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## About InfoPop/Windows

InfoPop/Windows uses the WINHELP.EXE program that ships with Windows 3.1 to provide a hypertext guide to the Internet, CompuServe, BBS systems and more.

I hope you find InfoPop a useful educational tool and that it will serve as a resource for identifying (and in some cases, explaining) a number of internet resources.

This file (IPWIN.HLP) may be freely distributed, so long as no charge is made (a modest disk-duplication charge is acceptable). If you have suggestions or corrections, please send them to me at the address below and every attempt will be made to incorporate them in the next edition.

If you find InfoPop/Windows useful, drop me a note...I love to get email.

Be sure to make liberal use of the ANNOTATE feature (under Edit) to make updates and/or corrections to information contained here. Note, however, that loading a new copy (e.g., an update) of IPWIN.HLP will cause you to lose annotations made to an earlier release.

The IPWIN.HLP file was developed using RTFGEN--a freeware utility that converts ASCII input files to the RTF format required by Microsoft's Help Compiler. If you're interested in the process, I use the creation of InfoPop as an example in "Hypertext For Windows: Developing Databases for the Winhelp Engine", which appears in the Winter 1993 issue of *Library Software Review*, (Volume 12, Number 4).

**This file was last updated November 29, 1993.**



You can obtain future updates to IPWIN.HLP as well as a number of other GMutant Software products from several sources

## InfoPop/Windows release 1.12f

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## Changes since release 1.11

Added a section of the Windows Gopher+ client HGopher  
Added several terms to, and split the Glossary  
Added information on the Trumpet WINSOCK.DLL  
Added excerpt from the Winsock FAQ  
Added information on Cello  
Added sample screen for Cello  
Added information on Mosaic  
Added information on LISTGopher  
Added entry for IEEE Standards BBS  
Added information on obtaining WWW client software  
Added information on the InterNIC Directory & Database Service  
Added information on the WELL  
Added full-text of Cliff Figallo's history of the WELL  
Added address for Novell's ftp site  
Added information about RTFGEN  
Added information about FedWorld BBS gateway  
Expanded note on sending internet mail to & from Compuserve



*Here's an excerpt from announcement on Mosaic availability...*

We are happy to announce the second beta release of NCSA Mosaic for Microsoft Windows.

NCSA Mosaic is a distributed hypermedia system designed for information retrieval and discovery over the global Internet. Mosaic provides a unified hypermedia interface to the various protocols, data formats, and information archives used on the Internet and provides powerful new methods for discovering and using information. Mosaic is capable of accessing data via protocols such as Gopher, World Wide Web, FTP and NNTP (Usenet News) natively, and other data services such as Archie, WAIS, and Veronica through gateways.

NCSA Mosaic for Microsoft Windows is a WinSock client program. It requires network (TCP/IP) access through the WinSock DLL interface. If you are using Windows NT, this is built in. If you are using Windows 3.1, you need to obtain a WinSock and install it on your system. There is an alpha version of a shareware WinSock on our FTP server. If you are running a commercial TCP/IP stack, such as FTP Software's, you need to obtain their WinSock DLL directly from your LAN vendor.

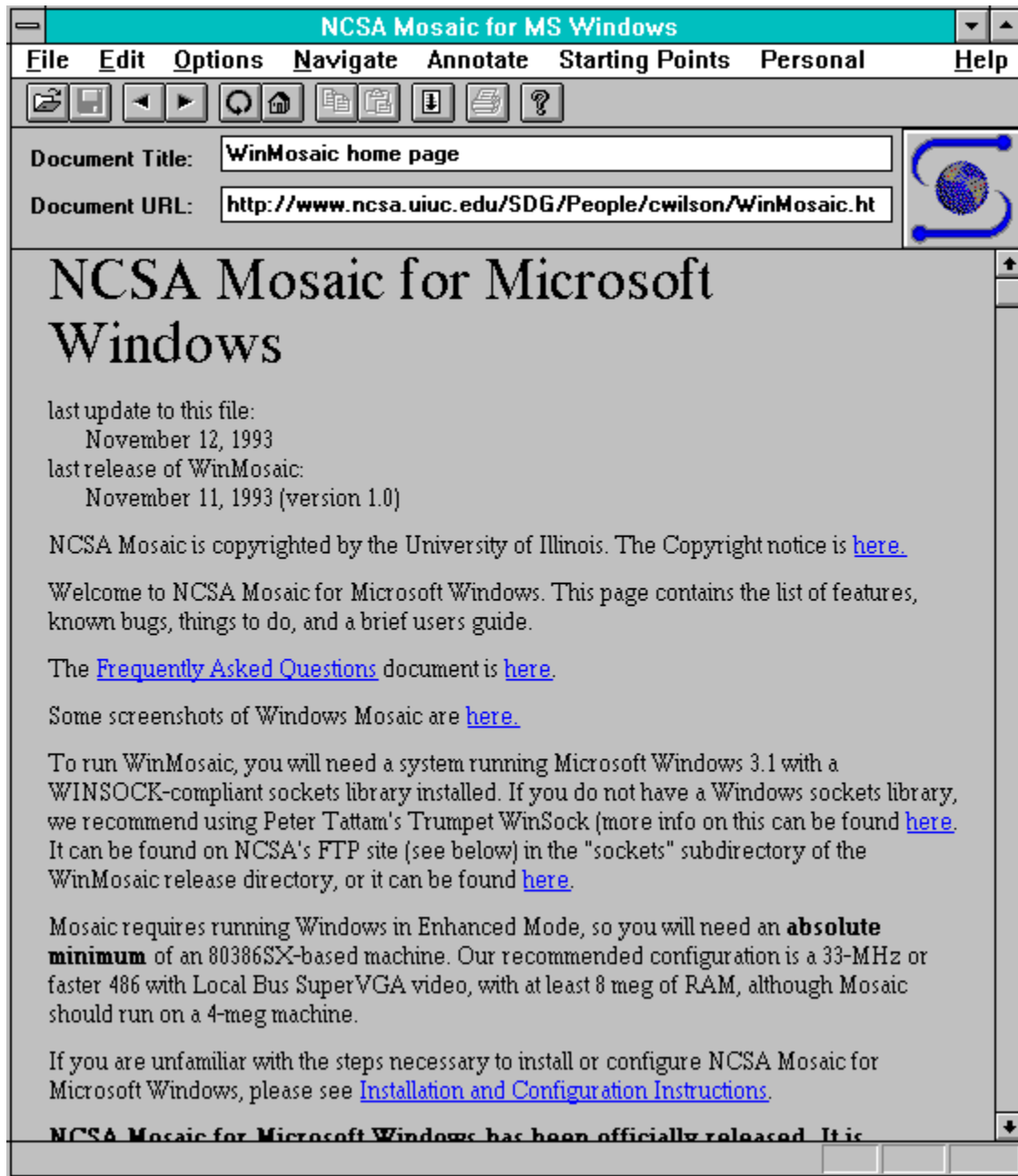
BUG REPORTS AND ENHANCEMENT REQUESTS should be emailed to "mosaic-win@ncsa.uiuc.edu". PLEASE INCLUDE THE VERSION NUMBER YOU ARE USING IN ANY MAIL YOU SEND US. Thank you for your interest and support.

The beta release is via anonymous FTP on NCSA's FTP server, "ftp.ncsa.uiuc.edu" (141.142.20.50), in the directory "PC/Mosaic".

If you do not have your own WinSock1.1, and you want a WinSock that will be useful for programs other than only NCSA Mosaic, then we would suggest trying the alpha release of the Trumpet WinSock, available in the "sockets" subdirectory (although this copy may not be the latest released.)

-Chris Wilson  
-Jon Mittelhauser

[sample screen](#)



Here is a sample screen showing a Mosaic session (note the blue hypertext links).

## **Genomic Database of the Mouse (GBASE)**

telnet morgan.jax.org  
or  
telnet 192.43.249.17

login: **guest**

This is a guest account for users, who do not have accounts, to access The Genomic Database of the Mouse (GBASE). Access to GBASE is free. To obtain a personal account, please contact:

Alan Hillyard  
The Jackson Laboratory  
600 Main Street  
Bar Harbor, ME 04609-1500  
USA

phone: +(207)288-3371 X-1576  
email: alh@jax.org

WELCOME TO THE JACKSON LABORATORY'S GENETIC DATABASES

GENETIC MAPS of the mouse (Enter G)  
LOCUSBASE - locus data and references (Enter L)  
MATRIX - mouse strains vs locus data (Enter M)  
MOUSE LOCUS CATALOG (Enter C)  
INTEGRATED OMIM/MOUSE LOCUS CATALOG (Enter I)  
FILE TRANSFER (Enter F)  
RESPOND - report problems or make suggestions (Enter R)  
EXIT (Enter E)

## **Los Alamos National Laboratory**

telnet admiral.lanl.gov  
or  
telnet 128.165.10.1

Login: **Library**

Exit? Menu Option 2

## **Texas Tech University Library**

telnet ttacs3.ttu.edu

or

telnet 129.118.1.4

Username? **TTUCAT**

For TTU Library: Option 1

For TTU Health Sciences: 2

Exit? From TTU Library: CTRL-Z

From Health Sciences: Use menu-based exit command



## Virginia Military Academy (VMI)

telnet vax.vmi.edu

or

telnet 144.75.2.25

Username: **Library**

Exit? Select on Main Menu

## **MATIMOP - Israeli Industry Center for R & D**

telnet VMS.HUJI.AC.IL

or

telnet 128.139.4.3

Username: MOP

An experimental server for information on R & D Projects of Israeli firms.

Information available on:

- \* High Technology Incubators Projects
- \* Opportunities in Lasers and Electrooptics
- \* Access to a comprehensive WAIS database of Israeli R & D Projects

## University of North Carolina at Charlotte

telnet ALADDIN.UNCC.EDU

or

telnet 152.15.40.40

At CONNECT COMPLETE, hit RETURN

Login: **aladdin**

Exit? telnet escape key

**IKE: IBM Kiosk for Education (formerly ISAAC)**

telnet ISAAC.ENGR.WASHINGTON.EDU  
or  
telnet 128.95.32.61

IBM Kiosk for Education  
Office: (206) 543-5604  
E-mail: ike@ike.engr.washington.edu

Welcome to the IBM Kiosk for Education (IKE) User Discussion Forums. These Forums are for the exchange of information among educators about how they are using IBM systems for instruction and research. This system is available for use by faculty, staff, and students in higher education for this purpose.

You must register to use this service. Please enter your access code and password (in lower case) in the spaces provided below. New users should enter 'register' as their access code and follow the on-screen instructions.

## **National Archeological Database**

telnet cast.uark.edu  
or  
telnet 130.184.71.44

login:

NADB ONLINE SYSTEM  
Archeological Assistance Program  
Departmental Consulting Archeologist  
National Park Service, U.S. Department of the Interior

In Cooperation with the Center for Advanced Spatial Technologies, University of Arkansas  
Southwestern Division, U.S. Army Corps of Engineers

The National Archeological Database is an archeological information management system developed by the Departmental Consulting Archeologist/Archeological Assistance Program of the National Park Service in cooperation with Federal and State agencies and professional consultants. It has been designed to improve and promote the more efficient management of cultural resources in the United States. The NADB Online System has been established to provide widespread user access to this information.

## **Newsday's Information Highway Outpost**

telnet delphi.com  
or  
telnet 192.80.63.1

### **Username: Highway**

Welcome to  
Newsday and New York Newsday's  
Information Highway Outpost  
You can visit these areas  
of the Information Highway Outpost:

#### **INFORMATION HIGHWAY SERIES**

Current stories, updated daily through July 21.

#### **ARTICLE AND FILE LIBRARY**

Download graphics, animations and background articles.

#### **MESSAGE NEWSDAY STAFF**

Send your comments to Newsday reporters and editors.

#### **PUBLIC FORUM**

Share views with other callers and with Newsday staff.

#### **CHAT**

Log-on Wednesday, July 21, at 9 p.m. for a real-time conversation with Newsday staff and other callers.

1 Information Highway Series

2 Article and File Library

3 Message Newsday Staff

4 Chat and Public Forum

5 Exit Service

## **TSR**

Terminate-Stay-Resident

Bypassing a technical explanation, a TSR is a program that loads into your PC's memory then goes to 'sleep'...ready to pop-up and run whenever a particular key sequence is pressed. TSR's serve little purpose in a multitasking environment like Windows.

A simple explanation of multitasking is an operating system or environment in which two things can happen at once (typically two programs can be running simultaneously).

Since time is nature's way of keeping everything from happening at once, it is actually 'impossible' for a computer to do two things simultaneously--it just seems that way since our 'clockspeed' is so much slower. What actually occurs in a multitasking environment is that the various 'ticks' of the computer's processor are allocated to different tasks in turn.. .rather than having one task monopolize the system's resources until it finishes.

If you want to see true multitasking on a PC (where each task receives a 'virtual' processor from the operating system) you have to run something like OS/2 or LINUX (the freeware UNIX). Windows NT (at least the beta version(s)) also offer true pre-emptive, multithread multitasking.



Due to some of the features incorporated into this database (IPWIN.HLP), you may not run InfoPop/Win under the version of WINHELP.EXE distributed with Windows 3.0. If that is a necessity, contact the author for a 3.0 version of the program.

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Other GMutant Software Products:



**InfoPop/DOS** - a TSR guide to the internet. Comes with utility for making your own pop-up help systems. Non-TSR version also included which is great for mounting on a network server.

The latest version of InfoPop (DOS and/or Windows versions) is always available first via: [gopher](#), [ftp](#), or [bbs](#)



BIBL

**BIBL** (rhymes with nibble). A full-featured system for managing your personal and/or office library on an DOS-based PC. Features include: multiple databases; mouse support; Windows 3.1 clipboard support; 15+ reports; full-text and/or keyword searching; large (700 character) note field for each record (with word wrap); global find & replace; ASCII import/export; link text files (registered version adds PCX image support) to individual records; and more. Network version of the product (BIBL/NET) is also available (specify NOVELL or NETBIOS). Shareware. Availability: [Compuserve](#), [gopher](#), [BBS](#), and [ftp](#).

**GOVDOX** - a check-in system for managing U.S. Government Documents. Shareware. Now in release 8.34. Availability: [BBS](#), [ftp](#).

**ZKWIK** - utility for generating KWIC and KWOC indexes. Filename: ZKWIK16.ZIP. Availability: [BBS](#)

**ftp** ftp.gmu.edu (129.174.1.9)

```
username: anonymous
password: PutYourEmailAddressHere
cd pub\library
binary
get bibl85.zip to get shareware release of BIBL
get ipwin112.exe to get current release of InfoPop/Windows
get infpop27.zip to get current release of InfoPop/DOS
bye
```

Or you can try this DOS-based ftp server we've got in the office...

**fenwick.gmu.edu**

```
username: anonymous
password: EnterYourEmailAddressHere
```

```
cd software/pc_win31
binary
get ipwin112.exe
```

*for the DOS version:*

```
cd software/pc_dos
binary
get infpop27.zip
get bibl85.zip
```

point your gopher client to [fenwick.gmu.edu](http://fenwick.gmu.edu)  
then access the Computers/Technology/Software  
section.

ZIP is a file extension one encounters on files that have been compressed according to PKWARE's ZIP format. Typically a ZIP file contains within it a number of files which have been compressed and then combined.

To extract the files contained within a ZIP file you need a copy of the utility program PKUNZIP.EXE - available on BBS's (including the GMutant BBS).

Note that version 1.x of PKUNZIP *will not* extract files created with version 2.x of the product. Version 2.x of PKUNZIP will decompress (or *unzip*) ZIP files created with version 1. As of this writing, the current SHAREWARE version of PKUNZIP is 2.04g

To 'unzip' a file (assuming PKUNZIP.EXE is on your DOS path):

```
C:>PKUNZIP NameOfZipFile (return)
```

To 'zip' files, creating a ZIP file named MYFILES.ZIP:

```
C:> PKZIP -a MYFILES ListNamesOfFilesToInclude (return)
```

For example, to create a ZIP named MYFILES.ZIP that contains three files (INFO.DOC, MYFILE.EXE and TEST.TXT):

```
C:>PKZIP -a MYFILES INFO.DOC MYFILE.EXE TEST.TXT (return)
```

Single-user: Go IBMAPPS, Library 7: BIBL.ZIP  
Network (Novell): Go NOVUSER, file BIBNET45.ZIP



## **GMutant Online BBS**

The BBS focuses on programming (C, C++ and Pascal) as well as files of interest to librarians and/or information professionals. We use the BBS to provide support for various GMutant Software products as well.

phone: (703) 993-2219

speed: 1200,2400,9600 v.32/v.42bis

hours: 24 hours a day



## **bitnet**

[BITNET \(history/background\)](#)

[Sending files via Bitnet](#)

[Selected BITNET magazines](#)

[Listservers](#)

BITNET is a telecommunications network that links users in academic institutions in the United States and in foreign countries. The purpose of BITNET is to facilitate communication among universities. Any university may use the network for either academic or administrative communications. Universities with any one of a large set of minicomputers and mainframes can easily become part of the network, since the communications software supports a wide variety of different hardware. The computers in BITNET are connected via leased telephone lines, and users can share information through electronic mail in the form of interactive messages, text files, and computer programs.

The network was founded in the spring of 1981 by establishing a link between the City University of New York CUNY and Yale University. At first, there was considerable doubt over whether the "network would ever reach a useful critical mass." Indeed, even though several dozen institutions had expressed an interest in joining such a service, in a survey conducted prior to implementing the network, only six universities were actually linked to BITNET by the end of 1981. Two years later, the network had grown to 19 sites with a total of 65 nodes. In the summer of 1988, there were over 1,500 nodes connected to the network.

BITNET's philosophy was that each subscribing academic institution would lease a line to the nearest existing network node and provide at least one connection point for future members. New members would thus increase the geographic distribution of the network. BITNET was a cooperative network in that each node contributed communications lines, storage and processing without charge to the other nodes. Moreover, the network relied heavily on volunteer efforts and informal agreements between universities to maintain and operate the network.

[Sending files via Bitnet  
listservers](#)

## Bitnet listservers

definition: A program available on many BITNET connected computers that can act as a mail forwarding system and as a file repository. BITNET is another network that links many colleges and universities. It does not normally link to military or government institutions as does the Internet. The idea of mailing lists has been given new life with the advent of computer networks. Most of us are on mailing lists, be they for magazines, bills, or those silly pamphlets you get from your Senator. Computers have brought a whole new degree of speed and functionality to mailing lists, as you will see. In BITNET, mailing lists are used mainly to keep people with similar interests in contact. There are several formats in which this contact can take place. These are "forums", "digests", and "electronic magazines".

FORUMS are a good example of how the utility of mailing lists has been expanded in BITNET. Let's say that you have subscribed to a forum for people interested in COBOL (gack!). How you could subscribe to such a list will be described later. Someone (anyone!) on the mailing list sends mail to a server where the list is kept. This server forwards the mail to all of the people in the forum. When mail from a forum arrives in your computer mailbox, the header will look much like this:

```
Date: Fri, 10 Sep 88 23:52:00 EDT
Reply-To: COBOL Discussion List <COBOL-L@METRO>
Sender: COBOL Discussion List <COBOL-L@METRO>
From: Ted Kord <BEETLE@JLIVM>
Subject: No More Perform-Through-Varyings!
To: Daniel Lawrence Shaw <DANIEL@YALEVM>
```

This looks a little confusing, but there really isn't much to it. In this example, Ted Kord ("From:") sent mail to the COBOL-L list address. This server then forwarded the mail to everybody on the list, including Daniel Lawrence Shaw ("To:"). Note the line named "Reply-To:". This line tells your mail software that when you reply to the note that the reply should go to the list... meaning \*everybody\* on the list. People will in turn reply to your mail, and you have a forum.

This is usually very interesting, but it can lead to problems. First among these is the volume of mail you can receive. If you are in a very active forum, you can get 50 or more pieces of electronic mail in a single day. If you are discussing an emotional topic, expect more. Many people have a tendency to "flame". The speed and immediacy of electronic mail makes it very easy to whip out a quick, emotional, response, to which there will be similar replies. We advise you to take some time and think out your responses to forum postings before inadvertently starting a "flame war".

[subscribing to lists](#)

A server that controls a mailing list is called a "list server." Most Most of these have the terribly original userid of LISTSERV. One of these servers can control subscriptions to many mailing lists.

The most difficult concept behind list servers is the difference between a LISTSERV and its list-ids. When you subscribe to a mailing list, you send the appropriate command to a LISTSERV. When you want to communicate to the people on the mailing list, you send mail to the list-id. For example, there is a list named LIAISON. To subscribe to this list, you would send a command to LISTSERV@BITNIC. You could then correspond with people on that mailing list by sending mail to LIAISON@BITNIC.

LIAISON is a list-id, a "satellite" of the LISTSERV. We mention this because many people make the mistake of sending commands by mail to list-ids. This annoys people to no end and creates a lot of unnecessary network traffic.

To subscribe to a lists, you would send a LISTSERV a SUBSCRIBE command, which has the following syntax:

```
SUBscribe listname your_full_name
```

In this example, Kristen Shaw is sending LISTSERV@BITNIC the command to subscribe to LIAISON:

```
VM/CMS: TELL LISTSERV AT BITNIC SUB LIAISON Kristen Shaw  
VMS/JNET: SEND LISTSERV@BITNIC "SUB LIAISON Kristen Shaw"
```

If you misspell your name when entering a SUBscribe command, simply re-send it with the correct spelling. To delete her name from the mailing list, Kristen would enter an UNSUBscribe command:

```
VM/CMS: TELL LISTSERV AT BITNIC UNSUB LIAISON  
VMS/JNET: SEND LISTSERV@BITNIC "UNSUB LIAISON"
```

Those are the basic commands you need to know in order to access LISTSERV controlled mailing lists.

The MESSAGE (sometimes called "interactive message") is the fastest and most convenient method of communication available through BITNET. It is the network's equivalent of a telephone conversation. The difference is that the words are typed instead of spoken. The message you type is transmitted immediately (well, quickly) to its destination. In BITNET this destination is the network address (userid@node) of the person you want to contact. If the person you are contacting is logged on, the message will be displayed on their screen. If not, their computer will tell you so. In this case, your message is lost forever. In other words, no one is there to answer the phone. However, many people run a program which will act like an answering machine and hold your message until they log on.

The syntax to send messages depends on your computer and system software. People on VM/CMS systems would type something like this:

```
TELL userid AT node message
```

For example: TELL KRISTEN AT MARIST Hey Kristen, What's up?

People on VAX/VMS systems using the JNET networking software would use this syntax:  
SEND userid@node "message"

For example: SEND KRISTEN@MARIST "Hey Kristen, What's up?"

The quotes around the message are optional. However, the JNET networking for VAX/VMS will translate your entire message into upper-case characters if you DO NOT use them. Many people find receiving messages like that extremely annoying.

You should consult your local system documentation for more information on TELL or SEND and their capabilities. When a message arrives on your screen, it will look something like this:

```
FROM MARIST(KRISTEN): Hello! It's been a while, no?
```

FILES are another way to communicate over BITNET. The text files and programs that you store on your computer can be transmitted to users at other nodes. People on VM/CMS systems would use a syntax like this:

SENDFILE filename filetype filemode userid AT node

For example: SENDFILE BITNET USERHELP A KRISTEN AT MARIST

The syntax for VMS/JNET systems is quite similar:

SEND/FILE filename.extension userid@node

For example: SEND/FILE BITNET.USERHELP KRISTEN@MARIST

The file sent is stored in the "electronic mailbox" of the recipient until he/she logs on. People on VM/CMS systems would use the RECEIVE or RDRLIST commands to process files sent to them in this way. People on VAX/VMS systems would use the RECEIVE command. You should check your local documentation for information on these commands.

SEND/FILE and SENDFILE are useful for sending programs or large volumes of data over the network. However, they shouldn't be used for everyday communication.

## **Selected BITNET magazines**

### **AIR**

AIR is a newsletter for people interested in institutional research and planning analysis. For a subscription, send mail to John Muffo, IRMUFFO@VTVM1.

### **ATHENE**

Athene is a free network "magazine" devoted to amateur fiction written by the members of the online community. Athene does not limit itself to any specific genre, but will publish quality short stories dealing with just about any interesting topic, including: science fiction; fantasy; religion; mystery; computers; humor; psychology; sports; politics and/or business. To subscribe, mail a request to Jim McCabe, MCCABE@MTUS5. Be sure to mention if you want it in ASCII or Postscript.

### **BIOSPHERE Newsletter**

BioSphere newsletter may be of interest for those of you concerned about the problems facing our environment. To get a subscription, send this command to LISTSERV@UBVM: SUB BIOSPH-L your\_full\_name. Back issues of the magazine are available from the server UMNEWS@MAINE (on the MAGAZINE disk).

### **CCNEWS**

CNEWS is a weekly electronic magazine for campus computing center newsletter editors. In it they discuss common interests and concerns about delivery of news and information. These include desktop publishing, printing, operational aspects of developing newsletters, writing, and computing-related issues relevant to campus computing center information dissemination. The archive of CCNEWS also includes the full text of contributed articles from campus computing newsletters and other sources. You can subscribe to CCNEWS magazine by sending the command: SUB CCNEWS Your\_Full\_Name - Institution to LISTSERV@BITNIC.

### **DISTED**

The On-Line Journal of Distance Education and Communication Special Interest Group has two primary concerns: First, it is concerned with distance education as the organized method of reaching geographically disadvantaged learners. Second, the Journal is interested in projects concerned with overcoming cultural barriers through the use of electronic communication. To subscribe, send the this command to LISTSERV@UWAVM via mail or message: SUB DISTED your\_full\_name

### **INTERNATIONAL INTERCULTURAL Newsletter**

XCULT-L is an international intercultural newsletter written by undergraduate and graduate students at Penn State University who are enrolled in Speech Communication 497B: Cross-cultural Communication. Each week, students write on a topic being discussed in class. Topics range from non-dominant cultures in the U.S. to corporate cultures to the use nonverbal communication in international communication. Participants who receive the newsletter are encouraged to join in the discussions or contribute their own topics and issues. You can subscribe to XCULT-L by sending the command "SUB XCULT-L firstname lastname" to LISTSERV@PSUVM.

### **MEDNEWS**

Mednews is a weekly electronic newsletter. Regular columns consist of medical news summary from USA Today, Center For Disease Control MMWR, weekly AIDS Statistics from the CDC, plus other interesting medical news items. To subscribe, send the following command to LISTSERV@ASUACAD via mail or message: SUB MEDNEWS Your\_Full\_Name.

### **NETWORK AUDIO BITS**

Network Audio Bits and Audio Software Review is an electronic audio magazine devoted

primarily to Compact Disc and Vinyl LP Record reviews. Subscriptions are available by sending mail to MURPH@MAINE. Back issues are available from UMNEWS@MAINE (EMAGS disk).

### **THE PUBLIC-ACCESS COMPUTER SYSTEMS REVIEW**

An electronic journal, the Public-Access Computer Systems Review, has been established on the Public-Access Computer Systems Forum (PACS- L@UHUPVM1). The PACS Review will cover all computer systems that libraries make available to their patrons, including CAI and ICAI programs, CD-ROM databases, expert systems, hypermedia systems, information delivery systems, local databases, online catalogs, remote end-user search systems, and other systems. To join the PACS Forum, send the following command to LISTSERV@UHUPVM1 vis mail or message: SUBSCRIBE PACS-L Your\_full\_name.

### **PSYCHNET**

Psychnet is a weekly newsletter keeping the psychology community informed and in contact. To subscribe, send mail to Robert C. Morecock, EPSYNET@UHUPVM1.

### **QUANTA**

Quanta is a magazine devoted to Science Fiction and topics related to science fiction. It is published bi-monthly by Dan Appelquist (R746DA1@CMUCCVMB). Send mail to Dan to subscribe, submit material, or just to receive more info. Quanta is published in both straight ASCII and PostScript formats.

### **SCUP Newsletter**

SCUP is a newsletter for people interested in college and university planning. For a subscription send mail to SCUP@TUFTS.

### **USSR-D**

USSR-D (USSR news and information digest) is a regular digest of traffic culled from USSR-L (USSR news & information list), a public discussion and distribution list dedicated to the dissemination and analysis of non-classified news and information regarding the Union of Soviet Socialist Republics and its past and present (if not future) constituent Soviet Socialist Republics. To subscribe send the command Sub USSR-D Your\_full\_name to LISTSERV@INDYCMS.



## Soundex

An algorithm for translating a text string into a number--the purpose being that text strings that sound alike should yield identical values...and indexes based on SOUNDEX values should yield matches despite minor variations in a term's spelling.

To achieve this, vowels are ignored and consonants with similar phonetic sounds receive the same numeric value. Typically the first letter of a term is retained and numbers are assigned to the remaining letters (up to the predetermined limit of the soundex value being generated).



deeper

Here is an one soundex algorithm:

AEHIOUW	skip these characters in any term
BFPV	1
CGJKQSXZ	2
DT	3
L	4
MN	5
R	6

1. Preserve the first letter of a term.
2. Limit resulting Soundex value to 1 letter and 4 digits.
3. Go through term starting with 2nd character position and assign a number to each letter (unless it is a vowel or w in which case it is ignored).
4. Stop when 4 digits have been assigned.
5. If the resulting SOUNDEX value is less than 5 characters in length, pad the result with 0's.

If you work through this algorithm with the terms **Agriculture** and **Akhruhkulture** you'll find they both yield: **A2624**.

Wildly different spellings but since they 'sound' the same, they file together.

Welcome to the University of Houston Libraries  
**Public-Access Computer Systems Forum**

Overview

The Public-Access Computer Systems Forum (PACS-L) is a computer conference that deals with all computer systems that libraries make available to their patrons. Utilizing PACS-L, users discuss topics such as CD-ROM databases, expert systems, hypertext programs, microcomputer labs, locally-mounted databases, network-based information resources, and OPAC's.

The conference does not deal with staff-oriented functions in integrated library systems (e.g., acquisitions, cataloging, circulation, and serials control), staff-oriented microcomputer use (e.g., spreadsheets and word processing), or mediated online searching.

While many users are librarians, PACS-L also serves computer specialists, faculty members, and others. The conference was founded in June 1989 by Charles W. Bailey, Jr. Currently, there are over 6,400 users in 56 countries. The conference is moderated by Dana Rooks and Jill Hackenberg. The Information Technology Division of the University of Houston provides technical support for the conference.

**Messages sent to PACS-L are reviewed** by the conference moderators, who distribute messages on appropriate topics to conference participants. PACS-L moderators reserve the right to reject any posting that we feel is not appropriate for PACS-L. Normally, PACS-L users receive 5-15 messages per day. Please do not send messages longer than about 250 lines; break long messages up into multiple shorter messages.

The University of Houston Libraries provides PACS-L as a public service. It does not verify the accuracy of submitted messages nor does it endorse the opinions expressed by message authors. Authors of PACS-L messages are solely responsible for content of their messages.

All messages to the conference are automatically archived. Users can search the message database for specific information using complex Boolean queries. The most reliable method of searching the database is to submit batch search jobs to the list server via e-mail messages. Search features include nested Boolean expressions, search limitation by date and time, and SOUNDEX searches.

An electronic journal, **The Public-Access Computer Systems Review**, was established in September 1989. The first issue was published in January 1990. The journal became refereed in November 1991. Articles are stored as individual files on the list server, and an annotated table of contents for each issue is sent out as an e-mail message to all PACS-L users. After looking over the table of contents, users can retrieve article files of interest. The journal is cataloged on OCLC and RLIN.

The first two volumes of The Public-Access Computer Systems Review are also available in book form from the American Library Association's Library and Information Technology Association (LITA). The price of each volume is \$17 for LITA members and \$20 for non-LITA members. To order, contact: ALA Publishing Services, Order Department, 50 East Huron Street, Chicago, IL 60611-2729, (800) 545-2433.

Volume one has a special section on SPIRES that describes how this powerful system is being used for locally mounted databases and campus-wide information systems, plus an in-depth symposium about staffing issues and public-access computer systems. It also has articles about Carnegie Mellon University's Library Information System II (and other innovative library automation systems), text management software, CD-ROM LAN

implementations and network licensing agreements, Z39.50, and other topics.

Volume two has a special section about major electronic serials on networks that includes papers by the editors and publishers of EJournal, The Electronic Journal of Communication, the Journal of the International Academy of Hospitality Research, New Horizons in Adult Education, the Newsletter on Serials Pricing Issues, Postmodern Culture, and PSYCOLOQUY as well as a guide to the important LISTSERV software. It also has a substantial symposium about network-based information resources and scholarly communication, plus a paper on machine-readable data files in libraries.

Volume three has papers on campus-wide information systems and tools, including UC Berkeley's Infocal Campus Information Service, HYTELNET, LIBS Internet Access Software, and nonbibliographic applications of Z39.50. It includes an in-depth investigation of the future of electronic publishing, a paper on The Online Journal of Current Clinical Trials, and a bibliography about electronic publishing on networks. It also contains papers on reshaping library services and staffing to support emerging electronic information systems; the Canadian Network for the Advancement of Research, Industry, and Education; and search failures in information retrieval systems.

All three volumes include columns by Walt Crawford and Martin Halbert, plus book reviews. Volume three introduced a new columnist, Priscilla Caplan. Topics covered include artificial intelligence, the Common Command Language, copyright and digital media, enhanced OPACs, help systems, hypermedia, Internet resources, and USMARC format integration.

Contact the Editor-in-Chief, Charles W. Bailey, Jr. (LIB3@UHUPVM1), for further information about the PACS Review.

An electronic newsletter, Public-Access Computer Systems News, is also distributed on PACS-L. The first issue was published in March 1990. Issues are sent out as messages on PACS-L. Back issues are stored on the list server. The newsletter is cataloged on OCLC and RLIN. For further information, contact the Co-Editor, Dana Rooks, LIBL@UHUPVM1.

Information Systems Instruction & Support, the Library, the University of California at Berkeley distributes its electronic newsletter, Current Cites, on PACS-L.

A second list, PACS-P, was established in January 1991 for users that want to receive PACS-L publications, but do not want to receive messages from PACS-L users. PACS-P serves over 1,420 users in 43 countries.

#### Selected Commands

To join PACS-L, send the following e-mail message to LISTSERV@UHUPVM1: SUBSCRIBE PACS-L First Name Last Name. (The UH list server also has an Internet address: LISTSERV@UHUPVM1.UH.EDU.)

To receive the PACS-L publications only (no messages from PACS-L users), send the following message to LISTSERV@UHUPVM1: SUBSCRIBE PACS-P First Name Last Name. Do NOT subscribe to both PACS-L and PACS-P; PACS-L users receive all publications as part of their subscription.

To sign off PACS-L, send the following e-mail message to LISTSERV@UHUPVM1: UNSUBSCRIBE PACS-L.

To stop PACS-L mail when you go on vacation, send the following e-mail message to LISTSERV@UHUPVM1: SET PACS-L NOMAIL.

To resume PACS-L mail delivery, send the following e-mail message to `LISTSERV@UHUPVM1`:  
`SET PACS-L MAIL`.

To determine what your PACS-L distribution settings are, send the following message to `LISTSERV@UHUPVM1`: `QUERY PACS-L`. This is a useful command to try if you stop receiving PACS-L mail. The moderators may have had to set you to `NOMAIL` because of problems with your e-mail account.

To send a message to the PACS-L, send your e-mail message to `PACS-L@UHUPVM1`.

To obtain a list of PACS-L users, send the following e-mail message to `LISTSERV@UHUPVM1`:  
`REVIEW PACS-L F=MAIL`.

To receive full documentation about searching the message database, send the following e-mail message to `LISTSERV@UHUPVM1`: `INFO DATABASE`. (A brief tutorial is also available. Send the message `GET SEARCH DOC F=MAIL` to `LISTSERV@UHUPVM1`.)

To see what files are available, send the following e-mail message to `LISTSERV@UHUPVM1`:  
`INDEX PACS-L F=MAIL`.

The file name for a PACS Review table of contents file starts with the word `CONTENTS`. For example: `CONTENTS PRV3N8`.

The file name for a PACS News issue file starts with the word `PACSNEWS`. For example: `PACSNEWS V3N16`.

The file name for a Current Cites issue file starts with the word `CURRENTC`. For example: `CURRENTC V3N12`.

To retrieve a file, send the following e-mail message to `LISTSERV@UHUPVM1`: `GET File Name File Type`.

To have a file sent via e-mail instead of via file transfer, add `"F=MAIL"` after the `GET` command. For example, to retrieve `CONTENTS PRV2N1` via e-mail, send the following e-mail message to `LISTSERV@UHUPVM1`: `GET CONTENTS PRV2N1 F=MAIL`.

To retrieve the cumulative index for volumes one to three of The Public-Access Computer Systems Review, send the following e-mail message to `LISTSERV@UHUPVM1`: `GET INDEX PRV1 F=MAIL`.

For More Information About PACS-L

Bailey, Jr., Charles W. "Electronic (Online) Publishing in Action . . . The Public-Access Computer Systems Review and Other Electronic Serials." Online 15 (January 1991): 28-35.

Bailey, Jr., Charles W. "The Public-Access Computer Systems Forum: A Computer Conference on BITNET." Library Software Review 9 (March-April 1990): 71-74.

Revised 6/1/93

## **CompuServe**

CompuServe is an online network that's been around just over 10 years. The number of services available here is staggering... as are the charges if you get carried away with using the system.

There are a number of other similar services available (GENIE, DELPHI, AMERICA ONLINE, etc), but none offer the variety or depth of the CompuServe universe.

What can you do via CompuServe? Access ZiffNet; send mail to other users; send faxes to any fax machine; access the Internet (for messages of 50K or less only); download any of thousands of SHAREWARE programs; talk directly to vendors and users of products from hundreds of companies (Novell, QuarterDeck, TurboPower Software, Borland, and Microsoft); shop over 100 stores in the electronic mall; access a multitude of information systems (e.g., Books in Print, Computer Library, Magazine Database Plus, IQ Quest (indexing 850 publications), Executive News Service, UK Company Library; join any of the many forums available on the system to talk with others who share your interest; and more...

Customer service: 1-800-848-8199

[Access phone numbers](#)

[Cost?](#)

[Forum list](#)

[Navigation tools](#)

[How to email a compuserve user via the internet](#)

## **Comparative review of online services**

The February 23, 1993 issue of *PC Magazine* (volume 12, number 4, pages 303-326) contains an in-depth review of five such services: America Online, CompuServe, Delphi, GEnie, and Prodigy. Several charts compare cost, offerings, availability, and function of the competing services...with CompuServe earning the 'Editor's Choice' award.

**Delphi**

Note that DELPHI currently offers some levels of internet access to users of their service.



## **Cost of CompuServe?**

Standard Plan

Alternative Plan

## **CompuServe navigators**

CIM and CIM/WIN (for Windows) are automated access managers for the CompuServe system. Both programs provide a user-friendly interface to the CompuServe universe-- supporting your mouse, enabling background downloading, and offline mail processing. There is a fee for each of these programs but a usage credit is issued for the software cost...yielding in-effect a free program.

Another package (my personal preference) is OZCIS - an excellent (and free!) package that will surely reduce the time you spend online. OZCIS is much faster than CompuServe's CIM products.

To get a copy of **OZCIS**, visit IBMCOM forum, library 9 or call [GMUtant OnLine BBS](#).

## **Standard Plan**

Effective 28 February, 1993, the Standard Pricing Plan includes unlimited connect time to use a wide variety of services for a membership of \$8.95 per month. New members will not be charged a membership of \$8.95 until the second month of membership.

The Standard Pricing Plan includes unlimited connect time to the services listed below. For other services, hourly connect rates apply.

### **NEWS, SPORTS, WEATHER**

- Associated Press Online: Hourly News Summaries, Sports, Entertainment, Business News, This Day In History
- Accu-Weather Maps/Reports
- National Weather Service
- UK News Clips
- UK Sports Clips
- UK Weather

### **REFERENCE LIBRARY**

- Consumer Reports
- Grolier's Academic American Encyclopedia
- Handicapped Users' Database
- HealthNet
- Peterson's College Database
- Rehabilitation Database

### **SHOPPING**

- The Electronic Mall
- Shopper's Advantage (Discount Shopping Club)

### **MONEY TALKS**

- Basic Current Stock Quotes
- FundWatch Online By Money Magazine
- Issue/Symbol Reference
- Mortgage Calculator

### **GAMES & ENTERTAINMENT**

- Black Dragon
- CastleQuest
- Classic Adventure
- Enhanced Adventure
- Hangman
- Roger Ebert's Movie Reviews
- Science Trivia Quiz
- ShowBizQuiz
- The Grolier Whiz Quiz

### **COMMUNICATION EXCHANGE**

- Ask Customer Service
- Classified Ads (read only)

CompuServe Mail (limited to 50 messages per month)  
Directory of Members  
DOSCIM Support Forum  
Help Forum  
MACCIM Support Forum  
Navigator Support Forum  
Practice Forum  
WinCIM Support Forum

#### TRAVEL AND LEISURE

Department of State Advisories  
Travelshopper and EAASY SABRE (airline, hotel, rental car info and reservations)  
Visa Advisors  
Zagat Restaurant Survey

### **Hourly Connect Rates (Standard Plan)**

Hourly connect time charges apply for all usage of extended services for members on the Standard Pricing Plan.

Rates are quoted in US dollars, effective 28 February, 1993:

Standard Pricing Plan:

300 baud.....\$ 6.00/hour  
1200,2400 baud..\$ 8.00/hour  
9600 baud.....\$16.00/hour

Connect time is billed in one minute increments, with a minimum of one minute per session. Connect time rates do not include communications (network) charges or premium surcharges, which are billed in addition to hourly connect time charges.

## **Alternative Pricing Plan**

Effective 28 February, 1993, members on the Alternative Pricing Plan are charged a \$2.50 monthly membership support fee which supports unlimited connect time to use online Membership Support services (GO FREE, GO MEMBER). All other usage is billed at the hourly connect rates based on baud rate, plus any applicable network charges and premium surcharges. Hourly connect time charges are billed in one-minute increments, with a one minute minimum charge per session.

300 baud	\$6.30 per hour
1200,2400 baud	\$12.80 per hour
9600 baud	\$22.80 per hour

## Complete list of CompuServe forums

Forum name	GO ...
ACIUS	ACIUS
AI Expert	AIEXPERT
APPC Info Exchange	APPCFORUM
ASP/Shareware	ASPFORUM
Adobe	ADOBE
Aldus Customer Service	ALDSVC
Aldus	ALDUSFORUM
Aldus Special Programs	ALDUSSP
Amiga Arts	AMIGAARTS
Amiga Tech	AMIGATECH
Amiga User's	AMIGAUSER
Amiga Vendor	AMIGAVENDOR
Apple II Programmers	APPROG
Apple II Users	APPUSER
Apple II Vendor	APIIVEN
Aquaria/Fish	FISHNET
Artisoft	ARTISOFT
Ask3Com	ASKFORUM
Astronomy	ASTROFORUM
Atari 8-Bit	ATARI8
Atari Portfolio	APORTFOLIO
Atari ST Arts	ATARIARTS
Atari ST Productivity	ATARIPRO
Atari Vendor	ATARIVEN
Attn. Deficit Disorder	ADD
Autodesk AutoCAD	ACAD
Autodesk Retail	ARETAIL
Autodesk Software	ASOFT
Automobile	CARS
Aviation	AVSIG
BASIS International	BASIS
Bacchus Wine	WINEFORUM
Banyan	BANFORUM
Blyth	BLYTH
Borland Applications	BORAPP
Borland C/DOS	BCPPDOS
Borland C/Windows	BCPPWIN
Borland Dbase Products	BORDB
Borland Developer Tool	BDEVTOOLS
Borland GmbH	BORGMBH
Borland Paradox/DOS	PDOXDOS
Borland Paradox/Windows	PDOXWIN
Borland PASCAL	BPASCAL
Borland Quattro Pro	QUATTROPRO
Borland dBASE	DBASE
Broadcast Professionals	BPFORUM
CADD/CAM/CAE Vendor	CADDVEN
CASE DCI	CASEFORUM
CB	CBFORUM
CDROM	CDROM
CDROM Vendor	CDVEN

CIM Support CIMSUPPORT  
 CIM/Windows Support WCIMSUPPORT  
 CP/M Users Group CPMFORUM  
 CTOS/Open CTOS  
 Cabletron Systems CTRONFORUM  
 Cadence CADENCE  
 California CALFORUM  
 Cancer CANCER  
 Cannon Support CAN-10  
 Canopus Research CANOPUS  
 Central Point DOS CPSDOS  
 Central Point CPSWIN  
 Chess CHESSFORUM  
 Clarion CLARION  
 Claris CLARIS  
 Client Server Computing MSNETWORKS  
 Coin/Stamp/Collectibles COLLECT  
 Color Computer (tandy) COCO  
 Comics/Animation COMICS  
 Commodore Applications CBMAPP  
 Commodore Art/Games CBMART  
 Commodore Service CBMSERVICE  
 Compaq Computer CPQFORUM  
 CompuAdd COMPUADD  
 CompuServe Help (FREE) HELPFORUM  
 CompuServe Pacific PACFORUM  
 Computer Art COMART  
 Computer Assoc App Dev CAIDEV  
 Computer Assoc Clipper CLIPPER  
 Computer Assoc ClipperGermany CLIPGER  
 Computer Assoc Micro Germany CAMICRO  
 Computer Assoc Prof Solutions CAIPRO  
 Computer Assoc VAX/UNIX CAIMINI  
 Computer Club CLUB  
 Computer Consultant's CONSULT  
 Computer Language CLMFORUM  
 Computer Training DPTRAIN  
 Consumer Electronics CEFORUM  
 Cooks Online COOKS  
 Corel Support COREL  
 Court Reporters CRFORUM  
 Crafts CRAFTS  
 Crosstalk XTALK  
 DATASTORM DATASTORM  
 DBMS Magazine DBMSFORUM  
 DEC PC DECPC  
 DEC PC Integration DECPCI  
 DELL DELL  
 Data Access Corp. DACCESS  
 Data Based Advisor DBADVISOR  
 DataEase International DATAEASE  
 DaVinci DAVINCI  
 Dear FocWizardss FOCWIZARD  
 Delrine Technology DELRINA  
 Desktop Publish. Vendor DTPVENDOR



Desktop Publishing	DTPFORUM
Deutsches Computer	GERNET
Diabetes	DIABETES
Digitalk	DIGITALK
Disabilities	DISABILITIES
Dr. Dobbs Journal	DDJFORUM
Dr. Neuhaus	NHDFORUM
EICON Technology	EICON
Earth	EARTH
Education	EDFORUM
Educational Research	EDRESEARCH
Electronic Frontier	EFFSIG
Engineering Automation	LEAP
Epson	EPSON
European Comm. Telework	ECTF
European	EURFORUM
Federation Intl Distributions	FEDERATION
Fifth Generation	FIFTHGEN
Fine Art	FINEART
Fishnet - ADC	AQUADATA
Flight Simulator	FSFORUM
Florida	FLORIDA
Florida Today	FLATODAY
FocServices	FOCSERVICES
Focus User's Group	FUSE
Foreign Lang. Education	FLEFO
Forth/Creative Solution	FORTH
Fox Software	FOXFORUM
Game Publishers A	GAMAPUB
Game Publishers B	GAMPUB
Gamers	GAMERS
Gardening	GARDENING
Genealogy	ROOTS
General Computing	GENCOM
Global Crisis	CRISIS
Graphics Corner	CORNER
Graphics Developers	GRAPHDEV
Graphics Gallery	GALLERY
Graphics Plus	GRAPHPLUS
Graphics Support	GRAPHSUPPORT
Graphics Vendor	GRAPHVEN
Graphics Vendor B	GRAPHBVEN
HP Handheld	HPHAND
HP Peripherals	HPPER
HP Systems	HPSYS
HamNet <Ham Radio>	HAMNET
Hayes	HAYFORUM
Health & Fitness	GOODHEALTH
Human Sexuality Adult	HSX200
Human Sexuality Open	HSX100
Human Society of U.S.	HSUS
IBM Applications	IBMAPP
IBM Bulletin Board	IBMBBS
IBM Communications	IBMCOM
IBM Desktop Software	IBMDESK

IBM Hardware	IBMHW
IBM Lan Mgmt Utilities/2	LMU2FORUM
IBM New Users	IBMNEW
IBM OS/2 Developer's #1	OS2DF1
IBM OS/2 Developer's #2	OS2DF2
IBM OS/2 PSP Beta	PSPBETA
IBM OS/2 Support	OS2SUPPORT
IBM OS/2 User's	OS2USER
IBM OS/2 Vendor	OS2AVEN
IBM Programming	IBMPRO
IBM Systems/Utilities	IBMSYS
IBM/Special Needs	IBMSPECIAL
IBM ThinkPad	THINKPAD
Int'l Entrepreneurs Network	USEN
International Trade	TRADE
Intel Access/iRUG	INTELACCESS
Intel	INTELFORUM
Investors	INVFORUM
Issues	ISSUESFORUM
Javelin/EXPRESS	IRIFORUM
Journalism	JFORUM
Kodak CD	KODAK
LDC Word Processing	LOTUSWP
LDOS/TRSDOS6 Users	LDOS
LOGO	LOGOFORUM
Lan Magazine	LANMAG
Lan Technology	LANTECH
Legal	LAWSIG
Literary	LITFORUM
Logitech	LOGITECH
Lotus GmbH	LOTGER
Lotus Spreadsheets	LOTUSA
Lotus Words & Pixels	LOTUSB
MECA Software	MECA
MIDI Vendor A	MIDIAVENDOR
MIDI Vendor B	MIDIBVENDOR
MIDI Vendor C	MIDICVENDOR
MIDI/Music	MIDIFORUM
Mac A Vendor	MACAVEN
Mac Applications	MACAP
Mac B Vendor	MACBVEN
Mac C Vendor	MACCVEN
Mac D Vendor	MACDVEN
Mac CIM Support (FREE)	MCIMSUPPORT
Mac Communications	MACCOMM
Mac Community Clubhouse	MACCLUB
Mac Developers	MACDEV
Mac Fun/Entertainment	MACFUN
Mac Hardware	MACHW
Mac Hypertext	MACHYPER
Mac New Users/Help	MACNEW
Mac System Software	MACSYS
Macromedia	MACROMEDIA
Markt & Technik Deutschland	MUTFORUM
Masonry	MASONRY

McAfee Virus Help	VIRUSFORUM
MedSIG	MEDSIG
Mensa	MENSA
Microsoft Applications	MSAPP
Microsoft Access	MSACCESS
Microsoft BASIC	MSBASIC
Microsoft Benelux	MSBF
Microsoft Centrl Europe	MSCE
Microsoft Centrl Europe System	MSCESYSTEM
Microsoft DOS	MSDOS
Microsoft Developer Network	MSDNLIB
Microsoft Developer Relations	MSDR
Microsoft Excel	MSEXCEL
Microsoft Languages	MSLANG
Microsoft SQL Server	MSSQL
Microsoft WIN32	MSWIN32
Microsoft Windows SDK	WINSDK
Microsoft Word	MSWORD
Microsoft Workgroup	MSWRKGRP
Military	MILITARY
Model Aviation	MODELNET
Modem Games	MODEMGAMES
Modem Vendor	MODEMVENDOR
Motor Sports	RACING
Multi-Player Games	MPGAMES
MultiMedia	MULTIMEDIA
MultiMedia Vendor	MULTIVEN
Music/Arts	MUSICARTS
NAIC Investor Education	NAIC
Navigator Support	NAVSUPPORT
NeXT	NEXTFORUM
New Age	NEWAGE
Novell A	NOVA
Novell B	NOVB
Novell C	NOVC
Novell Desktop Systems Group	DRFORUM
Novell Library	NOVLIB
Novell NetWare 2.X	NETW2X
Novell NetWare 3.X	NETW3X
Novell Netware 4.X	NETW4X
Novell User Library	NOVUSER
Novell Vendor	NOVVEN
OS-9	OS9
Office Automation Vendr	OAFORUM
Oracle Support	ORACLE
Outdoors	OUTDOORFORUM
PC Plus/PC Answers	PCPFORUM
PC Vendor A	PCVENA
PC Vendor B	PCVENB
PC Vendor C	PCVENC
PC Vendor D	PCVEND
PC Vendor E	PCVENE
PC Vendor F	PCVENF
PC Vendor G	PCVENG
PDP-11	PDP11

PR & Marketing	PRSIG
Pacific Vendor	PACVENDOR
Packard Bell	PACKARDBELL
Palmtop	PALMTOP
Pen Technology	PENFORUM
Pers.Comp.Mag Europe	PCMFORUM
Pets/Animal	PETS
Photography	PHOTOFORUM
Play-By-Mail Games	PBMGAMES
Political Debate	POLITICS
Portable Programming	CODEPORT
Practical Peripherals	PPIFORUM
Practice (FREE)	PRACTICE
Prisma Deutschland	PRISMA
Quarterdeck Support	QUARTERDECK
Quick Pictures	QPICS
Religion	RELIGION
Revelation Tech	REVELATION
RockNet	ROCKNET
Role-Playing Games	RPGAMES
Safetynet	SAFETY
Sailing	SAILING
Santa Cruz Operation	SCOFORUM
Science/Math Education	SCIENCE
ScienceFiction &Fantasy	SCI-FI
Scuba	DIVING
Seniors	SENIORS
ShowBiz	SHOWBIZ
Siemens Auomatisierungs	AUTFORUM
Sight & Sound	SSFORUM
Software Publisher Assn	SPAFORUM
Software Publishing	SPCFORUM
Solutions Australia	SOLUTIONS
Space/Astronomy	SPACEFORUM
Spinnaker Software	SPINNAKER
Sports	FANS
Stac Electronics	STACKER
Standard Microsystem	SMC
Students'	STUFO
Sun Select	SUNSELECT
Symantec AntiVirus	SYMVIRUS
Symantec Applications	SYMAPPS
Symantec Development	SYMDEVTOOL
Symantec/Norton Utility	SYMUTIL
TAP	TAP
Tandy Model 100	M100SIG
Tandy Professional	TRS80PRO
Telecommunication Issues	TELECOM
Texas Instrumentss	TIFORUM
Thomas-Conrad Support	TCCFORUM
Toshiba	TOSHIBA
Toshiba GmbH	TOSHGER
TrainNet	TRAINNET
Travel	TRAVSIG
UK Computer Shopper	UKSHOPPER

UK Computing	UKCOMPUTING
UK	UKFORUM
UK Share	UKSHARE
Ultimedia Hardware Plus	ULTIHW
Ultimedia Tools Series	AULTIATools
Ultimedia Tools Series	BULTIBTools
Unix	UNIXFORUM
UnixWare	UNIXWARE
UserLand	USERLAND
VAX	VAXFORUM
Venture Software	VENTURA
WRQ/Reflection	WRQFORUM
Wang Support	WANGFORUM
White House	WHITEHOUSE
Windows 3rd Party A	WINAPA
Windows 3rd Party B	WINAPB
Windows 3rd Party C	WINAPC
Windows 3rd Party D	WINAPD
Windows Extensions	WINEXT
Windows Fun	WINFUN
Windows Objects	WINOBJECTS
Windows Shareware	WINSHARE
Windows Support	MSWIN
Windows Users Network	WUGNET
WinNT Pre-Release	WINNT
Wolfram Research	WOLFRAM
WordPerfect Customer Support	WPCS
WordPerfect Users	WPUSERS
WordStar	WORDSTAR
Working-From-Home	WORK
Worldwide Car Network	WWCAR
Zenith Data Systems	ZENITH

### **Sending email to a compuserve user via the internet**

Assuming you know the individuals compuserve address (e.g., 70404,3376 is mine), you can send an email message via the internet.

Here's the address you' use to send me a message (e.g., a correction an entry in the IPWIN database):

70404.3376@compuserve.com

Note that the period replaces the ':' of a typical CIS address.

### **Sending CIS mail to an Internet address**

To send CIS mail to an internet address, use the following form:

Internet:jdoe@domain.name

Thus to send wallyg@fen1.gmu.edu mail from a CIS account you'd address it as:

Internet:wallyg@fen1.gmu.edu

## CompuServe Access Numbers

phone	city	speed	supported
201/783-5400	Montclair, NJ	300/1200/2400(cps)	224MNP
201/783-0644	Montclair, NJ	9600(cps)	V.32/v.42
201/984-7921	Morristown, NJ	300/1200/2400(cps)	224MNP
201/984-7633	Morristown, NJ	1200(cps)	VADIC
201/984-5113	Morristown, NJ	9600(cps)	V.32/v.42
201/643-0404	Newark, NJ	300/1200/2400(cps)	224MNP
201/623-5666	Newark, NJ	9600(cps)	v.32/v.42
201/444-3913	Ridgewood, NJ	300/1200/2400(cps)	224MNP
201/368-8300	Rochelle Park, NJ	300/1200/2400(cps)	224MNP
201/368-0912	Rochelle Park, NJ	9600(cps)	v.32/v.42
201/696-6104	Wayne, NJ	300/1200/2400(cps)	224MNP
202/388-3303	Washington, DC	300/1200/2400(cps)	224MNP
203/926-0316	Bridgeport, CT	300/1200/2400(cps)	224MNP
203/929-4918	Bridgeport, CT	9600(cps)	v.32/v.42
203/794-9169	Danbury, CT	300/1200/2400(cps)	224MNP
203/468-7165	East Haven, CT	300/1200/2400(cps)	224MNP
203/466-3619	East Haven, CT	9600(cps)	v.32/v.42
203/548-9369	Hartford, CT	300/1200/2400(cps)	224MNP
203/727-8708	Hartford, CT	9600(cps)	v.32/v.42
203/444-2509	New London, CT	300/1200/2400(cps)	224MNP
203/324-8943	Stamford, CT	300/1200/2400(cps)	224MNP
203/324-1115	Stamford, CT	9600(cps)	v.32/v.42
203/756-5022	Waterbury, CT	300/1200/2400(cps)	224MNP
203/756-2832	Waterbury, CT	1200	CPS VADIC
203/222-8558	Westport, CT	300/1200/2400(cps)	224MNP
205/558-4000	Birmingham, AL	300/1200/2400(cps)	224MNP
205/933-6212	Birmingham, AL	9600(cps)	v.32/v.42
205/671-3917	Dothan, AL	300/1200/2400(cps)	224MNP
205/766-9925	Florence, AL	300/1200/2400(cps)	224MNP
205/536-1346	Huntsville, AL	300/1200/2400(cps)	224MNP
205/478-0688	Mobile, AL	300/1200/2400(cps)	224MNP
205/260-0171	Montgomery, AL	300/1200/2400(cps)	224MNP
205/270-5845	Montgomery, AL	9600(cps)	v.32/v.42
205/553-1120	Tuscaloosa, AL	300/1200/2400(cps)	224MNP
206/332-8100	Blaine, WA	300/1200/2400(cps)	224MNP
206/252-3550	Everett, WA	300/1200/2400(cps)	224MNP
206/754-2200	Olympia, WA	300/1200/2400(cps)	224MNP
206/242-5767	Seattle, WA	300/1200/2400(cps)	224MNP
206/242-9992	Seattle, WA	9600(cps)	v.32/v.42
206/922-7181	Tacoma, WA	300/1200/2400(cps)	224MNP
206/922-1246	Tacoma, WA	9600(cps)	v.32/v.42
207/871-1276	Portland, ME	300/1200/2400(cps)	224MNP
207/775-6249	Portland, ME	9600(cps)	v.32/v.42
208/344-1845	Boise, ID	300/1200/2400(cps)	224MNP
208/788-5060	Ketchum, ID	300/1200/2400(cps)	224MNP
208/232-9452	Pocatello, ID	300/1200/2400(cps)	224MNP
209/251-2890	Fresno, CA	300/1200/2400(cps)	224MNP
209/453-1487	Fresno, CA	9600(cps)	v.32/v.42
209/521-9970	Modesto, CA	300/1200/2400(cps)	224MNP
209/465-7284	Stockton, CA	300/1200/2400(cps)	224MNP
210/233-6682	Brownsville, TX	300/1200/2400(cps)	224MNP

210/722-8008 Laredo, TX 300/1200/2400(cps) 224MNP  
210/736-8600 San Antonio, TX 300/1200/2400(cps) 224MNP  
210/736-8645 San Antonio, TX 9600(cps) v.32/v.42  
212/608-9012 New York, NY 1200 CPS VADIC  
212/758-0330 New York, NY 1200 CPS VADIC  
212/608-6021 New York, NY 300/1200/2400(cps) 224MNP  
212/888-1020 New York, NY 300/1200/2400(cps) 224MNP  
212/766-2080 New York, NY 9600(cps) v.32/v.42  
212/593-3972 New York, NY 9600(cps) v.32/v.42  
213/629-4095 Los Angeles, CA 300/1200/2400(cps) 224MNP  
213/689-9019 Los Angeles, CA 1200 CPS VADIC  
213/624-3730 Los Angeles, CA 9600(cps) v.32/v.42  
214/953-1168 Dallas, TX 1200 CPS VADIC  
214/953-0436 Dallas, TX 300/1200/2400(cps) 224MNP  
214/720-9183 Dallas, TX 9600(cps) v.32/v.42  
215/776-1087, Allentown, PA 300/1200/2400(cps) 224MNP  
215/776-0801, Allentown, PA 9600(cps) v.32/v.42  
215/277-3708 Norristown, PA 300/1200/2400(cps) 224MNP  
215/277-1301 Norristown, PA 9600(cps) v.32/v.42  
215/563-1305 Philadelphia, PA 300/1200/2400(cps) 224MNP  
215/561-1634 Philadelphia, PA 9600(cps) v.32/v.42  
215/375-0914 Reading, PA 300/1200/2400(cps) 224MNP  
216/869-5085 Akron, OH 300/1200/2400(cps) 224MNP  
216/836-0679 Akron, OH 9600(cps) v.32/v.42  
216/452-3491 Canton, OH 300/1200/2400(cps) 224MNP  
216/781-4135 Cleveland, OH 300/1200/2400(cps) 224MNP  
216/781-7598 Cleveland, OH 9600(cps) v.32/v.42  
216/678-5066 Ravenna, OH 300/1200/2400(cps) 224MNP  
216/757-0084 Youngstown, OH 300/1200/2400(cps) 224MNP  
217/352-0041 Champaign, IL 300/1200/2400(cps) 224MNP  
217/356-1082 Champaign, IL 9600(cps) v.32/v.42  
217/422-2075 Decatur, IL 300/1200/2400(cps) 224MNP  
217/789-0944 Springfield, IL 300/1200/2400(cps) 224MNP  
218/722-0058 Duluth, MN 300/1200/2400(cps) 224MNP  
219/294-8629 Elkhart, IN 300/1200/2400(cps) 224MNP  
219/447-0510 Ft. Wayne, IN 300/1200/2400(cps) 224MNP  
219/884-4940 Gary, IN 300/1200/2400(cps) 224MNP  
219/271-0489 South Bend, IN 1200 CPS VADIC  
219/271-9197 South Bend, IN 300/1200/2400(cps) 224MNP  
219/271-0016 South Bend, IN 9600(cps) v.32/v.42  
219/267-7712 Warsaw, IN 300/1200/2400(cps) 224MNP  
301/403-1600 Hyattsville, MD 300/1200/2400(cps) 224MNP  
301/403-1687 Hyattsville, MD 9600(cps) v.32/v.42  
302/945-5245 Rehoboth Beach, DE 300/1200/2400(cps) 224MNP  
302/731-2965 Wilmington, DE 300/1200/2400(cps) 224MNP  
302/456-3542 Wilmington, DE 9600(cps) v.32/v.42  
303/925-5892 Aspen, CO 300/1200/2400(cps) 224MNP  
303/623-4711 Denver, CO 1200 CPS VADIC  
303/629-9145 Denver, CO 300/1200/2400(cps) 224MNP  
303/595-0123 Denver, CO 9600(cps) v.32/v.42  
303/668-0991 Dillon, CO 300/1200/2400(cps) 224MNP  
303/259-5880 Durango, CO 300/1200/2400(cps) 224MNP  
303/223-1535 Ft. Collins, CO 300/1200/2400(cps) 224MNP  
303/945-0351 Glenwood Spring, CO 300/1200/2400(cps) 224MNP  
303/241-1885 Grand Junction, CO 300/1200/2400(cps) 224MNP



303/356-1180 Greeley, CO 300/1200/2400(cps) 224MNP  
303/651-3207 Longmont, CO 300/1200/2400(cps) 224MNP  
303/663-0992 Loveland, CO 300/1200/2400(cps) 224MNP  
303/879-4900 Steamboat Spngs, CO 300/1200/2400(cps) 224MNP  
303/949-1336 Vail, CO 300/1200/2400(cps) 224MNP  
304/345-9730 Charleston, WV 300/1200/2400(cps) 224MNP  
304/733-4010 Huntington, WV 300/1200/2400(cps) 224MNP  
304/291-5884 Morgantown, WV 300/1200/2400(cps) 224MNP  
304/291-6783 Morgantown, WV 9600(cps) v.32/v.42  
304/485-4225 Parkersburg, WV 300/1200/2400(cps) 224MNP  
304/233-9470 Wheeling, WV 300/1200/2400(cps) 224MNP  
305/429-0552 Deerfield Beach, FL 300/1200/2400(cps) 224MNP  
305/426-0228 Deerfield Beach FL 9600(cps) v.32/v.42  
305/772-1339 Ft. Lauderdale, FL 300/1200/2400(cps) 224MNP  
305/772-9264 Ft. Lauderdale, FL 9600(cps) v.32/v.42  
305/262-1643 Miami, FL 300/1200/2400(cps) 224MNP  
305/262-9325 Miami, FL 9600(cps) v.32/v.42  
307/234-6914 Casper, WY 300/1200/2400(cps) 224MNP  
307/637-3027 Cheyenne, WY 300/1200/2400(cps) 224MNP  
307/733-1640 Jackson, WY 300/1200/2400(cps) 224MNP  
307/742-9641 Laramie, WY 300/1200/2400(cps) 224MNP  
307/742-2320 Laramie, WY 9600(cps) v.32/v.42  
309/827-3343 Bloomington, IL 300/1200/2400(cps) 224MNP  
309/685-1275 Peoria, IL 300/1200/2400(cps) 224MNP  
310/397-7887 Culver City, CA 300/1200/2400(cps) 224MNP  
310/390-4188 Culver City, CA 9600(cps) v.32/v.42  
310/599-5966 Long Beach, CA 300/1200/2400(cps) 224MNP  
310/591-5768 Long Beach, CA 9600(cps) v.32/v.42  
310/214-1442 Torrance , CA 300/1200/2400(cps) 224MNP  
310/370-2831 Torrance, CA 9600(cps) v.32/v.42  
312/372-1402 Chicago, IL 1200 CPS VADIC  
312/263-5636 Chicago, IL 300/1200/2400(cps) 224MNP  
312/693-0330 Chicago, IL 300/1200/2400(cps) 224MNP  
312/201-0711 Chicago, IL 9600(cps) v.32/v.42  
312/693-4100 Chicago, IL 9600(cps) v.32/v.42  
313/769-2012 Ann Arbor MI 300/1200/2400(cps) 224MNP  
313/761-9300 Ann Arbor, MI 9600(cps) v.32/v.42  
313/535-1122 Detroit, MI 300/1200/2400(cps) 224MNP  
313/535-0084 Detroit, MI 1200 CPS VADIC  
313/535-1466 Detroit, MI 9600(cps) v.32/v.42  
313/238-6202 Flint, MI 300/1200/2400(cps) 224MNP  
313/463-1945 Mt. Clemens, MI 300/1200/2400(cps) 224MNP  
313/334-2900 Pontiac, MI 300/1200/2400(cps) 224MNP  
313/335-2680 Pontiac, MI 9600(cps) v.32/v.42  
313/362-3242 Troy, MI 300/1200/2400(cps) 224MNP  
313/244-8740 Troy, MI 9600(cps) v.32/v.42  
314/875-0746 Columbia, MO 300/1200/2400(cps) 224MNP  
314/635-9170 Jefferson City, MO 300/1200/2400(cps) 224MNP  
314/241-3110 St. Louis, MO 1200 CPS VADIC  
314/241-5337 St. Louis, MO 300/1200/2400(cps) 224MNP  
314/421-5651 St. Louis, MO 9600(cps) v.32/v.42  
315/451-0337 Syracuse, NY 300/1200/2400(cps) 224MNP  
315/451-8093 Syracuse, NY 9600(cps) v.32/v.42  
315/737-2101 Utica, NY 300/1200/2400(cps) 224MNP  
316/689-8132 Wichita, KS 300/1200/2400(cps) 224MNP

316/687-0634 Wichita, KS 9600(cps) v.32/v.42  
317/638-5785 Indianapolis, IN 1200 CPS VADIC  
317/631-6824 Indianapolis, IN 300/1200/2400(cps) 224MNP  
317/638-8129 Indianapolis, IN 9600(cps) v.32/v.42  
317/448-9925 Lafayette, IN 300/1200/2400(cps) 224MNP  
317/447-5557 Lafayette, IN 9600(cps) v.32/v.42  
317/284-3812 Muncie, IN 300/1200/2400(cps) 224MNP  
317/935-0061 Richmond, IN 300/1200/2400(cps) 224MNP  
318/234-9880 Lafayette, LA 300/1200/2400(cps) 224MNP  
318/433-0215 Lake Charles, LA 300/1200/2400(cps) 224MNP  
318/324-9982 Monroe, LA 300/1200/2400(cps) 224MNP  
318/424-5380 Shreveport, LA 300/1200/2400(cps) 224MNP  
319/364-1437 Cedar Rapids, IA 300/1200/2400(cps) 224MNP  
319/323-7388 Davenport, IA 300/1200/2400(cps) 224MNP  
401/438-7960 Providence, RI 300/1200/2400(cps) 224MNP  
402/474-9005 Lincoln, NE 300/1200/2400(cps) 224MNP  
402/474-2316 Lincoln, NE 9600(cps) v.32/v.42  
402/345-3602 Omaha, NE 1200 CPS VADIC  
402/345-5012 Omaha, NE 300/1200/2400(cps) 224MNP  
402/345-9557 Omaha, NE 9600(cps) v.32/v.42  
403/466-5083 Edmonton, AB 300/1200/2400(cps) 224MNP  
403/440-2744 Edmonton, AB 9600(cps) v.32/v.42  
404/266-7060 Atlanta, GA 300/1200/2400(cps) 224MNP  
404/261-0646 Atlanta, GA 1200 CPS VADIC  
404/841-0578 Atlanta, GA 9600(cps) v.32/v.42  
405/945-1018 Oklahoma City, OK 300/1200/2400(cps) 224MNP  
405/942-7278 Oklahoma City, OK 9600(cps) v.32/v.42  
405/624-5107 Stillwater, OK 300/1200/2400(cps) 224MNP  
406/245-0863 Billings, MT 300/1200/2400(cps) 224MNP  
406/449-3680 Helena, MT 300/1200/2400(cps) 224MNP  
407/933-5703 Kissimmee, FL 300/1200/2400(cps) 224MNP  
407/723-2622 Melbourne, FL 300/1200/2400(cps) 224MNP  
407/896-3053 Orlando, FL 300/1200/2400(cps) 224MNP  
407/896-6122 Orlando, FL 9600(cps) v.32/v.42  
407/778-0550 Vero Beach, FL 300/1200/2400(cps) 224MNP  
407/863-7031 West Palm Beach, FL 300/1200/2400(cps) 224MNP  
407/881-7439 West Palm Beach, FL 1200 CPS VADIC  
407/840-1219 West Palm Beach FL 9600(cps) v.32/v.42  
408/646-1687 Monterey , CA 300/1200/2400(cps) 224MNP  
408/754-2751 Salinas, CA 300/1200/2400(cps) 224MNP  
408/988-5366 Santa Clara, CA 300/1200/2400(cps) 224MNP  
408/727-8113 Santa Clara, CA 9600(cps) v.32/v.42  
408/476-0126 Santa Cruz, CA 300/1200/2400(cps) 224MNP  
408/462-9666 Santa Cruz, CA 9600(cps) v.32/v.42  
409/835-0236 Beaumont, TX 300/1200/2400(cps) 224MNP  
409/696-7986 College Station, TX 300/1200/2400(cps) 224MNP  
409/756-8904 Conroe, TX 300/1200/2400(cps) 224MNP  
409/763-5125 Galveston, TX 300/1200/2400(cps) 224MNP  
410/266-7530 Annapolis, MD 300/1200/2400(cps) 224MNP  
410/832-2702 Baltimore, MD 1200 CPS VADIC  
410/832-0160 Baltimore, MD 300/1200/2400(cps) 224MNP  
410/494-8403 Baltimore, MD 9600(cps) v.32/v.42  
410/548-1502 Ocean City, MD 300/1200/2400(cps) 224MNP  
412/285-8187 Butler, PA 300/1200/2400(cps) 224MNP  
412/261-4192 Pittsburgh, PA 300/1200/2400(cps) 224MNP

412/391-8218 Pittsburgh, PA 1200 CPS VADIC  
412/471-6417 Pittsburgh, PA 9600(cps) v.32/v.42  
413/549-7431 Amherst, MA 300/1200/2400(cps) 224MNP  
413/731-9680 Springfield, MA 300/1200/2400(cps) 224MNP  
413/739-3314 Springfield, MA 9600(cps) v.32/v.42  
414/731-4345 Appleton, WI 300/1200/2400(cps) 224MNP  
414/494-0917 Green Bay, WI 300/1200/2400(cps) 224MNP  
414/453-5132 Milwaukee, WI 300/1200/2400(cps) 224MNP  
414/453-3010 Milwaukee, WI 9600(cps) v.32/v.42  
414/458-3421 Sheboygan, WI 300/1200/2400(cps) 224MNP  
415/296-8362 San Francisco, CA 300/1200/2400(cps) 224MNP  
415/296-8972 San Francisco, CA 1200 CPS VADIC  
415/434-1580 San Francisco, CA 9600(cps) v.32/v.42  
415/591-5415 San Mateo, CA 300/1200/2400(cps) 224MNP  
415/802-0130 San Mateo, CA 9600(cps) v.32/v.42  
415/454-9935 San Rafael, CA 300/1200/2400(cps) 224MNP  
415/721-7226 San Rafael, CA 9600(cps) v.32/v.42  
416/367-8122 Toronto, ON 9600(cps) v.32/v.42  
416/367-1743 Toronto, ON 300/1200/2400(cps) 224MNP  
417/336-5786 Branson, MO 300/1200/2400(cps) 224MNP  
417/887-8422 Springfield, MO 300/1200/2400(cps) 224MNP  
419/243-2818 Toledo, OH 300/1200/2400(cps) 224MNP  
419/242-5706 Toledo, OH 9600(cps) v.32/v.42  
501/521-5386 Fayetteville AR 300/1200/2400(cps) 224MNP  
501/521-3774 Fayetteville, AR 9600(cps) v.32/v.42  
501/376-8374 Little Rock AR 300/1200/2400(cps) 224MNP  
501/376-8544 Little Rock, AR 9600(cps) v.32/v.42  
502/583-1277 Louisville KY 300/1200/2400(cps) 224MNP  
502/568-6250 Louisville, KY 9600(cps) v.32/v.42  
502/683-0777 Owensboro KY 300/1200/2400(cps) 224MNP  
503/967-2460 Albany, OR 300/1200/2400(cps) 224MNP  
503/689-9800 Eugene, OR 300/1200/2400(cps) 224MNP  
503/689-6031 Eugene, OR 9600(cps) v.32/v.42  
503/779-0504 Medford, OR 300/1200/2400(cps) 224MNP  
503/239-6124 Portland, OR 300/1200/2400(cps) 224MNP  
503/238-6729 Portland, OR 9600(cps) v.32/v.42  
503/362-2523 Salem, OR 300/1200/2400(cps) 224MNP  
503/362-0358 Salem, OR 9600(cps) v.32/v.42  
504/383-9801 Baton Rouge LA 300/1200/2400(cps) 224MNP  
504/383-9998 Baton Rouge, LA 9600(cps) v.32/v.42  
504/733-2297 New Orleans LA 300/1200/2400(cps) 224MNP  
504/733-3184 New Orleans, LA 9600(cps) v.32/v.42  
505/265-7046 Albuquerque NM 1200 CPS VADIC  
505/255-8626 Albuquerque NM 300/1200/2400(cps) 224MNP  
505/662-4122 Los Alamos NM 300/1200/2400(cps) 224MNP  
507/388-8723 Mankato MN 300/1200/2400(cps) 224MNP  
507/285-1277 Rochester MN 300/1200/2400(cps) 224MNP  
508/667-2939 Billerica, MA 300/1200/2400(cps) 224MNP  
508/667-1765 Billerica, MA 9600(cps) v.32/v.42  
508/588-1837 Brockton, MA 300/1200/2400(cps) 224MNP  
508/677-0405 Fall River, MA 300/1200/2400(cps) 224MNP  
508/820-9349 Framingham, MA 300/1200/2400(cps) 224MNP  
508/371-0354 Framingham, MA 300/1200/2400(cps) 224MNP  
508/448-3007 Groton, MA 300/1200/2400(cps) 224MNP  
508/568-8019 Hudson, MA 300/1200/2400(cps) 224MNP

508/975-2040 Lawrence, MA 300/1200/2400(cps) 224MNP  
508/897-4746 Maynard, MA 300/1200/2400(cps) 224MNP  
508/359-7603 Medfield, MA 300/1200/2400(cps) 224MNP  
508/533-2722 Medway, MA 300/1200/2400(cps) 224MNP  
508/478-0653 Mendon, MA 300/1200/2400(cps) 224MNP  
508/366-2617 Westborough, MA 300/1200/2400(cps) 224MNP  
508/791-0745 Worcester, MA 300/1200/2400(cps) 224MNP  
508/849-1000 Worcester, MA 9600(cps) v.32/v.42  
509/326-6526 Spokane, WA 300/1200/2400(cps) 224MNP  
509/326-0318 Spokane, WA 9600(cps) v.32/v.42  
510/889-0369 Castro Valley, CA 300/1200/2400(cps) 224MNP  
510/482-0190 Oakland, CA 300/1200/2400(cps) 224MNP  
510/530-3393 Oakland, CA 9600(cps) v.32/v.42  
510/682-0762 Pleasant Hill, CA 300/1200/2400(cps) 224MNP  
510/682-2055 Pleasant Hill, CA 9600(cps) v.32/v.42  
510/373-0546 Pleasanton, CA 300/1200/2400(cps) 224MNP  
512/444-0566 Austin, TX 300/1200/2400(cps) 224MNP  
512/326-1155 Austin, TX 9600(cps) v.32/v.42  
512/882-1465 Corpus Christi, TX 300/1200/2400(cps) 224MNP  
512/887-2891 Corpus Christi, TX 9600(cps) v.32/v.42  
513/771-8543 Cincinnati, OH 300/1200/2400(cps) 224MNP  
513/771-0592 Cincinnati, OH 9600(cps) v.32/v.42  
513/226-1907 Dayton, OH 300/1200/2400(cps) 224MNP  
513/224-4576 Dayton, OH 9600(cps) v.32/v.42  
514/879-8519 Montreal PQ 300/1200/2400(cps) 224MNP  
514/879-5826 Montreal PQ 9600(cps) v.32/v.42  
515/276-5992 Des Moines IA 300/1200/2400(cps) 224MNP  
515/276-7231 Des Moines, IA 9600(cps) v.32/v.42  
516/981-1120 Lake Grove, NY 300/1200/2400(cps) 224MNP  
516/932-2088 Long Island, NY 300/1200/2400(cps) 224MNP  
516/937-1719 Long Island, NY 9600(cps) v.32/v.42  
516/294-4190 Williston Park, NY 300/1200/2400(cps) 224MNP  
517/332-6808 Lansing MI 300/1200/2400(cps) 224MNP  
517/332-7141 Lansing, MI 9600(cps) v.32/v.42  
517/754-9177 Saginaw MI 300/1200/2400(cps) 224MNP  
517/753-5100 Saginaw, MI 9600(cps) v.32/v.42  
518/439-8104, ALbany, NY 300/1200/2400(cps) 224MNP  
601/948-6411 Jackson MS 300/1200/2400(cps) 224MNP  
601/352-5182 Jackson, MS 9600(cps) v.32/v.42  
602/955-1464 Phoenix AZ 300/1200/2400(cps) 224MNP  
602/468-0285 Phoenix, AZ 9600(cps) v.32/v.42  
602/459-6390 Sierra Vista AZ 300/1200/2400(cps) 224MNP  
602/745-8745 Tucson AZ 300/1200/2400(cps) 224MNP  
602/750-9575 Tucson, AZ 1200 CPS VADIC  
602/571-0207 Tucson, AZ 9600(cps) v.32/v.42  
602/782-7191 Yuma AZ 300/1200/2400(cps) 224MNP  
603/225-7322 Concord, NH 9600(cps) v.32/v.42  
603/225-4277 Concord NH 300/1200/2400(cps) 224MNP  
603/625-2940 Manchester NH 300/1200/2400(cps) 224MNP  
603/886-3544 Nashua NH 300/1200/2400(cps) 224MNP  
604/737-2452 Vancouver BC 300/1200/2400(cps) 224MNP  
604/739-8194 Vancouver, BC 9600(cps) v.32/v.42  
605/341-3733 Rapid City SD 300/1200/2400(cps) 224MNP  
606/254-0585 Lexington KY 300/1200/2400(cps) 224MNP  
606/254-6557 Lexington, KY 9600(cps) v.32/v.42

607/724-1171 Binghamton, NY 300/1200/2400(cps) 224MNP  
607/257-0155 Ithaca, NY 300/1200/2400(cps) 224MNP  
607/257-4264 Ithaca, NY 9600(cps) v.32/v.42  
608/785-7530 La Crosse WI 300/1200/2400(cps) 224MNP  
608/256-5346 Madison WI 300/1200/2400(cps) 224MNP  
608/256-6716 Madison, WI 9600(cps) v.32/v.42  
609/645-8778 Atlantic City NJ 300/1200/2400(cps) 224MNP  
609/482-8770 Cherry Hill NJ 300/1200/2400(cps) 224MNP  
609/667-8865 Cherry Hill, NJ 9600(cps) v.32/v.42  
609/921-2207 Princeton NJ 1200 CPS VADIC  
609/921-2855 Princeton NJ 300/1200/2400(cps) 224MNP  
609/497-2384 Princeton, NJ 9600(cps) v.32/v.42  
609/530-9521 Trenton NJ 300/1200/2400(cps) 224MNP  
609/530-1517 Trenton, NJ 9600(cps) v.32/v.42  
612/375-0328 Minneapolis MN 1200 CPS VADIC  
612/339-2507 Minneapolis MN 300/1200/2400(cps) 224MNP  
612/339-1805 Minneapolis, MN 9600(cps) v.32/v.42  
613/830-7385 Ottawa ON 300/1200/2400(cps) 224MNP  
614/592-2109 Athens, OH 300/1200/2400(cps) 224MNP  
614/439-7360 Cambridge, OH 300/1200/2400(cps) 224MNP  
614/442-2082 Columbus, OH 1200 CPS VADIC  
614/457-2105 Columbus, OH 300/1200/2400(cps) 224MNP  
614/761-1133 Columbus, OH 300/1200/2400(cps) 224MNP  
614/876-2116 Columbus, OH 300/1200/2400(cps) 224MNP  
614/792-0669 Columbus, OH 9600(cps) v.32/v.42  
614/587-0932 Granville, OH 300/1200/2400(cps) 224MNP  
615/892-4311 Chattanooga TN 300/1200/2400(cps) 224MNP  
615/928-2644 Johnson City TN 300/1200/2400(cps) 224MNP  
615/522-2152 Knoxville TN 300/1200/2400(cps) 224MNP  
615/971-3774 Knoxville, TN 9600(cps) v.32/v.42  
615/360-7923 Nashville TN 300/1200/2400(cps) 224MNP  
615/367-0014 Nashville, TN 9600(cps) v.32/v.42  
616/957-9733 Grand Rapids MI 300/1200/2400(cps) 224MNP  
616/956-0075 Grand Rapids, MI 9600(cps) v.32/v.42  
616/383-3516 Kalamazoo MI 300/1200/2400(cps) 224MNP  
617/542-1779 Boston, MA 1200 CPS VADIC  
617/482-7061 Boston, MA 300/1200/2400(cps) 224MNP  
617/426-9295 Boston, MA 9600(cps) v.32/v.42  
617/661-7071 Cambridge, MA 9600(cps) v.32/v.42  
617/868-0524 Cambridge, MA 300/1200/2400(cps) 224MNP  
619/498-0099 Chula Vista, CA 300/1200/2400(cps) 224MNP  
619/753-2728 Encinitas, CA 300/1200/2400(cps) 224MNP  
619/753-0235 Encinitas, CA 9600(cps) v.32/v.42  
619/325-4584 Palm Springs, CA 300/1200/2400(cps) 224MNP  
619/569-4282 San Diego, CA 300/1200/2400(cps) 224MNP  
619/467-9508 San Diego, CA 9600(cps) v.32/v.42  
619/471-0960 San Marcos, CA 300/1200/2400(cps) 224MNP  
701/232-0904 Fargo, ND 300/1200/2400(cps) 224MNP  
702/737-1292 Las Vegas, NV 300/1200/2400(cps) 224MNP  
702/796-4877 Las Vegas, NV 9600(cps) v.32/v.42  
702/323-6608 Reno, NV 300/1200/2400(cps) 224MNP  
702/322-8968 Reno, NV 9600(cps) v.32/v.42  
703/352-8750 Fairfax, VA 1200 CPS VADIC  
703/591-0506 Fairfax, VA 300/1200/2400(cps) 224MNP  
703/591-0461 Fairfax, VA 9600(cps) v.32/v.42

703/368-5707 Manassas, VA 300/1200/2400(cps) 224MNP  
703/934-2200 Reston, VA 300/1200/2400(cps) 224MNP  
703/934-2267 Reston, VA 9600(cps) v.32/v.42  
703/265-1013 Roanoke, VA 300/1200/2400(cps) 224MNP  
703/885-0253 Staunton, VA 300/1200/2400(cps) 224MNP  
704/274-9491 Asheville, NC 300/1200/2400(cps) 224MNP  
704/331-0905 Charlotte, NC 300/1200/2400(cps) 224MNP  
704/358-8991 Charlotte, NC 9600(cps) v.32/v.42  
706/353-6133 Athens, GA 300/1200/2400(cps) 224MNP  
706/353-6120 Athens, GA 9600(cps) v.32/v.42  
706/738-3018 Augusta, GA 300/1200/2400(cps) 224MNP  
706/596-2700 Columbus, GA 300/1200/2400(cps) 224MNP  
707/257-7710 Napa, CA 300/1200/2400(cps) 224MNP  
707/579-4611 Santa Rosa, CA 300/1200/2400(cps) 224MNP  
707/579-1588 Santa Rosa, CA 9600(cps) v.32/v.42  
707/645-8880 Vallejo, CA 300/1200/2400(cps) 224MNP  
708/801-9488 Aurora, IL 300/1200/2400(cps) 224MNP  
708/801-9468 Aurora, IL 9600(cps) v.32/v.42  
708/261-1400 Lombard, IL 300/1200/2400(cps) 224MNP  
708/261-0040 Lombard, IL 9600(cps) v.32/v.42  
713/650-5000 Houston, TX 300/1200/2400(cps) 224MNP  
713/650-5143 Houston, TX 9600(cps) v.32/v.42  
714/520-5231 Anaheim, CA 300/1200/2400(cps) 224MNP  
714/563-9431 Anaheim, CA 9600(cps) v.32/v.42  
714/833-9915 Newport Beach, CA 300/1200/2400(cps) 224MNP  
714/252-1131 Newport Beach, CA 9600(cps) v.32/v.42  
716/875-3711 Buffalo, NY 300/1200/2400(cps) 224MNP  
716/876-7680 Buffalo, NY 9600(cps) v.32/v.42  
716/925-7042 Limestone, NY 300/1200/2400(cps) 224MNP  
716/284-3570 Niagara Falls, NY 300/1200/2400(cps) 224MNP  
716/647-1567 Rochester, NY 300/1200/2400(cps) 224MNP  
716/254-1390 Rochester, NY 9600(cps) v.32/v.42  
716/694-6263 Tonawanda, NY 300/1200/2400(cps) 224MNP  
717/245-2066 Carlisle, PA 300/1200/2400(cps) 224MNP  
717/243-6477 Carlisle, PA 9600(cps) v.32/v.42  
717/545-7116 Harrisburg, PA 300/1200/2400(cps) 224MNP  
717/941-3239 Scranton, PA 300/1200/2400(cps) 224MNP  
717/822-2964 Wilkes Barre, PA 300/1200/2400(cps) 224MNP  
717/845-7631 York, PA 300/1200/2400(cps) 224MNP  
719/596-0910 Colorado Sprngs, CO 300/1200/2400(cps) 224MNP  
719/546-1891 Pueblo, CO 300/1200/2400(cps) 224MNP  
800/848-4480 CompuServe 800, OH 300/1200/2400(cps) 224MNP  
800/331-7166 CompuServe 800, OH 9600(cps) v.32/v.42  
801/544-0338 Kaysville, UT 300/1200/2400(cps) 224MNP  
801/544-3791 Kaysville, UT 9600(cps) v.32/v.42  
801/649-0121 Park City, UT 300/1200/2400(cps) 224MNP  
801/377-1120 Provo, UT 300/1200/2400(cps) 224MNP  
801/375-1748 Provo, UT 9600(cps) v.32/v.42  
801/521-6326 Salt Lake City, UT 300/1200/2400(cps) 224MNP  
801/521-9777 Salt Lake City, UT 9600(cps) v.32/v.42  
802/862-1575 Burlington, VT 300/1200/2400(cps) 224MNP  
802/362-5580 Manchester Ctr, VT 300/1200/2400(cps) 224MNP  
803/556-0422 Charleston, SC 1200 CPS VADIC  
803/766-8099 Charleston, SC 300/1200/2400(cps) 224MNP  
803/763-3423 Charleston, SC 9600(cps) v.32/v.42

803/776-5355 Columbia, SC 300/1200/2400(cps) 224MNP  
803/776-2229 Columbia, SC 9600(cps) v.32/v.42  
803/676-9777 Greenville, SC 300/1200/2400(cps) 224MNP  
803/676-9228 Greenville, SC 9600(cps) v.32/v.42  
803/842-6314 Hilton Head, SC 300/1200/2400(cps) 224MNP  
803/238-8625 Myrtle Beach, SC 300/1200/2400(cps) 224MNP  
803/585-9611 Spartanburg, SC 300/1200/2400(cps) 224MNP  
804/979-5159 Charlottesville, VA 300/1200/2400(cps) 224MNP  
804/295-2846 Charlottesville VA 9600(cps) v.32/v.42  
804/855-0241 Norfolk, VA 300/1200/2400(cps) 224MNP  
804/855-6499 Norfolk, VA 9600(cps) v.32/v.42  
804/287-8500 Richmond, VA 300/1200/2400(cps) 224MNP  
804/287-8566 Richmond, VA 9600(cps) v.32/v.42  
804/888-2556 Williamsburg, VA 300/1200/2400(cps) 224MNP  
804/887-5377 Williamsburg, VA 9600(cps) v.32/v.42  
805/324-0971 Bakersfield, CA 300/1200/2400(cps) 224MNP  
805/942-3888 Lancaster, CA 300/1200/2400(cps) 224MNP  
805/486-3386 Oxnard, CA 300/1200/2400(cps) 224MNP  
805/549-8605 San Luis Obispo, CA 300/1200/2400(cps) 224MNP  
805/682-7750 Santa Barbara, CA 300/1200/2400(cps) 224MNP  
805/934-5322 Santa Maria, CA 300/1200/2400(cps) 224MNP  
805/937-5490 Santa Maria, CA 9600(cps) v.32/v.42  
805/498-3453 Thousand Oaks, CA 300/1200/2400(cps) 224MNP  
805/499-6110 Thousand Oaks, CA 9600(cps) v.32/v.42  
805/648-1906 Ventura, CA 300/1200/2400(cps) 224MNP  
806/379-8411 Amarillo, TX 300/1200/2400(cps) 224MNP  
806/797-0018 Lubbock, TX 300/1200/2400(cps) 224MNP  
806/797-0479 Lubbock, TX 9600(cps) v.32/v.42  
808/521-6292 Honolulu HI 300/1200/2400(cps) 224MNP  
808/528-0430 Honolulu HI 9600(cps) v.32/v.42  
808/871-8328 Maui HI 300/1200/2400(cps) 224MNP  
809/722-2999 San Juan PR 300/1200/2400(cps) 224MNP  
809/722-0995 San Juan PR 9600(cps) v.32/v.42  
812/330-1327 Bloomington, IN 300/1200/2400(cps) 224MNP  
812/330-1424 Bloomington, IN 9600(cps) v.32/v.42  
812/479-0165 Evansville, IN 300/1200/2400(cps) 224MNP  
813/337-0136 Ft. Myers, FL 300/1200/2400(cps) 224MNP  
813/566-9562 Naples, FL 300/1200/2400(cps) 224MNP  
813/566-7015 Naples, FL 9600(cps) v.32/v.42  
813/355-0832 Sarasota, FL 300/1200/2400(cps) 224MNP  
813/527-0338 St. Petersburg, FL 300/1200/2400(cps) 224MNP  
813/229-7406 Tampa, FL 300/1200/2400(cps) 224MNP  
813/229-3200 Tampa, FL 9600(cps) v.32/v.42  
813/293-3911 Winter Haven, FL 300/1200/2400(cps) 224MNP  
814/864-4018 Erie, PA 300/1200/2400(cps) 224MNP  
814/443-6402 Somerset, PA 300/1200/2400(cps) 224MNP  
814/238-7910 State College, PA 300/1200/2400(cps) 224MNP  
815/748-5288 Dekalb, IL 300/1200/2400(cps) 224MNP  
815/933-3782 Kankakee, IL 300/1200/2400(cps) 224MNP  
815/226-8211 Rockford, IL 300/1200/2400(cps) 224MNP  
816/472-1283 Kansas City, MO 300/1200/2400(cps) 224MNP  
816/221-3817 Kansas City, MO 9600(cps) v.32/v.42  
817/387-8900 Denton, TX 300/1200/2400(cps) 224MNP  
817/685-2700 Ft. Worth, TX 300/1200/2400(cps) 224MNP  
817/685-2737 Ft. Worth, TX 9600(cps) v.32/v.42

817/776-7090 Waco, TX 300/1200/2400(cps) 224MNP  
817/751-9590 Waco, TX 9600(cps) v.32/v.42  
818/506-6734 N. Hollywood, CA 300/1200/2400(cps) 224MNP  
818/752-8045 N. Hollywood, CA 9600(cps) v.32/v.42  
818/303-5780 Sierra Madre, CA 300/1200/2400(cps) 224MNP  
818/303-3869 Sierra Madre, CA 9600(cps) v.32/v.42  
818/786-6382 Van Nuys , CA 300/1200/2400(cps) 224MNP  
818/988-9791 Van Nuys, CA 9600(cps) v.32/v.42  
901/323-0220 Memphis, TN 300/1200/2400(cps) 224MNP  
901/452-2470 Memphis, TN 1200(cps)VADIC  
901/454-6851 Memphis, TN 9600(cps) v.32/v.42  
903/753-1479 Longview, TX 300/1200/2400(cps) 224MNP  
903/753-0596 Longview, TX 9600(cps) v.32/v.42  
903/561-5565 Tyler, TX 300/1200/2400(cps) 224MNP  
904/258-8433 Daytona Beach, FL 300/1200/2400(cps) 224MNP  
904/377-5227 Gainesville, FL 300/1200/2400(cps) 224MNP  
904/371-0661 Gainesville, FL 9600(cps) v.32/v.42  
904/448-5624 Jacksonville, FL 300/1200/2400(cps) 224MNP  
904/730-0046 Jacksonville, FL 9600(cps) v.32/v.42  
904/871-0660 Panama City, FL 300/1200/2400(cps) 224MNP  
904/432-1007 Pensacola, FL 300/1200/2400(cps) 224MNP  
904/385-8699 Tallahassee, FL 300/1200/2400(cps) 224MNP  
904/422-9604 Tallahassee, FL 9600(cps) v.32/v.42  
907/563-8425 Anchorage, AK 300/1200/2400(cps) 224MNP  
907/479-4102 Fairbanks, AK 300/1200/2400(cps) 224MNP  
908/356-4747 Boundbrook, NJ 300/1200/2400(cps) 224MNP  
908/935-0065 Eatontown, NJ 300/1200/2400(cps) 224MNP  
908/935-0137 Eatontown, NJ 9600(cps) v.32/v.42  
908/852-8502 Hackettstown, NJ 300/1200/2400(cps) 224MNP  
908/914-0405 Toms River, NJ 300/1200/2400(cps) 224MNP  
908/914-1954 Toms River, NJ 9600(cps) v.32/v.42  
908/632-8755 Woodbridge, NJ 300/1200/2400(cps) 224MNP  
908/632-9384 Woodbridge, NJ 9600(cps) v.32/v.42  
909/622-5454 Pomona, CA, 300/1200/2400(cps) 224MNP  
909/865-0553 Pomona, CA 9600(cps) v.32/v.42  
909/354-5022 Riverside, CA 300/1200/2400(cps) 224MNP  
909/358-0383 Riverside, CA 9600(cps) v.32/v.42  
909/882-9626 San Bernardino, CA 300/1200/2400(cps) 224MNP  
909/882-6646 San Bernardino, CA 9600(cps) v.32/v.42  
912/435-9420 ALbany, GA 300/1200/2400(cps) 224MNP  
912/264-0351 Brunswick, GA 300/1200/2400(cps) 224MNP  
912/929-0804 Macon, GA 300/1200/2400(cps) 224MNP  
912/922-2179 Macon, GA 9600(cps) v.32/v.42  
912/355-0222 Savannah, GA 300/1200/2400(cps) 224MNP  
912/353-8559 Savannah, GA 9600(cps) v.32/v.42  
913/843-0140 Lawrence, KS 300/1200/2400(cps) 224MNP  
913/749-2900 Lawrence, KS 9600(cps) v.32/v.42  
913/776-7111 Manhattan, KS 300/1200/2400(cps) 224MNP  
913/232-9520 Topeka, KS 300/1200/2400(cps) 224MNP  
913/232-1317 Topeka, KS 9600(cps) v.32/v.42  
914/344-3800 Middletown, NY 300/1200/2400(cps) 224MNP  
914/473-5991 Poughkeepsie, NY 300/1200/2400(cps) 224MNP  
914/761-3163 White Plains, NY 300/1200/2400(cps) 224MNP  
914/761-3203 White Plains, NY 1200 CPS VADIC  
915/698-1111 Abilene, TX 300/1200/2400(cps) 224MNP



915/565-0970 El Paso, TX 300/1200/2400(cps) 224MNP  
915/564-0380 El Paso, TX 9600(cps) v.32/v.42  
915/561-5811 Midland, TX 300/1200/2400(cps) 224MNP  
915/942-8787 San Angelo, TX 300/1200/2400(cps) 224MNP  
916/661-7250 Davis, CA 300/1200/2400(cps) 224MNP  
916/661-9296 Davis, CA 9600(cps) v.32/v.42  
916/223-1144 Redding, CA 300/1200/2400(cps) 224MNP  
916/568-0636 Sacramento, CA 300/1200/2400(cps) 224MNP  
916/568-0241 Sacramento, CA 9600(cps) v.32/v.42  
916/541-5940 So. Lake Tahoe, CA 300/1200/2400(cps) 224MNP  
918/621-1000 Tulsa, OK 1200 CPS VADIC  
918/621-1002 Tulsa, OK 300/1200/2400(cps) 224MNP  
918/621-1036 Tulsa, OK 9600(cps) v.32/v.42  
919/584-8808 Burlington, NC 300/1200/2400(cps) 224MNP  
919/687-4300 Durham, NC 300/1200/2400(cps) 224MNP  
919/687-4049 Durham, NC 9600(cps) v.32/v.42  
919/272-4994 Greensboro, NC 300/1200/2400(cps) 224MNP  
919/664-5800 Raleigh, NC 300/1200/2400(cps) 224MNP  
919/664-5848 Raleigh, NC 9600(cps) v.32/v.42  
919/392-4700 Wilmington, NC 300/1200/2400(cps) 224MNP  
919/723-9471 Winston-Salem, NC 300/1200/2400(cps) 224MNP  
919/724-9748 Winston-Salem, NC 9600(cps) v.32/v.42

## **Accessing Library Catalogs**

[United States](#)

[Canada](#)

[Europe](#)

[Australia/New Zealand](#)

[Other](#)

Hong Kong

**Chinese University of Hong Kong**

telnet vax.csc.cuhk.hk  
or  
telnet 137.189.6.8

Username: **LIBRARY**

**Hong Kong Polytechnic**

telnet LIBRARY.HKP.HK  
or  
telnet 158.132.6.15

Username: **LIBRARY**  
Select option 1

Quit? Option 5 on menu

**Hong Kong University of Science & Technology**

telnet USTLIB.UST.HK  
login: **library**

Israel

**ALEPH** (Automated Library Expandable Program - Hebrew University)

To gain access to any of the network OPACS, telnet to any one of the following university library computers:

Central ALEPH Computer	Telnet RAM2.HUJI.AC.IL or 128.139.4.207
Bar-Ilan University	Telnet ALEPH.BIU.AC.IL or 132.70.9.36
Ben-Gurion University	Telnet BGULIB.BGU.AC.IL
Haifa University	Telnet LIB.HAIFA.AC.IL or 132.74.1.100
Hebrew University	Telnet ALEPH.HUJI.AC.IL or 128.139.4.207
Technion	Telnet LIB.TECHNION.AC.IL or 132.68.1.20
Tel Aviv University	Telnet TAUVAX.TAU.AC.IL or 132.66.32.6
Weizmann Institute	Telnet WISLIB.WEIZMANN.AC.IL or 132.76.64.14

Username: **ALEPH**  
No password is required

Taiwan

Academy Sinica Taiwan

telnet LAS.AS.EDU.TW  
Login? **Library**  
select v for VT100

Exit? Hit Q on the main menu

## Library Catalogs (Australia)

### AUSTRALIA BIBLIOGRAPHIC NETWORK

telnet ABN.NLA.GOV.AU

- 1 At the login prompt, type nla
- 2 Enter 19 as terminal type for VT100
- 3 At the On-line Services screen, type 1
- 4 Type ALL for daily news or just hit RETURN otherwise
- 5 Enter a valid ABN account name (requires account)

Exit? telnet escape key

### AUSTRALIAN DEFENCE FORCE ACADEMY

University of New South Wales  
Campbell, ACT 2601 telnet LIBRARY.ADFA.OZ.AU  
or  
telnet 131.236.1.13

Description:

The Defence Academy Library enquiry system provides access to the libraries catalog. The library has approximately 300,000 volumes with collection strengths in military history and Australiana.

1. When prompted for a destination, enter **LIBRARY**
2. When asked to login, type E

Exit? Pick X option from the main menu

### AUSTRALIAN NATIONAL UNIVERSITY

Location: Canberra Australia

telnet LIBRARY.ANU.EDU.AU

Login: **library**

Exit? telnet escape key

### CURTIN UNIVERSITY OF TECHNOLOGY

Location: Bentley, WA Australia

telnet CC.CURTIN.EDU.AU

or

telnet 134.7.70.1

Username: **GUEST**

Enter A for VT100 emulation

Exit? Enter E

**DEAKIN UNIVERSITY**

Location: Geelong, Victoria Australia

telnet LIBRARY.DEAKIN.OZ.AU

or

telnet 128.184.1.1

Login: (lower case)

Exit? return ~. return (tilde, dot, return)

**EDITH COWAN UNIVERSITY**

Location: Western Australia

telnet LIBRARY.cowan.edu.au

or

telnet 139.230.129.6

Username: **GUEST**

Vt100?: **Yes**

Exit? hit Control-D

**GRIFFITH UNIVERSITY**

Location: Nathan, QLD Australia

telnet LIBRARY.GU.EDU.AU

Exit? telnet escape key

**MACQUARIE UNIVERSITY**

telnet 137.111.161.100

**MURDOCH UNIVERSITY**

Location: Murdoch, WA 6150

telnet library.murdoch.edu.au

or

telnet 134.115.4.113

**NORTHERN TERRITORY UNIVERSITY**

Location: Casuarina, NT Australia

telnet LIB2.NTU.EDU.AU

Login:

Exit? Option 15 on main menu

### **ROYAL MELBOURNE INSTITUTE OF TECHNOLOGY**

Location: Melbourne, VIC Australia

telnet CCANNEX02.XX.RMIT.OZ.AU

Press RETURN

When menu appears, select either VICNET96 or VICNET24

At "Which System?" prompt, enter **MATLAS**

Exit? Type END

### **UNIVERSITY OF QUEENSLAND LIBRARIES**

Location: St. Lucia, 4072, QLD

telnet libsys.campus.uq.oz.au

or

telnet 130.102.206.17

Exit? Type **END**

### **UNIVERSITY OF WOLLONGONG LIBRARY**

telnet wolfen.cc.uow.edu.au

or

telnet 130.130.68.4

login:

Exit? telnet escape key

### **VICTORIA UNIVERSITY OF WELLINGTON**

Location: Wellington, New Zealand

telnet micom.vuw.ac.nz

press RETURN and wait for menu

Enter **LIB**

U.K.

Denmark

Germany



**Universitaet des Saarlandes (German only catalog)**

telnet UNISB.RZ.UNI-SB.DE

At / prompt, type .a logon ub,ub

Exit? type 0 (zero)

**Universitaet Heidelberg (German only catalog. No english comands)**

telnet VM.URZ.UNI-HEIDELBERG.DE

At the VM/SP screen hit TAB twice

Type **D VTAM** (return) on the command line

On the Bitte Waehlen Sie screen, type cicsub (return)

**University of Konstanz**

telnet POLYDOS.UNI-KONSTANZ.DE

## Library Catalogs (England)

telnet sun.nsf.ac.uk  
or  
telnet 128.86.8.7

At the login prompt, enter

Select desired catalog and enter line beginning UK.AC.

Aberdeen University	UK.AC.ABERDEEN.LIBRARY
Aston University	UK.AC.ASTON.GEAC
Bangor University	UK.AC.BANGOR.LIBRARY
Bath University	UK.AC.BATH.LIBRARY
Birmingham University	UK.AC.BIRMINGHAM.LIBRARY
Bristol University	UK.AC.BRISTOL.LIB
British Library	UK.BL.BLAISE (subscription only)
Brunel University	UK.AC.BRUNEL.LIBRARY
Cambridge	UK.AC.CAMBRIDGE.UNIVERSITY-LIBRARY
City of London PolyTech	UK.AC.CITY-POLY.TOWER-VAX
Cranfield Institute	UK.AC.CRANFIELD.LIBRARY
Dundee College of Tech	UK.AC.DUNDEE-TECH.LIBRARY
Dundee University	UK.AC.DUND.LIBB
Durham University	UK.AC.DURHAM.LIBRARY
East Anglia	UK.AC.EAST-ANGLIA.COMPUTING-CENTRE.INFO
Edinburgh University	UK.AC.EDINBURGH.GEAC
Glasgow University	UK.AC.GLASGOW.LIBRARY
Heriot-Watt Univ	UK.AC.HERIOT-WATT.LIBRARY
Hull University	UK.AC.HULL.LI.GEAC
Kent University	UK.AC.UKC.IRIS
Lancaster University	UK.AC.LANCASTER.LIBRARY
Leeds University	UK.AC.LEEDS.LIB
Leeds (Medical)	UK.AC.LEEDS.LIBCAT
Leicester Poly	UK.AC.LEICESTER.LIBRARY
Liverpool University	UK.AC.LIVERPOOL.LIBRARY
London Univ (Imperial)	UK.AC.IMPERIAL.LIB
London Univ (Kings)	UK.AC.KCL.LIB
London Univ (Q Mary)	UK.AC.QMC.LIB
Loughborough Univ	UK.AC.LOUGHBOROUGH.LIBRARY
Nottingham University	UK.AC.NOTTINGHAM.LIBRARY
Queens Univ - Belfast	UK.AC.QUEENS-BELFAST.LIBRARY
Rutherford Appleton Lab	UK.AC.RUTHERFORD.IBM-B
St Andrews Univ	UK.AC.ST-ANDREWS.LIB
Salford Univ	UK.AC.SALFORD.SAISO
Sheffield Univ	UK.AC.SHEFFIELD.LIBRARY
Stirling	UK.AC.STIRLING.LIBRARY
Strathclyde Univ	UK.AC.STRATHCLYDE.LIBRARY
Surrey	UK.AC.SURREY.SYSI
Sussex Univ	UK.AC.SUSSEX.LIBRARY
Swansea Univ	UK.AC.SWANSEA.LIBRARY
Thames Polytechnic	UK.AC.THAMES.LIB
Univ Wales-Cardiff	UK.AC.CARDIFF.LIBRARY
Univ of York	UK.AC.YORK.LIBRARY
Warwick Univ	UK.AC.WARWICK.OPAC

Username: **LIBRARY**  
Enter 1 for VT100

Exit? type EXIT

## **Aalborg University**

telnet auboline.bib.dk  
or  
telnet fishline.bib.dk

Press return.

At the > prompt, type

Exit? Use the telnet escape key

## **Aarhus University**

telnet helios.aau.dk

login:

press escape at the att prompt, type  
at the next prompt, type sol

Exit? Use the telnet escape key

[U.S. Library Catalogs \(A-M\)](#)

[U.S. Library Catalogs \(N-Z\)](#)

Abilene Library Consortium  
Air Force Institute of Technology  
Alaska (University of)  
Argonne National Lab  
Arizona State University  
Auburn

Bates College  
Boise State University  
Boston University  
Bowdoin College  
Brigham Young University  
Brown University  
Brunswick College

Cal Institute of Technology  
Cal Poly State University  
Cal State Univ, Fresno  
Cal State Univ, Long Beach  
Carnegie Library of Pittsburgh  
Carnegie Mellon Univ  
Case Western Reserve Univ  
Catholic University of America / Law Library  
CUNY -City Univ of New York  
Clemson University  
Cleveland Public Library  
Colby College  
CARL

Dartmouth  
Drexel University  
Duke University

Eastern Michigan University  
Ecole Polytechnique (Montreal)  
Emory  
Eureka service

Fairfield University  
Florida State University System

Georgetown University Medical Center  
George Mason University

Harvard University

Indiana University  
Iowa State University

Johns Hopkins  
John Marshall Law School

Kalamazoo  
Kansas State

Kent State

La Salle University

Lawrence Livermore National Laboratory

Lehigh

Los Alamos National Laboratory

Maricopa Community College

Marquette

MIT

Michigan Tech

Minnesota State

## **Carnegie Library of Pittsburgh**

telnet clp2.clpgh.ord  
or  
telnet 192.204.3.2

username: catalog  
vt100 emulation

Exit? type QUIT



**Ecole Polytechnique (Montreal)**

telnet 132.207.4.15

At *classe de service* prompt, enter: **biblio96**

Select English or Francais

Exit? Type END or FIN

**Argonne National Lab**

telnet aim.tis.anl.gov

login: aim

No password required

## **Fairfield University**

telnet FAIR1.FAIRFIELD.EDU  
or  
telnet 192.160.243.1

Username: **LIB**

Exit? type **ex**

## **Brunswick College**

telnet CLARA.BC.PEACHNET.EDU

or

telnet 131.144.98.50

login: **peach**

password: **peach**

Exit? Select **END** on main menu

## **John Marshall Law School**

telnet catalog.jmls.edu  
or  
telnet 192.207.162.100

login: **catalog**

Exit? Type Q on main menu

## **Lawrence Livermore National Laboratory**

telnet aish.llnl.gov  
or  
telnet 128.115.33.6

Username: **Patron**

Select 1 for OPAC

Exit? Type Q on main menu

**Catholic University of America / Law Library**

telnet columbo.law.cua.edu

or

telnet 136.242.148.1

Exit? Type Q on main menu

## **La Salle University**

telnet connelly.lasalle.edu  
or  
telnet 139.84.10.251

Exit? Q on main menu



## **Drexel University**

telnet library.drexel.edu  
or  
telnet 129.25.3.13

Exit? type **EX**

## **Eureka**

telnet EUREKA-INFO.STANFORD.EDU

or

telnet 36.26.0.172

No login required Eureka is the new, easy-to-use search service from RLG. With Eureka, any individual or institution can search the online resources of the Research Libraries Group (RLG), including the RLIN bibliographic files and the CitaDel article-citation and document-delivery service. Eureka is easy for inexperienced users to use, yet powerful and flexible enough to satisfy even the most sophisticated searchers.

Eureka contains information about more than 20 million books, serials, sound recordings, musical scores, archival collections, and other kinds of material held in major research institutions, PLUS millions of article-level citations.

[New Mexico State](#)  
[New York Public](#)  
[New York State Library](#)  
[New York University](#)  
[Northeastrn Ohio Universities College of Medicine](#)  
[Northwestern University](#)  
[Notre Dame](#)

[Oberlin College](#)  
[Occidental](#)  
[Old Dominion](#)  
[Ohio State](#)  
[Oregon State](#)

[Penn State](#)  
[Portland State](#)  
[Princeton Manuscript Collection](#)  
[Princeton](#)  
[Purdue](#)

[Rensselaer](#)  
[Rice](#)  
[RIT](#)  
[Rockefeller](#)  
[Rutgers University](#)

[Seattle Pacific University](#)  
[Shawnee State University](#)  
[State Library of Pennsylvania](#)  
[SUNY Binghamton](#)

[Texas A&M](#)  
[Texas Christian University](#)  
[Texas Tech](#)  
[Tufts](#)

[University of Akron](#)  
[University of Alaska](#)  
[University of Arizona](#)

[University of Buffalo](#)

[University of California](#)  
[University of California-Berkeley](#)  
[University of Chicago](#)  
[University of Central Oklahoma](#)  
[University of Cincinnati](#)  
[University of Colorado at Colorado Springs](#)  
[University of Connecticut](#)

[University of Dayton](#)  
[University of Delaware](#)

[University of Hawaii](#)

University of Illinois at Urbana/Champaign  
University of Illinois at Chicago  
University of Iowa

University of Kansas

University of Maine  
University of Maryland  
University of Massachusetts (Boston)  
University of Michigan  
University of Minnesota  
University of Missouri-Columbia  
University of Missouri at Rolla  
University of Missouri at St. Louis  
University of Nebraska  
University of Nevada-Las Vegas  
University of New Mexico  
University of North Carolina at Charlotte

University of Oregon

University of Pennsylvania  
University of Pennsylvania School of Medicine  
University of Pittsburgh

University of Tennessee-Knoxville  
University of Tennessee-Memphis  
University of Texas-Arlington  
University of Texas-Austin  
University of Texas-Dallas  
University of Toledo

University of Utah

University of Vermont  
University of Virginia  
University of Virginia (LAW)

University of Washington  
University of Wisconsin

Vanderbilt  
Virginia Commonwealth  
Virginia Tech

Washington University-St.Louis  
Wayne State University  
Western Michigan  
Wright State

Xavier University

Yale University  
Yale University (LAW)



## **University of Connecticut**

tn3270 UCONNVM.UCONN.EDU

or

tn3270 137.99.26.3

Clear the screen with Control-Z

Enter dial vtam on blank screen

Select B for catalog

Exit? type STOP, then EXIT on main menu

## **New York State Library**

telnet nysl.nysed.gov  
or  
telnet 149.10.128.2

Login: public  
password: p

Exit? Control-X

## **Seattle Pacific University**

telnet jerome.spu.edu  
or  
telnet 192.190.33.7

Username: **PAC**

Exit? Type EX



**University of Pennsylvania School of Medicine**

telnet penninfo.upenn.edu 9010

or

telnet 130.91.72.80 9010

No login required

**State Library of Pennsylvania**

telnet 192.102.245.100

When connected, hit RETURN

Exit? Telnet escape key.

**University of Alaska telnet gnosis.alsaska.edu**  
or  
telnet 137.229.17.239

At the : prompt, type **hello, user.gnosis**

Exit? Type **/quit**

**University of Virginia Law Library**

telnet INNOPAC.LAW.VIRGINIA.EDU

or

telnet 128.143.28.43

login: **library**

Exit? select D on main menu

## **Yale University Law Library**

telnet RINGDING.LAW.YALE.EDU  
or  
telnet 130.132.84.29

login: **library**

Exit? Select H on main menu

## **CENET (Cornell Extension NETwork)**

telnet EMPIRE.CCE.CORNELL.EDU

or

telnet 132.236.89.2

login: **guest**

Welcome to CENET, the Cornell Extension NETwork. CENET is a product of the Extension Electronic Technology Group of Cornell Cooperative Extension.

### CENET Main Menu

AGriculture (Information on various agricultural topics)

CENET (CENET information, settings and help)

COMmunity (Community education and resources)

FIELD crops (Field crops and agronomy information)

FOOD (Food and nutrition information)

FRUIT-vegetable Fruit and vegetable information GLOBal (Global awareness)

HUMAN-ecology (Info from College of Human Ecology)

NATural-resources (Forestry, wildlife, water & marine science)

NEWS (News bulletins, news releases and media information)

ORNamentals (Ornamental horticulture, floriculture, home/grounds)

PEST-management (Integrated pest management & pesticide info)

WEAther (Weather information)

YOUth (Information about youth programming)

FEEDback (Leave feedback for CENET staff)

## **Xavier University**

telnet xulas.xu.edu  
or  
telnet 192.153.34.40

Login: **Library**

Exit? type B on main menu

## **Shawnee State University**

telnet beartrack.shawnee.edu  
or  
telnet 146.85.4.6

Login: **Library**

Exit? Type Q on main menu



## **University of Washington**

telnet uwin.u.washington.edu  
or  
telnet 140.142.42.1

Select I  
Select LIB  
Select UWLIB  
Select LCAT

Exit? Type Q

## **University of Virginia**

telnet ublan.acc.virginia.edu

press return until a >> prompt appears  
>> c virgo

use vt100 emulation

## **Western Michigan University**

telnet ccb9.merit.edu

or

telnet 35.1.48.150

Host? **WMU-FINDER**

Enter **VT100**

Select **1**

Exit? type X from Finder menu, then x again

## **Virginia Commonwealth**

tn3270 VCUVM1.VCU.EDU

or

tn3270 128.172.1.25

On the VM screen, TAB down to Command prompt

Type **DIAL VTAM**

Enter L on the VTAM screen

Press ENTER when prompted to

Exit? Hit CTRL-Z, at blank screen type **LOGOFF**

at VTAM screen, type **UNDIAL**

## Virginia Tech

telnet VTNET1.CNS.VT.EDU  
or  
telnet 128.173.5.4

At the CALL, DISPLAY, OR MODIFY prompt, type **CALL VTLS**  
Hit RETURN once or twice

Exit? use telnet escape key

## Washington University - St. Louis

telnet WUGATE.WUSTL.EDU

or

telnet 128.252.120.1

At the login: prompt, type **LUIS**

Choose VT100 as the terminal type

On the menu, choose option 1

Exit? use telnet escape key

## Wayne State University

tn3270 CMS.CC.WAYNE.EDU

TAB to move down to COMMAND line

At the COMMAND line, type **DIAL VTAM**

At the WSUNET menu, type **LUIS**

(alternate method)

telnet CCB9.MERIT.EDU

or

telnet 35.1.48.150

At the Which Host prompt, enter **WSUNET**

At the WSUNET, type **LUIS**

Exit? tn3270: type **LOGOFF**

telnet: telnet escape key

## **Western Michigan University**

telnet CCB9.MERIT.EDU

or

telnet 35.1.48.150

At the which host prompt, enter **WMU-FINDER**

Enter VT100 as terminal type

Select 1

Exit? Type X from the Finder menu, type X again



## **Wright State University**

telnet DESIRE.WRIGHT.EDU

or

telnet 130.108.128.200

At the Username prompt, type **LIBNET**

At the Password prompt, type **LIBRARY**

Select 1 on the menu

Exit? telnet escape key

## **Yale University**

telnet UMPG.YCC.YALE.EDU 6520  
or  
telnet 130.132.21.64 6520

or

tn3270 ORBIS.YALE.EDU  
or  
tn3270 130.132.21.133

Press RETURN

Exit? type STOP

## **University of Central Oklahoma**

telnet AIX0.UCOK.EDU

or

telnet 192.206.65.2

type

when screen clears, press return

Quit? Escape XX

## **Vanderbilt University**

telnet ctrvax.vanderbilt.edu  
or  
telnet 129.59.1.21

Username: **ACORN**  
At SysAval Appl prompt, press return

Exit? Ctrl-Z

## **University of Wisconsin**

telnet nls.adp.wisc.edu  
or  
telnet 128.104.198.20

Hit RETURN when prompted for terminal type  
At the menu, TAB to the left of the NLS1 selection  
Press RETURN

For Madison Catlog press RETURN  
For Milwaukee Catalog enter **MIL**

Exit? Type **EXIT**

At the menu, TAB to the left of the QUIT selection, press return

## **University of Vermont**

telnet LUIS.UVM.EDU

or

telnet 132.198.101.120

Hit RETURN

Enter VT100 as terminal type

Hit RETURN

Exit? type **QUIT**

## **University of Tennessee--Knoxville**

telnet DCA.UTK.EDU

or

telnet 128.169.200.68

HOST NAME:

Exit? Use telnet escape key

## **University of Tennessee--Memphis**

telnet UTMEM1.UTMEM.EDU

or

telnet 132.192.1.1

Username: **HARVEY**

Exit? press RETURN on main screen



## University of Texas - Arlington

telnet ADMIN.UTA.EDU

or

telnet 129.107.1.103

As soon as you are connected, hit RETURN

TERMINAL TYPE: **VT100**

At the VTAM selection menu, type **NOTIS**

At the CICS Logo Screen, press RETURN

On the next screen, type **LUUT**

Exit? use telnet escape key

## **University of Texas - Austin**

telnet UTCAT.UTEXAS.EDU

or

telnet 128.83.186.104

You will see a blank screen

Press RETURN once (more more if needed)

At the GO prompt press RETURN

ENTER TERMINAL TYPE:

Follow onscreen instructions

tn3270 VM.UTDALLAS.EDU

Hit ENTER to clear login screen  
Type

(alternate method)

telnet IBM.UTDALLAS.EDU  
or  
telnet 129.110.102.1

TERMINAL TYPE: **VT10X**  
Hit ENTER to clear login screen  
Type

Exit? tn3270 session: type **QUIT**  
telnet session: use telnet escape key

## **University of Toledo**

tn3270 UOFT01.UTOLEDO.EDU

Press RETURN on UT logo screen

At "enter one of the following commands...", enter **DIAL MVS**

When "dialed to mvs ####" appears, enter **UTMOST**

Exit? type **DISC**

## University of Utah

tn3270 LIB.UTAH.EDU  
or  
tn3270 128.110.124.1

Hit TAB to get to COMMAND line  
At the COMMAND line, type **DIAL UNIS**

Exit? use telnet escape key

## **University of Pittsburgh**

telnet gate.cis.pitt.edu  
or  
telnet 130.49.1.252

Service:  
Select:

Exit? hit CTRL-\

## University of Pennsylvania

telnet pennlib.upenn.edu

or

telnet 128.91.200.32

enter **VT100** as terminal type

Exit? Use telnet escape key

## **University of Oregon**

telnet JANUS.UOREGON.EDU  
or  
telnet 128.223.24.86

Press RETURN several times

Login:

Terminal type: enter

Enter to confirm

Exit? Type



## **Notre Dame**

telnet IRISHMVS.CC.ND.EDU

or

telnet 129.74.4.5

ENTER COMMAND OR 'HELP':

Exit? Type x. Type bye

## **University of New Mexico**

telnet BOOTES.UNM.EDU

or

telnet 129.24.8.2

Username: **STUDENT1**

Terminal type: **VT100**

On the Main menu, choose option 3

On the Library menu, choose option 1

Exit? Press CTRL-right bracket C  
on Library menu  
on Main menu

**University of Nevada-Las Vegas**

telnet LIBRARY.LV-LIB.NEVADA.EDU

or

telnet 131.216.2.133

Login: **LIBRARY**

Select V for type of terminal

Enter Y to confirm

Exit? Enter D

## **University of Missouri at St Louis**

tn3270 UMSLVMA.UMSL.EDU

TAB down to COMMAND prompt

Enter **DIAL VTAM**

At the VTAM LOGON prompt, enter **LIBCICS**

Exit? Type #LOGOFF. At VTAM LOGON, enter **UNDIAL**

**University of Nebraska**

telnet UNLLIB.UNL.EDU

or

telnet 129.93.16.1

Login: **LIBRARY**

Select V for type of terminal

Enter Y to confirm

Exit? Enter **D**

## **University of Missouri at Rolla**

tn3270 umrvmb.umr.edu

or

tn3270 131.151.1.1

press return

at the CP READ prompt, enter **DIAL VTAM**

Enter **LUMIN**

press return

Exit? Type #LOGOFF. /NET at the App Name prompt, then **UNDIAL**

## **University of Missouri-Columbia**

tn3270 UMCVMB.MISSOURI.EDU

TAB down to command prompt

Enter **DIAL VTAM**

Enter **INFORMU to access INFORMU service**

At the VTAM LOGON prompt, enter **LIBCICS**

Exit? Type #LOGOFF At VTAM LOGON or UNDIAL, type UNDIAL

## **University of Minnesota**

telnet LUMINA.LIB.UMN.EDU  
or  
telnet 128.101.92.3

When prompted for terminal type, enter 0 for VT100 emulation.  
When prompted to do so, type PA  
Select 1 at the Please indicate Your Menu Selection Here ==>

Exit?use telnet escape key.



## University of Michigan

telnet HERMES.MERIT.EDU  
or  
telnet 35.1.1.6

HOST? enter **MIRLYN**  
Terminal type: **VT100**  
On the UofM screen, press RETURN

Exit? use telnet escape key

**University of Massachusetts (Boston)**

telnet LIBRA.CC.UMB.EDU

or

telnet 192.12.26.143

Username: **CATALOG**

Terminal type: enter 1 for VT100

Exit? type EXIT, END, or QUIT

## **University of Maryland**

telnet VICTOR.UMD.EDU

or

telnet 129.2.16.2

Select **PAC** from the Available Services Menu.

Select 5 for VT100.

Press RETURN twice.

This system's coverage includes the University of Maryland System, University of Maryland Law Library, University of Maryland Baltimore County, University of Maryland College Park, University of Maryland Eastern Shore, and University of Maryland University College.

Exit? type //EXIT

## **University of Maine**

telnet ursus.maine.edu  
or  
telnet 130.111.64.1

Login as  
Enter v for VT100  
Enter y to confirm

Exit? Type B

## University of Kansas

telnet KUHUB.CC.UKANS.EDU  
or  
telnet 129.237.1.10

At the username prompt, type **RELAY**  
At the SYSTEM? prompt, type **OCAT**  
TERMINAL TYPE: **VT100**  
On the CICS screen, type **OCAT**

Exit? type LOGOFF. Type **Q**

## **University of Iowa**

telnet OASIS.UIOWA.EDU

or

telnet 128.255.254.2

Terminal type: **VT100**

Choose option 1 on the menu, OASIS

Exit? Type X on the main menu

## University of Illinois at Chicago

tn3270 UICVM.UIC.EDU

or

tn3270 128.248.2.50

When signon screen appears, hit RETURN

Type **DIAL PVM**

Move cursor to first S of "S NOTIS" using TAB or arrow keys and press return

Exit? Type ##### Press CTRL-P 1

**University of Illinois at Urbana/Champaign**

telnet GARCON.CSO.UIUC.EDU

or

telnet 128.174.5.58

Login: **LCS**

Exit? Type EXIT



## **University of Hawaii**

telnet STARMASTER.UHCC.HAWAII.EDU  
or  
telnet 128.171.7.8

At the Enter Class prompt, type **LIB**  
At the terminal type menu, select 5 for VT100

Exit? type //EXIT

## University of Delaware

telnet delcat.udel.edu  
or  
telnet 128.175.13.6

Press return  
Terminal type: **VT100**  
Press return  
Type **NOTIS**

Exit? Use telnet escape key

## **University of Dayton**

telnet UDAPRL.OCA.UDAYTON.EDU

or

telnet 131.238.1.14

At blank screen or the ! prompt , type **LOGIN PUB Password? type PUBLIC, press return**  
Terminal type: **VT100**

When you see the "Welcome to the University of Dayton" screen you will be able to access Help Screens by typing ? and pressing return

Exit? Choose LOGOFF from the Main menu or enter Q

## University of Colorado at Colorado Springs

telnet ARLO.COLORADO.EDU

or

telnet 128.198.26.129

When prompted for login code, enter **ARLO**

At the logo screen, hit RETURN

Exit? Pick option 12 on the menu, then use TELNET escape key

## **University of Arizona**

telnet IDX.TELCOM.ARIZONA.EDU

or

telnet 129.196.252.3

Press RETURN repeatedly until something happens

Type GEAC for the main circulation system or LIBPAC for the Exit? use telnet escape key

## **University of Buffalo**

telnet BISON.CC.BUFFALO.EDU

or

telnet 128.205.2.22

At the terminal type prompt, enter **VT100**

Press return

Exit? type **BYE**

## **University of California**

telnet MELVYL.UCOP.EDU

or

telnet 31.1.0.1

When asked for terminal type, enter **VT100**

Press RETURN when prompted to

Type START LOOK for easy to use library system

Type START COM for command line library system

The library system is known as MELVYL. MELVYL contains library information for all university in the University of California system and the California State library.

Exit? Type END or STOP. Type **LOGOFF**

**University of California-Berkeley**

telnet GOPAC.BERKELEY.EDU

or

telnet 128.32.159.19

Exit? Type LOGOFF



## **University of Chicago**

telnet OLORIN.UCHICAGO.EDU

or

telnet 128.135.12.95

At the ENTER CLASS prompt, type

When CONNECTED appears on the screen, press RETURN

Exit? Type LOGOUT

## **University of Cincinnati**

telnet UC7171.UC.EDU

or

telnet 129.137.32.99

Terminal type: Enter **VT100**

Enter **UCLID**

Exit? use telnet escape key

The Florida State University System includes Florida A&M, Florida Atlantic, Florida State, Florida International, University of Central Florida, University of Florida, University of North Florida, University of South Florida, University of West Florida. To access these Florida library systems:

tn3270 nervm.nerdc.ufl.edu

or

tn3270 128.227.212.10

press RETURN

type DIAL VTAM

On the NERDC VTAM IS ACTIVE screen, enter NERLUIS FCLSKYA

Exit? Type %OFF. At 'NERDC VTAM IS ACTIVE', enter UNDIAL

telnet gumedlib2.georgetown.edu  
or  
telnet 141.161.40.4

At login prompt, enter medlib  
password: dahlgren  
enter netguest  
hit RETURN several times...  
select option 1

Exit? Press return on the menu, enter Q

## **George Mason University**

telnet 129.174.1.10  
select option B

You may search the ERIC database by entering the PERI sub-system from the menu that appears once XLIBRIS has been selected (option B)

Exit? type STOP at any prompt.

Questions? Clyde Grotophorst  
Library Systems Office  
Fenwick Library, GMU  
4400 University Drive  
Fairfax, VA 22030

(703) 993-2239

## **Dartmouth**

telnet LIB.DARTMOUTH.EDU  
or  
telnet 129.170.16.11

When prompted for terminal type, enter VT100

## **Duke**

telnet librot1.lib.unc.edu  
or  
telnet 128.109.181.2

## **Emory**

tn3270 EMUVM1.CC.EMORY.EDU

or

tn3270 128.140.1.4

Press RETURN

When CP READ appears, type DIAL VTAM

When VTAM screen appears, type LIB

When CICS screen appears, hit ESC and then 1

Exit? Use TN3270 escape key



## **E. Michigan**

telnet ccb9.merit.edu

or

telnet 35.1.48.150

at the which host prompt, enter EMU-VAX

At the username prompt, enter NOTIS

Note: use keypad enter instead of RETURN

Exit? Hit CTRL-Z

## **Abilene Library Consortium**

telnet ALCON.ACU.EDU  
Username: ACUPAC

Exit? Type STOP.

## **Air Force Institute of Technology**

telnet SABRE.AFIT.AF.MIL

or

telnet 129.92.1.10

At the USERNAME prompt, enter **AFITPAC**

At the PASSWORD prompt, enter **LIBRARY**

Exit? Hit CTRL-Z. Type **QUIT**

**Auburn University**

TN3270 AUDUCACD.DUC.AUBURN.EDU

or

tn3270 131.204.2.13

Push TAB until the cursor is in the APPLICATION field.

Type 01.

Press RETURN

## **Arizona State University**

telnet CARL.LIB.ASU.EDU  
or  
telnet 129.219.10.8

At the destination prompt, enter CARL.  
Enter 5 for VT100.  
Press RETURN twice.

Exit? type //EXIT twice.

## **Bates College**

telnet LADD.BATES.EDU  
or  
telnet 134.181.1.8

Enter v for VT100  
Enter y to confirm

Exit? type D

**Boise State University**

CATALYST is the combined library system for Boise State University and Idaho State University.

telnet CATALYST.IDBSU.EDU

or

telnet 132.178.18.2

At the login prompt, type catalyst.

Press RETURN.

Select 4 for VT100 emulation.

Exit? Type E until main menu appears. Select Log Off

## **Boston University**

telnet LIBRARY.BU.EDU  
or  
telnet 128.197.130.200

Exit? Type EXIT

Boston University's online Catalog (TOMUS) provides access to over one and a half million volumes and two and a half million microforms.

TOMUS is a Carlyle system and provides online help screens.



## **Bowdoin College**

telnet phebe.bowdoin.edu  
or  
telnet 139.140.1.2

Login: library

## **Brigham Young University**

tn3270 LIB.BYU.EDU

or

tn3270 128.187.11.1

Type BYLINE at the userid prompt.

Enter e on the next screen.

Exit? TN3270 escape key.

## **Brown University**

TN3270 BROWNV.M.BROWN.EDU

or

tn3270 128.148.128.40

At the BROWN logon screen: TAB to command field.

Enter DIAL JOSIAH.

TAB to the JOSIAH choice on the screen.

Exit? Enter ESC 0.

Select option 4 from menu.

Enter ESC 3.

Enter CTRL-P 1.

Searching Josiah:

The Josiah Search Menu supports searches by author, title, subject, and author/title combinations. Help is available at any point by pressing the PF1 key. PF key alternatives are also supported by typing PF1 (or PF3, PF5, etc.) after any ">>" prompt.

**California Institute of Technology**

telnet libopac.caltech.edu  
login? library

telnet library.calpoly.edu  
or  
telnet 129.65.20.21

login:? polycat

Exit? Hit CTRL-D

## **California State University, Fresno**

telnet caticsu.csufresno.edu  
or  
telnet 129.8.100.15

login: public

Exit? type 0

## **California State University, Long Beach**

telnet coast.lib.csulb.edu

or

telnet 134.139.50.1

enter VT100 for terminal type:

press RETURN a few times...

Exit? Use telnet escape key

## **Carnegie Mellon University**

telnet library.cmu.edu  
or  
telnet 128.2.11.78

login: **library**

Exit? type ESC 6



**Case Western University**

telnet euclid.cwru.edu  
or  
telnet 129.22.120.199

**City University of New York**

tn3270 cunyvms.cuny.edu

press return at the login screen

type DIAL VTAM

tab cursor to CUNYPLUS and press RETURN

Hit CTRL-Z (clear screen)

type LUCU

**Clemson University**

TN3270 [clemson.clemson.edu](http://clemson.clemson.edu)

Choose option B on the menu

## **Cleveland Public**

telnet library.cpl.org  
or  
telnet 192.58.246.4

Hit Control-Z to start

Quit? Control-Z, then type **EXIT**

## **Colby University**

telnet ladd.bates.edu  
or  
telnet 134.181.1.8

Enter v for VT100  
Enter y to confirm  
Select b on the menu  
Select 1 on the next menu  
Enter v for VT100  
Enter y to confirm

Exit? Select X on Menu, then D on BATES menu

## **CARL**

telnet pac.carl.org  
or  
telnet 192.54.81.128

Enter 5 for VT100 emulation

## **Harvard University**

tn3270 hollis.harvard.edu

or

tn3270 128.103.60.31

Type hollis on the Harvard Univ./Office for Info Tech screen.

Exit? TELNET: hit ESCAPE xx. TN3270: use escape key

## **Indiana University**

tn3270 IUIS3270.UCS.INDIANA.EDU

or

tn3270 129.79.210.200

Pick 4 on the menu.

(alternate method) telnet IUIS.UCS.INDIANA.EDU

or

telnet 129.79.2.203

Enter VT100 as the terminal type.

Pick 4 on the menu.

Exit? Enter Q. Enter Q again.



## **Iowa State University**

telnet ISN.IASTATE.EDU  
or  
telnet 129.186.99.37

At the DIAL prompt, type **LIB**

At the ENTER TERMINAL TYPE prompt, type **VT100**  
At the MVS welcome screen, type **SCHOLAR**

Exit? On the SCHOLAR command line, type QUIT.

## **Johns Hopkins University**

telnet JHUV.M.HCF.JHU.EDU  
or  
telnet 128.200.2.2

Enter 04 at the "Please enter one of the following" prompt.  
Hit RETURN at the JHU/HAC logo screen.  
At the command prompt, type DIAL JANUS.  
When the port assignment appears, press RETURN

Exit? type ####.

## **Kalamazoo College**

telnet CCB9.MERIT.EDU

or

telnet 25.1.48.150

At the Which Host prompt, enter KZOO-LIB.

Exit? type H from the main menu.

## **Kansas State University**

tn3270 KSUVM.KSU.EDU

or

tn3270 129.130.1.1

Type LYNX.

(alternate method) telnet TELNET.KSU.EDU

or

telnet 129.130.1.10

Select destination as KSUVM.

Enter VT100 at terminal type prompt.

Type LYNX.

Exit? Type QUIT.

## **Kent State University**

telnet CATALYST.KENT.EDU  
or  
telnet 131.123.1.9

Push RETURN.

At the ENTER TERMINAL TYPE prompt, enter VT100

At the SELECT APPLICATION prompt, enter D

At the CICS screen, enter LUKS

Exit? use telnet escape key

## Lehigh

telnet ASA.LIB.LEHIGH.EDU  
or  
telnet 128.180.2.13

Exit? Type **END**

## Maricopa Community Colleges

telnet LIB.MARICOPA.EDU

or

telnet 140.198.8.18

Username: enter LIB

"Which College?" enter PC, GC, GW, MC, SC, RS, SM, CG, PV, EM, DO, or EXIT

Exit? use CTRL/Z or use telnet escape key

Code Institution

CGCC	CHANDLER GILBERT COMMUNITY COLLEGE CENTER LIBRARY
GCC	GLENDALE COMMUNITY COLLEGE LIBRARY
GWC	GATEWAY COMMUNITY COLLEGE LIBRARY
MCC	MESA COMMUNITY COLLEGE LIBRARY
PCC	PHOENIX COMMUNITY COLLEGE LIBRARY
PVC	PARADISE VALLEY COMMUNITY COLLEGE LIBRARY
RSCC	RIO SALADO COMMUNITY COLLEGE LIBRARY/MEDIA SERVICES
SCC	SCOTTSDALE COMMUNITY COLLEGE LIBRARY
SMCC	SOUTH MOUNTAIN COMMUNITY COLLEGE LIBRARY
MCLI	MARICOPA CENTER FOR LEARNING AND INSTRUCTION

Also provides access to Magazine Index

## **Marquette University**

telnet LIBUS.CSD.MU.EDU  
or  
telnet 134.48.20.1

At the login prompt, type m.  
Select v at the TERMINAL prompt.

Exit? Enter Q



## **Massachusetts Institute of Technology**

telnet LIBRARY.MIT.EDU

or

telnet 18.84.1.12

Press RETURN

Enter /V

Press RETURN

Exit? use telnet escape key

## **Michigan State University**

tn3270 MAGIC.LIB.MSU.EDU

or

tn3270 35.8.2.99

At the VM370 screen, type DIAL MAGIC

At the Terminal Emulator screen, enter VT100

(alternate method) telnet MERIT-telnet-GW.MSU.EDU

or

telnet 35.8.2.56

At the Which Host? prompt, enter MAGIC

At the terminal id, enter VT100

Exit? use telnet or TN3270 escape key

## **Michigan Tech**

telnet CCB9.MERIT.EDU

or

telnet 35.1.48.150

At the Which Host prompt, enter FOCUS

Press RETURN

Enter VT100 as terminal type

Press RETURN again

Exit? use telnet escape key

## **Minnesota State University**

telnet MSUSGW.UMN.EDU

or

telnet 128.101.63.10

At the "enter destination" prompt, enter PALS

Location: Mankato, Minnesota USA

The PALS system contains information on many libraries including Austin Community College, Anoka-Ramsey Community College, Bemidji State University, Bethany Lutheran College/Seminary, Brainerd Community College, College of St. Scholastica, Concordia College in Moorhead, Fergus Falls Community College, Gustavus Adolphus College, Hibbing Community College, Itasca Community College, Inver Hills Community College, Fire Center, Lakewood Community College, Mankato State University, Minneapolis Community College, Minnesota Attorney General's Office, Minnesota Center for the Arts, Minnesota Dept of Health, Minnesota Dept of Human Services, Minnesota Dept of Jobs & Training, Minnesota Dept of Natural Resources, Minnesota Dept of Revenue, Minnesota Dept of Trade & Economic Development, Minnesota Dept of Transportation, Minnesota Historical Society, Minnesota Law Library, Minnesota Legislative Reference Library, Minnesota Office of Library Development and Services, Minnesota Planning Agency, Minnesota Pollution Control Agency, Mesabi Community College, Moorhead State University, Normandale Community College, North Dakota State University, North Hennepin Community College, Northland Community College, Rainy River Community College, Rochester Community College, Southwest State University, St. Mary's College of Winona, St. Olaf College, University of Minnesota Crookston, University of Minnesota Waseca, Vermilion Community, Willmar Community College, Winona State University, and Worthington Community College.

Exit? type **EN**

## **New Mexico State University**

telnet LIBRARY.NMSU.EDU

or

telnet 128.123.18.115

At the : prompt, type hello user.libr01

When asked for terminal type, enter 5

When asked for location code, enter 0100

Exit? Enter /QUIT

## **New York Public Library**

telnet nyplgate.nypl.org  
or  
telnet 192.94.250.2

Login:  
password:

The following Databases are available:

NYPL Branch Libraries Catalog  
Metropolitan Inter-Library Cooperative System Regional Catalog.  
NYPL Dance Collection Catalog

## **New York University**

telnet BOBCAT.NYU.EDU  
or  
telnet 128.122.138.2

Hit RETURN

Exit? type END

The OPAC lists more than 750,000 records, including many pre-1973 items and all material purchased after 1973. BobCat contains the holdings of NYU's Division of Libraries, as well as the consortium libraries of the New School for Social Research, the Parsons School of Design, the Cooper Union for the Advancement of Science and Art, and the New York Academy of Art.

## **Northeastern Ohio Universities College of Medicine**

telnet SCOTTY.NEOUCOM.EDU

or

telnet 140.220.1.2

The initial prompt will request you to login to the system. Enter and press RETURN

Choose terminal type

Exit? type the word "quit" at any prompt to get back to the NEOCAT main menu. Select item "4" from the NEOCAT main menu



## **Northwestern University**

tn3270 NUACVM.ACNS.NWU.EDU  
or  
telnet NUACVM.ACNS.NWU.EDU  
or  
telnet 129.105.16.1

If you used telnet, enter **for VT100 (as terminal type)**

TAB down to the COMMAND prompt  
Type DIAL VTAM  
Application ID: **LUIS**

Exit? Type STOP at any OPAC prompt. If on the University Center menu, type /bEXIT

## **Oberlin College**

telnet OBIS.LIB.OBERLIN.EDU  
or  
telnet 132.162.32.20

No special login required

Exit? type at any prompt

## **Occidental College**

telnet KITTY.OXY.EDU

or

telnet 134.69.1.10

Type OASYS at ENTER RESOURCE NAME prompt

login: type

Pick v as terminal type

Enter y to confirm

Exit? type D

## **Old Dominion University**

telnet GEAC.LIB.ODU.EDU

or

telnet 128.82.24.75

Exit? Type END or QUIT

## Ohio State

telnet LCS.US.OHIO-STATE.EDU  
or  
telnet 128.146.15.141

Choose 0 as your terminal type  
Type HELP to see options

Exit? Use telnet escape key

## **Oregon State**

telnet OASIS.KERR.ORST.EDU  
or  
telnet 128.193.162.13

Login: **OASIS**  
Enter 1 for VT100 emulation

Exit? use telnet escape key

## **Pennsylvania State University**

telnet LIAS.PSU.EDU  
or  
telnet 128.118.88.88

Normally, VT100 should be negotiated at this point. If you have terminal emulation problems, try typing `TERMINAL VT100` at the `>>>` prompt

Exit? Type `EXIT` at the `>>>` prompt

## **Portland State University**

telnet PSULIB.CC.PDX.EDU  
or  
telnet 131.252.129.52

Login: type **DIALIN**  
Terminal type: enter **VT100**

Exit? use telnet escape key



## **Princeton Manuscripts Catalog**

tn3270 PUCC.PRINCETON.EDU

At the VM370 logo screen, hit RETURN

Type FOLIO

On the FOLIO welcome screen, hit RETURN

When the list of choices appear, choose 3

Exit? type LOGOFF

## **Princeton University**

telnet CATALOG.PRINCETON.EDU  
or  
telnet 128.112.131.101

Type CALL 500 from # prompt

Exit? type LOGOFF

## **Purdue**

telnet thorplus.lib.purdue.edu  
or  
telnet 128.210.21.22

login: **catnet**

### ONLINE CATALOG SELECTION MENU

help	Online Help
chi	The University of Chicago (U of C Online Catalog)
ill	The University of Illinois (LCS)
ind	Indiana University (IO)
mic	The University of Michigan (MIRLYN)
msu	Michigan State University (MAGIC)
min	The University of Minnesota (LUMINA)
nor	Northwestern University (LUIS)
ndu	The University of Notre Dame (UNLOC)
osu	The Ohio State University (LCS)
psu	Penn State University (LIAS)
pur	Purdue University (THOR)
wis	The University of Wisconsin (NLS)
quit	Quit the Program

Exit? type STOP

## **Rensselaer Polytech Institute**

telnet INFOTRAC.RPI.EDU

or

telnet 128.113.1.31

Enter VT100 as terminal type

On the NIM screen, press RETURN

Exit? type STOP

## **Rice University**

tn3270 LIBRARY.RICE.EDU

or

tn3270 128.42.73.2

When signon screen appears, hit TAB twice  
On COMMAND ==> line, type DIAL LIBRIS  
CTRL-Z to clear the screen

Exit? Use the TN3270 escape key

## **Rochester Institute of Technology**

telnet RITVAX.ISC.RIT.EDU

or

telnet 129.21.200.5

Username: **LIBRARY**

Press RETURN

Type 1

Exit? Type D. After the "connection closed" message, type 9

## **Rockefeller University**

telnet LIBRARY.ROCKEFELLER.EDU

or

telnet 129.85.1.20

Login:

TERM: enter

Exit? choose the menu option for exit

## **Rutgers University**

telnet LIBRARY.RUTGERS.EDU

or

telnet 128.6.241.3

Press RETURN

Exit? type END



## **Online Public Access Catalog**

what libraries call the public interface for their bibliographic information systems (the electronic card catalog if you will)

## **Southern Methodist University**

tn3270 VM.CIS.SMU.EDU

or

tn3270 129.119.64.2

When the sign-on screen appears, enter PONI

On the CICS screen, press CTRL-Z

Enter

Exit? use the TN3270 escape key

## **SUNY-Binghamton**

tn3270 BINGVMC.CC.BINGHAMTON.EDU

or

tn3270 128.226.1.4

Press TAB twice

At the COMMAND prompt, type **DIAL VTAM**

Enter **ELIXIR**

Press RETURN several times

Exit? use the TN3270 escape key

## Texas A&M

tn3270 TAMVM1.TAMU.EDU

or

tn3270 128.194.4.3

TAB down to Command prompt

Type **DIAL VTAM**

At the Texas A&M Statewide Network screen, type **NOTIS**

At the CICS screen, hit RETURN

(alternate method)

telnet VENUS.TAMU.EDU

or

telnet 128.194.4.1

Username: **VTAM**

At the Texas A&M Statewide Network screen, type **NOTIS**

At the CICS screen, hit RETURN

Exit? CTRL-Z

## **Texas Christian University**

telnet GAMMA.IS.TCU.EDU

or

telnet 138.237.1.7

Username: **TCUCAT**

Exit? CTRL-Z, then option 6 on menu

## **Tufts University**

telnet LIBRARY.TUFTS.EDU  
or  
telnet 130.64.128.1

Username: **TULIPS**

Exit? CTRL-Z, then **QUIT**

## **University of Akron**

telnet LIBRARY.UAKRON.EDU  
or  
telnet 130.101.3.170

The initial system prompt (:) will request your response

At the colon prompt, enter the "hello user.clas01" sign-on command followed by a carriage return

At the prompt "Enter line number of the TERMINAL TYPE", the number 5 is the best first choice

If the "Enter Location Code" prompt appears after the system banner, enter the "0100" code to access the BIERCE library online catalog

Once you've done that and pressed (return), follow on-screen instructions

Exit? use telnet escape key

Athabasca University  
Brandon University  
McGill University  
McMaster University  
Nova Scotia  
University College of Cape Breton  
University of Calgary  
University of Kings College  
University of New Brunswick  
University of Prince Edward Island  
University of Saskatchewan  
University of Toronto  
University of Western Ontario  
University of British Columbia  
York University



## **University of Saskatchewan**

telnet skdevel2.usask.ca  
or  
telnet skdevel.usask.ca

Request: **LIB**

Exit? type **END**

University of Saskatchewan also has information in the INFOACCESS database. To access:

telnet SKLIB.USASK.CA

USERNAME: **SONIA**

Exit? type **QUIT**

**University of Toronto**

telnet 128.100.100.32

Branch? type branch in **CAPS**

Exit? Use telnet escape key

## **University of Western Ontario**

telnet GEAC.LIB.UWO.CA

or

telnet 129.100.2.18

Hit ENTER after "Current terminal type =vt100"

Exit? type Control-D

## **York University**

telnet yorkline.yorku.ca  
or  
telnet 130.63.1.10

terminal type:

Exit? type X

**University of British Columbia**

telnet LIBRARY.UBC.CA  
or  
tn3270 LIBRARY.UBC.CA

**University of New Brunswick**

tn3270 UNBMVS

**University of Prince Edward Island**

telnet lib.cs.upei.ca

Username:

Exit? CTRL-Z

**Kings College (University of)**

telnet novanet.dal.ca

or

telnet 129.173.1.22

press RETURN to enter catalog

Exit? hit END or telnet escape key



## **Athabasca University**

telnet AUCTUS.ADMIN.ATHABASCAU.CA  
or  
telnet 131.235.5.1

At Username: prompt, enter AUCAT

Exit? type QUIT

## **Brandon University**

telnet library.brandonu.ca  
or  
telnet 142.13.16.4

At the Username: prompt, enter LIBCAT

Exit? type QUIT, EXIT or END

**McGill**

tn3270 mvs.mcgill.ca

On the menu, choose option 2 (muse)  
Hit return on the CICS screen.

Exit? type OFF

tn3270 mcmvm1.cis.mcmaster.ca  
TAB to the COMMAND prompt  
Type DIAL VTAM  
At the ENTER YOUR LOGONID prompt, enter super  
At the ENTER PASSWORD prompt, enter session  
At the SNA SYSTEMS INTERCONNECT screen, enter s  
At the SERVICE SELECTION screen, hit F9  
At the SUPERSESSION APPLICATION SELECTION screen, hit F3  
  
Exit? use tn3270 escape key

## **Nova Scotia**

telnet NOVANET.DAL.CA  
or  
telnet 129.173.1.22

To access:

Dalhousie University  
Mount Saint Vincent University  
Nova Scotia College of Art and Design  
Technical University of Nova Scotia  
University College of Nova Scotia

Exit? Hit END or the telnet escape key

## **Cape Breton**

telnet novanet.dal.ca

or

telnet 129.173.1.22

Exit? hit END or the telnet escape key

## **University of Calgary**

telnet develnet.ucalgary.ca  
or  
telnet 136.159.1.70

Request:  
Select 0C as terminal  
Hit return when screen blanks  
Hit return again on U of Calgary screen

Exit? Use telnet escape key

what is Archie?  
what is CELLO?  
what is a gopher?  
what is Mosaic?  
what is Veronica?  
what is WAIS?  
what is WWW?



## **WINSOCK version of Cello released**

*Editor's note: excerpt of an email message announcing the availability of Cello*

This is an announcement of an alpha WINSOCK version of Cello, the multipurpose Internet browser for Microsoft Windows developed by the Legal Information Institute at Cornell Law School.

This version is announced as alpha primarily because we lack the means to test it with all -- or even most -- of the common WINSOCK implementations, and are relying on the community to assist us in uncovering those nasty bugs. Features and all but the networking code are identical with beta v0.7 of the Distinct-based release.

The release is available for anonymous FTP from [fatty.law.cornell.edu](http://fatty.law.cornell.edu), in the `/pub/LII/Cello/winsock_alpha` directory.

For those not familiar with Cello:

Cello is a multipurpose Internet browser which directly supports WWW, Gopher, FTP, Telnet, CSO/ph/qi and Usenet news. Through public gateways it accesses resources available through WAIS, HyTelnet, and other Internet protocols. Cello supports post-processing of any retrieved file through the Windows `..Associate...` mechanism, and thus can display graphics, PostScript, MPEG movies, and play sounds provided that you have the appropriate viewer/player applications installed on your client system. Inline graphics are not yet supported, but will be soon.

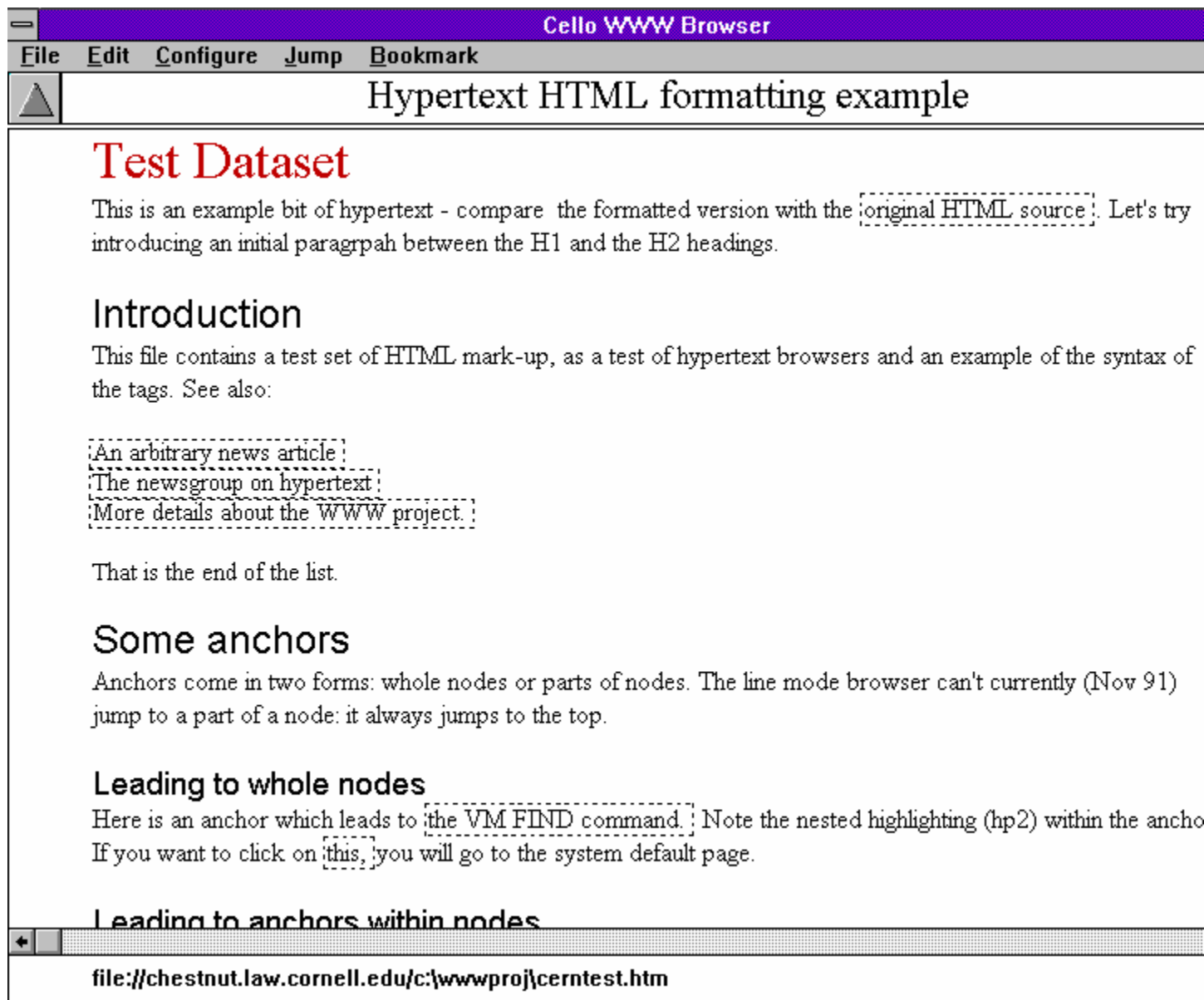


[sample CELLO screen](#)

For those not familiar with the Legal Information Institute:

The LII is a research group at the Cornell Law School working on the distribution of legal information by various means, including PC-based hypertext and various Internet distribution schemes. We make core legal texts available to students, practitioners, and academics on disk in the Folio Views format, as well as Internet versions found on our servers at Cornell. For information about the LII and its various products, write [lii@fatty.law.cornell.edu](mailto:lii@fatty.law.cornell.edu)

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Sample CELLO session

## World Wide Web

telnet info.cern.ch  
or  
telnet 128.141.201.74 (SWISS)

telnet eies2.njit.edu  
or  
telnet 128.235.1.43 (USA (NJ))

telnet vms.huji.ac.il  
or  
telnet 128.139.4.3 (ISRAEL)

telnet info.funet.fi  
or  
telnet 128.214.6.100 (FINLAND)

Tim Berners-Lee (of the World Wide Web project) describes the Web this way: "The WWW project merges the techniques of information retrieval and hypertext to make an easy but powerful global information system. The WWW world consists of documents, and links. Indexes are special documents which, rather than being read, may be searched. The result of such a search is another (virtual) document containing links to the documents found. The Web contains documents in many formats. Those documents which are hypertext, (real or virtual) contain links to other documents, or places within documents.

All documents, whether real, virtual or indexes, look similar to the reader and are contained within the same addressing scheme. To follow a link, a reader clicks with a mouse (or types in a number if he or she has no mouse). To search and index, a reader gives keywords (or other search criteria). These are the only operations necessary to access the entire world of data."

Access to various documents, lists, and services.

Login: www



obtaining WWW client software

## **World Wide Web (client software)**

World Wide Web is a system for browsing not only gopher databases but also hypertext. Rather than merely a menu of items and ascii text or images (as with gopher), hypertext allows fully formatted text.

WWW clients can also directly access the following servers:

- \* WAIS
- \* Network News
- \* Gopher
- \* Telnet
- \* Anonymous FTP
- \* TechInfo
- \* X.500
- \* WHOIS

If you'd like to try the World Wide Web, some of the browsers are available in the following directory: "World Wide Web Clients"

It's available on

- \* Terminal based browsers
- \* PC Running Windows
- \* Macintosh
- \* X-Windows
- \* NeXTStep

You can get WWW browsers by anonymous ftp to multiple locations throughout the world

### **Terminal based browsers**

\* Line-mode browser -> info.cern.ch, in /pub/www/bin or /pub/www/src \* "Lynx" vt100 full screen browser -> ftp2.cc.ukans.edu in /pub/lynx \* For VMS (alpha) -> vms.huji.ac.il in www/www\_client \* Emacs w3-mode (beta) -> moose.cs.indiana.edu in /pub/elisp/w3/ **PC running MS Windows**

- \* Cello (beta) -> fatty.law.cornel.edu. /pub/LII/cello
- \* Mosaic for Windows (beta) -> ftp.NCSA.uiuc.edu in PC/Mosaic

### **Macintosh**

- \* Mosaic for Macintosh (beta) -> ftp.ncsa.uiuc.edu in /Mac/Mosaic
- \* Samba -> info.cern.ch in /ftp/pub/www/bin/mac

### **X-Windows**

- \* NCSA Mosaic for X -> ftp.ncsa.uiuc.edu in /Web/xmosaic
- \* WWW Browser/Editor for X11 (beta) -> export.lcs.mit.edu in /contrib
- \* MidasWWW (beta) -> info.cern.ch in /pub/www/src

### **NeXTStep**

- \* Browser-Editor on the NeXT -> info.cern.ch /pub/www/bin

Note that the best information you may get on WWW is only accessible by using a WWW browser. Thus, you will have all the hypertext and hypermedia capabilities, and you will be sure you have the most up-to-date information.

## **University of Minnesota Gopher**

telnet consultant.micro.umn.edu  
or  
telnet 128.101.95.9

login: gopher  
term = (vt100) hit RETURN

Frequently referred to as the 'mother of all gophers

Allows remote login to many other Internet sites with LIBTEL.COM. Has RFCs on-line, campus information, weather service, phone books, connections to other gophers, "electronic" books, etc.

## **Hyper-G**

telnet FINFO.TU-GRAZ.AC.AT  
or  
telnet 129.27.2.4

login: info

For English interface type: sprache englisch

Hyper-G offers both a hierarchical view and hyperlinks, as well as sophisticated queries.

Please direct any comments to [fkappe@iicm.tu-graz.ac.at](mailto:fkappe@iicm.tu-graz.ac.at).

## **Nova Gopher**

telnet NSTN.NS.CA  
or  
telnet 137.186.128.11

login: fred

Sample opening screen

1. About Gopher
2. Canadian Weather Forecasts
3. Internet Resources
4. NSTN Information
5. New Stuff
6. Newsletters
7. Other Information
8. Other gophers
9. White Pages



## **Oreilly Gopher**

telnet GOPHER.ORA.COM    or    telnet 140.186.66.1  
login: gopher

sample opening menu:

Internet Gopher Information Client v1.03

1. Computer Security
2. Distributed Computing Environment (DCE)
3. New Books and Editions
4. Pick
5. System Administration
6. UNIX & C Programming
7. Using UNIX
8. X Resource
9. X Window System
10. Textual Search on all catalog entries (?)

## **SUNET gopher**

telnet 192.36.125.2

login: gopher

Needs vt100 emulation

sample opening menu:

1. Info about this Gopher Server.
2. Nordic Information Services
3. BASUN, The SUNET Info Server
4. CARL (TEL)
5. CCITT Blue Book
6. Databases via telnet
7. Ebone Information
8. Electronic Newsletters & Journals (unt.edu)
9. Infoservers in European Countries
10. International Library Services
11. Library of Congress (TEL)
12. Nordic Internet Libraries
13. Other Gopher and Information Servers
14. PD Software FTP Archive
15. Phone Books and E-Mail addresses
16. Requests for Comments (RFC)
17. Subject Tree
18. Trivia

## **University of Maryland gopher**

telnet info.umd.edu  
or  
telnet 128.8.10.29  
login: gopher

Welcome to the University of Maryland Information Service

The Information Revolution is here! There is a great deal of electronic information out there on nearly every topic under the sun that, until now, was inaccessible to the general public. From medical breakthroughs to the current weather conditions, forecasts, and weather satellite pictures to USA Today articles, the resources are nearly infinite. Now they are easily accessible to anyone with a PC, Macintosh, Unix, or NeXT machine and access to the Internet network via [WAIS](#), [Gopher](#), [Archie](#), [Hytelnet](#) and [World Wide Web](#).

As you explore this service, you will be experiencing first-hand the beginning phases of the "information revolution". The UofM Information Service is your connection to computing sites around the country and indeed around the world.

This system provides "gateways" via Gopher to such information retrieval services as WAIS, INFO, Hytelnet, Archie, and WWW as well as a number of other information services. Each of these systems operate quite differently so please view the "About..." items listed in this directory, for further information on Gopher, WAIS, Hytelnet, Archie, and WWW.

Clearly, the UofM bears no responsibility for the quality of data at other sites. The interfaces to the data are also, for the most part, beyond our direct control. Help may be available by entering a "?". Usually, the arrow keys will function, and generally, using "q", "Q", or "quit" will let you leave the outside service. Again, we urge you to review the information in the "About..." files which describe in more detail the peculiarities of the various services.

## **Hytelnet**

A software package much like InfoPop for MS-DOS and Unix machines. You can find the addresses of hundreds of interesting Internet destinations via hytelnet.

To obtain a copy of the MS-DOS version of hytelnet (current version as of this writing is 6.5):

ftp access.usask.ca

username: anonymous

password: your Internet address.

at ftp> prompt, enter: cd pub/hytelnet/pc

at next prompt, enter: dir this will list out the files in the directory.

look for one that follows this naming

convention:

HYTELNxx.ZIP

Where the 'xx' is a number.

at next prompt, enter: binary

at next prompt, enter: get hytelnxx.zip updates to hytelnet

## **HYTEL-L**

Peter Scott, author of the hytelnet database, maintains a mailing list for updates (which I highly recommend as a means of keeping track of the internet explosion). Here's an excerpt from an announcement which describes the list:

This list is for announcements of new versions of the popular HYTELNET program, which gives a user access to all known telnet-accessible sites on the Internet. List members will also receive announcements of new/changed/defunct sites, announced between full versions of the program.

HYTEL-L replaces the LIB\_HYTELNET mailing list.

The list is co-moderated by Peter Scott, author of HYTELNET, and Diane Kovacs of Kent State University.

To subscribe, send mail to [LISTSERV@KENTVM.BITNET](mailto:LISTSERV@KENTVM.BITNET) or [LISTSERV@KENTVM.KENT.EDU](mailto:LISTSERV@KENTVM.KENT.EDU) with the body (not the subject!) containing the command: SUB HYTEL-L Your Name

For example: sub hytel-l Bill Clinton

Co-Moderator: Peter Scott [aa375@freenet.carleton.ca](mailto:aa375@freenet.carleton.ca)

Co-Moderator: Diane Kovacs [dkovacs@kentvm](mailto:dkovacs@kentvm)

telnet gopher.unt.edu  
or  
telnet 129.120.1.42

login: gopher  
Password: gopher



## The Internet Gopher

The Internet Gopher (a client/server protocol) provides a distributed delivery system around which a **campus-wide information system** can readily be constructed. While providing a delivery vehicle for local information, Gopher facilitates access to other Gopher and information servers throughout the world.

An excellent guide to installing Gophers (both clients & servers) is available via anonymous [ftp](ftp://boombox.micro.umn.edu) from boombox.micro.umn.edu. Go to the pubdirectory and retrieve the latest version. Note that the file is available in **Postscript** format only.

Hardly an exhaustive list, but logging onto one or two of these systems should help you flesh out your list of favorite sites.

[Hyper-G \(Technical University of Graz, Austria\)](#)

[Nova Scotia Technology Network](#)

[O'Reilly & Associates, Inc](#)

[SUNET Gopher \(Sweden\)](#)

[University of Maryland](#)

[University of Minnesota](#)

[University of North Texas](#)



related topic: [Veronica](#)

a few more gopher servers without descriptions:

telnet panda.uiowa.edu

telnet gdunix.gd.chalmers.se (swedish)

telnet tolten.puc.cl (chile)

telnet wsuaix.csc.wsu.edu (login: wsuinfo)

telnet columbianet.columbia.edu

How do you contact a gopher?

Ideally, You use a gopher "client" program that runs on your local PC or workstation. Lacking that connectivity, you can [telnet](#) to a machine that has a 'public' gopher client running. There are clients for the following systems. The directory following the name is the location of the client on the anonymous ftp site boombox.micro.umn.edu (134.84.132.2) in the directory /pub/gopher.



related topic: a Windows [gopher+ client \(Hgoph\)](#)

Unix Curses & Emacs: /pub/gopher/Unix/gopher1.12.tar.Z

Xwindows (athena): /pub/gopher/Unix/xgopher1.2.tar.Z

Xwindows (Motif): /pub/gopher/Unix/moog

Macintosh Hypercard: /pub/gopher/Macintosh-TurboGopher/old-versions \*

Macintosh Application : /pub/gopher/Macintosh-TurboGopher \*

DOS (clarkson):clarkson]: /pub/gopher/PC\_client/

NeXTstep: /pub/gopher/NeXT/

VM/CMS: /pub/gopher/Rice\_CMS/  
or  
/pub/gopher/VieGOPHER/

VMS: /pub/gopher/VMS/  
OS/2 2.x: /pub/gopher/os2/  
MVS/XA: /pub/gopher/mvs/

Many other clients and servers have been developed by others, the following is an attempt at a comprehensive list.

A Macintosh Application, "MacGopher".  
ftp.cc.utah.edu:/pub/gopher/Macintosh \*

Another Macintosh application, "GopherApp".  
ftp.bio.indiana.edu:/util/gopher/gopherapp \*

A port of the UNIX curses client for DOS with PC/TCP  
oac.hsc.uth.tmc.edu:/public/dos/misc/dosgopher.exe

A port of the UNIX curses client for PC-NFS  
bcm.tmc.edu:/nfs/gopher.exe

A beta version of the PC Gopher client for Novell's' LAN Workplace for DOS

lennon.itn.med.umich.edu:/dos/gopher

A VMS DECwindows client for use with Wollongong or UCX  
job.acs.ohio-state.edu:YGOPHER\_CLIENT.SHARE

\* Note: these Macintosh clients require MacTCP.

Most of the above clients can also be fetched via a gopher client itself. Put the following on a gopher server: Type=1  
Host=boombox.micro.umn.edu  
Port=70  
Path=  
Name=Gopher Software Distribution.

Or point your gopher client at boombox.micro.umn.edu, port 70 and look in the gopher directory.

There are also a number of public telnet login sites available. The University of Minnesota operates one on the machine "consultant.micro.umn.edu" (134.84.132.4).

It is recommended that you run the client software instead of logging into the public telnet login sites. A client uses the custom features of the local machine (mouse, scroll bars, etc.) A local client is also faster.



*InfoPop editor's note: Here's an excerpt from an e-mail message that came across the net recently, describing a Gopher+ client for Windows.*



gopher

ANNOUNCING THE AVAILABILITY OF HGOPHER Version 2.3 and HNGOPHER Version 2.3

A Gopher+ Client For Windows 3.1

New features since Beta 2.2

- \* HGopher now comes with a CSO Viewer called HGCSO.
- \* You can now obtain info on the server.
- \* You can decide when the Multiview symbol will be shown.
- \* INFO, Admin and Abstracts can be viewed in a viewer of your choice.
- \* Dot stuffing method changeable.
- \* Supports Panda I Type.
- \* recognizes HTML documents.
- \* You can set the Main Menu Font.
- \* Percentage Feedback bars on items with estimated size.
- \* Search String can be a parameter
- \* Copy to file now presents a reasonable file name.
- \* New copy to Directory mode.
- \* Now can force files to be saved with extension of your choice.
- \* Can add new view types without leaving HGopher.

Requirements

#### WINSOCK VERSION

- \* MS Windows 3.1 (not tested with Windows 3.0) Or Windows NT.
- \* Winsock DLL and TCP/IP+Packet support layer.

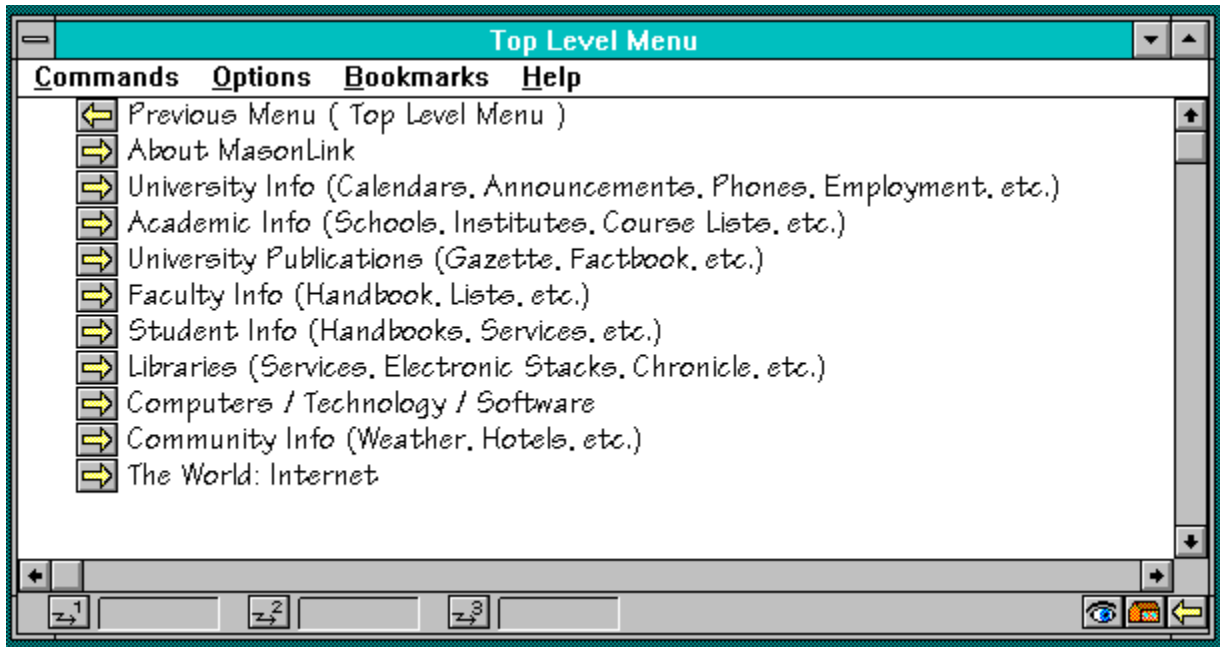
#### PC NFS VERSION

- \* MS Windows 3.1 (not tested with Windows 3.0)
- \* PC NFS Version 4 or version 5 (may work with other versions)  
NOTE: you can also use the Winsock version with PC NFS 5.0 and I suggest you do, as support for the native PC NFS version may be withdrawn at some point.

Available for anonymous ftp from **lister.cc.ic.ac.uk**

hgopher2.3.zip (Winsock Version) (Binary mode required)  
hngopher2.3.zip (Sun PC NFS Version) (Binary mode required)

Screen snapshot of Hgopher in action



Here's a sample screen showing the HGopher client retrieving the opening menu from a gopher server (actually one we run here in the library systems office of Fenwick -- MasonLink (fenwick.gmu.edu) -- which serves as our [CWIS](#)).

Yes, as you might guess from looking at this sample, you can use any TrueType font with the Hgopher client.

Yes, the 'gopher' protocol got its name from the mascot of the University of Minnesota ('the Golden Gophers').

## **Clarkson Drivers**

The Clarkson Drivers (originally developed and distributed by Clarkson University) are a set of freeware packet drivers (that's software). These 'drivers' enable a PC running Novell Netware (that is; using the IPX protocol) to also support TCP/IP (enabling [gopher](#), [telnet](#), [ftp](#), and other applications). You can obtain these drivers from several ftp sites, here's one:

```
ftp boombox.micro.umn.edu  
cd pub/gopher/PC_Client/drivers
```

## **VERONICA: Very Easy Rodent-Oriented Net-wide Index to Computerized Archives**

Developed by Steve Foster and Fred Barrie at the University of Nevada. Here are comments by Mr. Foster:

"Veronica offers a keyword search of most gopher-server menus in the entire gopher web. As Archie is to FTP archives, Veronica is to gopherspace. Unlike Archie, the search results can connect you directly to the data source. Imagine an Archie search that lets you select the data, not just the host sites, directly from a menu. Because Veronica is accessed through a gopher client, it is easy to use, and gives access to all types of data supported by the gopher protocol."

"Veronica was designed as a response to the problem of resource discovery in the rapidly-expanding gopher web. Frustrated comments in the net news- groups have recently reflected the need for such a service. Additional motivation came from the comments of naive gopher users, several of whom assumed that a simple-touse service would provide a means to find resources

"The result of a Veronica search is an automatically-generated gopher menu, customized according to the user's keyword specification. Items on this menu may be drawn from many gopher servers. These are functional gopher items, immediately accessible via the gopher client just double- click to open directories, read files, or perform other searches -- across hundreds of gopher servers. You need never know which server is actually involved in filling your request for information. Items that are appear particularly interesting can be saved in the user's bookmark list."

"Notice that these are NOT full-text searches of data at gopher-server sites, just as Archie does not index the contents of ftp sites, but only the names of files at those sites. Veronica indexes the TITLES on all levels of the menus, for most gopher sites in the Internet. 258 gophers are indexed by Veronica on Nov. 17, 1992; we have discovered over 500 servers and will index the full set in the near future. We hope that Veronica will encourage gopher administrators to use very descriptive titles on their menus."

"To try Veronica, select it from the gopher server (consultant.micro.umn.edu), or point your gopher at:

```
Name=Veronica (search menu items in most of GopherSpace)
Type=1
Port=70
Path=1/Veronica Host=futique.scs.unr.edu
```

"Veronica is an experimental service...as we expect that the load will soon outgrow our hardware, we will distribute the Veronica service across other sites in the near future."

"Please address comments to: [gophadm@futique.scs.unr.edu](mailto:gophadm@futique.scs.unr.edu)"

## Internet ARCHIVE Listing Service

Archie is a system to allow you to rapidly locate the various public domain programs stored on the hundreds of sites across the Internet. Archie retrieves the recursive directory listings of over 800 sites containing some one million files (over 50 gigabytes!) in round robin fashion over the course of a month. These listings are then processed and added to the database.

### Archie telnet addresses



deeper

## **Telnet addresses for Archie Servers**

Use any of these addresses (all contain identical data):

telnet archie.mcgill.ca  
telnet 132.206.2.2  
telnet 132.206.51.1  
telnet archie.funet.fi (Finland/Europe)  
telnet archie.au (austrailia)  
telnet archie.doc.ic.ac.uk (UK/Europe)  
telnet archie.sura.net  
telnet cs.huji.ac.il (Israel)  
telnet archie.ans.net  
telnet archie.rutgers.edu  
telnet 128.6.18.15  
telnet ds.internic.net  
telnet 198.49.45.10

Login: archie (return)

For example, to see where IPWIN is available, you could enter the following command during a telnet (interactive) session:

prog IPWIN (return)                    (assume the name is IPWIN112.EXE)

You'll receive back a listing of servers and the directory on each where the file is stored.

## **Archie**

*the following text was written by Peter Deutsch, Computing Centre, McGill University (peterd@cc.mcgill.ca).*

Few other areas in the field of computer science hold out such promise for significant performance gains in the coming years as the field of computer networking. While even a single computer allows the user to access and process information faster and more accurately than ever before, joining large numbers of such computers together with the communications tools needed for users to easily share information and resources promises the prospect of a true "electronic highway" for information exchange unlike anything seen to date.

A principal requirement for the creation of this brave new world of networked information was the creation of a standard set of protocols and communication mechanisms to allow users on disparate networks to share information. Such mechanisms have allowed the creation of the Internet, a global network of networks that now span the globe, connecting millions of users on hundreds of thousands of computers.

The Internet now connects universities, colleges and other centres of learning with commercial research and development groups throughout the world. It serves as both a live testbed for on-going networking research and a daily communications tool for thousands of users in fields far removed from networking and computer science. One recent survey estimates that the Internet currently has over 535,000 attached hosts in over 30 countries, with a user community estimated at over three million people.

The existence of this global information service has in turn spurred the development of mechanisms for locating and exchanging information. Distributed file systems, on-line file archiving mechanisms, electronic mail and bulletin boards and expert systems for locating and accessing technical expertise are all services that exist now on the Internet.

The huge size (and continued rapid growth) of the Internet offer a particular challenge to systems designers and service providers in this new environment. Before a user can effectively exploit any of the services offered by the Internet community the user must be aware of both the existence of the service and the host or hosts on which it is available. Adequately addressing this "resource discovery problem" is a central challenge for both service providers and users wishing to capitalize on the possibilities of the Internet.

[What is the archie service](#)

[Why use Archie](#)

[The Archie Service today](#)

[The 'whatis' database](#)

[Using Archie](#)

[Miscellaneous information](#)



## **What is the archie service?**

The archie service is a collection of resource discovery tools that together provide an electronic directory service for locating information in an Internet environment. Originally created to track the contents of anonymous ftp archive sites, the archie service is now being expanded to include a variety of other on-line directories and resource listings.

Users can access an archie server either through interactive sessions (provided they have a direct Internet connection) or through queries sent via electronic mail messages (provided they can at least gateway electronic mail messages onto the Internet).

Interactive access to archie may be through a conventional telnet session to a machine running an archie server or through a program that has been integrated into a larger system, such as the Prospero network distributed file system. Additional stand-alone clients are now being tested and are available over the network.

## **Why use Archie?**

The existence of the archie service allow those seeking information maintained by an archie server to limit their network search to a set of questions to a known server. The responses in turn offer pointers to specific Internet service providers. Once the existence and location of specific information or services has been determined using archie, traditional networking tools can be used for final access.

Programs have already been created that integrate an archie client with the ftp file transfer program or into larger information access services. This allows a user to first locate and then access information from archie sites using a single program.

## **Archie today**

Currently, archie tracks the contents of over 800 anonymous ftp archive sites containing some 1,000,000 files throughout the Internet. Collectively, these files represent well over 50 Gigabytes (50,000,000,000 bytes) of information, with additional information being added daily. Anonymous ftp archive sites offer software, data and other information that can be copied and used without charge by anyone with connection to the Internet.

The archie server automatically updates the listing information from each site about once a month, ensuring users that the information they receive is reasonably timely, without imposing an undue load on the archive sites or network bandwidth.

## **the "whatis" database**

In addition to offering access to anonymous ftp listings, archie also permits access to the "whatis" description database. This database is a collection of descriptions that includes the name and a brief synopsis for over 3,500 public domain software packages, datasets and informational documents located on the Internet.

Additional "whatis" databases are scheduled to be added in the coming months. Planned offerings include listings for the names and locations of on-line library catalogue programs, the names of publicly accessible electronic mailing lists and compilations of Frequently Asked Questions lists and archive sites for the most popular Usenet "newsgroups" or bulletin boards. Suggestions for additional descriptions or locations databases are welcomed and should be sent to the archie developers at "archie-l@archie.mcgill.ca".

Service providers are also encouraged to send in details of their offerings to the archie maintainers so that the server tracking software can be configured to automatically perform updates when site information changes. An automatic registration mechanism has also been proposed that would allow service providers to make their service available without human intervention. This feature is expected to be integrated into an upcoming release.

## **Using Archie**

Users with direct Internet connectivity can try out an interactive archie server using the basic "telnet" command (available at most sites). To use, telnet to the host "archie.mcgill.ca" (132.206.2.3) and login as user "archie" (there is no password needed). A banner message giving latest developments and information on the archie project will be displayed and then the command prompt will appear. First-time users should try the "help" command to get started.

Users with only email connectivity to the Internet should send a message to "archie@archie.mcgill.ca", with the single word "help" in either the subject line or body of the message. You should receive back an email message explaining how to use the email archie server, along with details of an email-based ftp server operated by Digital Equipment Corporation that will perform ftp transfers through email requests.

Demo archie clients are stored on archie.mcgill.ca in the subdirectory "archie/clients" and may be obtained using anonymous ftp. There are several such clients and others are currently being tested. Additional work is planned in this area in the coming months and details will be announced in the archie banner message displayed on login.

Documentation for the archie system is still limited, but what there is is also available for anonymous ftp from the same host under the directory "archie/pub".

## **Archie (Miscellaneous Information)**

The archie service began as a project for students and volunteer staff at the McGill University School of Computer Science. It is now offered as a network resource by a number of sites. At the time this article was prepared, archie servers are being operated as "archie.mcgill.ca" (by McGill University in Montreal, Canada), "archie.funet.fi" (by FUNet in Finland) and "archie.au" (by AARnet in Australia). The source to the archie project has been distributed to a number of U.S. sites and additional North American servers are expected to be operational soon.

The archie project continues to grow in part because of the feedback and response from users. Suggestions for improvements and additional features are especially welcome. Please let us know what you think...

Contacting the archie people:

Email addresses:

Please send comments, suggestions and bug reports to "archie-l@archie.mcgill.ca". This address reaches the implementors of archie.

There is also the "archie-people@archie.mcgill.ca" mailing list. This list is for people interested in developments and progress of the archie project and is open to all who wish to subscribe.

Surface mail address:

UNIX Support Group,  
Computing Centre,  
McGill University,  
room 200, Burnside Hall,  
805 Sherbrooke Street West,  
Montreal, Quebec  
CANADA H3A 2K6

Phone: (514) 398-3709

## **TCP/IP**

Transmission Control Protocol/Internet Program. A set of protocols developed by the Department of Defense to link dissimilar computers across networks. TCP/IP is an important and established internetworking protocol that works at the third and fourth layers of the OSI model. Developed by the Department of Defense, TCP/IP is designed to be rugged and robust, and to guarantee delivery of data in the most demanding circumstances. TCP/IP is more and more popular with networking and computer vendors who want to connect their equipment to a variety of other systems and protocols. TCP/IP has been implemented on everything from PC LANs to minis and mainframes. FTP and SMTP provide file transfer and e-mail capability. The telnet protocol provides a terminal emulation capability that allows a user to interact with any other type of computer in the network. The TCP protocol controls the transfer of the data, and the IP protocol provides the routing mechanism.

## **telnet**

(verb) establishing a connection to a remote computer connected to the Internet network.

(noun) Two types of programs are used to do this. One, usually called Telnet, establishes a VT100-type terminal emulation to the remote computer. The second, TN3270, establishes a full-screen IBM 3270-type terminal connection.

The telnet protocol has been implemented on a variety of systems. Each is different, so specific commands depend on your version. However, all versions function similarly, so there are a few general guidelines to follow.

The one common element across the disparate environments of the Internet is the TCP/IP software protocol suite, the basis of communications.

telnet, the terminal-handler portion of the TCP/IP protocol suite, is the cornerstone of this communications technology. telnet handles the remote login to another Internet host, so it is useful to know something about the way it works.

Sample Commands

Local vs Remote Commands

Logging On

Logging Off

Telnet escape sequences



open	connect to a site
close	close current connection
escape	set escape character
exit	exit telnet
generic	toggle conversion of control characters to standard NVT
codes	
localecho	toggle local echo mode
negotiate	negotiate telnet options
options	toggle viewing of options processing
quit	exit telnet
status	print status information
transvt	transmit NVT control functions
usecrnul	toggle sending of CR-NUL and CR-LF for new-line char
xon	toggle local processing of data flow control characters
z	suspend telnet
?	print help information

## Local vs Remote telnet commands

Once you have established a remote session, all commands you type will be sent to the Server telnet on the remote host for execution.

If you want a telnet command issued in the remote environment to be acted on locally by your client telnet, on most systems you would normally precede the command with an escape sequence (a predetermined character or combination of characters that signal your telnet software to execute the command that follows locally). For example, in NCSA telnet for pc-compatible microcomputers, the F10 key is the escape character that alerts telnet to execute locally the next command you type (to turn local echo on or off, or to toggle capture on or off, etc.).

The telnet escape sequence by itself followed by `cr` returns you temporarily to your local operating environment. On UNIX systems, the escape sequence is usually the control key and left bracket pressed simultaneously.

## Escape Keys (telnet / TN3270)

(MS-DOS)

CUTCP	ALT-X
KA9Q	F10
MD-DOSIP	ALT-(space)
NCSA telnet	ALT-X
PCIP	F10 Q Y
PC/TCPF10 c	
PC-NFS	F10

Macintosh

NCSA	Apple-K
------	---------

VAX/VMS

CMU	CTRL-^ c
Multinet	
telnet	CTRL-^ q
TN3270	CTRL-C q

WIN/TCP	
telnet	CTRL-] q
TN3270	CTRL-Y

Unix1

telnet	CTRL-] q
TN3270	CTRL-C q

To log onto a remote system via telnet, at your system's prompt enter:

telnet host address

or

telnet cr followed by OPEN host at the prompt.

The basic command set is simple. You also need to know either the machine domain name or the machine Internet address (a series of numbers). The numbers will always work; the names will work if they are a software table available to your version of telnet.

IBM systems that use TN3270 may require you to type a carriage return, "DIAL VTAM," or just "VTAM" in response to the first prompt from the remote system.

LOGOFF or LOGOUT (also try QUIT, END, EXIT, STOP, etc.)  
CLOSE, prefixed by the escape sequence.  
ABORT, prefixed by the escape sequence--use as a last resort!

To exit the remote system, first try that system's logoff command. To determine the appropriate logoff command, check the menus, help, and welcome screens when you first log on.

Logging off the remote system may return you to your primary operating environment (all the way out of telnet), or you may be left in telnet. If so, type "quit".

A few systems offer no graceful exit for remote users. This leaves two options --- CLOSE or ABORT.

CLOSE should be your next choice after LOGOFF. If you are unable to CLOSE the connection normally (e.g., if your remote session is hung), try the telnet ABORT command to drop your connection locally.

ABORT will return control to you in your local environment, but it may not properly terminate your remote session. Since this can leave the port on the remote machine busy for an indefinite period, ABORT should be your last resort.

In either case, you can also try escaping back to your local environment and then issuing the termination commands.

Break key?

There is no standard BREAK key across versions of telnet. telnet is based on the concept of a network virtual terminal, in which the control functions (breaks, etc.) are communicated with characters regardless of terminal type (rather than line conditions, used in the terminal server environment). Your local telnet receives your break and sends out a character sequence which is reinterpreted on the other end.

Since key sequences can be misunderstood, you should type HELP or > when you begin (at your local telnet prompt) to determine what sequence your version of telnet will send.

Tips:

UNIX: CONTROL-C may work for BREAK.

MAC: BREAK may be a menu option or a character combination.

PC: BREAK is F10 followed by a lower case letter "b".



The procedure of connecting to a remote computer, as an anonymous or guest user, in order to transfer files back to your computer. Basically, you type ftp at your system prompt then login on the remote system, then ask for the file you want to receive. It transfers to your local host machine.

[FTP commands](#)

[FTP how-to-guide](#)

[FTP sites \(selected destinations\)](#)



related topic: [archie](#)

## A few popular FTP sites

ftp ocf.berkeley.edu  
or  
ftp 128.32.184.254

offers: Docs, 5 puritytests, the Bible, Dec. of Ind,lyrics  
cd /pub/Library

ftp wuarchive.wustl.edu  
or  
ftp sunset.cse.nau.edu

offers: Gifs, Sights, & Sounds! ftp sounds.sdsu.edu for the sounds archive.

ftp ftp.uu.net

offers: everything!

ftp archive.umich.edu  
or  
ftp sumex-aim.stanford.edu

offers: Software for MS-Dos computers, Mac, Amiga,Apple2, Apollo...

ftp oak.oakland.edu

offers: A huge software archive for PCs and UNIX.

ftp ftp.sura.net

offers: How-to's about internet(how to email, ftp, telnet, etc.)  
cd /pub/nic

ftp cathouse.aiss.uiuc.edu

offers: All the text/humor files you'd want (tv, sex..) cd misc/fun/humor

Source of above is Scott Yanoff's excellent list of **Special Internet Connections**.  
Yanoff's address is @csd4.csd.uwm.edu1. His list is a regular feature on  
many gophers.

## FTP commands

abort	Terminate current operation
ascii	Set file transfer mode to ascii
bget	Retrieve a file in binary mode
bput	Send a file in binary mode
bell	Ring bell when file transfer completes
binary	Set file transfer mode to binary
bye	Close the connection and exit
case	Toggle mapping of local filenames to lower case
cd	Change current working directory on remote host
chdirup	Change to parent of working directory on remote
commandfile	Execute <u>ftp</u> commands from local file
delete	Delete a file on remote host
directory	Display contents of a directory in long form
disconnect	Close the connection
file	Set file transfer structure to FILE
get	Retrieve a file from remote host
hash	Print # for each packet sent or received
help	Display help messages for all ftp commands
ignore_icc	Ignore implied carriage control for binary transfers
interactive	Prompt with each filename for mget, mput & mdelete
lcd	Change current working directory on local host
login	Log into the remote system
ls	Display contents of a directory in short form
mdelete	Delete a group of files from remote host
mget	Retrieve a group of files from remote host
mkdir	Make a directory on remote host
mput	Transfer a group of local files to remote host
nobell	Don't ring bell when file transfer completes
nohash	Don't print # for each packet sent or received
noignore_icc	Don't ignore implied carriage control for binary transfers
nointeractive	Turn prompting off for mget, mput and mdelete
open	Open a connection to a remote host
put	Transfer a file from local host to remote host
pwd	Print remote host's current working directory
quiet	Do not display transfer statistics
quote	Send the specified string to the remote ftp server
record	Set file transfer structure to RECORD
remotehelp	Display FTP commands implemented by server
rename	Rename a file on remote host
rget	Retrieve a file with record structure from remote host
rput	Transfer a file with record structure to remote host
site	Send site parameter
socket_size	Set data socket receive buffer size
stat	Display contents of a directory in short form
show	Show current status
structure	Set file transfer structure
tenex	Set file transfer mode to tenex
unix	Set system type to UNIX
verbose	Display server replies and transfer statistics
vget	Retrieve a file with RMS structure from remote host
vmode	Set file transfer structure to RMS type file
vms	Set system type to VMS
vput	Transfer a file with RMS record structure to remote host



Here's a sample script for 'ftp-ing' the Internet List done by Art St. George and on Larsen:

If you're on a VAX, at the \$ prompt, begin:

```
$ ftp ariel.unm.edu
login: anonymous    <- this makes you a 'guest'
cd library         <- file's in the 'library' directory
get internet.library
```

The file will (after a short delay) come to your local system where you can view it, print it , depending on your local configuration, download it to your PC.

## How to ftp

ftp (File Transfer Protocol) allows you to copy files from a remote host to your computer. Many hosts on the Internet freely allow access to some of the documents stored on their computers. This service is generally referred to as anonymous ftp

Anonymous ftp is very simple. Once logged in, you only have four commands available. These are:

cd     change directory  
ls     display contents of a directory  
get    transfer a file from the remote host  
mget   multiple file transfers

### Logging on to a Remote host:

At the system prompt, type <host address> example: ftp nic.ddn.mil <enter> will connect with the Department of Defense Network Information Center.

Hosts will require you to log in, i.e., give a user ID and password.

Username: **anonymous** <enter>  
Password: type <your e-mail address><enter>

### Changing Directories on a Remote Host:

Once you are logged on you may have to change directories on the host computer to access the file(s) you are interested in. To change directories type:

```
ftp> cd <directory name> <enter>
```

example: ftp> cd rfc <enter>

The ftp> prompt in front of the examples is not to be typed by the user. The ftp> prompt represents the Unix prompt at most ftp sites.

### individual files using ftp

To transfer a file from a host to your own computer type:

```
ftp> get <filename> <enter>  
example: ftp> get RFC-INDEX.TXT.1211 <ENTER>
```

### multiple files using ftp

To transfer multiple files from a host to your own computer the command is mget.

```
ftp> mget <filename1> <filename2> <filename3> <ENTER>
```

```
> mget <filename1>? yes <ENTER>  
> mget <filename2>? yes <ENTER>  
> mget <filename3>? yes <ENTER>
```

The host site will ask you if you would like to transfer the file before the file is actually sent. Reply with a yes or no at the prompt as in the example shown.

To transfer RFCs from nic.ddn.mil the standard command is:

```
ftp> get rfcRFCnnnn.txt  for ASCII files or  
ftp> get rfcRFCnnnn.ps  for Postscript files
```

where nnnn represents the RFC number. However, RFC filename extensions vary slightly for different RFCs.

```
example: > RFC1207.TXT.1 <ENTER>  
> RFC1032.TXT.2 <ENTER>
```

It is best, therefore, to check the RFC filename in the directory. The command for this is ls.

```
example: ftp> ls RFCnnnn* <ENTER>
```

It is also possible to view a document without having to transfer it back to your own system. The, get filename |less, command will allow the user to view the document while still connected to the ftp host. However, not all ftp sites are compatible with this command.

Leaving a host.

When you have finished transferring files from a remote host using ftp, exit from the host by typing quit.

[American Mathematical Society's e-MATH](#)  
[American Philosophical Association](#)  
[ASK \(German Universities Online Information\)](#)  
[ASSET\(Asset Source for Software Engineering Technology\)](#)  
[Baseball \(Major Leagues\) Scores/Schedules\)](#)  
[Big Sky Telegraph](#)  
[CENET \(Cornell Extension NETwork\)](#)  
[CHAT \(Conversational Hypertext Access Technology\)](#)  
[Cleveland Free Net](#)  
[Constitutional Documents \(USA\)](#)  
[Cyberspace Station](#)  
[Dartmouth Dante Project](#)  
[Electronic Periodic Table of the Elements](#)  
[ERIC \(Educational Resources Info Center\) documents](#)  
[E.T. Net at the National Library of Medicine](#)  
[FEDIX](#)  
[FedWorld BBS](#)  
[GENBANK \(DNA sequences\)](#)  
[General Accounting Office Documents](#)  
[Genomic Database of the Mouse](#)  
[Geographic Name Server](#)  
[Hewlett-Packard Calculator Bulletin Board](#)  
[Hubble Space Telescope, Daily Reports](#)  
[HYtelnet \(unix version\)](#)  
[IBM \(OS/2\) support](#)  
[IEEE Standards Process Automation Systems SPAsystem](#)  
[IDS World Network \(formerly IDS DataForum\)](#)  
[IKE \(IBM Kiosk for Education\)](#)  
[Knowbot Information Service](#)  
[Korea Network Information Center](#)  
[KOED Learning Link](#)  
[LC Marvel \(Library of Congress gopher\)](#)  
[Librarian's Yellow Pages](#)  
[Libsearch \(One stop access to various library catalogs\)](#)  
[Library of Congress \(LOCIS\)](#)  
[Lunar & Planetary Institute](#)  
[Meeman Archive of Environmental Journalism](#)  
[Microsoft Windows NT \(ftp server\)](#)  
[NASA Online](#)  
[NASA Spacelink](#)  
[National Archeological Database](#)  
[National Freenet \(Ottawa, Canada\)](#)  
[National Science Foundation](#)  
[Netfind](#)  
[Network Information Center On-Line Aid System \(NICOLAS\)](#)  
[Newsday's Information Highway Outpost](#)  
[NEWTON - Educational Electronic Bulletin Board System](#)  
[NISS Gateway \(London\)](#)  
[NOVELL Support \(ftp\)](#)  
[NPTN/USA Today Headline News](#)  
[Project Gutenberg](#)  
[Shakespeare's Plays and Sonnets](#)  
[Space Shuttle Earth Observations Project's Photographic Database](#)  
[SUPERNET International](#)  
[Toledo Free-Net](#)

U.S. Naval Observatory  
Weather Underground (Univ of Michigan)  
Webster's Dictionary  
The WELL  
White House publications  
World Factbook  
ZIB Electronic Library, Germany

## **FedWorld: National Technical Information Service**

telnet fedworld.gov

or

telnet 192.239.92.201

Offers gateway access to a number (129 at last look) of BBS systems operated by federal agencies:

## **IEEE Standards Program**

telnet stdsbbs.ieee.org  
or  
telnet 140.98.1.11

login: guest

The SPAsystem has several goals:

to serve as a communications and information hub for standards development and use

to save time and resources for participants in the IEEE Standards Program

to allow flexible electronic data interchange among the IEEE and other organizations

to provide an up-to-the-minute, comprehensive view of the development, history, and status of any Standards project

to facilitate the creation of Standards in an electronic format that matches the electronic format ultimately to be distributed to users

to deliver Standards in flexible forms, according to user needs

to advance the internationalization of IEEE Standards by enabling worldwide access to computer-aided standards development

## **Novell Support**

You can get files related to Netware, Unixware or LAN Workplace for DOS via anonymous [ftp](#)

[ftp.novell.com](ftp://ftp.novell.com)

Other Novell information sites include:

[bnug.proteon.com](ftp://bnug.proteon.com)

[ftp.rug.nl](ftp://ftp.rug.nl)

[ftp.salford.ac.uk](ftp://ftp.salford.ac.uk)



## The Well

The WELL is a computer conference system located in Sausalito, California. The WELL is one of the better known computer conferencing systems in the country. It has a distinct culture to it rooted in its location in the San Francisco Bay Area and its founding by people who created the Whole Earth Catalog and the follow-on publication, The Whole Earth Review. The WELL features over 200 conferences and over 6000 registered users. The WELL also features USENET newsgroup and email access.

Perhaps the most interesting aspect of the WELL is the community of people that use it. Many writers, journalists, and other well-known figures make use of the WELL.

### Availability

The basic cost of the WELL is a \$15/month service charge plus a \$2.00/hour usage fee. Your first 5 hours of usage are free so you can get to know the system, though you may want to wait until you get the manual to make the best use of this time.

Any group or organization can have a private conference created at no extra charge.

### Access

telnet well.sf.ca.us  
or  
telnet 192.132.30.5

**newuser** to register.

The WELL can be reached in 3 ways:

- by direct dial
- through the Internet
- through X.25 connections via CPN (the Compuserve Packet Network)

There is usually a surcharge (of \$4/hr in the counterminous USA) for X.25 access. CPN has local dial-up numbers all over the USA and in many other countries.

*Editor's Note: The WELL also maintains a [gopher](mailto:gopher.well.sf.ca.us) front-end to many of their services. Point your client at: [gopher.well.sf.ca.us](mailto:gopher.well.sf.ca.us)*

An electronic mail message to [info@well.sf.ca.us](mailto:info@well.sf.ca.us) will get a list of information files about the WELL.

Mail to: **[support@well.sf.ca.us](mailto:support@well.sf.ca.us)** with other questions.

The WELL  
65M Gate 5 Road  
Sausalito, CA 94965 E-mail:[support@well.sf.ca.us](mailto:support@well.sf.ca.us)  
Phone: (415) 332-6106 (modem)  
(415) 332-4335 (voice)



Related: [Small town on the Internet Highway](#)

## **KQED Learning Link**

telnet sierra.fwl.edu  
or  
telnet 198.49.171.2

login: newuser  
Password: newuser

Welcome to KQED LEARNING LINK (tm)

KQED Learning Link is an electronic information and communication service provided by public television station KQED in San Francisco, in partnership with the Science Education Academy of the Bay Area (SEABA), and Far West Laboratory for Educational Research and Development.

By facilitating communication between and among education professionals, KQED Learning Link helps teachers:

- \* make better use of educational technologies such as computers and television;
- \* locate available resources, including online databases, professional development opportunities, classroom lessons and activities and news related to public broadcasting;
- \* learn how to integrate technology resources into the curriculum and implement them in the classroom;
- \* network with other educators for enrichment, lesson planning and curriculum sharing;
- \* develop classroom projects with other schools.

In the near future, KQED Learning Link will offer a Student Service that offers classrooms and individual students the opportunity to exchange messages via electronic mail, discussion groups and bulletin boards. Also, the Student Service will contain resources for students such as a database of colleges and universities, science clubs and activities and local cultural arts opportunities.

KQED Learning Link is available 24 hours a day, seven days a week. You can access KQED Learning Link from any personal computer equipped with communications software and a modem connected to a telephone line. End users may dial directly to KQED Learning Link or access the service from CORE-California Online Resources for Education. More information on CORE can be obtained from the California Technology Project at 1-800-272-8743.

KQED Learning Link is part of the KQED Center for Education and Lifelong Learning. Additional information can be obtained by writing email to KQED LL Staff or by contacting: KQED Learning Link, CELL, 2601 Mariposa St., San Francisco, CA 94110. Telephone: (415) 553-2476.

## **Librarian's Yellow Pages**

telnet DATABASE.CARL.ORG  
or  
telnet 192.54.81.76

Select 5 for VT100 emulation  
Select 6 for Other Information and Article Databases  
Select 45 for Librarian's Yellow Pages

The Librarian's Yellow Pages, published in paper format in January 1993, contains thousands of publications, products, and services for libraries and information centers. The database will be updated monthly as the 1994 print edition is compiled.

Each entry includes the name, address, phone number, fax number, descriptive information (when available), and a specific topical category for the service provider.

## **Toledo Free-Net**

telnet 131.183.4.100

login: visitor

password: visitor

INFOPORT for Toledo Ohio

- 1) About InfoPort
- 2) Administration Center
- 3) Business/Industry Center
- 4) Community Center
- 5) University Center
- 6) Post Office
- 7) Recreation Center
- 8) Science/Technology/Medicine Center
- 9) Government Center
- 10) Teleport Terminal
- 11) UT Gopher Server
- 12) Information sources
- 13) Other Free-Net Systems
- 14) Suggestions

## **LC Marvel: Library of Congress Gopher-based CWIS**

telnet MARVEL.LOC.GOV  
or  
telnet 140.147.2.15

login: **marvel**

LC MARVEL is the Library of Congress' experimental Campus-Wide Information System which uses Gopher software. LC MARVEL offers access to informational files about the Library of Congress, the ability to search and retrieve information in those files, and connections to a wide variety of Internet resources. Initially, only 10 simultaneous connections will be available for direct TELNET connection from external sites (with the exception of the US Congress). However, it is possible to connect to this system using Gopher client software or through another Gopher server (the 10-user limit does not apply to these access methods). For Gopher access, point to MARVEL.LOC.GOV, port 70. Clearly, the Library of Congress bears no responsibility for the quality of information provided through other sites.

1. About LC MARVEL (Please Read First)
2. Library of Congress: Facilities, Activities, and Services
3. Research and Reference
4. Library of Congress Online Systems
5. The U.S. Congress
6. Federal Government Information
7. Services to Libraries and Publishers
8. Copyright
9. Employee Information
10. The Global Electronic Library (by Subject)
11. Other Internet Resources
12. What's New on LC MARVEL

## **Electronic Periodic Table of Elements**

telnet 131.174.82.239 2034

No login required

**rhino.microsoft.com**

Microsoft operates a Windows NT ftp server at this address. There is a beta Netware client at this address as well as other software that might interest NT users.

**software.watson.ibm.com**

IBM operates an ftp server that is an excellent source of code (and information) on OS/2:

ftp software.watson.ibm.com

username: **anonymous**

password: **YourEmailAddressGoesHere**

Files from 'watson' are mirrored at: ftp-os2.mnsu.edu

This site also offers a wealth of OS/2 code and was a distribution site for the OS/2 2.1 beta.



## **NISS Gateway**

telnet niss.ac.uk  
or  
telnet 193.63.76.2

- A) The NISS Bulletin Board (NISSBB)
- B) The NISS Public Access Collections (NISSPAC)
- C) The NISS Wide Area Information Server (NISSWAIS)
- D) The NISS London Times evaluation service
- R) Library Catalogues (OPACs)
- S) Campus Information Systems
- T) Bibliographic Services (e.g. Melvyl, CARL, STN, BUBL)
- U) Directory Services (e.g. Yellow Pages, Paradise, WAIS)
- V) Archive Services (e.g. HENSA, Mailbase, BIRON)
- W) General Services (e.g. Guest-Telnet, ASK, CONCISE)

(H) Help      (Q) Quit      (F) Find

Please email comments to: [gateway@uk.ac.niss](mailto:gateway@uk.ac.niss)

## **Korea Network Information Center**

telnet garam.kreonet.re.kr

or

telnet 134.75.30.11

login: **nic**

## **Hubble Space Telescope. Daily Reports**

telnet stinfo.hq.eso.org

or

telnet 134.171.8.4

login: **stinfo**

## **LOCIS**

telnet locis.loc.gov  
or  
telnet 140.147.254.3

no login is required.

sample opening menu:

LOCIS:LIBRARY OF CONGRESS INFORMATION SYSTEM

- 1 Library of Congress Catalog
- 2 Federal Legislation
- 3 Copyright Information
- 4 Braille and Audio
- 5 Organizations
- 6 Foreign Law
- 7 Searching Hours and Basics
- 8 Documentation and Classes
- 9 Library of Congress General Information
- 12 Comments and Logoff

## **FEDIX**

telnet 192.111.228.1

Login: **FEDIX**

FEDIX is an online information service that links the higher education community and the federal government to facilitate research, education, and services. The system provides accurate and timely federal agency information to colleges, universities, and other research organizations. There are no registration fees and no access charges for using FEDIX.

FEDIX provides daily information updates on:

Federal education and research programs (including descriptions, eligibility, funding, and deadlines).

Scholarships, fellowships, and grants.

Used government research equipment available.

New funding for specific research and education activities from the Commerce Business Daily, Federal Register, and other sources.

Minority assistance research and education programs.

News and current events within participating agencies.

General information such as agency history, budget, organizational structure, and mission statement.

For more information, contact the HELPLINE at (301) 975-0103 Monday-Friday, 8:30 am to 4:30 pm EST, except on federal holidays.

## Netfind

```
telnet BRUNO.CS.COLORADO.EDU
or
telnet 128.138.243.151
or
telnet ds.internic.net
or
telnet 198.49.45.10
```

login:

Given the name of a person on the Internet and a rough description of where the person works, Netfind attempts to locate information about the person. When prompted, enter a name followed by a set of keywords, such as:

```
university colorado boulder
```

The name argument specifies the person being sought by first name, last name, or login name. The keys describe where the person works. They can consist of any combination of strings describing the name of the institution, the city-state-country, or the type of institution (e.g., "edu", "com", "mil", etc.) If you know the institution's domain name (e.g., "cs.colorado.edu") you can specify it as keys, without the dots (e.g., "cs colorado edu"). The first components of host names (e.g., "brazil" in "brazil.cs.colorado.edu") cannot be used as keys. Keys are case insensitive and may be specified in any order. Using more than one key implies the logical AND of the keys. Because of this, specifying too many keys may cause searches to fail. If this happens, try specifying fewer keys:

```
boulder
```

If you specify keys that match a large number of domains, Netfind will list some of the matching domains and ask you to form a more specific query. Note that you can use any of the words in the organization strings (in addition to the domain components) in forming such queries.

When Netfind runs, it displays a trace of the parallel search progress, less along with the results of the searches. Since output can scroll by quickly, you might want to run it in a window system, or pipe the output through tee(1):

```
<this server name> -l netfind |& tee log
```

A number of options exist for the client version of Netfind, which cannot be invoked via the telnet/rlogin server interface. If you would like to install Netfind locally (which will allow you to run it as a client without the telnet/rlogin interface), you can get it by anonymous FTP from ftp.cs.colorado.edu, in pub/cs/distribs/netfind. More complete docs are also available in that package.



related topic: [InterNIC Directory](#)

## Big Sky Telegraph

telnet BIGSKY.BIGSKY.DILLON.MT.US

or

telnet 192.231.192.1

login: **bbs**

### TELEGRAPH'S BBS MAIN MENU

(B)eginner's Bulletins

(M)essages...Conferences and Public Postings

(F)iles...Areas for upload and download

(A)ccess to Additional Services

(I)nterest Groups-Subscribers Only

(Z)ipmail...Read ONLY YOUR messages from ALL conferences

(?)...Help Menu and Advanced Commands

(G)oodbye...Exit this system

## **Baseball Scores**

finger jtchern@sandstorm.berkeley.edu

Schedules:

telnet culine.colorado.edu 862

or

telnet 128.138.129.83 862

type help for help

press RETURN for today's game



## **Weather Underground**

telnet wind.atmos.uah.edu 3000  
or  
telnet 146.229.8.2 3000

At which host? prompt, enter: um-weather

sample menu:

### **WEATHER UNDERGROUND MAIN MENU**

- 1) Forecast for a U.S. city
- 2) National Weather Summary
- 3) Current weather observations
- 4) Ski conditions
- 5) Long-range forecasts
- 6) Latest earthquake report
- 7) Severe weather
- 8) Hurricane advisories
- 9) Canadian forecasts
- X) Exit program
- C) Change scrolling to screen

## **Obtaining White House publications**

Various sites are archiving the press releases distributed . What follows is an incomplete list of some of the sites containing the documents that have been released to date. Site / Directory

1. SUNSITE.UNC.EDU /HOME3/WAIS/WHITE-HOUSE-PAPERS
2. FTP.CCO.CALTECH.EDU /PUB/BJMCCALL
3. FTP MARISTB.MARIST.EDU
4. CPSR.ORG /CPSR/CLINTON
5. FedWorld BBS 703-321-8020 8-N-1

## **American Mathematical Society's e-MATH**

telnet 130.44.1.100

login: **e-math**

Password: **e-math**

Terminal = (vt100) vt100

(sample screen)

### e-MATH SERVICES

- (0) EXIT
- (1) DIRECTORY INFORMATION (CML)
- (2) PROFESSIONAL OPPORTUNITIES
- (3) SOFTWARE
- (4) DOCUMENT DELIVERY
- (5) MATH REVIEWS CLASSIFICATION SCHEME
- (6) MATH REVIEWS SUBMISSION
- (7) WELCOME MESSAGE
- (8) SUGGESTION BOX
- (9) MATH REVIEWS AUTHOR LOOKUP
- (10) AMS MEETINGS
- (11) BULLETIN OF THE AMS
- (12) DIRECTORY OF LISTS
- (13) HELP

## **American Philosophical Association**

telnet atl.calstate.edu  
or  
telnet 130.150.102.33

login: apa

California State University Advanced Technology Laboratory  
Bulletin Board System  
Copyright (c) 1988  
California State University  
Office of the Chancellor  
All rights reserved  
This system was made possible by a grant from AT&T.

American Philosophical Association: The Electronic Agora

- (1) Purpose
- (2) News: To and from the National Office
- (3) Philosophical Societies
- (4) Grants, Fellowships, and Academic Positions
- (5) Philosophical Calendar
- (6) E-mail Addresses of the Membership
- (7) Directories and Computer Resources
- (8) Committee on Computer Use in Philosophy
- (9) News from the Divisions

## **ASK: German Universities' Online Information**

telnet sun.nsf.ac.uk

login: **janet**

hostname: **uk.ac.niss**

Menu options:

- A :) NISSBB - The NISS Bulletin Board
- B :) NISSPAC - The NISS Public Access Collections
- E :) Information Services in Europe
- H :) Help Information
- Y :) Netcomm Information
- X,Q :) Logoff the Gateway

Select option E above and you'll receive:

- A :) ASK: German Universities' Online Information Services
- D :) \* DIMDI: German Biosciences Online Services
- S :) \* STN: Scientific and Technical Information Network
- H :) Help Information

Any other key will return you to the main menu

\* These services require you to supply a username and password. If you wish to register, select option H for more information.

## **ASSET**

telnet SOURCE.ASSET.COM

or

telnet 192.131.125.10

login: **starsbbs**

Asset Source for Software Engineering Technology, ASSET, is a United States Department of Defense project to promote the reuse of computer software and software-related products. ASSET, being developed by IBM and its subcontractor, SAIC, is organized under the Defense Advanced Research Projects Agency's (DARPA's) Software Technology for Adaptable, Reliable Systems (STARS) program which was chartered for the purpose of achieving dramatic improvements in software productivity while continuing to make incremental improvements in quality and reliability. ASSET strives to be the national clearinghouse for software reuse sources and information.

## **CHAT**

telnet DEBRA.DOC.DA  
or  
telnet 192.16.212.15

login: **chat**

Welcome to the CHAT natural language information system. CHAT is an information retrieval technology developed by Communications Canada. Please note that your interactions with CHAT are being recorded. This data will be used to evaluate the performance of CHAT, and fine-tune the information files. You will have a chance to leave comments at the end of your session.

For information about CHAT, download the file /pub/chat/info.page from debra.doc.ca using ftp (user name "anonymous"), or contact Andrew Patrick: (613) 990-4675, andrew@debra.doc.ca (Internet, BITNET, UUCP). There are information files available on the following topics:

- AIDS (Acquired Immune Deficiency Syndrome)
- the UNIX C Shell (csh)
- the Canadian Department of Communications (DOC)

## **Cleveland Free Net**

telnet freenet-in-a.cwru.edu  
or  
telnet freenet-in-b.cwru.edu  
or  
telnet freenet-in-c.cwru.edu

Modem: (216) 368-3888 (9600 v.32)

### CLEVELAND FREE-NET DIRECTORY

- 1 The Administration Building
- 2 The Post Office
- 3 Public Square
- 4 The Courthouse & Government Center
- 5 The Arts Building
- 6 Science and Technology Center
- 7 The Medical Arts Building
- 8 The Schoolhouse
- 9 The Community Center & Recreation Area
- 10 The Business and Industrial Park
- 11 The Library
- 12 University Circle
- 13 The Teleport
- 14 The Communications Center
- 15 NPTN/USA TODAY HEADLINE NEWS

h=Help, x=Exit Free-Net, "go help"=extended help



## **Constitutional Documents (USA)**

Available on the [Cleveland Freenet](#)

### PRE-CONSTITUTION DOCUMENTS

- 1 - The Magna Carta
- 2 - The Constitution of the Iroquois Nations
- 3 - The Mayflower Compact
- 4 - The Fundamental Orders of 1639
- 5 - First Thanksgiving Proclamation
- 6 - The Charlotte Town Resolves
- 7 - Declaration of the Causes... of Taking up Arms
- 8 - The Declaration of Independence
- 9 - The Virginia Declaration of Rights
- 10 - The Articles of Confederation
- 11 - Declaration and Resolves of the 1st Cont. Congress
- 12 - The Paris Peace Treaty
- 13 - The Annapolis Convention

### POST-CONSTITUTION DOCUMENTS

- 1 - The Northwest Ordinance
- 2 - French Declaration of Rights
- 3 - The Proclamation of Neutrality
- 4 - The Treaty of Greenville
- 5 - Washington's Farewell Address
- 6 - Jefferson's First Inaugural Address
- 7 - The Monroe Doctrine
- 8 - The Emancipation Proclamation
- 9 - The Gettysburg Address
- 10 - Lincoln's Second Inaugural Address
- 11 - German Surrender Documents
- 12 - Japanese Surrender Documents
- 13 - M.L. King's: "I have a dream" Speech

### THE CONSTITUTION

- 1 - The Constitutional Transmittal Letter
- 2 - The Constitution of the United States
- 3 - The Bill of Rights
- 4 - 1971 All Amendments

## **Cyberspace**

telnet 192.153.125.1

login: **guest**

The Cyberspace Station is a Public Access Unix host with full Internet services. The Cyberspace Station provides full Unix user account access for [ftp](#), [telnet](#) and [Usenet](#) news.

### Purpose of The Cyberspace Station

The purpose of The Cyberspace Station is to advance research and education in general by assisting in the interchange of information among research, educational and commercial users, by means of high speed data communications and related telecommunications techniques.

Questions? [info@cyberspstn.net](mailto:info@cyberspstn.net).

## **Dartmouth Dante Project**

telnet ELEAZAR.DARTMOUTH.EDU.

At the login prompt, enter ddpdemo for the demo account (individual/institutional accounts are available).

When prompted for terminal type, enter vt100.

Exit? type Q followed by two RETURNS.

Database contains 600+ years of commentary on Dante's Divine Comedy.

## **ERIC**

telnet acsnet.syr.edu  
or  
telnet 128.230.1.21

login with suvm  
ENTER TERMINAL TYPE: vt100  
At USERID ==> suinfo  
Type suinfo once more

Welcome to SUINFO! You will now be able to perform searches on all publicly available databases currently carried by PRISM. Before proceeding, the following may be noted:

This account may be used for PRISM searches only.

Certain databases cannot be searched because of license restrictions. You may search these databases by logging into SUVM the regular way.

PRINTing, SENDing to a userid or the WRITEing to a computer file of your search result(s) has been disabled.

You must type LOGOFF to EXIT PRISM

## **National Library of Medicine**

telnet etnet.nlm.nih.gov

or

telnet 130.14.1.27

login: etnet

The current list of conferences on E.T.Net is:

- \* general - discussion on computers in health sciences education
- \* cai - computer assisted instruction in all forms
- \* avline - a subset of the NLM's AVLINE database
- \* hardware - computers, peripherals, etc.
- \* shareware - a place to exchange health sciences shareware
- \* users\_guide - an online tutorial for new users of ETNet
- \* digital\_images - computing in radiology
- \* archive - online archive of ETNet Volume 1
- \* nuicare - research in nursing care

All new users are urged to read the 'users\_guide' conference once.

If confused at any time, type 'HELP'

To end your session and logoff, type 'BYE'

## GeneBank

telnet genbank.bio.net  
or  
telnet 134.172.1.160

login: genbank  
Password: 4NIGMS

Press Return to select vt100, or enter the appropriate terminal

TERM = (vt100) vt100

(sample screen)

Welcome to GenBank

IRX: Information Retrieval Experimental Workbench

Version 2.5.5  
June 14, 1988

Developed by Lister Hill National Center for Biomedical Communications of the NLM

Quick Guide to Using New IRX (NIRX)  
Using IRX is a simple, three-step procedure -

- Enter a question in plain English.
- Receive a list of documents.
- Select documents from the list for reading or printing.

IRX is designed to be a self-prompting system with menu options displayed at each stage of the retrieval process. Users are encouraged to learn the system by using it and relying on the Help information that is associated with each menu.

What Is IRX?

IRX is an information retrieval system that attempts to find the set of documents that best matches a user's question. The matching is done probabilistically and therefore the set of retrieved documents is not guaranteed to answer precisely the user's question, but is likely to contain relevant information. The retrieved documents are ordered according to their expected relevance and so a user typically needs to review only a few documents even when the retrieval set is large.

Entering A Question

IRX allows a question to be entered in plain English. The system will ignore common words (and, the, for, etc.) and attempt to match the remaining words to words within a document. Although effective results can be obtained by entering free-text questions, there are occasions where features of a special search language might be desirable. Information on the use of such features as Boolean operators, truncation, and field restriction is available within the Question menu. In order to find out if a particular term is in the database, the V (Vocabulary) command can be used to display the term and alphabetically-related terms and their frequencies.

## Selecting Documents

If IRX finds documents which match one or more terms in the question, a list of the matching documents is presented to the user in order of predicted relevance. The list consists of the title of the document and a calculated relevance weight. To choose a document, an arrow cursor is moved up or down in the left margin to align with a document title. That title is then considered the 'current document' and it may be printed or read online.

## Reading Documents

Once a particular document has been selected for reading, the title and first 10-15 lines are displayed on the screen. Commands are available for moving forward and backward in the document, skipping to specific fields, or going directly to the lines containing the terms which match terms in the question. Matched terms are highlighted. At any point during document selection or reading, the user may return to the question menu to formulate another request. The cycle of question - retrieval - document selection continues until a request to Exit is made and confirmed.

## **General Accounting Office Documents**

Available on the [Cleveland Freenet](#)

### **GAO REPORTS**

The following U.S. General Accounting Office (GAO) reports are available over the Internet as part of a test to determine whether there is sufficient interest within this community to warrant making all GAO reports available over the Internet.



## **Geographic Name Server**

telnet 141.212.99.9 3000

Direct questions or comments to Tom Libert, [libert@eecs.umich.edu](mailto:libert@eecs.umich.edu),

## **Hewlett-Packard Calculator Bulletin Board**

telnet hpcvbbs.cv.hp.com

or

telnet 15.255.72.16

login: new

The HP Calculator Bulletin Board is a free service to allow for the exchange of software and information between HP calculator users, software developers and distributors.

## **Unix Hytelnet**

telnet herald.usask.ca  
or  
telnet 128.233.3.1

login: hytelnet

explanation

This is a general hypertext browser, packaged with Peter Scott's database of Internet-accessible telnet sites. Hytelnet lists libraries, Campus-Wide Information Systems, Freenets and more. This version was written for Unix, but should work on any system with a reasonable Curses implementation.

Peter's version uses HYPERREZ (an IBM PC hypertext browser). This program uses the same file format as HYPERREZ, so it should be possible to plug-and-play other databases as well.

The database consists of many more-or-less plain text files, all in a single directory. Any text in angle brackets is a link. Selecting it moves you to the named file. Filenames are mapped to lower case.

## IDS Data Forum

telnet 155.212.1.2

(sample screen)

IDSVAX VAX/VMS telnet Service

Welcome to the IDS DataForum!

If you would like an account on the system, and are a new user, enter GUEST as a Username.

If you are experiencing problems with your account and would like assistance, enter GRIPE as a Username.

Welcome to the IDS DataForum, "The Mother Of All Online Information Systems" (C) 1990 IntelCom Data Systems.

7 Dialin Lines (aka Nodes) for your "No Busy Signal" dialing pleasure. 24 Hours a Day, 7 Days a Week. 300-19K bps Supported (V.32, USR/HST, v.42)

IDS DataForum, (C) 1990 IntelCom Data Systems (Version 2.17)

IDS DataForum Main Menu

Choose one:

- 1 ... (B) News/Information/Weather
  - 2 ... (E) Electronic Mail
  - 3 ... (U) User Information/Configuration
  - 4 ... (G) Games & Entertainment
  - 5 ... (H) Home Information/Utilities
  - 6 ... (S) SIGS/Message Bases and File Areas
  - 7 ... (DB) Information DataBase
  - 8 ... (CM) Communications Menu
  - 9 ... (QM) QMail Offline Reader
  - (CARD) ... Online Credit Card Registration
- 
- 80 ... (HELP) Help
  - 90 ... (OFF) Log Off

## Knowbot Information Service

telnet 132.151.1.1 185

The "Knowbot Information Service" (KIS) is a "white pages" service that allows you to query one service and have it search several other address databases of various sorts for addresses matching your query.

### DESCRIPTION

netaddress is an information service that provides a uniform user interface to heterogeneous remote information services. By submitting a single query to netaddress a user can search a set of remote information services and see the results of the search in a uniform format.

EXAMPLES In the following examples, the netaddress prompt.

```
% netaddress droms
  Searches the default list of directory servers for user
```

```
% netaddress
> service profile@nri.reston.va.us
> droms
```

Searches the profile service at NRI.RESTON.VA.US for user

```
% netaddress
> service profile@nri.reston.va.us
> query droms
```

Is identical to the previous example.

```
% netaddress -s profile@nri.reston.va.us droms
```

Is identical to the previous example.

```
% netaddress 'service profile@nri.reston.va.us' droms
```

Is identical to the previous two examples.

```
% netaddress 'alison brown'
```

Searches the default list for a user with first name

## Libsearch

telnet PL122A.EECS.LEHIGH.EDU  
or  
telnet 128.180.5.52

login: tb06  
Password:jia.fu

PL122a% cd /scratch/china.primitive/expect/test/thesis

# --- Creators

Terrence Brannon                   (brannon@jove.cs.caltech.edu)  
Janne Himanka                      (shem@phoenix.oulu.fi)

# --- Description

Libsearch does all of the following

- o Automatic connection to library databases
- o Automatic translation from Libsearch's generic query language to the syntax of the particular library database
- o Automatic Logout

It beautifies and exploits the fact that everything in Tcl is a string.

# --- To Try it Out

telnet to pl122a.eecs.lehigh.edu  
login as tb06 with password jia.fu  
cd to /scratch/china.primitive/expect/test/thesis

from the shell type

libsearch NAME KEY SPECIFIC

where NAME is (quotes required):

"Aberdeen University"  
"Aberystwth University"  
"Bar-Ilan University"  
"Ben-Gurion University"  
"Haifa University"  
"Hebrew University"  
"Lehigh University"  
"Technion"  
"Tel Aviv University"  
"Weizmann Institute of Science"  
"Arizona State University"  
"Aston University"  
"Athabasca University"  
"Helsinki University Libraries"  
"Finnish National Bibliography"  
"Karolinska Institutet"

Instead of entering the entire name, you can enter a regular expression, BUT DO NOT FORGET THE DOT. (e.g., if you want to enter "Aberdeen University" you can enter "Aberdeen.\*" but NOT "Aber\*")

where KEY is (no quotes required)

author  
title  
subject

In some cases you may be able to enter other keys such as issn, isbn but for this demo, all extras like that are ignored.

where SPECIFIC is (play it safe and use quotes)

whatever you are looking for

Example: Search Athabasca University for books by the author John Steinbeck

libsearch "Athabasca University " author "Steinbeck, John"  
or  
libsearch "Athaba.\*" author "Steinbeck, John"

## **Lunar & Planetary Institute**

telnet LPI.JSC.NASA.GOV

Username: LPI

The Lunar & Planetary Institute has now made available to the Internet community an Index to Planetary Maps and Satellites compiled by J.L. Inge and R.M. Batson of the USGS. This index is complete for both domestic and foreign maps. This is not to be confused with their catalog of maps.

Select Information and Research Services from the main menu, then select Special Indexes from the next menu.



## **Meeman Archive of Environmental Journalism**

telnet hermes.merit.edu

or

telnet 35.1.48.149

Which Host? mirlyn

Hit return for vt100 emulation

At the Database Selection menu type MEEM

The Meeman Archive is a database covering environmental journalism. The Archive has over 1,000 entries and grows yearly. Established by the Scripps-Howard News Service in 1982, MEEM contains articles from 1980 to the present. In addition to the articles indexed in MEEM, the Meeman Archive contains clippings from the Ann Arbor News, several environmental periodicals, and the National Park Service's publication, "Feedback".

The Meeman Archive is located in UM's School of Natural Resources, 2036 Dana Building. All articles are located there and can be copied for five cents per page. Please allow 24 hours for copying. Archive staff can be contacted by calling (313) 763-5327 or by visiting the archive.

## **National Space Science Data Center (NODIS)**

telnet nssdca.gsfc.nasa.gov  
or  
telnet 128.183.10.4

At username type NSSDC

### Overview

The NSSDC Online Data and Information Service (NODIS) is a menu driven system which provides a single entry point for accessing many of the services supported by the National Space Science Data Center (NSSDC). Because this utility is menu driven, the services provided by NODIS are available to all users regardless of their knowledge of the VAX/VMS environment. The NODIS utility is invoked by issuing the following commands from a span network node.

```
$ SET HOST NSSDC  
or  
$ SET HOST NSSDCA
```

Username: NSSDC (soon to be changed to NODIS)  
Password: (none required)

The NODIS welcome banner is then displayed and the user is prompted to enter his/her name, after which the NODIS main menu appears. The menu instructions are self-explanatory.

Please send any comments or suggestions about this utility to

NSSDCA::NSSDCMGR

by DECmail if you are on SPAN, or contact

Nathan James  
Code 633  
NASA/GSFC  
Greenbelt, Md. 20771  
(301)286-9789

## **NASA Spacelink**

telnet 192.149.89.61

W E L C O M E

to

NASA SPACELINK

A Space-Related Informational Database  
Provided by the NASA Educational Affairs Division  
Operated by the Marshall Space Flight Center  
On a Data General ECLIPSE MV7800 Minicomputer

### NASA SPACELINK BACKGROUND

NASA Spacelink runs on a Data General ECLIPSE MV-7800 minicomputer at the NASA George C. Marshall Space Flight Center in Huntsville, Alabama. NASA Spacelink software was developed and donated to NASA by the Data General Corporation. The system has a main memory of 14 megabytes (14 million characters), and disk storage space for 708 megabytes. It runs at 300, 1200 or 2400 bps. Data word format is 8 data bits, no parity, and 1 stop bit. The system was made public in February, 1988.

Initial support for NASA Spacelink was provided by the Educational Affairs Division at NASA Headquarters. The NASA Spacelink data base is maintained by the Public Services and Education Branch of the Marshall Space Flight Center Public Affairs Office. Operational support is provided by the Information Systems Office at the Marshall Center. Information on NASA scientific projects and educational programs is provided to NASA Spacelink by education specialists at NASA Headquarters and the NASA field centers.

While NASA understands that people from a wide variety of backgrounds will use NASA Spacelink, the system is specifically designed for teachers. Unlike bulletin board systems, NASA Spacelink does not provide for interaction between callers. However, it allows teachers and other callers to leave questions and comments for NASA.

telnet freenet.carleton.ca

**NEWTON: Educational Electronic BBS**

telnet newton.dep.anl.gov  
or  
telnet 130.202.92.50

login: cocotext

Sponsor: Argonne National Laboratory

This bbs is dedicated for educational use. It is open to all teachers and students of any age. Foul or X-Rated material will not be tolerated. Any abuse of this will result in the violator(s) dismissal from this bbs.

## Project Gutenberg

[ftp mrcnext.cso.uiuc.edu](ftp://mrcnext.cso.uiuc.edu)  
or  
[ftp 128.174.201.12](ftp://128.174.201.12)

This excerpt from a recent newsletter describes a few files available from this system.

\*Project Gutenberg Newsletter :: May 10, 1992\*

Our Goal, To Give Away One Trillion Etexts By December 31, 2001

We should be at about 2.2 billion with release of the following not counting pre-1991 releases: which are still in the process of being dug out of our archives, new headers attached, and new placement in new directories on our files server.

The current releases are on mrcnext: `cd etext/etext92`

May 10, 1992 in honor of Mothers' Day, we will post "Herland." This book is a "must read" for fans of Dances With Wolves, and feminist literature. . . none of backlash of modern feminism or other -isms. We would certainly appreciate it if someone got a copy to Gloria Steinem, Germaine Greer, and Betty Friedan.

May 6, 1992, in honor of Freud's Birthday, the Oedipus Trilogy.

April 19, 1992 in honor of Easter, biblea10.txt or biblea10.zip (This is a new etext of the King James Version, much proofread)

April 8, 1992, Far From The Madding Crowd, crowd13.txt or .zip.

Nebraska has been included in the US Census (uscen901.xxx).

\*\*Also!! Please note new directory structures. . . you may have to look around a little at mrcnext and quake.think.com. We are working on finding all the old readme type files and updating\*\* Current instructions for mrcnext are below.

You may subscribe to the paper edition of this newsletter: mail stamps and mailing labels, and/or donations to:

David Turner, O.S.B.  
Illinois Benedictine  
5700 College Road  
Lisle, IL 60532-0900

(Books from earlier years will available in 1992) (but not yet: to be announced, don't ask yet!!!)

1971 Declaration-Independence (whenxxxx.xxx)  
1972 Bill of Rights (billxxxx.xxx)  
1973 U.S. Constitution (constxxx.xxx)  
1974-1982 The Bible (biblexxx.xxx)  
1983-1990 Complete Shakespeare (shakesxx.xxx)

\*\* The newest Project Gutenberg FTP site is the Cleveland Freenet \*\*

We need some Freenet users log in and test the system, hopefully the sessions can be saved as a file and forwarded to us so they can be a great assistance in the creation of help and readme files.

You can ftp and get at least some files at ftp.cwru.edu (anonymous). You can also call via modem at 1-216-368-3888 (I have not tried it).

Here are the latest updates for FTP downloading of Project Gutenberg etexts and others. These updates will be posted on several listserv locations once a month. We hope we have answered most questions, as new files, new locations, and new users arrive each month. We can't answer queries about nameservers or how your local system runs FTP!!

Please try to help people get text files as we are not well prepared to deal with sending items through the mail.

Please do not access the mrcnext machine from 10:00 AM to 6:00 PM Central Standard Time (Daylight in summer) as this is peak usage, & mrcnext is always the first machine to get the newest editions. Please GET the INDEX, README GUT\*.\* and NEW.GUT files first.

Current releases are now listed in each newsletter. Others texts are also available at the various sites.

(if you are not an internet site, you will either have to find one to use or find an FTP emulator program to use at your sites and/or I will have a packet of information sent to you directly as email. (I leave this choice for last because all email is backed up to my disk, so sending out copies to many people creates many backups, but don't hesitate to ask and remind us that you need email sent rather than instructions for FTP))

For further information or to retrieve electronic books:

FTP directly to the Project Gutenberg archives:

ftp mrcnext.cso.uiuc.edu  
or  
ftp 128.174.201.12

login: anonymous

password: name@login (your email address)

cd etext92 (for 1992 releases) or cd /etext/etext92  
cd etext/etext91 (for 1991 releases)  
cd etext/articles (for Project Gutenberg articles and newsletters)

dir (to see files)

get or mget (to get files. . .set bin for zip files)

GET INDEX for a list of books  
and  
GET NEW GUT for general information  
and  
MGET GUT\* for newsletters.

## MORE DETAILS

ls -a or dir (This will give you a directory listing, case sensitive) get filename.filetype  
(examples . . . )  
dir (to see current editions available) (RETURN to see next page)  
get alice29.txt  
get lglass16.txt  
get snark12.txt  
quit

You may have to get local instructions for linking to FTP, and/or setting memory for FTP.  
These files also available via disk on request in several formats. Some Bitnet sites have FTP  
emulators, check with your local guru.

The current FTP sites are: mrcnext.cso.uiuc.edu or (128.174.201.12) cd /etext (details  
above)  
(Please do NOT use the mrcnext between 10AM and 6PM weekdays)

Our newest FTP site is: (and therefore we are in need of testing  
of advice for our instruction set)

The Oregon State server. Please send us records of your sessions with them, along with  
questions you need answered. We will compile sets of instructions similar to those you see  
below for the other sites.

Named the Almanac information server, located at the Extension Service at Oregon State  
University, allows text retrieval both through ftp and email (for Bitnet users). Works from To  
retrieve a file via ftp:

```
ftp oes.orst.edu          (128.193.124.2)
Log in as
cd /pub/almanac/guten
ls
bin
get filename
bye                       (when done)
```

To retrieve a file via e-mail, first send the following line by itself to [almanac@oes.orst.edu](mailto:almanac@oes.orst.edu)

```
send gutenber catalog
```

This will instruct you how to send further requests, and will list the available files.

This information provided by Chris Hansen  
Internet: [hansenc@OES.ORST.EDU](mailto:hansenc@OES.ORST.EDU)  
UUCP: uunet!orstext!gouda!hansenc



## Space Shuttle Earth Observations Project's Photographic Data Base

telnet SSEOP.JSC.NASA.GOV

or

telnet 146.154.11.34

Username: photos

Password: photos

(opening menu)

### MAIN MENU

#### GENERAL

? - Help for ALL options

BUL - Bulletin Board

EX - EXIT

#### QUERY

LL - Latitude/Longitude Range

LLM - Latitude/Longitude Range + Mission

GEO - Geographical Location

GLL - Geographical Location + Latitude/Longitude Range

GMS - Geographical Location + Mission

MRF - Mission/Roll/Frame

#### DOWNLOAD

ALL - Entire Database

MSN - Selected Mission

IMG - Images

#### SPECIAL REPORTS

GS - Geographical Location Sort (Entire Database)

## **SUPERNET**

telnet supernet.ans.net  
or  
telnet 147.225.1.51

## **Naval Observatory**

telnet tycho.usno.navy.mil  
or  
telnet 192.5.41.239

login: ads

## **Bulletin Board Systems**

BBS systems via modem

BBS systems on the Internet

## **BBS Systems via modem**

The following brief listing of BBS systems focuses on those that serve an information-related function. The list has been sub-divided into several categories:

Agriculture

Business/Economics

Health/Nutrition Legal

Science

Miscellaneous

**BBS systems (Agriculture)**

301-344-8510	ALF, Nat'l Agriculture Library
314-882-8289	AgEBB, Columbus MO. Agricultural information
402-472-6615	HRCC, Weather Data, Lincoln NE. Regional weather

## **BBS systems (Business/Economics)**

202-377-3870	Dept. of Commerce
202-377-0433	Dept. of Commerce
202-523-4784	Dept of Labor
202-357-8997	Fed Energy Regulatory Commission
202-377-2870	The Economic BBS (US Commerce Dept)
202 272-1514	COE Manpower BBS. Army Corps of Engineers
202 697-6109	Export License Status Advisor, Dept of Defense
202 697-3632	Export License Status Advisor, Dept of Defense
202 786-3640	Budget/Finance Board
202 537-7475	Fannie Mae BBS
202 477-8500	World Bank
202 376-2184	Info Technology Center BBS. Veterans Admin
202 737-7264	Federal Deposit Insurance Corporation
202 566-4602	Export-Import Bank of the US
800 222-4922	Export-Import Bank
202-626-9853	US Dept of Education
206-924-4102	Labor Mkt. Econ. Anal., Seattle area info
301 948-5718	MEIE National Bureau of Standards
301 948-2048	DMIE National Bureau of Standards
301-763-4576	Census Microcomputer Information Center
301-948-5718	Institute for Computer Sciences and Technology
301 353-5059	Megawatts BBS. Department of Energy
301-763-5225	Federal-State Cooperative for Population Estimates
202-377-1423	Planning and Budget (Washington DC)

**BBS systems (Health/Nutrition)**

301-436-6346	National Center for Health Statistics
301-436-5078	Nutrient Data Bank, Hyattsville MD. USDA
402-280-3023	National Drug Info. Omaha, Nebraska
404-377-9563	AIDSQUEST Online, Atlanta. AIDS/cancer info
800-624-2723	NBIAP Biotechnology, VA. Genetic engineering



**BBS systems (Legal)**

415-556-3075	9th Circuit Court, San Francisco CA
513-684-2842	6th Circuit Court, Cincinnati, OH
202-786-3640	Dept. of Justice, INS
718-463-1091	Immigration Law USA, NY
202-325-0748	Judge Advocate General

## **BBS systems (Science)**

202-586-8658	Energy Info Admin, DC. Energy statistics
202-634-1764	Science Resources DC. NSF
301-763-8071	Climate Analysis Center, Nat'l Weather Service
301-454-8700	Nat'l Weather Service, U.S. Dept of Commerce
314-882-3874	SCI-FIND, Columbia, Missouri
205-895-0028	NASA Spacelink, Huntsville AL. NASA news, info
303-494-8446	Space Network, Boulder CO
713-483-5817	NASA JSC, Houston TX. Shuttle schedules
800-358-2663	USGS Earthquake QED, Golden CO
902-566-7390	Energy Centre, Canada. Govt energy info
202-653-1079	Naval Observatory (Washington, Dwntrn)
202-646-6197	NASA
202-634-1764	National Science Foundation

## **BBS systems (Miscellaneous)**

202-707-4887	ALIX. Federal Library & Info Center FEDLINK
202-366-3764	FEBBS, DC. Federal highway information
202 426-2961	Federal Highway Administration BBS
202-529-0140	USA-GDR Databank, DC. East European events
202-775-1237	IDI Job Board. Job opening in DC area
202-475-1973	NANci. U.S. Navy, Naval Aviation News
202 557-3769	Pesticide Programs BBS. EPA
301 725-1072	Public Access Link FCC
202 275-1050	Information Technology Center, GAO
202 535-7661	Information Resources Services, GSA
202 453-9008	Information Technology Center, NASA
202 287-9656	Fed Library Comm BBS, Library of Congress.
216-368-3888	<u>Cleveland FreeNet</u>
612-624-4318	Univ of Minnesota Library BBS
703-243-9696	NewsUSA, VA. Consumer news (7-E-1)

## **BBS Systems on the internet**

Advanced Technology Information Network

AfterFive BBS

Bulletin Board for Libraries (BUBL) (Glasgow University)

QM-Net. Public Access UNIX System

National Education BBS

NYX (Spirit of the Night)

Skynet BBS

United States Military Academy BBS

University of North Carolina BBS

University of Oulu, Finland

## **US Military Academy BBS**

telnet ranger.usma.edu  
or  
telnet 129.29.64.24

login:

## **Advanced Technology Information Network**

telnet CATICSUF.CATI.CSUFRESNO.EDU  
or  
telnet 129.8.100.15

Login: public

\*\* WELCOME TO THE ATI-NET \*\*

You have reached the Advanced Technology Information Network. The ATI-Net is a full service information source designed to assist several markets within California. Individual systems provide information for the agri- cultural market, international exporting (ATLS system), and the educational community (CSUPER-Net).

### ADVANCED TECHNOLOGY INFORMATION NETWORK (ATI-Net)

- (a) Agricultural Information (including ATIS)
- (b) CSUPER-Net
- (c) Automated Trade Library Service (ATLS)
- (d) ATI-Net Access Information
- (0) Quit and log off
- (8) search, (9) help:

### CSUPER-NET Main Menu

- (a) University Admissions
- (b) Degree Programs
- (c) Educational Costs
- (d) Financial Aid Information
- (e) Student Programs and Services
- (f) Campus Calendars
- (g) Campus Profiles
- (h) CSU Phone Directory
- (i) CSU List of Published Resources
- (j) CSU News Bulletins
- (k) E-Mail to CSUPER-Net Managers
- (l) CSUPER-Net System Information
- (m) Individual Campus Components
- (1) return to previous menu

## After Five BBS

telnet 128.160.2.249 9999

To connect to your existing character, type "connect name password"

To create a new character, type "create name password"

Our hours are from 5 pm until 8 am CST weekdays, and 24 hours on weekends.

AfterFive BBS Help

### COMMANDS

F Read forward  
Fortune Your Fortune  
L/P Read last five/ten  
C Chat with other users (Bourbon St.)  
N Read new  
W See who is logged on  
O Read old, backwards  
QUIT Terminate (Must be in all CAPS)

R Read reverse  
TIME See the time and date  
# Read last X messages  
@password old = new Change your password  
news Read the news  
@lastlog (name) When was name last logged on  
help This screen  
config Toggle message scrolling  
info Fetch information files  
@whereis Locate a user in the DataBase

## **BUBL (Bulletin Board For Libraries)**

Glasgow Univ.

telnet SUN.NSF.AC.UK

or

telnet 128.86.8.7

login: janet

Hostname: uk.ac.glasgow.bubl

Terminal type: vt100

A--All about BUBL

C--New titles in LIS

D--Directories

E--Current Contents

F--Mailing lists

G--NISS

H--Users' board

J--Glossary

L--British Library R &D News

N--Latest changes to BUBL

O--CONCISE(Pan-European Inf.Serv.)

S--Electronic Journals & Texts

V--Library Systems & Software

Z--CTILIS



## National Education BBS

telnet NEBBS.NERSC.GOV  
or  
telnet 128.55.128.246

login: bbs  
Enter userid, 'new' for new user.

### HELP SCREEN

(I)nfo	Get Version and Copyright Information
(B)oards	List boards on system
(S)elect	Select current board
(R)ead	Enter multifunction Read Menu
(N)ew	Read all new messages
(V)isit	Make all messages current
(Z)ap	Zap boards from (N)ew search
(P)ost	Post a message on current board
(U)sers	List ALL users of this BBS
(T)alk	Enter Talk Menu
(M)ail	Enter Mail Menu
(F)iles	Enter File Transfer Menu
(X)yz	Misc. utilities (Change passwd, and term type)
(G)oodbye	Leave This BBS
(H)elp	Get this Help Screen

## **UNC-OIT BBS**

telnet BBS.OIT.UNC.EDU

or

telnet 152.2.22.80

Login in with bbs

The University of North Carolina at Chapel Hill Office for Information Technology Bulletin Board System

UNC-OIT Bulletin Board System

1. Message System
2. File Access
3. Network News Access
4. Simple WAIS Client
5. UNC Campus INFO System
6. User Options
7. Bulletins and Additional Information
8. Goodbye
9. On-line Information Systems (LIBTEL)
- ?. Help

## **University of Oslo**

telnet TOLSUN.OULU.FI  
or  
telnet 128.214.5.6

login: box

Main menu Commands

C - Administration menu  
B - Bulletins  
I - Show info about BBS  
F - File areas, downloading  
G - Goodbye  
M - Enter conference menu  
U - Userlist (long)  
Write ? for full help

## **SkynetBBS**

telnet HPX5.AID.NO

or

telnet 128.39.145.225

login: skynet

This system is run out of Grimstad, Norway. As of this writing, it has little more than a message system (1/26/93).

## **M-Net**

telnet HERMES.MERIT.EDU  
or  
telnet 35.1.48.150

At Which Host?: enter um-m-net  
MichNet login: newuser

Over 200 Conferences to talk about anything from Travel to Sex, Cooking to Driving, Flying to Jumping out of a perfectly good airplane, in an almost real-time arena. There is SH, KSH, CSH, BBS & MENU shells for every type of user. We have write/talk/xtalk/chat for those private writes and PARTY for those who like to talk to everyone at once (much like IRC with 5 different channels). Trust me, theres something for everyone!

The NICE thing here is that this "Public Access UNIX System" puts the "Public Access" back onto YOUR terminal! After running the "newuser" program at the login: prompt, you will be given a 100% ACTIVE account right then (not in a day or two, when we can verify you).

## **NYX**

telnet NYX.CS.DU.EDU  
or  
telnet 130.253.192.68

login: new

Welcome to Nyx -- The Spirit of the Night

Sponsored by the Faculty, Students, and Friends of the University of Denver Department of Math and Computer Science

Major features include:

- 4+ Gb disk space, 16+ lines
- An extensive file download section
- The NetNews worldwide bulletin board
- Access to the Unix system itself
- "Internet FTP" access to 100s of Gb of downloads

## **WAIS (Wide-Area Information Services)**

WAIS (pronounced 'ways') is a networked information retrieval system. WAIS currently uses TCP/IP to connect client applications to information servers. Client applications are able to retrieve text or multimedia documents stored on the servers. Client applications request documents using keywords. Servers search a full text index for the documents and return a list of documents containing the keyword. The client may then request the server to send a copy of any of the documents found.

Although the name "Wide Area" implies the use of the large networks such as the Internet to connect clients to servers distributed around the network, WAIS can be used between a client and server on the same machine or a client and server on the same LAN.

WAIS uses the Z39.50 query protocol to communicate between clients and servers. WAIS does not, at this time, implement the full Z39.50-1992 specification. In particular, WAIS does not permit boolean searches but instead is restricted to relevance feedback.

There are a large number of servers running currently (over 400 databases). Topics range from recipes and movies to bibliographies, technical documents, and newsgroup archives.

WAIS was developed as a project of Thinking Machines, Apple Computer and Dow Jones. WAIS is a free product available with full source to the server, indexing software, and many clients.

Thinking Machines has announced that they will stop support for the publicly distributed WAIS as of WAIS-8-b5.1. Future support and development of WAIS has been taken over by CNIDR (Clearinghouse for Networked Information Discovery and Retrieval). Future CNIDR releases will be called FreeWAIS, to help reduce confusion. To obtain freeWAIS (unix) server software:

ftp to: ftp.cnidr.org  
path to file(s): pub/NIDR.tools/freeWAIS-0.1.tar

To obtain an MS-DOS WAIS client:

ftp to: sunsite.unc.edu  
path to file(s): pub/wais/clients/ms\_dos/pcdist.zip

WAIS sites:

NNSC.NSF.NET  
Think.com

## FreeWAIS

*Here is the text of a recent announcement on the availability and features of FreeWAIS:*

CNIDR is pleased to announce the release of freeWAIS-0.1 (beta). freeWAIS-0.1 is a compilation of many features and additions never included in the original b5 release of WAIS.

freeWAIS-0.1 is designed to be a "backwards compatibility" module for freeWAIS-1.0, which will provide full Z39.50-92 support and is nearing completion.

We have tried to keep up with the most recent patches in the course of creating freeWAIS, but we may have missed a few. We will correct any problems as soon as we are made aware of them.

Expect to find a few (or more than a few) bugs in this release. We do.

Please send bug reports to:

freeWAIS@cnidr.org

We will release various incremental upgrades to fix bugs as we find/are made aware of them.

You may need to re-index current databases before using the freeWAIS server. Be certain that things work to your satisfaction before deleting old code.

Some features:

- Boolean searches (AND,OR,NOT)
- Stemming (optional - may be turned on/off at compile time)
- Better content in source structures - the top 20 or so words in a database are included in the .src file to improve location.
- Dual directory-of-servers registration - quake.think.com and cnidr.org to provide some redundancy.
- Literal and partial word searches
- Access control
- Thesaurus support for individual databases
- Better intermediate file merging
- Better document scoring

Plus others. Please see the RELEASE-NOTES file for credits and details.

You will note the absence of clean documentation. This will be remedied in freeWAIS-1.0.

We particularly want to thank Francois Schiettecatte for his hard work in bringing this first freeWAIS release together!

Future improvements:

- Z39.50-92 support with info-1 generic records and es-1 element sets
- Greatly reduced memory requirements (freeWAIS-0.1 still uses a lot)
- Removal of various search engine constraints
- Integration of Dynamic WAIS and Essence code
- automatic directory-of-server update agents



URL/URN support  
generalized directory service support

Any volunteers?

Here is the official announcement:

freeWAIS 0.1 is now available via anonymous ftp:

```
ftp to ftp.cnidr.org
cd pub/NIDR.tools
file: freeWAIS-0.1.tar.z
```

Comments and bug fixes should be addressed to [freewais@cnidr.org](mailto:freewais@cnidr.org).

freeWAIS 0.1 is a beta release for testing purposes only. Bug fixes will be incorporated on a weekly basis until the version stabilizes.

Many enhancements and fixes to the current wais-8-b5 release have been incorporated into freeWAIS 0.1. freeWAIS 0.n is designed to be the drop-in backwards compatibility module for freeWAIS 1.0. freeWAIS 1.0, currently in development, will include support for Z39.50-92.

The current WAIS protocol extensions to Z39.50-88 are incompatible with Z39.50-92, but freeWAIS 0.1 will provide the necessary backwards compatibility so queries may be answered from either client set.

A summary of fixes and enhancements may be found in

<ftp://ftp.cnidr.org/pub/NIDR.tools/freeWAIS-0.1/RELEASE-NOTES>

If you are interested in discussing wais, freeWAIS, or Z39.50, three discussion lists exist for these purposes:

[wais-talk@think.com](mailto:wais-talk@think.com) - Z39.50-88 compliant versions  
[zip@cnidr.org](mailto:zip@cnidr.org) - freeWAIS 1.0 (Z39.50-92 compliant versions)  
[z3950iw@nervm.bitnet](mailto:z3950iw@nervm.bitnet) - Z39.50 protocol

Send standard subscription requests (subscribe listname Firstname Lastname) to:

[listname-request@site.domain](mailto:listname-request@site.domain)

as in

[zip-request@cnidr.org](mailto:zip-request@cnidr.org)

Clearinghouse for Networked Information Discovery and Retrieval (CNIDR)  
Center for Communications at MCNC  
PO Box 12889, 3021 Cornwallis Road  
Research Triangle Park, NC 27709-2889  
E-mail: [cnidr@cnidr.org](mailto:cnidr@cnidr.org) Phone: 919-248-1499

Clearinghouse for Networked Information Discovery and Retrieval

telnet hub.nnsc.nsf.net  
Username: wais

telnet quake.think.com  
or  
telnet 192.31.181.1  
login: wais  
terminal: vt100

## **Z39.50**

Name of the national standard developed by the National Information Standards Organization (NISO) that defines an applications level protocol by which one computer can query another computer and transfer result records, using a canonical format. This protocol provides the framework for OPAC users to search remote catalogs on the Internet using the commands of their own local systems. Projects are now in development to provide Z39.50 support for catalogs on the Internet. SR (Search and Retrieval), ISO Draft International Standard 10162/10163 is the international version of Z39.50.

## **TN3270**

A version of telnet providing IBM full-screen support

## **National Science Foundation**

telnet master.stis.nsf.gov  
or  
telnet 128.150.195.40

login: **public**

STIS supports the following terminal types:

vt100  
vt100nkp  
vt100nes  
sunkbd3  
sunkbd4

Enter your terminal type, or ? for help (blank=vt100):

Science and Technology Information System  
Type up to eight letters as your personal ID, and then Enter.

Network Information Center On-Line Aid System (NICOLAS)  
telnet dftnic.gsfc.nasa.gov  
or  
telnet 128.183.10.3

Username: DFTNIC

This is the ADFTO's Network Information Center On-Line Aid System

THIS SYSTEM IS FOR NASA EMPLOYEES, CONTRACTORS AND AFFILIATED RESEARCHERS ONLY



## **USA Today**

### Cleveland Free-Net

USA TODAY Headline News is brought to you by the hundreds of Cleveland Free-Net users who have joined the National Public Telecomputing Network (NPTN). As part of the NPTN membership plan, 15% of all full-member dues are rebated back to the user's home system to bring you features such as this. (For more information on NPTN membership type: go nptn at any arrow prompt.)

This feature is produced five days a week (Mon-Fri) by the USA TODAY: Gannett National Information Network. Each day the information is placed on a USA TODAY computer in Greensboro, North Carolina, downloaded, processed, and uploaded to the Cleveland Free-Net by NPTN.

You will find this service to be a little different than other online news services you may have experienced. It does NOT consist of full text articles. Rather it consists of headlines followed by one paragraph summaries. This design is quite intentional.

One of the things we have found over the years is that computer screens are a pretty bad way of reading high-volume full-text of ANYTHING. They simply do not allow you the flexibility of eye-scanning and cognitive movement that the print medium does. As a result, few people are willing to "Press Return to Continue" their way through a large file for very long.

What these files do is allow you to get a quick four or five screen summary of the news in over 18 different areas. Items of special interest--items that you WANT more information on--can be noted so that you can later obtain a newspaper (hopefully USA TODAY) or go to some other source for more details. We think you will find that, after reading this service, you come away with a pretty good feel for what's going on in the world. And THAT is our intent.

Finally, this news service is being viewed as an experiment. Both NPTN and USA TODAY would like to know what you think about it and how you think it could be improved to better meet your information needs. (Send your thoughts and ideas to aa583 - NPTN Cybercasting Services.)

It is also a part of a larger program by NPTN to develop the whole area of online news delivery. If you would like to be a part of that program, AND HAVE SUBSTANTIVE EXPERIENCE in either the print, radio, or television news media, please contact NPTN via e.mail at aa622.

## Shakespeare's Plays and Sonnets

telnet lib.dartmouth.edu  
or  
telnet 129.170.16.11

terminal type:

Consists of the full text of thirty-three of Shakespeare's plays, taken from Arthur Bullen's Stratford Town Edition. The plays included are:

Macbeth	Twelfth Night
As You Like It	The Two Gentlemen of Verona
Othello	King Henry V
A Comedy of Errors	A Midsummer Night's Dream
King Lear	Julius Caesar
Antony and Cleopatra	King Henry IV (Part I)
King John	Timon of Athens
Measure for Measure	King Henry IV (Part II)
Cymbeline	Romeo and Juliet
Troilus and Cressida	Much Ado About Nothing
Pericles	Titus Andronicus
Love's Labour's Lost	The Taming of the Shrew
Hamlet	King Richard III
The Merchant of Venice	King Henry VI (Part III)

## **Webster's Dictionary**

telnet decoy.uoregon.edu 2627  
or  
telnet 128.223.32.19 2627

NeXT Websterd 2.0 beta

Still under development - some commands described below haven't been implemented yet.

This daemon works in much the same way as the standard Webster daemon, plus it can access both the NeXT's on-line dictionary and thesaurus. Commands are in the same format as the old websterd, with the addition of an INDEX command.

Comments and suggestions to [sahayman@iuvax.cs.indiana.edu](mailto:sahayman@iuvax.cs.indiana.edu) .

## **CIA World Factbook**

Available at the [Cleveland Freenet](#)

Type go nations at the Your Choice prompt

The World Factbook is produced annually by the Central Intelligence Agency for the use of United States Government officials, and the style, format, coverage, and content are designed to meet their specific requirements. Comments and queries are welcome and may be addressed to:

Central Intelligence Agency  
Attn: Public Affairs  
Washington, DC 20505  
(703) 351-2053

There are 249 entities in the Factbook that may be categorized as follows:

### **NATIONS:**

157 UN members (there are 159 members in the UN, but only 157 are included in The World Factbook because Byelorussia and Ukraine are constituent republics of the Soviet Union)

15 nations that are not members of the UN--Andorra, Federated States of Micronesia, Kiribati, Liechtenstein, Marshall Islands, Monaco, Namibia, Nauru, North Korea, San Marino, South Korea, Switzerland, Tonga, Tuvalu, Vatican City

### **OTHER:**

1 Taiwan

### **DEPENDENT AREAS:**

6 Australia--Ashmore and Cartier Islands, Christmas Island, Cocos (Keeling) Islands, Coral Sea Islands, Heard Island and McDonald Islands, Norfolk Island

2 Denmark--Faroe Islands, Greenland 16 France--Bassas da India, Clipperton Island, Europa Island, French Guiana, French Polynesia, French Southern and Antarctic Lands, Glorioso Islands, Guadeloupe, Juan de Nova Island, Martinique, Mayotte, New Caledonia, Reunion, St. Pierre and Miquelon, Tromelin Island, Wallis and Futuna

2 Netherlands--Aruba, Netherlands Antilles

3 New Zealand--Cook Islands, Niue, Tokelau

3 Norway--Bouvet Island, Jan Mayen, Svalbard

1 Portugal--Macau

16 United Kingdom--Anguilla, Bermuda, British Indian Ocean Territory, British Virgin Islands, Cayman Islands, Falkland Islands, Gibraltar, Guernsey, Hong Kong, Isle of Man, Jersey, Montserrat, Pitcairn Islands, St. Helena, South Georgia and the South Sandwich Islands, Turks and Caicos Islands

15 United States--American Samoa, Baker Island, Guam, Howland Island, Jarvis Island, Johnston Atoll, Kingman Reef, Midway Islands, Navassa Island, Northern Mariana Islands, Palmyra Atoll, Puerto Rico, Trust Territory of the Pacific Islands (Palau), Virgin Islands, Wake Island

### **MISCELLANEOUS:**

7 Antarctica, Gaza Strip, Iraq-Saudi Arabia Neutral Zone, Paracel Islands, Spratly Islands,

West Bank, Western Sahara

OTHER ENTITIES

4 oceans--Arctic Ocean, Atlantic Ocean, Indian Ocean, Pacific Ocean  
1 World

## **ZIB Electronic Library, Germany**

telnet elib.zib-berlin.de  
or  
telnet 130.73.108.11

login: elib

Hello and Welcome at the ZIB Electronic Library

This is the Version 1.1 of eLib, making available to the public:

1. a set of libraries with routines classified by GAMS-index
2. a "hot link" to the famous "netlib" of AT&T containing ca. 5000 routines - you must be registered at eLib, to access them by "e-Mail out" service
3. some abstracts of scientific papers and software distribution documents and a set of introductory documents on eLib itself and the ways to reach it.

## **Glossary**

We've broken our glossary up into two sections to reduce the amount of scrolling required...

[A-M \(terms beginning with A - M\)](#)

[N-Z \(terms beginning with N - Z\)](#)

## **Glossary (A - M)**

### **Non-alphabetic terms**

802.X  
10BaseT

#### **A**

Appletalk  
Archie  
Asynchronous Transfer Mode (ATM)

#### **B**

BBS  
bandwidth  
bounce  
bridge  
broadband

#### **C**

Clarkson drivers  
Client/server  
Coalition for Networked Information (CNI)  
Corporation for Research and Educational Networking (CREN)  
CCITT  
CSMA/CD

#### **D**

Domain

#### **E**

Ethernet

#### **F**

FAQ  
Fast Ethernet  
Fiber Distributed Data Interface (FDDI)  
File server  
finger  
flame  
FTP  
Fully Qualified Domain Name

#### **G**

Gateways  
Gopher  
Gopher+

#### **I**

IEEE  
Internet  
IP address  
ISDN  
ISO



**L**  
lurking  
Listserver

## **Glossary (N - Z)**

### **N**

NFS  
NREN

### **O**

OPAC

### **P**

Packet switching  
PING

### **R**

Request For Comments (RFC)  
RTF files  
RTFM

### **S**

Serial Line IP (SLIP)  
Smiley  
SMTP  
Soundex

### **T**

T1  
T3  
TCP/IP  
Telnet  
Token ring  
topology  
twisted pair

### **U**

USENET

### **V**

Veronica  
VT100

### **W**

WAIS  
WINSOCK.DLL

### **X**

X.500

## **RTFGEN**

RTFGEN is a freeware DOS utility written by David Baldwin (Compuserve ID 76327,53) which takes a labelled ASCII text file and renders from it an RTF file, suitable as input for the Microsoft Help Compiler. With RTFGEN, you can write a database like InfoPop with an ASCII editor and avoid the gymnastics and frustration that typically accompanies creation of RTF files with a word processor.

RTFGEN release 1.0 is a DOS utility.

RTFGEN release 2.0 is a Windows program (written in Turbo Pascal for Windows).

RTFGEN is available from Compuserve (GO WINSDK), [ftp](#), or the [GMUtant OnLine BBS](#).

**Rich Text Format (RTF)**

An ASCII text format used by several word processors (where formatting codes are embedded in the document). The Microsoft Help Compiler--which generated the IPWIN.HLP file you're using now--requires an RTF file as input...rendering from it as Windows .HLP file.

**X.500**

The CCITT and ISO standard for electronic directory services.

**Corporation for Research and  
Educational Networking (CREN)**

This organization was formed in October 1989, when Bitnet and CSNET (Computer + Science NETWORK) were combined under one administrative authority. CSNET is no longer operational, but CREN still runs Bitnet.

**IEEE**

Institute of Electrical and Electronic Engineers

## **ISO International Organization for Standardization**

A voluntary, nontreaty organization founded in 1946 which is responsible for creating international standards in many areas, including computers and communications. Its members are the national standards organizations of the 89 member countries, including ANSI for the U.S.



## **10BaseT**

A type of wiring scheme for Ethernet, using unshielded twisted pair (UTP). 10BaseT uses 2 pair of wires, one pair for sending data and one pair for receiving.

**802.x**

The set of IEEE standards that govern various LAN protocols. Ethernet, for example, is governed by standard 802.3

## Smileys

There are hundreds of these things in existence. They're generally used in e-mail messages to convey the mood of the writer...if you can't see the connection between the term and the symbol, tilt your head sideways and look again...

: -)	smile
: -(	frown
; -)	wink
: -o	oh, no!

## **CSMA/CD**

Carrier Sense Multiple Access/Collision Detection

Under CSMA/CD, when a device (workstation, server, whatever) wants access to the network, it checks to see if the network is free (can it carry a packet?). If not, it waits a random amount of time before trying again. If the network is free and two devices attempt to gain access at the same time, they both back off to avoid a collision and wait a random amount of time before retrying.

Ethernet uses the CSMA/CD approach.

## **Fast Ethernet**

A technology which provides 100M-bps speeds over traditional 10BaseT wiring--with the addition of new network interface cards. It is positioned as a lower-cost alternative to high speed technologies such as CDDI (Copper Distributed Data Interface) and/or FDDI (Fiber Distributed Data Interface). 100BaseVG, the Fast Ethernet standard proposed by Hewlett-Packard and AT&T also uses twisted pair, but unlike 10BaseT, 100BaseVG uses 4 pairs of wire (instead of two) and does not rely on CSMA/CD so some would argue it is not 'true' ethernet.

## Domain Name System

The Internet naming scheme which consists of a hierarchical sequence of names, from the most specific to the most general (left to right), separated by dots, for example nic.ddn.mil.

The domain is most often one of the following:

com Usually a company or other commercial institution or organization, like Convex Computers (convex.com).

edu An educational institution, e.g. New York University, named nyu.edu

gov A government site; for example, NASA is nasa.gov

mil A military site, like the Air Force, af.mil

net Gateways and other administrative hosts for a network (it does not mean all of the hosts in a network). One such gateway is near.net

org This is a domain reserved for private organizations, who don't comfortably fit in the other classes of domains. One example is the Electronic Frontier Foundation, named eff.org

The proper terminology for a site's domain name is it's FQDN (Fully Qualified Domain Name). It typically reflects the site's organization or sponsoring institution.

*Editor's note: excerpted from RFC 1206*

**Fully Qualified Domain Name (defined)**

A Fully Qualified Domain Name (FQDN) is a domain name that includes all higher level domains relevant to the entity named. If you think of the DNS as a tree-structure with each node having its own label, a Fully Qualified Domain Name for a specific node would be its label followed by the labels of all the other nodes between it and the root of the tree. For example, for a host, a FQDN would include the string that identifies the particular host, plus all domains of which the host is a part up to and including the top-level domain (the root domain is always null). For example, PARIS.NISC.SRI.COM is a Fully Qualified Domain Name for the host at 192.33.33.109. In addition, NISC.SRI.COM is the FQDN for the NISC domain.

**topology**

A network topology shows the computers in the network and the links between them. Typically the topology of a network describes the physical layout of both the machines on the net and the underlying infrastructure (e.g., wiring).



An AT&T term for a digital carrier facility used to transmit a formatted digital signal at 1.544 megabits per second.'

Digital carrier facility used to transmit a formatted digital signal at 44.746 megabits per second.

## **Simple Mail Transfer Protocol (SMTP)**

A protocol, defined in STD 10, RFC 821, used to transfer electronic mail between computers. It is a server to server protocol, so other protocols are used to access the messages.

## **Network File System (NFS)**

A protocol developed by Sun Microsystems, and defined in RFC 1094, which allows a computer system to access files over a network as if they were on its local disks. This protocol has been incorporated in products by more than two hundred companies, and is now a de facto Internet standard.

## **FAQ**

Frequently Asked Question.

**finger**

A program that displays information about a particular user, or all users, logged on the local system or on a remote system. It typically shows full name, last login time, idle time, terminal line, and terminal location (where applicable). It may also display plan and project files left by the user.

**lurking**

No active participation on the part of a subscriber to an mailing list or USENET newsgroup. A person who is lurking is just listening to the discussion. Lurking is encouraged for beginners who need to get up to speed on the history of the group.

**flame**

A strong opinion and/or criticism of something, usually as a frank inflammatory statement, in an electronic mail message. It is common to precede a flame with an indication of pending fire (i.e., FLAME ON!). Flame Wars occur when people start flaming other people for flaming when they shouldn't have.



**FDDI**

A high-speed (100Mb/s) LAN standard. The underlying medium is fiber optics, and the topology is a dual-attached, counter-rotating token ring.

**twisted pair**

A type of cable in which pairs of conductors are twisted together to produce certain electrical properties. Unshielded twisted pair (or UTP) is used for telephones and certain LAN wiring topologies (e.g., 10BaseT).

## **Request For Comments (RFC)**

The document series, begun in 1969, which describes the Internet suite of protocols and related experiments. Not all (in fact very few) RFCs describe Internet standards, but all Internet standards are written up as RFCs. The RFC series of documents is unusual in that the proposed protocols are forwarded by the Internet research and development community, acting on their own behalf, as opposed to the formally reviewed and standardized protocols that are promoted by organizations such as CCITT and ANSI.

## **Packet InterNet Groper (PING)**

A program used to test whether a destination is 'reachable' by sending them an ICMP (Internet Control Message Protocol) echo verb ('Ping site A to see what's up').

**SLIP**

A protocol used to run IP over serial lines, such as telephone circuits or RS-232 cables, interconnecting two systems.

## **RTFM**

**Read The Freakin' Manual.** You might receive this in response to a net-posted question that was answered in the system documentation you neglected to read before querying others.

## **Asynchronous Transfer Mode (ATM)**

A method for the dynamic allocation of bandwidth using a fixed- size packet (called a cell). ATM is also known as "fast packet".

## **Appletalk**

A networking protocol developed by Apple Computer for communication between Apple Computer products and other computers. This protocol is independent of the network layer on which it is run. Current implementations exist for Localtalk, a 235 kilobits per second local area network; and Ethertalk, a 10 megabits per second local area network.



**Bandwidth**

Technically, the difference, in Hertz (Hz), between the highest and lowest frequencies of a transmission channel. However, as typically used, the amount of data that can be sent through a given communications circuit.

**bounce**

The return of a piece of mail because of an error in its delivery.

**bridge**

A device which forwards traffic between network segments based on datalink layer information. These segments would have a common network layer address. See also: [gateway](#)

**broadband**

A transmission medium capable of supporting a wide range of frequencies. It can carry multiple signals by dividing the total capacity of the medium into multiple, independent bandwidth channels, where each channel operates only on a specific range of frequencies.

## **Bulletin Board System (BBS)**

A computer, and associated software, which typically provides electronic messaging services, archives of files, and any other services or activities of interest to the bulletin board system's operator (sysop). Although BBS's have traditionally been the domain of hobbyists and accessible via modem (dial up), an increasing number of BBS's are connected directly to the Internet, and many BBS's are currently operated by government, educational, and research institutions.

**Coalition for Networked Information (CNI)**

A consortium formed by American Research Libraries, CAUSE, and EDUCOM to promote the creation of, and access to, information resources in networked environments in order to enrich scholarship and enhance intellectual productivity.

## **Comite Consultatif International de Telegraphique et Telephonique**

This organization is part of the United National International Telecommunications Union (ITU) and is responsible for making technical recommendations about telephone and data communications systems. Every four years CCITT holds plenary sessions where they adopt new standards; the most recent was in 1992.

## **ISDN**

An emerging technology which is beginning to be offered by the telephone carriers of the world. ISDN combines voice and digital network services in a single medium, making it possible to offer customers digital data services as well as voice connections through a single "wire". The standards that define ISDN are specified by CCITT.



Some say that ISDN stands for "It Still Does Nothing"

(USEr NETwork) Public access network on the Internet that provides user news and e-mail. It is a giant, dispersed bulletin board that is maintained by volunteers willing to provide news and mail feeds to other nodes. It began in 1979 as a bulletin board between two universities in North Carolina

## **Ethernet - from *Newton's Telecom Dictionary***

A local area network used for connecting computers, printers, workstations, terminals, etc., within the same building. Ethernet operates over twisted pair and over coaxial cable at speeds up to 10 Mbps. Ethernet LANs are being promoted by DEC, Intel and Xerox. For LAN interconnection, Ethernet is a physical link and data link protocol reflecting the two lowest layers of the DNA/OSI model. The theoretical limit of Ethernet, measured in 64 byte packets, is 14,800 packets per second (PPS). By comparison, token ring is 30,000 and FDDI is 170,000.

(InfoPop note: the PPS figure translates to 10 Megabits per second. For token ring, the figures are 4 Mbps and 16Mbps. 100 Mbps Ethernet, called 'fast ethernet' is currently under development by several firms and is predicted to be a 'standard' in late '93 or early '94).

Ethernet specifies a CSMA/CD approach.

The first personal computer Ethernet LAN adapter was shipped by 3Com on September 29, 1982 using the first Ethernet silicon from SEEQ Technology. Bob Metcalfe who created the original Ethernet specification at Xerox PARC and later went on to found 3Com. Thin Ethernet cable and silicon dropped from about \$5,000 to \$750 and 3Com went off like a rocket ship.

## **token ring**

A ring type of local area network (LAN) in which a supervisory frame, or token, must be received by an attached terminal or workstation before that terminal or workstation can start transmitting. The workstation with the token then transmits and uses the entire bandwidth of whatever communications media the token ring network is using. A token ring is a baseband network. Token ring is the technique used by IBM, Arcnet, and others. A token ring LAN can be wired as a circle or a star, with all workstations wired to a central wiring center, or to multiple wiring centers. The most common wiring scheme is called a star-wired ring. In this configuration, each computer is wired directly to a device called a Multi-station Access Unit (MAU). These are usually grouped together in a wiring closet for convenience. The MAU is wired in such a way as to create a ring between the computers. If one of the computers is turned off or breaks or its cable to the MAU is broken, the MAU automatically recreates the ring without that computer. This gives token ring networks great flexibility, reliability, and ease of configuration and maintenance.

Despite the wiring, a token ring LAN always works logically as a circle, with the token passing around the circle from one workstation to another. The advantage of token ring LANs is that media faults (broken cable) can be fixed easily. It's easy to isolate them. Token rings are typically installed in centralized closets, with loops snaking to served workstations. Some other LANs require your going up in the ceiling or into walls and finding coax taps. All the work on a token ring can be done on one or several panels. These panels allow you to isolate workstations, and thus isolate faults.

Token Ring LANs can operate at transmission rates of either 4M bits per second or 16M bits per second. The number of computers that can be connected to a single Token Ring LAN is limited to 256. The typical installation is usually less than 100. Large installations connect multiple token ring LANS with bridges. The theoretical limit of Ethernet measured in 64 byte packets, is 14,800 packets per second (PPS). By comparison, Token Ring is 30,000 and FDDI is 170,000. See FDDI-II and FDDI TERMS.

Help on this definition courtesy Tad Witkowicz of Crosscom, Marlboro, MA, Tim Becker, Lanquest Group, Santa Clara, CA and Elaine Jones, VP Marketing, Coral Network Corporation, Marlborough, MA.

from Newton's Telecom Dictionary

## **Client/Server**

In a communications network, the client is the requesting machine and the server is the supplying machine. It implies that software is specialized at each end. For example, in a network-ready database system, the user interface would reside in the workstation, and the storage and retrieval functions would reside in the server.

The [gopher](#) protocol is one implementation of a client/server architecture.

## **listservers**

Electronic discussion of technical and nontechnical issues conducted by electronic mail over BITNET using LISTSERV protocols. Similar lists, often using the UNIX readnews or rn facility, are available exclusively on the Internet. Internet users may subscribe to BITNET listservers. Participants subscribe via a central service, and lists often have a moderator who manages the information flow and content.

Note that once you subscribe to a list, you receive all the 'mail' anyone sends to the list.

## **NREN**

The National Research and Education Network is a proposed computer network to be built upon the foundation of the NSF backbone network, NSFnet. NREN would provide high speed interconnection between other national and regional networks. SB 1067 is the legislative bill proposing NREN.

## **Packet Switching**

Sending data in packets through a network to some remote location. The data to be sent is subdivided into individual packets of data, each having a unique identification and carrying its destination address. This way each packet can go by a different route. It may also arrive in a different order than it was shipped. The packet ID lets the data be reassembled in proper sequence. Packet switching is a very efficient method of moving digital data around. It is not useful for voice, yet, though experiments are underway.



## **File Server**

A file server is a device which "serves" files to everyone on a network. It allows everyone the network to get to files in a single place, one one computer. It typically is a combination computer, data management software, and large capacity hard disk drive. A file server directs all movement of files and data on a multi-user communications network. It allows the user to store information, leave electronic mail messages for other users on the system and access application software on the file server -- e.g. word processing, spreadsheet. A file server should also stop more than one user accessing (and potentially changing) a file at the same time -- a capability called file locking. This means that certain files are "locked" to certain users, i.e. those users cannot access those files.

## **Internet**

The Internet is a worldwide collection of thousands of interconnected computer networks, which is used by approximately one million people daily. The networks in the Internet use either the TCP/IP protocol suite or the OSI protocol suite. Gateways exist that translate between the two protocols.

A history of the Internet by Bruce Sterling

A history of the Internet by Ed Krol



an internet bibliography

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## **Internet by Bruce Sterling**

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Some thirty years ago, the RAND Corporation, America's foremost Cold War think-tank, faced a strange strategic problem. How could the US authorities successfully communicate after a nuclear war?

Postnuclear America would need a command-and-control network, linked from city to city, state to state, base to base. But no matter how thoroughly that network was armored or protected, its switches and wiring would always be vulnerable to the impact of atomic bombs. A nuclear attack would reduce any conceivable network to tatters.

And how would the network itself be commanded and controlled? Any central authority, any network central citadel, would be an obvious and immediate target for an enemy missile. The center of the network would be the very first place to go.

RAND mulled over this grim puzzle in deep military secrecy, and arrived at a daring solution. The RAND proposal (the brainchild of RAND staffer Paul Baran) was made public in 1964. In the first place, the network would *have no central authority*. Furthermore, it would be *designed from the beginning to operate while in tatters*.

The principles were simple. The network itself would be assumed to be unreliable at all times. It would be designed from the get-go to transcend its own unreliability. All the nodes in the network would be equal in status to all other nodes, each node with its own authority to originate, pass, and receive messages. The messages themselves would be divided into packets, each packet separately addressed. Each packet would begin at some specified source node, and end at some other specified destination node. Each packet would wind its way through the network on an individual basis.

The particular route that the packet took would be unimportant. Only final results would count. Basically, the packet would be tossed like a hot potato from node to node to node, more or less in the direction of its destination, until it ended up in the proper place. If big pieces of the network had been blown away, that simply wouldn't matter; the packets would still stay airborne, lateralled wildly across the field by whatever nodes happened to survive. This rather haphazard delivery system might be "inefficient" in the usual sense (especially compared to, say, the telephone system) -- but it would be extremely rugged.

During the 60s, this intriguing concept of a decentralized, blastproof, packet-switching network was kicked around by RAND, MIT and UCLA. The National Physical Laboratory in Great Britain set up the first test network on these principles in 1968. Shortly afterward, the Pentagon's Advanced Research Projects Agency decided to fund a larger, more ambitious project in the USA. The nodes of the network were to be high-speed supercomputers (or what passed for supercomputers at the time). These were rare and valuable machines which were in real need of good solid networking, for the sake of national research-and-development projects.

In fall 1969, the first such node was installed in UCLA. By December 1969, there were four nodes on the infant network, which was named ARPANET, after its Pentagon sponsor.

The four computers could transfer data on dedicated high-speed transmission lines. They could even be programmed remotely from the other nodes. Thanks to ARPANET, scientists and researchers could share one another's computer facilities by long-distance. This was a

very handy service, for computer-time was precious in the early '70s. In 1971 there were fifteen nodes in ARPANET; by 1972, thirty-seven nodes. And it was good.

By the second year of operation, however, an odd fact became clear. ARPANET's users had warped the computer-sharing network into a dedicated, high-speed, federally subsidized electronic post-office. The main traffic on ARPANET was not long-distance computing. Instead, it was news and personal messages. Researchers were using ARPANET to collaborate on projects, to trade notes on work, and eventually, to downright gossip and schmooze. People had their own personal user accounts on the ARPANET computers, and their own personal addresses for electronic mail. Not only were they using ARPANET for person-to-person communication, but they were very enthusiastic about this particular service -- far more enthusiastic than they were about long-distance computation.

It wasn't long before the invention of the mailing-list, an ARPANET broadcasting technique in which an identical message could be sent automatically to large numbers of network subscribers. Interestingly, one of the first really big mailing-lists was "SF- LOVERS," for science fiction fans. Discussing science fiction on the network was not work-related and was frowned upon by many ARPANET computer administrators, but this didn't stop it from happening.

Throughout the '70s, ARPA's network grew. Its decentralized structure made expansion easy. Unlike standard corporate computer networks, the ARPA network could accommodate many different kinds of machine. As long as individual machines could speak the packet-switching lingua franca of the new, anarchic network, their brand-names, and their content, and even their ownership, were irrelevant.

The ARPA's original standard for communication was known as NCP, "Network Control Protocol," but as time passed and the technique advanced, NCP was superseded by a higher-level, more sophisticated standard known as TCP/IP. TCP, or "Transmission Control Protocol," converts messages into streams of packets at the source, then reassembles them back into messages at the destination. IP, or "Internet Protocol," handles the addressing, seeing to it that packets are routed across multiple nodes and even across multiple networks with multiple standards -- not only ARPA's pioneering NCP standard, but others like Ethernet, FDDI, and X.25.

As early as 1977, TCP/IP was being used by other networks to link to ARPANET. ARPANET itself remained fairly tightly controlled, at least until 1983, when its military segment broke off and became MILNET. But TCP/IP linked them all. And ARPANET itself, though it was growing, became a smaller and smaller neighborhood amid the vastly growing galaxy of other linked machines.

As the '70s and '80s advanced, many very different social groups found themselves in possession of powerful computers. It was fairly easy to link these computers to the growing network-of- networks. As the use of TCP/IP became more common, entire other networks fell into the digital embrace of the Internet, and messily adhered. Since the software called TCP/IP was public-domain, and the basic technology was decentralized and rather anarchic by its very nature, it was difficult to stop people from barging in and linking up somewhere-or-other. In point of fact, nobody *\*wanted\** to stop them from joining this branching complex of networks, which came to be known as the "Internet."

Connecting to the Internet cost the taxpayer little or nothing, since each node was independent, and had to handle its own financing and its own technical requirements. The more, the merrier. Like the phone network, the computer network became steadily more valuable as it embraced larger and larger territories of people and resources.



A fax machine is only valuable if *everybody else* has a fax machine. Until they do, a fax machine is just a curiosity. ARPANET, too, was a curiosity for a while. Then computer-networking became an utter necessity.

In 1984 the National Science Foundation got into the act, through its Office of Advanced Scientific Computing. The new NSFNET set a blistering pace for technical advancement, linking newer, faster, shinier supercomputers, through thicker, faster links, upgraded and expanded, again and again, in 1986, 1988, 1990. And other government agencies leapt in: NASA, the National Institutes of Health, the Department of Energy, each of them maintaining a digital satrapy in the Internet confederation.

The nodes in this growing network-of-networks were divvied up into basic varieties. Foreign computers, and a few American ones, chose to be denoted by their geographical locations. The others were grouped by the six basic Internet "domains": gov, mil, edu, com, org and net. (Graceless abbreviations such as this are a standard feature of the TCP/IP protocols.) Gov, Mil, and Edu denoted governmental, military and educational institutions, which were, of course, the pioneers, since ARPANET had begun as a high-tech research exercise in national security. Com, however, stood for "commercial" institutions, which were soon bursting into the network like rodeo bulls, surrounded by a dust-cloud of eager nonprofit "orgs." (The "net" computers served as gateways between networks.)

ARPANET itself formally expired in 1989, a happy victim of its own overwhelming success. Its users scarcely noticed, for ARPANET's functions not only continued but steadily improved. The use of TCP/IP standards for computer networking is now global. In 1971, a mere twenty-one years ago, there were only four nodes in the ARPANET network. Today there are tens of thousands of nodes in the Internet, scattered over forty-two countries, with more coming on-line every day. Three million, possibly four million people use this gigantic mother-of-all-computer-networks.

The Internet is especially popular among scientists, and is probably the most important scientific instrument of the late twentieth century. The powerful, sophisticated access that it provides to specialized data and personal communication has sped up the pace of scientific research enormously.

The Internet's pace of growth in the early 1990s is spectacular, almost ferocious. It is spreading faster than cellular phones, faster than fax machines. Last year the Internet was growing at a rate of twenty percent a \*month.\* The number of "host" machines with direct connection to TCP/IP has been doubling every year since 1988. The Internet is moving out of its original base in military and research institutions, into elementary and high schools, as well as into public libraries and the commercial sector.

Why do people want to be "on the Internet?" One of the main reasons is simple freedom. The Internet is a rare example of a true, modern, functional anarchy. There is no "Internet Inc." There are no official censors, no bosses, no board of directors, no stockholders. In principle, any node can speak as a peer to any other node, as long as it obeys the rules of the TCP/IP protocols, which are strictly technical, not social or political. (There has been some struggle over commercial use of the Internet, but that situation is changing as businesses supply their own links).

The Internet is also a bargain. The Internet as a whole, unlike the phone system, doesn't charge for long-distance service. And unlike most commercial computer networks, it doesn't charge for access time, either. In fact the "Internet" itself, which doesn't even officially exist as an entity, never "charges" for anything. Each group of people accessing the Internet is responsible for their own machine and their own section of line.

The Internet's "anarchy" may seem strange or even unnatural, but it makes a certain deep and basic sense. It's rather like the "anarchy" of the English language. Nobody rents English, and nobody owns English. As an English-speaking person, it's up to you to learn how to speak English properly and make whatever use you please of it (though the government provides certain subsidies to help you learn to read and write a bit). Otherwise, everybody just sort of pitches in, and somehow the thing evolves on its own, and somehow turns out workable. And interesting. Fascinating, even. Though a lot of people earn their living from using and exploiting and teaching English, "English" as an institution is public property, a public good. Much the same goes for the Internet. Would English be improved if the "The English Language, Inc." had a board of directors and a chief executive officer, or a President and a Congress? There'd probably be a lot fewer new words in English, and a lot fewer new ideas.

People on the Internet feel much the same way about their own institution. It's an institution that resists institutionalization. The Internet belongs to everyone and no one.

Still, its various interest groups all have a claim. Business people want the Internet put on a sounder financial footing. Government people want the Internet more fully regulated. Academics want it dedicated exclusively to scholarly research. Military people want it spy-proof and secure. And so on and so on.

All these sources of conflict remain in a stumbling balance today, and the Internet, so far, remains in a thrivingly anarchical condition. Once upon a time, the NSFnet's high-speed, high-capacity lines were known as the "Internet Backbone," and their owners could rather lord it over the rest of the Internet; but today there are "backbones" in Canada, Japan, and Europe, and even privately owned commercial Internet backbones specially created for carrying business traffic. Today, even privately owned desktop computers can become Internet nodes. You can carry one under your arm. Soon, perhaps, on your wrist.

But what does one *do* with the Internet? Four things, basically: mail, discussion groups, long-distance computing, and file transfers.

Internet mail is "e-mail," electronic mail, faster by several orders of magnitude than the US Mail, which is scornfully known by Internet regulars as "snailmail." Internet mail is somewhat like fax. It's electronic text. But you don't have to pay for it (at least not directly), and it's global in scope. E-mail can also send software and certain forms of compressed digital imagery. New forms of mail are in the works.

The discussion groups, or "newsgroups," are a world of their own. This world of news, debate and argument is generally known as USENET. "USENET is, in point of fact, quite different from the Internet. USENET is rather like an enormous billowing crowd of gossipy, news-hungry people, wandering in and through the Internet on their way to various private backyard barbecues. USENET is not so much a physical network as a set of social conventions. In any case, at the moment there are some 2,500 separate newsgroups on USENET, and their discussions generate about 7 million words of typed commentary every single day. Naturally there is a vast amount of talk about computers on USENET, but the variety of subjects discussed is enormous, and it's growing larger all the time. USENET also distributes various free electronic journals and publications.

Both netnews and e-mail are very widely available, even outside the high-speed core of the Internet itself. News and e-mail are easily available over common phone-lines, from Internet fringe- realms like BITnet, UUCP and Fidonet. The last two Internet services, long-distance computing and file transfer, require what is known as "direct Internet access" -- using TCP/IP.

Long-distance computing was an original inspiration for ARPANET and is still a very useful service, at least for some. Programmers can maintain accounts on distant, powerful computers, run programs there or write their own. Scientists can make use of powerful supercomputers a continent away. Libraries offer their electronic card catalogs for free search. Enormous CD-ROM catalogs are increasingly available through this service. And there are fantastic amounts of free software available.

File transfers allow Internet users to access remote machines and retrieve programs or text. Many Internet computers -- some two thousand of them, so far -- allow any person to access them anonymously, and to simply copy their public files, free of charge. This is no small deal, since entire books can be transferred through direct Internet access in a matter of minutes. Today, in 1992, there are over a million such public files available to anyone who asks for them (and many more millions of files are available to people with accounts). Internet file-transfers are becoming a new form of publishing, in which the reader simply electronically copies the work on demand, in any quantity he or she wants, for free. New Internet programs, such as "archie," "gopher," and "WAIS," have been developed to catalog and explore these enormous archives of material.

The headless, anarchic, million-limbed Internet is spreading like bread-mold. Any computer of sufficient power is a potential spore for the Internet, and today such computers sell for less than \$2,000 and are in the hands of people all over the world. ARPA's network, designed to assure control of a ravaged society after a nuclear holocaust, has been superseded by its mutant child the Internet, which is thoroughly out of control, and spreading exponentially through the post-Cold War electronic global village. The spread of the Internet in the 90s resembles the spread of personal computing in the 1970s, though it is even faster and perhaps more important. More important, perhaps, because it may give those personal computers a means of cheap, easy storage and access that is truly planetary in scale.

The future of the Internet bids fair to be bigger and exponentially faster. Commercialization of the Internet is a very hot topic today, with every manner of wild new commercial information- service promised. The federal government, pleased with an unsought success, is also still very much in the act. NREN, the National Research and Education Network, was approved by the US Congress in fall 1991, as a five-year, \$2 billion project to upgrade the Internet "backbone." NREN will be some fifty times faster than the fastest network available today, allowing the electronic transfer of the entire Encyclopedia Britannica in one hot second. Computer networks worldwide will feature 3-D animated graphics, radio and cellular phone-links to portable computers, as well as fax, voice, and high- definition television. A multimedia global circus!

Or so it's hoped -- and planned. The real Internet of the future may bear very little resemblance to today's plans. Planning has never seemed to have much to do with the seething, fungal development of the Internet. After all, today's Internet bears little resemblance to those original grim plans for RAND's post- holocaust command grid. It's a fine and happy irony.

How does one get access to the Internet? Well -- if you don't have a computer and a modem, get one. Your computer can act as a terminal, and you can use an ordinary telephone line to connect to an Internet-linked machine. These slower and simpler adjuncts to the Internet can provide you with the netnews discussion groups and your own e-mail address. These are services worth having -- though if you only have mail and news, you're not actually "on the Internet" proper.

If you're on a campus, your university may have direct "dedicated access" to high-speed Internet TCP/IP lines. Apply for an Internet account on a dedicated campus machine, and you

may be able to get those hot-dog long-distance computing and file-transfer functions. Some cities, such as Cleveland, supply "freenet" community access. Businesses increasingly have Internet access, and are willing to sell it to subscribers. The standard fee is about \$40 a month -- about the same as TV cable service.

As the Nineties proceed, finding a link to the Internet will become much cheaper and easier. Its ease of use will also improve, which is fine news, for the savage UNIX interface of TCP/IP leaves plenty of room for advancements in user-friendliness. Learning the Internet now, or at least learning about it, is wise. By the turn of the century, "network literacy," like "computer literacy" before it, will be forcing itself into the very texture of your life.

For Further Reading: *The Whole Internet Catalog & User's Guide* by Ed Krol. (1992) O'Reilly and Associates, Inc. A clear, non-jargonized introduction to the intimidating business of network literacy. Many computer- documentation manuals attempt to be funny. Mr. Krol's book is *actually* funny.

*The Matrix: Computer Networks and Conferencing Systems Worldwide.* by John Quarterman. Digital Press: Bedford, MA. (1990) Massive and highly technical compendium detailing the mind-boggling scope and complexity of our newly networked planet.

*The Internet Companion* by Tracy LaQuey with Jeanne C. Ryer (1992) Addison Wesley. Evangelical etiquette guide to the Internet featuring anecdotal tales of life-changing Internet experiences. Foreword by Senator Al Gore.

*Zen and the Art of the Internet: A Beginner's Guide* by Brendan P. Kehoe (1992) Prentice Hall. Brief but useful Internet guide with plenty of good advice on useful machines to paw over for data. Mr Kehoe's guide bears the singularly wonderful distinction of being available in electronic form free of charge. I'm doing the same with all my F&SF Science articles, including, of course, this one.

Here is RFC 1462, basically a reprint of Chapter 2 of E. Krol's *Whole Internet User's Guide & Catalog*

Network Working Group  
Request for Comments: 1462  
FYI: 20

E. Krol  
University of Illinois

E. Hoffman  
Merit Network, Inc.  
May 1993

### **FYI on "What is the Internet?"**

Status of this Memo

This memo provides information for the Internet community. It does not specify an Internet standard. Distribution of this memo is unlimited.

For this 'InfoPop' edition, we've added a small bit of hypertextualization...'

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**Abstract**

This FYI RFC answers the question, "What is the Internet?" and is produced by the User Services Working Group of the Internet Engineering Task Force (IETF). Containing a modified chapter from Ed Krol's 1992 book, "The Whole Internet User's Guide and Catalog," the paper covers the Internet's definition, history, administration, protocols, financing, and current issues such as growth, commercialization, and privatization.

## Introduction

A commonly asked question is "What is the Internet?" The reason such a question gets asked so often is because there's no agreed upon answer that neatly sums up the Internet. The Internet can be thought about in relation to its common protocols, as a physical collection of routers and circuits, as a set of shared resources, or even as an attitude about interconnecting and intercommunication. Some common definitions given in the past include:

- \* a network of networks based on the TCP/IP protocols,
- \* a community of people who use and develop those networks,
- \* a collection of resources that can be reached from those networks.

Today's Internet is a global resource connecting millions of users that began as an experiment over 20 years ago by the U.S. Department of Defense. While the networks that make up the Internet are based on a standard set of protocols (a mutually agreed upon method of communication between parties), the Internet also has gateways to networks and services that are based on other protocols.

To help answer the question more completely, the rest of this paper contains an updated second chapter from "The Whole Internet User's Guide and Catalog" by Ed Krol (1992) that gives a more thorough explanation. (The excerpt is published through the gracious permission of the publisher, O'Reilly & Associates, Inc.)



[browse next section](#)

## The Internet (excerpt from "The Whole Internet User's Guide and Catalog")

The Internet was born about 20 years ago, trying to connect together a U.S. Defense Department network called the ARPAnet and various other radio and satellite networks. The ARPAnet was an experimental network designed to support military research--in particular, research about how to build networks that could withstand partial outages (like bomb attacks) and still function. (Think about this when I describe how the network works; it may give you some insight into the design of the Internet.) In the ARPAnet model, communication always occurs between a source and a destination computer. The network itself is assumed to be unreliable; any portion of the network could disappear at any moment (pick your favorite catastrophe--these days backhoes cutting cables are more of a threat than bombs). It was designed to require the minimum of information from the computer clients. To send a message on the network, a computer only had to put its data in an envelope, called an Internet Protocol (IP) packet, and "address" the packets correctly. The communicating computers--not the network itself--were also given the responsibility to ensure that the communication was accomplished. The philosophy was that every computer on the network could talk, as a peer, with any other computer.

These decisions may sound odd, like the assumption of an "unreliable" network, but history has proven that most of them were reasonably correct. Although the Organization for International Standardization (ISO) was spending years designing the ultimate standard for computer networking, people could not wait. Internet developers in the US, UK and Scandinavia, responding to market pressures, began to put their IP software on every conceivable type of computer. It became the only practical method for computers from different manufacturers to communicate. This was attractive to the government and universities, which didn't have policies saying that all computers must be bought from the same vendor. Everyone bought whichever computer they liked, and expected the computers to work together over the network.

At about the same time as the Internet was coming into being, Ethernet local area networks ("LANs") were developed. This technology matured quietly, until desktop workstations became available around 1983. Most of these workstations came with Berkeley UNIX, which included IP networking software. This created a new demand: rather than connecting to a single large timesharing computer per site, organizations wanted to connect the ARPAnet to their entire local network. This would allow all the computers on that LAN to access ARPAnet facilities. About the same time, other organizations started building their own networks using the same communications protocols as the ARPAnet: namely, IP and its relatives. It became obvious that if these networks could talk together, users on one network could communicate with those on another; everyone would benefit.

One of the most important of these newer networks was the NSFNET, commissioned by the National Science Foundation (NSF), an agency of the U.S. government. In the late 80's the NSF created five supercomputer centers. Up to this point, the world's fastest computers had only been available to weapons developers and a few researchers from very large corporations. By creating supercomputer centers, the NSF was making these resources available for any scholarly research. Only five centers were created because they were so expensive--so they had to be shared. This created a communications problem: they needed a way to connect their centers together and to allow the clients of these centers to access them. At first, the NSF tried to use the ARPAnet for communications, but this strategy failed because of bureaucracy and staffing problems.

In response, NSF decided to build its own network, based on the ARPAnet's IP technology. It connected the centers with 56,000 bit per second (56k bps) telephone lines. (This is roughly the ability to transfer two full typewritten pages per second. That's slow by modern standards, but was reasonably fast in the mid 80's.) It was obvious, however, that if they



tried to connect every university directly to a supercomputing center, they would go broke. You pay for these telephone lines by the mile. One line per campus with a supercomputing center at the hub, like spokes on a bike wheel, adds up to lots of miles of phone lines. Therefore, they decided to create regional networks. In each area of the country, schools would be connected to their nearest neighbor. Each chain was connected to a supercomputer center at one point and the centers were connected together. With this configuration, any computer could eventually communicate with any other by forwarding the conversation through its neighbors.

This solution was successful--and, like any successful solution, a time came when it no longer worked. Sharing supercomputers also allowed the connected sites to share a lot of other things not related to the centers. Suddenly these schools had a world of data and collaborators at their fingertips. The network's traffic increased until, eventually, the computers controlling the network and the telephone lines connecting them were overloaded. In 1987, a contract to manage and upgrade the network was awarded to Merit Network Inc., which ran Michigan's educational network, in partnership with IBM and MCI. The old network was replaced with faster telephone lines (by a factor of 20), with faster computers to control it.

The process of running out of horsepower and getting bigger engines and better roads continues to this day. Unlike changes to the highway system, however, most of these changes aren't noticed by the people trying to use the Internet to do real work. You won't go to your office, log in to your computer, and find a message saying that the Internet will be inaccessible for the next six months because of improvements. Perhaps even more important: the process of running out of capacity and improving the network has created a technology that's extremely mature and practical. The ideas have been tested; problems have appeared, and problems have been solved.

For our purposes, the most important aspect of the NSF's networking effort is that it allowed everyone to access the network. Up to that point, Internet access had been available only to researchers in computer science, government employees, and government contractors. The NSF promoted universal educational access by funding campus connections only if the campus had a plan to spread the access around. So everyone attending a four year college could become an Internet user.

The demand keeps growing. Now that most four-year colleges are connected, people are trying to get secondary and primary schools connected. People who have graduated from college know what the Internet is good for, and talk their employers into connecting corporations. All this activity points to continued growth, networking problems to solve, evolving technologies, and job security for networkers.



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## **What Makes Up the Internet?**

What comprises the Internet is a difficult question; the answer changes over time. Five years ago the answer would have been easy: "All the networks, using the IP protocol, which cooperate to form a seamless network for their collective users." This would include various federal networks, a set of regional networks, campus networks, and some foreign networks.

More recently, some non-IP-based networks saw that the Internet was good. They wanted to provide its services to their clientele. So they developed methods of connecting these "strange" networks (e.g., Bitnet, DECnets, etc.) to the Internet. At first these connections, called "gateways", merely served to transfer electronic mail between the two networks. Some, however, have grown to translate other services between the networks as well. Are they part of the Internet? Maybe yes and maybe no. It depends on whether, in their hearts, they want to be. If this sounds strange, read on--it gets stranger.



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## Who Governs the Internet?

In many ways the Internet is like a church: it has its council of elders, every member has an opinion about how things should work, and you can either take part or not. It's your choice. The Internet has no president, chief operating officer, or Pope. The constituent networks may have presidents and CEO's, but that's a different issue; there's no single authority figure for the Internet as a whole. The ultimate authority for where the Internet is going rests with the Internet Society, or ISOC. ISOC is a voluntary membership organization whose purpose is to promote global information exchange through Internet technology. (If you'd like more information, or if you would like to join, contact information is provided in the "For More Information" section, near the end of this document.) It appoints a council of elders, which has responsibility for the technical management and direction of the Internet.

The council of elders is a group of invited volunteers called the Internet Architecture Board, or the IAB. The IAB meets regularly to "bless" standards and allocate resources, like addresses. The Internet works because there are standard ways for computers and software applications to talk to each other. This allows computers from different vendors to communicate without problems. It's not an IBM-only or Sun-only or Macintosh-only network. The IAB is responsible for these standards; it decides when a standard is necessary, and what the standard should be. When a standard is required, it considers the problem, adopts a standard, and announces it via the network. (You were expecting stone tablets?) The IAB also keeps track of various numbers (and other things) that must remain unique. For example, each computer on the Internet has a unique 32-bit address; no other computer has the same address. How does this address get assigned? The IAB worries about these kinds of problems. It doesn't actually assign the addresses, but it makes the rules about how to assign addresses.

As in a church, everyone has opinions about how things ought to run. Internet users express their opinions through meetings of the Internet Engineering Task Force (IETF). The IETF is another volunteer organization; it meets regularly to discuss operational and near-term technical problems of the Internet. When it considers a problem important enough to merit concern, the IETF sets up a "working group" for further investigation. (In practice, "important enough" usually means that there are enough people to volunteer for the working group.) Anyone can attend IETF meetings and be on working groups; the important thing is that they work. Working groups have many different functions, ranging from producing documentation, to deciding how networks should cooperate when problems occur, to changing the meaning of the bits in some kind of packet. A working group usually produces a report. Depending on the kind of recommendation, it could just be documentation and made available to anyone wanting it, it could be accepted voluntarily as a good idea which people follow, or it could be sent to the IAB to be declared a standard.

If you go to a church and accept its teachings and philosophy, you are accepted by it, and receive the benefits. If you don't like it, you can leave. The church is still there, and you get none of the benefits. Such is the Internet. If a network accepts the teachings of the Internet, is connected to it, and considers itself part of it, then it is part of the Internet. It will find things it doesn't like and can address those concerns through the IETF. Some concerns may be considered valid and the Internet may change accordingly. Some of the changes may run counter to the religion, and be rejected. If the network does something that causes damage to the Internet, it could be excommunicated until it mends its evil ways.



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## Who pays for the Internet?

The old rule for when things are confusing is "follow the money." Well, this won't help you to understand the Internet. No one pays for "it"; there is no Internet, Inc. that collects fees from all Internet networks or users. Instead, everyone pays for their part. The NSF pays for NSFNET. NASA pays for the NASA Science Internet. Networks get together and decide how to connect themselves together and fund these interconnections. A college or corporation pays for their connection to some regional network, which in turn pays a national provider for its access.

### What Does This Mean for Me?

The concept that the Internet is not a network, but a collection of networks, means little to the end user. You want to do something useful: run a program, or access some unique data. You shouldn't have to worry about how it's all stuck together. Consider the telephone system--it's an internet, too. Pacific Bell, AT&T, MCI, British Telephony, Telefonos de Mexico, and so on, are all separate corporations that run pieces of the telephone system. They worry about how to make it all work together; all you have to do is dial. If you ignore cost and commercials, you shouldn't care if you are dealing with MCI, AT&T, or Sprint. Dial the number and it works. You only care who carries your calls when a problem occurs. If something goes out of service, only one of those companies can fix it. They talk to each other about problems, but each phone carrier is responsible for fixing problems on its own part of the system. The same is true on the Internet. Each network has its own network operations center (NOC). The operation centers talk to each other and know how to resolve problems. Your site has a contract with one of the Internet's constituent networks, and its job is to keep your site happy. So if something goes wrong, they are the ones to gripe at. If it's not their problem, they'll pass it along.



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## What Does the Future Hold?

Finally, a question I can answer. It's not that I have a crystal ball (if I did I'd spend my time on Wall Street instead of writing a book). Rather, these are the things that the IAB and the IETF discuss at their meetings. Most people don't care about the long discussions; they only want to know how they'll be affected. So, here are highlights of the networking future.

### New Standard Protocols

When I was talking about how the Internet started, I mentioned the International Standards Organization (ISO) and their set of protocol standards. Well, they finally finished designing it. Now it is an international standard, typically referred to as the ISO/OSI (Open Systems Interconnect) protocol suite. Many of the Internet's component networks allow use of OSI today. There isn't much demand, yet. The U.S. government has taken a position that government computers should be able to speak these protocols. Many have the software, but few are using it now.

It's really unclear how much demand there will be for OSI, notwithstanding the government backing. Many people feel that the current approach isn't broke, so why fix it? They are just becoming comfortable with what they have, why should they have to learn a new set of commands and terminology just because it is the standard? Currently there are no real advantages to moving to OSI. It is more complex and less mature than IP, and hence doesn't work as efficiently. OSI does offer hope of some additional features, but it also suffers from some of the same problems which will plague IP as the network gets much bigger and faster. It's clear that some sites will convert to the OSI protocols over the next few years. The question is: how many?



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## International connections

The Internet has been an international network for a long time, but it only extended to the United States' allies and overseas military bases. Now, with the less paranoid world environment, the Internet is spreading everywhere. It's currently in over 50 countries, and the number is rapidly increasing. Eastern European countries longing for western scientific ties have wanted to participate for a long time, but were excluded by government regulation. This ban has been relaxed. Third world countries that formerly didn't have the means to participate now view the Internet as a way to raise their education and technology levels.

In Europe, the development of the Internet used to be hampered by national policies mandating OSI protocols, regarding IP as a cultural threat akin to EuroDisney. These policies prevented development of large scale Internet infrastructures except for the Scandinavian countries which embraced the Internet protocols long ago and are already well-connected. In 1989, RIPE (Reseaux IP Europeens) began coordinating the operation of the Internet in Europe and presently about 25% of all hosts connected to the Internet are located in Europe.

At present, the Internet's international expansion is hampered by the lack of a good supporting infrastructure, namely a decent telephone system. In both Eastern Europe and the third world, a state-of-the-art phone system is nonexistent. Even in major cities, connections are limited to the speeds available to the average home anywhere in the U.S., 9600 bits/second. Typically, even if one of these countries is "on the Internet," only a few sites are accessible. Usually, this is the major technical university for that country. However, as phone systems improve, you can expect this to change too; more and more, you'll see smaller sites (even individual home systems) connecting to the Internet.



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## **Commercialization**

Many big corporations have been on the Internet for years. For the most part, their participation has been limited to their research and engineering departments. The same corporations used some other network (usually a private network) for their business communications. After all, this IP stuff was only an academic toy. The IBM mainframes that handled their commercial data processing did the "real" networking using a protocol suite called System Network Architecture (SNA).

Businesses are now discovering that running multiple networks is expensive. Some are beginning to look to the Internet for "one-stop" network shopping. They were scared away in the past by policies which excluded or restricted commercial use. Many of these policies are under review and will change. As these restrictions drop, commercial use of the Internet will become progressively more common.

This should be especially good for small businesses. Motorola or Standard Oil can afford to run nationwide networks connecting their sites, but Ace Custom Software couldn't. If Ace has a San Jose office and a Washington office, all it needs is an Internet connection on each end. For all practical purposes, they have a nationwide corporate network, just like the big boys.



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## **Privatization**

Right behind commercialization comes privatization. For years, the networking community has wanted the telephone companies and other for-profit ventures to provide "off the shelf" IP connections. That is, just like you can place an order for a telephone jack in your house for your telephone, you could do this for an Internet connection. You order, the telephone installer leaves, and you plug your computer into the Internet. Except for Bolt, Beranek and Newman, the company that ran the ARPAnet, there weren't any takers. The telephone companies have historically said, "We'll sell you phone lines, and you can do whatever you like with them." By default, the Federal government stayed in the networking business.

Now that large corporations have become interested in the Internet, the phone companies have started to change their attitude. Now they and other profit-oriented network purveyors complain that the government ought to get out of the network business. After all, who best can provide network services but the "phone companies"? They've got the ear of a lot of political people, to whom it appears to be a reasonable thing. If you talk to phone company personnel, many of them still don't really understand what the Internet is about. They ain't got religion, but they are studying the Bible furiously. (Apologies to those telephone company employees who saw the light years ago and have been trying to drag their employers into church.)

Although most people in the networking community think that privatization is a good idea, there are some obstacles in the way. Most revolve around the funding for the connections that are already in place. Many schools are connected because the government pays part of the bill. If they had to pay their own way, some schools would probably decide to spend their money elsewhere. Major research institutions would certainly stay on the net; but some smaller colleges might not, and the costs would probably be prohibitive for most secondary schools (let alone grade schools). What if the school could afford either an Internet connection or a science lab? It's unclear which one would get funded. The Internet has not yet become a "necessity" in many people's minds. When it does, expect privatization to come quickly.

Well, enough questions about the history of the information highway system. It's time to walk to the edge of the road, try and hitch a ride, and be on your way.

## **Acknowledgments**

We would like to thank O'Reilly & Associates for permission to reprint the chapter from their book by Ed Krol (1992), "The Whole Internet User's Guide and Catalog."

For More Information

Hoffman, E. and L. Jackson. (1993) "FYI on Introducing the Internet --A Short Bibliography of Introductory Internetworking Readings for the Network Novice," 4 p. (FYI 19, [RFC 1463](#)).

To find out how to obtain this document and other on-line introductory readings, send an e-mail message to:

nis-info@nis.merit.edu, with the following text:

access.guide.

Krol, Ed. (1992) *The Whole Internet User's Guide and Catalog*, O'Reilly & Associates, Sebastopol, CA. ISBN 1-56592-025-2.

Quarterman, J. (1993) "Recent Internet Books," 15 p. (RFC 1432).  
The Internet Society; Phone: (703) 620-8990; Fax: (703) 620-0913; e-mail:  
isoc@cnri.reston.va.us

## **Security Considerations**

Security issues are not discussed in this memo.

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## **IP Address**

Every machine on the Internet has a unique address, called its Internet number or IP Address. It's actually a 32-bit number, but is most commonly represented as four numbers joined by periods, (e.g., 147.31.254.130). Sometimes called a dotted quad; there are literally thousands of them. Originally, the addressing scheme allowed only 256 combinations, hence the move to 32 bit integers.

To obtain an address (they're not arbitrarily assigned) you must file an application with the Network Information Center (NIC) (email: [hostmaster@nic.ddn.mil](mailto:hostmaster@nic.ddn.mil)).

## **gateway**

A gateway is what it sounds like. It's an entrance and exit into a communications network. Gateways exist at the point where AT&T Communications ends and Comsat begins -- for taking the call overseas.

Gateways also exist between data networks. In data communications, they're typically referred to as a node on a network that connects two otherwise incompatible networks. For example, PC users on a local area network may need a gateway to gain access to a mainframe computer since the mainframe does not speak the same language (protocols) as the PC. Thus, gateways on data networks often perform code and protocol conversion processes as well.

Gateways also eliminate duplicate wiring by giving all users on the network access to the mainframe without having a direct, hard-wired connection. Gateways also connect compatible networks owned by different entities, such as X.25 networks linked by X.75 gateways. Gateways are commonly used to connect people on one network, say a token ring network, with those on a long distance network. According to the OSI model, a gateway is a device that provides mapping at all seven layers of the model. For example, a gateway may be used to interface between two incompatible electronic mail systems or for transferring data files from one system to another.

Gateways are application specific such as NetWare to SNA, Appletalk to DECnet, and NetWare to Banyan's VINES.

**VT100** A particular terminal emulation standard, made famous by Digital Equipment.

## **Library-Oriented Lists and Electronic Serials**

The information in this section was compiled by Charles [Bailey](#)

[Computer Conferences](#)

[Electronic Serials](#)



Related topic: [LISTGopher](#)

## Computer Conferences

Computer conferences are becoming an increasingly important form of communication for librarians. There are a growing number of computer conferences of interest to librarians on BITNET and Internet.

Computer conferences are commonly called "lists." The software used to support these lists is typically referred to as the "list server."

### 1.1 Lists That Use Eric Thomas's List Server

Many BITNET lists utilize a list server that was developed by Eric Thomas.

Please note that some of these BITNET lists also have Internet addresses, which are not shown here.

(Entries that appear in this document for the first time or have been changed are marked with an asterisk.)

ADVANC-L@IDBSU	Geac Advance Library System
AFAS-L@KENTVM	African American Studies and Librarianship
ALF-L@YORKVM1	Academic Librarian's Forum
ARCHIVES@INDYCMS	Archives and Archivists List
ARIE-L@IDBSU	RLG Ariel Document Transmission System
ARLIS-L@UKCC	Art Libraries Association of North America
ASIS-L@UVMVM	American Society for Information Science
ATLAS-L@TCUBVM	Data Research ATLAS Users
AUTOCAT@UVMVM	Library Cataloging and Authorities
BI-L@BINGVMB	Bibliographic Instruction
BIBSOFT@INDYCMS	Discussion of Software for Citations and Bibliographies
BRS-L@USCVM	BRS/Search Users
BUSLIB-L@IDBSU	Business Librarians
CALL-L@UNBVM1	Canadian Academic Law Libraries List*
CARL-L@UHCCVM	CARL Users
CDPLUS-L@UTORONTO	CDPLUS Software User Group
CDROMLAN@IDBSU	CD-ROM LANs
CDS-ISIS@HEARN	CDS/ISIS Text Retrieval Software
CHMINF-L@IUBVM	Chemical Information Sources
CIRCPLUS@IDBSU	Circulation and Access Services
COLLDV-L@USCVM	Library Collection Development List
CONSALD@UTXVM	Committee on South Asian Libraries and Documentation
COSNDISC@BITNIC	Consortium for School Networking
CWIS-L@WUVMMD	Campus-Wide Information Systems
ELDNET-L@UIUCVMD	ASEE Engineering Libraries Division
ELEASAI@ARIZVM1	Open Library/Information Science Research Forum
ELLASBIB@GREARN	Library Automation in Greece
ENDNOTE@UCSBVM	EndNote/EndLink Users Forum
EXLIBRIS@RUTVM1	Rare Books and Special Collections Forum
FEMINIST@MITVMA	ALA SRRT Feminist Task Force
FISC-L@NDSUVM1	Fee-Based Info Service Centers in Academic Libraries
GEONET-L@IUBVM	Geoscience Librarians and Information Specialists
GOVDOC-L@PSUVM	Government Documents
ILL-L@UVMVM	Interlibrary Loan
IMUG-L@OHSTVMA	Innopac Music Users Group
INDEX-L@BINGVMB	Indexer's Discussion Group

INFO+REF@INDYCMS	Information + Referral List
INNOPAC@MAINE	Innovative Interfaces Users
INT-LAW@UMINN1	Foreign and International Law Librarians
JESSE@ARIZVM1	Open Library/Information Science Education Forum
LABMGR@UKCC	Academic Microcomputer Lab Management
LIBADMIN@UMAB	Library Administration and Management
LIBEVENT@USCVM	Library Events in Southern California
LIBEX-L@MAINE	Exhibits and Academic Libraries*
LIBMASTR@UOTTAWA	Library Master Bibliographic Database
LIBPER-L@KSUVM	Library Personnel Issues
LIBPLN-L@QUCDN	Library Planning
LIBRARY@INDYCMS	Libraries and Librarians
LIBREF-L@KENTVM	Discussion of Library Reference Issues
LIBSUP-L@UWAVM	Library Support Staff
LM_NET@SUVM	School Library Media & Network Communications
MAPS-L@UGA	Maps and Air Photo Forum
MEDLIB-L@UBVM	Medical and Health Sciences Libraries
MLA-L@IUBVM	Music Library Association
MULTILIS@ALBNYVM1	multiLIS Users
NETTRAIN@UBVM	Internet/BITNET Network Trainers
NOTIS-L@TCSVM	NOTIS Users
NOTISACQ@CUVMB	NOTIS Acquisitions Discussion Group
NOTMUS-L@UBVM	Notis Music Library List
NOTRBCAT@INDYCMS	Rare Book and Special Collections Catalogers
NYSO-L@UBVM	MLA New York State/Ontario Chapter
OFFCAMP@WAYNEST1	Off-Campus Library Services List
<u>PACS-L</u> @UHUPVM1	Public-Access Computer Systems Forum
PACS-P@UHUPVM1	PACS-L Publications Only
PRO-CITE@IUBVM	Personal Bibliographic Software List
RLIN-L@RUTVM1	RLIN Users*
SAVEIT-L@USCVM	SAVEIT Users*
SERIALST@UVMVM	Serials Users Discussion Group
SLAJOB@IUBVM	Special Libraries Association Employment Opportunities*
SPILIB-L@SUVM	SPIRES Users
UNICRN-L@PSUORVMS	SIRSI/UNICORN Automated Library Systems
USMARC-L@MAINE	USMARC Advisory Group Forum
VETLIB-L@VTVM2	Veterinary Medicine Library Issues and Information*
VPIEJ-L@VTVM1	Publishing E-Journals: Publishing, Archiving, & Access
Z3950IW@NERVM	Z39.50 Implementors Workshop

To subscribe to a list, send the following e-mail message to [LISTSERV@NODE](mailto:LISTSERV@NODE), where NODE is the part of the address after the "@" character:

**SUBSCRIBE List First Name Last Name**

(If you are not on BITNET, ask your computer center how to address a message to the desired BITNET node.)

For example, Jane Doe sends the following e-mail message to [LISTSERV@UHUPVM1](mailto:LISTSERV@UHUPVM1) to subscribe to PACS-L:

**SUBSCRIBE PACS-L Jane Doe**

You can obtain a directory of list server documentation by sending the following e-mail message to the list server: INFO ?



Once you know the name of the desired documentation file, send another INFO command to the list server to obtain the file. For example, to get a file that describes searching the message database of a list, send the following command: INFO DATABASE.

## 1.2 Lists That Use Anastasios Kotsikonas's List Server

Anastasios Kotsikonas's list server is being used to support a growing number of Internet lists.

To subscribe to a list, send the following e-mail message to `LISTSERV@NODE`, where `NODE` is the part of the address after the "@" character:

### **SUBSCRIBE List First Name Last Name**

(If you are not on Internet, ask your computer center how to address a message to the desired Internet node.)

To obtain list server documentation, send the following e-mail message to the list server: HELP.

CNI-ANNOUNCE@CNI.ORG

CNI's News Announcement Network

CNI-ARCHITECTURE@CNI.ORG

CNI's Architectures and Standards

CNI-BIGIDEAS@CNI.ORG

CNI's Big Ideas Forum

CNI-COPYRIGHT@CNI.ORG

CNI's Copyright and Intellectual Property Forum

CNI-DIRECTORIES@CNI.ORG

CNI's Directories and Resource Information Services

CNI-LEGISLATION@CNI.ORG

CNI's Legislation, Codes, Policies, and Practices

CNI-MANAGEMENT@CNI.ORG

CNI's Management and Professional and User Education

CNI-MODERNIZATION@CNI.ORG

CNI's Modernization of Scholarly Publication

CNI-PUBINFO@CNI.ORG

CNI's Access to Public Information

CNI-TEACHING@CNI.ORG

CNI's Teaching and Learning

CNI-TRANSFORMATION@CNI.ORG

CNI's Transformation of Scholarly Communication

PALS-L@KNUTH.MTSU.EDU

PALS System

PUBLIB@NYSERNET.ORG

Public Libraries and the Internet\*

VISIONS@LIBRARY.SDSU.EDU

Strategic Visions Steering Committee Electronic Discussion  
Forum on the Future of Librarianship

## 1.3 Other Lists

These lists use diverse software. Contact the person who sponsors the list you are interested in to get further information about how the list software works.

**ACRLNY-L** (Listings of Library Jobs and Events)

Send the following command to [LISTSERV@NYUACF](mailto:LISTSERV@NYUACF):  
SUBSCRIBE ACRLNY-L First Name Last Name.

**AGRIS-L** (Agricultural Information)

Send the following message to [LISTSERV@IRMFAO01](mailto:LISTSERV@IRMFAO01):  
SUBSCRIBE AGRIS-L First Name Last Name.

**ALEPHINT** (ALEPH Library System Users)

Send the following command to [LISTSERV@TAUNIVM](mailto:LISTSERV@TAUNIVM):  
SUBSCRIBE ALEPHINT First Name Last Name.

**CADUCEUS** (History of Medicine Collections Forum)

Send a subscription request to Inci Bowman:  
[IBOWMAN@UTMBEACH](mailto:IBOWMAN@UTMBEACH).

Conservation DistList (Conservation of Archive, Library, and Museum Materials)

Send a subscription request to Walter Henry:  
[WHENRY@LINDY.STANFORD.EDU](mailto:WHENRY@LINDY.STANFORD.EDU).

**CORMOSEA** (Committee on Research Materials on Southeast Asia)

Send a subscription request to Kent Mulliner:  
[MULLINER@OUVAXA.CATS.OHIOU.EDU](mailto:MULLINER@OUVAXA.CATS.OHIOU.EDU).

**DYNIX\_L** (DYNIX Users)

Send a subscription request to:  
[DYNIX\\_L-REQUEST@SBU.EDU](mailto:DYNIX_L-REQUEST@SBU.EDU).

**EASTLIB** (Committee on East Asian Libraries)

Send the following command to [LISTSERV@MENTO.OIT.UNC.EDU](mailto:LISTSERV@MENTO.OIT.UNC.EDU):  
SUBSCRIBE EASTLIB First Name Last Name.

**IAMSLIC** (International Association of Aquatic and Marine Science Libraries and Information Centers)

Send the following command to [LISTSERV@UCSD.EDU](mailto:LISTSERV@UCSD.EDU):  
SUBSCRIBE Your E-Mail Address IAMSLIC.

**KATALIST** (Discussion on Library Systems and Databases--In Hungarian)

Send the following command to [LISTSERV@HUEARN](mailto:LISTSERV@HUEARN):  
SUBSCRIBE KATALIST First Name Last Name.

**LAW-LIB** (Law Librarians)

Send subscription requests to: [LAW-REQ@UCDAVIS.EDU](mailto:LAW-REQ@UCDAVIS.EDU).  
Contact Elizabeth St. Goar for technical questions:  
[ESTGOAR@UCDAVIS.EDU](mailto:ESTGOAR@UCDAVIS.EDU).

**LIB\_HYTELNET** (HYTELNET Program)

Send subscription request to Peter Scott: [SCOTT@SKLIB.USASK.CA](mailto:SCOTT@SKLIB.USASK.CA).

**LS2K** (LS/2000 Users Group)

Send subscription request to: [LS2K-REQUEST@CC.UTAH.EDU](mailto:LS2K-REQUEST@CC.UTAH.EDU).

**PAMnet** (Physics, Astronomy, and Mathematics Librarians)

Send a subscription request to Joanne Goode:

JMGOODE@UKCC.UKY.EDU.

**STUMPERS-L** (Difficult Reference Questions)

Send the following message to ROSLIBREFRC@CRF.CUIS.EDU:  
SUBSCRIBE STUMPERS-L Your E-Mail Address.

1.4 Diane Kovacs's Directory

Diane Kovacs and her colleagues have compiled a useful directory of lists in many subject areas.

To retrieve this directory, send the following e-mail message to [LISTSERV@KENTVM](mailto:LISTSERV@KENTVM) or [LISTSERV@KENTVM.KENT.EDU](mailto:LISTSERV@KENTVM.KENT.EDU):

```
GET ACADLIST README F=MAIL
GET ACADLIST FILE1 F=MAIL
GET ACADLIST FILE2 F=MAIL
GET ACADLIST FILE3 F=MAIL
GET ACADLIST FILE4 F=MAIL
GET ACADLIST FILE5 F=MAIL
GET ACADLIST FILE6 F=MAIL
GET ACADLIST FILE7 F=MAIL
```

For further information about the directory, contact Diane Kovacs: [DKOVACS@KENTVM](mailto:DKOVACS@KENTVM).

## Electronic Serials

There are a growing number of library-related electronic journals and newsletters available on BITNET and Internet.

ACQNET (The Acquisitions Librarian's Electronic Network)

Send a subscription request to Christian Boissonnas:  
CRI@CORNELLC.

ALA Washington Office Newslite (ALAWON)

Send the following e-mail message to LISTSERV@UICVM:  
SUBSCRIBE ALA-WO First Name Last Name.

ALCTS NETWORK NEWS (Association for Library Collections and Technical Services)

Send the following message to LISTSERV@UICVM:  
SUBSCRIBE ALCTS First Name Last Name.  
For a list of back issue files, send the message:  
INDEX ALCTS.

The Archnet Electronic Journal of Virtual Culture\*

Send the following message to LISTSERV@UOTTAWA:  
SUBSCRIBE ARACHNET First Name Last Name.

Citations for Serial Literature

Send the following message to LISTSERV@MITVMA:  
SUBSCRIBE SERCITES First Name Last Name.  
For a list of back issue files, send the message:  
INDEX SERCITES.

Consortium Update (SPIRES)

Send a subscription request to: HQ.CON@STANFORD.

Current Cites

TELNET MELVYL.UCOP.EDU; Enter command: SHOW CURRENT CITES.  
(Also distributed on PACS-L.)  
Further information: David F. W. Robison, DROBISON@UCBLIBRA.

Hot Off the Tree (HOTT) (Excerpts and Abstracts of Articles about Information Technology)

TELNET MELVYL.UCOP.EDU; Enter command: SHOW HOTT.  
Further information: Susan Jurist, SJURIST@UCSD.EDU.

Information Networking News

Sent to CDROMLAN subscribers. See above.

IRLIST Digest (Information Retrieval List Digest)

Send the following message to LISTSERV@UCCVMA:  
SUBSCRIBE IR-L First Name Last Name.  
For a list of back issue files, send the message:  
INDEX IR-L.

Issues in Science and Technology Librarianship

Send a subscription request to: ACRLSTS@HAL.UNM.EDU.

Journal of Academic Media Librarianship

Send the following message to LISTSERV@UBVM:

SUBSCRIBE MCJRNL First Name Last Name.

LIBRES: Library and Information Science Research Electronic Journal\*

Send the following message to [LISTSERV@KENTVM](mailto:LISTSERV@KENTVM):

SUBSCRIBE LIBRES First Name Last Name.

MeckJournal

Send a subscription request to [MECKLER@TIGGER.JVNC.NET](mailto:MECKLER@TIGGER.JVNC.NET).

Network News

Send the following message to [LISTSERV@NDSUVM1](mailto:LISTSERV@NDSUVM1):

SUBSCRIBE NNEWS First Name Last Name.

Newsletter on Serials Pricing Issues\*

Send the following message to [LISTSERV@GIBBS.OIT.UNC.EDU](mailto:LISTSERV@GIBBS.OIT.UNC.EDU):

SUBSCRIBE PRICES First Name Last Name.

Public-Access Computer Systems News

Sent to PACS-L and PACS-P subscribers. See above.

For a list of back issue files, send the following message

to [LISTSERV@UHUPVM1](mailto:LISTSERV@UHUPVM1): INDEX PACS-L.

The Public-Access Computer Systems Review

Sent to PACS-L and PACS-P subscribers. See above.

For a list of article files, send the following

message to [LISTSERV@UHUPVM1](mailto:LISTSERV@UHUPVM1): INDEX PACS-L.

Michael Strangelove has compiled a helpful directory of electronic serials. To retrieve this directory, send the following e-mail message to [LISTSERV@UOTTAWA](mailto:LISTSERV@UOTTAWA) or [LISTSERV@ACADVM1.UOTTAWA.CA](mailto:LISTSERV@ACADVM1.UOTTAWA.CA):

GET EJOURNL1 DIRECTRY F=MAIL

GET EJOURNL2 DIRECTRY F=MAIL

For further information, contact Michael Strangelove: [441495@ACADVM1.UOTTAWA.CA](mailto:441495@ACADVM1.UOTTAWA.CA).

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University of Houston  
Houston, TX 77204-2091  
phone: (713) 743-9804  
Fax: (713) 743-9748

## **Campus Wide Info Systems (CWIS)**

### **United States**

[Appalachian State University VideoText System](#)  
[Citadel, the Military College of South Carolina](#)  
[Columbia University](#)  
[CU-LawNet - Columbia Law School Public information service](#)  
[Iowa State University \(CYNET\)](#)  
[University of Kansas \(kufacts\)](#)  
[MIT TechInfo](#)  
[University of North Carolina-Chapel Hill \(INFO\)](#)  
[Washington & Lee University \(Law Library\)](#)

### **U.K.**

[Cambridge University Information Service](#)  
[Edinburgh University Information Service](#)  
[London University Central Information Exchange](#)  
[University of Wales, Aberystwyth Information Server](#)



related topic: [gopher](#)

## **University of Kansas CWIS (KUFACTS)**

telnet kufacts.cc.ukans.edu

or

telnet 129.237.1.30

login: **kufacts**



## **Citadel (CWIS)**

telnet 155.225.6.2

Username: **INFO**

### INFO Main Menu

Citadel Phone Book (PB)

Emergency Phone Numbers

Library...

USA Today (a Library service)...

Corps of Cadets...

Press Releases

Computers and Networks...

Purchasing and Property Information...

Athletics...

Committee Information and Minutes...

Faculty Vitae...

How to use INFO...

Exit to \$ prompt

## **CU-LawNet: Columbia Law School Public information service**

telnet SPARC-1.LAW.COLUMBIA.EDU

or

telnet 128.59.176.78

login:

CU-LawNet Info System

- 1 - Law Library Catalog PEGASUS
- 2 - University Catalog CLIO
- 3 - Law School Info Server
- 4 - Law School Academic Services
- 5 - Law School Career Services
- 6 - ColumbiaNet
- 7 - Advanced World wide library access (HytelNet)
- h - Help message

## **Columbia University**

telnet COLUMBIANET.COLUMBIA.EDU

or

telnet 128.59.40.154

No login required

Main Menu: 1: Academic Information Systems

2: CLIO Plus: Library Catalogs and Encyclopedia

3: ColumbiaNet Public Information System

4: Departmental Systems

Q: to quit the ColumbiaNet system entirely

And type the 'ESC' key TWICE to leave a session

## **Appalachian State University VideoText System**

telnet CONRAD.APPSTATE.EDU

or

telnet 152.10.1.1

Login as

Emulate a VT100

## **Iowa State University (CYNET)**

telnet ISN.IASTATE.EDU

or

telnet 129.186.99.14

DIAL:

1. General University information.
2. Information concerning a specific college, curriculum or major
3. Schedules of Classes
4. General instructions for using CYNET
5. Advanced instructions for using CYNET
6. News and announcements about CYNET

## **MIT TechInfo**

telnet TECHINFO.MIT.EDU

or

telnet 18.72.1.146

TechInfo main menu

- 1 About TechInfo
- 2 Around MIT - Offices & Services
- 3 Classified Ads
- 4 Computing
- 5 Courses, Schedules(Fall) & Calendars
- 6 Events
- 7 Information Desk (calendar & things to do)
- 8 Jobs
- 9 MIT Libraries
- 10 Ongoing Activities, Notices, & Clubs
- 11 Policies, Rules & Procedures
- 12 Potluck
- 13 Publications
- 14 Weather

Command:

Basic Commands: Main, Return, Find, Outline,Source, Clear, Advanced, Help, Quit

## **UNC-Chapel Hill INFO**

telnet INFO.ACS.UNC.EDU  
or  
telnet 128.109.157.1

Username: **INFO**

1. HELP--Using INFO
2. Calendar
3. Job openings
4. Grant/funding opportunities
5. News
6. Campus Directory, catalogs, and lists
7. Ask INFO about...
8. Other Information Systems

## **Cambridge University Information Service**

telnet SUN.NSF.AC.UK

or

telnet 128.86.8.7

login:

Hostname: uk.ac.cam.info

Type one of the following:

NEWS - new entries and recent changes to this service

CS - Cambridge University Computing Service

MICRO - microcomputers and personal systems

NET - networking and other computing information

CU - Cambridge University

UNI - universities and academic community

GEN - general information

GUIDE - guide to the Information Service

NOTES - notes on this scope



## **Edinburgh University Information System**

telnet CASTLE.ED.AC.UK

or

telnet 129.215.128.23

login:

## **London University Central Information Exchange**

telnet SUN.NSF.AC.UK

or

telnet 128.86.8.7

login:

hostname: uk.ac.lon.lucie

## **University of Wales, Aberystwyth Information Server**

telnet SUN.NSF.AC.UK

or

telnet 128.86.8.7

login:

Hostname: uk.ac.aber.info

terminal type: vt100

**Washington And Lee University (Law Library)**

telnet liberty.uc.wlu.edu

or

telnet 137.113.10.35

login: lawlib

## **Whois / Directory Services**

These systems can help you locate a particular individual on the Internet...

[Australian White Pages Pilot Project \(Queensland\)](#)

[British Telecom's "Electronic Yellow Pages" Service](#)

[JANET Public Access Directory Service](#)

[Knowbot Information Service at nri.reston.va.us](#)

[Netfind - University of Colorado](#)

[Ohio State University WHOIS Service](#)

[Swiss Electronic Phone Book](#)

[USENET contributor e-mail addresses](#)

[WHOIS searches](#)



related topic: [Campus Wide Information System](#)

## **Australian White Pages Pilot Project (Queensland)**

telnet WHITEPAGES.ADELAIDE.EDU.AU  
or  
telnet 129.127.40.3

Login:  
Password:

The following clients are available to allow you to access the White Pages database:

fred    this client provides a line orientated interface similar to the whois service.  
pod    This client provides a "nifty" X style interface  
sd     A screen based client of similar functionality to xd.

Note: Only fred allows you to modify your entry (at this time).

If you want X windows access, please enter your DISPLAY name, e.g.,  
myhost.dept.adelaide.edu.au:0.0

We are running DNS so you shouldn't have to enter the IP number, the full qualified name should work.

DISPLAY=fred

Select one of the following clients (dish pod fred de doog xtdua): fred

Try: "help" for a list of commands  
"whois" for information on how to find people  
"manual" for detailed documentation  
"report" to send a report to the white pages manager

To find out about participating organizations, try: "whois -org \*"

## **British Telecom's Electronic Yellow Pages Service**

telnet SUN.NSF.AC.UK

or

telnet 128.86.8.7

login:

hostname: .ac.niss

Select U on the NISS Gateway menu

Select E on the Information Services in the UK menu

Press RETURN until Log On Screen appears

Select 1 for vt100 emulation

To log off, follow the menu

## **JANET Public Access Directory Service**

telnet SUN.NSF.AC.UK  
or  
telnet 128.86.8.7

login:  
hostname:.ac.jnt.dir

Type what you are looking for, with commas separating parts:  
e.g., , jnt, gb  
or hardcastle-kille, ucl

Control-c interrupts a search, quit leaves the service.



**Ohio State University WHOIS Service**

telnet OSU.EDU  
or telnet 128.146.10.72

## **Swiss Electronic Phone Book**

TELNET 130.59.2.10

Select language:

1=DEUTSCH

2=FRANCAIS

3=ITALIANO

At the "Introduire le(s) critere(s) de recherche ou help" type help  
To exit, type 9 (return) then 0 (return)

## **USENET contributor e-mail addresses**

Available for searching via [gopher](#)  
Select Phone Books from main menu  
Select Internet-wide e-mail address searches

This search works by looking at a database of people who have submitted [USENET](#) news items (something like 40,000 to 100,000 people all over the Internet).

This database is run on a [WAIS](#) search engine, so when you search here you are using gopher to talk to a WAIS search engine.

## WHOIS Searches

Available via [gopher](#)

Select Phone Books from Main Menu

Select WHOIS Searches from Phone Books Menu

Association of Research Networks in Iceland  
Baylor College of Medicine  
Bull HN Information Systems  
California Institute of Technology  
California Institute of Technology  
California State University - Fresno  
California State University - Hayward  
California State University - Sacramento  
Cambridge Computer Associates  
Chalmers University of Technology  
DDN Network Information Center  
Dansk UNIX-system Bruger Gruppe  
EASInet Operations Center  
Energy Sciences Network  
Florida State University  
GTE Laboratories  
George Mason University  
Gesellschaft fuer Mathematik und Datenverarbeitung  
Gettysburg College  
Harvard University  
Helsinki University of Technology  
Imperial College  
Indiana University  
Institut National de Recherche en Informatique et Automatique  
InterCon Systems Corporation  
Johns Hopkins University  
Lawrence Berkeley Laboratory  
Lawrence Livermore National Laboratory  
MCNC - Center for Communications  
Massachusetts Institute of Technology  
Merit Computer Network  
Mississippi State University  
NASA Ames Research Center  
National Centre for Software Technology  
National Energy Research Supercomputer Center  
Naval Research Laboratory  
New Jersey Institute of Technology  
New Jersey Intercampus Network  
New York University  
New York University, Courant Institute  
North Carolina State University  
Northern Arizona University  
Ohio Northern University  
Ohio State University  
Oregon State University  
Performance Systems International  
Portland State University

Prime Computer  
Reseaux IP Europeens  
Rutgers University  
SRI International  
SUNET (Swedish University Network)  
San Diego State University  
Sonoma State University  
Stanford University  
State University of New York, Stony Brook  
Sunquest Information Systems  
Swedish Institute of Computer Science  
Syracuse University  
Tampere University of Technology  
USC Information Sciences Institute  
Universite Claude Bernard Lyon I  
University of Adelaide  
University of California at Berkeley  
University of California at Davis  
University of California at Los Angeles  
University of California at San Diego  
University of Canterbury  
University of Chicago  
University of Cincinnati  
University of Florida  
University of Houston  
University of Maryland  
University of Miami, Rosentiel School of Marine and Atmospheric  
University of Minnesota  
University of Nebraska at Lincoln  
University of Notre Dame  
University of Oregon  
University of Pennsylvania  
University of Rochester  
University of Saskatchewan  
University of Virginia  
University of Western Australia  
University of Western Ontario  
University of Wisconsin  
Victoria University, Wellington  
Waikato University  
Wirtschaftsuniversitaet Wien  
Worcester Polytechnic Institute

## **RFC (Request for Comments)**

RFC-1118 The Hitchhiker's Guide to the Internet  
RFC-1175 A Bibliography of Internetworking Information  
RFC-1173 Responsibilities of Host and Network Managers  
RFC-1325 Answers to Commonly Asked "New Internet User" Questions  
RFC-1207 Answers to Commonly Asked "Experienced Internet User" Questions  
RFC-1208 Networking Glossary of Terms  
RFC-1359 Connecting to the Internet  
RFC-1392 Internet Users' Glossary  
RFC-1463 FYI on Introducing the Internet--A Short Bibliography...  
RFC-1462 "FYI on 'What is the Internet?"

These are just a few of the many RFC's available to assist you in developing your internet skills. To obtain any of these documents (or a list of all available documents):

```
ftp to nis.nsf.net
cd documents/rfc
get INDEX.rfc
```

Here is the text of RFC 1463, a short bibliography on the Internet



[Another bibliography by Carolyn Kotlas](#)

Network Working Group  
Request for Comments: 1463  
FYI: 19

E. Hoffman  
Merit Network, Inc.  
L. Jackson  
NASA  
May 1993

FYI on Introducing the Internet--

A Short Bibliography of Introductory Internetworking Readings for the Network Novice

Status of this Memo

This memo provides information for the Internet community. It does not specify an Internet standard. Distribution of this memo is unlimited.

Abstract

This bibliography offers a short list of recent information resources that will help the network novice become familiar with the Internet, including its associated networks, resources, protocols, and history. This FYI RFC includes references to free sources of information available on-line as well as traditional publications. A short section at the end includes information for accessing the on-line files. This FYI is intentionally brief so it can be easily used as a handout by user services personnel.

Acknowledgments

This document is based upon the work of the User Documents Working Group in the User Services Area of the Internet Engineering Task Force (IETF).

### **Bibliography of Introductory Readings**

The following list includes a number of sources for learning about the Internet. If you have more questions about the Internet, the best source of information is your network service provider. For those interested in finding out about getting Internet connectivity, the books listed will help you locate a network service provider.

\* Items with an asterisk are available at no charge on-line on the Internet--see the final section for information on how to obtain these.

#### **a. Introductory Papers**

\* Kehoe, Brendan P. (1992) "Zen and the Art of the Internet: A Beginner's Guide to the Internet," (first edition) 95 p.

\* Krol, E. and E. Hoffman. (1993) "What is the Internet?" 11 p. (FYI 20, RFC 1462).

\* Malkin, G. and A. Marine. (1992) "FYI on Questions and Answers: Answers to Commonly Asked 'New Internet User' Questions," 32 p. (FYI 4, RFC 1325).

\* LaQuey, Tracy with Jeanne C. Ryer. (1992) "The Internet Companion," 30 p. (on-line chapters from book published by Addison-Wesley)

### **b. Introductory Books: Basic User Guides**

Kehoe, Brendan P. (1993) Zen and the Art of the Internet: A Beginner's Guide, (second edition) 112 p. Prentice Hall, Englewood Cliffs, NJ.

Krol, Ed. (1992) The Whole Internet User's Guide and Catalog, 400 p. O'Reilly & Assoc., Inc. Sebastopol, CA.

LaQuey, Tracy with Jeanne C. Ryer. (1992) The Internet Companion: A Beginner's Guide to Global Networking, 208 p. Addison-Wesley, Reading, MA.

### **c. Introductory Books: Connection Starters**

SRI International. (1992) Internet: Getting Started, 318 p. SRI International, 333 Ravenswood Ave., Rm. EJ291, Menlo Park, CA 94025.

### **. Internet services and resources**

\* Martin, J. (1993) "There's Gold in them thar Networks! or Searching for Treasure in all the Wrong Places," 39 p. (RFC 1402/FYI 10).

\* Merit Network, Inc. (1992) "Cruise of the Internet," Merit Network Inc., Ann Arbor, MI. (Disk based tutorial available for Macintosh or Windows).

Metz, Ray (1992) Directory of Directories on the Internet, 175 p. Meckler, Westport, CT.

\* NSF Network Service Center. (nd) "Internet Resource Guide," NSF Network Service Center, Cambridge, MA.

### **. Internet networks**

Frey, Donnalyn and Rick Adams. (1991) !%@:: A Directory of Electronic Mail Addressing and Networks, (second edition) 436 p. O'Reilly & Assoc. Inc. Sebastopol, CA.

LaQuey, Tracy L. (1990) User's Directory of Computer Networks, 653 p. Digital Press, Bedford, MA.

Quarterman, John S. (1990) The Matrix: Computer Networks and Conferencing Systems Worldwide, 746 p. Digital Press, Bedford, MA. **. Introducing the Internet Protocols**

Comer, Douglas E. (1991) Internetworking With TCP/IP: Volume I, Principles, Protocols, and Architecture, (second edition). 547 p. Prentice Hall, Englewood Cliffs, NJ

\* Hedrick, Charles L. (1987) "Introduction to the Internet Protocols," 34 p. Rutgers University Computer Science Facilities Group, Piscataway, NJ.

Lynch, Daniel C. & Marshall T. Rose (eds). (1993) The Internet System Handbook, 822 p.



Addison-Wesley, Reading, MA.

### **. Further Reading**

\* Bowers, K. L. et al. (1990) "FYI on Where to Start: A Bibliography of Internetworking Information," 42 p. (RFC 1175/FYI 3).

\* Malkin, G. & T. LaQuey Parker. (1993) "Internet Users' Glossary," 53 p. (RFC 1392/FYI 18).

### **Getting Articles On-Line**

All the documents marked with an asterisk in this bibliography are available on-line at no charge if you have access to the Internet. To find out more about accessing documents in [introducing.the.internet](http://introducing.the.internet), send electronic mail to: [nis-info@nic.merit.edu](mailto:nis-info@nic.merit.edu), with the text: send access.guide.

If you know how to use Anonymous FTP, you can get the Access Guide from one of several sites, including [nic.merit.edu](http://nic.merit.edu), [nic.mr.net](http://nic.mr.net), [ftp.nisc.sri.com](http://ftp.nisc.sri.com), or [ftp.hawaii.edu](http://ftp.hawaii.edu). Check the directory [introducing.the.internet](http://introducing.the.internet) for the file titled [access.guide](#). The Access Guide includes information about obtaining documents through dial-up service using a modem for those who do not have direct Internet access.

In addition to the listed publications, many network providers publish excellent user guides and newsletters which cover Internet topics. Contact your Internet network service provider for more information. A longer bibliography with more comprehensive references and abstracts, FYI 3, RFC 1175 is listed above for those who may need more detailed materials.

### **Security Considerations**

Security issues are not discussed in this memo. **Authors' Addresses**

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## Individual access to the internet



Sample of the PDIAL list of public providers

excerpted from RFC 1402 by J. Martin, Ohio State University

A frequently asked question concerns how the average mortal gets access to the Internet. The most common way is via electronic mail. Using e-mail, it is possible to communicate with anyone on the Internet and on any other networks as well, and there are many "gateways" to the Internet from other networks and systems. For instance using CompuServe a large commercial electronic information and communication service, you can send e-mail to and from individuals on the Internet.

A direct connection to the Internet provides some additional capabilities that e-mail cannot. One of these is the ability to establish a connection to a remote computer connected to the Internet from your own personal computer or from one connected to the Internet. The program that establishes this connection is called Telnet. Many universities and large research companies have Internet connections. They pay rather large fees to have these high speed (more than one million bits per second) connections. If you are associated with a large university or company you already may have access or can gain access to the Internet using one of their computers.

Traditionally, connections to the Internet were dedicated connections. This is still the most common type of connection. Monthly costs for the connection range anywhere from \$250 per month (plus line charges) for a dialup 9600-bps connection to \$4,000 (plus line charges) for a T1 (1.44-Mbps) connection. There is also an initial one-time startup fee of anywhere from \$100 to \$8,000 (plus equipment charges).

Some service providers also are offering part-time dialup connections. Customers share a set of phone lines and dialup when needed. This is usually less expensive than dedicated dialup connections for customers who need a connection less than 80 hours per month. Monthly costs range from \$40-100 per month (plus line charges) plus an hourly charge of \$2-4.

Some service providers have begun to offer a new dial-in service. The name for dial-in service varies from vendor to vendor. The dial-in service is usually provided as a way for Internet-connected users to connect back to their home sites from remote locations. But most service providers do not limit their service to this audience, it is open to people not already on the Internet. The dial-in service provides either a terminal server connection (with password) or an account on the service provider's equipment (with password) which permits you to use Telnet to connect to other sites on the Internet. This service differs from the normal dialup IP services because it does not require the user to run any IP software like PPP (Point-to-Point protocol) or SLIP (serial line IP). The cost for this service usually range from \$35 to \$250 per month (plus line charges). There is also an initial \$35 to \$500 connection fee (plus equipment charges).

If you do not have access to a service connected to Internet, you can get access for a fee. The following companies provide Internet access to individuals or companies at various rates depending on the time of access, speed of access desired, and several other factors. The first method to gain access to the Internet is by getting an account on a public access bulletin board system that is connected to the Internet. There are a growing number of such systems available. For information on some of these systems, send electronic mail to:

info@world.std.com  
info@netcom.com  
info@concert.net  
info@panix.com  
info@holonet.net  
info@msen.com  
info@csn.org  
sysadmin@ids.com

## **The Public Dialup Internet Access List (PDIAL)**

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## Quick Start

The Internet is a global cooperative information network which can give you instant access to millions of people and terabytes of data. Providers listed in the PDIAL provide inexpensive public access to the Internet using your regular modem and computer.

*Special note:* the PDIAL currently lists only providers directly connected to the Internet. Much of the Internet can still be explored through systems with only Internet email and USENET netnews connections, but you need to check other BBS lists to find them.

Phone charges can dominate the cost of your access to the Internet. Check first for providers with metro or regional dialins that are a local call for you (no per-minute phone charges). If there aren't any, move on to comparing prices for PDN, 800, and direct-dial long distance charges. Make sure to compare all your options. Calling long distance out-of-state or across the country is often cheaper than calling 30 miles away.

If you're not in North America and have no local provider, you may still be able to use one of the providers listed as having PDN access. Contact the individual providers with PDN access (see listings below) to find out.

The information listed in the PDIAL changes and expands rapidly. If this edition is more than 3 months old, consider obtaining a new one. Check section for details.

Remember, the PDIAL is only a summary listing of the resources and environment delivered by each of the various providers. Contact the providers that interest you by email or voice phone and make sure you find out if they have what you need.

Then go for it. Happy 'netting!

## **Area Code Summary: Providers With Many Local Dialins (1-800, PDN)**

PDN delphi holonet IGC michnet portal psi-world-dial psilink tmn

PDN well world

800 class cns crl csd dial-n-cerf-usa IGC jvnc OARnet

"PDN" means the provider is accessible through a public data network (check the listings below for which network); note that many PDNs listed offer access outside North America as well as within North America. Check with the provider or the PDN for more details.

"800" means the provider is accessible via a "toll-free" US phone number. The phone company will not charge for the call, but the service provider will add a surcharge to cover the cost of the 800 service. This may be more expensive than other long-distance options.

## Area Code Summary: US/Canada Metro and Regional Dialins

If you are not local to any of these providers, it's still likely you are able to access those providers available through a public data network (PDN). Check the section above for providers with wide area access.

201 jvnc-tiger  
202 CAPCON express grebyn tmn  
203 jvnc-tiger  
206 eskimo halcyon netcom nwnexus  
212 maestro mindvox panix  
213 dial-n-cerf netcom  
214 metronet  
215 jvnc-tiger PREPnet  
216 OARnet wariat  
301 CAPCON express grebyn tmn  
303 cns csn  
310 dial-n-cerf netcom  
312 genesis  
313 michnet MSen  
401 anomaly ids jvnc-tiger  
403 PUCnet  
408 a2i netcom portal  
410 CAPCON express  
412 PREPnet telerama  
415 crl dial-n-cerf IGC netcom portal well  
416 uunorth  
419 OARnet  
503 agora.rain.com netcom  
508 anomaly nearnet northshore novalink  
510 crl dial-n-cerf holonet netcom  
513 OARnet  
514 CAM.ORG  
516 jvnc-tiger  
517 michnet  
519 uunorth  
602 crl  
603 MV nearnet  
609 jvnc-tiger  
613 uunorth  
614 OARnet  
616 michnet  
617 delphi nearnet northshore world  
619 crash.cts.com cyber dial-n-cerf netcom  
703 CAPCON express grebyn tmn  
704 concert Vnet  
707 crl  
708 genesis  
713 sugar  
714 dial-n-cerf  
717 PREPnet  
718 maestro mindvox panix  
719 cns csn oldcolo  
804 wyvern  
814 PREPnet

815 genesis  
818 dial-n-cerf netcom  
906 michnet  
908 express jvnc-tiger  
916 netcom  
919 concert

These are area codes local to the dialups, although some prefixes in the area codes listed may not be local to the dialups. Check your phone book or with your phone company. Most providers listed here are also accessible by packet-switched data services such as PC Pursuit (\$30/month for 30 hours off-peak 2400 bps access -- call 800-736-1130 for more information), traditional long distance services, and of course telnet.



## **Area Code Summary: International Dialins**

If you are not local to any of these providers, there is still a chance you are able to access those providers available through a public data network (PDN). Check section -1- above for providers with wide area access, and send email to them to ask about availability.

+301 Ariadne

+61 2 connect.com.au

+61 3 connect.com.au

+44 (0)81 Demon dircon ibmpcug

## Alphabetical List of Providers

Fees are for personal dialup accounts with outgoing Internet access; most sites have other classes of service with other rate structures as well. Most support email and netnews along with the listed services.

"Long distance: provided by user" means you need to use services such as PC Pursuit, direct dial long distance or other long distance services.

name -----> a2i communications  
dialup -----> 408-293-9010 (v.32, v.32 bis) or 408-293-9020 (PEP) 'guest'  
area codes ----> 408  
local access --> CA: Campbell, Los Altos, Los Gatos, Mountain View, San Jose, Santa Clara, Saratoga, Sunnyvale  
long distance -> provided by user  
services -----> shell (SunOS UNIX and MS-DOS), ftp, telnet, feeds  
fees -----> \$20/month or \$45/3 months or \$72/6 months  
email -----> info@rahul.net  
voice -----> 408-293-8078 voicemail  
ftp more info -> ftp.rahul.net:/pub/BLURB

### agora.rain.com

name -----> RainDrop Laboratories  
dialup -----> 503-293-1772 (2400) 503-293-2059 (v.32, v.32 bis) 'apply'  
area codes ----> 503  
local access --> OR: Portland, Beaverton, Hillsboro, Forest Grove, Gresham, Tigard, Lake Oswego, Oregon City, Tualatin, Wilsonville  
long distance -> provided by user  
services -----> shell, ftp, telnet, gopher, usenet  
fees -----> \$6/month (1 hr/day limit)  
email -----> info@agora.rain.com  
voice -----> n/a  
ftp more info -> agora.rain.com:/pub/gopher-data/agora/agora

### anomaly

name -----> Anomaly - Rhode Island's Gateway To The Internet  
dialup -----> 401-331-3706 (v.32) or 401-455-0347 (PEP)  
area codes ----> 401, 508  
local access --> RI: Providence/Seekonk Zone  
long distance -> provided by user  
services -----> shell, ftp, telnet, SLIP  
fees -----> Commercial: \$125/6 months or \$200/year; Educational: \$75/6 months or \$125/year  
email -----> info@anomaly.sbs.risc.net voice -----> 401-273-4669 ftp more info -> anomaly.sbs.risc.net:/anomaly.info/access.zip **Ariadne**  
name -----> Ariadne - Greek Academic and Research Network  
dialup -----> +301 65-48-800 (1200 - 9600 bps)  
area codes ----> +301  
local access --> Athens, Greece  
long distance -> provided by user  
services -----> e-mail, ftp, telnet, gopher, talk, pad(EuropaNet)  
fees -----> 5900 drachmas per calendar quarter, 1 hr/day limit.  
email -----> dialup@leon.nrcps.ariadne-t.gr

voice -----> +301 65-13-392  
fax -----> +301 6532910  
ftp more info -> n/a

### **CAM.ORG**

name -----> Communications Accessibles Montreal  
dialup -----> 514-281-5601 (v.32 bis, HST) 514-738-3664 (PEP),514-923-2103 (ZyXeL 19.2K) 514-466-0592 (v.32)  
area codes ----> 514  
local access --> QC: Montreal, Laval, South-Shore, West-Island  
long distance -> provided by user  
services -----> shell, ftp, telnet, feeds, SLIP, PPP, FAX gateway  
fees -----> \$25/month Cdn.  
email -----> info@CAM.ORG  
voice -----> 514-923-2102  
ftp more info -> n/a

### **CAPCON**

name -----> CAPCON Library Network  
dialup -----> contact for number  
area codes ----> 202, 301, 410, 703  
local access --> District of Columbia, Suburban Maryland & Northern Virginia  
long distance -> various plans available/recommended; contact for details  
services -----> menu, archie, ftp, gopher, listservs, telnet, wais, whois, full day training and 'CAPCON Connect User Manual'  
fees -----> \$35 start-up + \$150/yr + \$24/mo for first account from an institution; \$35 start-up + \$90/yr + \$15/mo for additional users (member rates lower); 20 hours/month included, additional hours \$2/hr  
email -----> capcon@capcon.net  
voice -----> 202-331-5771  
fax -----> 202-797-7719  
ftp more info -> n/a

### **class**

name -----> Cooperative Library Agency for Systems and Services  
dialup -----> contact for number; NOTE: CLASS serves libraries/information distributors only  
area codes ----> 800  
local access --> anywhere (800) service is available  
long distance -> included  
services -----> ftp, telnet, gopher, wais, hytelnet  
fees -----> \$10.50/hour + \$150/year for first account + \$50/year each additional account + \$135/year CLASS membership  
email -----> class@class.org  
voice -----> 800-488-4559  
fax -----> 408-453-5379  
ftp more info -> n/a

### **cns**

name -----> Community News Service  
dialup -----> 719-520-1700 id 'new', passwd 'newuser'  
area codes ----> 303, 719, 800  
local access --> CO: Colorado Springs, Denver; continental US/800  
long distance -> 800 or provided by user  
services -----> UNIX shell, email, ftp, telnet, irc, USENET, Clarinet, gopher

fees -----> \$1/hour; \$10/month minimum + \$35 signup  
email -----> klaus@cscns.com  
voice -----> 719-579-9120  
ftp more info -> n/a

### **concert**

name -----> CONCERT-CONNECT  
dialup -----> contact for number  
area codes ----> 704, 919  
local access --> NC: Asheville, Chapel Hill, Charlotte, Durham, Greensboro, Greenville,  
Raleigh, Winston-Salem, Research Triangle Park  
long distance -> provided by user  
services -----> UUCP, SLIP  
fees -----> SLIP: \$150 educational/research or \$180 commercial for first 60 hours/month  
+ \$300 signup  
email -----> info@concert.net  
voice -----> 919-248-1999  
ftp more info -> ftp.concert.net

### **connect.com.au**

name -----> connect.com.au Pty Ltd  
dialup -----> contact for number  
area codes ----> +61 3, +61 2  
local access --> Australia: Melbourne, Sydney  
long distance -> provided by user  
services -----> SLIP, PPP, ISDN, UUCP, ftp, telnet, NTP, FTPmail  
fees -----> AUS\$2000/year (1 hour/day), 10% discount for AUUG members; other billing  
negotiable  
email -----> connect@connect.com.au  
voice -----> +61 3 5282239  
fax -----> +61 3 5285887  
ftp more info -> ftp.connect.com.au

### **crash.cts.com**

name -----> CTS Network Services (CTSNET)  
dialup -----> 619-593-6400 HST, 619-593-7300 V.32bis, 619-593-9500 PEP 'help'  
area codes ----> 619  
local access --> CA: San Diego, Pt. Loma, La Jolla, La Mesa, El Cajon, Poway, Ramona, Chula  
Vista, National City, Mira Mesa, Alpine, East County  
long distance -> provided by user  
services -----> shell, UUCP, Usenet newsfeeds, NNTP, Reuters, FTP, Telnet, SLIP, PPP, IRC,  
Gopher, Archie, WAIS, POPmail, UMDSS, domains, nameservice, DNS  
fees -----> personal: \$10-\$23/month, \$15 startup; commercial: \$20->/month, \$15 startup  
email -----> info@crash.cts.com (server), support@crash.cts.com (human)  
voice -----> 619-593-9597  
fax -----> 619-444-9247  
ftp more info -> n/a

### **cri**

name -----> CR Laboratories Dialup Internet Access  
dialup -----> 415-389-UNIX  
area codes ----> 415, 510, 602, 707, 800  
local access --> CA: San Francisco Bay area + San Rafael, Santa Rosa; AZ: Phoenix,  
Scottsdale, Tempe, and Glendale AZ; continental US/800  
long distance -> 800 or provided by user

services -----> shell, ftp, telnet, feeds, SLIP, WAIS  
fees -----> \$17.50/month + \$19.50 signup  
email -----> info@crl.com  
voice -----> 415-381-2800  
ftp more info -> n/a

### **csn**

name -----> Colorado SuperNet, Inc.  
dialup -----> contact for number  
area codes ----> 303, 719, 800  
local access --> CO: Alamosa, Boulder/Denver, Colorado Springs, Durango, Fort Collins, Frisco, Glenwood Springs/Aspen, Grand Junction, Greeley, Gunnison, Pueblo, Telluride; anywhere 800 service is available  
long distance -> provided by user or 800  
services -----> shell or menu, UUCP, SLIP, 56K, ISDN, T1; ftp, telnet, irc, gopher, WAIS, domains, anonymous ftp space, email-to-fax  
fees -----> \$1/hour off-peak, \$3/hour peak (\$250 max/month) + \$20 signup, \$5/hr surcharge for 800 use  
email -----> info@csn.org  
voice -----> 303-273-3471  
fax -----> 303-273-3475  
ftp more info -> csn.org:/CSN/reports/DialinInfo.txt  
off-peak -----> midnight to 6am

### **cyber**

name -----> The Cyberspace Station  
dialup -----> 619-634-1376 'guest'  
area codes ----> 619  
local access --> CA: San Diego  
long distance -> provided by user  
services -----> shell, ftp, telnet, irc  
fees -----> \$15/month + \$10 startup or \$60 for six months  
email -----> help@cyber.net  
voice -----> n/a  
ftp more info -> n/a

### **Demon**

name -----> Demon Internet Systems (DIS)  
dialup -----> +44 (0)81 343 4848  
area codes ----> +44 (0)81  
local access --> London, England  
long distance -> provided by user  
services -----> ftp, telnet, SLIP/PPP  
fees -----> GBPounds 10.00/month; 132.50/year (inc 12.50 startup charge). No on-line time charges.  
email -----> internet@demon.co.uk  
voice -----> +44 (0)81 349 0063  
ftp more info -> n/a

### **delphi**

name -----> DELPHI  
dialup -----> 800-365-4636 'JOINDELPHI password:INTERNETSIG'  
area codes ----> 617, PDN  
local access --> MA: Boston; KS: Kansas City  
long distance -> Sprintnet or Tymnet: \$9/hour weekday business hours, no charge nights

and weekends

services -----> ftp, telnet, feeds, user groups, wire services, member conferencing  
fees -----> \$10/month for 4 hours or \$20/month for 20 hours + \$3/month for Internet  
services

email -----> walthowe@delphi.com

voice -----> 800-544-4005

ftp more info -> n/a

### **dial-n-cerf**

name -----> DIAL n' CERF or DIAL n' CERF AYC

dialup -----> contact for number

area codes ----> 213, 310, 415, 510, 619, 714, 818

local access --> CA: Los Angeles, Oakland, San Diego, Irvine, Pasadena, Palo Alto

long distance -> provided by user

services -----> shell, menu, irc, ftp, hytelnet, gopher, WAIS, WWW, terminal service, SLIP

fees -----> \$5/hour (\$3/hour on weekend) + \$20/month + \$50 startup OR \$250/month  
flat for AYC

email -----> help@cerf.net

voice -----> 800-876-2373 or 619-455-3900

ftp more info -> nic.cerf.net:/cerfnet/dial-n-cerf/

off-peak -----> Weekend: 5pm Friday to 5pm Sunday

### **dial-n-cerf-usa**

name -----> DIAL n' CERF USA

dialup -----> contact for number

area codes ----> 800

local access --> anywhere (800) service is available

long distance -> included

services -----> shell, menu, irc, ftp, hytelnet, gopher, WAIS, WWW, terminal service, SLIP

fees -----> \$10/hour (\$8/hour on weekend) + \$20/month

email -----> help@cerf.net

voice -----> 800-876-2373 or 619-455-3900

ftp more info -> nic.cerf.net:/cerfnet/dial-n-cerf/

off-peak -----> Weekend: 5pm Friday to 5pm Sunday

### **dircon**

name -----> The Direct Connection

dialup -----> +44 (0)81 317 2222

area codes ----> +44 (0)81

local access --> London, England

long distance -> provided by user

services -----> shell or menu, UUCP feeds, SLIP/PPP, ftp, telnet, gopher, WAIS, Archie,

personal ftp/file space, email-to-fax

fees -----> Subscriptions from GBPounds 10 per month, no on-line charges. GBPounds  
7.50 signup fee.

email -----> helpdesk@dircon.co.uk

voice -----> +44 (0)81 317 0100

fax -----> +44 (0)81 317 0100

ftp more info -> n/a

### **eskimo**

name -----> Eskimo North

dialup -----> 206-367-3837 300-2400 bps, 206-362-6731 for 9600/14.4k, 206-742-1150  
World Blazer

area codes ----> 206

local access --> WA: Seattle, Everett  
long distance -> provided by user  
services -----> shell, ftp, telnet  
fees -----> \$10/month or \$96/year  
email -----> nanook@eskimo.com  
voice -----> 206-367-7457  
ftp more info -> n/a

### **express**

name -----> Express Access - Online Communications Service  
dialup -----> 301-220-0462, 410-766-1855, 908-937-9481 'new'  
area codes ----> 202, 301, 410, 703, 908  
local access --> Northern VA, Baltimore MD, Washington DC, New Brunswick NJ  
long distance -> provided by user  
services -----> shell, ftp, telnet, irc, gopher, hytelnet, www  
fees -----> \$25/month or \$250/year  
email -----> info@digex.com  
voice -----> 800-546-2010, 301-220-2020  
ftp more info -> n/a

### **genesis**

name -----> 'genesis', MCSNet  
dialup -----> (312) 248-0900 V.32, 0970 V.32bis, 6295 (PEP), follow prompts  
area codes ----> 312, 708, 815  
local access --> IL: Chicago  
long distance -> provided by user  
services -----> shell, ftp, telnet, feeds, email, irc, gopher, hytelnet, etc. fees ----->  
\$25/month or \$65/3 months untimed, \$30/3 months for 15 hours/month  
email -----> info@genesis.mcs.com  
voice -----> (312) 248-UNIX  
ftp more info -> n/a

### **grebyn**

name -----> Grebyn Corporation  
dialup -----> 703-281-7997, 'apply'  
area codes ----> 202, 301, 703  
local access --> Northern VA, Southern MD, Washington DC  
long distance -> provided by user  
services -----> shell, ftp, telnet  
fees -----> \$30/month  
email -----> info@grebyn.com  
voice -----> 703-281-2194  
ftp more info -> n/a

### **halcyon**

name -----> Halcyon  
dialup -----> 206-382-6245 'new', 8N1  
area codes ----> 206  
local access --> Seattle, WA  
long distance -> provided by user  
services -----> shell, telnet, ftp, bbs, irc, gopher, hytelnet  
fees -----> \$200/year, or \$60/quarter + \$10 start-up  
email -----> info@halcyon.com  
voice -----> 206-955-1050  
ftp more info -> halcyon.com:/pub/waffle/info

### **IGC**

name -----> Institute for Global Communications/IGC Networks (PeaceNet, EcoNet, ConflictNet, LaborNet, HomeoNet)  
dialup -----> 415-322-0284 (N-8-1), 'new'  
area codes ----> 415, 800, PDN  
local access --> CA: Palo Alto, San Francisco  
long distance -> (per hour, off-peak/peak) SprintNet: \$2/\$7; 800: \$11/\$11  
services -----> telnet, local newsgroups for environmental, peace/social justice issues; NO ftp  
fees -----> \$10/month + \$3/hr after first hour  
email -----> support@igc.apc.org  
voice -----> 415-442-0220  
ftp more info -> igc.apc.org/pub

### **holonet**

name -----> HoloNet  
dialup -----> 510-704-1058  
area codes ----> 510, PDN  
local access --> Berkeley, CA  
long distance -> (per hour, off-peak/peak) Bay Area: \$0.50/\$0.95; PSINet A: \$0.95/\$1.95; PSINet B: \$2.50/\$6.00; Tymnet: \$3.75/\$7.50  
services -----> ftp, telnet, irc, games  
fees -----> \$2/hour off-peak, \$4/hour peak; \$6/month or \$60/year minimum  
email -----> info@holonet.net  
voice -----> 510-704-0160  
ftp more info -> holonet.net:/info/  
off-peak -----> 5pm to 8am + weekends and holidays

### **ibmpcug**

name -----> UK PC User Group  
dialup -----> +44 (0)81 863 6646  
area codes ----> +44 (0)81  
local access --> London, England  
long distance -> provided by user  
services -----> ftp, telnet, bbs, irc, feeds  
fees -----> GBPounds 15.50/month or 160/year + 10 startup (no time charges)  
email -----> info@ibmpcug.co.uk  
voice -----> +44 (0)81 863 6646  
ftp more info -> n/a

### **ids**

name -----> The IDS World Network  
dialup -----> 401-884-9002, 401-785-1067  
area codes ----> 401  
local access --> East Greenwich, RI; northern RI  
long distance -> provided by user  
services -----> ftp, telnet, SLIP, feeds, bbs  
fees -----> \$10/month or \$50/half year or \$100/year  
email -----> sysadmin@ids.net  
voice -----> 401-884-7856  
ftp more info -> ids.net:/ids.net

### **jvnc**

name -----> The John von Neumann Computer Network - Tiger Mail & Dialin' Terminal



dialup -----> contact for number  
area codes ----> 800  
local access --> anywhere (800) service is available  
long distance -> included  
services -----> email and newsfeed or terminal access only  
fees -----> \$19/month + \$10/hour + \$36 startup (PC or Mac SLIP software included)  
email -----> info@jvnc.net  
voice -----> 800-35-TIGER, 609-258-2400  
ftp more info -> n/a

### **jvnc-tiger**

name -----> The John von Neumann Computer Network - Dialin' Tiger  
dialup -----> contact for number  
area codes ----> 201, 203, 215, 401, 516, 609, 908  
local access --> Princeton & Newark, NJ; Philadelphia, PA; Garden City, NY; Bridgeport, New Haven, & Storrs, CT; Providence, RI  
long distance -> provided by user  
services -----> ftp, telnet, SLIP, feeds, optional shell  
fees -----> \$99/month + \$99 startup (PC or Mac SLIP software included -- shell is additional \$21/month)  
email -----> info@jvnc.net  
voice -----> 800-35-TIGER, 609-258-2400  
ftp more info -> n/a

### **maestro**

name -----> Maestro  
dialup -----> (212) 240-9700 'newuser'  
area codes ----> 212, 718  
local access --> NY: New York City  
long distance -> provided by user  
services -----> shell, ftp, telnet, gopher, wais, irc, feeds, etc.  
fees -----> \$15/month or \$150/year  
email -----> info@maestro.com (autoreply); staff@maestro.com, rkelly@maestro.com, ksingh@maestro.com  
voice -----> 212-240-9600  
ftp more info -> n/a

### **metronet**

name -----> Texas Metronet  
dialup -----> 214-705-2902 9600bps, 214-705-2917 2400bps, 'info/info' or 'signup/signup'  
area codes ----> 214  
local access --> TX: Dallas  
long distance -> provided by user  
services -----> shell, ftp, telnet, feeds, SLIP  
fees -----> \$10-\$50/month + \$20-\$30 startup  
email -----> srl@metronet.com / 73157.1323@compuserve.com / GENie:S.LINEBARG  
voice -----> 214-401-2800  
fax -----> 214-401-2802 (8am-5pm CST weekdays)  
ftp more info -> n/a

### **michnet**

name -----> Merit Network, Inc. -- MichNet project  
dialup -----> contact for number or telnet hermes.merit.edu and type 'help' at 'Which host?' prompt  
area codes ----> 313, 517, 616, 906, PDN

local access --> Michigan; Boston, MA; Wash. DC  
long distance -> SprintNet, Autonet, Michigan Bell packet-switch network  
services -----> telnet, SLIP, PPP, outbound SprintNet, Autonet and Ann Arbor dialout  
fees -----> \$35/month + \$40 signup (\$10/month for K-12 & libraries in Michigan)  
email -----> info@merit.edu  
voice -----> 313-764-9430  
ftp more info -> nic.merit.edu:/

### **mindvox**

name -----> MindVOX  
dialup -----> 212-989-4141 'mindvox' 'guest'  
area codes ----> 212, 718  
local access --> NY: New York City  
long distance -> provided by user  
services -----> conferencing system ftp, telnet, irc, gopher, hytelnet, Archives, BBS  
fees -----> \$15-\$20/month. No startup.  
email -----> info@phantom.com  
voice -----> 212-989-2418  
ftp more info -> n/a

### **MSen**

name -----> MSen  
dialup -----> contact for number  
area codes ----> 313  
local access --> All of SE Michigan (313)  
long distance -> provided by user  
services -----> shell, WAIS, gopher, telnet, ftp, SLIP, PPP, IRC, WWW, Picospan BBS, ftp  
space  
fees -----> \$20/month; \$20 startup  
email -----> info@msen.com  
voice -----> 313-998-4562  
fax -----> 313-998-4563  
ftp more info -> ftp.msen.com:/pub/vendor/msen

### **MV**

name -----> MV Communications, Inc.  
dialup -----> contact for numbers  
area codes ----> 603  
local access --> Many NH communities  
long distance -> provided by user  
services -----> shell, ftp, telnet, gopher, SLIP, email, feeds, dns, archives, etc.  
fees -----> \$5.00/mo minimum + variable hourly rates. See schedule.  
email -----> info@mv.com  
voice -----> 603-429-2223  
ftp more info -> ftp.mv.com:/pub/mv

### **nearnet**

name -----> NEARnet  
dialup -----> contact for numbers  
area codes ----> 508, 603, 617  
local access --> Boston, MA; Nashua, NH  
long distance -> provided by user  
services -----> SLIP, email, feeds, dns  
fees -----> \$250/month  
email -----> nearnet-join@nic.near.net

voice -----> 617-873-8730  
ftp more info -> nic.near.net:/docs

### **netcom**

name -----> Netcom Online Communication Services  
dialup -----> 206-527-5992, 214-753-0045, 310-842-8835, 408-241-9760, 408-459-9851,  
415-328-9940, 415-985-5650, 503-626-6833, 510-426-6610, 510-865-9004, 619-234-0524,  
714-708-3800, 916-965-1371  
area codes ----> 206, 213, 310, 408, 415, 503, 510, 619, 818, 916  
local access --> CA: SF Bay Area (5 POPs), Sacramento, Santa Cruz, Los Angeles, Irvine,  
San Diego; OR: Portland; TX: Dallas/Fort Worth; WA: Seattle  
long distance -> provided by user  
services -----> shell, ftp, telnet, irc, WAIS, gopher, SLIP/PPP, ftp space, feeds, dns  
fees -----> \$19.50/month + \$20.00 signup  
email -----> info@netcom.com  
voice -----> 408-554-UNIX  
ftp more info -> n/a

### **northshore**

name -----> North Shore Access  
dialup -----> 617-593-5774 (v.32, PEP) 'guest'  
area codes ----> 617, 508  
local access --> MA: Wakefield, Lynnfield, Lynn, Saugus, Revere, Peabody, Salem,  
Marblehead, Swampscott  
long distance -> provided by user  
services -----> shell (SunOS UNIX), ftp, telnet, archie, gopher, feeds  
fees -----> \$10/month includes 10 hours connect, \$1/hr thereafter  
email -----> postmaster@northshore.ecosoft.com  
voice -----> 617-593-3110 voicemail  
ftp more info -> northshore.ecosoft.com:/pub/flyer

### **novalink**

name -----> NovaLink  
dialup -----> (800) 937-7644 'new' or 'info', 508-754-4009 2400, 14400  
area codes ----> 508  
local access --> MA: Worcester  
long distance -> CPS: \$1.80/hour 2400, 9600  
services -----> ftp, telnet, gopher, shell, irc, XWindows, feeds, adult, user groups, FAX,  
Legends of Future Past  
fees -----> \$12.95 sign-up (refundable and includes 2 hours), + \$9.95/mo (includes 5  
daytime hours) + \$1.80/hr  
email -----> info@novalink.com  
voice -----> 800-274-2814  
ftp more info -> n/a

### **nwnexus**

name -----> Northwest Nexus Inc.  
dialup -----> contact for numbers  
area codes ----> 206  
local access --> WA: Seattle  
long distance -> provided by user  
services -----> UUCP, SLIP, PPP, feeds, dns  
fees -----> \$10/month for first 10 hours + \$3/hr; \$20 start-up  
email -----> info@nwnexus.wa.com  
voice -----> 206-455-3505

ftp more info -> nwnexus.wa.com:/NWNEXUS.info.txt

### **OARnet**

name -----> OARnet  
dialup -----> send e-mail to nic@oar.net  
area codes ----> 614, 513, 419, 216, 800  
local access --> OH: Columbus, Cincinnati, Cleveland, Dayton  
long distance -> 800 service  
services -----> email, ftp, telnet, newsfeed  
fees -----> \$4.00/hr to \$330.00/month; call for code or send email  
email -----> nic@oar.net  
voice -----> 614-292-8100  
fax -----> 614-292-7168  
ftp more info -> n/a

### **oldcolo**

name -----> Old Colorado City Communications  
dialup -----> 719-632-4111 'newuser'  
area codes ----> 719  
local access --> CO: Colorado Springs  
long distance -> provided by user  
services -----> shell, ftp, telnet, AKCS, home of the NAPLPS conference  
fees -----> \$25/month  
email -----> dave@oldcolo.com / thefox@oldcolo.com  
voice -----> 719-632-4848, 719-593-7575 or 719-636-2040  
fax -----> 719-593-7521  
ftp more info -> n/a

### **panix**

name -----> PANIX Public Access Unix  
dialup -----> 212-787-3100 'newuser'  
area codes ----> 212, 718  
local access --> New York City, NY  
long distance -> provided by user  
services -----> shell, ftp, telnet, gopher, wais, irc, feeds  
fees -----> \$19/month or \$208/year + \$40 signup  
email -----> alexis@panix.com, jsb@panix.com  
voice -----> 212-877-4854 (Alexis Rosen), 212-691-1526 (Jim Baumbach)  
ftp more info -> n/a

### **portal**

name -----> The Portal System  
dialup -----> 408-973-8091 high-speed, 408-725-0561 2400bps; 'info'  
area codes ----> 408, 415, PDN  
local access --> CA: Cupertino, Mountain View, San Jose  
long distance -> SprintNet: \$2.50/hour off-peak, \$7-\$10/hour peak; Tymnet: \$2.50/hour off-peak, \$13/hour peak  
services -----> shell, ftp, telnet, IRC, UUCP, feeds, bbs  
fees -----> \$19.95/month + \$19.95 signup  
email -----> cs@cup.portal.com, info@portal.com  
voice -----> 408-973-9111  
ftp more info -> n/a  
off-peak -----> 6pm to 7am + weekends and holidays

### **PREPnet**

name -----> PREPnet  
dialup -----> contact for numbers  
area codes ----> 215, 412, 717, 814  
local access --> PA: Philadelphia, Pittsburgh, Harrisburg  
long distance -> provided by user  
services -----> SLIP, terminal service, telnet, ftp  
fees -----> \$1,000/year membership. Equipment-\$325 onetime fee plus \$40/month  
email -----> prepnet@cmu.edu  
voice -----> 412-268-7870  
fax -----> 412-268-7875  
ftp more info -> ftp.prepnet.com:/prepnet/general/

### **psilink**

name -----> PSILink - Personal Internet Access  
dialup -----> North America: send email to classa-na-numbers@psi.com and classb-na-numbers@psi.com; Rest of World: send email to classb-row-numbers@psi.com  
area codes ----> PDN  
local access -->  
long distance -> (per hour, off-peak/peak) PSINet A: included; PSINet B: \$6/\$2.50; PSINet B international: \$18/\$18  
services -----> email and newsfeed, ftp  
fees -----> 2400: \$19/month; 9600: \$29/month (PSILink software included)  
email -----> all-info@psi.com, psilink-info@psi.com  
voice -----> 703-620-6651  
fax -----> 703-620-4586  
ftp more info -> ftp.psi.com:/

### **psi-world-dial**

name -----> PSI's World-Dial Service  
dialup -----> send email to numbers-info@psi.com  
area codes ----> PDN  
local access -->  
long distance -> (per hour, off-peak/peak) V.22bis: \$1.25/\$2.75; V.32: \$3.00/\$4.50; 14.4K: \$4.00/\$6.50  
services -----> telnet, rlogin, tn3270, XRemote  
fees -----> \$9/month minimum + \$19 startup  
email -----> all-info@psi.com, world-dial-info@psi.com  
voice -----> 703-620-6651  
fax -----> 703-620-4586  
ftp more info -> ftp.psi.com:/  
off-peak -----> 8pm to 8am + weekends and holidays

### **PUCnet**

name -----> PUCnet Computer Connections  
dialup -----> 403-484-5640 (v.32 bis) 'guest'  
area codes ----> 403  
local access --> AB: Edmonton and surrounding communities in the Extended Flat Rate Calling Area  
long distance -> provided by user  
services -----> shell, menu, ftp, telnet, feeds, USENET  
fees -----> \$Cdn 20/month (20 hours connect time) + \$5/hr (ftp & telnet only) + \$10 signup  
email -----> info@PUCnet.com (Mail responder) or pwilson@PUCnet.com  
voice -----> 403-448-1901  
fax -----> 403-484-7103

ftp more info -> n/a

### **sugar**

name -----> NeoSoft's Sugar Land Unix  
dialup -----> 713-684-5900  
area codes ----> 713  
local access --> TX: Houston metro area  
long distance -> provided by user  
services -----> bbs, shell, ftp, telnet, irc, feeds, UUCP  
fees -----> \$29.95/month  
email -----> info@NeoSoft.com  
voice -----> 713-438-4964  
ftp more info -> n/a

### **telerama**

name -----> Telerama Public Access Internet  
dialup -----> 412-481-5302 'new' (2400)  
area codes ----> 412  
local access --> PA: Pittsburgh  
long distance -> provided by user  
services -----> telnet, ftp, irc, gopher, ClariNet/Usenet, shell/menu, uucp  
fees -----> 66 cents/hour 2400bps; \$1.32/hour 14.4K bps; \$6 min/month  
email -----> info@telerama.pgh.pa.us  
voice -----> 412-481-3505  
ftp more info -> telerama.pgh.pa.us:/info/general.info

### **tmn**

name -----> The Meta Network  
dialup -----> contact for numbers  
area codes ----> 703, 202, 301, PDN  
local access --> Washington, DC metro area  
long distance -> SprintNet: \$6.75/hr; FTS-2000; Acunet  
services -----> Caucus conferencing, email, shell, ftp, telnet, bbs, feeds  
fees -----> \$20/month + \$15 signup/first month  
email -----> info@tmn.com  
voice -----> 703-243-6622  
ftp more info -> n/a

### **uunorth**

name -----> UUnorth  
dialup -----> contact for numbers  
area codes ----> 416, 519, 613  
local access --> ON: Toronto  
long distance -> provided by user  
services -----> shell, ftp, telnet, gopher, feeds, IRC, feeds, SLIP, PPP  
fees -----> (All Cdn\$ + GST) \$20 startup + \$25 for 20 hours off-peak + \$1.25/hr OR \$40  
for 40 hours up to 5/day + \$2/hr OR \$3/hr  
email -----> uunorth@uunorth.north.net  
voice -----> 416-225-8649  
fax -----> 416-225-0525  
ftp more info -> n/a

### **Vnet**

name -----> Vnet Internet Access, Inc.  
dialup -----> 704-347-8839 'new'

area codes ----> 704  
local access --> NC: Charlotte; RTP, Raleigh, Durham planned by 8/1/93; special offer in other selected NC communities, contact for details  
long distance -> provided by user  
services -----> shell, ftp, telnet, irc, gopher, hytelnet  
fees -----> \$25/month or \$259/year  
email -----> info@char.vnet.net  
voice -----> 704-374-0779  
ftp more info -> n/a

### **well**

name -----> The Whole Earth 'Lectronic Link  
dialup -----> 415-332-6106 'newuser'  
area codes ----> 415, PDN  
local access --> Sausalito, CA  
long distance -> Compuserve Packet Network: \$4/hour  
services -----> shell, ftp, telnet, bbs  
fees -----> \$15.00/month + \$2.00/hr  
email -----> info@well.sf.ca.us  
voice -----> 415-332-4335  
ftp more info -> n/a

### **wariat**

name -----> APK- Public Access UNI\* Site  
dialup -----> 216-481-9436 (2400), 216-481-9425 (V.32bis, SuperPEP)  
area codes ----> 216  
local access --> OH: Cleveland  
long distance -> provided by user  
services -----> shell, ftp, telnet, irc, gopher, feeds, BBS(Uniboard1.10)  
fees -----> \$35/monthly, \$200/6months, \$20 signup  
email -----> zbig@wariat.org  
voice -----> 216-481-9428  
ftp more info -> n/a

### **world**

name -----> The World  
dialup -----> 617-739-9753 'new'  
area codes ----> 617, PDN  
local access --> Boston, MA  
long distance -> Compuserve Packet Network: \$5.60/hour  
services -----> shell, ftp, telnet, irc  
fees -----> \$5.00/month + \$2.00/hr or \$20/month for 20 hours  
email -----> office@world.std.com  
voice -----> 617-739-0202  
ftp more info -> world.std.com:/world-info/description

### **wyvern**

name -----> Wyvern Technologies, Inc.  
dialup -----> (804) 627-1828 Norfolk, (804) 886-0662 (Peninsula)  
area codes ----> 804  
local access --> VA: Norfolk, Virginia Beach, Portsmouth, Chesapeake, Newport News, Hampton, Williamsburg  
long distance -> provided by user  
services -----> shell, menu, ftp, telnet, uucp feeds, irc, archie, gopher, UPI news, email, dns, archives

fees -----> \$15/month or \$144/year, \$10 startup  
email -----> system@wyvern.com  
voice -----> 804-622-4289  
fax -----> 804-622-7158  
ftp more info -> n/a



## **What The PDIAL Is**

This is the PDIAL, the Public Dialup Internet Access List.

It is a list of Internet service providers offering public access dialins and outgoing Internet access (ftp, telnet, etc.). Most of them provide email and USENET news and other services as well.

If one of these systems is not accessible to you and you need email or USENET access, but *\*don't\** need ftp or telnet, you have many more public access systems from which to choose. Public access systems without ftp or telnet are *\*not\** listed in this list, however. See the nixpub (alt.bbs, comp.misc) list and other BBS lists.

Some of these providers offer time-shared access to a shell or BBS program on a computer connected directly to the Internet, through which you can FTP or telnet to other systems on the Internet. Usually other services are provided as well. Generally, you need only a modem and terminal or terminal emulator to access these systems. Check for "shell", "bbs", or "menu" on the "services" line.

Other providers connect you directly to the Internet via SLIP or PPP when you dial in. For these you need a computer system capable of running the software to interface with the Internet, e.g., a Unix machine, PC, or Mac. Check for "SLIP", or "PPP" on the services line.

While I have included all sites for which I have complete information, this list is surely incomplete. If you have any additions or corrections please send them to me at one of the addresses listed in section.

## **How People Can Get The PDIAL (This List)**

### **EMAIL:**

From the Information Deli archive server (most up-to-date):

To receive the current edition of the PDIAL, send email containing the phrase "Send PDIAL" to "info-deli-server@netcom.com". To be put on a list of people who receive future editions as they are published, send email containing the phrase "Subscribe PDIAL" to "info-deli-server@netcom.com". To receive both the most recent and future editions, send both messages.

From the news.answers FAQ archive:

Send email with the message "send usenet/news.answers/pdial" to "mail-server@rtfm.mit.edu". For help, send the message "help" to "mail-server@rtfm.mit.edu".

### **USENET:**

The PDIAL list is posted semi-regularly to alt.internet.access.wanted, alt.bbs.lists, alt.online-service, ba.internet, and news.answers.

FTP ARCHIVE SITES (PDIAL and other useful information):

Information Deli FTP site:

ftp.netcom.com:/pub/info-deli/public-access/pdial (192.100.81.100)

As part of a collection of public access lists:

VFL.Paramax.COM:/pub/pubnet/pdial (28.126.220.104)

From the Merit Network Information Center Internet information archive:

nic.merit.edu:/internet/pdial (35.1.1.48)

As part of an Internet access compilation file:

liberty.uc.wlu.edu:/pub/lib/internet.access (137.113.10.35)

As part of the news.answers FAQ archive:

rtfm.mit.edu:/pub/usenet/news.answers/pdial (18.70.0.224)

## **PDIAL (Appendix A) Finding Public Data Network (PDN) Access Numbers**

Here's how to get local access numbers or information for the various PDNs. Generally, you can contact the site you're calling for help, too.

**IMPORTANT NOTE:** Unless noted otherwise, set your modem to 7E1 (7 data bits, even parity, 1 stop bit) when dialing to look up access numbers by modem as instructed below.

### **BT Tymnet**

For information and local access numbers, call 800-937-2862 (voice) or 215-666-1770 (voice).

To look up access numbers by modem, dial a local access number, hit <cr> and 'a', and enter "information" at the "please log in:" prompt.

### **Compuserve Packet Network**

You do NOT have to be a Compuserve member to use the CPN to dial other services.

For information and local access numbers, call 800-848-8199 (voice).

To look up access numbers by modem, dial a local access number, hit <cr> and enter "PHONES" at the "Host Name:" prompt.

### **PC Pursuit (SprintNet)**

PC Pursuit may be used to call a modem in any of 44 major metro areas in the US from local access numbers around the country. As such, it can be used to access most of the providers listed in the PDIAL (those with no other PDN access or even those which are accessible by other PDNs).

For information and registration, call 800-736-1130 (voice) or 800-877-2006 (data). More information is also available on the PC Pursuit support BBS (see below).

To look up access numbers by modem, dial 800-546-1000, hit <cr><cr><cr> at 1200 baud or '@'<cr><cr> at 2400 baud. Enter "MAIL" at the "@" prompt, then "PHONES" at the "USER NAME:" prompt, and "PHONES" at the "PASSWORD:" prompt.

The PC Pursuit support BBS provides a great deal of information about PC Pursuit, including rates, terms and conditions, outdial numbers, etc.

To access the PC Pursuit support BBS, dial a local access number and hit <cr><cr><cr> at 1200 baud or '@'<cr><cr> at 2400 baud. Change modem parameters to 8N1, and enter "C PURSUIT" at the "@" prompt.

### **PSINet**

For information, call 800-82PSI82 (voice) or 703-620-6651 (voice), or send email to "all-info@psi.com". For a list of local access numbers send email to "numbers-info@psi.com".

### **Additional Notices; Submitting Updates and Corrections**

I make no representations about the suitability or accuracy of this document for any purpose. It is provided "as is" without express or implied warranty. All information contained herein is subject to change.

For UPDATES AND CORRECTIONS or REQUESTS FOR COMMERCIAL DISTRIBUTION, contact the author at the addresses below. If you have new or updated entries, send them to me in the format used in the PDIAL listings. Also include an email address to which I can send requests for more information.

Peter Kaminski / The Information Deli  
kaminski@netcom.com (preferred)  
71053.2155@compuserve.com

An excerpt...

## Upward compatible enhancements to the Internet Gopher protocol

Farhad Anklesaria, Paul Lindner, Mark P. McCahill, Daniel Torrey, David Johnson, Bob Alberti

Microcomputer and Workstation Networks Center  
Computer and Information Systems  
University of Minnesota

July 30, 1993

**gopher+** . 1. Hardier strains of mammals of the family Geomyidae. 2. (*Amer. colloq.*) Native or inhabitant of Minnesota, the Gopher state, in full winter regalia (see PARKA). 3. (*Amer. colloq.*) Executive secretary. 4. (*computer tech.*) Software following a simple protocol for burrowing through a TCP/IP internet, made more powerful by simple enhancements (see *CREEPING FEATURISM*).

The Internet Gopher protocol was designed primarily to act as a distributed document delivery system. It has enjoyed increasing popularity, and is being used for purposes that were not visualized when the protocol was first outlined. The rest of this document describes the Gopher+ enhancements in a non-rigorous but easily read and understood way. There is a short BNF-like section at the end for exact syntax descriptions.

**Throughout the document, "F" stands for the ASCII TAB character.** There is an implicit carriage return and linefeed at the ends of lines; these will only be explicitly mentioned where necessary to avoid confusion. To understand this document, you really must be familiar with the basic Gopher protocol.

Servers and clients understanding the Gopher+ extensions will transmit extra information at the ends of list and request lines. Old, basic gopher clients ignore such information. New Gopher+ aware servers continue to work at their old level with unenhanced clients. The extra information that can be communicated by Gopher+ clients may be used to summon new capabilities to bridge the most keenly felt shortcomings of the venerable old Gopher.

### 2. How does Gopher+ work?

Gopher+ enhancements rely on transmitting an "extra" tab delimited fields beyond what regular (old) Gopher servers and clients now use. If most existing (old) clients were to encounter extra stuff beyond the "port" field in a list (directory), most would ignore it. Gopher+ servers will return item descriptions in this form:

```
1Display stringFselector stringFhostFportFextrastuff<CRLF>
```

If an existing (old) client has problems with additional information beyond the port, it should not take much more than a simple tweak to have it discard unneeded stuff.

All the regular Gopher protocol info remains intact except for:

(1) Instead of just a CRLF after the port field in any item of a list (directory) there may be an optional TAB followed by extra stuff as noted above (explanation to follow).

(2) In the original Gopher protocol, there was provision for a date-time descriptor (sec 3.6) to be sent after the selector (for use by autoindexer beasts). As far as we know, while the descriptor is implemented in the Mac server, it is not in any other server and no clients or daemons use it. This is a good time to withdraw this feature. The basic gopher protocol has

been revised for the final time and will be frozen.

. . . Gopher was originally designed as an essentially anonymous document retrieval protocol to facilitate easy access to information rather than limited access. Various kinds of restrictive mechanisms have been implemented at the server end (for example, access restriction by source IP address); however if you have sensitive information, we emphasize that putting it under a Gopher's nose is not a good idea.

## Winsock.dll



While many commercial vendors sell a WINSOCK.DLL (Dynamic Link Library) for Windows, I've found one freeware package (soon to be shareware) that works well with the Clarkson drivers. You can obtain it via anonymous [ftp](#) from:

[ftp.utas.edu.au:/pc/trumpet/winsock](ftp://utas.edu.au/pc/trumpet/winsock)

You can obtain it via gopher by pointing your gopher at: <trans.csuohio.edu>

Peter Tattam (email: [peter@psychnet.psychol.utas.edu.au](mailto:peter@psychnet.psychol.utas.edu.au)), the programmer of the Trumpet WINSOCK.DLL, also has a very nice NEWS reader for Windows.



related topic: [Winsock FAQ](#)

*Editor's note: This is just an excerpt of the Windows Sockets (winsock) FAQ*

Frequently Asked Questions About Windows Sockets Version 1.1

22 July 1993

This FAQ has been put together by Mark Towfiq, with much-appreciated assistance from Jay Allard, Bruce Backman, Paul Brooks, Martin Hall, Simon Hewison, Bob Quinn, Ed Schwalenberg, Bill Tang, and Dave Treadwell. If you have any modifications to this FAQ, send them to towfiq@Microdyne.COM, and I will fold them into the next revision.

First of all, the questions:

1. What is Windows Sockets?
2. What is the latest version?
3. Where can I get a/the WINSOCK.DLL?
4. Why isn't there just one WINSOCK.DLL? Do I need a TCP/IP already to use it?

## **1. What is Windows Sockets?**

**Answer:** The Windows Sockets specification defines a network programming interface for Microsoft Windows which is based on the "socket" paradigm popularized in the Berkeley Software Distribution (BSD) from the University of California at Berkeley. It encompasses both familiar Berkeley socket style routines and a set of Windows-specific extensions designed to allow the programmer to take advantage of the message-driven nature of Windows.

The Windows Sockets Specification is intended to provide a single API to which application developers can program and multiple network software vendors can conform. Furthermore, in the context of a particular version of Microsoft Windows, it defines a binary interface (ABI) such that an application written to the Windows Sockets API can work with a conformant protocol implementation from any network software vendor. This specification thus defines the library calls and associated semantics to which an application developer can program and which a network software vendor can implement.

Network software which conforms to this Windows Sockets specification will be considered "Windows Sockets Compliant". Suppliers of interfaces which are "Windows Sockets Compliant" shall be referred to as "Windows Sockets Suppliers". To be Windows Sockets Compliant, a vendor must implement 100% of this Windows Sockets specification.

Applications which are capable of operating with any "Windows Sockets Compliant" protocol implementation will be considered as having a "Windows Sockets Interface" and will be referred to as "Windows Sockets Applications".

## **2. What is the latest version?**

**Answer:** The latest version of the specification is 1.1.

## **3. When is the next rev of the specification? Why not sooner?**

**Answer:** The next rev. (2.0) will not be until towards the end of 1993. We need 1.1 of the API to become firmly settled and implemented first.

## **4. Where can I get a/the WINSOCK.DLL?**

**Answer:** You can most probably get one from the same place you got your TCP/IP software



from.



[Another source for WINSOCK.DLL](#)

**5. Why isn't there just one WINSOCK.DLL? Do I need a TCP/IP already to use it?**

**Answer:** The Windows Sockets specification defines the top level of the DLL, the part which is called by user programs. The method a given WINSOCK.DLL will use to access TCP/IP (or NetWare, or AppleTalk, or DECNet ...) depends on the networking package you have installed, and therefore must vary. A WINSOCK.DLL is therefore just an interface to whatever existing protocol you already have installed.

## LISTGopher

*Editor's note: Here's an excerpt from a recent email announcement of a archived message search service that Eric Morgan of NC State University libraries has made available:*

LISTGopher is a gopher+ item whose purpose is to facilitate the searching and retrieval of archived LISTSERV messages. I wrote LISTGopher to make the searching of these archives a bit easier.

Despite the large amounts of noise, I have long believed LISTSERV archives contain a wealth of useful information. How many times have you wished you could retrieve that little bit of information you read in that posting a few months ago? Or how often do you wish you could glean postings from a LISTSERV list without subscribing to the whole thing? LISTGopher can help you with these and other problems.

This is how LISTGopher is intended to be used. First you enter your name, email address, the list to search *remember, LISTGopher is case-sensitive (e.g., PACS-L, not pacs-l)*, type of query (search or print), and your query. LISTGopher then creates a valid LISTSERV query and sends it off in the mail to the designated list's LISTSERV. You then receive a reply, from the LISTSERV, via email. Selecting messages from the results, you enter item numbers into LISTGopher. Finally, LISTGopher sends your request to the LISTSERV again and you get the messages in the mail *it can take as long as 24 hours for the batch job results to get to you...so be patient.*

In its present state, LISTGopher ONLY supports original LISTSERV queries; LISTGopher does NOT support Unix LISTSERVs.

The first LISTGopher I created includes all the library-related lists in Charles Bailey's guide, Library-oriented lists and electronic serials. If people find this useful, then I will create other LISTGophers (original flavor as well as Unix LISTSERV) to include other disciplines based on Diane Kovac's Directory of Scholarly Electronic Conferences. Here is a link file to my library-related LISTGopher:

```
Type=1+
Name=Search library-related LISTSERVs (LISTGopher)
Path=1/library/disciplines/library/listgopher
Host=dewey.lib.ncsu.edu
Port=70
```

Enjoy, and if you have any questions, then drop me a line.

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## **INTERNIC DIRECTORY AND DATABASE SERVICES THE DIRECTORY OF DIRECTORIES**

We have a yellow pages directory of resources available to the Internet. This Directory of Directories enables users to easily obtain references to information resources, products and services associated with the Internet. It includes pointers to resources such as computing centers, network providers, information servers, library catalogs, data and software archives, training services, newsgroups, bulletin boards, and so forth.

We offer two types of listings in the Directory of Directories: Standard and Expanded entries.

Standard entries are maintained free-of-charge. They are allowed up to 1,264 characters (between the keyword and description fields). The intent is to provide a brief and easily readable description of the resource. In addition to the description, a Standard entry contains contact and resource classification information which are not counted in the 1,264 characters.

Expanded entries are charged a monthly fee, and allow the resource provider much more space to fully describe their resources, similar to a large advertisement in the yellow pages.

If your organization has several resources, you may qualify for multiple Standard Entries, one for each resource. We will work with the resource provider to determine how many Standard Entries might apply.

We will strive to maintain the accuracy and relevance of the information in the database. Once an entry is created, we will maintain contact with the provider of the resource to revalidate and update the entry information at least once every six months.

The Directory of Directories is freely available online to all Internet users. We provide several different methods to access the information. Keyword searches and information download will be supported through the Wide Area Information Server ([WAIS](#)), and entries may also be retrieved using anonymous [FTP](#) and [Gopher](#). For those without [telnet](#) or FTP access, electronic mail may be used to search for and retrieve information via our mailserv application. We will enhance these services over time.

We know that the Directory of Directories needs many entries to be successful. If you know anyone else who might want to set up a listing, please pass on this message, or send us a note. We will not list any resource without the permission of the resource provider.

If you are interested in more information about the Directory of Directories or the other services associated with the InterNIC Directory and Database Services, contact the Directory and Database Administrator via email at [admin@ds.internic.net](mailto:admin@ds.internic.net) or phone 1-800-862-0677 or 1-908-668-6587.

## **The WELL: Small Town on the Internet Highway System**

by Cliff Figallo (fig@well.sf.ca.us) September, 1993

*This document was adapted from a paper presented to the "Public Access to the Internet" meeting sponsored by the John F. Kennedy School of Government at Harvard University in May, 1993.*

Cliff Figallo writes "...you may distribute and quote from this piece as you wish, but please include the request that my name and contact information be included with any quotations or distribution. Thank you."

### Introduction

#### A very brief biography of The WELL

A less brief biography of The WELL

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## Introduction

The Internet serves as a routing matrix for electronic mail messages, file transfers and information searches. Internet sites, those machines and sub-networks that are "internetworked", have thus far served mostly as file archives, email addresses and administrative caretakers for their locally serviced users. Historically, these sites have been universities, corporations or military and government installations. With the popularization and commercialization of the Internet, new models of Internet sites are connecting to the web of high speed data lines.

One unique Internet site, accessible by anyone with an Internet account, is The Whole Earth Electronic Link (hereafter referred to by its popular name, The WELL). In the future, the Internet will certainly feature many small, homegrown, regional commercial systems like The WELL. Such systems will pay for their own operations and for their Internet connections through user fees, handling all of the billing and administrative tasks relating to their users, developing their own local community standards of behavior and interaction. Their users will often leave the "home" system, going out through Internet gateways to other regional systems or searching for information in the myriad databases of the Net. Internet voyagers will drop in to visit the unique communities they find outside their home systems, sampling the local cultural flavors and meeting and conversing with the individuals who inhabit those systems.

The main attractions of these local Internet "towns" will prove to be their characteristic online conversations and social conventions and their focus on specialized fields of knowledge or problem solving. The WELL is a seminal example of what these small pioneering towns on the Internet highway system will be like.

The WELL is a computer-mediated public conferencing and email system linked to the Internet through BARRNet, the regional Internet vendor. The WELL's headquarters are located in Sausalito, California. It is co-owned by Point Foundation (producers of Whole Earth Review and the Whole Earth Catalogs) and Rosewood Stone, a financial investment company owned the founder and ex-owner of Rockport Shoes.

The WELL was, from its founding in 1985 until January of 1992, accessible to its users only via direct or packet switched dialup. It had carried stored-and-forwarded USENET news groups since soon after startup. These files were imported via regular phone links with Internet-connected sites. Among its users were some small minority of students, academics and technical professionals with Internet accounts on other systems. The feasibility of the WELL connecting to the Internet increased steadily through the 1980s until financial, technical and political conditions allowed it to happen. It is significant, though, that the character of the WELL developed under conditions of relative network isolation. Indeed, part of the justification given by BARRNet, the regional Internet service provider, for allowing a commercial system like the WELL to connect through their facilities was the unique character of the WELL as an established system with thriving and interesting discussion, and its perceived value as a an information- generating resource for the Net. The WELL would, they figured, make an interesting and potentially rewarding stopover on any user's Internet Tour.

The WELL is often associated with the term "online community". The idea that community can develop through online interaction is not unique to the WELL. But the WELL, because of its organizational and technical history, has survived primarily through the online personal interaction of its subscribers and staff rather than through successful business strategy developed by its owners and managers. The discussion and dialog contained and archived on the WELL are its primary products. The WELL "sells its users to each other" and it considers its users to be both its consumers and its primary producers. Databases of

imported information and libraries full of downloadable software are scarcely present. Third-party services such as stock-trading news, wire services, airline reservation access and software vendor support have never been offered to any significant extent.

The WELL today counts around 7,000 paying subscribers. It has a growing staff of over 12 and a gross annual income approaching \$2 million. It is a small but healthy business and has historically spent very little on advertising and promotion. It gets far more than its share of free publicity and notoriety through the Press coverage as compared to much larger commercial systems. This is so in spite of what most people would consider a "user-hostile" interface and relatively high pricing.

The WELL had a rather unique upbringing. I will describe its early growth and the foundations of its character in the rest of this paper. I do this from the point of view of having been the person in charge for six years, though I took great pains to de-emphasize the "in charge" part whenever possible. I tried to focus more on maintenance and the distribution of responsibility through the user community rather than on control. Though my record for making the WELL a technical showpiece is not without blemish, my main emphasis was in preserving and supporting the exercise of freedom and creativity by the WELL's users through providing an open forum for their interaction.

It is my assertion that the actual exercise of free speech and assembly in online interaction is among the most significant and important uses of electronic networking; and that the value of this practice to the nation and to the world may prove critical at this stage in human history. I regard the WELL as a sample of the kind of small, diverse, grassroots service provider that can and should exist in profusion, mutually accessible through the open channels on the Internet.

The possibility that the future "Internet" (or whatever replaces it) may be dominated by monolithic corporate-controlled electronic consumer shopping malls and amusement parks is antithetical to the existence and activity of free individuals in the electronic communications world, each one able to interact freely with other individuals and groups there.



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## **A Very Brief Biography of the WELL**

Founded in 1985 by Stewart Brand and Larry Brilliant as a partnership of Point and NETI , the WELL came online in February of 1985 and began taking paying customers April 1, 1985. It's initial staff of one full-time and one part-time employee grew to 12 paid employees and well over one hundred online volunteers by 1992. As of this date, The WELL runs on a Sequent multi- processor mini-computer located in a cramped room in a small office building next to the houseboat docks in Sausalito, California. The WELL has full Internet connectivity which is currently offered for the use of its subscribers at no surcharge. Most users call in to the WELL over regular phone lines and modems., and most long distance customers reach the WELL using an X.25 commercial packet network for an additional \$4.00 per hour. An increasing number of users are logging in to the WELL via the Internet, many using Internet accounts on commercial gatewayed systems rather than the packet switching nets.

The WELL's notable achievements are many, not the least of which is that it has survived for eight years while so many other startup systems, though much better-funded, have failed. The Electronic Frontier Foundation was born largely out of the free speech ferment that exists on the WELL and out of discussions and debate that go on there concerning the unique legal and regulatory paradoxes that confront users, managers and owners of systems in this new communications medium. These discussions also attract a population of journalists who find cutting edge ideas and concepts arising constantly in the WELL's forums. Many other formal and informal organizations and collaborations that are effecting the world today call the WELL home.



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## Birth

The WELL was the conceptual and partnered creation of Larry Brilliant and Stewart Brand. They agreed to have their respective organizations cooperate in establishing and operating a computer conferencing network that could serve as a prototype for many regional (as opposed to national) commercial systems. "Let a thousand CompuServe's bloom," is how Brilliant put it.

Initial funding came from Brilliant's company, Networking Technologies International (NETI) in the form of a leased VAX 11/750 computer and hard disks, UNIX system software, a "conferencing" program called Picospan, and a loan of \$90,000. Point Foundation, the non-profit parent corporation of Whole Earth Review, contributed the name recognition of "Whole Earth", the personal attraction of having Stewart Brand to converse with online and the modest but important promotional value of constant mention in the small circulation but influential "Whole Earth Review" magazine.

Business goals for The WELL were, from its inception, purposefully flexible. But the idea that interesting discussion would attract interesting discussants was at the core of the theory that drove the WELL's growth. Initially, many free accounts were offered to people who had, at one time or another, been associated with Whole Earth publications and events, or who were known by Whole Earth staff to be likely productive and attractive participants (referred to, tongue-in-cheek, as "shills"). In April of 1985, the WELL began offering subscriptions at \$8 per month plus \$3 per hour.



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## **Initial Design and Rule making**

The WELL presented its first users with the sole disclaimer: "You own your own words." The owners of the WELL sought to distance themselves from liability for any text or data posted or stored online by WELL users while, at the same time, providing a free space for creative, experimental and unfettered communication. An alternative interpretation of the original disclaimer (now referred to as YOYOW) held that rather than only laying responsibility for WELL postings at the feet of the author, the phrase also imparted copyrighted ownership of postings to the author under the implied protection and enforcement of the WELL. Management and ownership resisted the onus of their serving as legal agent for the WELL's users, recognizing the potential expense and futility of pursuing people for electronically copying and using customers' words. Thus, the evolving interpretation of YOYOW provided fuel for years' worth of discussion on the topics of copyright, intellectual property and manners in electronic space.

A general aversion to the making and enforcement of rigid rules has continued at the WELL although incendiary incidents and distressing situations have occasionally brought calls for "more Law and Order" or absolute limits to speech. WELL management rejected these calls, resisting being put in the role of policeman and judge except where absolutely necessary, and espousing the view that the medium of online interpersonal communication was (and still is) too immature, too formative to be confined by the encumbrances of strict rules and restrictive software. The imposition by management of arbitrary limitations on language and speech, aimed at protecting the feelings or sensibilities of small groups of people could not possibly protect all people's feelings and sensibilities. Besides, by stifling free and open dialog, we might have lost our chance to discover what kinds of interaction really worked in this medium. Interaction in public access systems seemed to be much more productive, innovative, educational and entertaining where there were fewer prohibitions imposed by system management. If limitations were to be imposed and enforced, they could be handled best from within the user population on a "local", not system wide basis. The creation of private interactive areas where such local rules held sway allowed public forums to retain their openness while providing more regulated "retreats" for those who felt they needed them.



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## **Staff-Customer Collaboration**

Immediately after opening the system to public access, the small WELL staff and the original participants began the collaborative process of designing of a more friendly interface from the raw Picospan software. Picospan included a toolbox of customization utilities that could be used to make changes on a system-wide or at-user's-option basis. Picospan was tightly-integrated with the UNIX operating system and could therefore provide transparent access to programs written to operate in the UNIX environment. The libertarian, anti-authoritarian philosophy of Picospan's author, Marcus Watts, showed through in its design which prevented un-acknowledged censorship by system administrators, forum moderators (hosts) or authors themselves. Picospan also allowed topics (discussion threads) to be "linked" into several forums at once...a feature that aids the cross-pollination of ideas and groups through the system. The influence that Picospan has had on the WELL's development as a community and hotbed of discussion cannot be underestimated. Its display of topics as continuously- scrolling dialog documents (rather than as fragmented collections of individually-displayed responses) had a tremendous effect on user involvement in ongoing discourse.

## **Staff Background**

The background of four of The WELL's non-technical senior managers--people who worked there during its first seven years--must be considered very significant to the formation of the WELL's open and independent culture.

The first director of the WELL, Matthew McClure and myself, his successor, both spent the decade of the 1970's living in an intentional community of some renown called The Farm as did the WELL's first customer service manager, John Coate, and his successor, Nancy Rhine.. Undoubtedly, this experience of living cooperatively in multi-family situations in a community that reached a peak population of over 1500 adults and children, had a profound influence on the style of management of The WELL. Principles of tolerance and inclusion, fair resource allocation, distributed responsibility, management by example and influence, a flat organizational hierarchy, cooperative policy formulation and acceptance of a libertarian-bordering- on-anarchic ethos were all carryovers from our communal living experience. John Coate is known for having been integral to the setting of a tone of the WELL where users and staff intermingled both online and at the WELL's monthly office parties. He has authored a widely-distributed essay on "Cyberspace Innkeeping" based on lessons learned in dealing with customers in his time at the WELL..



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## **Maintaining a History**

An important component to the establishment of community in any setting or medium is a historical record of its environs, its people, and their works and the relationships and organizations that defined the direction of the collective entity. For a variety of reasons besides the security of backups, the WELL still has a significant portion of its online interaction saved on archived tape, on its user-accessible disks and in the possession of many of its conference hosts who have made a practice of backing up topics on their home machines before retiring them from the WELL. WELL users were always vocal in their insistence that a history be kept and went so far as to create an Archives conference where topics judged of historical significance from other areas of the WELL were linked and eventually "frozen" for future reference. These valuable conversational threads, this "history" of the WELL, contributes to its depth and feeling of place and community. New users and veterans alike can refer to these archives for background to current discussion and to sample the flavor of the WELL from its early days. When new users, experiencing the same revelations that stirred WELL veterans years ago, bring up their own interpretations of "you own your words", they are referred to the several preserved topics in Archives where lengthy online deliberations on the subject have been preserved..



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## Connections

Originally, only direct dial modems could be used to reach the WELL, but by the end of its first year of operation, an X.25 packet system was in place allowing long distance users to reach the WELL at reasonable cost. The WELL kept its San Francisco focus because local callers had cheaper access and could stay online longer for the same cost, but national and international participants were now more encouraged to join in.

Also, in 1986, Pacific Bell conducted a test of a regional packet-switched network for which the WELL was enrolled as a "beta" site. For most of a year, users from most of the San Francisco Bay Area were able to dial in to the WELL without phone toll charges. This fortuitous circumstance helped boost the WELL's subscription base and connected many valuable customers from the Silicon Valley area into the growing user pool.

Over time, the percentage of users from outside of the Bay Area climbed slowly but steadily. As word spread through frequent unsolicited articles in the press, the WELL became known as a locus for cutting edge discussion of technical, literary and community issues, and it became even more attractive to long distance telecommunicators.

On January 2, 1992, the WELL opened its connection to the Internet through the regional provider, BARRNet. After much debugging and adjustment and a complete CPU upgrade, full Internet service access was offered to WELL customers in June of 1992. Staff and users opened an Internet conference on the WELL where discussions and Q&A take place and where new features, discoveries and tools are shared. The Internet conference serves as a "living manual" to the resources, use and news of the Net.



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## Community

In a medium where text is the only means of communication, trust becomes one of the most difficult but essential things to build and maintain. With no audible or visual clues to go by, the bandwidth for interpersonal communication is quite thin. There are, though, ways in which trust can be built even through the small aperture of telecommunicated text.

By being deliberately non-threatening, owners and managers can eliminate one of the major barriers to trust on the system. One of the most menacing conditions experienced by new users of public conferencing systems is that of hierarchical uncertainty. Who holds the Power? What is their agenda? What are The Rules? Who is watching me and what I do? Do I have any privacy? How might a "Big Brother" abuse me and my rights? The WELL Whole Earth parentage brought with it a historical reputation of collaboration between publisher and reader. Whole Earth catalogs and magazines were widely-known for soliciting and including articles and reviews written by their readers. Whole Earth customers knew that the publications had no ulterior motives, were not owned and controlled by multi-national corporations and did not spend their revenues on making anyone rich. Readers supported the publications and the publications featured and came clean with the readers. We strove to continue that kind of relationship with our customers on the WELL although the immediacy of feedback often made openness a tricky proposition.

We realized that we were in a position of ultimate power as operators of the system; able to create and destroy user accounts, data, communications at will. It was incumbent on us, then, to make clear to all users our assumptions and the ground rules of the WELL in order to minimize any concerns they might have about our intentions. Our aim was to be as much out front with users as possible. Indeed, John Coate and I took the initiative, posting long autobiographical stories from our communal past, inviting users to join us in problem-solving discussions about the system and the business around it, confessing to areas of ignorance and lack of experience in the technical end of the business, and actively promoting the users themselves as the most important creators of the WELL's product.

Staff members were encouraged to be visible online and to be active listeners to user concerns in their respective areas of responsibility. Staff took part in discussions not only about technical matters and customer service, but about interpersonal online ethics. When the inevitable online quarrels surfaced, staff participated alongside users in attempts to resolve them. Over time, both staff and users learned valuable lessons and a "core group" of users began to coalesce around the idea that some kind of community was forming and that it could survive these periodic emotional firestorms. The ethical construct that one could say whatever one wanted to on the WELL, but that things worked best if it was said with consideration of others in mind, became ingrained in enough peoples' experience that community understandings developed. These "standards" were not written down as rules, but are noted conspicuously in the WELL's User Manual and are mentioned online as observations of how things really seem to work. Productive communication in this medium can take place if it is done with care.

Beginning in 1986, the WELL began sponsoring monthly face-to-face gatherings open to all, WELL user or not. Initially, these Friday night parties were held in the WELL's small offices, but as attendance grew and the offices became even more cramped, the potluck gatherings, still called WELL Office Parties (or WOPs) moved to other locations, eventually finding a regular home at the Presidio Yacht Club near the foot of the North end of the Golden Gate Bridge. These in-person encounters have been an integral and important part of the WELL's community-building. They are energetic, intense, conversation-saturated events where people who communicate through screen and keyboard day after day get to refresh themselves with the wider bandwidth of physical presence. Often, the face to face encounter has served to resolve situations where the textual communications have broken down

between people.

## **Collaboration Part II**

The WELL was a bootstrap operation from its initial investment in 1985. As a business venture, it was undercapitalized and struggled constantly to stay ahead of its growth in terms of its technical infrastructure and staffing. At the same time, it stuck to the ideal of charging its users low fees for service. The undercapitalization of the WELL and the low user charges combined to force management into a constant state of creative frugality. From the first days of operation, the expertise and advice of users was enlisted to help maintain the UNIX operating system, to write documentation for the conferencing software, to make improvements in the interface and to deal with the larger problems such as hardware malfunctions and upgrades.

Over the years, many tools have been invented, programmed and installed at the suggestion of or through the actual labor of WELL users. In an ongoing attempt to custom design the interface so as to offer a comfortable environment for any user, the WELL has become, if not a truly user-friendly environment, a very powerful tool kit for the online communications enthusiast. One of the basic tenets of the WELL is that "tools, not rules" are preferred solutions to most people-based problems. Menu-driven tools were created to give control of file privacy to users, allowing them to make their files publicly-readable or invisible to others. The "Bozo filter", created by a WELL user, allows any user to choose not to see the postings of any other user. Some WELL veterans, after years of teeth-gritting tolerance of an abrasive individual, can now be spared any online exposure to or encounter with that individual.

Other tools have been written to facilitate file transfers, to allow easy setup of USENET group lists, to find the cheapest ways to access the WELL, and to extract portions of online conversations based on a wide range of criteria. These tools have all been written by WELL users, who received only free online time in exchange for their work, or by WELL employees who were once customers.

Free time on the WELL (comptime) has always been awarded liberally by WELL management in exchange for services. At one time, half of the hours logged on the WELL in a month was uncharged, going to comptime volunteers or staff. Hosting conferences, writing software, consulting on technical issues and simply providing interesting and provocative conversation have all earned users free time on the WELL. Much as we would have liked to pay these valuable people for their services, almost to a person they have continued to contribute to the WELL's success as a business and public forum, demonstrating to us that they considered the trade a fair one.



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## **Conclusion**

As can be seen, the WELL developed from its unusual roots in some unique ways. The purpose of this piece is not to advocate more WELL clones on the Net, but to demonstrate that if the WELL could make it, other systems of the WELL's size and general description could spawn from equally unique circumstances around the country and offer their own special cultural treasures to the rest of the world through the Internet. What has been learned at the WELL can certainly be of value when planning new systems because the WELL experiment has demonstrated that big funding bucks, elegant interface design, optimum hardware and detailed business planning are not essential to growing a thriving online community and, in the WELL's case, a successful for-profit business. More important is that the owners and managers of the systems openly foster the growth of online community and that there be a strong spirit of open collaboration between owners, managers and users in making the system succeed. These critical elements of viable community systems are attainable by local and regional civic networks, small organizations and entrepreneurs with limited funding and technical skills... and some heart.

## **About Cliff Figallo**

Cliff Figallo (fig@eff.org) is a Wide Area Community Agent who also works part time as Online Communications Coordinator for the Electronic Frontier Foundation. Before coming to work at EFF, Cliff was Director of the Whole Earth Lectronic Link for six years (Aug '86 through July '92). Cliff now lives in the San Francisco area and works remotely at his job using the Internet, Pathways, the WELL, CompuServe and America Online daily. He can be reached via email at the following addresses:

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