

Don't Be RoadKill on the Information Superhighway: Using the Internet to Support SAS® Software

Nancy J. Hill, Central Missouri State University, Warrensburg, MO

Introduction

Everyone talks about the superhighway but few know what exactly it is, the value of the resources available, or how to access these resources. The Internet is a revolutionary communications system. As technology advances so does the methods used to support computer activities.

The Technical Support Division for SAS Institute has made electronic services available through the Internet computer network. Technical support is now available through such methods as electronic mail, FTP (file transfer protocol), remote logins, gopher, and World Wide Web. North Carolina State University offers the Journal of Statistics Education Information Service through a Gopher server. This service offers a variety of electronic discussion group archives such as SAS-L. The Saint Louis University Law Library has made available a gopher server which contains individual access to the Internet information. This site also hosts an electronic discussion group for Internet trainers.

In addition to technical support services, the Internet provides support through other SAS users. Electronic discussion groups link you to people with similar interests and needs.

For the people who know how to use tools such as electronic mail, gopher, telnet, FTP and WWW, this has been a real blessing. This paper will outline some of the services available and give additional information on how to use this technology.

Networks

A variety of computer networks is available, many which link into other computer networks. I will refer to several networks in this discussion of using network tools. Bitnet is a computer network which makes use of electronic mail. It does not support remote login or direct gopher activities but does support file transfers and gopher activities through the use of electronic mail. The National Research and Education Network (NREN) is often called the national "data highway". This network, along with the Internet network, supports gopher, electronic mail, remote login, and file transfer types of activities. There are regional type of networks also available. The Missouri Research and Education network (MOREnet) is an example of a state network which ties into the Internet. Every computer that is connected on one of these networks has a name (referred to as the node name).

Node names give information that might be important when doing remote logins or file transfers. You have some indication of where the site is located or what type of site you are accessing by looking at the end of the node name. For example, CA indicates Canada, JP is Japan, AU is Australia, DE is Germany. An "edu" at the end is an educational site, "com" is commercial, gov is government, "k12" or "USA" is a newer naming convention used mainly for K-12 schools and public libraries.

Electronic Mail

Benefits to using electronic mail include resource sharing, collaboration, and access to facilities and information not available at each person's site. Electronic mail functions with the same principals, regardless of your hardware or software. You will start by addressing your electronic mail according to the receipt electronic address. This address will be the userid (could be called account name, signon name, etc.) followed by an @ sign and the node name for that computer on the network. To keep things simple I will not go into gateways or going from one network to another (most of this is handled by the mail software and the networks).

Using electronic mail is usually a straight-forward process once you know the electronic address for the recipient. For example, the command on our mainframe for the electronic mail package is RMAIL. Sally Roberson's electronic mail address is SASSAR@MVS.SAS.COM. For me to send mail to Sally, I would enter the following:
RMAIL SASSAR@MVS.SAS.COM

This would take me into an input screen for entering my mail message. When I'm done entering the message, I would enter the command SEND and the mail would be sent to Sally.

I can also use this facility for sending documents (such as SAS programs, SAS logs, data files, etc.). I would call the mail program the same as before. Once the system puts me into the mail input screen, I would issue the command GET Filename filetype and the document would now be sent as electronic mail.

To make using the mail package easier, I can use what is referred to as a nickname file. This is part of the operating system on our computer, but most mail systems have a similar capability. I issue a NAMES command to take me into my nicknames file. I then create an entry for a person by assigning a nickname and giving the computer the corresponding electronic mail

address. Now I can use the nickname instead of the full electronic address.

SUGI Consultant's Registry

What if you just want to hire a consultant? Anyone with electronic mail can now receive the SUGI Consultant's Registry. Please keep in mind that neither SAS Institute nor SUGI specifically endorses the consultants listed nor can they be responsible for the accuracy of any listing. You can send the following two commands by electronic mail to the electronic address `LISTSERV@VM.SAS.COM` to receive a copy or see the information about SAS Institute's FTP site:

```
GET CONSULT1 ANNOUNCE TSNEWS-L
GET CONSULT2 ANNOUNCE TSNEWS-L
```

Electronic Mail Discussion Forums

Electronic discussion groups are electronic mail lists which an individual subscribes to and then receives mail from. Every time someone posts mail to the group, a copy of the mail is sent to each individual list member. The purpose of the groups is to discuss applications, problems, and changes in the products. Conferences and meetings such as SUGI, MWSUG, or other regional group meetings are announced through the networks along with summaries of such activities as SUGI.

The following are some electronic discussion forums available through the BITNET and Internet networks.

`KCASUG-L@STAT1.CC.UKANS.EDU`

Kansas City Area SAS User Group - This is a user group list for discussing topics in the Kansas City area such as training available, meetings and conferences.

`MWSUG-L@CMSUVM.B.CMSU.EDU`

MidWest SAS User Group Inc. - Discussion list for the MidWest regional group.

`NESUG-L@JHUSPO.CA.JHU.EDU`

NorthEast SAS User Group - Discussion list for the NorthEast regional group.

These two are regional user group discussion lists for discussing topics of interest in their regional area such as training available, conferences, contact people, etc.

`SAS-L@UGA.CC.UGA.EDU`

International SAS User Group - This is an international user group which discusses any topic related to SAS, statistics, jobs, conferences, etc.

`TSNEWS-L@VM.SAS.COM`

Technical Support Problem Alerts - This is SAS Institute's online technical support. Problem alerts letters & notes, machine-readable technical support documents, announcements of new utilities, etc., are posted according to operating system and product. When you

subscribe to this list you must use AFD (Automatic File Distribution) commands. These tell the LISTSERV machine for which operating system you want information and what type of information. For example, if I want problem alerts and announcements for the VM/CMS operating system, I would send the following AFD commands to the listserv machine:

```
AFD ADD VM* PALERT
AFD ADD * ANNOUNCE
```

`SUPPORT@SAS.COM`

EMITS - SAS Institute's Electronic Mail Interface to Technical Support. You'll notice this address is not a LISTSERV userid. You need to register for this service and must be a SAS consultant or SAS representative from your site to be eligible.

`SASDOC-L@VM.SAS.COM`

SAS Online Samples - The Publications Division at SAS Institute provides the service for users to electronically download sample code from books.

Subscribing to a Discussion Group

Now that you know some of the existing group names and purposes, the next question is, "how do I join the group?". We will use the SAS-L group for the example. To subscribe to the group from the Bitnet network you must first communicate with the listserver at the computer site where the list is located (referred to as the node name).

To join most groups, send a subscribe command to an electronic address with a userid of LISTSERV. In the command you tell the LISTSERV, "subscribe groupname firstname lastname" where firstname is your first name and lastname is your last name. This will vary as some groups are private and a request must be sent to an individual instead of LISTSERV. For example, to subscribe to SAS-L using our electronic mail package, RMAIL, I would enter the following command:
`RMAIL LISTSERV@UGA.CC.UGA.EDU`
In the body of the mail I would include:
Subscribe SAS-L Nancy J. Hill

The following are some special options available at subscription time:

Set SAS-L Digest (receive a combined digest of the mail instead of individual mail items)

Set SAS-L Nomail (stop sending the mail until told different, handy while you are on vacation)

Set SAS-L Mail (turn mail back on, note - starts with any current mail, does not send back copies of postings made while nomail option was in effect)

Unsubscribe SAS-L (I want off the list)

NOTE: These commands are sent to listserv not the group-id name.

Since SAS-L is a large group, membership is divided between many host computers, often referred to as a peered list. This is done to keep use of the network efficient, avoid traffic jams, and make mail distribution faster. The network will determine what it considers to be the closest node. In my case, it considers UGA (University of Georgia at Athens) to be nearest to CMSUVM.CMSU.EDU (Central Missouri State University). The network determines the nearest node according to how it routes the mail (number of computers it passes through) not according to traveling distance. You do not need to worry about this. If you try to subscribe at a node the system does not consider the closest, the system will tell you, then forward your request to what it considers the proper node.

One common mistake made by people new to working with electronic forums is communicating with the group-id in place of the listserver or vice versa. The listserver is the one that controls mailing lists, contains the copies of the discussion logs, and handles the distribution of the mail to members. The group-id (in this case SAS-L) is the one to communicate with when you're actually wanting to ask questions of the people on the list, send out information, etc. Think of it as the people contact name.

When you send mail to the group, the network will handle sending copies to all members whether they are subscribed through the same node or not. Everyone on SAS-L at every peered node of the group will receive a copy of anything that is sent to the SAS-L group at any location.

Usenet & Netnews

Some people do not have the resources to keep up with a large amount of electronic mail or do not feel comfortable maintaining notebooks. Some people find using news readers such as the Usenet or Netnews to be a better method of keeping track of postings on electronic discussion groups. This method allows you to review the mail in a bulletin board fashion. Some advantages to using a news reader include the mail does not fill up your disk space, you can read the mail at your leisure and it is easier to review old postings. One disadvantage is that it is not as easy to reply to an individual mail item and you do not have total control of the mail postings. Not all sites have Usenet or Netnews software. If your site does not have these tools available but you have telnet or remote login capabilities you can connect to another site to review postings. The SAS-L mail will appear in the section for comp.soft-sys.sas.

Accessing the Internet By E-Mail

When talking about various resource tools for accessing the Internet, I will be mentioning methods used with

electronic mail to access other resources such as FTP, Gopher and WWW sites. For a complete how-to guide available on the Internet, send the following electronic mail to Listserv@ubvm.cc.buffalo.edu include in the message
Get INTERNET BY EMAIL NETTRAIN F=MAIL

Telnet & Remote Logins

Telnet is a remote login command. It allows you to connect from your Internet site to another Internet site. The foreign host views your workstation as a local device once the connection is made. You do need to login to the foreign system. Some sites supply guest or anonymous accounts, other require that you have a personal account.

If you telnet into the UNC site, you can login as guest, then use their gopher software to review the SAS-L archives. Some other sites allow use of their gopher by this method. Some use guest for the login account while others use gopher for the account. Information will normally be displayed on the sign on screen to assist you.

FTP (File Transfer Protocol)

FTP is a resource tool which allows you to interactively transfer files from one machine on the Internet to another machine on the Internet. You must have TCP/IP software to be able to do this interactively. Once you make the connection between the two machines you will see a signon screen for the foreign host. Some hosts allow you to login as anonymous or may have a different account or require you have your own account. The password will usually be your electronic mail address. This will vary from site to site. A word of caution is that some systems are case sensitive, this means ANONYMOUS is not the same as anonymous.

As mentioned earlier, SAS Institute has an anonymous FTP site. If you FTP to ftp.sas.com you can transfer many of the files available by electronic mail such as the tsnews-l, the consultant's registry, the sample code from the Publications Division, etc. This ftp site contains the same information as the SAS Institute Bulletin Board System (SIBBS).

Once you have logged on to the FTP site you must work your way through the system to get to the correct directory containing the file. This is done with the CD command to change directories, and the DIR to list contents in the directory. Most postings you receive about files will tell you the correct path to retrieve the files.

The main two directories of interest at the SAS FTP site are the pub and the techsup. Pub contains SUGI information and the subdirectory publications contains the sample code from book examples along with an index. The techsup directory contains a download directory used for you to access usage notes, technical

notes, zaps, utilities, etc. The techsup directory also contains a upload directory used under SAS Institute's direction to upload your files and information about problems.

When you transfer files containing software or compressed files, you must do the transfer as a binary type.

FTP Using Electronic Mail

File transfers can also be accomplished through electronic mail. The best way to get started is to send electronic mail to one of the following sites with HELP in the body of the message, nothing else:

bitftp@vm.gmd.de
ftpmail@doc.ic.ac.uk
ftpmail@decwrl.dec.com
bitftp@pucc.princeton.ed
ftpmail@grasp.insa-lyon.fr
ftpmail@ftp.uni-stuttgart.de

Gopher

Gopher is software developed at the University of Minnesota that allows you to access other computers on the Internet running a Gopher Server in a menu fashion. The Gopher software uses a client-server communications model. To use gopher software you must have Internet access with TCP/IP software. If you do not have the gopher client on your equipment, some sites allow you to telnet into their site, use their gopher software then connect to other gophers.

Once you have accessed a site through Gopher you will have default PF keys set to retrieve documents, search for strings, set bookmarks to later return to a certain menu directly, along with other functions. This makes file transfer, printing and working with the gopher software more user friendly than the telnet command or FTP.

As mentioned earlier the North Carolina State University offers the Journal of Statistics Education Information Service through a Gopher Server. This server is located at JSE.STAT.NCSU.EDU. It offers SAS-L archives, Edstat-I archives, software tools and information, etc. You'll find it a very valuable site to visit.

Another site you'll want to visit is the Thomas Jefferson University gopher, TJGOPHER.TJU.EDU. This gopher contains the SAS Problem Reports, TSNEWS-L archives, some SAS programs and macros, tips on using SAS, etc. From this site you can link to the SAS FTP site or to the UNC site. You'll find file transfers are easier using Gopher software compared to the FTP method. Check it out when you get the opportunity.

Another valuable gopher site is at the University of Southern California, cwis.usc.edu, which contains the Gopher Jewels. This is a menu of gopher sites listed in

sub-menus by area of interest. If you want all the gopher sites with Chemistry information, you can go to the Gopher Jewels and select Chemistry. This gives you a menu of the Chemistry gophers.

Gopher Using Electronic Mail

GopherMail is software that interfaces with gopher server sites through electronic mail. It works in the same principal as a gopher menu but is more time consuming. You send the electronic mail to the site running gopher mail making a menu selection from that server. The mail returns a copy of the next menu you would see if you were using gopher in an interactive form. That electronic mail is then used to make the next menu selection. This exchange of mail continues until you arrive at the document you wish to receive.

There are two sites that I know have the GopherMail available. The first site is gophermail@myc.ncc.go.jp and the second is gophermail@calvin.edu. Note the jp at the end of the first address indicates that it is actually located at Japan. The best way to get started with gophermail is to send electronic mail to one of these sites with HELP in the body of the mail, nothing else. The site will send you an instruction set to get you started.

World Wide Web

World Wide Web software allows wide-area hypermedia information retrieval. This software relies on hypertext to interact with users. Hypertext contains information to connect within the text to other documents. Using these hyperlinks when you select on a keyword, the software links you to new text contained in a different document, different site or even to a form to fill out and submit. Hypermedia is hypertext which links not only to text but to other forms of media such as sound, images, and movies.

SAS Institute's WWW is located at <http://www.sas.com>. With the addition of the web, you now can access all the other SAS Institute's Internet resources. Information about training opportunities, regional & local user groups, and the publications catalog is on the web. You can also check product and licensing information through the web.

If you do not have access to WWW software but do have telnet capabilities, you can telnet to rsl.ox.ac.uk then login as lynx or telnet to www.ora.com then login as guest.

Online Workshops/Tutorials

There are many online workshops and tutorials to assist you when starting out on the Internet. The following is a sample of what is available.

ROADMAP - The roadmap for the information

superhighway interactive Internet training workshop conducted through electronic mail. To receive the lessons send electronic mail to Listserv@ua1vm.ua.edu In the body of the mail include
get map package f=mail
This course is also available through the web at:
<http://www.brandonu.ca>

Navigating the Internet - An interactive workshop
Let's Go Gopher in -

1) via anonymous ftp on ubvm.cc.buffalo.edu in the GOPHERN directory
URL: <ftp://ubvm.cc.buffalo.edu/gopher>
2) from listserv@ubvm.cc.buffalo.edu
send the command:
index gophern
find the session you want then send to the
listserv@ubvm.cc.buffalo.edu the command:
get gophern 93-xxxxx
3) from gopher on pfsparc02.phil15.uni-sb.de in the
directory R0-2801-/gopher-
projekt/gopherinfo/recently/Listen/gophern
URL: [gopher://pfsparc02.phil15.uni-sb.de:70/0r0-2801-
/gopher-projekt/gopherinfo/recently/Listenn/gophern](gopher://pfsparc02.phil15.uni-sb.de:70/0r0-2801-/gopher-projekt/gopherinfo/recently/Listenn/gophern)

MOREinfo - Mizzou1.Missouri.edu
Missouri Research & Educational network online tutorial
at Mizzou1.Missouri.EDU, enter MOREinfo on the logon
line or command line after using telnet to access the

computer.

INTERNIC - Telnet, Gopher or WWW to is.internic.net for
the Information Scout, Database information, WHOIS, etc.

Special Internet Connections

Scott Yanoff maintains a list referred to as Special Internet Connections. This list can be retrieved from csd4.csd.umn.edu. It contains special interest locations that you can access through telnet, FTP, gopher or WWW. It also contains information on sites that you can connect into and use special resource tools such as gopher, World-Wide-Web, or other tools. It contains all sorts of interesting information, well worth the effort to retrieve it.

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Author

Nancy J. Hill
Academic Coordinator, Information Services
Humphreys 221
Central Missouri State University
Warrensburg, MO 64093
Internet.Hill@cmsuvmc.cmsu.edu