NorthWestNet

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Section 2: The Basic Tools

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How To Get NUSIRG

THE NORTHWESTNET USER SERVICES INTERNET RESOURCE GUIDE

You can either get NUSIRG at no charge by the Internet "File Transfer Protocol" (FTP), or you can purchase a bound copy from NorthWestNet. If you have a connection to the Internet, you are encouraged to follow these instructions for using FTP to obtain NUSIRG. If you can't use FTP (or don't know how yet!), instructions on how to order a printed and bound copy from NorthWestNet are included on the next page.

Free Copies of NUSIRG By File Transfer Protocol (FTP)

NUSIRG is available at no charge, by FTP, as text-only or PostScript files. The text-only files are in a simple format which can be printed by most kinds of printers or viewed on-screen with most text editors. The PostScript files produce output which is essentially identical to the bound version of NUSIRG.

If you have access to a computer connected to the Internet, all you have to do is follow the simple instructions below.

Note: commands you type are shown in the left hand column in lower case (don't type the #'s!); UPPER CASE and ">" indicates prompts from the computer that will appear on your screen.

What you type (or what you'll see)	Explanation
1) ftp ftphost.nwnet.net	Connect to the NorthWestNet FTP host.
2) LOGIN: anonymous	At the "LOGIN:" prompt enter "anonymous".
3) PASSWORD: your-user-id@address	At the "PASSWORD:" prompt, please enter your user-id@your.full.internet.address (e.g., robessin@uwvvd.derrg.edu).
4) FTP> cd nic/nwnet/user-guide	Change directories (cd) to the directory containing FTP copies of NUSIRG.
5) FTP> get README.nusirg	Use the "get" command followed by a filename from the list on the next page to copy a file; get "README.nusirg" first, which contains the most up-to-date information about NUSIRG files.
6) FTP> ls	The "ls" command will produce a listing of the names of the files in the NUSIRG directory (see below).
7) FTP> quit	The "quit" command will end your FTP session.

The file "README.nusirg" contains more detailed information about the files in the NUSIRG directory.

Files in the NUSIRG directory	Description of file's contents
README.nusirg	A detailed description of NUSIRG files.
nusirg,Index.ps	Index for all of NUSIRG
nusirg.Index.txt	
nusirg.about.nwnet.and.aup.ps	NWNET & NSFNET backbone information and policies
nusirg.about.nwnet.and.aup.txt	
nusirg.beginner.overview.ps	Overview of NUSIRG and the Internet.
nusirg.beginner.overview.txt	
nusirg.email.ftp.telnet.ps	Basic Internet tools: e-mail, FTP, TELNET and Archie
nusirg.email.ftp.telnet.txt	
nusirg.listserv.usenet.ps	Using USENET and LISTSERV.
nusirg.listserv.usenet.txt	
nusirg.online.info.resources.ps	On-line books, libraries, databases, WAIS, and directory services
nusirg.online.info.resources.txt	
nusirg.supercomputers.ps	Supercomputer use and access information.
nusirg.supercomputers.txt	
nusirg.teach.k-12.ps	The Internet and K-12 education.
nusirg.teach.k-12.txt	
nusirg.whole-guide.ps.tar.Z	All of NUSIRG in compressed and archived format.
nusirg.whole-guide.txt.tar.Z	

Notice that the file names above occur in pairs differing only in the last parts of their names. Files ending with "ps" are in PostScript format and cannot be printed unless you have access to a PostScript printer. You should not copy the files whose names end with "tar.Z" unless you know how to handle compressed and archived files, which is explained in the file "README.nusirg".

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If you would prefer to purchase an already printed and bound copy (or if you are unable to use FTP), NUSIRG is available for $20.00 per copy from NorthWestNet.

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e-mail:	nusirg-orders@nwnet.net
phone:	(206) 562-3000
fax:	(206) 562-4822

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ELECTRONIC MAIL, FTP, AND TELNET

Section 2 of NUSIRG introduces you to the three basic tools for using the Internet. Once you've mastered Electronic Mail, FTP, and TELNET, you will be able to take advantage of most all Internet services.

ELECTRONIC MAIL (E-MAIL)

Electronic Mail is used to send messages to other people and even programs on other computers. You'll learn the basic principles of using e-mail within the Internet, and "e-mail etiquette" which apply to all forms of electronic communication with other people. At the end of this sub-section, you'll learn how to use "mail gateways" to send e-mail messages to users and computers which are not part of the Internet networks.

FTP

The File Transfer Protocol (FTP) is for copying information from one computer to another. By knowing how to use FTP, you will be able to access free information from computers throughout the world. As you will notice, many of the documents to which you are referred for more information throughout NUSIRG are from FTP archives, so you'll have many opportunities to practice your FTP skills! This sub-section also includes information on how to handle archived, compressed, and binary files, which require special attention during or after an FTP transfer.

TELNET

TELNET allows you to actually login to and use many computers on the Internet. A modified version of TELNET called "tn3270" is often used for accessing Internet services on IBM mainframes. You'll be shown how to use TELNET to access many valuable Internet applications throughout the rest of NUSIRG, including electronic library catalogs, online databases and Internet directory services. As examples of TELNET services, you'll learn how to use a typical online Information Service, and the "Archie" program, which is designed to search through hundreds of FTP archive catalogs around the world.

Chapter 3: Electronic Mail

He opened the geography to study the lesson...they were all different places, that had those different names. They were all in different countries...and the countries were in continents, and the continents were in the world, and the world was in the universe. He turned to the flyleaf of the geography, and read what he had written there:

Stephen Daedelus
Class of Elements
Clongowes Wood College
Sallins
County Kildare
Ireland
Europe
The Universe

James Joyce
Portrait of the Artist as a Young Man (pg. 15)

GETTING STARTED WITH ELECTRONIC MAIL

What Is Electronic Mail?

In most ways, electronic mail (or "e-mail") is very much like regular, postal mail. It is used to send letters or other information to other people.

Instead of being delivered by the postal service to a person's house or business, e-mail is sent through a computer network to a person's computer.

What Can You Do With Electronic Mail?

You can use e-mail for most of the same purposes for which you can use postal mail (except for mailing physical objects).

Even better, an e-mail message usually gets to its destination in minutes or even seconds, rather than in days!

You can also use e-mail to communicate with special computers called "mail servers," which automatically respond to certain commands, and can send you information or files back by e-mail. This document includes an example of using a mail server so you can get some experience using e-mail on the Internet.

What Do You Need To Know To Use Electronic Mail?

Because you probably already know how to write and send letters, you can understand e-mail by thinking about its similarities to regular US postal mail.

Suppose you wanted to write a letter to your aunt Susan Rose Allen to ask if you could stay at her farm the second week of July. All you'd have to do would be to:

1. write your letter;
2. put her name and address on an envelope;
3. and put your letter in a mailbox (Example 1).

Using e-mail is just as simple, and involves exactly the same three steps:

1. write your e-mail message on a computer;
2. include the person's user-id and e-mail address;
3. and then send your e-mail message!

Example 1: A typical US mail letter:

James T. Allen
12345 NE 47th Ave.
Seattle, Washington (1)
June 1, 1991

Susan Rose Allen
Idaho Creek High School
12 Apple Tree Lane
Idaho Creek, Idaho

Dear Aunt Susan,
Do you think I could visit you the second week of July? I promise to help you pick cherries from your orchard! Well, I'd better stop writing, the mail truck is coming by in a few minutes. Please write back soon!

James

Example 2: A typical e-mail message:

Date: Mon., 6 June 91 14:22 PST
From: jt_allen@jrhs.lkside.wash.edu
To: sr_allen@hs.idacrk.idaho.edu
Subject My first e-mail message!

Dear Aunt Susan,

Thanks for letting me know I could visit starting July 15th. When I'm there, do you think your friend the geology teacher, Bill Diaz, could take me prospecting again in the mountains? I really enjoyed riding pack horses into the canyon last summer!

Please send me a computer message back soon...This is my *first* time using e-mail and I want to be sure this gets to you. I can't believe that I can use this computer to write a message to you in Idaho!

- James

1. Everybody Using The Internet Has A "User-id"

Before you mail a regular letter, the first thing you should know is to whom it will be sent. Usually, you'll put that person's regular name on the envelope.

If you want to send e-mail to someone, you have to know their user-id. The term "user-id" is an abbreviation for USER-IDentification, and is generally pronounced "user eye dee". User-ids are often assigned by computer network authorities at a person's school or workplace.

Let's look at the beginning of the second and third lines of the simple e-mail message (Example 2):

```
From:   jt_allen
To:     sr_allen
```

The first line indicates that the message is from user-id "jt_allen" (James Trevor Allen) and that the message is going to user-id "sr_allen" (Susan Rose Allen).

In this example, the user-id's are made in a very easy-to-understand way that you'll probably see very frequently. Both of these user-id's were made by putting together a person's first and second initials, an underline, and then the first five letters of their last name.

But don't forget, there are many other ways to construct user-ids!

Here are some other ways Susan Allen's name might be turned into a user-id at other Internet sites:

```
ALLSUSR     (ALLen, SUSan, Rose )
ALLENSR     (ALLEN, Susan, Rose )
SUSRALL     (SUSan, Rose,  ALLen)
NRG1234T    (a completely arbitrary user-id assigned to Susan)
```

So just because you know someone's regular name doesn't mean you can guess their user-id. You usually need to know a person's user-id before you can try to send them e-mail. Later in this user's guide, you'll learn how to find a person's user-id if you already know their real name, but there are a few other things that we need to cover first.

If you're looking at Example 2 right now, you're probably wondering what the rest of the lines 2 and 3 are all about.

What in the world does "sr_allen@hs.idacrk.idaho.edu" mean?

It means where (at what computer) in the Internet world Susan Rose Allen, with user-id sr_allen, has a computer account.

2. Every User-id Is At ("@") A Computer Address

Once you know a person's name, the next thing you have to know if you want to write them a regular letter is their regular mail address.

The same is true for e-mail: you need to know that person's e-mail address. Luckily, Internet addresses are put together in almost the same way as regular mail addresses.

Look at Susan Allen's regular mail address in the US mail letter in Example 1. After her name, there are four parts to her address. This address starts with the most local information (her school) and ends with the most general (her state).

This standard way of writing an address helps the postal service find the right person in the right town in the right state. After all, there might be 2 different Susan Allens in Idaho Creek, 20 different Susan Allens in Idaho, and 2,000 different Susan Allens in the United States!

Computer addresses (or domain names) usually follow the same rules as postal addresses for the same reasons. Here are some important facts about Internet domain names:

- ❏ You read a computer's Internet domain name left to right; the first name is usually the name of a particular computer, and the last name is the abbreviation for a national or international computer domain (e.g., "edu" for the EDUcational part of the U.S. portion of the Internet, "au" for the Australian portion of the Internet, etc..).
- ❏ Each part of a computer's domain name is separated by a period, instead of being on a new line.
- ❏ E-mail addresses use many abbreviations.
- ❏ The particular words in each part of a domain name may have meaning, only to site administrators. Each site is responsible for choosing their own domain name, and the may as easily choose to name their computers after a cartoon character or a famous author as after a geographical location.

For more information about Internet domain names, see "Internet Addresses" in Chapter 2.

Well, now, let's put Susan's postal and e-mail address into the same format and compare them:

e-mail:	hs.idacrk.idaho.edu
US Mail	HighSchool.IdahoCreek.Idaho.USA

How Do You Use E-mail?

There are many kinds of e-mail software programs, each with different special features--so it's impossible to include instructions for every kind of e-mail software in this document. These instructions would be about 100 pages longer, and would contain a great deal of information that you--and many other people--wouldn't need!

Hopefully, your instructor or your computer center staff can help get you started with the particular e-mail software used by your computers. But no matter what mail software you use, you will usually go through a few simple steps when you send e-mail.

The Basic Steps For Sending E-mail

Step 1. You start a mail software package by typing it's name (or on computers like the Macintosh, clicking on an icon). Mail packages are often called something like "mail" or a name containing the word "mail."

Step 2. You will usually be asked to supply one or more user-ids and e-mail addresses as your list of recipients.

Step 3. Very often you will be asked to supply a "subject," which should be a brief description of what the letter is about. Many mail software packages offer additional useful features for the "envelope" of the electronic letter, such as "cc:" for the sending of "carbon copies."

Step 4. To draft your letter, you will usually then be able to use a mail editor, which is similar to a simple word processing program.

Step 5. When you are done typing your message, you can send your e-mail message!

Receiving Incoming Mail E-mail

Usually the same mail software which allows you to write and send mail is also used for receiving and for displaying your mail.

Incoming mail is usually stored in an electronic "mailbox" or "mailbook" which allows you to scan the subjects and user-ids of mail that has been sent to you, just like you might riffle through a pile of mail that has arrived at your house.

You can read the mail with the mail editor, and send a reply back to the user-id and e-mail address in the line labelled "from."

Retrieving Files via E-Mail from Electronic Mail Servers

E-mail can also be used to send messages to computers on the network which will automatically send back information that you have requested. Such computers are sometimes called "mail servers."

Electronic mail servers (sometimes referred to as "file servers") are programs which accept a few special commands to retrieve files from "file archives."

To use an electronic mail server, send an e-mail message to the mail server's Internet address, and put requests to the mail server in the body of your mail message. Sometimes, but not always, mail server commands can be placed in the "subject:" line as well.

To get started with a mail server, you should try sending e-mail with the word "help" in the message. Often, within a short time (usually minutes, but sometimes as long as a day) you should receive a message in your incoming mail with a description of how to use that particular mail server, and sometimes, detailed descriptions of what files that particular mail server contains.

There are many mail servers located throughout the Internet. Here's a brief list of some mail servers containing files of general interest:

E-Mail Address	Partial Description of Contents
almanac@oes.orst.edu	Agricultural information, Electronic Books
archive-server@ames.arc.nasa.gov	NASA and space related files
mail-server@pit-manager.mit.edu	Many files useful for new Internet users, such as "FAQ" files (Frequently Asked Questions), as well as a large number of archives of USENET newsgroups
netlib@research.att.com	Mathematical source code and algorithms.
netlib@uunet.uu.net	A large collection of files on many different topics: source code for most kinds of personal computers, archives of USENET newsgroups.
service@nic.ddn.mil	Internet information files including RFCs and FYIs

For example, you can send mail to a computer service run by the Oregon Extension Service called "Almanac" which contains a wide variety of educationally valuable offerings such as "electronic books," and an enormous amount of information from the Department of Agriculture which you can have sent to you simply by sending e-mail.

In this example, you'll send a message to Almanac, requesting a copy of the Declaration of Independence!

Step 1. Start your mail program

Step 2. Address a mail message to the following Internet user-id and address:

almanac@oes.orst.edu

Step 3. You don't have to include anything in the subject line

Step 4. In your mail editor, type the following message:

send guten dec-of-ind

"Guten" is short for "Project Gutenberg", a non-profit organization dedicated to creating free electronic versions of the world's great literature and "dec-of-ind" is the file name for the Declaration of Independence.

Step 5. Send the mail message.

Step 6. In a short while, you should receive e-mail from Almanac. If you did everything right, it will be a copy of the Declaration of Independence! If you made a mistake, the e-mail message from Almanac will give you a hint about what you did wrong, and how to send a correct request.

If you want more information about Almanac, you can send an e-mail message to Almanac containing one of the following messages:

send guide (to get a copy of the Almanac Guide)

send topic catalog (to get a copy of Almanac's holdings).

For More Information About Electronic Mail

For more information about specific electronic mail software, consult your local users service staff or your instructor. If you are using a mainframe computer, you may also be able to get help by typing "man mail" (on UNIX computers), or "help mail" (on most other mainframes).

Many of the technical details about how e-mail is packaged and handled on the Internet are specified in the following "RFCs" (Requests for Comments):

RFC822 Crocker, D.H. Standard for the Format of ARPA Internet Text Messages
RFC821 Postel, J.B. Simple Mail Transfer Protocol
RFC974 Partridge, C. Mail Routing and The Domain System

These and all other RFCs can be obtained from a number of FTP archives around the world. One currently authoritative FTP archive for RFCs is:

FTP Host:	nnsc.nsf.net	
directory:	rfc	
files:	rfc-index.txt	a current index of all RFCs
	rfc1000.txt	each RFC is named rfcXXXX, where
	etc...	"XXXX" is the RFC number, e.g., rfc822

For more information about using FTP (File Transfer Protocol), refer to chapter 4 of NUSIRG.

For More Information About Electronic Mail Servers

Jonathan Kamens of MIT maintains a file called "How To Find Sources" which contains a listing of useful electronic mail servers (along with many other useful sources of information). Rather appropriately, this file is itself available from a mail server.

To get this file, address an e-mail message to:

mail-server@pit-manager.mit.edu

containing the following message, all on one line, with every character entered EXACTLY as shown:

send usenet/comp.sources.wanted/How_to_find_sources_(READ_THIS_BEFORE_POSTING)

ELECTRONIC MAIL ETIQUETTE

Undirected by culture patterns--organized systems of significant symbols--man's behavior would be virtually ungovernable, a mere chaos of pointless acts and exploding emotions, his experience virtually shapeless. Culture, the accumulated totality of such patterns, is not just an ornament of human existence but ... an essential condition for it.

Clifford Geertz
The Interpretation of Cultures (pg. 46)

More often than not, what brings a stranger to his knees here is waving. Waving--it looks like a simple act, but it's almost as complicated as spoken Minnesotan.

Howard Mohr
How To Talk Minnesotan (pg.182)

There are a number of important and generally agreed upon do's and don'ts which you should at least consider when you use e-mail.

Of course, as with all kinds of etiquette, there are no absolute right and wrongs, only modes of behavior which are deemed acceptable by the community of people with whom you are communicating. Therefore, these should be treated as suggestions, rather than inviolable rules.

This list may seem long and somewhat arbitrary, but after reading many mail messages from many other people (and examples 1 and 2, which, respectively, follow and violate these suggestions), you will probably understand why these principles make good sense.

Etiquette and E-mail style

Here is a list of some simple guidelines or suggestions for using electronic mail acceptably:

- Be brief. You can often fit everything you need to communicate in one screen of text.
- Try to keep the length of the lines in your e-mail below 65 columns; short lines are easier to read, especially on a computer screen, and other people's terminals may not be able to display more than 70 columns, so they may not be able to read the ends of long lines.
- Use blank space between paragraphs or other logical units of text to break the text up for the eye.
- Use mixed upper and lower case and standard capitalization. Mixed-case text is much easier to read than all lower or all upper case; even worse, USING UPPER CASE WHEN YOU WRITE IS LIKE SCREAMING WHEN YOU SPEAK!
- Most computer terminals do not display underlined or italicized characters, which are commonly used to provide emphasis in handwriting. So, if you want to emphasize something, you can use all-capital letters for what you REALLY want to emphasize. Another way to emphasize a word is to put asterisks,

underlines, or other special characters at the beginning and end of a word or phrase, like *this*, or like _this_, or >even< like that!

- ❏ Keep your paragraphs short; in general, fewer than 15 lines should be about right. (Notice how much easier it is to read this paragraph than the one above.)
- ❏ Avoid using control sequences (like "ctrl z") or special keys (like tab bars), even if they seem to work fine while you are editing your mail document. Such special characters may alter the display of your message making it virtually unreadable on the other person's computer terminal.

Etiquette and E-mail content

- ❏ Begin your text with the name of the person to whom you are writing, just like you'd begin a regular letter. Even though the person's name is in the mail header, starting your text with their name makes your message seem more personal.
- ❏ If you are responding to someone else's mail, you might want to include short, relevant passages from the original message. This will be useful to establish context, or give your e-mail more of a conversational tone. The standard convention used in the Internet community is to:

  > begin each line from their message with a "greater than" sign, like this.

  Some mail software allows you to automatically include someone else's mail message in your outgoing message. You are then free to edit out the lines you don't want to include. Be careful *not* include their entire message unless you have to! This wastes resources used for transmitting and storing mail, and may waste the time of the person to whom you are writing.
- ❏ Never forget that the person to whom you are sending mailing is another human being, with feelings and beliefs that may be very different from yours! This can be easy to forget when you are sitting at a computer terminal, writing a mail message to a person you might never have met in real life, and about whom you may know very little.
- ❏ In face-to-face conversation, there are many subtle cues provided by body language and intonation that let us know how what we are saying is affecting the other person. These cues are completely absent when using e-mail, so strive to be concise, clear, and polite in your own writing, and flexible in your interpretation of other people's mail. This follows an old networking axiom: "be precise in what you send, and forgiving of what you receive."
- ❏ Since e-mail doesn't contain physical cues, a number of conventions peculiar to e-mail have been developed. In particular, a "smiley" is used to indicate that the previous statement that is meant in a light-hearted or humorous way. "Smileys", when looked at sideways, look vaguely like "stick drawings" of human faces. There are hundreds of smileys that can be made with the basic characters of a keyboard, each of which conveys a slightly different meaning. Here is a small audience of smileys to give you an idea:

  :-) the basic smiley

  ;-) the winking smiley

  ;^} a slightly more sinister winking smiley

  :-\ a consternated smiley

- ❏ End the text of your message with your name. Again, this makes your mail feel more personal to the reader.
- ❏ With some mail software, you can easily create a file called a "signature" (or "sig") which is automatically added to every outgoing mail message you send. If you *do* use a sig

- Keep your sig short, fewer than five lines is enough.
- Don't include a lot of graphics made of letters and characters, lists of all possible telephone numbers, postal, and e-mail addresses at which you can be contacted, or your favorite quotes.

At the very least, such sigs can be annoying, and at worst, they take up space in other people's computers.

❑ And finally, before sending off your e-mail message:

- Look over what you have written.
- Make sure you've said everything you needed to say.
- Make sure you haven't said things you didn't need to say.
- Make sure you've used correct spelling and grammar. splling errers end bad grammers make it harder for uther peeple to reed what you wrought.:^)

Etiquette and the Sending of E-mail

Many mail software packages allow you to add a person's real name to the "TO:" field. This adds a humanizing touch to your mail messages. Most people prefer to be called by their real names, rather than some arbitrary user-id!

Use short, informative, subject lines. You can usually summarize what your message is about in fewer than 40 characters; and in many cases, software for receiving e-mail only displays the first 15 or 20 characters!

Most mail software packages have a "CC:" (Carbon Copy) option. This will cause your mail to be sent to additional people who are at least marginally interested in what you have sent to the person indicated in the "TO:" field. For example, in the correspondence between Bill Diaz and James Allen in the Introduction to Mail section of this User's Guide, Bill and James might "CC:" Susan Allen on many of their messages. This is a very sensible thing to do since Susan will want to know how Bill and James' plans would affect the timing and activities of James' visit to Idaho Creek.

In Summary:

The following page summarizes all of these points of e-mail etiquette.

The page after the e-mail etiquette summary gives examples of these do's and don'ts in action:

- Example 1 illustrates the intelligent and tasteful use of these rules of etiquette and style. See how much more pleasant and easy to read it is than Example 2, which violates every rule that has been suggested.

- Example 2 may seem extreme, but as everyone who has used the Internet can attest, such examples*do* occur! Such an e-mail message is an embarrassment for the person sending it, and an annoyance to the person(s) receiving it.

The Basic Principles of E-mail Etiquette

Be brief.

Keep line lengths to less than 65 columns.

Use blank spaces between paragraphs to help the reader's eye.

Use mixed upper and lower case.

Use capitals AND special characters for *emphasis*!

Keep your paragraphs short. Fewer than 15 lines is best.

Avoid control characters or special keys.

Begin text with the real name of the person you're writing.

If useful, include parts of mail to which you are replying.

End the text of your message with your real name.

If you use a "sig", keep it short and simple.

Review what you've written BEFORE you send it.

Include the person's real name in the "TO:" line of the header.

Use the "CC:" option if available and if appropriate.

Example 1: E-Mail Following Suggested Etiquette Guidelines

```
Date: Wed. 8 June 91 10:45 MST
From: Bill Diaz <wt_diaz@hs.idacrk.idaho.edu>
To:   Jim Allen <jt_allen@jrhs.lkside.wash.edu>
CC:   Susan Allen <sr_allen@hs.idacrk.idaho.edu>
Subject:    Prospecting in Ponderosa Canyon

Jim,

I'm *delighted* to hear you're visiting this summer! In your last letter to
Susan, you wrote:

> When I'm there, do you think that geology teacher Bill Diaz
> could take me prospecting again in the mountains?

Well, absolutely! I'd be glad to have you come along!  I've planned a trip
from July 24-27, if that fits with your plans.  Here's some things to get
ahold of before you visit:

      a geological hammer
      a good field guide for rocks and minerals
      a *light* sleeping bag (remember how HOT
      you were in that down bag last summer? :-)
      a sturdy pair of hiking boots
      a pair of plastic sunglasses


If you need advice on what to get, feel free to contact me!  Take care,

Bill

49 Pear Tree Lane
Idaho Creek
Idaho
```

Example 2: E-Mail Violating Suggested Etiquette Guidelines

```
Date:    Wed. 8 June 91 10:45 MST
From:    wt_diaz@hs.idacrk.idaho.edu
To:      jt_allen@jrhs.lkside.wash.edu
I'm delEted to hear that you're visiting us in Idaho Creek again th
r!  I'd be happy to have you come pospecting.  I've already planned
 a m July 24-27. Here's some things you should prbably bring along:
^Z logical hammer, a g   od field guide f     rocks and minerals, a
     light sleep if    king boots, and     sunglasses with plastic
    boots would be    Free to MAil ba     ser-id. Here's my sig!/-
^  ^           /  \    /\       /\  \  |  /  /'tis a gift to be sim
    ^ _        /----\  /  \     /  \  \ | /  /'tis a gift to be free
     / \      / /\/\ \/----\   /----\  \ /  /+--------------------
    /   \    /"home is\       /      \  O  /    |__   o    |     |
   /     \ / where the\              \   /     |  \  |    |     |
  /       \heart is"   \                       |__/ _|_  _|_  _|_
tel: (208) 999-1234 (home) 999-4321 (woodshed) 999-3456 (car fax)
user-ids:  dt_diaz@hs.idacrk.idaho.edu (INTERNET) dt_diaz@idacrkh
```

For More Information About E-Mail Etiquette

Most of the principles discussed in this chapter are derived from the following sources:

Published Articles

Quarterman, J. S. 1989. "Etiquette and Ethics", ConneXions--The Interoperability Report 3(4):12-16. Advanced Computing Environments, Mountain View, CA.

Online Information

The following articles are "periodic postings" which appear in the USENET newsgroup "news.announce.newusers". Although they are aimed specifically at USENET users, many of the principles they espouse are relevant to all electronic mail communication. For more information on how to use USENET, see Chapter x of NUSIRG, "Using USENET."

Offutt, A.J., and G. Spafford 1991. "Hints on Writing Style for USENET."

Templeton, B., and G. Spafford. 1991. "Emily Postnews Answers Your Questions on Netiquette." (A tongue-in-cheek, very funny, but very informative essay on what not to do in electronic mail, especially in USENET postings).

Von Rospach, C. and G. Spafford. 1991. "A Primer on How to Work With the USENET Community."

ELECTRONIC MAIL GATEWAYS: SENDING MAIL BEYOND THE INTERNET

What Are Electronic Mail Gateways?

Mail gateways are computers which allow mail and other messages to be transmitted between networks which use different methods of addressing and packaging information.

Why Are Gateways Necessary?

Many computer networks are not part of the Internet, and do not use the Internet Protocols (IP). Recall that if you want to send an e-mail message anywhere in the Internet you would use the standard IP address format:

user-id@an.Internet.host.address

But many networks use very different formats for their addresses. As an extreme, here's an example of an address in SprintMail, which is not an Internet network:

[user/organization]system/country

Internet mailers cannot read this address, because it contains information and symbols which are not part of an Internet address. (Much like your postman might have trouble delivering a letter with an Internet address!) Furthermore, the actual way in which mail messages are packaged in other networks may be considerably different.

Mail gateways are able to resolve differences in both addressing and packaging when transmitting information between networks.

How Do You Use Electronic Mail Gateways?

You need to know four things to send mail to users and computers on other networks:

- ❏ The addressing convention of the network to which you are sending mail;
- ❏ How to "package" the address information for the other network in a way that it will not be inadvertently modified on its way to the intended destination;
- ❏ The address of the appropriate gateway computer, and, of course,
- ❏ The address information of the person or computer on the other network.

All of the information you need to answer questions 1-3 for many of the more commonly used non-Internet networks is provided in Table 1.

The basic strategy used by mail gateways from the Internet to other networks is to put the other network's addressing information in the "user-id" field of the Internet DNS address. It is also necessary to provide the Internet address of the appropriate e-mail gateway.

For example, suppose you want to send an e-mail message to a user who has an account on a BITNET host. The typical user-id and e-mail address within the BITNET network looks like this:

bituser@bithost

To send an e-mail message to our friend "bituser" from a computer in the Internet, we need to include their user-id, their particular BITNET host's name, and the Internet address of an Internet-BITNET gateway (gateways between the Internet and BITNET are often referred to as "Interbit" gateways)

Here's a general example of how this would be done:

1. Their BITNET address

   bituser@bithost

2. The address required for forwarding by an Interbit gateway:

   bituser%bithost.bitnet@An.Interbit.Gateway.Address

where "An.Interbit.Gateway.Address" is one of the several computers which are connected to both the Internet and to BITNET, and whose administrators have agreed to provide Interbit gateway services..

How to Use the Mail Gateways Table

As the previous example demonstrates, you need to know the Internet addresses of gateways which are appropriate for sending e-mail to users on non-Internet networks. The "Table of Mail Gateways from Internet to Other Networks" (below) provides this information for some of the many networks to which Internet users frequently send e-mail.

In order to learn how to use this table, work through this example.

Suppose you wanted to send an e-mail message to a friend who has an account on the FidoNet network. They've told you that their FidoNet addressing information is:

Kelley Meithisson at 3:56/67

Look in the first column to find Fidonet. Read across to the line labelled "1)." This shows a typical FidoNet userid and address, which corresponds to your friend Kelley's address information above. Now look at the next line, labelled "2.". This shows how Kelley's FidoNet address should be translated by an Internet user so that an e-mail message will be successfully sent to a FidoNet user. According to line 2, Kelley's FidoNet address should be translated to:

Kelley.Meithisson@f67.n56.z3.fidonet.org

This address is now acceptable to mailers which conform to the Internet standards, and once it arrives at the Internet--Fidonet gateway, it will be translated to a FidoNet address format and delivered within the FidoNet network to Kelley.

Table Of Mail Gateways From Internet to Other Networks

Network	1) addressing syntax within the other network 2) addressing syntax for mail sent from Internet
Applelink	1) user-id 2) user-id@applelink.apple.com
BITNET	1) user-id@site 2) user-id@site.bitnet OR user-id%site.bitnet@An.Interbit.Gateway.Address Notes: At many Internet sites, you can address mail to BITNET users with the simple "user-id@site.bitnet". If this doesn't work, try the following syntax to use one of the Internet--BITNET gateways: user-id%site.bitnet@An.Interbit.Gateway.Address where "An.Interbit.Gateway.Address" is anyone of the following: CORNELLC.CIT.CORNELL.EDU Cornell University CUNYVM.CUNY.EDU City Univ. of New York MITVMA.MIT.EDU M.I.T.
CompuServe	1) 7xxxx,yyy 2) 7xxxx.yyy@compuserve.com
EASYnet/ DECnet	1) user-id@host 2) user-id@host.enet.dec.com
ESnet	1) user-id@host 2) user-id@lbl.dnet.nasa.gov
FidoNet	1) Firstname Lastname at 1:2/3 2) Firstname.Lastname@f3.n2.z1.fidonet.org
JANET	1) user-id@A.Janet.Domain.Address 2) user-id%A.Janet.Domain.Address@nsfnet-relay.ac.uk
MCI	1) FirstName LastName (123-4567), where 123-4567 is an MCI phone id # 2) 123-4567@mcimail.com
PSInet	1) user-id@host 2) user-id%host@uu.psi.com
Sinet	1) node::user-id

	2) user-id@node.sinet.slb.com
	or
	1) node1::node::user-id 2) user-id%node@node1.sinet.slb.com
SPAN	1) user-id@host 2) user-id@host.span.nasa.gov
THEnet	1) user-id::host 2) user-id@node.decnet@relay.the.net
UUNET	1) user-id@site 2) user-id%site@uunet.uu.net
VNET	1) user-id@host 2) user-id@vnetsite.ibm.com

For More Information on Electronic Mail Gateways

A good online source of information about gateways from the Internet to other networks is:

"The Inter-Network Mail Guide," by John Chew, which is available from the following FTP archive:

FTP Host:	ra.msstate.edu
directory:	ftp/pub/docs
file:	internetwork-mail-guide

(For information on how to use FTP, see chapter 4 of NUSIRG.)

Chew's document is also posted periodically to the following USENET discussion groups:

comp.mail.misc
new.newusers.questions

(Please see chapter 7 of NUSIRG for more information on using USENET.) and is available from the following LISTSERV list:

mail:	listserv%unmvm.bitnet@cunyvm.cuny.edu
subject:	(none necessary)
message:	get network guide

For information on how to use LISTSERV, see chapter 8 of NUSIRG.

Printed Books On Gateways

The following three reference books are invaluable resources for understanding the intricacies of electronic mail gateways, specifically, and intercommunication between networks generally:

Frey, D., and R. Adams. 1989. "!%@:: A Guide to Electronic Mail Networks and Addressing. " O'Reilly and Associates, 981 Chestnut Street, Netwon, MA.

LaQuey, T.L. 1989. "User's Directory of Computer Networks." Digital Press, Bedford, MA.

Quarterman, J. S. 1990. " The Matrix: Computer Networks and Conferencing Systems Worldwide". Digital Press, Bedford, MA.

Chapter 4: Using FTP

WHAT IS FTP?

FTP means "File Transfer Protocol." The purpose of FTP is to allow quick and easy transfer of files between computers connected to the Internet.

There are two kinds of FTP access: "anonymous FTP," and what we'll refer to as "full service FTP." We'll start by explaining how to use anonymous FTP.

ANONYMOUS FTP AND FTP ARCHIVES

"Anonymous FTP" allows anyone on the Internet to access computers which contain "file archives." File archives on hundreds of anonymous FTP hosts throughout the world contain:

- text files (such as this document),
- computer software for personal computers and mainframes,
- computer graphics,
- archives of scientific, sociological, historical or other sorts of data,
- archives of on-line discussion groups, and
- and any other kind of information that can be stored in a computer.

"Anonymous FTP hosts" are accessible to all Internet users who have FTP installed on their computers.

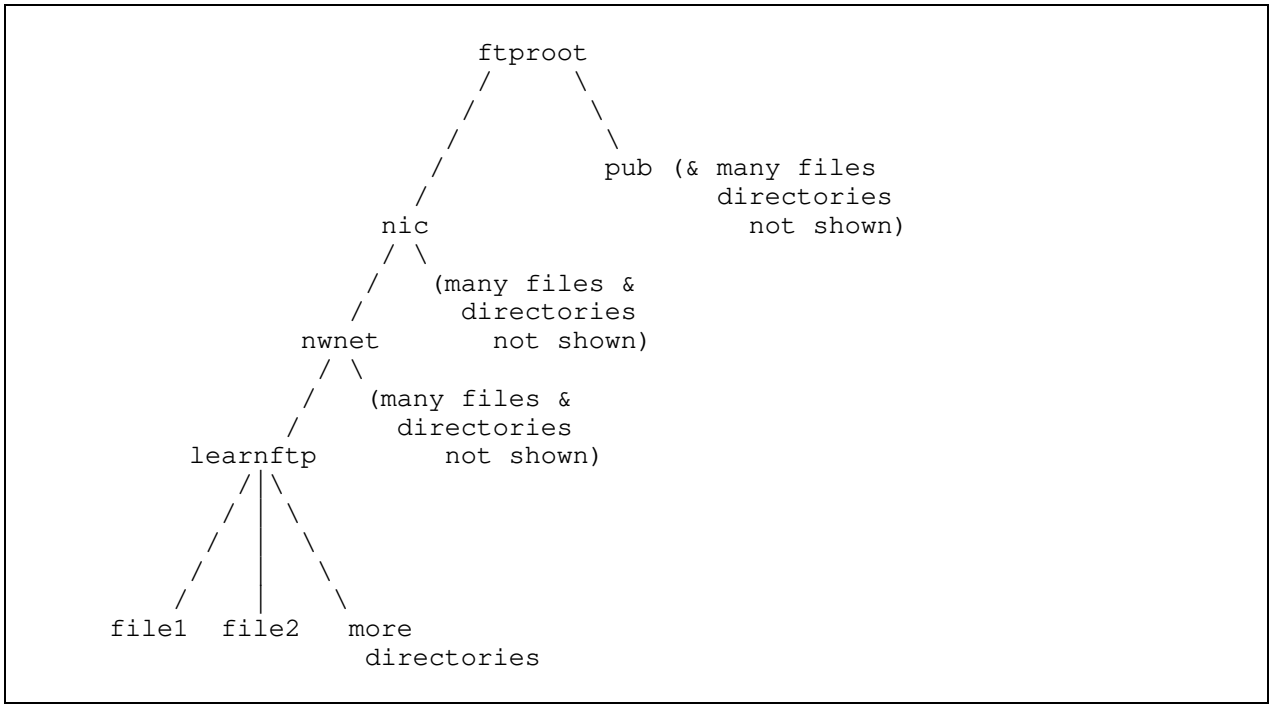
HOW INFORMATION IS ARRANGED IN FTP HOSTS

If you're not familiar with the concept of directories, please read this section before continuing.

The information in most FTP hosts is arranged in a hierarchical file system. a branching system usually diagrammed as an upside-down tree.

The "root" of this tree is the "root FTP directory," which is where you start when you enter an FTP host. You can think of the subdirectories as branches, and files as the tips of branches.

Here's a diagram of the part of the directory structure of the FTP host, ftphost.nwnet.net, which leads to the directories and files we'll be dealing with in this chapter.



Keep this image of an upside down tree in mind whenever you use FTP hosts, and navigating through FTP directories should be much easier for you.

Each directory has a name which describes what it contains. In this example, "nic" is for "network information center," "nwnet" is for "NorthWestNet" and so forth.

Another way of looking at this system is to think of directories as the electronic equivalent of manila folders, which can hold individual documents (files), or even other folders, and so on.

For example, you might have a folder in your desk called "Letters." Inside this folder, you might have other folders labelled "Amie," "Doug," and "Kristine," holding letters to and from these friends. Inside the Kristine

folder, you might also have another folder named "Mexico, 1990," which would hold those letters Kristine wrote to you during her trip to Mexico.

USING ANONYMOUS FTP

Getting started:

On most mainframes, workstations, and many personal computers, you should be able to start an FTP session simply by typing "ftp."

However, if you are using a computer which uses "pull down menus," such as the Apple Macintosh, DOS machines running Windows, and some workstations, you might have to start FTP by clicking an icon. Look for a file called NCSA Telnet, Mac TCP/IP, or any application file which contains the letters TELNET, TCP, IP, or FTP. Once you've launched FTP from a menu driven application, you should be able to follow the examples as they are written, but you might also have the option of automating much of your session with special features from the menu.

The following example will demonstrate and explain the steps you'll need for most anonymous FTP sessions. Everything you should type is printed in lower case letters.

What you want to do:	**What you type:**
1) Start the FTP program:	ftp
2) Select an FTP host:	open ftphost.nwnet.net
3) Identify yourself type your FTP login name type your FTP password	 anonymous (usually)
4) Move to the /learnftp directory	cd nic/nwnet/learnftp
5) List the contents of the learnftp directory	dir (or ls)
6) Copy the file "readme.ftp" to your computer	get readme.ftp
7) Explore the FTP host	cd directory-name (go DOWN tree to a directory) cdup (to go UP the tree one level) pwd (Print Working Directory's name) dir (directory's contents)
8) Quit an FTP session	quit (use anytime)

Feel free to explore! But be careful. You may be surprised to find just how much material you can copy in a very short time.

Commonly Used FTP Commands

Command	Meaning or Action
ftp	start an FTP session
name	identify yourself to an FTP host
password	same
cd (& cdup)	change directories down (and up)
dir (or ls)	list the contents of a directory
ascii	prepare FTP for a text-only transfer
binary	prepare FTP for a binary file transfer
get	copy a file from FTP host to your computer
quit	end your FTP session

A Short List of Particularly Good FTP Hosts

There are thousands of Anonymous FTP sites around the world. The "For More Information" section tells you how to obtain a large list of such sites. In the meantime, here are examples of some generally useful and well organized FTP hosts in the United States so you can start exploring right away. Have fun!

ames.arc.nasa.gov
archive.cis.ohio-state.edu
belch.berkeley.edu
cs.arizona.edu
export.lcs.mit.edu
ftp.cs.toronto.edu
ftp.cs.widener.edu
ftp.uu.net
gatekeeper.dec.com
genbank.bio.net
grape.ecs.clarkson.edu
ics.uci.edu
pit-manager.mit.edu
scam.berkeley.edu
ucsd.edu
uu.psi.com
uxc.cso.uiuc.edu
wuarchive.wustl.edu

An Expanded Sample Anonymous FTP Session

Here's a more expanded version of this one page summary, which describes an FTP session, step by step. Note that after typing a command, you should press the RETURN or the ENTER key (whichever works) to send what you've typed to the FTP host. If you're feeling adventurous, try one of the FTP hosts above and do some exploring!

Step 1. Starting FTP (the 'ftp' command)

Type ftp (or launch FTP from a pull down menu):

```
ftp
```

You should now see the FTP prompt, which will be with you throughout your FTP session:

FTP>

Step 2. Opening a Connection to an FTP Host (the 'open' command)

To establish a connection to an FTP host, just type "open" followed by the full Internet address of the FTP host. In this example, we'll use the NorthWestNet FTP host to get you started:

FTP> open ftphost.nwnet.net

Step 3. Identifying Yourself to the FTP Host (name & password)

Supply a user-id and password.

The user-id is usually "anonymous". Almost all FTP sites will accept the word "guest", but sometimes you will see a message, like this one, that asks for "your ident" or "your real ident". In such cases, the FTP administrator would like you to type in "your-user-id@your.internet.address" as the password:

FTP> NAME (FTPHOST.NWNET.NET:): anonymous
FTP> Guest login ok, send ident as password: your-user-id

Step 4. Changing Directories (the 'cd' command)

You are now ready to locate the files you want to copy. We've set up a special directory in the NorthWestNet FTP host to teach you how to use FTP. To get to this directory, type:

FTP> cd nic/nwnet/learnftp

'nic' means 'Network Information Center'; the meanings of the rest of the directory names should be apparent...

Step 5. Listing the Contents of a Directory (dir & ls)

Now ask ftphost.nwnet.net for a listing of the contents of the "learnftp" directory. Most FTP software supports two commands to display listings of a directory's contents--you can use:

ls display a simple listing of files, or
dir display a list of files including directory information

Here's a comparison of the listing of the learning directory provided by '"ls" and "dir"' (Don't forget that the FTP host will print out other messages as well. We just want you to concentrate on the listings of the files and directories as shown below.)

FTP> ls

readme.ftp
compressed-files
explore.ftp
ftphost.list.txt
ftphost.list.Z

FTP> dir

```
-rw-r--r--     1 20080        staff          4532     Oct 22 2:01          README.ftp
```

```
drwxr-xr-x     1 bin          system         512     Oct 22  9:17          compressed-files
-rw-r--r--     1 20080        staff          5365    Oct 23 4:02           explore.ftp
-rw-r--r--     1 20080        staff          49462   Oct 23  1:03          ftphost.list.txt
-rw-r--r--     1 20080        staff          168372  Oct 22 9:14           ftphost.list.Z
```

Using "ls" gave a quick and simple list of the contents of the directory. Using "dir" provided considerably more information. Most importantly for our purposes right now, the command 'dir' allows us to determine:

a. Whether the entry is a file or a directory (in column 1, '-' means file, 'd' means directory), you cannot use FTP to get directories, only files.

b. The size of the file in bytes (the column before the months). You should make sure the files you are about to copy will fit in your local computer.

c. The date and time of creation of the file or directory. This information is useful if you know that a certain file is in several FTP hosts, and you want to try to get the most recent copy.

d. The last part(s) of a file's name often gives some indication about what format the file is stored in. In this directory, there are different versions of the file 'ftphost.list' which contain the same information, stored in different formats. The file 'ftphost.list.txt' is a text only file, the file 'ftphost.list.Z' is a compressed file.

Step 6. Copying a File (get)

The file "README.ftp" is a standard, text only file, so set your FTP session to ASCII mode, and then use the get command to copy the file to your local computer. (Note that we type the filename **EXACTLY** as it appears: upper case for README, lower case for ftp.)

```
FTP> ascii
FTP> get README.ftp readthis.ftp
```

The file "readme.ftp" has now been copied to your computer, and has been put into your computer as a file called "readthis.ftp" in the directory from which you started FTP.

When copying a file from an FTP archive, you have the option of providing a new name for your local copy of the file. Although files stored in FTP archives usually have informative and easy to use names, you will inevitably encounter some extremes. Some FTP archive maintainers prefer cryptic filenames (e.g., a file could be called "t" in one FTP archive, while other FTP archive maintainers go to an expository extreme and store the same file as "Before-You-Copy-This-GECKO-GRAF.doc-file-be-sure-you-fed-your-cat".)

Strive to create concise and meaningful names for files you've FTP'd. If your computer's operating system uses a hierarchical file system (with directories), thoughtful organization and naming of directories can help tremendously by providing positional information (e.g., you could store the above file in the directory path "cat/fed" as file "GeckoGraf.doc").

Of course, you must be aware of the file naming conventions used by your computer's operating system. For example, IBM PC's running DOS require filenames to fit the following format:

```
A:filename.ext
```

where "A" indicates a disk drive, "filename" is a name no longer than eight characters in length, and "ext" is a filename extension no more than three characters long. For example, the FTP command:

```
get ftphost.list.txt A:ftplist.doc
```

would result in a file on your "A disk drive" with an orthodox DOS name. Other operating systems, such as UNIX and Macintosh OS are less restrictive about filename lengths, but may still prohibit the use of certain characters in filenames.

Step 7. Exploring an FTPhost (cd, cdup, dir, pwd)

If you followed the instructions up to this point, you should currently be in the 'learnftp' directory, within the 'nwnet' directory, within the 'nic' directory. A much easier way of representing this is:

```
/nic/nwnet/learnftp
```

You can type "cdup" or "cd .." to go back one directory, and then "pwd" to print your current directory (Print Working Directory):

```
FTP> cdup
FTP> pwd
```

current directory is /nic/nwnet

You can then type dir to see what's in the "nwnet" directory. If you want to go into a directory within the "nwnet" directory, you'd type

```
FTP> cd directory-name
```

or if you wanted to go back another step in the directory, you could type

```
FTP> cdup
FTP> pwd
```

current directory is /nic

Of course, if you find something you want to copy, you would use the get command, just as described previously in Step 6.

With these four commands--cd, cdup, dir, and pwd--you can explore the contents of this and any other FTP host in the world.

Step 8. Ending an FTP Session

Just type:

```
FTP> quit
```

and you should be back in a normal session on your computer.

Depending upon the particular version of FTP you are running, you may be able to take shortcuts here and there. There are also many messages which the FTP host will send to your screen, but for the sake of simplicity, we have only included the most important in this example.

FULL SERVICE FTP

If you have computer accounts on two or more computers on the Internet, "full service" FTP makes it possible for you to move files from one of your accounts to the other(s).

With full service FTP, you can put files into an account, and remove files or directories from that account.

Here's an example full service FTP session:

Step 1. START FTP

Just type: ftp

Step 2. NAME A COMPUTER ON WHICH YOU HAVE AN ACCOUNT

Type "open" followed by the Internet address of a computer on which you have an account:

```
        FTP> open YOUR.HOSTS.INTERNET.ADDRESS
```

Step 3. SUPPLY YOUR USERID AND PASSWORD

```
Name (your.host.internet.address): your-user-id
Password required for YOUR-USER-ID.
PASSWORD: your-password
230 User YOUR-USER-ID logged in.

        FTP> delete dead.letter

250 DELE command successful.

        FTP> quit

221 Goodbye.
```

Getting Help In FTP

Whenever you are using FTP, you can type help to get a list of all the commands which are available to you. Here's an example of the help listing given by a typical UNIX FTP host:

```
FTP> help

!           cr          ls          prompt      runique
$           delete      macdef      proxy       send
account     debug       mdelete     sendport    status
append      dir         mdir        put         struct
ascii       disconnect  mget        pwd         sunique
bell        form        mkdir       quit        tenex
binary      get         mls         quote       trace
bye         glob        mode        recv        type
case        hash        mput        remotehelp  user
cd          help        nmap        rename      verbose
cdup        image       ntrans      reset       ?
close       lcd         open        rmdir
```

Now type help for any command, and you'll get a terse definition of what the command does:

```
FTP>    help delete
delete  delete a file
```

Because there are several versions of FTP for different operating systems, it's always a good idea to type "help" and see what commands are available if you are having problems. You might find that some familiar commands are not present on the machine you are using. Using FTP on IBM CMS and TOPS-20 mainframes is different from the examples given above, so be forewarned!

Finding Out if FTP is on your Computer

If simply typing FTP doesn't give you the FTP prompt you can find out if FTP is available by asking your instructor or your user services staff.

As mentioned above, you may have to invoke a software package of which FTP is a part. For example, some packages on computers such as the Apple Macintosh, IBM PCs, and Amigas, may have FTP bundled with other applications.

You can also try your local online help system. Here are some of the more common forms of help syntax you might use.

help ftp or help tcpip	VMS, CMS, some Unix machines
man ftp or man ftpd	most Unix machines
find telnet or find tcp	Macintosh (using the Find File application from the "apple" menu)

For More Information On FTP

"List of Anonymous FTP Sites," Jon Granrose.

FTP Host:	pilot.njin.net
directory:	pub/ftp-list
files:	README
	help
	index
	...and many others

Two USENET newsgroups deal specifically with FTP archives. Read chapter 8 of NUSIRG for more information on using USENET.

comp.archives:	Announcements about new and Updated FTP files
comp.archives.admin:	Frequent discussion about FTP archives, access, administration, etc..

For example, the "Short List of Particularly Good FTP Hosts" provided in this chapter was derived from a posting by Ed Vielmetti to the group "comp.archive.admin."

Technical References On FTP

Comer, D. E. 1991. "Internetworking With TCP/IP." Volume 1: Principles, Protocols, and Architecture. Prentice Hall, Inc., Englewood Cliffs, NJ. Chapter 23.

RFC959: The File Transfer Protocol (available via anonymous FTP from nis.nsf.net in the "rfc" directory).

THE ABC'S OF HANDLING SPECIAL FILES

Archives, Binary Files, and Compressed Files

Many files on FTP archives and other computers are in a text only format which can be copied directly to your computer and displayed with a text editor without any special processing. However, you will certainly encounter computer files which are stored in special forms, and need to be transferred and/or processed in particular ways if you want to be able to use them.

There are three main kinds of special formats to look out for:

- ❏ binary files
- ❏ compressed files
- ❏ archived file groups

and any combination of these three.

Before going through some examples of how to process archived, compressed, and binary files, some definitions will be useful.

Archived File Groups

When several files are logically related in some way, they are sometimes put together and stored as one archive file. This makes it easier for you to copy the information to your computer. You need only to use the FTP "get" command once to transfer the whole archive file to your computer. You can then run a program on your local computer to unpack the archive into its component files.

One commonly encountered archive format on the Internet is called "tar", which is short for "tape archive." These tar archives are created, and unpacked, using the tar program on UNIX copyrighted computers. Files which have been archived with tar should contain the word "tar" at or towards the end of their filename.

Similarly, there are other archive programs for UNIX and most other computer operating systems, and each one of these will add a special suffix to the file's name.

For example, there is a file containing a complete, text only copy of NUSIRG on ftphost.nwnet.net, in the directory path /nic/nwnet/users-guide, called nusirg.whole-guide.txt.tar.Z.

But what does the "Z" in the filename "nusirg.whole-guide.txt.tar.Z" mean?

Compressed Files

As the name suggests, compressed files are files which have been made smaller so that they take up less space on a computer disk or other storage media. Because they are smaller, compressed files are also transferred through the Internet more quickly than the original, uncompressed files.

In the example above, the letter "Z" indicates that the file "NUSIRG.txt.tar.Z" has been compressed by the Unix compress program. Again, there are many other compression programs for UNIX and other operating systems, and each will add a particular suffix to the file's name.

Binary Files

Text on most computer screens is displayed as lower and upper case letters, numbers, and special characters, such as !,@,#, and so forth, which are easy for you to read.

The only information computers can "read," however, is binary code, numbers made up of 1's and 0's. Most computers use standard translation conventions, either ASCII or EBCDIC, to store text. Binary files, on the other hand, typically refer to "non-text" files such as bitmaps or computer programs. Most compressed files are stored in "binary" format.

The important thing to remember about binary files when you use FTP is that they must be transferred using FTP binary mode. Otherwise the file will be translated to ASCII (or EBCDIC for IBM users) and be useless when it gets to your computer.

You put FTP into binary mode by typing the word "binary" at the FTP prompt. When you're not sure what format a file is in, you should try using binary. Regardless of whether it is actually in binary or ASCII, the file will usually get to your computer just fine.

You should be aware that FTP's on some computers have additional modes which you might need to use, such as tenex.

Quick Guide to Common Un-Archive and Un-Compression Programs

Some FTP hosts have a README file in each directory which provides brief descriptions of the file in that directory. The README file also indicates which, if any, of the files in the directory need special handling, and if so, what that handling should be. It's always a good idea to get such README files before you start getting a lot of files from an FTP host. It can save you a lot of grief!

However, many FTP hosts do not have these files (and sometimes we are too impatient to take the time to get README files), so sometimes we have to guess.

Suppose you FTP'd the following files onto a UNIX computer:

file1.txt
file2.shar
file3.tar.Z

In the paragraphs below, you can find out what needs to be done to each of these files before you can use them:

For file 1, "txt" is one of several common extensions used for text-only files, so file1 can most likely be read directly with a standard UNIX text editor.

For file 2,"shar" is the file extension often used to denote a "shell archive." To process file2.shar, you usually can find directions at the top of the file like "Delete everything above the 'cut here' mark, and then type "sh this file."

Finally, file 3 has two extensions: "tar" and "Z". First we would use the "uncompress" program, which will make a file called "file3.tar". We would then use then the "tar" program to unarchive the file into it component parts.

Archive or Compression Program Name	Added File Extension	Name of program *you* use to process this file on your computer's operating system: DOS	Mac
ARC	ARC	arc602.exe	ArcMac
BinHex	Hqx	xbin23.zip	BinHex
compress	Z	u16.zip	MacCompress
PackIt	pit	UnPackIt	PackIt
PKZIP	ZIP	pkz110eu.exe	UnZip
SHellARchive	shar	toadshr1.arc	UnShar
StuffIt	Sit	mactopc	StuffIt
tar	tar	tar.zip	UnTar
uuencode	uu	toaduu20.zip	uutool
ZOO	ZOO	zoo201.exe	MacBooz

Archive or Compression Program Name	Added File Extension	Name of program *you* use to process this file on your computer's operating system: UNIX	VM/CMS
ARC	ARC	arc521	arcutil
BinHex	Hqx	mcvert	binhex
compress	Z	uncompress	compress
pack	z	unpack	-
PackIt	pit	unpit	-
PKZIP	ZIP	unzip41	-
SHellARchive	shar	unshar	-
StuffIt	Sit	unsit	-
tar	tar	tar	-
uuencode	uu	uudecode	arcutil
ZOO	ZOO	zoo201	zoo

For More Information

A comprehensive table of nearly 100 programs for unpacking archives and uncompressing files is maintained by David Lemson. His document also gives detailed information on where all listed programs can be obtained. Most of them are available via anonymous FTP. Here's the information for the location of the "master" copy, which should be up to date.

FTP Host:	ux1.cso.uiuc.edu
directory:	doc/pcnet
filename:	compression

This file is available on other FTP hosts as well.

USENET Discussion Groups

The following USENET discussion groups deal specifically with the theory and practice of file compression.

alt.comp.compression
comp.compression

Useful information about file compression is often presented in the following operating system specific groups as well.

comp.binaries.amiga
comp.binaries.apple2
comp.binaries.atari.st
comp.binaries.ibm.pc
comp.binaries.mac
comp.binaries.os2

If you don't know how to use USENET, refer to Chapter 7 of NUSIRG, "Using USENET."

Chapter 5: TELNET

USING TELNET

What is TELNET For?

TELNET is an Internet application used for logging in to other Internet computers.

With TELNET, you can access:

- Online databases
- Electronic library catalogs
- Internet information services
- Computers on which you have an account

In practice, there are two kinds of TELNET.

"Guest TELNET" allows you to login to a computer through a special guest account from which you can perform a restricted, but still useful set of tasks.

"Full privilege TELNET" allows you to login to a computer on which you have a regular account, and to do your normal work on this computer from any other computer connected to the Internet.

TELNET is one of the "application level services" of TCP/IP (Transmission Control Protocol / Internet Protocol) which computers throughout the Internet use to communicate. For more detailed information on the technical aspects of TELNET, obtain the references in the section entitled "For More Information."

Note that when you access Internet services which are installed on IBM mainframes, you will sometimes need to use a special version of TELNET called "tn3270" which allows full screen TELNET sessions on IBM mainframes. From your perspective, tn3270 works just like TELNET, and you can simply substitute "tn3270" for TELNET. This is especially important when connecting to IBM mainframes from UNIX hosts.

How Do You Use TELNET?

If TELNET is installed on your computer, you can usually type "telnet", followed by another computer's Internet address. Sometimes you will also have to type in a userid or other login information.

For example, to login to the University of Maryland's INFO program, you'd type:

```
telnet info.umd.edu
```

In a short time, the computer in Maryland should prompt you for a login id; just type "info" after the word "login:"

```
login: info
```

You will then be asked what kind of terminal you are using. To take full advantage of this particular TELNET site, you should type 'vt100', or some other "full screen emulation" terminal type which allows you to use cursor keys, etc.) Throughout this session, you will see instructions on your screen about what to do. If you get confused in this or any other TELNET session, just type "help" or "?". Or, go to the section entitled "TELNET Troubleshooting" for solutions to some of the more commonly encountered problems. Here's a list of a few of the many TELNET sites on the Internet which offer valuable and interesting services. Enjoy!

A Brief List of Some Representative TELNET Sites

1. TELNET Sites Which Work With Most Kinds of Terminals

Name	Internet Address	Login Info	Services
CARL	pac.carl.org	none needed	Library Catalogs
DDN NIC	nic.ddn.mil	none needed	Internet info, find computer addresses, etc.
Knowbot	sol.bucknell.edu 185	none needed	Find computer
Knowbot	nri.reston.va.us 185	none needed	addresses
MELVYL	melvyl.ucop.edu	none needed	Library Catalogs

2. TELNET Sites Which Work Best With "Full Screen Emulation"

Name	Internet Address	Login Info	Services
PENpages	psupen.psu.edu	user: pnotpa	Agricultural Information
SpaceLink	128.158.13.250	user: newuser pass: newuser	NASA & Space info.
UMD INFO	info.umd.edu	login: info	Many kinds of information
UNC INFO	info.acs.unc.edu	login: info	Univ. North Carolina info.

The best way to learn about TELNET is to use it. There is a sample session to try at the end of this chapter.

The rest of this document gives more detailed, but still nontechnical, information about TELNET.

Additional Information for Personal Computer Users

If you're connecting to the Internet from a personal computer, there are two main ways to use TELNET:

- If you are a modem user, you can login to a mainframe or a telecommuncations provider using a terminal emulation program, and then use the mainframe or telecommunication provider's TELNET software.

- If you are using a personal computer connected directly to the Internet you may be able to use a TELNET program installed on your personal computer.

Typical TELNET Sessions

We'll illustrate the use of TELNET with two examples: 1) logging in to a VMS computer from a UNIX computer, and 2) logging into an Internet Information Service to a public TELNET account.

In these sample sessions, lines are labeled as follows:

```
U> Commands entered by you
T> Responses from TELNET
P> TELNET or operating system prompts where you type a response on
the same line as the prompt; text you enter is underlined.
```

Text with no line labels are explanations.

Example 1. Using TELNET to Login to Another Computer on Which You Have an Account

If you have computer accounts on two or more computers, substitute the names of those computers for the hypothetical Internet addresses supplied in this example.

This example illustrates that you can usually get online help for TELNET within each of the operating systems, and help from the TELNET program while at the TELNET prompt.

1) In UNIX, you can type "man telnet" to get UNIX specific help on TELNET (in UNIX jargon, "man" is short for "manual page"):

```
P> UNIXhost% man telnet
```

You will then see a page of the TELNET manual.

```
TELNET(1C)              DYNIX Programmer's Manual              TELNET(1C)

NAME
        TELNET - user interface to the TELNET protocol

SYNOPSIS
        TELNET [ host [ port ] ]

DESCRIPTION
TELNET is used to communicate with another host using the TELNET
protocol.  If TELNET is invoked without arguments, it enters command
mode,indicated by its prompt ("TELNET>").  In this mode, it accepts and
executes the commands listed below.  If it is invoked with arguments,
it performs an open command (see below) with those arguments.

Once a connection has been opened, TELNET enters an input mode.  The
input mode entered will be either "character at a time" or "line by line"
depending on what the remote system supports.

--More--
```

Now let's start a TELNET session by just typing TELNET.

```
P> UNIXhost% telnet
T> telnet>
```

We are now running the TELNET program on the UNIX host. Let's see what help the TELNET program has to offer (what you see might be different):

```
P> telnet> help

T> Commands       may be abbreviated.  Commands are:

T> close          close current connection
T> display        display operating parameters
T> mode           enter line-by-line or character-at-a-time mode
T> open           connect to a site
T> quit           exit TELNET
T> send           transmit special characters ('send ?' for more)
T> set            set operating parameters ('set ?' for more)
T> status         print status information
T> toggle         toggle operating parameters ('toggle ?' for more)
T> z              suspend TELNET
T> ?              print help information
```

Notice that additional help can be obtained for some of the commands which have suboptions (e.g., "set ?").

Now let's open a session to another computer on which we have a regular account and password (substitute the name with a computer on which you actually have an account.):

```
P> telnet> open vmshost.internet.computer.address
T> Connected to vmshost.internet.computer.address
T> Escape character is '^]'.
```

From this point on, your terminal will display a session which is just like what it would be if you were logged in directly.

```
T> Welcome to VMSHOST.  Please log in.
P> Username: your-userid
P> Password: your-password
T> Welcome to VMSHOST, running VAX/VMS V5.4-1.
T> Last interactive login on Thursday, 2-SEP-1991 16:17
T> Last non-interactive login on Thursday, 2-SEP-1991 16:21
```

Now that we are in the VMS machine, let's use the VMS help system to get information about TELNET on VMS.

```
P>  $ help telnet
T>  TELNET
T>  TELNET is a subsystem to allow users to connect their
T>  terminal to other systems on a network.  TELNET
T>  supports communication using the TCP/IP, CHAOSnet
T>  and PUP protocols.
T>  Format:
T>  TELNET [host-name]

T>  Additional information available:

T>  Parameters Command_Qualifiers

P>  Press RETURN to continue ... <return key>

P>  TELNET Subtopic? <return key>

P>  Topic? <return key>
```

We can close our connection to VMSHOST by logging out normally, and we will be returned to the UNIX session from which we had started:

```
P> $ logout

Unixhost%
```

We've closed the connection to VMSHOST; if we wanted to we could enter more TELNET commands or start another session. But let's quit TELNET:

```
P> telnet> quit

UNIXhost%
```

Example 2. TELNET Session to an Internet Information Server

This example shows how TELNET can be used to access special guest accounts on Internet computers.

The process of connecting to such guest accounts is the same: you type "telnet internet.host.address". But once you are connected, every site has different features and user interfaces, so don't expect the details of this example to represent anything but INFO at "info.umd.edu"!

```
U> telnet info.umd.edu
T> Trying...
T> Connected to dbserv.UMD.EDU.
T> Escape character is '^]'.
```

For this and most TELNET sessions, pressing the "Ctrl" or "Control" key followed by the "]" key will close your TELNET connection to another machine. ("^" is the standard abbreviation for the control key in most computer manuals.)

You will now be prompted to log in as:

```
T>  Ultrix V4.1 (Rev. 52)

T>  At the "login:" prompt below, enter:
T>  INFO                                    for access to the Information
T>                                          On-line files and programs.

P> login: info

T> Last login: Sat Sep 21 00:25:33 from annex2.umd.edu
T> Ultrix V4.1(Rev 52)System #2: Tue Jan 15 11:01:34 EST 1991
T> UWS V4.1 (Rev. 197)
```

You will now be prompted for your computer's "terminal type." When you use some TELNET services, you can ask for a display of what kinds of terminal emulation are supported at that site.

```
T> Please enter your terminal type
P> (? for a list, RETURN for 'vt100'): ?
```

Terminal type does not mean "is you computer a Macintosh or an IBM mainframe?" but rather, "what kind of terminal can your computer 'emulate'." Any particular computer can, depending upon installed software, emulate one or more terminal types.

```
T>  A list of supported terminals follows.  Enter the type of your terminal
(in lower case):

T>  type        description
T> aaa          Ann Arbor Ambassador (24 lines)
T>  dt80        Datamedia DT80
T>  h19         Heathkit H-19 (also MD-PC/IP TELNET program for PCs)
T>  h29         Heathkit H-29
T>  kk          Kermit VT-102 full-screen (for campus IBM mainframes e.g.,
                DO IBM)
T>  m4          Microterm (MIME) 340/314 in ACT-IV Mode
T>  sun         Sun Microsystems Workstation Console
T>  vt100       DEC VT-100 (also NCSA TELNET program for PCs & Macs)
T>  vt102       DEC VT-102
T>  vt200       DEC VT-200
T>  vt52        DEC VT-52
T>  xterm       X-windows vt100 terminal emulator (24 lines)
T>  z19         Zenith Z-19 (like Heathkit H-19)
T>  z29         Zenith Z-29 (like Heathkit H-29)
```

If you're not sure what kind of emulation you have available, try "vt100", which is a kind of full screen emulation available on many computers.

```
T> Please enter your terminal type
P> (? for a list, RETURN for 'vt100'): vt100
```

Your terminal will now display the following introductory information about the Info system. Whenever online help is displayed, take the time to read it!

```
View    Return    Select    X-fer    Go-To    Protocol    Quit    INFO2.0

                          Welcome to INFO!

MENU OPERATION:

The menus will be available after you press a key to clear this screen.

To select a menu item, press the arrow keys to highlight the item (such as VIEW or
SELECT), and then press Return or Enter. You can also select a menu item by typing the first
letter of that item. For example, pressing V selects the VIEW option.

Help is available everywhere.  If you get stuck you can press the ? key, and information about
the highlighted menu item will appear on the screen.

                                                        Press any key to continue...
```

When you press any key, you will see the main menu.

VIEW Return Select X-fer Go-To Protocol Quit INFO

13 FILES IN /

	Name	Description	protocol = None		
1	Computers	Directory	11 Sep, 1991	15:17	
2	EconData	Directory	05 Jun, 1991	00:00	
3	Literature	Directory	18 Sep, 1991	10:41	
4	Macintosh	Directory	20 Sep, 1991	19:00	
5	NewsLetters	Directory	19 Aug, 1991	12:30	
6	PC	Directory	20 Sep, 1991	23:32	
7	USGovt	Directory	06 Aug, 1991	16:13	
8	UofMaryland	Directory	16 Sep, 1991	18:16	
9	Weather	Directory	30 Jul, 1991	10:12	
10	World	Directory	18 Sep,1991	15:13	
11	info.cat	File	20 Sep,1991	19:00	50866 bytes
12	update.cat	File	20 Sep,1991	07:00	13110 bytes
13	welcome	File	12 Sep, 1991	11:32	1782 bytes

Use the up/down arrow keys to select a directory or file, press the first letter of a menu item to act on the selection. Press ? for help.

Let's select USGovt. Since we're using vt100 emulation, we can press the down arrow on our keyboard until we get to item 7, and then press return to get to the USGovt menu.

10 FILES IN /USGovt

	Name	Description	protocol = None		
1	.. (Previous)	Directory	12 Sep, 1991	11:32	
2	Bills	Directory	05 Jun, 1991	00:00	
3	Constitution	Directory	01 Aug, 1991	10:56	
4	Economics	Directory	02 Aug, 1991	08:46	
5	GAO	Directory	06 Aug, 1991	17:23	
6	SupremeCt	Directory	23 Jul, 1991	16:34	
7	Taxes	Directory	05 Jun, 1991	00:00	
8	education-goals.txt	File	04 Jun, 1991	12:00	1927 bytes
9	represen-tatives.txt	File	25 Jul, 1991	11:26	16456 bytes
10	senators.txt	File	25 Jul, 1991	11:26	4258 bytes

Use the up/down arrow keys to select a directory or file, press the first letter of a menu item to act on the selection. Press ? for help.

Again, move the cursor down to a line you want to select. Let's go to line 6 to the supreme court directory.

VIEW Return Select X-fer Go-To Protocol Quit INFO

6 FILES IN /USGovt/SupremeCt

	Name	Description		protocol = None	
1	.. (Previous)	Directory	06 Aug, 1991	16:13	
2	1989term	Directory	23 Jul, 1991	16:33	
3	1990term	Directory	23 Jul, 1991	16:34	
4	00index.cat	File	23 Jul, 1991	16:33	12656 bytes
5	00readme.txt	File	23 Jul, 1991	16:33	2692 bytes
6	justices.txt	File	23 Jul, 1991	16:34	19299 bytes

Use the up/down arrow keys to select a directory or file, press the first letter of a menu item to act on the selection. Press ? for help.

Finally, we will view the document "justices.txt" by moving the cursor to line 6 and pressing the Return key.

TOP Bottom Up Down Left Right Number Search Quit

/USGovt/SupremeCt/justices.txt lines 1 - 17 of 314

JUDICIARY

SUPREME COURT OF THE UNITED STATES

One First Street NE, 20543. Phone, (202) 479-3000

WILLIAM HUBBS REHNQUIST, Chief Justice of the United States, born in Milwaukee, WI, October 1, 1924; son of William Benjamin and Margery Peck Rehnquist; married to Natalie Cornell of San Diego, CA; children: James, Janet, and Nancy, member of Emmanuel Lutheran Church, Bethesda, MD, served in the U.S. Army Air Corps in this country and overseas from 1943-46, discharged with the rank of sergeant, Stanford University, B.A., M.A., 1948; Harvard University, M.A., 1950; Stanford University, LL.B., 1952 ranking first in class; Order of the Coif; member of the Board of Editors of the Stanford Law Review; law clerk for Justice Robert H. Jackson, Supreme Court of the United

(more text)

Use the up/down arrow keys to select a directory or file, press the first letter of a menu item to act on the selection. Press ? for help.

To exit "info.umd.edu" you can press "Ctrl]". You will see

```
T> telnet>
```

on your screen. You can either enter "open another.internet.computer.address", or "close", to terminate your TELNET session.

TELNET TROUBLE-SHOOTING

Step 1. If just typing "telnet" doesn't give you the "TELNET>" prompt:

- Try typing "help telnet", "man telnet", "info telnet" or whatever command is appropriate to your operating system. You might also try "tcpip" instead of "telnet",
- or contact your local user services personnel.

Step 2. If you type "telnet an.internet.computer.address" and you don't get connected:

- "unknown host" message: You might have misspelled the computer's domain name, or the domain name of the computer might have changed.
- "foreign host did not responding within OPEN timeout" message: There's probably too much traffic somewhere on the Internet between you and the host, or the host is disabled in some way. Try again later.
- There might be a limit on the number of users allowed onto the host at a given time. You will usually get some sort of explanation from the host to this effect. Try again later.

Step 3. When logging in to a VM/CMS mainframe from a UNIX host, TELNET will only give you "line-at-a-time" service. You should use a 3270 emulator for full screen service.

WHAT RESOURCES CAN BE ACCESSED WITH TELNET?

There are many very interesting and valuables services listed in several chapters of NUSIRG and in the documents referenced in these chapters:

Chapter 6: Archie: The FTP Guru

Chapter 11: Accessing Library Catalogs Through the Internet

Chapter 12: Internet Accessible Databases and Bibliographies

Chapter 13: The Wide Area Information Server (WAIS)

Chapter 14: Internet Directory Services

FOR MORE INFORMATION ON TELNET

Technical Descriptions of the TELNET protocol

Douglas E. Comer. 1991. "Internetworking with TCP/IP." Vol. 1. Prentice-Hall, Inc. Chapter 22: Applications: Remote Login (TELNET, RLOGIN), contains a relatively accessible discussion of the technical aspects of TELNET.

Authoritative sources for technical information about TELNET (and most anything else about the Internet) can be found in "RFC" (Request for Comments) documents.

Here's a partial list of relevant RFC's on TELNET:

RFC 854: "TELNET Protocol Specification"
RFC 764: "TELNET Protocol Specification"
RFC 855: "TELNET Option Specifications"
RFC 856 - RFC 861: Many other TELNET options specifications

Although RFC's are available from many other sources on the Internet, here are instructions on how to obtain RFC's from two definitive RFC repositories:

1. Via FTP:

FTP Hosts:	nis.nsf.net	
directory:	rfc	
files:	rfcxxx.txt	(where xxx is the RFC number)

2. Via electronic mail messages to nic.ddn.mil's automated "mail server":

mail	service@nic.ddn.mil
subject:	rfc xxx

Information On TCP/IP Packages for PCs Which Include TELNET

"Network Protocol Implementations and Vendors Guide" is a 300+ page description of TCP/IP hardware and software available at no charge via FTP and electronic mail, or for purchase by land mail:

FTP Host:	nic.ddn.mil	
directory:	netinfo	
file:	vendors-guide.doc	
e-mail:	mail service@nic.ddn.mil	
subject:	(none needed)	
mail:	DDN Network Information Center, SRI International	
	333 Ravenswood Avenue, Room EJ291	
	Menlo Park, CA 94025	($45 if ordered by postal mail.)

Chapter 6: "Archie": The FTP Archive Guru

WHAT IS ARCHIE?

Archie is a computer program which maintains a constantly updated catalog of the contents of a large proportion of the world's anonymous FTP archives. Archie is rapidly becoming one of the more useful computer resources on the Internet. It's well worth your time to learn how to use it.

WHAT IS ARCHIE USED FOR?

There are thousands of computers on the Internet which offer anonymous FTP services. Once you know how to use FTP, you are faced with some challenging tasks. How do you find out which FTP site has the file you're looking for? For that matter, how can you find out which FTP site has the most up-to-date version of whatever file you're looking for?

To keep track of the contents of these services before Archie, you either had to be an FTP archive guru who stayed awake all night prowling through the Internet, or else be lucky enough to know one.

Archie is an FTP guru for everyone on the Internet. Archie is ready and able to answer your questions.

HOW DOES ARCHIE DO IT?!

There are two major parts of the Archie program:

- The first part of the Archie program is responsible for monitoring the contents of FTP archive sites. Each month, the Archie program:
  - does an anonymous FTP to all sites contained in its master list of sites,
  - requests a directory listing of their contents, and
  - updates master catalogs of the holdings of all FTP sites.
- The second part of the Archie program (the part you'll use) allows you to search through the master list of FTP files, just like you might use a library catalog to find a book on a particular topic.

Archie's output includes the Internet domain name of the FTP host, the directory in which a file is located, the size of the file in bytes, and the date on which the file was placed in that FTP host. Once you've gotten this list of possible sources from Archie, you FTP to a site which has what you need, go to the subdirectory in which Archie says the file is located, and copy the file to your own computer.

WHAT KINDS OF QUESTIONS CAN ARCHIE ANSWER?

Archie can currently answer two kinds of questions:

- Is there a file containing a particular set of characters in its filename on an FTP host somewhere? In the rest of this chapter, this will be referred to as a FILENAME SEARCH.

- Is there a file dealing with a certain subject which has been cataloged by subject?

You can search the "PD (or Public Domain) Software Description Database," which contains descriptive information about the actual contents of a small subset of the files known to Archie. This will be called a FILE CONTENTS SEARCH.

It's incredibly useful that Archie is set up to perform file contents searches. You'd be amazed at the obscurity of the filenames which some people give their programs or files.

Just as a hypothetical example, you might think that a "Computer Aided Design" program would have the letters "CAD" somewhere it it's name; but more often than you'd like, a CAD program might have a name like "TLZWYQXP.DTU". In such a case, you just have to hope that the author(s) of this program had the foresight to send a message to the Archie folks saying that "TLZWWQXP" was a CAD program.

To get you started, try one of the following sample sessions with Archie in which you'll search for files containing information about NorthWestNet, using both FILENAME and FILE CONTENTS searches.

Once you've gone through one of these examples, you'll have the skills you need to go ahead and use Archie for whatever kind of search you might want to make.

HOW DO YOU USE ARCHIE?

Archie Syntax

The basic search command of Archie is "prog". Entering the command string

```
prog textstring
```

will find all files that contain the word "textstring" in their filenames.

A full explanation of Archie syntax can be gotten with the "help" command in either of the two access methods described below.

Archie By E-Mail

You can use Archie by e-mail. First time users should request a help file with the following message:

```
mail:       archie@archie.mcgill.ca
subject:    help
```

If you are accessing Archie by mail, you can put Archie search requests, one per line, in the body of your message (Archie will also read requests placed in the subject line). For example, entering the following command string

```
mail:    archie@archie.mcgill.ca
subject: (none needed)
         prog gateways
```

```
prog nwnet
```

will search for files containing the words "gateways" or "nwnet" in their filenames. Note that a subject is not needed.

Archie By TELNET

Here are the steps for accessing Archie over the Internet:

Step 1. Use TELNET to access a remote Archie server. If you don't have access to TELNET or if you're not sure how to use TELNET, be sure to read Chapter 5 of NUSIRG, or ask your instructor or you local user services staff for help. However, if you do wish to use TELNET to access Archie, here are the domain name addresses of the computers which support public access to Archie.

- If you're in North or South America, TELNET to the Archie host nearest you:

archie.ans.net	(New York, USA)
archie.mcgill.ca	(Montreal, Canada)
archie.rutgers.edu	(New Jersey, USA)
archie.sura.net	(Maryland, USA)
archie.unl.edu	(Nebraska, USA)

- If you're in Eurasia or Africa, TELNET to either:

	archie.doc.ic.ac.uk	(United Kingdom)
or	nic.funet.fi	(Finland)

- If you're in Australia, New Zealand or Oceania, TELNET to:

archie.au	(Australia)

Step 2. Use the login name "archie". No password is required. You should see a short help screen giving some basic help explaining how to use the system. You may also see information about recent changes to Archie.

You can get additional help about Archie at any time during your session. Typing

```
help
```

will give you a list of currently valid commands. To obtain help on a particular command from the displayed list, just type help and the command-name. For example, to get help on the "prog" command, type

```
help prog
```

Step 3. Now you're ready to do a FILENAME SEARCH for all documents in the Archie file catalog for any document containing the text string "nwnet" in its filename, regardless of whether the filename is upper case, lower case, or any mixture of upper and lower case. All you need to do is to type:

```
prog nwnet
```

While Archie is searching, it will display the percentage of filename databases it has searched, and the number of occurrences of the string "nwnet" it has found.

If a search seems to be taking a very long time, or resulting in hundreds of possibly spurious "hits," or positive locations of the character string, you can stop Archie by pressing "control c" (press the "control" key - sometimes labelled "ctrl" and the "c" key simultaneously).

Step 4. When Archie is done searching, it will display:

- the files whose names contain the string "nwnet"
- in which FTP hosts these files can be found and
- the subdirectory path in which they are located.

Step 5. If you want to e-mail a copy of the results of this search back to your own Internet user-id, just type

mail YourUserId@your.full.internet.address

This means that you can look at the results of your searches at your leisure. This is an especially good idea since it means you can logout of Archie as soon as you're done. This will make a connection available for another person to login to Archie. Remember, Archie, like most Internet resources, has a limited number of users it can serve at once! The more quickly AND efficiently you use it, the more other people can use it.

Step 6. Now try a quick FILE CONTENTS SEARCH. Just type:

whatis nwnet

All lines in the "PD Software Description Database" which contain the string "nwnet" will be displayed. Again, you can use the command

mail YourUserId@your.full.internet.address

to have the results of this search sent back to your account.

Step 7. To end your Archie session, simply type

quit

Step 8. Any search results you mailed back to your userid should be sent to you as incoming mail within a few minutes.

THINGS TO KEEP IN MIND BEFORE YOU USE ARCHIE

Archie currently keeps track of more than 800 FTP hosts, containing more than 1,000,000 files. If you're not careful, you could easily generate thousands of "hits" that are not really meaningful answers to your inquiry. For example, "prog doc" would not be a very useful search request.

Think about your search very carefully before you TELNET to Archie. Learn to take full advantage of the many search options described in the Archie manual to restrict your search.

There are many more features to Archie than can be described in this brief introduction. So, before you use Archie for real searches, be sure to use the "help" command, and to read the most current Archie documentation.

Anything written about Archie (or any other Internet resource) may be out-of-date a few days after it is written. When you TELNET to Archie, and before you start your search, read the news messages that appear on your

screen. The developers of Archie may have just made some major breakthrough in their program which will make using it even easier to use, but hasn't even been written up in the Archie manual.

Best of all, Archie (and most other Internet resources), will change in response to your suggestions. Once you've used Archie, the developers of Archie would appreciate your feedback and comments to make Archie even more useful. Send comments, bug reports, contributions to the database file, reports of anonymous FTP sites that Archie doesn't seem to maintain (or even much deserved notes of appreciation) to:

archie-l@cs.mcgill.ca

The Archie program was written and is maintained by:

Alan Emtage (bajan@cs.mcgill.ca)
Bill Heelan (wheelan@cs.mcgill.ca)

Ideas and inspiration were (and still are!) provided by

Peter Deutsch (peterd@cs.mcgill.ca)

FOR MORE INFORMATION ABOUT ARCHIE

The best source of up-to-date information about Archie are the login messages you see when you login to Archie. For updates, and new features, and files in the FTP host maintained by Archie's developers, access the following resources

FTP host:	quiche.cs.mcgill.ca	
directory:	archie/doc	
filename:	whatis.archie	(brief overview
	archie.man.txt	(ASCII archie manual