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Telecommunications

Telecommunications—the transfer of information between computers over wires and cables—can take you and your Mac beyond the confines of your desktop and your office. Just plug in a modem, fire up some communications software, and you’re headed into a whole new way of working with people and information.

The traffic regulations and road signs may be confusing at first, but with a little patience you’ll be on your way. Whatever your destination—be it a colleague’s computer or the World Wide Web, a local bulletin board or a national on-line service, or maybe just the office network—odds are you’ll soon find your Mac and modem an indispensable way to keep in touch. Before long you could be chatting familiarly with electronic friends you’ve never met, trading messages and files with associates around the world, getting answers to your computer questions (and maybe even offering a few tips to others), and decking out your Mac with the latest free and shareware software.

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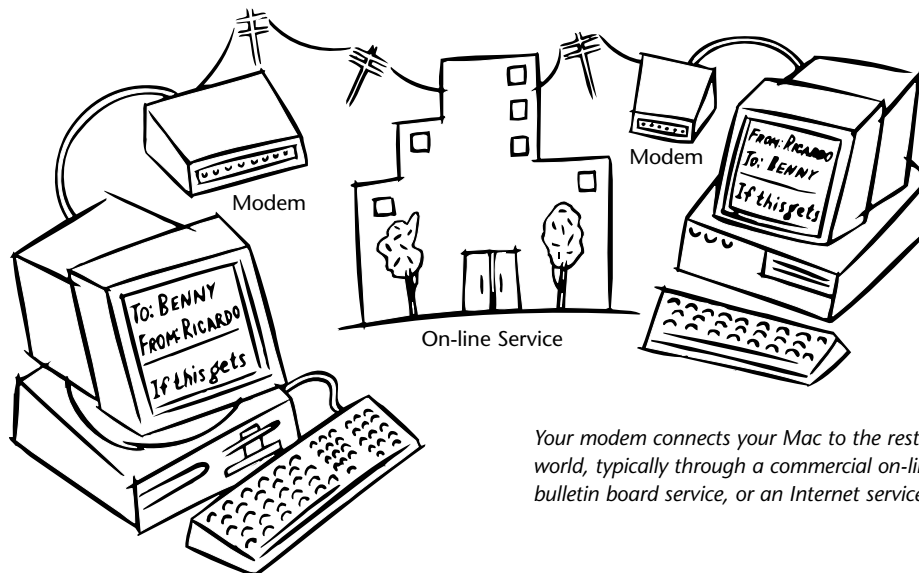
Henry Norr (HN) edited the previous version of this chapter, from which parts were taken.

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All About Modems

To telecommunicate, you need a *modem* (“MOE-dem”), a small piece of hardware that lets you hook up your computer to a phone line and transmit and receive data. Strictly speaking, a modem is no longer required—see the sidebar “Once and Future Telecom Technologies” later in this chapter. The name is short for modulator-demodulator. On the sending end, a modem translates (modulates) digital information from your computer into sounds, which then travel over telephone wires; the modem on the receiving end translates (demodulates) the sounds back into digital data.



Your modem connects your Mac to the rest of the world, typically through a commercial on-line service, a bulletin board service, or an Internet service provider.

Internal, External, and PC Card Modems

(HN)

Modems can be either external or internal (installed in an expansion slot inside your Mac or plugged into a PC Card slot on the side of a PowerBook). Internal modems are the norm among PowerBook users because you don't have to carry around another device when you're on the road, and because there's one less power outlet to search for. A recent addition is the PC Card (formerly PCMCIA) modem which, amazingly, fits all the electronics necessary for today's fastest connections inside a card not much bigger than a credit card. They're more expensive than other kinds and lack useful status lights, but the size and weight outweigh the drawbacks. The only Apple products that use these modems are the later PowerBooks and the Newton MessagePad. *[Get used to PC Card modems; they are the way of the future, even on desktop Macs.—SB]*



Connection Protocols

(HN/JH)

Modems actually have to make two different connections. First, your Mac has to communicate with the modem to send commands that operate the modem and to pass along and receive the data.

A modem can't do a thing without instructions from your Mac, instructions based on a set of commands originally developed by Hayes Microcomputer Products and thus called the *Hayes command set* or *AT command set* (because AT starts each command as a way to tell the modem to pay ATtention). The official Hayes commands are used by nearly all modems today to control the basics: dialing, resetting, and hanging up. Other nonstandard AT commands control everything else, and they change from manufacturer to manufacturer; keep that manual handy.

Though it's the most DOS-like thing you're likely ever to have to do on your Mac, you'll probably have to know a little about these AT commands eventually. See the troubleshooting section later in this chapter for tips on using AT commands to solve problems. *[No way. If you need to reconfigure a modem command string, either find a better string on-line or call tech support. Dealing with AT commands is not something worthwhile.—SB] [I disagree—five minutes trying some of our suggested commands might work and can't hurt.—JH]*

The Hayes commands are the standard for how computers talk to modems, but we also need standards, or protocols, for how modems talk to each other. A *protocol* is the set of connection and data transfer rules which a pair of computers must agree on. For that reason the manufacturers of modems and the chip sets they use spend vast amounts of time hashing out standards.

Modem manufacturers have addressed three main aspects of telecommunications: transmission speed (measured in bits per second), error checking, and data compression. Its standards are identified by a "V." followed by a number (and sometimes the word *bis* or *ter*, French for "second" and "third"). Here's what they mean and why you do (or don't) need to pay attention to them.

Speed (JH). The speed at which modems transfer data is measured in *bits per second* or *bps*, as in "Don't buy a modem that doesn't do at least 14,400 bps." *[Don't buy a modem that does less than 28,800 bps!—SB]* (See the sidebar "Baudy Tales" for the low-down on speed nomenclature.)

Modems were first widely available at 300 bps, then at 1,200, 2,400, 9,600, and 14,400. The fastest official standard today is V.34, for a modem that can transfer data at 28,000 bps, though an even newer version of V.34, nicknamed V.34 plus, supports 33,600 bps, and is already available on some modems.

Baudy Tales

(JH)

There are actually three common ways to refer to data transfer speeds. You'll most commonly see *bps*, for bits per second, and sometimes *cps*, for characters per second. The only difference between *bps* and *cps* is a factor of 10: a 9600-*bps* modem can move data at 960 *cps*. For super-fast connect speeds, you'll also see *kbps*, thousands of bits per second, and even *mbps*, megabytes per second! (See the sidebar "Once and Future Telecom Technologies.")

You'll also hear the term *baud*, but it's wrong. Baud refers to the number of signal changes per second, but every modem transfer protocol since antique 300-*baud* modems conveys more than one bit per signal. A 9,600-*bps* modem is actually a 2,400-*baud* modem. But forget the details—in common usage, *baud* means *bps*.

Standard modem speeds won't continue to grow at that pace. Technology has squeezed all it can from standard telephone lines, which have a theoretical limit of 35,000 *bps*. My V.34 modem seldom does better than 26,400 *bps*. If you're making a local call and your phone lines are good you may do better. To exceed those speeds though, you'll need to move to a digital line such as ISDN (see the sidebar "Once and Future Telecom Technologies" later in this chapter).

The major standards for data and fax modem communications are listed in the table at right.

Error correction (HN). Today's modems are amazingly accurate, but they do make mistakes. (How would *you* like to interpret 28,800 sounds a second transmitted over a noisy copper wire?) That's why they need *error detection* and *error correction*—ways to verify that the receiver received what was sent and to request a retry if that didn't happen. Software-based file-transfer protocols incorporate their own error checking, but with high-speed devices the hardware helps carry the burden.

The current error-correction standard, V.42, incorporates several previous technologies. An additional error-correction technique not included in V.42 is Microcom's

Modem Modulation Standards (HN/JH)

| Standard | Maximum Speed (bps) |
|-------------------------|---------------------|
| Bell 102 | 300 |
| Bell 212A | 1,200 |
| V.22bis | 2,400 |
| V.32 | 9,600 |
| V.32bis | 14,400 |
| V.32terbo* | 19,200 |
| V.34, V.Fast*, or V.FC* | 28,800 |
| V.34 plus* | 31,200 and 33,600 |
| V.27ter | 4,800 |
| V.29 | 9,600 fax |
| V.17 | 14,400 fax |

*Unofficial interim standards



POWERBOOK

MNP Level 10, designed for adverse conditions such as exceptionally noisy lines and cellular connections. Look for it if you're shopping for a cellular modem to connect to your PowerBook.

Data compression (HN). To the extent that data can be compressed before transmission, you can get more effective *throughput*—in other words, send and receive your files faster—with any modem, whatever its transmission speed. That's why most Mac files in on-line libraries are compressed with software such as Aladdin's **StuffIt** or the shareware **Compact Pro** (see "Compression" in Chapter 13). The idea behind hardware compression is similar, but it's simpler because it requires no effort on the part of either sender or receiver—the modems compress and decompress the data automatically.

But hardware compression only works if both devices are using the same technology, so modem vendors have agreed on a standard, V.42bis (not to be confused with the

Once and Future Telecom Technologies

(JH)

To think that at one time folks were happy tooting along at 300 bps! Nowadays, a 28,800-bps connection can feel unbearably slow as it's struggling to download massive multimedia files on the World Wide Web. Though that's the top speed you'll attain over standard telephone lines (nicknamed *POTS*—Plain Old Telephone Service—by telecom fanatics and the phone companies), there are faster, though more expensive alternatives available right now, and even faster alternatives coming.

ISDN

At this writing, the only commonly available and relatively affordable step up is *ISDN*, Integrated Services Digital Network, available in about 70 percent of the country. Basic-rate ISDN service is fast, theoretically up to 128,000 bps or about four and a half times faster than a V.34 or 28,800 bps modem. It runs for the most part over existing telephone wires, but through tweaking and equipment upgrading by the phone company, turns the entire connection digital, from your Mac to the computer at the other end. That means of course no modem, because there's no longer a need to modulate the digital signal into analog and demodulate it back to digital.

One neat thing about ISDN is that, because it uses two *channels*, or independent data connections, it can carry a fast 64-kbps over one channel while you simultaneously use the other channel for telephone, fax, or modem calls. Or, through a process known as *multi-linking*, ISDN can carry data at 128 kbps over its combined channels.

ISDN service is much more expensive than regular POTS. Your Mac will need an ISDN terminal adapter, such as Motorola's **BitSurfer** (\$499), but that will stick you with the serial port bottleneck of 57.6 kbps. For \$1,000, maybe less, you can get the full speed from an internal NuBus card.

V.42 error-correction protocol). Exactly how effective it is depends on many factors, including the nature of your data, but V.42bis generally seems to increase throughput by 50 to 100 percent. (And most V.42bis modems are smart enough not to waste time trying to compress data you've already compressed with a utility.)

Vendors regularly imply that compression is much more efficient than it really is. For V.42bis, for example, they generally assume a 4:1 compression ratio. These claims may not be literally false, but they're bogus because they are based on ideal conditions—you'll probably never achieve those levels of throughput.

[Something else to consider is serial port speed. If you buy a 28,800 bps modem and expect to get 115 kbps or greater rates through compression, make sure that your Mac's serial port can handle this higher data rate. Third-party cards, such as Creative Solutions's Hustler card, add high-speed serial ports to your Mac that can handle higher transfer rates, even on older Macs such as the Mac II.—fO]

Next, getting ISDN service installed in your home by the phone company costs anywhere from \$50 to \$500 depending on your location, with monthly fees from \$30 to \$100, plus a per-minute usage charge of a penny or so. Finally it'll all be for naught if you aren't calling something ISDN-equipped at the other end. Many Internet service providers offer ISDN connections for prices starting at \$30 to \$60 a month, and CompuServe has 56 kbps ISDN available at nine locations throughout the country, for no surcharge at all.

Be warned: The setup is very tricky. Pick vendors based on support as well as price. *[Get your vendor to commit to an ISDN connection in writing. I had an ISDN line put in at my vendor's verbal urging. No connections have become available. In fact, there are no ISDN connections available in my very large metro area. What a joke.—SB]*

Cable Modem

Though it's only being tested in a few markets right now, cable modem, an even faster technology, is likely to supplant ISDN, at least for home use. Cable modem uses a standard coaxial TV cable to deliver a (theoretical) maximum of 10 mbps, though closer to 2.5 mbps in the real world—that's *megabytes* per second, and almost 20 times faster than ISDN, almost 90 times faster than a 28,800 bps modem. The technology now operates *asymmetrically*, that is, somewhat one-sidedly by using a super-fast connection to bring graphics and sound data downstream into your computer, while the upstream connection, which typically carries just mouse clicks and some text, is a leisurely 14,400 bps to 1 mbps.

Of course cable modem will only be available in areas where TV cable is or can be installed. It probably won't be widely available for a year or two, but several small test markets are already up and running, including Elmira, New York. Keep your eyes peeled.



Figuring Actual Transfer Rates

(HN)

When you are shopping for a modem, it's important to pay attention to the speeds and standards supported by the various models—a 14,400-bps modem really is a lot faster than a 9,600-bps model. But many factors other than a modem's speeds and standards influence actual transfer rates, or throughput, that you'll experience in real-life telecommunications.

A 2,400-bps modem, for example, can transfer 2,400 bits or 300 bytes per second—in theory. But there is always extra overhead involved in telecommunications—setup negotiations between the two modems, special stop bits that sometimes mark the beginning and end of bytes of data, and occasional retries when some data is not received properly. All of this reduces real data-transfer rates. As a very rough rule of thumb, assuming no data compression and normal amounts of line noise, divide the bps rate by 10 to approximate the actual transfer rate in bytes or characters per second. (Remember that in the binary system computers use, it takes eight bits, or one byte, to represent a character.)

In other words, two 2,400-bps modems will typically transfer about 240 bytes per second, or around 14K per minute; with 14,400-bps modems, you can expect to average 1,400 to 1,500 bytes or characters per second (84K to 90K per minute). You'll have to check the actual connect speed of a 28.8 modem to make the calculation, since they typically connect at 24,000 or 26,400 bps, not 28,800.

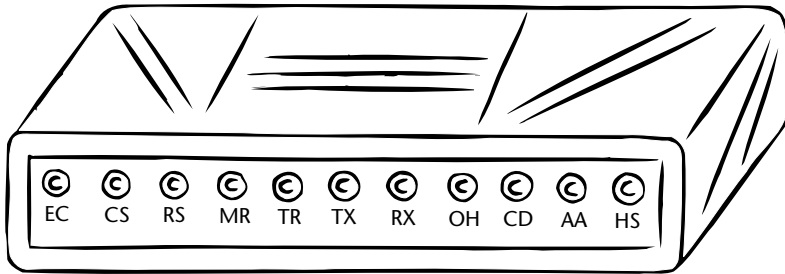
Remember, though, your mileage may vary. A noisy line or bad connection can drastically reduce your throughput. And if you download a file from a BBS or on-line service at a time of day when the system is crowded, expect lower-than-optimal transfer rates even if the connection is clean, because the computer at the other end of the line may sometimes leave your modem sitting idle while it services other users.

On the other hand, you can boost effective throughput to significantly higher levels by using data compression: If you can compress a 1MB file down to, say, 500K, you can send it over the phone in half the time (see ["Compression,"](#) in Chapter 13). *[That's not always true, especially if you have a V.42 or MNP10 connection. Precompressed files are not compressed (well maybe one percent) by hardware compression modems.—SB]*

Buying a Modem

New modems: 28.8 versus 14.4 (HN/JH). Simply put, telecommunicating is slow. In fact, it requires more waiting than almost anything else we do with our Macs. Worst of all, when you log onto a commercial on-line service or dial a long-distance number, you have to pay to wait! That's why there's no such thing as a modem that's too fast—provided that you can use and afford the speed.

We've finally reached a technological—and price—plateau, so the choice is much simpler than it used to be. V.34 modems, which connect at 28,800 bps, are today's



The status lights on the front of an external modem can be very useful. TX: Data is being sent out; RX: Data is coming in; OH: The modem has taken the telephone line “off hook”; AA: Auto-answer is turned on, usually by the fax software; CD: A connection has been made with a remote modem.

modem of choice and are likely to remain so for awhile. You can pick up a decent one for under \$200, a fancy one for twice that. The only alternatives in new modems are V.32 14,400-bps modems, but at roughly \$100 to \$150, they aren’t typically cheap enough for you to pass up the faster modems. (Though they’re more expensive, the same ratio applies to PC Card modems.) You should only consider a V.32 if you can’t connect at faster speeds today and won’t for the next year or so. A 14,400-bps modem may suit your light e-mail needs just fine, but once you begin to explore the service that provides your e-mail account, you can eat up the price difference in short order.

Used modems: older protocols (JH). No one makes the slower 9,600- and 2,400-bps models any longer, but with no moving parts, modems last a long time, and you can still find used ones for sale. For some folks, especially those who plan to use only e-mail, a slower modem is a sensible choice. But remember: A 2,400-bps modem can spend as much as 12 times more time *downloading* a file—copying a file onto your Mac from a remote location—as a 28,800-bps modem [*And that includes e-mail of course.—SB*] Consider on-line charges and the value of your time.

Avoid the nonstandard protocols. The interim standard *V.32terbo* allows communication at up to 19,200 bps as long as it connects with another V.32terbo modem. Another standard, *V.FastClass* or *V.FC* supports speeds up to 28,800 bps when connecting with another V.FC modem. Although modern modems promise backward compatibility with these standards, you’re more likely to have problems.

Reliability, Compatibility, and Support

(HN)

Specs and standards don’t tell you everything about a modem—between two units with seemingly identical features, subtle differences, especially in their ROMs, can make the difference between smooth sailing and constant hassles. Some modems only have problems with certain other manufacturers’ units.

Unfortunately, it's not easy to get a handle on such issues; magazine reviews usually aren't much help. Your best bet is to talk to others who are already using the model in question. Ask around among friends or at a user group, or go on-line. Most major modem makers have their own BBS (bulletin board service) or a customer-support forum on CompuServe (popularly referred to as "CIS"), America Online (known as "AOL"), or elsewhere. Scanning those forums provides invaluable insight—both in terms of the problems users may be reporting and the attitude the company's representatives display. Tech support is important—odds are you'll need it sooner or later. An on-line forum with knowledgeable reps providing prompt and friendly support is both a valuable resource in its own right and a telling sign about the company's culture; if it doesn't offer on-line support, or messages go unanswered for days, I'd stay away.

And don't forget to find out in advance about the vendor's return and warranty policy.

Tester's Choice

Real telecom fanatics passionately believe in their chosen modems. Here are four of our personal favorites. Note that street prices are much lower than the list prices we show here.

Practical Peripherals MC288LCD V.34 (\$460) (JH). Practical Peripherals has long been my favorite modem manufacturer, because with one exception, each of the four I've owned (2,400, 9,600, 14,400, 28,800) has run perfectly. The single time I had a problem, the company sent me a user-installable firmware upgrade immediately and without charge. My current **PM288LCD V.34** consistently performs perfectly.



The MC288LCD is pricey, but it's worth paying extra for the backlit 24-character LCD display, which constantly rotates information about the connect speed, carrier, quality of connection, connection protocols, up-to-the-second transfer rates, and time connected. It even tells me the time of day. I find it indispensable when debugging connection problems; the readout reports "Ready, Dialing, Silence, Far Ring 1, Handshaking, Negotiating, Online." And it comes with a lifetime warranty.



A \$10 shareware application called **SetLCDclock** from Adept Solutions sets your PM288LCD's clock to match your Mac's clock: Drop it into your Startup Items folder. Download it from the Practical Peripherals forum on CompuServe or from other on-line services.

Global Village PowerPort Platinum (\$240) (DJS). I fax. A lot. In broad daylight I can fax a two-page document from the Wyoming mountains to New York for a lot less moolah than a letter. Thus, my printer's toner cartridge is not one cycle closer to

replacement, I don't wince with the thought of cutting my tongue licking an envelope, and fewer trees have died.

If you fax as a way of life, you use the Global Village. Simple as that. Mine's a Gold. I wish it were the Platinum.

Hayes Smartmodem Optima 288 (\$580) (JO). When it comes to personal computer modems, Hayes practically invented them almost 15 years ago. Though the company has had a series of financial difficulties of late, they still make rock-solid modems and ultimately define the term "Hayes-compatible." Hayes includes a low-end version of Smartcom II, their scriptable terminal-emulation program and fax software, but these pale in comparison to the better third-party products. Don't buy the modem for the bundled software. The Optima 288 is not the least expensive modem you can buy, but its wide support is bound to save you compatibility debugging headaches. *[This modem is no better than its cheaper cousins and Hayes has abandoned Macs. I'd skip this one.—SB] [Hayes still sells Mac modem bundles, and they're probably the best supported and most widely used modem today.—JO]*

Global Village PowerPort Series (\$400) (JO). Internal modem or PC Card, the best PowerBook modem comes from the line of Global Village PowerPort modems. Global Village charges a bit more, but they go to great lengths to ensure a high-quality user experience. The Mercury line, which works with the 100-, 200-, and 500-series PowerBooks supports speeds up to 19.2 kbps. The newer Platinum series modems are full-fledged V.34 modems that support 28.8 kbps transfer rates. Included with all their products is the acclaimed GlobalFax software which is probably the finest on the market. If you are planning to use your PowerBook to send and receive even a modest number of faxes, the PowerPort choice becomes even more compelling.



POWERBOOK

Penny Wise?

These modems are less expensive, and less feature-rich, but we still recommend them.

SupraExpress 288 V.34 (\$170) (DJS). I bought Supra LC144s by the six-pack back when 14.4 was fast. I've watched cheap (and cheaper) Supras sit there for years and do nothing but shag calls or download daily weather maps or surf for wire photos, glib as can be. Because of their square-jawed reliability and fine documentation, I'd not hesitate to foist on anyone the 288 SupraExpress if faxing is not a factor. I like Supra for one more reason: You can download a continually updated list of their extended (to near-infinity) AT command set. Global Village has never offered this courtesy. *[The SupraExpress lacks the \$250 Supra FaxModem's flash ROM, LED display, and extras such as caller ID.—JH]*



MultiTech MultiModem 2834ZDX (\$300) (JO). The little-known MultiModem ZDX, with a street price of about \$190, is a fine economical V.34 modem. It is considerably smaller and lighter than most desktop modems, so it's easy to take with you. (The external power pack is also nice and small.) It's a Type 2 fax modem, as opposed to most others which are Type 1, which seems to result in some better performance since the modem handles more of the responsibility for the fax transmission. On the downside, it's hard to find a Macintosh-specific bundle for this modem at most mail-order houses. If you don't care about the software or cable, the MultiModem is fast and travels well.



Duo Express Modem (\$345 installed) and **Global Village PowerPort Mercury for the Duo** (\$400) (DJS). This is a specialized intelligence: the Duo modem. There are only two Duo internals available: the singular Global Village PowerPort-for-Duo Mercury (19.2 kbps) and Apple's Duo Express Modem (14.4 kbps). Both send and receive faxes. Apple's modem was much maligned, so if you find a used one, it's a deal at \$100 or \$200 less than a new GV. (You simply do not find used GV Duo modems.) I've lived with both; the Apple modem is less fussy. The Express Modem's original problem? Software. Apple fixed things with releases 1.5 and up. Install Telecom 2.x (free on-line) and the Express Modem is downright swell. *[Judging by the complaints I see on-line, the Express Modem certainly has more than its share of dissatisfied customers. And by today's standards, it's slow. My recommendation is to buy this modem only if it's included in a used PowerBook you're buying.—JO]*

Communications Software

There was a time, not long ago, when everyone used general-purpose telecommunications programs to connect remotely to other computers. The same program could be used to reach your friend's modem, your favorite BBSs, on-line services, and even industrial computers.

Those days are gone. We still use general-purpose programs, but for the most part, we use service- and function-specific programs to telecommunicate. Most services now require you to use their special software. The situation on the Internet, where a general program used to be enough, is even more chaotic. You'll likely use a different program for each major function you perform: For example, I use a mail manager/reader, a news reader, a Web browser, a Telnet remote connection program, and a special uploading program to maintain my Web page (for more on Web pages, see Chapter 23). That's five programs to do what one program used to do. The new way is easier and far more friendly, however.

The MacBinary Imperative

(HN)

Virtually every Mac telecommunications program has a setting for enabling something called *MacBinary*. It should be on by default, and you should leave it on unless you have some very special reason to turn it off.

MacBinary is not a protocol but a file format. It was devised by Mac telecommunications pioneers to deal with some unique Mac features, including the fact that the Mac divides files into two segments (called the *data fork* and the *resource fork*) and stores some information about files, such as type and creator codes, creation and modification dates, and icons, in the Finder rather than the file itself. MacBinary solves these problems by combining both forks in a single block and adding a 128-byte header with the Finder information; when receiving a file, MacBinary-aware applications recognize the header, decode the file, and restore it to standard format.

When MacBinary is turned on and you initiate a file transfer, your software will convert the file into the MacBinary format. If it's sent to a PC or a mainframe, it will stay in MacBinary format, but if it reaches a Mac via a Mac communications program, it will automatically be converted back to its original format. If you download a Mac file to a PC and take it to a Mac on a floppy or over a network, you'll have to convert it yourself before it's usable. (To find out how to do that, [see Chapter 25.](#))

General-Purpose Packages

(SB)

Why do we even keep general-purpose programs around? They're still the best way to reach many computers. Their bare bones interface is very fast and efficient. You may never need a general-purpose telecom program, even if you live your life on-line. If you do need one, here's what to look for:

- Compatibility with and the ability to use the *Mac Communications Toolbox*—Apple's system-level communications tools (see the sidebar "The Communications Toolbox")—and *Open Transport*, Apple's latest modern networking and communications architecture.
- Scripting or button-creation ability. The time you spend connected to other computers is valuable, so never do the same operation twice manually. Create scripts or buttons using the software's built-in tools to log on, navigate, perform tasks, and log off. Any time spent creating these aids will repay itself many times over.
- Be sure your software supports high-speed transfers. Having a program that can move data at 28.8 kbps may seem likely enough if you connect via a modem, but that's today's standard and tomorrow's will be faster. Look for the ability to move

The Communications Toolbox

(HN)

If you look into a lot of recent Mac communications programs, you may notice that the configuration dialog boxes in many of them look suspiciously similar. Is this evidence that developers are simply copying each other's look and feel?

Not exactly. What you are seeing are dialogs created with the help of the Macintosh Communications Toolbox (a.k.a. the Comm Toolbox, or CTB), a piece of Apple system software that was introduced as an add-on to System 6 and then rolled into System 7. It provides a uniform framework for communications (including nicely designed dialog boxes) and a set of basic communications tools, all of which are available to any application that supports the toolbox. The goal was to make it easier for developers to add communications capabilities to their software, enable multiple applications to share the same tools, and spare users from having to confront a new interface in each program.

In addition to standard dialog boxes, the Comm Toolbox defines three standard types of tools:

- *Connection tools*, which define how the Mac is to be connected to another computer. In addition to the Apple Modem Tool, there's a Serial Tool for direct connections, a Telnet tool for TCP/IP connections, and several other tools for different kinds of network connections.
- *Terminal tools*, which define the types of terminals that communications programs can emulate—TTY, VT102, or VT320, for example.
- *Transfer tools*, which implement file-transfer protocols such as Xmodem or Zmodem.

Under System 7 these tools get installed in the Extensions folder, and you have access to them from any Communications Toolbox-based application. If, for example, you install Aladdin's SITcomm program, you'll have a Zmodem tool that's also available for use in, say, ClarisWorks' communications module, even though that program did not come with Zmodem support.

data at least 57.6 kbps and preferably faster. If you have a direct, that is, modemless, link to another computer or network, look for the ability to move data at 115 kbps and up.

- File downloading uses special protocols to speed up an otherwise tedious process. When using the Comm Toolbox, adding protocols is simply a matter of getting and using new Tools. The fastest protocol is Zmodem. CompuServe users should use QuickB, a proprietary protocol.

Consider the following programs:

MicroPhone Pro (\$300, Software Ventures) is the top of the widespread MicroPhone family. It is the most versatile and feature-laden Mac telecom program. It even has the

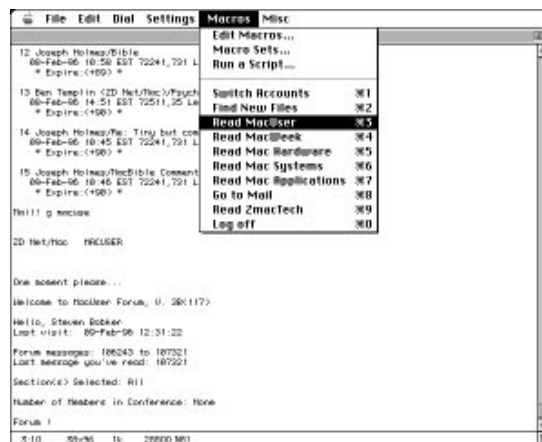
ability to set up a dial-in BBS, and use custom graphical front ends for CompuServe, GENie, and MCI Mail. There are some add-on and separate Internet tools also in the box. The upside is real telecom power; there's not much you can't do. The downside is complexity. The learning curve is steep, and the demands on hard disk space RAM are not small. The lesser versions cut out features and are worth it only if free. *[For heavy scripters, there's nothing like MicroPhone Pro.—JH]*

Smartcom II used to be the best, joining simplicity with power. Its publisher (Hayes) dropped all Mac development and support over a year ago. The final version runs well on all Macs including PCI Macs, supports the Comm Toolbox brilliantly, is unmatched at high speeds, and has more than adequate scripting and button-creating ability. I'd consider Smartcom worth about what good shareware is worth: \$20 or \$30. Just don't expect support from Hayes.

SITcomm is a basic program (\$120, Aladdin Systems) with okay performance. A nice Zmodem tool is included, but there's nothing truly special here. While SITcomm can handle high connection speeds and has excellent Comm Toolbox support, there's no built-in scripting, except via AppleScript. *[SITcomm is straightforward and easy to use; I highly recommend it for simple needs.—JH]*

CrossTalk (\$195, Attachmate) has the same name as the best Windows telecom program, but is an entirely different beast. The original developer (DCA) has sold it, and the performance and the feature set are not up to snuff for today's users. Its only advantage is that it can use Windows' scripts and button sets (QuickPads).

ZTerm (\$30, Alverson Software) is the most common general-purpose telecom program. It's reasonably priced shareware and comes bundled with many other packages. It works well at very high speeds, takes up little disk space and RAM, and supports all common transfer protocols. Scripting is rudimentary but effective (and easy!). ZTerm is capable of higher connection speeds than any other program, making it invaluable for directly connecting computers. Unfortunately, there isn't any Comm Toolbox support yet. Still, the price and feature set make this a must-have. This program was in beta for literally years; be sure to get the release version (1.01 or later).



ZTerm's macros come in sets of ten; you can have as many sets as you like.

ClarisWorks 4 (\$129, Claris) has a built-in telecom module that fully supports the Comm Toolbox and is not the joke that the telecom modules in earlier versions were. Indeed, if you have ClarisWorks, you likely have all the general-telecom power you need today.

E-Mail Managers (JH)

If you only send or receive a few e-mail messages a day, your on-line service's software will suffice. (We have a lot to say about e-mail—what it is and why you'll love it—later in the chapter.) But if you get lots of e-mail, or if you need to sort it into categories, store it, and retrieve it easily, you should consider an e-mail manager, an application which automatically goes on-line to send and retrieve all your mail, letting you read and reply to it off-line at your leisure.

Eudora Pro (\$90, Qualcomm). Eudora began life as a free e-mail manager, and later spawned an expanded commercial version, Eudora Pro. It sends and retrieves e-mail



Eudora Pro enables you to automatically file e-mail in “mailboxes” you create, which can be several layers deep.

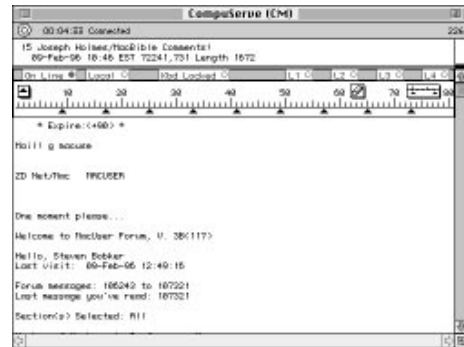
only through a TCP/IP Internet account, not from the commercial services or from a local network.

Eudora Pro will check for mail on demand or at regular intervals. After picking up e-mail, Eudora files the messages in user-created “mailboxes,” which can be nested one or more folders deep. Mail can be filed in the mailboxes automatically by filters, filing according to words in various fields of the message. Filters can also change a message's subject, label, or priority, but cannot automatically forward a message or send a reply.



**BAD
FEATURE**

Eudora Pro is well-designed and powerful, if a tad quirky. There's no address book, for example. Instead a “nickname” system allows a short name to stand for a full e-mail address or a group of addresses. There's no way to import addresses from existing address books from other applications, and no way to sort or search the addresses. Still for those who rely on a TCP/IP-based service for e-mail, Eudora Pro is easy to use and stable. The free Eudora Light is still supported; it lacks filtering, spell checking, and other features, but it makes a terrific first e-mail manager. *[Eudora is also wired for AppleScript, so you can further automate its operations with simple or complex scripts.—fO]*



ClarisWorks's telecom interface is really bare-bones, but it's easy to use and works very well.

At this writing, Qualcomm announced Eudora 3.0, which, among other improvements, offers a more robust address book, though there's still no way to import addresses from other applications.

Claris EMailer (\$90, Claris). A newcomer, this package is the best all-around e-mail manager, less powerful than Eudora Pro at filing messages, but covering most other areas better. EMailer will retrieve e-mail from CompuServe, America Online, RadioMail, AppleLink, and an Internet service provider, on demand or on days and times you preset. EMailer is a natural choice for those with accounts on more than one service, but it has several slick features that make it a terrific utility even if you retrieve e-mail from just a single service.

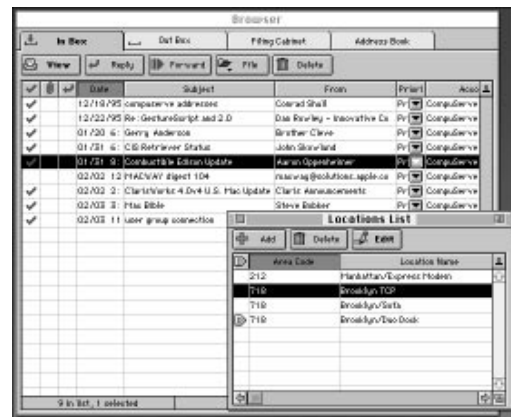
First, like Eudora, EMailer files messages in user-created “filing cabinets,” though there are no subfolders. Also like Eudora, EMailer automatically files mail according to “mail actions,” looking in specific fields for designated words. Mail actions will also automatically send a prewritten reply (“I’m on vacation...”), forward an incoming message to another recipient or account, or set a priority label. It’s good at searching messages for names or words, too. *[If you subscribe to listservs (see “Mailing Lists,” later in this chapter), be careful with that auto-reply business. You might earn a lifetime of scorn in one week.—DJS]*

EMailer can also easily switch locations settings. I use EMailer at work and at two locations at home, for example, and I can quickly switch between the locations, changing the settings for my three modems and two phone numbers.

If you have TCP/IP access to the Internet, EMailer makes checking your mail on America Online and the Internet incredibly fast. Set up an EMailer TCP location for your Internet account and for each screen name in America Online. When your TCP connection is live, EMailer takes about three seconds to check each service.

EMailer’s biggest drawback is that, as of version 1.0.v2, it cannot retrieve mail from local area networks such as QuickMail and First Class, and it sorely needs a more sophisticated database for storing and retrieving mail.

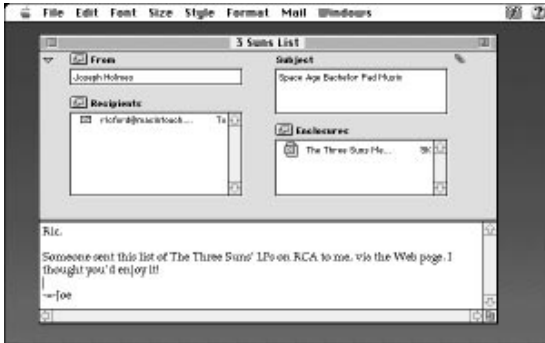
[Getting mail from a dial-up Internet service provider on an automatic schedule is difficult to impossible. Otherwise EMailer is fine.—SB]



Claris EMailer makes it easy to switch among locations, changing access information such as phone numbers as well as modem settings if you move between modems.



PowerTalk (bundled with System 7.5). This software is Apple's attempt to create mail and fax management at system level, so that e-mail and fax capabilities are



Some components of PowerTalk, such as AppleMail, the universal e-mail application, are simple and well designed, even if the overall package is confusing and poorly documented.

available throughout the Mac environment. Although it's potentially powerful, and some of it is elegantly designed, it's mostly a nightmare of confusing interface, made up of half a dozen components whose exact relationships are a puzzle. Its fatal flaw, though, turns out to be that, in a classic chicken-and-egg situation, each service is required to develop its own PowerTalk extension. No extension, no connection. And only CompuServe has developed a PowerTalk extension.

Because of the poor showing from the on-line services, Apple announced in January 1996 that it had halted further development of PowerTalk, at least until the next major system release. Still, PowerTalk is bundled with System 7.5, and the CompuServe plug-in is free, so you should try it if you have a CompuServe account. Once it's set up, it works as advertised.

Setting Up the Connection

(HN)

Because of multiple telecommunications standards, any versatile communications application must offer an array of configuration choices—most telecommunications programs need at least minimal fiddling with their settings to get everything working correctly. (That's what makes telecommunications one of the most difficult computer tasks to master.) To make matters worse, most manuals that come with modems and telecom software are poor.

The good news is that once you have your software set up and running properly, you can normally forget about most of these settings and put the manual on the shelf—at least until you get a new modem, switch to another program, or try a new on-line service.

Bits per second. Modems connect at their top speed and also at several slower speeds; a 28,000-bps modem, for example, can also connect at 14,400, 9,600, 2,400, and 1,200 bps (see the sidebar “Baudy Tales,” earlier in this chapter). When two modems connect, they negotiate to determine the highest transfer rate they have in common; if line noise or other problems make it impossible to carry on at that rate, they should drop down automatically to a lower rate. Some (but not all) modems are even smart enough to move back up to a higher rate if line conditions improve.

But no modem can use a higher speed than your software is set for, so be sure your software is set to the speed you want—actually, higher than the fastest modem speed you can use, to make use of the modem’s compression (see Data Compression, earlier in this chapter).

Flow control. Modems generally can’t transmit data over the phone line as fast as your Mac can send it to the modem over a serial cable, and sometimes your Mac can’t keep up with the incoming data from the modem. If either device feels it’s in danger of gagging on excess data, it can signal to the other to stop sending data until the backlog has been processed. This coordination process is called *flow control* or *handshake*.

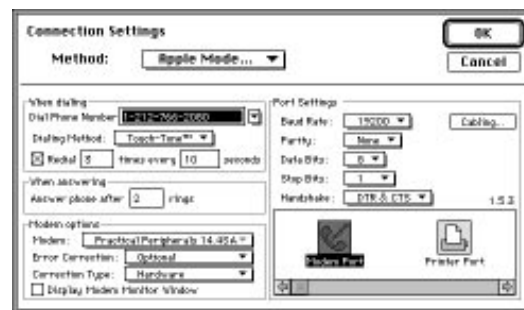
Lower-speed modems (2,400 bps and slower) usually rely on a flow-control technique called *Xon/Xoff*. They send the computer on and off codes between chunks of data. Make sure to turn on the *Xon/Xoff* switch that you’ll find in some settings dialog box or menu in your communications program.

Modems that work at 9,600 bps and faster support hardware handshaking, a scheme that uses dedicated wires in the serial cable for signaling. Hardware handshaking is faster and more reliable than *Xon/Xoff*, so be sure to turn it on if you have a high-speed modem. *[Internal modems, by their nature, are all hardware handshaking.—SB]*

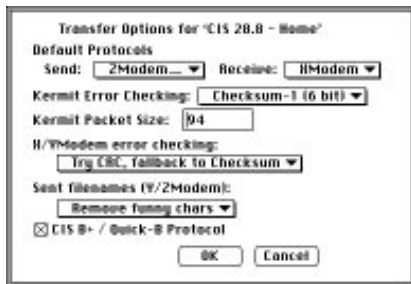
Cables that come bundled with high-speed modems are hardware-handshaking; if you have to purchase a cable separately, specify that you need hardware handshaking. If you upgrade from an older (2,400-bps) modem, you probably don’t already have a hardware-handshaking cable.



Other Terminal Settings: 8-1-No. Depending on the program or service you are communicating with, you may need to send and receive data in chunks of either seven or eight bits; your software should offer a choice under the heading *data bits*. The end of one byte and the beginning of another is marked by *stop bits*. Finally, *parity* is an old-fashioned way of checking that the other computer received exactly what you sent. Far and away the most common setting is eight data bits, one stop bit, and no parity, nicknamed 8-1-no. Those are the default settings in most Mac telecommunications programs; don’t change them unless you know what you’re doing.



In the Apple Communications Toolbox, under “Port Settings,” you’ll find the common settings for parity, data bits, and stop bits. Here, flow control is called “handshake.” The dialog box may look different depending on the application you’re using.



This dialog from ZTerm allows you to set various aspects of file transfer protocols, but the only areas you need to bother with are the two menus under Default Protocols, and the checkbox for CIS B+, which you need to check only when using CompuServe.

File Transfer Protocols. You can send plain-text (ASCII) files via modem with no special protocol or error checking; any communications program can send an unformatted text file character by character, as if you were typing it out. But there are lots of problems with text transfers. Characters may get dropped or garbled, for example.

To send anything but plain text, or even if you just want to make sure a text file arrives intact, you need to use a *file-transfer protocol*—a set of conventions for how much data will be packaged, sent, and verified. These protocols are independent of the computer, the

modem, and even the communications software you are using. When a Mac user sends a file using the Zmodem protocol, any modem connected to any computer

Xmodem, Ymodem, Zmodem

(HN/Randy Singer)

Here's a guide to some commonly used transfer protocols (in order of preference):

- *Zmodem* should be your choice whenever possible. It's the fastest, can send multiple files in a batch, includes the files' names and other information about them, and can resume interrupted transfers right where it left off, so you won't have to cover the same ground twice.
- *Ymodem* (and an even faster variant called Ymodem-G) also supports batch transfers and filenames. Ymodem-G contains no error-checking protocol. It's a very fast way to transfer files, but use it only with modems that do error correction in hardware or when two computers are hardwired together directly.
- *CompuServe B+* is the latest in a series of proprietary "B" protocols the CompuServe Information Service developed for its use on its own network. It's useless anywhere else, but it's your best choice if you are downloading from CompuServe. (It's not quite as fast as Zmodem, but CompuServe doesn't support Zmodem.)
- *Xmodem* is an older protocol that is still widely used, in part because it's supported by virtually all communications programs, while its Y and Z cousins are not. But because it sends data in smaller packets it's relatively slow, and, unlike Zmodem and Ymodem-G, it waits for acknowledgment of a packet before starting to send another. It uses an error-detection technique called *checksumming*, but some implementations give you another option called *CRC*, for cyclical redundancy checking. Choose the latter if available.
- *Kermit* works with a wide range of computers and telecommunications equipment, including mainframes that don't support newer protocols. Because of its versatility and easy configuration, it's still a favorite among many government and university users. But it's generally slower than the alternatives, and it's not supported on most services.

running any program that can handle Zmodem transfers will be able to receive the file correctly. Not all communications programs and services support all protocols, though, so you may not be able to stick with just one.

Troubleshooting Connections

(DJS)

Fact is, modems work. Like the rest of your equipment, once they are trained properly they tend to stay trained.

Unlike the rest of your equipment, the modem is useless until it's in cyberspace, the huge and messy on-line universe. A modem requires a component that is subject to untold pressures—the phone system. No wonder modems get snarled at times.

Be patient and be methodical.

General Rules of Engagement

Cozy up to basic telecom software. Type AT. The modem should answer OK. Behold both a revelation and a warning: You can learn a lot from, and do a lot to, a modem by using bare-bones telecom software. *[Remember, however, this is as far as any sane person should go with AT commands. If the modem is working, get outside help. If you don't get the OK in response to AT <return>, solve what is likely a hardware problem such as a loose cable.—SB]*

- Connect a phone to the line to confirm a dial tone. Use the modem's phone extension connector if possible. Dial the number and listen for modem shrieks.
- If you hear undue background crackles and pops, your modem does too. Modems hate that. *[Call up your phone company and complain!—JH]*
- *Make sure* the RJ-11 plug is in the proper hole. One goes to the wall, the other to an optional phone or another modem.
- *Make sure* there's power and good phone cords attached.
- *Make sure* the cable is good. Be wary of checking the cable against older modem cables. Today's high-speed modems require a cable with an extra connection for hardware handshaking.
- Turn the modem off and on. Then your computer.
- Determine what has changed before trouble started. New extension? New system? New on-line service?

- Test with all extensions off, except for PowerBooks with internal modems.
- With AppleTalk turned off, put the modem cable in the printer port. Tell your software you've changed ports.
- Remember, your modem is making a call just like you do: listening for a dial tone, dialing, waiting for something to answer, and jabbering in a common language.
- If someone picks up an extension line while your modem is chitchatting, ka-blooey! The connection is done, crashed, kaput. Restart the session.
- [*Radio Shack sells a "Data Guard," item 43-107, which blocks other phones when your modem is in use. \$10 per other phone.—JH*]
- If you're at all serious, get a second phone line. Ma Bell frequently cuts deals on them. Benefits: testing; walking a partner through a direct connection; no more trashing a modem connection with an impulse to reach out and touch someone; displays unquestionable futurist credentials.



Diagnosing Connection Problems

If your trusty connection no longer connects.

- Your software is ill.
- The phone line has gone sour.
- The answering modem isn't.
- Your modem is dead. Dead modems are quite rare but you've had Why Me? days before.

If a new service won't connect. It could be any of the above. More likely, the cause is:

- The on-line vendor's software is faulty or poorly prepared.
- Your end of the bargain—configuring software—is not completed.
- Is the User ID spelled right? Capitals and lowercase?
- Is the Password entered carefully? Is the Caps Lock on?
- What about the modem init string? This can get tricky. More on this later.
- What about dialing string? Should there be a 9 or 8, or other access code first? An access code afterward?

You connect but soon lose it. This is probably a modem init string problem. Compare notes with someone who, with the same modem, successfully connects to the same service. Or talk to tech support at your on-line service. Chances are the problem has cropped up before, and a gearhead located the problem, issued an alert, and the techies are aware of a modem init string modification.

Is call waiting disabled? This is essential. Start by dialing your telco's Call Waiting Disable code, most typically "*70."

I was doing great until I signed up for the Internet. If you're using a SLIP or PPP dial-up Internet connection, you are attempting the most daunting modem connection in all the realm—with the possible exception of the fax I once tried to send to a steamship off Taiwan.

The problem is easy to summarize: Your fancy, technologically endowed Macintosh is playing "Look Ma, I'm a Unix Low-Bit Dumb Terminal." IP (Internet protocol) was not designed with dial tones in mind.

Your Internet provider surely issued detailed instructions about how to set up MacTCP and the SLIP or PPP software. *[None of my several Internet service providers had much of a clue about Macs. But fear not. All you need from your ISP are the router and name server addresses in numeric form (these are the same for PC users so your ISP won't mess these up) and the access node phone number that your modem must call (reason=ditto). Then get the FreePPP FAQ (bundled with the freeware FreePPP) and follow the explicit directions. They'll even work if you are using a SLIP connection!—SB]* There are many configuration nooks. Fill them meticulously.

Taming a fussy Internet connection usually consists of reinstalling the connection software, then comparing setups with someone who has a similar setup. You can easily find such a person, um, on the Internet.

- MacTCP in particular is easily broken. Always keep fresh spares handy.
- New PCI Mac? You can't run MacTCP and the newer TCP/IP control panel at the same time.

My computer keeps hanging when using Netscape. Everybody's Netscape does that. Now and then, completely empty Netscape's Cache folder. Give Netscape all the memory you can. The Mac escape sequence, `⌘OptionEsc`, works for emergency Net-escape but restart ASAP.

The screen says CONNECT 38,400! Wow! I'm jammin'! Joke's on you. Today's modems like you to aim high and sort things out for themselves. That's why we routinely set data rates a notch or two higher than what's possible. If upon connection



HOT TIPS



HOT TIPS

your modem dutifully responds with “connect 38,400” it’s really saying, “Connected as you ordered, *sir!*” The modems have agreed on a mutual speed (note the cycle of different pitches) that could be 28,800, could be 4,500. To get a real reading, add Q0 V1 W2 to your modem init string. When you get a CARRIER message—CARRIER 9,600, for example—that is the real speed.

I got a telecom bill for \$120. You too? Some telecom programs like to force the action. Check your preferences! My first Internet account was on a server 200 miles away. Eudora, the e-mail program, has a “Check Mail every *n* minutes” preference that defaults to 10. I left the house for six hours. Eudora made the call but did not know about hanging up.

Every time Net software such as Newswatcher or Netscape tries to force an Internet connection, my session is history. I must restart the computer.

My Duo keeps whining “serial port is in use.” Duos are wonderful until you get to the trade-off part: the single port. Make sure your telecom software is configured for an internal modem if that’s what you have. If not, turn off AppleTalk. Duo port madness is best solved by getting a MiniDock or better.

Apple Remote Access works no more. The ARA installer actually hacks the System file itself. Replace the System and you must reinstall ARA. Recheck your file sharing info. Make sure AppleTalk is on.

1-800-D-D-DEAD. If a commercial on-line service won’t connect, try another number, even if it’s long distance. CompuServe (800/544-3095) and AOL (800/716-0023; in Canada: 800/318-2265) charge for their 800 numbers but a minute or three won’t hurt if it helps determine where the problem is. *[CompuServe Information Manager and the proprietary AOL software have the ability to make an 800 call to find a local number. This is a good test. Just be sure to set the modem speed to 2,400 bps (which is mandatory for these calls) before you try.—SB]*

PowerBook modem notes.

- Internal modems require an assortment of software extensions and settings. Rerun the modem’s Installer package. Check all settings.
- Duos are fussy about their single port. [See “My Duo keeps whining ‘serial port is in use’”](#) above.
- In the PowerBook Setup control panel, the nonsensical modem picker settings Normal (internal) and Compatible (external) were better labeled in earlier versions. [See “Telecommunications Tips”](#) for a harmless way to rename them.



General modem notes.

- Run the modem without Now Toolbox (this disables all Now Utilities). Corrupt Now preference files have a history of interfering with certain extensions.
- Desktop Macs make perfectly good use of any modem—Global Village users, take note—even if none of the supplied extensions are running. All that stuff is for faxing.
- Nevertheless, GV modem extensions result in a menu display declaring that the modem is on-line. A splendid reminder.

PCI (postmodern computing info). The new generation of PCI Macs ship with OpenTransport, a rewrite of the networking and communications architecture. It's brand new, buggy, and changing fast as this book goes to press. Be not afraid, however, because when it goes it goes faster.

- Global Village Teleport software v2.5.5 and earlier is incompatible with SerialDMA extension. Upgrade to Teleport 2.5.6.

I'm getting annnn-gry... If you can sense a pattern to the failure, you might be able to solve it by examining the AT command set for ways to modify the modem init string. "Useful AT Commands" includes a few of the handier codes to play with.

Useful AT Commands

&F or &F1, depending on your modem, resets it to the factory default high-speed setting.

Q0 returns a result code.

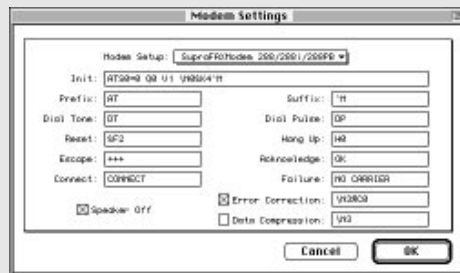
When used with V1, the modem blabs out its various experiences (busy, no dial tone, connect, and so on) while trying to connect.

X0 is Blind Dialing. The modem dials no matter what it hears, a desperation move if you're on a strange phone system.

%E1 is Enable Auto Retrain. The right modem on the other end will better set mutual speed.

&D2 cured a problem on my GV Teleport Gold. After hanging up it failed to completely disconnect from some servers until I added this.

[&Q0, which disables error correction, keeps my Express Modem from dropping the CompuServe line.—JH]



Every telecom application has a buried place where you can customize the "modem init string" with AT commands, your only way to change the deep workings of your modem. Remember: custom AT commands are an art, not a science.





HOT TIPS

By, the, way, A comma in the dialing string gives pause, two or three seconds by factory default. This value can be changed within your modem with telecom software by changing the modem's S8 register.

There's good reason to alter a comma's pause value. If short-sighted software limits the number of characters in a dialing string, you can halve the number of commas by doubling the comma's pause value. Adding S8=6 to the init string changes the comma to give six-second pause.

The On-Line Universe

Despite the light-speed growth of the Internet, there's still plenty of interest in all the various other on-line services: the commercial services—big names such as CompuServe and America Online which charge a monthly fee for access to well-maintained conferences, databases, and more—as well as less well-known alternatives such as large bulletin board systems. The next chapter will give you the lowdown on the Internet, but for now we'll introduce the kinds of features you can expect to find on all of the services.

The Essentials

(JH)

All the on-line services (and the Internet as well) offer the Three On-line Essentials: e-mail, discussion forums, and software libraries, plus live conversation usually known as *chats*. They also offer lots of extras: live conferences, major magazines, money management tools, and more. Each service gets its unique character and feel more from the particular way it implements the essentials than from its selection of extra services.

E-Mail

Many folks buy a modem just to use e-mail, and it's no wonder. E-mail is fast and relatively simple to use: Bang out a letter, tell your software to send it, and it's (usually) ready to be picked up by the recipient within minutes. Unlike "snail mail," as the paper kind is often called, you may exchange several letters with a friend in the space of a day.

Writing an e-mail message is not the same as writing a paper letter—it's often more like a telephone call, a short informative message (though e-mail, unlike phone calls, can be archived). Most people eliminate the salutation and closing, and of course there's no need to type in the date or inside address because the message's header

E-Mail Communication Between On-line Services

(JH)

The commercial services allow you to send and receive e-mail among them by routing the mail over the Internet. Here's a cheat sheet on how to address e-mail for each service. *[Note that dots replace commas when CIS addresses hit the Net. And then there's CompuServe's move from numbers to real user names.—DJS]*

| From: | To: | Address |
|-----------------|------------|----------------------------------|
| CIS | | |
| | CIS | 12345,677 |
| | AOL | Internet:[user]@aol.com |
| | Prodigy | Internet:[user]@prodigy.com |
| | Internet | Internet:[user]@Internet.address |
| AOL | | |
| | CIS | 12345.677@compuserve.com |
| | AOL | [user] |
| | Prodigy | [user]@prodigy.com |
| | Internet | [user]@Internet.address |
| Prodigy | | |
| | CIS | 12345.677@compuserve.com |
| | AOL | [user]@aol.com |
| | Prodigy | [user] |
| | Internet | [user]@Internet.address |
| Internet | | |
| | CIS | 12345.677@compuserve.com |
| | AOL | [user]@aol.com |
| | Prodigy | [user]@aol.com |
| | Internet | [user]@Internet.address |

Note: Brackets indicate where sender should type recipient's user name.

provides those. There are advocates of extreme informality, so don't be offended if otherwise intelligent people send you e-mail with typos and misspellings.

[Because of e-mail's ease of use and the speed with which it can be sent, you may find a sharp increase in your expectations for a quick response (and, more horribly, an increase in the expectations of those who e-mail you). You're now entering the e-mail Twilight Zone, where an hour in the on-line world is equivalent to a day off-line. Those letters to pen pals you used to procrastinate sending via "snail mail" ...? You'd better go write them now!—JJ]

My dear friend 'user name'. Whenever you join any on-line service, you'll pick a *user name* (also known as a *user ID* or *screen name*) to identify yourself. Your user name doubles as your e-mail address, so pick something short that will remind people of

you, and try to use something similar on every service you join. Though services such as America Online allow wild (and even stupid) screen names, refrain.

If you join more than one service, you'll have a different e-mail address for each service. Pick one service, the service you access most often or that you're likely to keep the longest, as your main public e-mail receptacle. Then you'll have one address to give out or put on a business card. If you get a lot of e-mail, or if you get e-mail on several services, you should look into e-mail management software (see "[E-Mail Managers](#)," earlier in this chapter).

The Date: line shows when the message was sent, not received.

The From: line shows who sent the message.

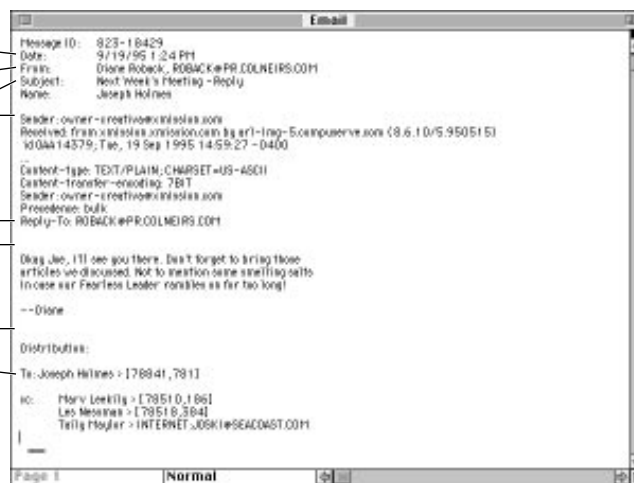
The Subject: line usually indicates if this is a reply.

The header contains all the routing information. Most of it can be ignored.

The body.

The To: line shows the addressee(s).

Blind copy recipients are not shown.



The different parts of a typical e-mail message.

Every on-line service implements e-mail in a different way, but they all have some things in common. Mail always has a header filled with information including who sent the message and when. You must supply the *subject*—a descriptive title—the addressees' correct e-mail addresses, and of course the body of the message. When you reply to a message, everything is supplied automatically except the body. Some software automatically append the word "Re:" to the subject, the date and time are updated, and you are listed as the sender.

Attaching files to e-mail. Every commercial on-line service makes it easy to send a nontext file—an application, graphic, formatted text—to someone on the same service. But sending files between services, that is, over the Internet, is more complicated. Here's the short lesson: *Binhex* the file, which turns any file into plain text which you can simply append to the text of your e-mail. Use a commercial utility such as StuffIt Deluxe or John Stiles' \$10 shareware HQXer (found on most on-line services). A Binhexed file must then be decoded by the recipient, and the free StuffIt Expander

does the job very well. Recognize Binhex files by the suffix “.hqx.” Some e-mail managers do this coding and decoding for you automatically. [*Auto-Binhexing might be the best reason to get Eudora Pro or Claris EMailer.—DJS*]

Mailing lists. E-mail is also a nifty way to sign up for mass mailings on various topics—everything from exotic music to technical support to Apple Computer press releases. Some lists mail out all the messages, or digests of them, contributed by all the folks who subscribe to the list, making a sort of e-mail-based discussion forum. Other lists are little more than electronic junk mail. [*Be warned: Some lists can flood your mailbox with 50 to 100 messages a day. If you don't have the time to plow through all the mail you'll be getting, try one or two lists, or better yet, get the digest, typically a weekly compendium of all the traffic on a server.—JO*]

Signing up typically involves sending a message to a list server (not the mailing address) with a subscribe command in the body and the name of the mailing list. (Lists usually include unsubscribe instructions at the end of every mailing.) The following table has a few to get you started.

| Starter Mailing Lists | |
|--|--|
| Mail List | To Subscribe |
| The Apple Evangelist: news to hearten Mac users. | E-mail MACWAY-REQUEST@SOLUTIONS.APPLE.COM. Any message will work. |
| The KidLink Connection: worldwide discussions for kids 10 to 15 years old. | E-mail LISTSERV@VM1.NODAK.EDU with only the words GET KIDLINK GENERAL <i>in the body</i> . |
| Robert Seidman's <i>Online Insider</i> , covering all the on-line services and the Internet. | E-mail LISTSERV@PEACH.EASE.LSOFT.COM and in the body of the message type SUBSCRIBE ONLINE-L FIRSTNAME LASTNAME (substituting your name) <i>in the body of the message</i> . |
| A word and a quote a day from Wordsmith. | E-mail WSMITH@WORDSMITH.ORG with SUBSCRIBE YOURFIRSTNAME LASTNAME <i>as the subject</i> . |
| Brock Meeks's CyberWire Dispatch. | E-mail CWD-L-REQUEST@CYBERWERKS.COM with only the word SUBSCRIBE <i>in the body</i> . |

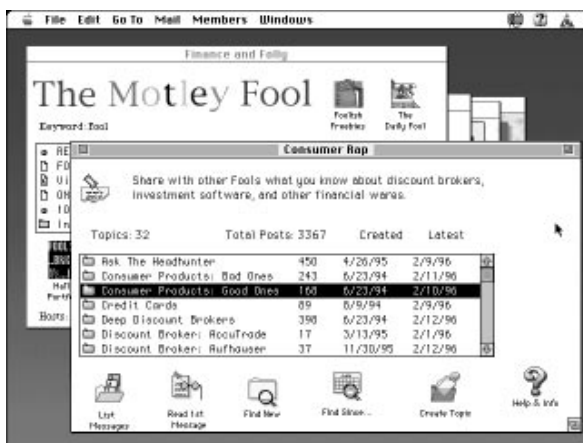
Discussion Forums

Forums are where public discussions occur. Also known as *roundtables*, *message boards*, *SIGs* (for special interest groups), or *conferences* (which confusingly also refers to live chats on some services), each discussion forum is devoted to a topic and divided up into subsections on subtopics. CompuServe's show business forum, for example (GO SHOWBIZ), is divided into 24 subsections, including Recent Films, Classic Films, Cult TV/Films, Soap Operas (one section for each network!), and Daytime

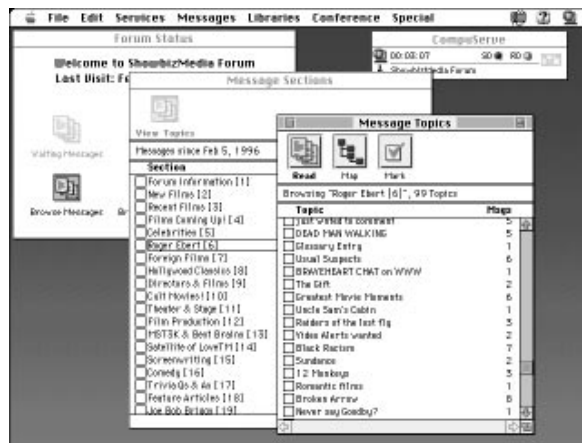
Talk Shows. Forums are run by *sysops* (SYSTEM OPERators), *forum leaders*, or *moderators*, who stir up conversations, enforce the rules, and answer questions. For many people (including yours truly), discussion forums are the heart and soul of on-line services.

Forum discussions don't occur in *real time*, as conversations do face-to-face. Instead a visitor composes a message, gives it an informative subject or title, addresses it to a specific person or to "All," and *posts* it in the appropriate forum and section. You might for example post a question about *Pulp Fiction* in CompuServe's Showbiz forum, in the section devoted to Recent Films, and title it "Pulp Fiction Briefcase?" (CompuServe allows only 24 characters in message titles).

Other visitors interested in films then *browse* the Showbiz forum by reading the list of message subjects, choosing to read the full text of messages that interest them. A visitor can then compose a reply to any message, or even to the replies themselves. The original message and the string of replies and replies to replies, all keeping the same subject, make up a *thread*. As powerful and useful as message threading is, not all services use it.



America Online's message board windows display the current topics under discussion. Messages can be browsed, but because AOL lacks message threading, it's not possible to follow the messages in order of replies, or to have a reply to your message displayed to you automatically.



Browse the current subjects under discussion in Roger Ebert's message section, one of 24 message sections in CompuServe's Showbiz forum.

As powerful and useful as message threading is, not all services use it.

These forum discussions sometimes take on the character of religious debates, and some especially inflammatory messages become known as *flames*. But for the most part, forum discussions are civil, and often lively and informative. They can go on for days and even weeks.

Something like 90 percent of the people who regularly visit forums are *lurkers*—people who read messages but never post any. What a shame. Lurkers miss out on the best part of on-line life.

Telephony

(JH)

One promising technology that never quite got off the ground is Macintosh *telephony*—software and hardware that can make your Mac perform some telephone functions. A few mildly interesting telephony applications have come and gone, but with one exception the field has remained fairly barren.

Some time ago Apple introduced the *GeoPort*, a higher-speed serial port on AV and Power Macs, inaugurating what was to be a new cross-platform standard for voice, data, fax, and video over both analog and digital telephone lines. GeoPort never really took off as a standard, but Apple eventually—finally—released the **GeoPort Telecom Adapter Kit** (\$125), which gives a GeoPort-equipped Mac the capabilities of a speakerphone, digital answering machine, and 14,400-bps fax modem tied to a limited personal information manager, and other software niceties. At this writing, Apple announced the availability of a V.34 28,800-bps modem.

The software/hardware bundle gives a Mac sophisticated telephony capabilities; the heart of the package is the 30-day demo version of **MegaPhone** by Cypress Research Inc., which adds the features of an advanced office phone system to your Mac, including speed dialing, call logging, a digital answering machine with remote message retrieval, and a speakerphone. When the 30 days runs out on the demo version of MegaPhone, a full version can be purchased for \$50. It requires 2MB RAM, 10MB of hard disk space, speakers, and a microphone.

But before you dive, consider: Are you really making the best use of your multi-thousand dollar Macintosh to replace a \$20 telephone and a \$40 answering machine?

Discussion forums are also where software and hardware manufacturers offer on-line technical support. The best of these are staffed by folks who read your questions and leave you a reply within a day or so. Support questions can be addressed directly to the sysop or forum leader. This is a terrific resource, and all the reason you need to join an on-line service.

Libraries

(JH)

All the services offer software you can download. The on-line universe is bursting at the seams with games, utilities, reading material, fonts, Mac System updates, demo versions of commercial software, and Frequently Asked Questions (FAQs) documents.

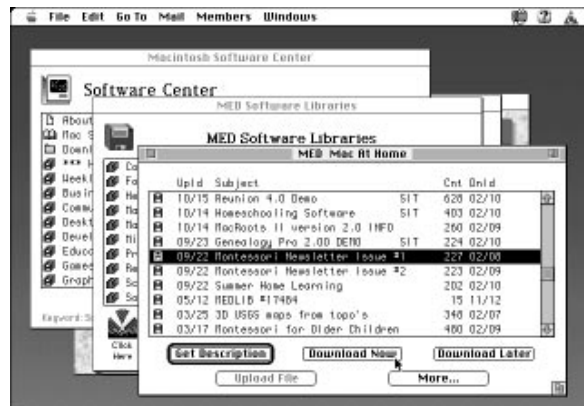
Downloadable software divides neatly into a few basic categories. *Freeware* is, of course, free—no strings attached. *Shareware* is Honor System software; it's fully functional, and, after you've tried it, you must either delete it or send the fee to the author. Closely related is *demoware*—demonstration versions of software which stop working after 30 days or so, or are crippled in some way, usually by disabling printing or saving.

No matter what you hear, computer viruses can't be transmitted by an e-mail message; viruses hop onto your hard drive when you download files. All of the commercial services do an excellent job of keeping their libraries clean, but bulletin boards aren't always so safe. Invest in a good virus detection utility, or download Disinfectant, a terrific freeware virus utility, available on all the services. (See Chapter 7 for more details on viruses.)



To check for the most recently uploaded files:

- On America Online, select Search Software Libraries under the Go To menu, click the Past Week radio button, then click List Matching Files.
- On CompuServe, each forum has its own library. Using CompuServe Information Manager, go to a forum, select Search from the Libraries menu, leave the text fields blank, check the One Week Ago radio button, and click Search.
- On Prodigy, alas, there's very little software for the Mac. But give this a try: "Jump" "Download" to display a list of places that offer software; sometimes a button will display recent files.



America Online's library windows display the number of times a file has been downloaded (under "Cnt"), one way to judge the popularity of a download.

Chat

(JH)

Most services also offer some form of *chat*, a live discussion between two people or a whole "room" full of people, all conducted by typing furiously. Chats are much more informal than forum discussions, and they're filled with arcane shorthand and short expressions which stand for such things as hugs and grins. They're often a kind of virtual singles bar, especially on America Online. Your enjoyment of chats will probably depend on your typing speed and ability to read sentence fragments. [Tracking a single conversation amidst the thrashing ASCII is a splendid mental exercise.—DJS]



To enjoy a live chat, you'll have to develop some of the skills of a cryptanalyst to piece together the threads of conversations. The more participants, the more difficult to follow.

Other Features

(JH)

Finally, each service touts a slew of special features, including on-line shopping, news, weather reports, sports info, airline reservations, on-line versions of popular magazines



All the services offer a variety of travel services (such as America Online shown here), including airline reservation systems and on-line travel guides. Travel services are some of the most useful services available on-line.

and newspapers such as *People*, *Sports Illustrated*, *The New York Times*, and *Scientific American*, movie, book, and restaurant reviews, encyclopedias, interactive multiplayer games, stock quotes and financial services, and a myriad of others. Don't sweat the details on these—all the services offer more features than you'll be able to use in a lifetime, and many of the features are duplicated in a slightly different form on each service.

Remember that the look and culture and feel of each service, and the kinds of people who populate it, are more likely to determine your satisfaction

than the presence of a particular magazine or encyclopedia.

Commercial Services: The Choices

(JO)

America Online. Recently America Online (AOL) surpassed CompuServe in total subscribers. This is undoubtedly due to its advanced marketing strategy that involves sending sign-up kits to every man, woman, and child on earth who has ever mentioned the word computer. These tactics aside, America Online has improved by leaps and bounds since its inception. More than any other service, AOL has made on-line services easier to use by virtue of a very graphically oriented user interface. AOL does not require you to enter any commands to use the service. On-line navigation can be performed by clicking on buttons or icons which take you to a specific location or another window full of more icons. This can get a bit tedious at times, and cause your screen to become cluttered with a stack of windows. You can also navigate using keywords which are a much more efficient way to get to a specific forum or place on AOL. Because of this, it is best to learn the keywords for the places you frequent on AOL.



America Online's main window is your launching pad to the rest of the service. Unfortunately, as you navigate your way to your final destination, windows are not closed behind you, leading to clutter and memory consumption.

On-Line Etiquette: Ten Rules

(JH)

If you've ever visited France and watched American tourists shouting English orders at scowling Parisians, you know that it pays to do your homework and learn the local lingo. Violate the rules of on-line behavior and you'll be branded a *clueless newbie*, a newcomer who doesn't have the decency even to pick up the basics. Okay, you're warned. Study these few rules and you just may be mistaken for a veteran.

- 1.** DON'T TYPE IN ALL CAPS! It's hard to read and it looks like YOU'RE SHOUTING!
- 2.** *[It's OK to type like a banshee e.e. cummings; all lowercase is fine if perhaps a trace too hip. Always put two carriage returns at the end of each paragraph. And keep the grafs short.—DJS]*
- 3.** Quote a relevant piece of a message to which you're replying, just enough to give needed context, but not the entire message. Nothing looks more idiotic than quoting an entire enormous message, followed by your reply: "Thanks for the tip!"
- 4.** Don't delete messages to which you reply. In a public message forum, the original message helps others follow the conversation.
- 5.** Address people by their first names—it may not be proper in a business letter, but it's standard on-line.
- 6.** Stay out of flame wars. Just stay out. Life's too short and nothing ever, not ever, gets settled. Remember: The best way to extinguish a flame is to deprive it of fuel. Corollary: You'll never have the last word, because there's always a fool with even more time to waste.
- 7.** Reread your messages before you post them. You'll be surprised how often you reconsider and decide to tone down the language.
- 8.** Use smileys and emoticons, but sparingly (see the sidebar "[Of Acronyms and Emoticons](#)" later in this chapter). It's sometimes important to give readers a clue to your state of mind, but you might try writing so that they're not needed. You don't see Dave Barry peppering his column with little smiley faces, do you?
- 9.** Give back as you take. Seek help, but don't forget to help others.
- 10.** Finally, give the clueless newbies a break.

The AOL interface allows you to perform very limited customization. Unlike other services, you cannot create a window of frequently accessed places to speed navigation to them. You can however, store the keywords for up to ten of your favorite places and get to them using a menu or command-key combination. It is relatively easy to perform system-wide searches for items such as reference materials and files, making the service well-suited to novice users.

Everyone wants to check out the Internet hype, and America Online has been a pioneer in providing Internet connectivity. AOL members can browse the World Wide Web, access Usenet newsgroups and ftp servers directly from the service.

(See Chapter 23 for more details on these services.) AOL will also let members create and manage their own personal Web pages. Though their proprietary Web browser is weak (at the time of this writing), AOL was about to offer a choice of Netscape Navigator or Microsoft's Internet Explorer in its place.

America Online also allows parents to limit the areas that their children can access on the service, but AOL has made some other blundering moves in its attempt to preserve its “family values” image. Recently, it tried to ban the use of a word (breast) from its conference and discussion areas not realizing that this limited the ability to freely discuss a form of cancer.

[I, like many other telecom old-timers, despised AOL in the past. That's changed. It's now one of my favorite places on-line. I like the way I can access its own content and then, with a quick click, go straight onto the World Wide Web. The Web browser is more than okay, and the rest of the Internet tools are superb. For me, there is no better news reader. AOL Mail is fast, reliable, and capable of carrying multiple files as attachments. The news features are complete and posted fast. I get more breaking news from AOL than from any other source. There are still problems (message forums are awful), but overall, AOL is now the best general-purpose on-line service.—SB]

[As any AOL user can attest, what truly makes AOL unique (or irritating) is that folksy, enthusiastic “You've got mail!” greeting that booms out when mail is waiting. Also, many of the chapters of this book were originally submitted to the editor using AOL, enabling us to spirit these pages to your waiting arms.—JF]

CompuServe. Once the king of the on-line services, CompuServe has seen its market share erode considerably. Competition from America Online, Prodigy, and Internet



MacPlanet (GO CIS:MacPlanet) is a gathering place on CompuServe for the Macintosh community. From here you can quickly access any of the Macintosh-related areas on CompuServe and ZD Net/Mac.

service providers has led to some welcome changes, most notably in cost and user interface. Its cryptic character-based interface is gradually being put out to pasture in favor of some more modern graphical user interfaces.

Among CompuServe's biggest assets are its forums. Its software is the only one that allows the creation of message threads. A thread of messages can branch in various directions based on the message being replied to.



America Online's message areas strictly add messages to the end of the topic making it harder to follow the train of thought in a discussion. *[Impossible is a better word than harder. In this respect CompuServe stands way above every other service.—SB]*

CompuServe has recently overhauled CIM, its principle browser, which now sports an integrated Web browser. The new CIM 3 provides a number of improvements including support for multitasking (i.e. you can download and browse at the same time), improved search capabilities, and tracking recent places you have visited. CIM is a good tool for casual browsing or when you need interactive access to the service. Navigator is an off-line reader that, once you get the hang of it, is equally valuable. When using Navigator, you do not interact directly with CompuServe; instead you tell Navigator what you want it to do for you, let it do its thing, and then browse through the results once it has logged off. This has the potential of lowering your on-line costs since Navigator does things much faster than you can on-line. Navigator falls down, however, when it comes to browsing, since you do not directly interact with the service. For browsing, stick with CIM.

Like America Online, CompuServe offers access to the Internet, including the Web, newsgroups and ftp servers. At present, it lags behind AOL in ease-of-use and direct access to some of these features. Promised improvements are on the way so you should check in with CompuServe to get an update on Internet accessibility.

One big reason for Macintosh users to consider CompuServe is that it's home to many of the Mac's most renowned gurus. The editors and staff of leading Macintosh journals as well as those who slave to create many of the applications and utilities we use each day frequent CompuServe and contribute greatly to its wealth of content. It is home to MacPlanet, MAUG and ZD Net/Mac. If the folks on CompuServe cannot find the answer to *any* Mac-related question, there probably isn't one. CompuServe also publishes a monthly magazine sent to all service subscribers. It typically highlights some of the things that are happening on the service and provides useful tips for getting more out of CompuServe—and spending more time and money on-line.

Also-rans. Despite heavy hype at one time, Prodigy has not lived up to its promises. It still enjoys a strong following among Windows and DOS users, but the service has failed to show any strong commitment to the Macintosh as evidenced by its clumsy client software and lack of Mac-related content. If you are looking for an information-only service, Prodigy will probably do a good job of keeping you up to date with national, world, and financial news—but you will have to bear with the constant stream of advertisements that are displayed at the bottom of your screen. Prodigy does

Fun Locations On-Line

(JH/DJS)

America Online: The Motley Fool

America Online; Keyword: Fool. The Fool is “a forum dedicated to the individual investor,” but it’s not nearly as dull or nerdy as that sounds. As serious as the advice is, the emphasis is on fun and humor. With lots of info and guidance for the novice investor, this popular AOL area has hundreds of stock folders, but the heart of the Fool is its nightly chat, where the floor is open for all kinds of discussions, from the ridiculous to the sublime. The Fool also runs The Fool Portfolio, a real on-line portfolio, and visitors are invited to trade along. As with the best forums, it’s more like joining an on-line community than just learning about investing.

CompuServe: Motorcycle Forum

CompuServe; (GO RIDE). On-line communities come in two versions, conjecture (idealism) and reality (narcissism). Few forums have achieved the on-line ideal like CIS’ Motorcycle Forum, GO RIDE. Its regulars are civil but hardly wishy-washy. They laugh a lot and quickly iron out the clowns who start those idiotic your-bike-sucks threads. Many friendships cultivated on-line have blossomed into asphalt-based meetings during which mountain roads are neatly carved. Traditionally, motorcyclists travel a lot and help each other. GO RIDE is a seamless extension of this tradition.

CompuServe: Apple Support Forum

CompuServe; (GO APLSUP). The term “support” is to be taken advisedly. *Apple does not answer questions here!* Still, Apple is a model company when it comes to making its software available on-line. The CIS version (they are as effective on AOL and the Web) includes every piece of software that’s not retailed plus the excellent bi-monthly Information Alley. The Technical Library? Whooooo-wee. You’ll be there for days.

CompuServe: Roger Ebert’s gigs

CompuServe; (GO EBERT and GO SHOWBIZ). Except for the fact that he’s clueless about Terry Gilliam being one of the century’s great artists, Roger Ebert is the sharpest movie guy there is. His passion has made him famous and rich but not snooty. He hangs with celluloid homeboys in GO SHOWBIZ. His own forum, GO EBERT, has no give-and-take but is a hefty database of just about everything he’s written.

allow you to customize the interface to the degree that you can set your preferred starting location and favorite places, but these aren’t enough to attract many Mac users due to the lack of Mac-related content.

Two other obscure services are Delphi and GEnie. At present, it appears that Delphi is pursuing a second life as an Internet service provider while the future of GEnie will depend on its ability to update its stale character-based interface and improve its marketing to the Mac community.

The BBS Alternative

(JH)

Bulletin boards—small, usually inexpensive, specialized, and local on-line services—were once the only destination for a modem user. As the major commercial on-line services grow more enormous and the Internet becomes a household word, bulletin boards are now fading from view. Yet there are still good reasons for making use of a bulletin board system, or *BBS*.

Local bulletin boards. A local BBS can be a bargain. Many are free, and others charge a yearly fee of well under \$100. You should especially seek out your local Mac user group's BBS, which is a terrific resource for Mac software and tech support from local experts. (Call 800/538-9696 for the name of your nearest Mac user group.) A local BBS is also a great resource for local people, news, and events. *[Always check your phone-in costs very carefully and go easy until you see an actual phone bill. If a "local" BBS isn't local by phone company measurements, it can quickly cost you the price of a new luxury car in phone bills.—SB]*



WARNING



GOOD FEATURE

Unlike the old days (just ten years ago!), small bulletin boards are no longer synonymous with an arcane command-line interface. More and more boards use graphical interfaces, the most popular of which is SoftArc's First Class. After downloading the First Class Client software (available from any First Class BBS by logging on with any standard communications software), you can dial into any First Class BBS and use easy icon and menu-based navigation. Libraries, mail, and discussion areas are grouped in nested folders against attractive graphics.

There are two other popular graphical BBS interfaces: Spider Island's TeleFinder and ResNova's NovaLink Professional. As with First Class, each makes use of client software which you launch on your Mac. The client software for TeleFinder and NovaLink must be downloaded first from an on-line service or the Internet—you can't log onto a TeleFinder or NovaLink BBS before you have the client software.

Each of these BBS systems also allows you to log onto the bulletin boards via a TCP/IP Internet connection. (More on TCP/IP connections in Chapter 23.) This means that with a local call to your Internet provider, you can dial into any distant BBS using this feature. You can, for example, dial into Planet BMUG, a California-



First Class is a far cry from the old type-a-menu-choice BBS software of the past. Not only is it incredibly easy to navigate the folders and lists, but it's darned attractive as well!

based First Class BBS operated by the world's largest Mac user group, from anywhere in the world just by calling a local number and launching the properly configured First Class Client software. (Full access requires a paid membership; e-mail Planet BMUG at BMUG@aol.com for details.)

ECHO and The WELL. A select few bulletin boards, notably California's **The WELL** and New York City's **ECHO**, are justifiably famous for the consistently high quality of discussions. Though each charges prices similar to commercial services, each offers a sense of intelligence and community spirit not easily found anywhere else.

Originally established by *Whole Earth Catalog* founder Stewart Brand, The Well ran for years as the West Coast home of an intense and closely knit community of

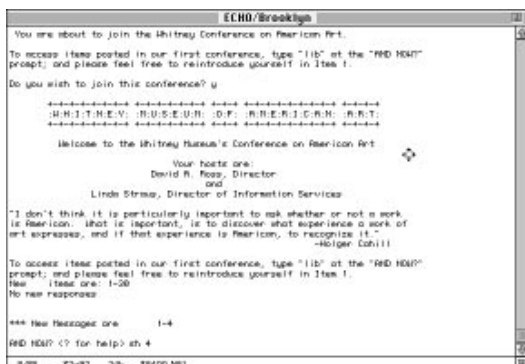


The Well's conferences on the World Wide Web are easy to access, are attractive, and are easy to use.

computer users interested in serious conversation on a broad range of subjects. The board grew famous for its fanatical Grateful Dead following and its vocal hacker community. Membership has grown dramatically, but the strong identity remains. In 1995, with blurring distinctions between on-line services and the Internet, the board developed proprietary software to move its discussion conferences into a members-only area on

the World Wide Web called Well Engaged. Now The Well conferences are not only easy to use, they're accessible to anyone with Web access. Voice: 415/332-9200; data: 415/332-8410 (\$20 registration fee; \$15 per month for unlimited hours in conferences).

ECHO (East Coast Hang Out), on the other hand, while also aiming for that same high level of community and grown-up discussion, is stuck in command-line hell,



If you can stand to memorize obscure commands like "ffs" and "ind," you'll find the discussions on ECHO to be a cut above those found on most BBSs and commercial services.

requiring memorization of arcane commands such as "sh item 5" which must be typed at the ubiquitous "And Now?" prompt. Still, it succeeds well in offering plenty of smart and lively conversation in such diverse conferences as Over 40, High Times, Games/Toys, Angst, Parenting, and Writing. And, like The Well, it manages to extend itself out into the real city beyond the computer monitor by regularly scheduling gatherings around New York. For that reason, ECHO turns out to be a great



Of Acronyms and Emoticons

(JH)

People can't talk and write on-line like they do in the rest of the world. They *emphasize* words with asterisks, for instance, because there's no accepted standard for bold or underlining in the primitive world of telecom. In addition, each on-line service has its own culture, with customs, mores, and lingo slightly different from the others. Here's a quick and dirty guide to common usage.

Emoticons

These are unbearably cute little faces created from standard typographical characters, used to show an emotion that isn't otherwise obvious. It's sometimes important, for instance, to show that you're only kidding: Don't be an idiot! :-) To see the smiling face, turn your head on its left ear and look for the eyes, nose, and mouth. The most common three:

| | |
|-------|---------------|
| : -) | Just kidding! |
| : - (| Bummer! |
| i -) | Wink |

There are dozens, even hundreds of these, but you'll mostly see variations on these three. Some folks use less common variations, such as <G> which means "grin." You can put various indications within such brackets. <blush!>

=%?) {*There is room for creativity when emoting.—JH*}

Acronyms

There seems to be an infinite number of on-line acronyms, but here's a sample of the most common:

| | |
|---------|---|
| BTW | by the way |
| GR&D | grinning, running, and ducking |
| IMHO | in my humble opinion |
| LOL | laughing out loud |
| MOF | male or female? (popular in AOL chats) |
| OTOH | on the other hand |
| ROFL | rolling on the floor laughing |
| RTFM | read the #@\$%! manual |
| PMFJI | pardon me for jumping in; I don't care for this one because it makes no sense in a public forum where jumping in is the whole idea. |
| TNOWEMN | the name of which escapes me now. (I made this one up; there's no sign it's catching on.) |

way to meet people the old-fashioned way—face to face. (Voice: 212/292-0900. \$19.95/month for 30 hours, \$1.00 each additional hour up to 60 hours; no charges after 60 hours.)

Now How Much Would You Pay?

(JH)

It's difficult to predict exactly what on-line services will cost. It can depend on your exact usage pattern and whether you use areas that carry surcharges, such as CompuServe's searchable magazine database. But here's a comparison to get you started. In the following table we've done a calculation of *roughly* what it will cost you to use each service for five hours, ten hours, 20 hours, and 40 hours (easy to exceed, especially if you have two or more users).

| Commercial Services Price Comparison | | | | | | |
|---|------------------|------------------|--------------------------|---------------------------------|-----------------|------------------------|
| | CIS 1 | CIS 2 | AOL | Delphi 1 | Delphi 2 | |
| Base Monthly Fee | \$9.95 | \$24.95 | \$9.95 | \$10.00 | \$20.00 | |
| "Free" Hours | 5 | 20 | 5 | 4 | 20 | |
| \$ per Additional Hour | \$2.95 | \$1.95 | \$2.95 | \$4.00 | \$1.80 | |
| Est. Cost 5 Hours | \$9.95 | \$24.95 | \$9.95 | \$14.00 | \$20.00 | |
| Est. Cost 10 Hours | \$24.70 | \$24.95 | \$24.70 | \$34.00 | \$20.00 | |
| Est. Cost 20 Hours | \$54.20 | \$24.95 | \$54.20 | \$74.00 | \$20.00 | |
| Est. Cost 40 Hours | \$113.20 | \$63.95 | \$113.20 | \$154.00 | \$56.00 | |
| | Prodigy 1 | Prodigy 2 | GEnie¹ | The Well BBS² | ECHO BBS | ISP³ |
| Base Monthly Fee | \$9.95 | \$29.95 | \$8.95 | \$15.00 | \$19.95 | \$25.00 |
| "Free" Hours | 5 | 30 | 4 | unlimited | 30 | 60 |
| \$ per Additional Hour | \$2.95 | \$2.95 | \$3.00 | none | \$1.00 | \$2.00 |
| Est. Cost 5 Hours | \$9.95 | \$29.95 | \$11.95 | \$15.00 | \$19.95 | \$25.00 |
| Est. Cost 10 Hours | \$24.70 | \$29.95 | \$26.95 | \$15.00 | \$19.95 | \$25.00 |
| Est. Cost 20 Hours | \$54.20 | \$29.95 | \$56.95 | \$15.00 | \$19.95 | \$25.00 |
| Est. Cost 40 Hours | \$113.20 | \$59.45 | \$116.95 | \$15.00 | \$29.95 | \$25.00 |

Notes:

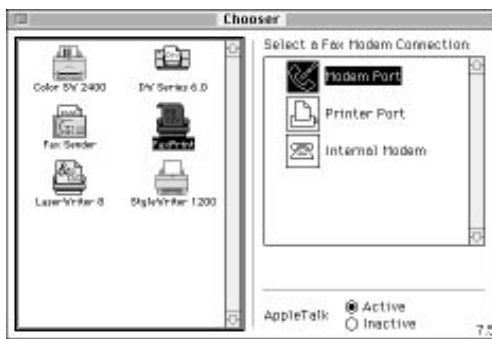
- 1** Rates are higher during certain hours.
- 2** \$20 registration fee.
- 3** For comparison, typical rates of an average Internet service provider.


Fax

(JO)

Virtually every modem you can buy today also has some fax capability built-in. At the very least, they can send faxes and most can also receive.

For many people, it's hard to grasp the concept behind computer-based fax. Having a fax modem is not quite the same as having a stand-alone fax machine. You cannot, for example, hold a piece of paper up to your screen to fax it. (Don't laugh—I've actually had someone ask this.) One way to think of computer-based fax is as a means of printing your documents remotely. The most common way to send a fax from your



Fax software acts like a printer driver, and so it's controlled by a fax driver which you access from within the Chooser, under the  menu.

calls. If you have only one telephone line, this process takes some coordination with the person sending the fax, since you probably don't want your fax modem answering all of your calls. When you receive a fax, you can either view the image on your screen or print it. Faxes are stored as images on your hard disk and can be quite large; printing them can be time consuming. Some fax software ships with a companion program that will perform optical character recognition (OCR) on your received faxes. In essence, OCR turns a fax into a word processing or spreadsheet document that you can then work with.

Fax Utilities

There are a few additional products you can buy to make faxing easier. If you want to fax things such as newspaper or magazine clippings, an inexpensive scanner will let you capture these images for faxing. Visioneer's **PaperPort** (\$300) is an excellent product for this use. If you're worried about having your fax modem answer calls, you can buy a phone line adapter from stores such as Radio Shack (\$75) that will answer

Mac is to use a print driver. Open the Chooser and select the fax icon as your output device. Then simply print from within an application. *[A common shortcut is to hold down **Ctrl**+**Shift** while dropping the Edit menu. "Print" becomes "Fax."—JH]* An altered print dialog prompts you for fax information: the recipients, the phone numbers of their fax machines, and perhaps a cover page of your choosing.

Receiving faxes on your computer also presents challenges. First, your computer must be turned on and your fax software must be set to answer

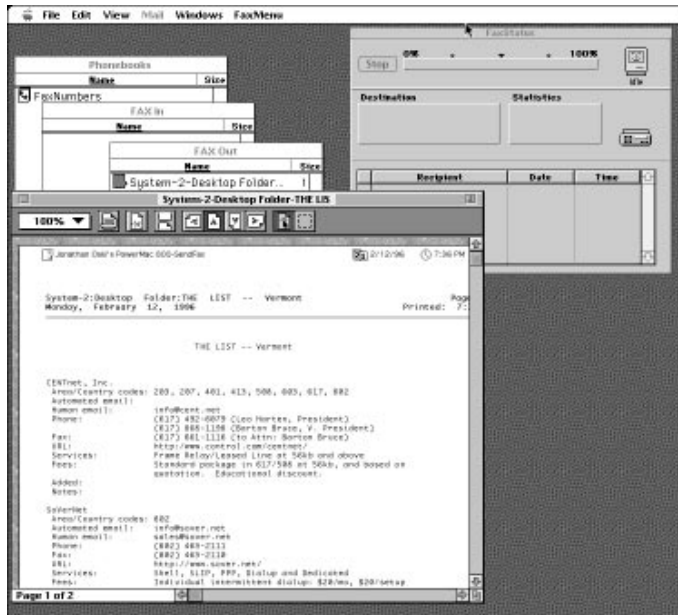
your calls, detect a voice or fax call, and route the call to your phone or fax modem. There are also software utilities included with some fax modems to route incoming calls to your fax software or Apple Remote Access if necessary.

Fax Applications

With few exceptions, the fax software that comes bundled with a modem either has very limited capabilities, conflicts with some other software on your Mac, or its user interface is so poor that it makes you want to avoid faxing altogether. There are exceptions, of course. In a few cases, the software bundled with your modem is good, even great. This includes **GlobalFax** from Global Village, which is included with its TelePort and PowerPort line of modems, and **FAXcilitate** from PSI, bundled with Supra modems. Both of these are full-featured and should be more than adequate for a variety of faxing needs. GlobalFax is particularly well-designed and extremely easy to use and customize. The same software can also be used with Global Village's line of network-based fax servers, so you can use the same fax software on your PowerBook, at home, or at the office.



FAXcilitate adds a menu to the menu bar, making it easy to access its features.



The STF Manager application is a central application for managing all FAXstf-related activities and settings, calling up other "applets" to perform such tasks as viewing faxes or changing preferences. FAXstf allows multiple address books and supports import and export of names and phone numbers.

If you need to look beyond the software bundled with your modem, or if you bought a PC modem that doesn't include Mac fax software, your best choices are Delrina's **FaxPro**, STF Technologies' **FAXstf**, or a shareware product called **ValueFax** which is available from CompuServe and other on-line services.

These applications are flexible and support a wide variety of modems, so you can upgrade your modem without replacing your fax application. Delrina, a big

player in the Windows market, has earned an undeserved bad reputation for porting the software from Windows. Although some of the dialog boxes are a bit busy, the program works well and is compatible with other software. It's easy to import and export fax addresses, and you can maintain a number of different fax address books. You cannot, however, add comments to the cover page of a fax, an annoying omission.

FAXstf version 3.2 has addressed some of its former stability problems, but it's still apparently incompatible with some extensions. The software is also a bit pokey, even on faster 68K and PowerPC-based Macs. The user interface is only so-so: The program is broken down into so many components that it's hard to determine which part you are using at any given time.

GlobalFax is the winner here, but unfortunately, it works only with Global Village modems. Some day another maker will wake up and emulate Global Village's attractive features in a general-purpose package.

Telecommunications Tips



HOT TIPS

Mac Bible on-line (Arthur Naiman/Randy Singer). *The Macintosh Bible* has its own forum on America Online (Keyword: macbible). You can (among other things) leave messages for your favorite Peachpit authors and ask questions in the Message Center.

Closing the serial port (Randy Singer/HN). Sometimes when you switch from one communications program to another, or even if you try to start the same program after a crash while it was on-line, you get an error message that the modem port is in use and that the program you are launching cannot use it; under some circumstances the program may even crash. That's because the first program told the Mac operating system it was using the port, and the system, for obvious reasons, won't let two programs try to send data out the same port at the same time. Restarting your Mac, or using the free utility CommCloser, will solve the problem.



The free CommCloser will close a stuck serial port without making you restart your Mac.

Fax (JH). Many folks are stuck with a fax modem at home that cannot scan newspaper articles and pictures, and a stand-alone fax machine at work, where you're not allowed to make long-distance calls. Here's a two-step trick to get around the rules. At work, fax the newspaper article from the stand-alone fax machine to the fax modem on your Mac at home. For most folks, that's a local call. When you get home, fax that document long distance on your own phone bill using your fax software's "fax forwarding" feature.

If your home Mac is a long-distance call, fax the document to your office Mac and carry the file home on a floppy. Use StuffIt Deluxe or Compact Pro to make the fax files small enough for a floppy or split them up on more than one disk.



Auto-mail retrieval in CompuServe Information Manager (JH). CompuServe Information Manager has Send & Receive All Mail and Get New Mail commands (under the Mail menu), but CIM stays on-line after checking for mail. Hold down (⌘⌥) while selecting Send & Receive All Mail, or (⌘⌥) (Option) while selecting Get New Mail, and CIM will do its thing and then log off automatically.

CompuServe Navigator (JH).

- Copy Table, found in the Edit menu, acts like a normal clipboard copy except that every series of spaces is converted into a tab. This is very useful when copying text that has been formatted with spaces substituted for tabs and indents.
- Shortcut: Highlight the thread subject in the Session View window and—avoiding the Summary menu—type (⌘) to retrieve the entire thread so far, (⌘) for this one message, (⌘) for this branch, and (⌘) for all new thread messages next session only.
- If you need a CompuServe local access number when you're traveling, use Navigator in terminal mode (or any telecommunications application) and dial 800/346-3247. At the Host Name prompt, type PHONES and then follow the prompts.

Stop that annoying AOL graphics delay! (JH). If you're really tired of waiting for America Online to send graphical elements to your hard drive just so the splash screens look pretty, locate and install a copy of ArtValve. It's a control panel that stops AOL from performing that annoying interruption, and it substitutes a generic icon for the missing graphics. You can find it on America Online.

Me and my buddy want to play Network Candyland with a modem but ...

(DJS). Thanks to today's point-and-shoot telecom software, knowledge of basic terminal programs such as ZTerm and (violins swell) MacTerminal is a dying art. Wrangling a terminal program is a handy craft for no other reason than for the day when you are called on to perform an emergency instantaneous file transfer between Kalispell and Paris: *We need that serum formula now or fungus will eat the Matisse!* Knowing how to use a terminal program is your ticket to heroism.

- The other modem must be attuned to your parameters. There are lots. Certain ones are standard: No Parity, 8 Data Bits, 1 stop bit. Set them as you wish but make sure they're the same on both ends.
- Data transfer rate? Shoot for the moon. The modems will decide the real speed.
- The host modem (the one taking the call) must be in Answer mode.



- Once the connection is made both ends are on equal ground. Type toodle-oo to each other. Be sure to press `(Return)` every 60 characters or so.
- To transfer files, one end chooses a Send command, the other Receive. As before, make sure you pick the same protocol, be it Ymodem, Zmodem, *ad nauseam*.

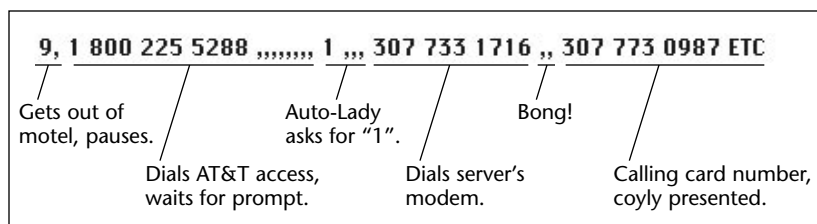
How to get your modem to dial out using your calling card number (DJS). Your mileage may vary. Fine-tune your dialing string like this:

1. Using head and hands, make the connection—up to the point where you pay. Punch the numbers, time the pauses.
2. Compose your dial string and run it.
3. Listen on the computer speaker and note how closely you've placed your pauses. Fine-tune it.
4. Save variations—different card numbers, different originating area codes.

The comma is the crucial item. It's a two-second pause, probably.

To check and change its value:

1. With a telecom program, type `ATS8?` and return.
2. If the modem returns `002`, a comma indeed begets two seconds.
3. To change a comma to three seconds, enter `ATS8=3`.



Here's the dialing string that one day, from a motel in Mexican Hat, Utah, made whoopee with a server 800 miles away.

How to log on with ARA without lifting a finger (DJS). Okay, so you lift one finger. Twice.

There's no better illustration of Macintosh elegance than the combined power of Apple Remote Access and aliases. The way our forefathers logged on to a remote server is a complicated task no one should be asked to perform. You can set up a Mac

to reduce this alchemy to two menu items. One logs on and mounts the remote volume. The other logs off.

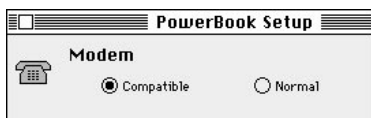
1. Using ARA, log on to the server.
2. Mount the folder you regularly access.
3. Make an alias of it. Log off.
4. Rename the new alias **•Call CopyBin**. (Press **Option** **8** to get the bullet.)
5. Rename (or make an alias of) the Apple menu item **Remote Access Disconnect** so it's **•Logoff CopyBin**. The bullets force them downward together and give them, as David Byrne might say, specialness.
6. Drop both into the Apple Menu Items folder.
7. Now test the loveliness of it all. Selecting the **•Call CopyBin** menu item kicks ARA into gear. It makes the call and mounts the folder. All you have to do is type your password.



Bullets group items at the bottom of the Apple menu.

To log off, select **•Logoff CopyBin** from the Apple menu.

How to convert your PowerBook's setup dialog to logical verbiage. No one, but no one, can remember what "Compatible" and "Normal" means. This is



Don't ask.

Apple-ese for telling your PowerBook whether you're using an internal or external modem. *[Don't fret if you can't find the offending control panel. Later versions use improved language.—JH]*

1. Make a copy of PowerBook Setup if a clean retreat path sounds like a good idea.
2. Launch ResEdit. Open the PowerBook Setup control panel.
3. Double-click the STR# resource.



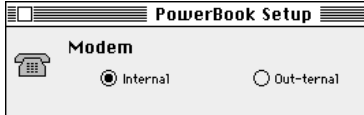
Open the STR# resource with ResEdit.



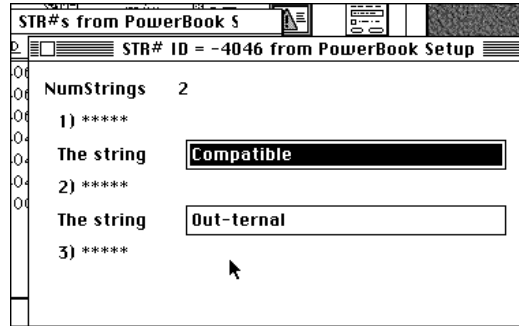


HOT TIPS

4. Double-click ID number -4046. Behold the offending text.
5. Change the wording to something you like.
6. Quit ResEdit and save your changes. Check it out.



Now we're talking.



Wield etymological empowerment here.

