on a MacPlus, Classic, SE via setting S46=136 in the init string and set the Mac's speed at 19200bps. This gives a more even and slower speed for the slower Mac to respond to. On faster machines I would stick with above settings. This may be Voodoo.

TIA (The Internet Adapter)

SOFTAWARE CO. (Los Angeles, CA) 310-314-1466 (9-5 M-F, PST)

TIA is a new Internet access utility that lets you use popular TCP/IP software such as Mosaic, Cello, and Eudora with a standard UNIX shell account. In essence it converts a shell account into a "pseudo-SLIP" account.

TIA's web page is

<http://marketplace.com/0/tia/tiahome.html>

You can get an email message containing TIA's own FAQ from

tia-FAQ-single@marketplace.com

This is too difficult a subject for a short answer here. Luckily, Bill Arnett <billa@netcom.com> is compiling a FAQ for Macintosh users of TIA. He has a world wide web page you can ftp from

<ftp://ftp.netcom.com/pub/billa/billa.html>

FAX (and nothing but the FAX)

=====

Macintosh Fax Software Comments

MaxFax is currently bundled with most modems being sold now. Since the Linelink is made by Prometheus previous buyers of Linelinks can upgrade to

MaxFax 3.5.x (\$19.95 Fax or \$24.95 Fax/Voice Mail plus \$5 shipping)

Details in upgrade section.

If you need Voice mail, MaxFax is the ****ONLY**** choice at present.

There are two big players in general purpose Macintosh Fax software:

FaxSTF 3.0 and Delrina Fax Pro 1.5

STF Technologies:

FaxSTF 3.0 (Mail order Price is \$30 to \$40)

AutoPak is about \$55 more (which adds automatically printing incoming faxes rotations and optical character recognition)

Delrina: Fax PRO 1.5 for the Macintosh (\$55.95 at Mac'sPlace)
\$41 educational, about \$26 in bundles.

If you need character recognition then Delrina Fax Pro is a pretty clear choice. I don't think it supports ARA linesharing though.

The only Macintosh Fax shareware software is

ValueFax: The shareware fee for ValueFax is \$20 for individuals and \$25 for businesses. (Plus site licenses)

Since its shareware you can try it at no risk and see how you like it. (There is a limit of about 30 Faxes without registering)

On average these products seem to be pretty comparable in basic and not too basic Fax abilities. They do differ in advanced features.

MaxFax, ValueFax, and Delrina Fax Pro all work with the Linelink.

FaxSTF had a horrible upgrade policy from FaxSTF 2.2.3. Specifically, the retail price was \$59, the upgrade price was \$39 +\$6 shipping. They got enough flack from owners to put out a free upgrade from 2.2.3 to 2.6.1. HOWEVER NEITHER FaxSTF 2.6.1 or 3.0 work with the Linelink. Old versions (i.e. 2.2.3) of FaxSTF work fine but are no longer available new. ValueFax is better in my opinion than FaxSTF 2.2.3 so again forget FaxSTF unless you already have it. (See email in FaxSTF 3.0 section)

There is a review of FaxSTF 3.0, and FaxPro 1.5 in MacWeek Feb 21, 1994. Highlights of the review are FaxSTF 3.0 had better interface and nicer output. FaxSTF 3.0 can "hand off" data calls to ARA or programs that support the comm toolbox. Note that a lot of programs don't use the comm toolbox. Delrina's FaxPro 1.5 had Optical Character Recognition which is only included with the Pro version of FaxSTF 3.0. Delrina's tech support was excellent, FaxSTF's was way below average.

Call Discrimination a.k.a. Adaptive Answer

AT+FAA=1 enables calldiscrimination (otherwise called Adaptive Answer).

Interestingly AT+FAA by itself returns codes consistent with the values listed for the the voice/fax/data discrimination.

In any case the Fax software does this command for you. So forget it.

LineShare

Old email message: LineLink DOES support "adaptive answering" and thus it works fine with LineShare (for fax/data combinations, for example, fax/ARA) - at least it is what we were told by users. We'll have a look at LineLink next week - if it really works we'll include LineLink scripts into the standard lineShare package, as well as support for MaxFax in voice/fax mode, i.e. you'll be able to use the modem to process incoming voice, fax and ARA calls, as you can do now with the original Prometheus modems.

Stalker Software, Inc butenko@crl.com (Vladimir A. Butenko)

Note: The demo version of Lineshare has specific settings for the Linelink now. MaxFax 3.5.x now has direct support for Lineshare but does not include it. You can get a demo version of LineShare

from info-mac.

FaxSTF 3.0 has Lineshare support (and includes it??) but doesn't work on the Linelink. So again MaxFax is better choice. Unknown about Delrina FaxPro.

FAX bugs and misfeatures

Number 1 problem is MaxFax won't automatically answer Fax calls when in voice mail mode. (No problem if in Fax Receive/Answer mode). This is partially fixed with the new firmware/ROM 1.4.g (MAYBE!)

Number 2 problem (i.e. sending faxes don't quite complete negotiations) Easy fix is to add S7=60 (or S7=90) to init string. (Which is why its been recommended throughout this FAQ)

Number 3 problem it appears at moment is that ATZ resets the modem including some Fax and voice settings. This isn't really a modem problem but how software sharing a single piece of hardware interact. Some programs send ATZ without your knowledge (including the ARA script). There is no single fix, i.e. you have to get all your init strings to be compatable which may be impossible. (Note this is not LineLink specific problem) Best temporary fix is to reboot or pull up the MaxFax Status DA when finished using a hostile telecommunication program so Faxes can be received.

MaxFax and FaxSTF both suggest &D2 (I.e. use DTR to hangup) in the init string.

Generally you can set things up to work nicely for either data or Fax or Voice Mail but not for more than one at a time. Deinitializing strings MAY help but only a few programs have them.

ValueFax

To install follow instructions of package. Choose Class 2 for type of modem. (No other settings during installation!)

Reviewer: Loudon Campbell

First a Disclaimer: I beta tested ValueFax.

The beta version was fairly bug free and handled port conflicts with data programs much better than FaxSTF 2.x but not as well as MaxFax 2.x. I have yet to try the release version however. (Some rainy day)

The release version has been used by others with Linelinks. No

major complaints so far (complaints on speed , lack of features).

I found ValueFax to have a very clean user interface , much better than FaxSTF 2.x. The user interface feels a bit like Eudora and has separate windows for incoming, outgoing and pending faxes. It has good print output at least on a DeskWriter. Simple installation (perhaps too simple!). After use I didn't like it as much as MaxFax. But this may be personal preference. It has a few neat user interface features here and there though! It handles basic Fax operations ,including "mailing" lists and address books, but not stuff like OCR, voice mail or line switching with ARA. In feature set it does NOT compete with FaxSTF 3.0.x, MaxFax 3.x.x or Delrina FaxPro. It does win over FaxSTF 2.x.x ,in my opinion.

ValueFax will overwrite FaxSTF's files without warning. However FaxSTF installer will do the same thing to ValueFax's files. (They use the same names for some parts of the packages)

I think the Mac community has been waiting for a shareware Fax software package for quite a while. It is well worth trying since it is SHAREWARE.

Support is available via email to valuefax@netcom.com

Latest versions of this product can be found at [ftp.netcom.com](ftp://ftp.netcom.com) in the pub/valuefax directory. Also archived as /info-mac/app/value-fax.hqx

It's been reported that ValueFax changes nonvolatile modem memory. I have not confirmed that report. In any case it does take aggressive control over the modem when in use which some people don't like and some people do.

Note that the upgrade to MaxFax 3.5.x for Linelink owners and Prometheus owners can be had for \$19.95+ \$5 shipping (Fax only). The fax/voice version is \$5 more. The shareware fee for ValueFax is \$20 for individuals and \$25 for businesses. So for honest users in the short run you are not saving anything by using ValueFax over MaxFax.

PowerFax (System 7.5)

System 7.5 on CD-ROM (but not floppies?) includes Fax software (PowerFax) based on FaxSTF. I suspect the Linelink won't work since FaxSTF 3.0 doesn't work with the Linelink but I have no reports one way or another.

However From: Jack W. Howarth, Ph.D. (NOT a Linelink user) If you are waiting on QuickDraw GX compatible fax software, you can just

install PowerTalk and PowerFax off the System 7.5 CDROM. A bit overkill for just faxing but, hey, its free. However PowerFax seems to be smarter about not letting programs lock up with accessing a serial port already in use (this is particularly true of MicroPhone II 4.0.2.) without using the Linemanager.

FaxSTF 3.0 Setup

FaxSTF 3.0 once upon a time had a specific setting for a LineLink. It appears to have been removed recently. (Sept 94).

However it does not receive Faxes for most people. It receives them but as garbage!

Matt Boxberger receive the following response from FaxSTF tech support

```
> From: STFtech@aol.com 29-JUN-1994 12:13:56.18
> To: mdb@cvsd.cv.com
> Subj: Re: Linelink (vs. Supra) support in FaxSTF
> ...
> However, 2.2.3 is no longer available. We can only offer 3.0 and
> 2.6.1. The LineLink and 3.0 are having major problems. We have
> brought the LineLink back into testing, but they are not able to
> come up with a fix. So the LineLink and future versions of 3.0
> are not looking bright.
> ...
> Lisa,
> STFtech
```

And my more recent email

```
> From: STFnet@aol.com
> Date: Wed, 2 Nov 1994 22:24:01 -0500
> Sender: STFnet@aol.com
> To: loudon@uts.cc.utexas.edu
> Subject: Re: Linelink and FaxSTF 2.6.x , 3.x
>
> Louden,
> We have experienced receiving problems with the LineLink 144e
> modem and 2.6.1/3.X versions of our software. At this time we
> are not sure when or if the modem will be supported in
> future versions. The modem, however, is still in Testing with
> our software and we continue to try and resolve the receiving
> problems. Thanks!
> Bret
> STF Technologies
```

OK here's a chance to be on the cutting (oops bleeding) edge!

Updaters for fax-stf 3.x are

```
/infomac/app/fax-stf-30-to-301b-updt.bin
/infomac/app/fax-stf-new-modem-profiles.sit
```

FAXstf 2.6.1 Setup

OK here's a another chance to be on the bleeding (oops cutting) EDGE! I have had the same problems as those reported in FaxSTF 3.0. It sends but doesn't receive properly. See the FaxSTF 3.0 section.

There is a upgrade patch to version 2.6.1 from 2.2.3 that is free. It is on info-mac at

```
/infomac/app/fax-stf-261-init-patch.txt  
/infomac/app/fax-stf-2x-to-226-updt.sit (Yes the file is  
misnamed!)
```

If you get a copy that is not a disk image (which requires diskcopy or mungeimage) You will need to create an installer disk named FaxSTF[tm] Installer and drag the contents of the folder to that disk (7 items).

FAXstf 2.2.3 Setup

The initialization string used on FAXstf 2.2.3 most commonly is
AT\Q1&D2V1E

NOTE: The "\Q1" part in the modem init string sets the modem to bidirectional XON/XOFF, that SEEMS to be required on this piece of software. But remember that it STINKS for data connections so be sure all other data software resets the modem appropriately.

Many people add &F at BEGINING of FaxSTF init string.

WARNING WARNING WARNING- The &D2 part of init string has been associated with problems i.e. hangups and not receiving FAX's. You may not want to use it (i.e leave as factory default of &D0). It works either way so its your choice.

Note that FaxSTF 2.x really takes over your modem for receiving Faxes. Expect problems, be sure your ordinary communications programs reset the modem to correct settings when you use those programs (i.e &D0 is reset, hardware handshaking ON, etc!).

Directions are from David Hartman Fax Settings for FaxSTF: (also Jack Z. Sun and others)

1. Make sure you have version 2.2.3 of the FaxSTF software.
-

2. Install the software from scratch. That means reboot with extensions off (i.e. shift key down for system 7.x). Note: you may want to move any phonebooks or coverpages you have previously created out of the FaxSpoolfolder before you install since the install will trash them.
3. In the installation, you'll be presented with a dialog window which will allow you to select either the modem model or driver type. Click on the "Driver Type" radio button and then select "Class 2 for Sierra based modems" (i.e. "PN2388 for Sierra based modems").
4. The next dialog is the standard install dialog. Click on the Install button to install all of the software AND the driver.
5. You'll have to reboot your computer after the install. Make sure that your modem is turned on before the reboot or the modem won't be found and initialized.
6. Go to the Chooser and select the FaxPrint driver. Click on the SetUp button.
7. In the SetUp dialog, click on the Fax Modem icon. You'll see a number of settings, but the most important ones to look for are the send and receive bps rates. These should be set at 9600bps or if available AND IT WORKS 14400bps .
8. Click on the Fax Software icon. Make sure that the "ON" radio button is highlighted. If it's not, go back to Step 2. I don't know why, but in MY experience with this software, if the software isn't turned on AFTER the install then something didn't go right and you'll have to re-install :
9. Click on the Modem Init icon and make sure that the modem init string says "AT\Q1&D2V1E" (no quotes in actual string). NOTE: The "\Q1" part in the modem init string sets the modem to bidirectional XON/XOFF , thats needed for this software but remember that it STINKS for data connections so be sure all other data software resets the modem appropriately.
10. That's it! You're ready to rock and fax!

Comment from STF tech support: IF you are getting blank pages under 2.2.3, you were probably receiving at 14.4, try putting it down to 9600.

MacCommCentre 1.0.1

Comments from : Timothy David Chipman <tchipman@is.dal.ca>

I currently use a purchased copy of faxSTF 2.2.3, so some comparisons are made to that as my standard. A friend of mine

recently bought a modem with this software included, but he doesn't use it, so I thought the least I could do was see how it worked with the linelink (mine is rev.1.3 old roms)

- * Installed package takes up about a meg of disk space. Installed onto HD using defaults, auto modem detect successfully determined that my LineLink was a Type II and installed the appropriate driver. <Nice!>
- * Successfully received a 2 page fax from a microsoft fax-back server. Only complaint - it was slow: it took approximately 5 minutes to receive the fax, and when I checked my FaxSTF results, it took less than 2 minutes. Humm... speed *appeared* to be 9600 baud, I *think* (the info was not displayed at receive, nor recorded clearly anywhere, such as the log file..)
- * Claims to support 14,400 baud S/R but from my previous point, I suspect that this isn't the case with the LL144e.
- * I didn't have anyone around to experiment with sendfax, although I am certain that if it received a 2pgfax no prob, then send is a piece of cake.
- * Claims to have voice discrimination, but it has screeched in my ear while talking to people if the modem was left turned on... so this feature appears not to work..
- * I had some "funny" stuff happen to my system while MCC was installed. MCC attempts to add a "Fax" item to the bottom of all apps' file menu, but this appeared mainly to append junk to the menus. Not impressive.

Overall: Since I own a copy of STF that works fine at 9600, I will continue to use that. MCC offers me no benefits. Possibly newer rom linelinks would get the benefits of faster (14,400) faxing, and call discrimination, which Stf 2.2.3 does not support with my current setup, however this is not certain.

QuickLink II - FAX software

The following is courtesy of Darryl Harvey Email:
djh@shell.portal.com

The setup for the LineLink 144e and QuickLink II Fax was simple.

The software came with a Practical Peripherals PM14400FMXT modem. The software was installed with this modem and I just plugged the LineLink in it's place and it all worked 100% (Send & receive - High & Low res)

Actual setup string is: AT&FE1L1V1X4&C1&D0S0=0S7=60

There appears to be some times when the modem locks up, but a power reset fixes it up.. I have not traced it down yet, but I am not too worried about it as it only happens when I want to send... I am not convinced it is the software causing it anyway.

For \$99, you can't expect everything working 100%. Would I

recommend it? If it was all you could afford, and willing to put up with the occasional compulsory power reset. YES.

BTW: I am not too crazy about Fax software anyway, they all seem to do things to your modem ports that other software doesn't like. I just test them out and then remove it from my disk.. If you could run fax software without the required "background" program, it would be better (ie: send only, no need to monitor port for incoming receive)

Note that after this posting by Darryl , he bought MaxFax with voice and has contributed elsewhere in the LineLink FAQ.

WinFax Lite (For IBM PC)

Source: Chuck Browning

The init strings for the IBM (generic class 2 fax) is:
AT&F&C1&D2S7=90

MaxFax 3.3.x SETUP

Read the manual cover to cover after installation and trying it. It answers most questions.

First if you are upgrading to the voice version of MaxFax from the Fax version of MaxFax throw away all your preference files , MaxFax init etc into trash. In other words do a clean reinstall.

MaxFax is very easy to install. Just boot without extensions. Double click on the installer. Follow directions. (You will be asked to send your registration via Fax) Next start up the MaxFax application If you are using the Fax only version of MaxFax (i.e. MaxFax 3.3.1s) Select Class 2 in the modem setup in the application. The init string will default to &D2. I highly recommend at present to NOT use &D2 but either S7=60 or possibly &FW1L3&C1S7=60 (for consistency)

If you are using Fax only version of MaxFax (i.e. MaxFax 3.3.1L) Select Fax (or Voice or whatever your preference) The init string is blank by default. I highly recommend at present to use either S7=60 or possibly &FW1L3&C1S7=60

You can also try S7=90 in either string or S7=120 for international calls for either version.

The motivation is based on trying to be as consistent as possible and the following email.

The following are (almost) quotes of Milt Sagen (a MaxFax author):

When does MaxFax send the init string?

>When it initializes the modem for receiving and just before
>sending a fax.

What happens when MaxFax answers the phone? Does MaxFax also send the init string for instance when a call comes in and the serial port is free?

> No, not if the RING is detected - if it detects garbage because
> the modem was switched off then on and thus the dce-dte speeds
> don't match, it will send an initialization string. Otherwise,
> It just answers and looks for an +FCON.

On reboot?

> No. If MaxFax is set to Send/Receive it will send an
> initialization string during the first accRun (whichever
> application - typically the finder -which calls SystemTask)

What is the init string you send?

> I don't rely on any settings of the modem. If I absolutely need
> them then I set them when I initialize the modem in the fax
> software. For example MaxFax must have v1 set and s0=0. Some
> settings may help MaxFax send a fax such as setting s7 to 60 or
> greater, but in general I've found in the past that, with
> exception of international calls the default value of 30 was
> sufficient. However, I'm beginning to believe that 60 or more is
> better with the LineLink. We send ATV1E1 "users init string" s0=0
> I believe and then we send some other strings for class 2
> such as AT+FAA=1;+FCR=1 etc.

My own experiments indicate it does so when you open the DA and click on the popup menu containing send , send/recieve etc.

> Yes that will cause it do so although the version which supports
> voice won't cause this to happen.

> Note that we didn't actually change MaxFax in anyway to work with
> the LineLink as a fax and data modem."

Fifth question: Is &D2 really NEEDED in MaxFax init string?

>I haven't seen anything to suggest that it is.

End quotes from Milt Sagen.

At the moment I have found that some programs do ATZ which resets

the modem including Fax/Voice. This includes the ARA script included with the LineLink. On the Fax only version of MaxFax opening the DA resets the Fax to correct values. Seems to do the same on the voice if you change types. In other words get in the habit of pulling up the MaxFax Status DA after quitting the program and reselecting the Fax Receive/Send or Voice S/R .

Slick program with lots of bells and whistles **Nice** job guys.

MaxFax 3.3.x Software REAL BUGS

The following are documented bugs (i.e. verified by someone at Prometheus).

Bug1: (Bug hit many people!) Upgrading from MaxFax 3.3.1S to MaxFax 3.3.1L should be done from a clean install (ie. delete old application and most importantly the preference files). Otherwise you will get various bugs.

Bug 2: (Bug found by Darryl Harvey and others, fixed I think in 3.3.1L) There was a bug in one (or more) versions of MaxFax where if you enter more than 18 characters for the Fax name the program or MaxFax init hangs. So if you keep the fax name short, all is OK. Darryl also believes Bug 4 below is a manifestation of the same bug. So try keeping the Fax name to less than 18 characters.

Bug3: (Bug hit Loudon Campbell) "We did find a problem with viewing faxes on 68LC040's which includes the 605. What would typically happen is a person would view a fax and then close and sometime later elbombo. We fixed it on the version of MaxFax which supports voice on the LineLink (i.e. MaxFax 3.3.1L version or later.). The funny thing is the bomb only occurs on machines with LC040 such as the Performa 475 and the Quadra 605."

Bug 4: Victor E Aldridge III reports the following info from Prometheus: Some systems running System 7.1 seem to crash during Startup for no explainable reason. Even removing all extensions and non-System cdevs (excepting the MaxFax INIT) will not stop this from occurring. This occurs in versions of MaxFax earlier than 3.2.4, and was fixed in 3.2.4, though the developers have no idea what was fixed. This 'fix' was 'unfixed' in the upgrade to 3.3.1, which mostly included coding to increase the abilities of the program for Powerbook users. As I said, the developers at Prometheus do not know what is causing the problem, and no pattern has been discerned among the affected systems. The only alternative for those affected is to downgrade to 3.2.4. The Prometheus tech (I actually got through) I was talking to shipped it out 'blue label' at no charge to me, and the computer now boots fine with all my original extensions installed. Also see Bug 2.

Bug 5: Roger B. Marks reports "a fax received while File Sharing is on leads to a hung system". (I have no confirmation of this

one!)

MaxFax and Voice Mail

=====

This is most actively changing area so there are no quick fixes. If you are thinking of trying to modify MaxFax using resedit to increase volume , use call discrimination etc you will positively need the voice mail documentation.

User Comments, 1.4g ROMS and MaxFax 2.5.x

3.5.1 was first version of MaxFax that supported all Linelinks, 3.5.0 was specific to 1.4g ROMS. I am unsure but 3.5.2 or later is probably current November 1994??

Prometheus SAYS the modem will now really discriminate between Fax and Voice via the CNG Fax tone. The program has more mailboxes and control over those mailboxes, better coversheet editing, and new bells and whistles.

The following are responses I have had. Whether they are typical I don't know!

Christopher Thomas was disappointed in the MaxFax software due to conflicts with America Online and various setup problems. He did say the modem more or less performed as advertised ignoring these problems. He switched to a Hayes Accura but has the following comment:

- > The voice quality was about the level of a telephone which makes
- > sense. I was recording in medium. I had to turn the volume up
- > quite a bit though, the input volume that is.

Comments by Ty Bower <bower@louie.udel.edu> who has MaxFax 3.5.0 and the 1.4g ROMS.

- > So far, it seems to work quite well. The voice mail works
 - > (mostly) great, and I use it quite a bit. As you noted, it is a
 - > little 'deaf', and my soft-voiced friends occasionally have
 - > trouble. I tried adjusting the input level in the voice config
 - > menu, but all it seems to do is alter the volume of the saved
 - > incoming messages. I'm using an old Mac II. I think the quality
 - > is more than acceptable, (almost good, in fact) but still
 - > clearly
 - > computer-generated. Not as bad as a microcassette, not as
-

> good as a standard audio cassette. But, under normal
> circumstances, it seems like a good modem at a fair price.

Arthur W. Utay, writes:

> I bought a Promodem 144E with voice (V3.5) not too long ago.
> The idea was to combine both a voice answering machine and fax
> machine on the same phone line. Additionally, I'd have use of a
> high speed modem for those occasional surfs on the net.
> I like the graphical interface of the software, but truth be
> told, my modem is at Prometheus even as I write this getting a
> complete going over. Seems I've had nothing but problems since I
> bought the modem (this includes a replacement) My problems
> include: (I have a Quadra 660AV which may be driving the
> situation)

- * Fax machine is unable to recognize CNG tones from more than 5 different namebrands of fax machines (HP, Toshiba, Cannon, Sharp, etc) if in the dual Voice/Fax mode. In the fax only mode it receives and transmits perfectly.
- * If I'm working on my Quadra and the phone rings, the software disables the keyboard even if the answering machine hasn't kicked in. For example, I pick up the phone on the second ring. The software is set to answer after 4 rings, but that doesn't matter. The keyboard disables, the phone answering icon pops up, and sometimes regaining control is achieved only by rebooting.
- * There are known bugs in the volume and quality of the incoming and outgoing messages. Prometheus says they're working on it.
- * The tech support people at Prometheus (Toni and Clinton) are great, except getting through to them is a major problem. As I said, they had me send back my unit for a thorough checkout. I believe the problems stem from the unique Quadra 660AV interface I still like the GUI and believe once they fix these and other bugs it'll be a great unit.

User Comments and Pointers 1.0 or 1.3 ROMS and MaxFax 2.3.1L

Comments in this section are circa February 1994.

The following info is a summary of info and comments from Darryl Harvey (djh@shell.portal.com) Marshall Levin (mlevin@nyx10.cs.du.edu) and Rich (rglewis@mit.edu)

(Darryl 's comments)

Well it all works fine... No problems at all.. The modem is a little deaf and that can result in early hang ups of the voice mail, but if you speak loud and clear, the message is loud and clear. It does have limitations (ie: can't return to the main mailbox if you have previously selected a mailbox or section..)

The volume settings are not adjustable;

It does take a long time to compress/decompress messages, I have only tried it in "best" mode, maybe select "good" would improve this?

Other things worth noting:

Cannot record a greeting from a telephone connected to the modem, you must have a sound input device on your Mac, use a remote phone, or import a sound file from another source. Could be a hassle for some Mac users that do not have a microphone on their Mac.

The modem does not automatically detect an incoming fax when in voice mode. The caller must manually enter 77# on the keypad to enable a fax receive mailbox. (This is the preset function, it could be changed, but still has to be manually entered)

This is the ONLY way to make the LineLink answer in Fax mode if Voice Mail is enabled and MaxFax is running. So from your Fax machine, turn up the volume level, listen to the start of the message and then enter 77#, the LineLink WILL enable fax receive and your Fax should notice this and start sending.

: Along the same line, how would one make a send a fax from one : LineLink to another LineLink (with the receiver running in the voice : mode)? How would you send the 77# once the receiver answers?

Same as from a normal fax machine.. Put a suffix in the dial string. Make it pause, then dial 77#. May not work 100% but it could work.. All you would have to do is pause long enough for the remote LineLink to pick up the phone and start it's message.

A few more things about the modem and voice software that may be useful to know:

You must have the Max Fax software running on your mac or else the modem will only answer in fax mode (if set to Voice/SR fax). It does not function in the background. It will happily sit in the background until a voice message comes in, then it will come to the foreground and take control of your mac.

To determine if you have the correct software for voice, an easy way to find out is to look at the modem configuration section. The Fax only software allows you to choose the modem type.. The Voice option software has this hard set to LineLink and you cannot change it (it is greyed out).

(Now Rich's comments)

* The message plays back at a barely audible level. The settings for changing this are "grayed-out" and are unavailable.

* The sound quality on the recorded message is poor. I got AIFF Recorder off the net and recorded a crystal clear AIFF message, which I then attempted to import it. The message was played back at half speed in MaxFax (although with good sound quality). The MaxFax manual reports that a program called Sound Editor can be used with MaxFax, but I can't locate this program (any ideas?).

4. The time that a caller has to leave message is about 7 seconds. I started by choosing the unlimited option for message length, which allowed a 1-2 second message. Then I chose the 3 minute message length from the settings file, which allowed a 7-10 second message.

I called MacWarehouse and they gave me the init string (I had no init string before) AT&F&D2S7=120, which does not work. I think I know why. MaxFax appends this init string to its own, and I'm resetting the factory settings in this string. In any event, this string causes the modem to go on and off line indefinitely. So I tried &D2S7=120 as the init string, which, as yet, I haven't had time to observe the results (except for problem 4, which it did not cure).

(Now Marshall's comments)

Basically, I am quite satisfied with the product. It is well worth \$99 + \$39. It is certainly NOT professional quality, but I'm not trying to run a business here (and I certainly wouldn't recommend doing so with the LineLink). I use the voicemail feature infrequently, the fax features on a fairly regular basis, and the data features almost constantly.

If I didn't have the patience or know-how to mess with the configuration, or I were planning on using the system professionally (where I had to rely on it for my livelihood) I'd most certainly spend an extra \$100-\$150 and get a better system. But for the mostly-data, casual user who wants the features for occasional non-demanding personal use and doesn't mind fiddling with the configuration until it works right, this modem and software really is a steal (\$140 for 14.4 fax/voice/data modem).

Fax recognition during voice mail (1.0 or 1.3 ROMS)

Quotes from Chris Baker (a coauthor of MaxFax)

What doesn't work with a LineLink modem is being able to detect Fax CNG tones while the outgoing message is being played. The DSP firmware in the LineLink doesn't support it.

Regarding DTMF and CNG detection: I can't tell you exactly what is going on in the DSP but it comes down to not having enough tone detectors to do both DTMF which requires 8 tone detectors (4 row and 4 column). To detect CNG, the DSP would need another tone detector for the 1100 khz CNG tone. My understanding is that

either there is not another tone detector available in the DSP or there is not enough horsepower to both do voice sound decompression (CVSD 4 to 1) and do 9 tone detectors at the same time.

We are working very hard with Sierra to get them to improve this situation as not having CNG detection during outbound voice is a detriment to the product.

Concerning the problem with the modem not falling back to data mode if you speak or make noise into the phone, I am not sure why that seems to happen but we have reported it to the firmware engineers at Sierra and they are looking into it. At the moment it looks like a firmware bug and will have to be fixed with a firmware change.

Amiga Software

=====

This section will hopefully improve in a few months!

AVM'n'Fax

This is voice mail and Fax for the Amiga.

From courtn@cs.uregina.ca I use AVM'n'Fax myself (which comes with the fax software efax). During the installation, it set the proper fax init string for my LineLink. Here it is:
V1X4&K3&C1&D2&R0S0=0

General Amiga

Use of &D2 is fine on an Amiga.

As a rule of thumb keep speeds at 38400 or below.

If you are getting a lot of overflows, try to reduce the number of colors on your term program to 4 or 2. If you don't have a AGA Amiga, more than 4-8 colors can lock out the chip memory just enough to mess up your transfers.

VLTjr is reported to be the fastest Amiga term program, an improvement over Term.

FTP (File Transfer Protocol) Gopher, Internet

=====

FTP via America Online

America Online offers Usenet, Gopher/WAIS and now FTP. They CLAIM WWW and telnet coming later this year.

You can ftp the AOL software itself from ftp.aol.com

AOL has FTP available in open beta testing and it works. To access this latest AOL Internet Tool use Keyword FTP. Read the documentation and the introduction to the internet (please!!!). AOL plans on setting up their own private mirrors of info-mac and umich so be sure to use mirror sites of favorite ftp sites and not the originals.

URL 's (Uniform Resource Locator)

The World Wide Web (WWW) uses Uniform Resource Locators (URLs) to specify the location of files on other servers. Its also a handy shorthand. Some newsreaders and setext readers let you click on a URL and hit a key or pull down a menu to connect to that resource!

A URL includes the type of resource being accessed (e.g., gopher, WAIS), the address of the server, and the location of the file. The syntax is:

scheme://host.domain/path/filename

where scheme is one of

http means the file is on a World Wide Web server
gopher means the file is on a Gopher server
ftp means the file is on a ftp server
WAIS means the file is on a WAIS server
news a Usenet newsgroup
telnet a connection to a Telnet-based service

If filename is omitted it means a directory.

Examples

gopher://spinfree.cm.utexas.edu/

means use gopher to connect to the internet site spinfree.cm.utexas.edu at the gopher root directory.

ftp://ftp.aol.com/aol_mac/Install_America_Online_v2.5.1.bin

means use ftp to connect to internet site ftp.aol.com the file named Install_America_Online_v2.5.1.bin is then in directory aol_mac

Site names and URLs are often placed in brackets <>. This is done

by convention if the URL is longer than a line of text. The site address is also commonly placed in brackets.

For folks new to ftp

If your mac is hooked up via SLIP or PPP or ethernet to the internet then just use Fetch, X-ferit, Gopher ,Anarchie , Telnet, NetScape, Mosaic, MacWeb or who knows what on your Macintosh, Windows or OS2 machine. Of course you may need to get these programs to your computer so the following may still be useful once in your life.

The following assumes you are connected to a unix machine connected to the internet.

Generally after logging into your unix machine you simply type ftp "the sitename" which gets you a prompt something like ftp>

When ftp prompts you for a username and password, send "anonymous" as the username, and your email address as the password, for me it would be loudon@uts.cc.utexas.edu. Use your real email address as a matter of courtesy. Help usually lists available ftp commands. Most common are cd (change directory), ls (list directory), get (get the file from the ftp site to your local unix box) and quit.

Imagine I give you an URL of

```
ftp://ftp.aol.com/aol_mac/Install_America_Online_v2.5.1.bin
```

To get that file here is a typical sample UNIX ftp session:

```
ftp ftp.aol.com
Connected to ftp.aol.com.
220 ftp FTP server
  (Version wu-2.4(3) Wed Jun 29 08:27:45 EDT 1994) ready.
Name (ftp.aol.com:loudon): anonymous
331 Guest login ok, send your complete e-mail address as password.
Password:
230 Guest login ok, access restrictions apply.
Remote system type is UNIX.
Using binary mode to transfer files.
ftp> cd aol_mac
250 CWD command successful.
ftp> ls
200 PORT command successful.
150 Opening ASCII mode data connection for file list.
Install_America_Online_v2.5.1.bin
READ_ME_for_Mac_AOL_2.5.1.txt
226 Transfer complete.
ftp> get Install_America_Online_v2.5.1.bin
200 PORT command successful.
150 Opening BINARY mode data connection for
```



```
Install_America_Online_v2.5.1.bin (1428224 bytes).
226 Transfer complete.
1428224 bytes received in 17 seconds (80 Kbytes/s)
ftp> ascii
200 Type set to A.
ftp> get READ_ME_for_Mac_AOL_2.5.1.txt
200 PORT command successful.
150 Opening ASCII mode data connection for
  READ_ME_for_Mac_AOL_2.5.1.txt (981 bytes).
226 Transfer complete.
1017 bytes received in 0.16 seconds (6.2 Kbytes/s)
ftp> quit
221 Goodbye.
```

The above site defaults to binary mode, most sites start in ascii mode so thats somewhat unusual. On the above site the macintosh files are stored as Macbinary (.bin in the file name is the tip off) so the file was transfered via binary (the default on that site). I had to change to ascii mode (by typing ascii) ****BEFORE**** I got the plain text file (.txt in the file name is the tip off). If the file had ended in .hqx or .uue or .doc I would have assumed I needed ascii mode for those files also. If it had ended in .sit, .zip, .cpt, .exe, .sea, .z, .Z, I would have assumed I needed binary mode, you change mode by typing binary before transferring the file with get. If the file ended up corrupted when I got it I would have tried the other transfer method a second time.

Now suppose I gave you a URL of

```
gopher://spinfree.cm.utexas.edu/
```

then on a unix box just type

```
gopher spinfree.cm.utexas.edu
```

then follow the menus down to the file you want. Gopher understands file types so you don't have to worry on that count. (can't get much easier than that without a mouse!).

Now suppose I gave you a URL of

```
http://www.apple.com/
```

then on a unix box just type

```
lynx www.apple.com
or if you have a fancy Xwindows graphics display perhaps
Mosaic www.apple.com
```

then follow the menus down to the file you want.

Hopefully the files are now on your unix box. You then download using xmodem, zmodem ,kermit or whatever (using either ascii or binary mode depending on above). sz, xmodem ,kermit are usually the unix program names.

On a Mac get the current version of Stuffit Expander (preferably with DropStuff Enhancer) and just drag the file onto it and generally it knows what to do with it. If you are a unix user grab mcvert from info-mac and use it on your unix box to save download time. Etc.

FTP SITES

The two biggest archives of Macintosh software on the internet are info-mac, whose site name is
`ftp://sumex-aim.stanford.edu/info-mac`
and umich, whose site name is
`ftp://mac.archive.umich.edu/mac/`

Many mirrors (i.e. copies) of these sites exist and you should use a mirror site close to you instead of the original site. The original sites are overloaded with requests for files so its pointless to even try.

In this faq and other mac documents if you see

`infomac/whatever`

it means ftp to one of the info-mac mirror archives

Info-Mac Archive Mirror Sites

```
ftp://ftp.info.au/micros/mac/info-mac/
ftp://ftp.univie.ac.at/mac/info-mac/
ftp://ftp.ucs.ubc.ca/pub/mac/info-mac/
ftp://ftp.funet.fi/pub/mac/info-mac/
ftp://ftp.jyu.fi/info-mac/
ftp://ftp.ibp.fr/pub/mac/info-mac/
ftp://ftp.cs.tu-berlin.de/pub/mac/info-mac/
ftp://ftp.rrzn.uni-hannover.de/pub/info-mac/
ftp://ftp.uni-kl.de/pub/info-mac/
ftp://ftp.uni-stuttgart.de/pub/systems/mac/info-mac/
ftp://ftp.hawaii.edu/mirrors/info-mac/
ftp://ftp.technion.ac.il/pub/unsupported/mac/info-mac/
ftp://ftp.iiij.ad.jp/pub/info-mac/
ftp://ftp.center.osaka-u.ac.jp/info-mac/
ftp://ftp.u-tokyo.ac.jp/pub/info-mac/
ftp://ftp.fenk.wau.nl/pub/mac/info-mac/
ftp://ftp.nus.sg/pub/mac/
ftp://ftp.lth.se/mac/info-mac/
ftp://ftp.sunet.se/pub/mac/info-mac/
ftp://nic.switch.ch/mirror/info-mac/
ftp://ftp.edu.tw/Macintosh/info-mac/
ftp://imftp.mgt.ncu.edu.tw/pub/mac/info-mac/
ftp://src.doc.ic.ac.uk/packages/info-mac/
```

```
ftp://amug.org/info-mac/  
ftp://ftp.pht.com//mirrors/info-mac/  
ftp://grind.isca.uiowa.edu/mac/infomac/  
ftp://mrcnext.cso.uiuc.edu/pub/info-mac/  
ftp://ftp.uu.net/archive/systems/mac/info-mac/  
ftp://wuarhive.wustl.edu/systems/mac/info-mac/
```

This information is also available as `info-mac/help/mirror-list.txt`

In this faq and other mac documents if you see

```
umich/whatever
```

it means ftp to one of the umich mirror archives which are

```
ftp://ftp.info.au/micros/mac/umich/  
ftp://ftp.bhp.com.au/mac/mirrors/umich/  
ftp://anl.anl.fr/pub/mac/umich/  
<ftp://info2.rus.uni-stuttgart.de/afs/umich.edu/group/itd/archive  
/mac/>  
ftp://athene.uni-paderborn.de/pcsoft3/mac/  
ftp://ftp.technion.ac.il/pub/unsupported/mac/umich/  
ftp://ftp.inter.spin.ad.jp/pub/Mac/Merit.mirror/  
ftp://ftp.iiij.ad.jp/pub/mac/umich/  
ftp://ftp.u-tokyo.ac.jp/pub/mac/umich/  
ftp://ftp.sunet.se/pub/mac/mirror-umich/  
ftp://nic.switch.ch/mirror/umich-mac/  
ftp://nctuccca.edu.tw/Macintosh/umich-mac/  
ftp://ftp.ccu.edu.tw/pub/mac/  
ftp://src.doc.ic.ac.uk/packages/mac-umich/  
ftp://archive.orst.edu/pub/mirrors/archive.umich.edu/mac/  
ftp://ftp.pht.com//mirrors/umich/  
ftp://grind.isca.uiowa.edu/mac/umich/  
ftp://wuarhive.wustl.edu/systems/mac/umich.edu/
```

Use

```
ftp://mirror.archive.umich.edu
```

which automatically connects you to its mirror sites.

Other sites of special interest to Macintosh Communications are
the tidbits archive

```
ftp://ftp.tidbits.com/pub/tidbits/tisk/
```

and plugging a local site that has a lot of communication and
virus stuff

```
ftp://ftp.utexas.edu/pub/mac/      (previously  
microlib.cc.utexas.edu)
```

and finally for Linelink owners of course

```
ftp://spinfree.cm.utexas.edu/
```

and the Mark/Space site (Communicate Lite people)

ftp://ftp.netcom.com/pub/mspace/

Info-Mac Mail Server(s)

ricevml.rice.edu (IP number 128.42.30.2) (mailserver only)

Most Info-Mac files are available from LISTSERV@RICEVM1.RICE.EDU, the same [LISTSERV](mailto:LISTSERV@RICEVM1.RICE.EDU) that handles the Info-Mac Digest. You can retrieve Info-Mac files by sending an email message with a body containing:

\$MACarch GET filename filetype

to "Get an Info-Mac file". Other commandes include:

\$MACarch Help

to "Get help about \$MACARCH" and

\$MACarch INdEx

to "Get a list of Info-Mac files"

You can get the above information and more by sending a message with the command

HELP

in the body of the message - on a line by itself to LISTSERV@RICEVM1.RICE.EDU.

Warning: Remember to "turn off" your signature when mailing (.sig)

FAQ (Frequently Asked Questions) on other things

In general, when searching for a FAQ, always check rtfm.mit.edu in pub/usenet. For instance for the FAQ for comp.sys.mac.comm look in pub/usenet/comp.sys.mac.comm and you'll find the four-part posting.

rtfm.mit.edu: [pub/usenet/comp.sys.mac.comm/c.s.m.c_FAQ_\[1_4\]](http://pub/usenet/comp.sys.mac.comm/c.s.m.c_FAQ_[1_4])
[c.s.m.c_FAQ_\[2_4\]](http://pub/usenet/comp.sys.mac.comm/c.s.m.c_FAQ_[2_4])
[c.s.m.c_FAQ_\[3_4\]](http://pub/usenet/comp.sys.mac.comm/c.s.m.c_FAQ_[3_4])
[c.s.m.c_FAQ_\[4_4\]](http://pub/usenet/comp.sys.mac.comm/c.s.m.c_FAQ_[4_4])

E-mail on Internet, CompuServe and America Online

=====
To send e-mail FROM CompuServe TO an Internet address, all you

have to do is use the address:

INTERNET: recipient address@domain

That is, just put INTERNET: in front of the Internet address. So my internet address on CompuServe would be INTERNET: loudon@uts.cc.utexas.edu

To send e-mail FROM Internet TO CompuServe, just use the CompuServe ID number, with the comma changed to a period, followed by @compuserve.com. For instance,

12345.6789@compuserve.com

To send email to an AOL address from the internet its recipient@aol

To send email from AOL to internet the information is. send to 'user@domain'

So to send email to me from AOL send to loudon@uts.cc.utexas.edu
