Configuring Macintosh OT/PPP for InfoRamp

Charles Poynton
poynton@poynton.com
www.poynton.com/~poynton

This note describes how to use a Macintosh to access the Internet through InfoRamp. I will give a brief description of the Internet, outline the basic protocols of the Internet, and describe the software components that you will need to run on your Mac. Then I will detail how to install and configure these components, and how to connect for the first time. Finally, I will explain how to configure freeware applications that you can use to transfer files, e-mail and news.

The Internet itself operates with open, standard protocols. You will use these protocols through a set of easily available software components that run on your Mac. A similar set of programs is available for Windows.

Once you have an Internet connection up and running, two books will help you find your way around. *The Internet Starter Kit* (TISK), Fourth Edition (Indianapolis, Indiana: Hayden, 1996) by Adam Engst describes the Internet from a Mac user's point of view, and evaluates the shareware programs that are available for your Mac. For Internet resources in Canada, see *Canadian Internet Handbook* (CIH), by Jim Carroll and Rick Broadhead (Scarborough, ON: Prentice Hall).

This note describes a particular set of programs and settings. Once you get up and running, you may wish to experiment with different settings, different programs and different versions. I assume that you are familiar with installing system software on a Mac.

The Internet

The Internet is a worldwide system that connects computer networks. Today's Internet connects about a million computers and several tens of million users worldwide.

The core of the Internet comprises computers owned by commercial, government and educational organizations. People that work at these sites access Internet services through their local network interfaces (Ethernet, Token Ring, LocalTalk, etc.). Their transactions go through routers, bridges, gateways and other elements of the Internet infrastructure. Some organizations have installed *firewall* machines that filter transactions between the organization's internal network and the Internet at large, to enforce better security than is possible if all of the organization's hosts were allowed direct access. The organizations are interconnected by various kinds of permanent data connections including dedicated leased lines, packet switched connections and satellite links.

The internet differs from online services such as America Online (AOL) and CompuServe (CIS) in several ways. Online services decide what information is made available, and how it is accessed. Their proprietary nature means precludes competition in the provision of front-end software: you are restricted to the software provided by the service provider. Each online service generally prevents access to other services, except perhaps for a rather restricted e-mail bridge to the Internet. Most systems permit you to do only one thing at a time.

The *TCP/IP* protocols of the Internet are open and standard. A wide variety of commercial, shareware and freeware front-end programs is available. You can establish connections to several hosts at once. The Internet is distributed: there is no central point of control, and no mechanism for censorship. On the flip side, the Internet can be disorganized and chaotic. The Internet is at the moment largely noncommercial, but this is changing.

The following sections describe the high level and low level protocols of the Internet, and the programs that you will use on your Mac to implement these protocols.

Concepts

You should understand several concepts in order to install Internet software on your Mac and to make effective use of the Internet.

Host. A *host* is simply a computer on the Internet that is accessible through TCP/IP protocols.

IP address. Every host has a numeric *IP address*, organized geographically and comparable to a telephone number. An IP address is written as a set of four decimal numbers between 1 and 254, separated by periods.

Hostname. In addition to its address, a host often has an alphanumeric *hostname* comprising a letter *a* to *z* followed by some letters and digits. Hostnames are case-insensitive, but are normally written in lower-case. A hostname may contain a hyphen, but that is frowned upon except for special hosts like routers and gateways.

Server. You will be interested in connecting with hosts on the Internet that are *servers*. A server operates more or less continuously, and offers a set of standardized services to the net. If you try to access a service that a particular server is not offering, you will receive a message such as *service not available* or *connection refused*.

Domain. A host is addressed symbolically by its host name, a period, and the *domain* in which it lives. Domains are structured in a hierarchical fashion, with successively larger domains being written to the right, separated by periods. A *fully-qualified domain name* has as its rightmost element a universal qualifier such as *org*, *gov, com, edu* or *net*, or a two-letter country code such as *ca* for Canada. California is the *ca.us* domain.

Domain name server. It is seldom necessary for you or your Mac to remember the numeric address of a host. Your service provider has a *domain name system* (DNS) server that translates host names to IP addresses. You configure your Mac with the IP address of that server. When you use a domain name server, Internet services can be moved from one host to another or one physical location to another without your having to be aware which particular host is in use at a particular time.

High-level protocols

You will use several Mac applications to access the Internet. Each of these applications provides the familiar Mac interface using windows, menus and so on. Different applications handle mail, news, file transfer and so on.

Each of these applications implements high-level protocols that are standardized on the Internet. There are protocols for the transfer of files (FTP), mail (SMTP), news (NNTP) and hypertext documents (HTTP).

This table gives, for each of several services, the kind of service, the name of the protocol, my favorite Macintosh shareware application program for that protocol, and its latest version.

Service	Protocol	Application Program	Version
Mail	POP/SMTP	Eudora Lite	3.1 (freeware)
		Eudora Pro	3.1 (commercial)
News	NNTP	Newswatcher	2.1.6
File transfer	FTP	Fetch	3.0.3
		Anarchie	2.0.1 (shareware)
Hypertext	HTTP	Netscape	3.0.1
		Internet Explorer	3.0a

These applications are not concerned with the details of network connections: those details are handled by lower-level protocols which I will discuss below.

Mail protocols – POP, SMTP

The SMTP protocol that is standard for the transfer of mail on the Internet was designed with the assumption that mail hosts have permanent – or nearly permanent – presence on the net. Your mail program will use SMTP for outbound mail. However, you will be active as a host on the Internet only during the duration of your dialup call. During times that you are not on the net, your mail will be collected for you by a server at InfoRamp. Your mail application will use a protocol called POP to access this server.

Low-level protocols – TCP/IP, PPP

The low-level protocol that connects the computers of the Internet is TCP/IP. Different computers have different implementations of TCP/IP. You will use an implementation of TCP/IP for the Mac called Open Transport; it is a component of Apple's MacOS, starting with System 7.5.

The TCP/IP protocols were designed for high-speed, shared, permanently-connected networks. People that have access to a permanent network connection – through an Ethernet network attached to their machine, say – may have permanent access to the Internet, subject to security and firewall restrictions at their site. Those people need just the Internet applications and TCP/IP.

You will not be a permanent resident on the net. You will need an additional lower-level protocol, PPP, which sits underneath TCP/IP and translates its transactions into a form that can be communicated across a standard asynchronous communication channel using a modem and a dialup line.

What you need on your Mac

I assume that you are running Mac OS System 7.5 or System 7.6. (If you are not, I recommend that you purchase System 7.6.)

I recommend that you install and use Apple's *Open Transport* (OT), along with OT/PPP. OT is an optionally-installed component of Mac OS, introduced with System 7.5. OT/PPP is a component of OT that was introduced with System 7.5.5.

To install both OT and OT/PPP from Apple's distribution disks requires that you have System 7.5.5 or System 7.6. A previous version of this note, *Macintosh Dialup Internet Access through InfoRamp*, detailed the installation and configuration of MacTCP (which has been superseded by OT) and MacPPP (which has been superseded by OT/PPP). If you have System 7.5 or 7.5.3, you can install MacTCP/MacPPP, use them to obtain the OT/PPP package online from Apple's ftp site, then install and use OT and OT/PPP.

7.5   If you have System 7.5, you can obtain the free *System 7.5 Update 2.0* to update your system to version 7.5.3. It is available on 14 floppy disks, on a CD-ROM, or online at Apple's ftp and web sites. Because it is so large, I recommend that you borrow a copy from a friend, from your Apple dealer, or from a user group. If you are licensed for System 7.5, you are entitled to upgrade.

7.5.3   Once you have installed System 7.5 Update 2.0, you can obtain and install the *System 7.5.5 Update*, which updates your system to version 7.5.5. If you are licensed for System 7.5, you are entitled to upgrade.

7.5.5   System 7.5.5 includes OT 1.1.1, and OT/PPP 1.0.

7.6   System 7.6 is commercially available. It includes OT 1.1.1, and OT/PPP 1.0. Once online, you may wish to obtain the OT 1.1.2 updater from Apple's web site.

7.6.1   Once you have installed System 7.6, you can obtain and install the *System 7.6.1 Update*, which updates your system to version 7.6.1. It comprises 4 floppy disks.
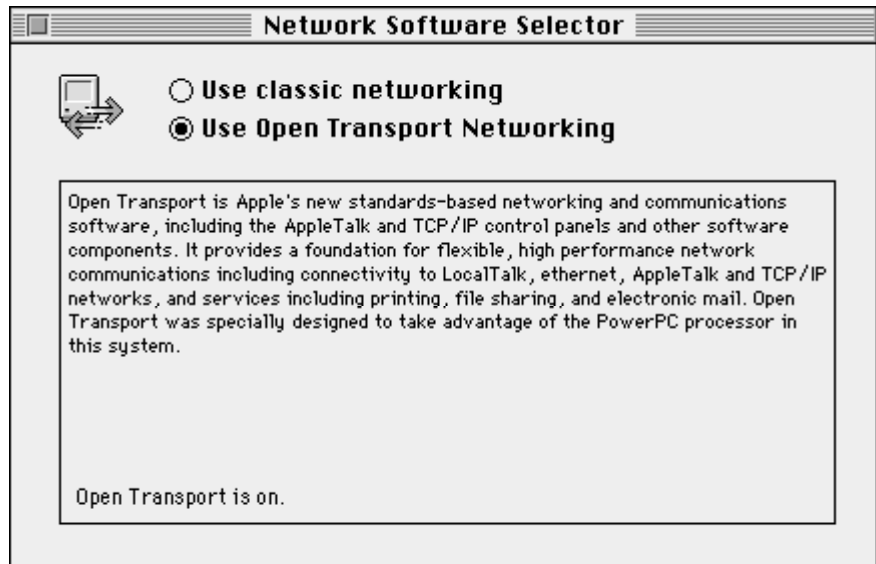
Later on, I will describe how to obtain shareware applications for the Internet services you wish to use: *Eudora* for mail, *News-Watcher* for news and *Netscape* for access to the WorldWide Web. For now, all you need is Fetch 3.0.3, which will give you access to the *file transfer protocol* (ftp) of the Internet. This will allow you to

confirm that your Internet connection is functional, and it will enable you to download the additional software you will need.

You will need a modem capable of 9600 bits per second (b/s) or higher. Internet access is technically feasible but not pleasurable at data rates less than this. Your modem – and its cable – must be set for *hardware flow control* (RTS/CTS). Software (XON/XOFF) flow control must be disabled.

Configuring Open Transport

Access *Control Panels* in the Apple menu. If control panels named *PPP* and *TCP/IP* are present, you are running Open Transport. If they are not present, use the application *Network Software Selector*, installed in your *Apple Extras* folder, to enable Open Transport networking, as shown below. This disables so-called *classic* networking. (Classic networking is unavailable in System 7.6.) If you are running System 7.5 but have no Network Software Selector, then Open Transport is not installed: Install it from your distribution disks.

Network Software Selector

○ Use classic networking
● Use Open Transport Networking

Open Transport is Apple's new standards-based networking and communications software, including the AppleTalk and TCP/IP control panels and other software components. It provides a foundation for flexible, high performance network communications including connectivity to LocalTalk, ethernet, AppleTalk and TCP/IP networks, and services including printing, file sharing, and electronic mail. Open Transport was specially designed to take advantage of the PowerPC processor in this system.

Open Transport is on.

Open the TCP/IP control panel to obtain this dialog. At the top of the panel, choose *PPP*. I have an Ethernet interface on my machine, so I am presented with a few other choices; you may have only AppleTalk (MacIP) and PPP. Set *Configure* to *Using PPP Server*. Set the *Name Server Addresses* to indicated values. Set *Search Domains* as indicated. When you close the panel, you will be invited to save the configuration.

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┌─────────────────────────────────────────────┐
│ ▤■▦▦▦▦▦▦▦▦▦▦ PPP ▦▦▦▦▦▦▦▦▦▦▦▦▦ │
├─────────────────────────────────────────────┤
│                                             │
│  Connect via:  Modem                        │
│  ┌─ Connection ──────────────────────────┐  │
│  │                                        │  │
│  │       ◉ Registered User   ○ Guest      │  │
│  │                                        │  │
│  │   Name: ┌──────────────────────────┐   │  │
│  │         │ poynton                  │   │  │
│  │         └──────────────────────────┘   │  │
│  │ Password: ┌────────────────────────┐   │  │
│  │           │ ●●●●●●●●              │   │  │
│  │           └────────────────────────┘   │  │
│  │         ☐ Save password                │  │
│  │                                        │  │
│  │  Number: ┌─────────────────────────┐   │  │
│  │          │ 363 2815                │   │  │
│  │          └─────────────────────────┘   │  │
│  └────────────────────────────────────────┘  │
│  ┌─ Status ──────────────────────────────┐   │
│  │  Idle.                                 │   │
│  │                                        │   │
│  │                                        │   │
│  └────────────────────────────────────────┘  │
│   ②                  [Options...] [Connect]  │
└─────────────────────────────────────────────┘
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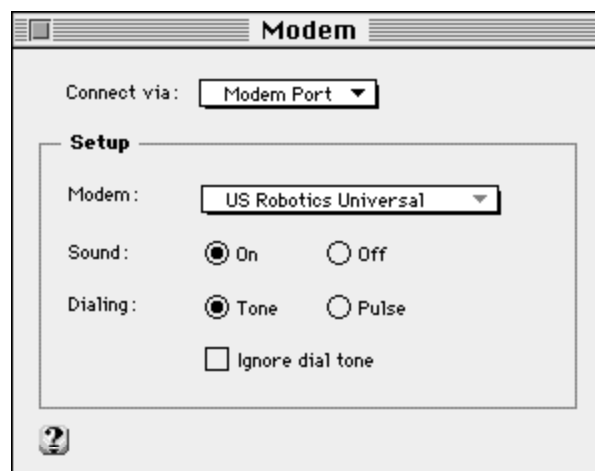
Now, open the PPP control panel. Enter your user name (account) –
all lowercase, by convention – and InfoRamp's phone number. If
you wish, you may enter your password, and check the *Save Pass-
word* box. Alternatively, you can provide your password each time
you log on.

Open the *Modem* control panel. Choose the port that your modem
is connected to, and using the *Modem* pop-up, indicate the type of
modem that you are using. *Sound* refers to the speaker on your
modem: For the first few connections, I recommend that you turn
this on, so you can hear your call proceed. If you have a touch-tone
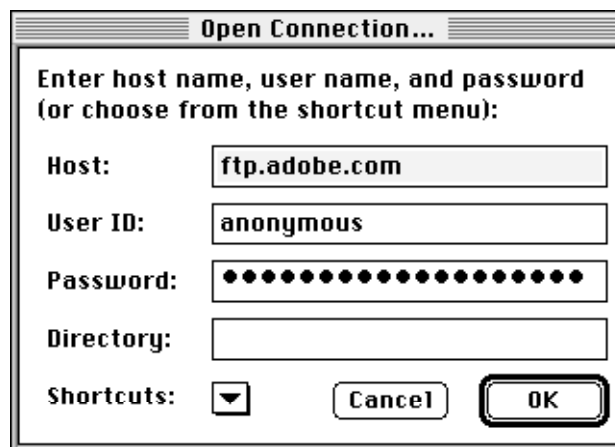line, choose *Tone*.

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┌─────────────────────────────────────────────┐
│ ▤■▦▦▦▦▦▦▦▦▦ Modem ▦▦▦▦▦▦▦▦▦▦▦ │
├─────────────────────────────────────────────┤
│                                             │
│  Connect via:  ┌──────────────┐             │
│                │ Modem Port ▼ │             │
│                └──────────────┘             │
│  ┌─ Setup ───────────────────────────────┐  │
│  │                                        │  │
│  │  Modem:   ┌─────────────────────────┐  │  │
│  │           │ US Robotics Universal ▼ │  │  │
│  │           └─────────────────────────┘  │  │
│  │  Sound:    ◉ On      ○ Off             │  │
│  │                                        │  │
│  │  Dialing:  ◉ Tone    ○ Pulse           │  │
│  │                                        │  │
│  │            ☐ Ignore dial tone          │  │
│  └────────────────────────────────────────┘  │
│   ②                                         │
└─────────────────────────────────────────────┘
```

Connecting for the first time

In the PPP control panel, click *Connect*. PPP will commence dialing the phone. InfoRamp's modem should answer, and you'll hear the modems negotiating. PPP will notify you of its progress. Finally MacPPP's will dismiss and the *Status* portion of its control panel will indicate the parameters of the connection; bar indicators show the data transfer rates for *Send* and *Receive*.
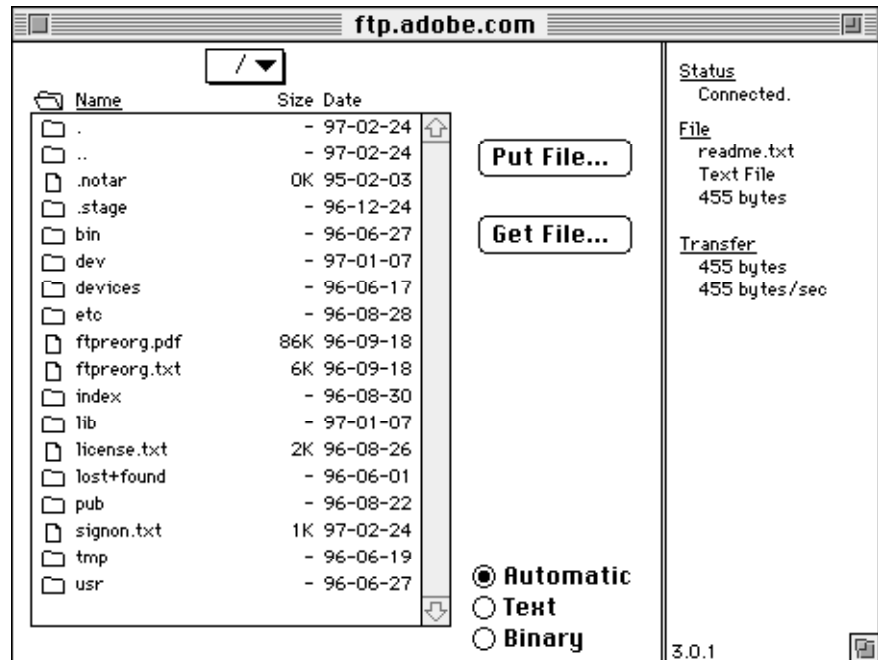
You are connected to the Internet. You can now open an Internet application and access the net.

As a test, launch Fetch. Upon startup, Fetch anticipates that your first action will be to open a connection, so it immediately presents the *Open Connection* dialog proposing a User ID of *anonymous*. Enter the hostname of the file server of Adobe Systems Inc., *ftp.adobe.com*. Tab twice, then enter your e-mail address in the *Password* field: this is convention of anonymous ftp. Your password will be displayed as "bullet" characters; for anonymous ftp this is a nuisance, but if you log into an ftp server with a non-anonymous account, the bullet characters provide a measure of security in case you have onlookers.

```
╔══════════════ Open Connection... ══════════════╗
║                                                 ║
║   Enter host name, user name, and password      ║
║   (or choose from the shortcut menu):           ║
║                                                 ║
║   Host:        ┌─────────────────────────────┐  ║
║                │ ftp.adobe.com               │  ║
║                └─────────────────────────────┘  ║
║   User ID:     ┌─────────────────────────────┐  ║
║                │ anonymous                   │  ║
║                └─────────────────────────────┘  ║
║   Password:    ┌─────────────────────────────┐  ║
║                │ ●●●●●●●●●●●●●●●●●●●●         │  ║
║                └─────────────────────────────┘  ║
║   Directory:   ┌─────────────────────────────┐  ║
║                │                             │  ║
║                └─────────────────────────────┘  ║
║   Shortcuts:   ▼     ( Cancel )   (( OK ))       ║
║                                                 ║
╚═════════════════════════════════════════════════╝
```

Click *OK*. Providing the file server is operating, which it almost always is, in a few moments you will be presented with a directory list. You are connected to Adobe's server, in California.

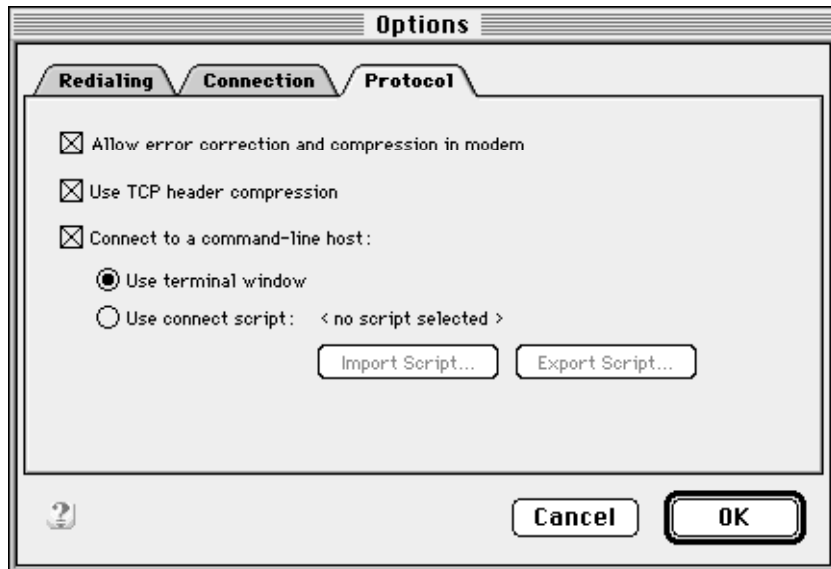The main dialog box of Fetch will look like this:

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┌─────────────────────────────────────────────────────────────┐
│ ▢        ▤▤▤▤▤▤▤▤  ftp.adobe.com  ▤▤▤▤▤▤▤▤         ▣ │
│        ┌──────────┐                        Status           │
│        │  /   ▼   │                          Connected.     │
│   🗁 Name        Size Date                                   │
│   🗀 .             - 97-02-24 ⇧              File            │
│   🗀 ..            - 97-02-24                  readme.txt    │
│   🗋 .notar       OK 95-02-03   ┌──────────┐   Text File     │
│   🗀 .stage        - 96-12-24   │ Put File...│   455 bytes   │
│   🗀 bin           - 96-06-27   └──────────┘                 │
│   🗀 dev           - 97-01-07               Transfer         │
│   🗀 devices       - 96-06-17   ┌──────────┐   455 bytes     │
│   🗀 etc           - 96-08-28   │ Get File...│   455 bytes/sec│
│   🗋 ftpreorg.pdf 86K 96-09-18  └──────────┘                 │
│   🗋 ftpreorg.txt  6K 96-09-18                               │
│   🗀 index         - 96-08-30                                │
│   🗀 lib           - 97-01-07                                │
│   🗋 license.txt   2K 96-08-26                               │
│   🗀 lost+found    - 96-06-01                                │
│   🗀 pub           - 96-08-22                                │
│   🗋 signon.txt    1K 97-02-24                               │
│   🗀 tmp           - 96-06-19   ⦿ Automatic                  │
│   🗀 usr           - 96-06-27 ⇩ ○ Text                       │
│                                ○ Binary    3.0.1        ▣  │
└─────────────────────────────────────────────────────────────┘
```

Double-click on *pub* to access the public directory, then double-click on *adobe* to access Adobe's own files. Browse the file server if you wish. Click the close box in the Fetch window to close the ftp connection. Click *Disconnect* in the PPP window to terminate the PPP session; this will hang up the phone.

When you're finished, choose Customize→Preferences→General, then enter your e-mail address and click OK. Next time you establish an anonymous ftp session, this address will be used if you leave the *Password* field blank.

If you can't connect the first time

If you were successful in connecting the first time, congratulations! You can ignore this section! If you were not successful, one option is to contact InfoRamp's technical support staff. If you have some familiarity with computer communications, and you want to diagnose the problem, you may find this section useful.
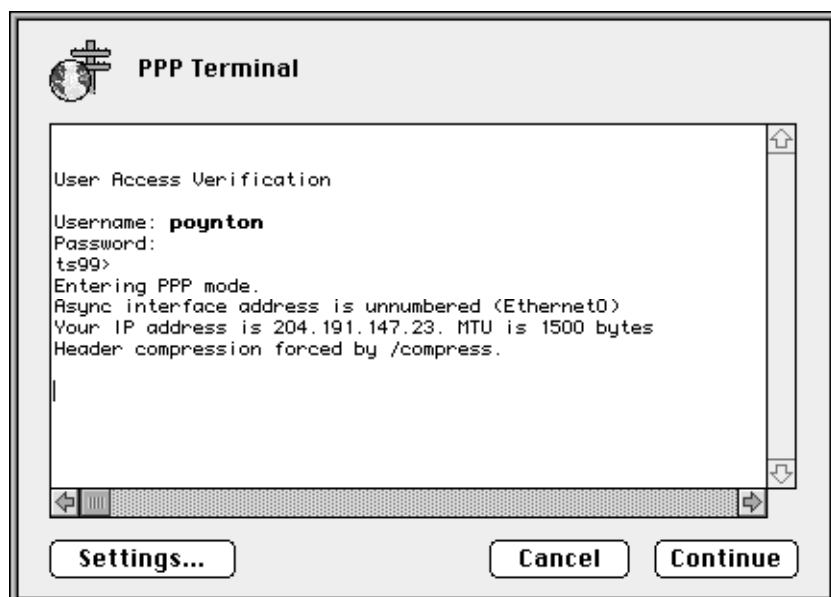
Click PPP's *Options* button, and access the third tab, *Protocol*. The screenshot at the top of the opposite page shows this panel. Check the *Connect to command-line host* and *Use terminal window* boxes. Upon completion of dialing, PPP will present you with a small terminal emulator window, like the one shown at the bottom of the opposite page, showing the prompt from InfoRamp's terminal server – *User Access Verification*, then *Username.* Manu-

```
╔══════════════════ Options ══════════════════╗
║  ┌─Redialing─╲  ╱─Connection─╲ ╱─Protocol─╲    │
║                                                 │
║    ☒ Allow error correction and compression in modem
║                                                 │
║    ☒ Use TCP header compression                 │
║                                                 │
║    ☒ Connect to a command-line host:            │
║                                                 │
║       ⦿ Use terminal window                     │
║                                                 │
║       ○ Use connect script:    < no script selected >
║                                                 │
║                  ┌ Import Script... ┐  ┌ Export Script... ┐
║                                                 │
║                                                 │
║   ⸛                        ┌ Cancel ┐  ┌──  OK  ──┐  │
╚═════════════════════════════════════════════════╝
```

ally enter your user name. The *Password* prompt should appear immediately. Enter your password – it will not be echoed. PPP will, by default, detect the terminal server's invitation to commence communication using the PPP protocol. If you see a line or two of binary data that displays as gibberish, click *Continue* to cause PPP to make the connection. If you can establish a PPP connection manually but not automatically, contact InfoRamp.

Subsequent connections

I suggest that you use PPP directly to open a dialup connection prior to launching any Internet applications. Alternatively, you can initiate a connection to the Internet by opening one of your

```
┌──────────────────────────────────────────┐
│  ╭───╮                                     │
│  │ ⊕ │   PPP Terminal                      │
│  ╰───╯                                     │
│  ┌────────────────────────────────────┐▲  │
│  │ User Access Verification           ││  │
│  │                                    ││  │
│  │ Username: poynton                  ││  │
│  │ Password:                          ││  │
│  │ ts99>                              ││  │
│  │ Entering PPP mode.                 ││  │
│  │ Async interface address is unnumbered (Ethernet0)
│  │ Your IP address is 204.191.147.23. MTU is 1500 bytes
│  │ Header compression forced by /compress. │
│  │                                    ││  │
│  │ |                                  ││  │
│  │                                    ││▼  │
│  │ ◁ ▦▦▦                           ▷ │   │
│  └────────────────────────────────────┘   │
│   ┌ Settings... ┐      ┌ Cancel ┐ ┌ Continue ┐
└──────────────────────────────────────────┘
```

Internet applications: it will call OT, which will call PPP, which will in turn dial the phone and establish the connection.

When you have finished a session, Quit all your Internet applications, then access the PPP control panel and click *Disconnect*.

Reliability

When you transfer a large file, you should achieve throughput of roughly 75% of your modem's rate. Fetch reports its rate in bytes per second. In asynchronous communication there are ten bits in each byte, so a 9600 b/s modem should transfer about 700 bytes per second in Fetch.

Obtaining and configuring your applications

In the following sections I will describe how to configure your Macintosh to use the most popular Internet applications. I will concentrate on *Eudora* (for mail) and *NewsWatcher* (for news). These applications are extraordinarily well designed, implemented and documented.

If you do not already have copies of the applications, obtain them from TISK, from a local user's group, or use Fetch to transfer them over your Internet connection. They are widely available; they are available in the /pub/mac directory at InfoRamp.

Each Internet application is installed like any other Mac application: just drag it onto your disk or run its installer program. You may wish to make a folder called *Internet Apps*. My habit is to put each application, and its files, in a folder named for the application and its version (for example, *Fetch 3.0.3*). Within that folder I put the application itself, without its version number (*Fetch*). When a new version arrives, I can replace it without disturbing its links from aliases, menu launching programs and such.

Macintosh files are stored on Internet servers in several formats such as BinHex, MacBinary and StuffIt (SIT). Obtain the freeware *StuffIt Expander 4.0.2* to decode these files; it is bundled with the Netscape 3.0 distribution. You may wish to purchase the commercial StuffIt Deluxe product. To make it easier to unpackage *uuencode* (.uu) files attached to news postings, you will find it useful to have the shareware *DropStuff with EE Expander 4.0*.

Peter Lewis and Quinn released a system *Internet Config 1.3* that stores all of your Internet configuration information, so that your Internet applications can share their settings. Recent versions of Eudora, NewsWatcher and other applications have introduced some

of the provisions of this new standard, though Internet Config is not yet ubiquitous. I recommend that you obtain and configure *Internet Config*, and set your other applications to use its settings.

Many Internet programs for the Mac have the capability to launch *helper applications* on your Mac to deal with encoded binary files that are transferred, and to deal with *universal resource locator* (URL) information that may be included in news articles or mail. You need not be concerned with obtaining and configuring the helper applications until you wish to use the launching facility. Consult the documentation of your Internet applications for details.

Signature

Eudora and NewsWatcher have provisions to append a signature to every piece of mail – or in the case of NewsWatcher, news – that you send. Set your signature, and make it brief and informative. It is considered good net etiquette to include information that your correspondents will find useful when they wish to contact you. Here is my signature:

> Charles Poynton
> tel: +1 416 486 3271
> fax: +1 416 486 3657
> poynton@poynton.com [Mac Eudora/MIME/BinHex/uu]
> <http://www.inforamp.net/~poynton/>

This signature indicates that my InfoRamp e-mail address can be used for MIME attachments, which Eudora can decode automatically. I also indicate that I have capability to decode Mac BinHex attachments: if a correspondent sets his mailer to *BinHex encode*, Eudora will decode the entirety of an attached Macintosh file and reconstruct the file with its filename, type code and creator code.

Now that you have set your signature, try mailing something to yourself. Communicate with a colleague on the internet to familiarize yourself with addressing and replying.

Configuring Internet E-mail – Eudora

I use Qualcomm's commercial *Eudora Pro* program, version 3.0.2, written by Steve Dorner, to send and receive e-mail. The freeware version Eudora Lite is every bit as reliable, and nearly as capable; I recommend that you use it to start out, then update to the commercial version if you think you will find its features useful. I will outline several settings that you should make in Eudora.

POP Account and server – user_ID@inforamp.net As I mentioned earlier, you will use two protocols to access mail, *POP* and *SMTP*.

Inforamp has a POP server that collects mail destined to you, and files it under your user name. When you Check Mail, Eudora contacts the POP server. You specify in Eudora's preferences your POP account as a user name and a host, in the form *user_ID@inforamp.net*. Your correspondents will use this address to send mail to you. Although your e-mail addresses is not case-sensitive when it is associated with mail in transit on the Internet, when Eudora logs on to your POP server, the case of your user ID is significant. By convention, servers use lowercase IDs.

Real Name. Eudora includes your "real" name in the header information of outbound mail. This information is displayed alongside the subject line of your mail in the recipient's in basket. Your correspondents will appreciate your putting your real name here, in the form *Charles Poynton*.

Connection Method – TCP/IP. You will connect to your mail server through TCP/IP. Eudora has provision for users without TCP to use a dialup connection through the Mac Communication Toolbox. Leave this setting off. You may be tempted to use the "offline" setting to work offline, to inhibit Eudora from invoking PPP and dialing the phone, but in a moment I will discuss a better way to accomplish this. Eudora has another setting *Dialup user name* that you don't need, since you have a TCP/IP connection.

Return Address. Eudora has a *Reply* command to make it easy for you to reply to an incoming message. Eudora determines the reply address from a field in header of the message. To make it easy for your correspondents to reply to *your* messages, you supply Eudora with your address. This is the same as your POP account, unless you read mail on one machine and send from another.

Your mail will traverse many servers and relays in its journey across the Internet. If any of these systems – or the destination system – has trouble delivering your mail, a *daemon* will intercept the message, tack on a highly technical prefix explaining the problem, then *bounce* the message back to you. Your return address is also used for this purpose.

Hosts. Internet facilities can be used to obtain address and other contact information for Internet users. Eudora has provisions to use protocols called *Ph* (which stands for Phone) and *Finger*. Ph is commonly used at universities; Finger is used widely on UNIX hosts. Neither of these protocols is yet common on the commercial Internet, so I suggest that leave these fields blank.

Checking Mail. Eudora can check for mail periodically. This is useful if you have a permanent connection to the Internet. Since you are a dialup user, you should leave this field blank to inhibit automatic checking: PPP will initiate a dialup connection when you instruct Eudora to *Check mail*. An automatic check would initiate a PPP connection, but automatic checking has no ability to terminate the connection. The connection would timeout if you set an idle timeout in the Options of PPP, but by establishing and terminating connections manually, you minimize the load on network resources.

Sending mail, SMTP server. Eudora sends mail using the SMTP protocol, through an SMTP server that you specify in a setting. At InfoRamp, this is the same host as your POP server. Although you can specify the full hostname *mail. inforamp.net*, you need only specify the unqualified host name of the server, *mail*: the subdomain and domain will be obtained from TCP's settings. This is also the case with the NNTP server and SMTP server settings of News-Watcher, which I will describe in a moment.

Exchanging e-mail with subscribers of online services

Now that you have Internet mail, you can exchange e-mail with users of commercial online services such as Compuserve, America Online and AppleLink.

The online services have their own internal, proprietary e-mail systems and e-mail address formats. Sending mail involves augmenting these internal addresses with Internet addressing information. To send to an America Online subscriber, append *@AOL.com* to his America Online screen name; remove any spaces. To send mail to a Compuserve subscriber, replace the comma in his address with a period and append *@compuserve.com*. (An internet mail address cannot include space or comma characters.) For other online services, have your correspondent ask his online provider for details of exchanging Internet e-mail.

The Internet MIME standard is widely used for e-mail attachments. I indicate in my mail signature that I use Eudora, with MIME capability, so that my correspondents can easily determine how to attach files that are easy for me to decode. Many commercial and shareware programs are available to encode and decode attachments. Depending on the capabilities of your correspondents' systems, you may have to resort to cutting and pasting to get attachments into or out of mail messages.

Some commercial online services give poor treatment to e-mail attachments that crosses an Internet gateway. Also, although the

Internet can generally handle e-mail messages of up to about 250 KB, some online services place size limits on Internet e-mail. Before exchanging any significant amount of data with a colleague using an online service, run a test or two.

Configuring Usenet News – NewsWatcher

I use John Norstad's freeware *NewsWatcher* to read Internet – or more properly, *Usenet* – news.

NewsWatcher has provisions for Macs that are shared among several users, and Macs that are located in public lab environments such as in universities. When you start NewsWatcher for the first time, indicate that you have a *Private* Mac. NewsWatcher will then present a dialog box for you to specify your NNTP server. You can set all of your preferences at this time, then quit NewsWatcher, then restart NewsWatcher to make your first connection. You need not reboot your Mac.

NNTP server – news News is stored on a news (NNTP) server at Inforamp, named *news*. Configure NewsWatcher with that name.

SMTP server – mail.subdomain.domain Often you will respond to a news article by posting a follow-up article. When you follow-up, NewsWatcher will by default send a copy of the posting to the original poster. Also, you can reply to the posting by sending just private e-mail to the poster. NewsWatcher uses the SMTP protocol to send e-mail, so you configure NewsWatcher with the hostname of your SMTP server.

Full name, Organization, E-mail address When you post an article or send mail, NewsWatcher inserts your full name, your organization name and a reply address into the header of your mail. Use settings similar to those that you used for Eudora.

Authentication. Do not be concerned about authentication settings: once you have established a PPP connection, you can read news.

Remote host information. If you have been using a newsreader on a different computer or on a different service, you may already have a "dot-newsrc" file that contains a list of the groups that you have subscribed to. NewsWatcher has a facility to obtain that list of groups from your other host on the Internet. If you switch between reading news on different machines, you can save your group lists in a similar way. If you are a new user, you do not need to be concerned about the menu choices *Obtain group list from host* or *Send group list to host*, or the settings that relate to these.

Using Usenet News

When you first access news, NewsWatcher will read from the news server the complete list of newsgroups stored on the server. This will take several minutes. NewsWatcher saves this list in its preference file. On subsequent connections, NewsWatcher will update the list to reflect groups that have been added and deleted. If you delete NewsWatcher's preference file, or choose *Rebuild full group list* from NewsWatcher's menu, the full group list will be rebuilt.

The first time you read news, the somewhat bewildering full group list will be displayed. Obtain a list of the articles in any group by double-clicking its name in the full group list. You can read an article by double-clicking its summary in a group list. When you read directly from a group list, then quit NewsWatcher, no record is retained of what articles or groups you have read.

When you find a newsgroup that you wish to follow on a regular basis, you can *subscribe* to it by dragging it from the full group list into a group window. A menu command is available to create a new (empty) group window. You can drag as many groups as you like into the window. You may wish to create different group windows for different categories of newsgroups. When you save a group window, using *Save* from the File menu, NewsWatcher saves information about which articles you have read. When you reopen a saved group, or when you *Check for new articles*, NewsWatcher will obtain from the server the subjects and authors of articles that you haven't read yet.

The first time you read news, I recommend that you read, and then subscribe to, the group named *news.announce.newusers*. As its name suggests, this newsgroup has articles that are specifically intended for new users. Once you are familiar with Internet news, I recommend that you subscribe to *news.announce.important*, where articles of importance to all news readers are posted.

Read NewsWatcher's Full Group list to determine what newsgroups are available. If you learn of a newsgroup that you cannot find, ask InfoRamp to consider subscribing to it.

Please read news for a week or two, and read the group *news.announce.newusers*, to get a sense of the etiquette and procedures of the net before you post a news article. Please do not post to the entire net vacuous items like "Yeah, I sure agree with that!" or "Send a copy to me too please." Send private mail to the individuals instead. Participants of many newsgroups have compiled answers to "frequently asked questions" (FAQs). These are posted

periodically, and are maintained on well-known servers such as *rtfm*.*mit*.*edu* and *ftp*.*uu*.*net*. Consult the FAQ for a group before asking a naive question. Do not quote – or permit your news application to include – the entirety of a previous posting that you are following-up. Instead, edit down to the pertinent portion. Do not request, post or offer to post commercial software against the terms of its licence. If you can't determine the status of a piece of software by reading the FAQ, ask the question in a posting.

When you choose *Reply*, there are two icons at the top of the reply window, one for posting a public reply as a news article and another for sending private mail to the originator of the article. You may check either or both of these icons. If your reply is of interest only to the originator of the article, send it by private mail. If your reply is of general interest, post it to the group.

When you post a follow-up article, it is considered courteous to send a copy of the follow-up by private e-mail to the originator. This assures that the originator will see your response promptly; also, the original poster will see your reply even if your follow-up doesn't reach his news server through some network fault or overload, or expires at his news server before he reads it.

The World Wide Web (WWW)

Now that you are on the Internet, you can use your web browser. If you do not have a web browser, you can obtain the Netscape browser, which is free for individual noncommercial use,at the URL <ftp5://ftp.netscape.com/>.