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Computer and Information Services Newsletter

Information Services

Volume 2, Number 11

May 1993

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This May Be Your Last Newsletter!

To keep our costs down and responsibly use University resources, we completely purge our newsletter mailing list once a year. We're preparing for a purge now.

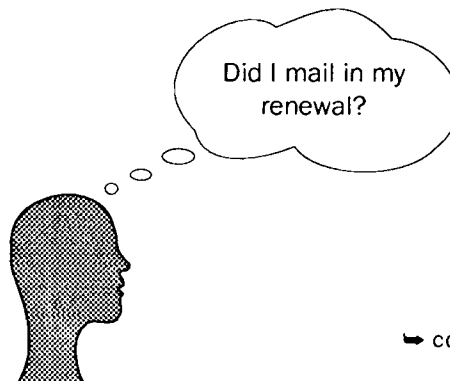
➤ To Cancel, Do Nothing

If you no longer want to receive this newsletter, do nothing. We will delete the entry on the mailing label from our mailing list, and this will be the last newsletter you receive from us.

➤ To Continue, Act Before June 10

If you want to keep your name on our mailing list, return your current mailing label to us before June 10.

If needed, update the name and address shown on your mailing label. You can use the coupon on page 288 to tell us whether you want your subscription continued as is or want it changed.



➤ continued on next page

Short Course Bulletin

We're changing how we handle our *Short Course Bulletin* mailing list. Currently we automatically mail the bulletin to everyone on our *Computer and Information Services Newsletter* mailing list who has a Minnesota address. We also send it to non-Minnesota addresses if the subscriber identified themselves as a University of Minnesota student, staff, or faculty member.

In June we will begin sending the *Short Course Bulletin* only to those who ask for it – whether they receive the newsletter or not. We've provided a check box on the subscription request coupon for those who want to receive the bulletin. If you want to continue to receive the newsletter and the bulletin, check these boxes

Both Publications
Continue

Get it on Gopher

Many people get short course information from Gopher. Some have even set a Gopher Bookmark so they can zoom to that section. You will find information about current course offerings by following this Gopher path

- Computer Information
- Computer & Information Services Short Courses

Campus Mail Addresses

Generally campus mail is delivered within 24 hours. Incomplete or inaccurate addresses delay deliveries or mean you may not receive the item at all or may receive it inconsistently.

Please help.

If you want to continue receiving this newsletter, check your campus mail address to be sure it is accurate. Good addresses include department name and department room number. Bad addresses do not include a department name; they also include your personal room number rather than a department room number. Although incorrectly addressed mail may reach you, delivering it is costly.

Internet Gopher™ Conference



For two days this chilly April, they came from near and far seeking the gospel according to Gopher.

Since we introduced Gopher just two years ago, its use has spread throughout the world. There are now over 1250 Gopher servers throughout the world, and an ever increasing amount of Gopher traffic on the Internet. For those who like numbers: Gopher ranks ninth by bytes and tenth by packets on the NSFnet, the main Internet backbone in the United States.

Internet Gopher™ World Tour

On April 12 and 13, Computer and Information Services hosted the second annual Internet Gopher Conference and welcomed over 250 participants to the University of Minnesota campus. Designated the "Internet Gopher World Tour," the conference was an international affair with representatives from Belgium, Canada, Chile, Sweden, and the United Kingdom as well as participants from the United States.

The diversity of the participants was professional as well as geographical. Although most participants came from universities, representatives from private companies, research facilities, and governmental agencies also attended. This list includes such companies and institutions as IBM, Apple, Xerox, Pacific Bell, the Mayo Clinic, the National Institutes of Health, the Minnesota Legislature, and NASA.

The conference's objective was to provide Gopher users with an update on present and planned Gopher software and technologies, as well as related issues, such as maintaining servers and categorizing and indexing information. The first day consisted of a small, "by invitation only" technical workshop that helped define the issues for the following day's agenda, when the majority of attendees arrived.

Gopher+

The morning's agenda focused on general Gopher information while the afternoon offered more in-depth sessions on specific subjects. The Minnesota Gopher Team presented an update on Gopher+, a set of extensions to the base Internet Gopher protocol that were outlined last Fall. These extensions are backward compatible with the basic Gopher protocol (so old clients will continue to work with new servers) but provide the framework for extended functionality. Among the features available will be the ability to associate optional "attributes" with Gopher items. These attributes could be things like the size or modification date of an item. Attributes could also hold abstracts, keywords, authors, administrators, charging information, etc. associated with items.

Special attributes called VIEWS will allow you to retrieve items in various representations. For example, a document might have a basic representation as a plain, unformatted

text file. However other forms such as Rich Text Format, Microsoft Word, PostScript, or TeX might also be available, giving the user with appropriate viewing applications the ability to get these "alternate views" of the document.

Attributes also enable a server to ask questions of the user, to display electronic forms, send results back to the server, and to do simple authentication if necessary.

Beta implementations of Gopher+ for UNIX and Macintosh were released shortly before the conference, and the capabilities of this software were reviewed in the general morning sessions.

In the afternoon, participants could choose from three concurrent tracks, ranging from the highly technical to the popular *Cooking your Gopher*, a "how to" session for beginning Gopher handlers.

What is Gopher?

Gopher n.

1. Any of various short tailed, burrowing mammals of the family Geomyidae, of North America. 2. (Amer. colloq.) Native or

inhabitant of Minnesota: the Gopher State. 3. (Amer. colloq.) One who runs errands, does odd-jobs, fetches or delivers documents for office staff. 4. (computer tech.) Software following a simple protocol for tunneling through a TCP/IP Internet.

Client/Server Software

Gopher is a tool for our information age. Computer Gophers come in two flavors:

1. *servers* that store information and
2. *clients* that are used to access the information stored on server(s).

Local and Global

The information stored on Gopher servers can be made visible to the Internet. Large collections can be stored on many machines yet appear as one unit, such as the Computer Information section of the University of Minnesota's Gopher. Internet Gopher client/server software is an increasingly popular way to set up local information systems that are distributed over many computers.

While providing a delivery vehicle for local information, Gopher also makes it easy to access other Gopher and information servers throughout the world. For example, anyone, anywhere with Gopher client software (and, of course, an Internet connection) can access information stored on any "public" gopher server, such as the Australian National Botanic Gardens Gopher server. Typically you could reach that Gopher server much as you would find an entry in a book

— you check the Table of Contents or Index. Most local Gopher servers include an "entry" called *Other Gopher and Information Servers*. Under this entry you would find selections such as North America and Pacific. These selections lead to others and so on. Many client versions of Gopher software let you set *Bookmarks*, making it easy to return to selections you want to look at again.

Available Clients

You can get Gopher clients for these systems: DOS (with Crynwr, former Clarkson, Driver), Macintosh, NeXTstep, UNIX Curses & Emacs, Xwindows (athena, Motif, Xview), VM/CMS, VMS, OS/2 2.0, and MVS/XA. Other clients and servers have also been developed. To obtain more information, read *Frequently Asked Questions about Gopher* in the *Information About Gopher* section of the University's own Home Gopher Server.

New Gopher Uses

One of the more interesting features of the second day was an informal *New Gopher Uses and Tool Contest*. Participants were invited to present their innovations and the audience voted by applause for their favorite. The winner — Gopher Moo, a virtual reality game, similar to Dungeons & Dragons that incorporates Gopher technology — was awarded, what else, a stuffed gopher.

Democratization of Information Access

In his introductory remarks, Don Riley, Acting Associate Provost for Academic Affairs, expressed delight with the large turn-out. He pointed out the relevance of Gopher software to the future of the Internet, especially in light of the trend of information for sale. "Gopher software represents the democratization of information access," he commented.

An Annual Event

The conference provided an excellent opportunity for the Gopher community to compare notes with each other and share applications of Gopher technology. The commentary on conference evaluation forms was very positive. Everybody was in agreement on two items: that the Internet Gopher Conference should continue as an annual event and that next year it should be held in Hawaii.

EDUCOM Publications

Don Riley, Acting Associate Provost

Recently I received information through EDUCOM'S *EUITNEWS* about two publications that may interest many readers:

- an events calendar and
- the final report from the 1992 EDUCOM-USC National Survey of Desktop Computing in Higher Education

The Events Calendar

The events calendar is available from EDUCOM'S Educational Uses of Information Technology (EUIT) Program. This calendar contains information about upcoming conferences and events that are relevant to the use of information technology in higher education.

Obtaining the Calendar

To get a copy of the calendar, Internet users can send this E-mail message

```
get events calendar ccnews
```

to this LISTSERV address

```
listserv@bitnic.educom.edu
```

Getting Events Into the Calendar

If you have an event that you would like to see included on the calendar, send details to the Internet or BITNET address, as appropriate, listed here

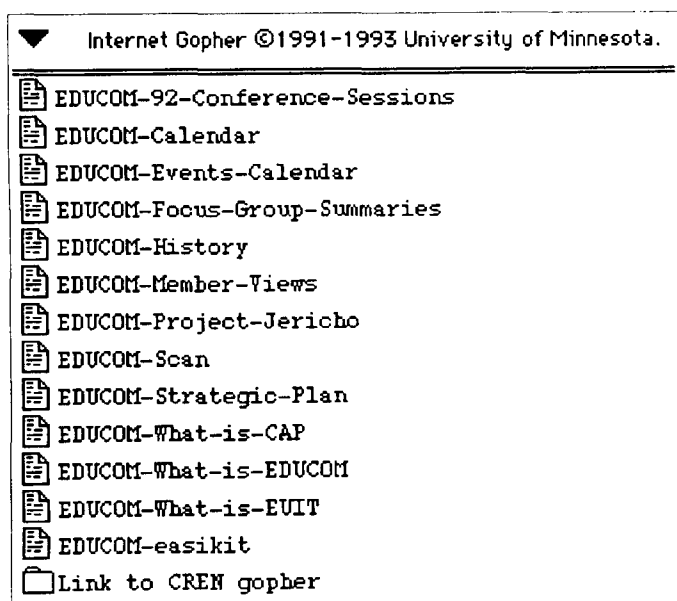
```
ccnews@bitnic.educom.edu  
ccnews@bitnic
```

A Report: Campus Computing '92

I also received this announcement through EUITNEWS.

Campus Computing '92, the final report from the 1992 EDUCOM-USC National Survey of Desktop Computing in Higher Education, is now available. This widely cited annual survey provides national data and follows trends affecting academic computing, including budgets, hardware preferences, operating systems and enhancements, campus networks, codes of conduct, student

Figure 1: EDUCOM Selections via Gopher



access to computers, technology as an instructional resource, and more. The report provides an aggregate national profile and also separate profiles for public and private research universities, public four-year colleges, private four-year colleges, and community colleges.

The Microcomputer HelpLine in Shepherd Labs has a copy of this report on order. Individual copies cost \$30. To order the full report, send a check payable to the USC/Center for Scholarly Technology. Discounts are available for quantity orders.

EDUCOM-USC Survey of Desktop Computing
The James Irvine Foundation
Center for Scholarly Technology
University of Southern California
300 Doheny Memorial Library
Los Angeles, CA 90089-0182
Internet E-mail: CST@calvin.usc.edu

EUITNEWS

EUITNEWS is a LISTSERV and an experiment in providing short, frequent news updates to people interested in educational uses of information technology. Subscriptions are open to anyone who can receive Internet or BITNET mail. To get on this mailing list, send a subscribe command to the LISTSERV, that is

```
listserv@bitnic.bitnet
subscribe euitnews Your_Name
```

For more information on subscribing to and using LISTSERVs, read *LISTSERV: What Can It Do for Me?* in our April 1993 newsletter or *List Servers (LISTSERV)* in our February 1993 newsletter.

EDUCOM on Gopher

Some EDUCOM information is also available on Gopher, as shown in Figure 1. Gopher users at the University of Minnesota can get to the EDUCOM offering by following several paths. Here is one path:

- Other Gopher and Information Servers
 - All the Gopher Servers in the World
 - EDUCOM Documents and News

Institute for Online Scholarship

Don Riley, Acting Associate Provost

I recently received the information reprinted below about the electronic library of the Communication Institute for Online Scholarship (CIOS). Comserve™ is a service of CIOS.

Comserve's Electronic Library

The "commands" discussed below are one line E-mail messages, similar to the ones you would send to a List Server (LISTSERV).

Comserve's library of files is divided into categories. These include research materials, syllabi, bibliographies, announcements, articles from the Electronic Journal of Communication, descriptions of programs of study in communication, and the Master Scholars collection to mention just a few. The files in each category are described in master "directory" files. To receive a complete list of all available categories, send this command to Comserve:

```
Dir Info
```

To receive a copy of the directory file for a particular category of the database, send Comserve the DIR command followed by the name of the category for which you want to receive a directory file. For example, to receive a copy of the directory file for the Master Scholars category, send this command to Comserve:

```
Dir Scholars
```

To receive the directory file, for the bibliography category, send this command:

```
Dir Biblio
```

For more information about finding and retrieving files from Comserve, send this message to Comserve:

```
Help Topics Database
```

Comserv's E-mail Address

This "library" information is available from the following Internet and BITNET E-mail addresses

Comserve@vm.its.rpi.edu
Comserve@Rpitsvm

About Comserv

"The Comserve system governs access to more than 25 public hotlines and provides special commands and facilities to make it possible to treat these hotlines as subdivisions within a coherent structure."

The information listed below was obtained by sending a

Help Topics Hotlines

E-mail message to the Comserv address. The "Topics Hotlines" mailing also contains information about subscribing and unsubscribing to Comserv services.

CIOS is a non-profit organization operating as a publicly supported charitable foundation... Comserve is an electronic information service for professionals and students interested in the study of human communication. Comserve is supported in part through the cooperation of the Department of Language, Literature, and Communication and Information Technology Services at Rensselaer Polytechnic Institute...

Some of Comserve services are reserved for use by individuals who elect to become associate members of the Communication Institute for Online Scholarship....

MultiMedia Lab for Macs

Rich Reardon, University Media Resources



Have you ever wished for a computer station on campus, accessible to faculty, that would allow you to scan a photo, scan a slide, digitize a video tape image, play or digitize a videodisc image, play or digitize CD-ROM images, digitize sound, edit sound files — all on the same Macintosh? And then, to extend your wishful thinking, wouldn't you love to process these text, image, sound, animation, and video files with sophisticated applications like Adobe Photoshop, Studio 8, and Swivel 3-D for eventual incorporation into multimedia software, like Aldus Persuasion, MacPresents, MacroMind Director, or Hypercard? Furthermore, wouldn't it be great if a knowledgeable user was hovering nearby to anticipate your mistakes or respond to your problems? Or, if you didn't have the time, was able to take your idea and materials and develop the application for you?

No, the Eveready Rabbit is not about to come drumming across your mental landscape: this service exists now. And for projects used for credit course instruction, these services are free!

We're Open for Business

University Media Resources' MultiMedia Lab is open for business. Faculty may book the Macintosh station and do the work themselves, have us design and produce their application, or request any collaborative arrangement in between. Call Rich Reardon at 625-3486 for information.

Free E-Mail Accounts for Student Organizations

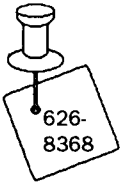
► E-mail can help facilitate communication. Accordingly, as part of our campus-wide E-mail project, we recently created free E-mail accounts for nearly 400 student organizations.

All student organizations officially registered with Student Activities as of February 1993 have been assigned an E-mail account. The president or registered representative of each organization has been sent a letter containing information about getting started with the new account.

Unregistered student organizations that wish to register their organization (and, thereby, establish an E-mail account) should contact Student Activities, 220 Coffman Memorial Union, 624-5101.

Software Services

Information Management Using INGRES



If you have ever directed a research project that collected large amounts of data, you are probably well aware of the difficulties involved in selecting a computer-based system to store, manage, and utilize the information collected by your study.

A common approach to organizing large amounts of information on a computer is to use a general-purpose relational database management system. These systems typically provide tools to help you to

- define the attributes of your data,
- load the data into an appropriate and efficient storage structure on a computer, and
- utilize the stored information through a variety of menu-based or forms-based interfaces.

A Case Study

Recently, a researcher involved in analyzing Minnesota population and housing data from the 1990 census asked our Software Services staff to assist him. He wanted to develop a computer-based system that could store the census data and make it easily accessible for analysis. Because of time constraints, the database system had to be developed in a short period of time and had to load large amounts of information with a minimum of computer programming effort. Census data stored in the database also had to be easily retrievable and capable of interfacing with existing data systems operated by the researcher. Based on these requirements, Software Services staff chose INGRES as the database software most suited to the researcher's needs.

About INGRES

INGRES is a general-purpose relational database management system available on two VAX central-system computers running the VMS operating system. INGRES was designed for a wide variety of users, ranging from database management experts to beginning computer users with little experience. INGRES provides a complete set of integrated tools (command-based utilities and forms-based utilities) that allow you to quickly define a database, load data and update information in the database, display and print information from the database (generate reports), and maintain the security and integrity of your data.

We offer individualized service
on a billable basis.

Step by Step...

Using INGRES, our Software Services staff defined 63 separate tables (i.e., record types) to hold the various kinds of population and housing data which the researcher hoped to analyze. Next we extracted data from a Summary Tape File, provided by the U. S. Bureau of the Census, and organized the data into a series of disk files containing fixed-length records. We created a separate data file (load file) for each of the 63 database tables, and used the *COPY* command (an INGRES utility for efficiently loading information into database tables) to populate (load records into) all 63 of the census database tables.

Tools to Simplify Tasks

Once the database was loaded with all necessary census data, the researcher was able to retrieve and analyze the information using the INGRES Query-By-Forms and Report-By-Forms utilities.

Query-By-Forms

Query-By-Forms (QBF) is a forms-based system that allows users to retrieve, display, and update information stored in database tables.

Report-By-Forms

Report-By-Forms (RBF) is a forms-based system which quickly creates formats for customized reports.

Terminal Monitor

The census researcher also used the INGRES Terminal Monitor utility to enter and execute database queries designed to answer specific questions about the makeup of Minnesota's population and housing requirements. The Terminal Monitor is the primary INGRES user interface for performing database queries. It can be used as either a forms-based utility or an interactive command utility. The interactive command version allows sophisticated users to enter powerful query commands that are part of Structured Query Language (SQL), the industry standard relational query language.

COPYDB and UNLOADDB

This researcher also needed to be able to integrate this new census data into existing research databases on other computer systems. We used the INGRES utilities *COPYDB* and *UNLOADDB* to dump table definitions and table records to disk files in standard ASCII format. We then transferred the files to other VAX computer systems where they could be used to define and load the 1990 census tables into a different INGRES database used by the researcher.

The COPYDB and UNLOADDB utilities are excellent tools for transferring INGRES database information between different computer systems. They are also useful for backing up or restoring an INGRES database. In addition to these tools, the COPY command can also be used to write data from database tables to disk files according to user-specified formats. This provides INGRES users with three different tools for transferring data, integrating data into other computer-based systems, or backing up the database.

INGRES' Strong Points

INGRES is a powerful, yet easy-to-use relational database management system. Users with little computer experience can successfully manage large data sets using INGRES/MENU, a forms-based system that provides access to INGRES tools via a main INGRES menu. Sophisticated computer users can execute operating system-level commands to access the complete set of INGRES database tools and utilities.

INGRES' strength lies in its ability to successfully manage large volumes of information. An INGRES database may reside on a single computer system or be distributed across a network. A distributed INGRES database can be utilized to provide distributed storage, processing, and access across a spectrum of computer hardware.

For More Information

Our Software Services staff has many years of experience in developing large, complex database systems for University researchers and departments. If you would like more information about INGRES, or assistance from the Software Services staff in developing a database application, please call Greg Strutz at 626-8368.

We offer individualized service on a billable basis.

Central System News

These articles include sample commands, such as

```
man sas | lpr -P printer -C bin
```

In our samples, words that you must replace with a specific name, value, or command appear in italic type. Using the sample above, instead of including *printer* in your command, you would include the name of a specific printer, such as *NICHIA*.

▼ SAS version 6.07 on EP/IX



You can now access SAS version 6.07 on the machine EPX.CIS.UMN.EDU that runs the EP/IX (UNIX) operating system. Once you've accessed this system, you will see this prompt

```
epx: %
```

SAS is a full featured statistical analysis and graphics system that you can run from interactive, non-interactive and batch modes. You can also use SAS/ASSIST through the interactive mode to generate SAS commands.

SAS on EP/IX contains many SAS products: BASE, STAT, OR (Operations research), QC (Quality control), IML (Matrix language), ETS (Time series), INSIGHT (Exploratory data analysis), GRAPH (Graphics), AF (Applications programming), and FSP (Full screen programming).

SAS can be a daunting language to learn, especially when it comes to data handling procedures with libraries, catalogs, individual datasets, and data engines. Simple-to-use SAS/ASSIST is very helpful for novices. However, anyone who plans to be a long term user of SAS should learn how to program in SAS because this allows greater control over output and analysis.

Running SAS

There are two modes for running SAS interactively on EP/IX: a line-by-line interactive mode and a display manager mode.

Line-by-line Mode

The line-by-line interactive mode is the default for interactive use. To access this mode, simply type:

```
sas
```


You may want to add one or both of these options

```
-altlog filename
-altprint filename
```

to send the SAS log and SAS output to the files specified. If one or both options are not used, log output and/or procedure output are only displayed on the terminal screen.

Display Manager Mode

To access display manager system (dms) mode, type:

```
sas -dms -fsdevice ascii.vt100
```

This assumes you're using a VT100 terminal or a communications program that emulates a VT100. Again, you may want to use the *-altlog* or *-altprint* options

There are many other options you can use to control the SAS session. These are listed in on-line documentation that you can read by typing:

```
man sas
```

To print this on-line documentation, type:

```
man sas | lpr -P printer -C bin
```

where *printer* tells which printer to use (e.g., *NICHIA* at Nicholson Hall 1) and *bin* tells where to send the output (e.g., *EA *425*, bin 425 in Nicholson).

Non-interactive Mode

The non-interactive mode of running SAS involves two steps:

1. Using an editor to create a file *commandfile* with desired SAS commands
2. Invoking SAS by typing:

```
sas commandfilename
```

SAS creates two new files in your directory with extensions *.log* and *.lst* for the log file and procedure output file respectively. You can add the non-interactive options *-log filename* and *-print filename* to the SAS command to send the log and print output to specific files.

Batch Mode

You can perform batch execution of a SAS command file by creating the SAS command file in the same way as for non-interactive SAS and submitting the command file as a batch job. You can get information about batch execution of files by using:

```
man batch
```

There is some further information about EP/IX batch jobs on page 216 of our March newsletter, part of our *Save Money After Hours* article.

Example 1:

Suppose you have a small dataset with three variables – a, b, c. You want to print out the dataset and see if variable “a” depends on variables “b” and “c” in a linear fashion. You create a SAS command file to read in the data, print it out, and perform a linear regression. Figure 1a shows Example 1, command file *test1.sas*.

Figure 1a: Command File *test1.sas*

```
data temp;
input a b c;
cards;
1 5 6
4 7 8
3 4 4
7 6 9
3 6 7
;
proc print;

proc reg;
model a=b c;
```

Now, invoke SAS:

```
sas test1.sas -linesize 80 -center
```

The option *-linesize 80* limits output to 80 characters per line (default is 132) and *-center* centers output. The output file *test1.lst* is shown in Figure 1b.

Figure 1b: Output File test1.sas

The SAS System 12:49 Friday, March 26, 1993					
1					
OBS	A	B	C		
1	1	5	6		
2	4	7	8		
3	3	4	4		
4	7	6	9		
5	3	6	7		
The SAS System 12:49 Friday, March 26, 1993					
2					
Model: MODEL1					
Dependent Variable: A					
Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	2	11.47083	5.73542	1.484	0.4026
Error	2	7.72917	3.86458		
C Total	4	19.20000			
Root MSE	1.96585	R-square	0.5974		
Dep Mean	3.60000	Adj R-sq	0.1949		
C.V.	54.60707				
Parameter Estimates					
Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > T
INTERCEP	1	1.125000	5.10743943	0.220	0.8461
B	1	-1.354167	1.72596340	-0.785	0.5149
C	1	1.479167	1.02306304	1.446	0.2851

Figure 2a: Command File test2.sas

```

data temp;
input a b c;
cards;
1 5 6
4 7 8
3 4 4
7 6 9
3 6 7
;
filename xxx 'scatter.ps';
goptions device=ps300 gsfmode=replace gprolog='25210d0a' x gsfname=xxx;
proc g3d;
scatter b*c=a;
run;

```

Example 2

Example 2 is shown in Figure 2a, command file *test2.sas*. This example has the same data as Example 1, but produces a three-dimensional scatterplot of the data using a procedure from SAS/GRAPH. The *device* and the *gprolog* options as presented here must be included in the *options* statement to produce a working PostScript file.

Invoke SAS:

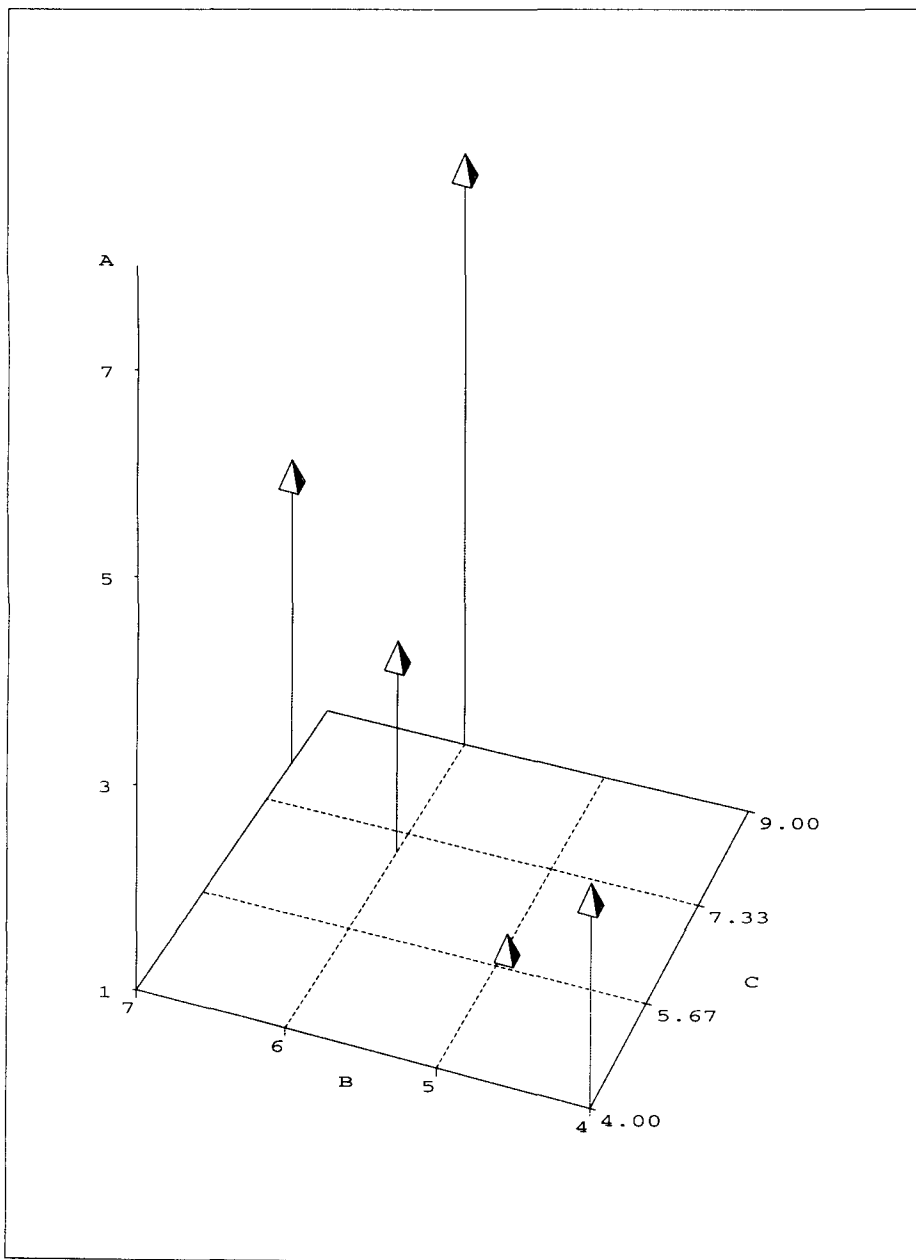
```
sas test2.sas
```

This produces a PostScript file *scatter.ps* which can be printed at any PostScript printer throughout the campus by typing:

```
lpr -P printer -C bin scatter.ps
```

The output is shown in Figure 2b.

Figure 2b: Output File, test2.sas



Documentation

Documentation for SAS is voluminous and expensive. There are three main manuals for Base SAS: *SAS Procedures Guide, Third Edition*; *SAS Language (Reference), First Edition*; and *SAS Language and Procedures (Usage), First Edition*. The manuals for SAS/STAT come in two volumes. A helpful manual for using SAS on EP/IX is the *SAS Companion for the UNIX Environment and Derivatives, Version 6, First Edition*.

You should not buy a manual without looking at it thoroughly to make sure it contains the desired information. Manuals for Base SAS and SAS/STAT can be purchased from the Minnesota Book Center in Williamson Hall or Books Underground on the St. Paul Campus. Manuals for the other SAS products may be in stock or can be ordered through the bookstores or ordered directly from SAS by calling (919) 677-8000.

Reserve copies of the manuals are kept at Nicholson Hall 1.

SAS Help

Questions on SAS can be directed to our Statistics Help Line at 626-5592 or to the St. Paul Help Line at 624-6235. Otherwise, you can send E-mail to

consult@epx.cis.umn.edu



▼ SPSS Graphics on VMS



What has pies, bars, lines, maps, statistics, text, and combinations? If you've read the title, you can safely guess the answer: SPSS Graphics. We recently installed this package on our VMS machines VX and VZ. It

features pie and bar charts, line graphs, statistical plots such as histograms and scatterplots, choropleth maps, pages of text, and combined images of charts, graphs and text.

Two Access Methods

There are two ways to use SPSS Graphics. You can go directly to the package by entering, at the VMS \$ prompt,

```
SPSSGRAPHICS
```

You can also access it from within SPSS 4.0 or 4.1 by using the *GRAPH* command.

SPSSGRAPHICS

The standalone SPSSGRAPHICS program is completely menu based — and there are a lot of menus. It's described in a colorful 350-page manual: *SPSS Graphics, Revised Edition*, SPSS Inc., 1991 for \$33. The manual is in two parts: a user's guide showing how to use the package, and a reference manual giving you details on the choices.

In SPSSGRAPHICS, you can enter data values directly, or you can provide an SPSS system file. The system file can come from a prior SPSS job or can be from a previous SPSSGRAPHICS run.

SPSSGRAPHICS is a very capable system, but it offers a bewildering set of choices. You definitely need to follow the manual to get used to the many menus. You have to learn a lot before you can do much with it.

Examples

Because the explanations for SPSSGRAPHICS examples are too long for the newsletter, we've put two examples into files accessible from the LISTDOC command. Enter:

```
listdoc
```

Then choose the topic *Statistics* and *SPSSGRAPHICS Examples*. The output from the two examples is shown in Figures 1 and 2.

Figure 1: Statistics Example

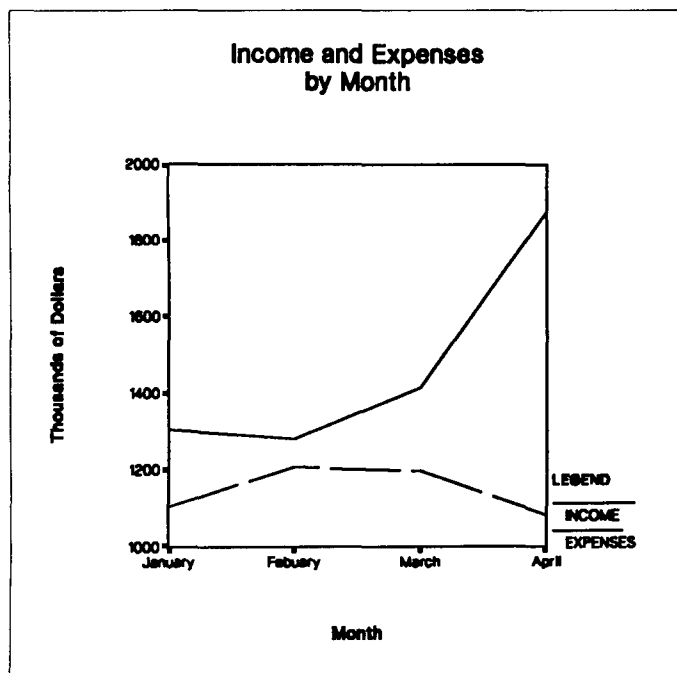


Figure 2: SPSSGRAPHICS Example

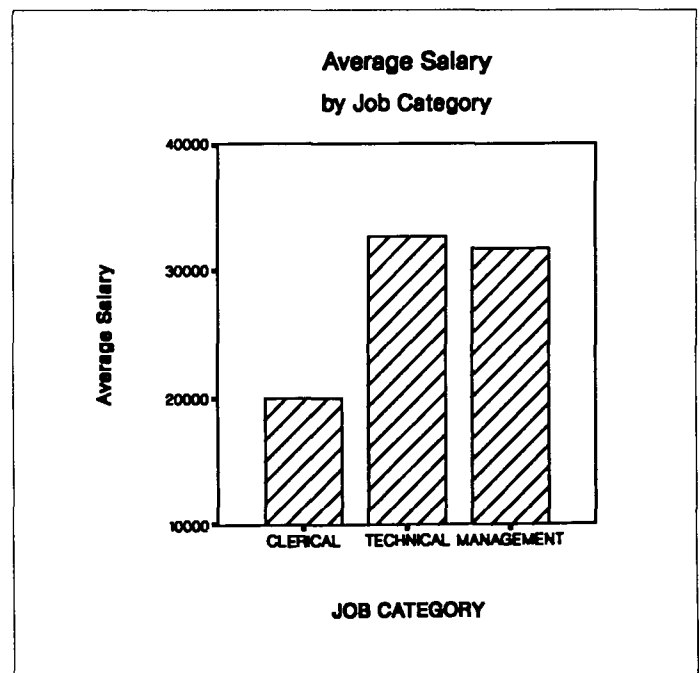
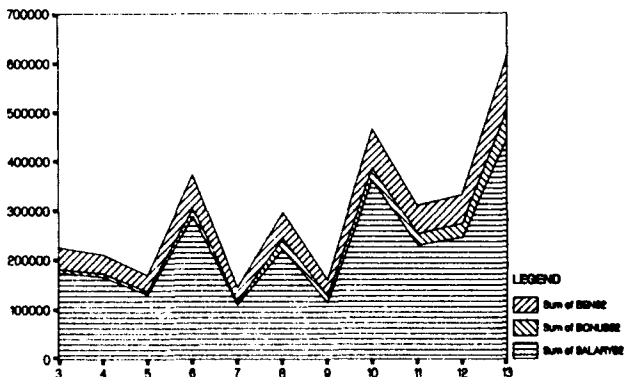
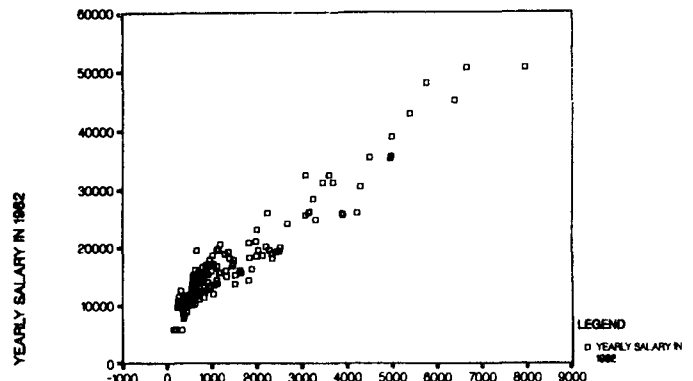


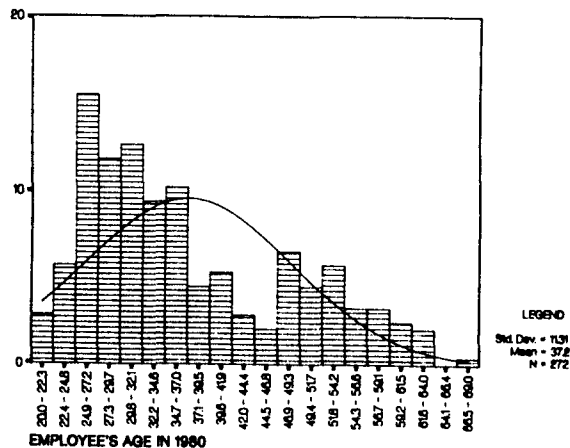
Figure 3: Examples from the SPSS Manual



JOB GRADE IN 1982
LINEAREA-SUMSALARY BONUS2 BONUS BY GRADE



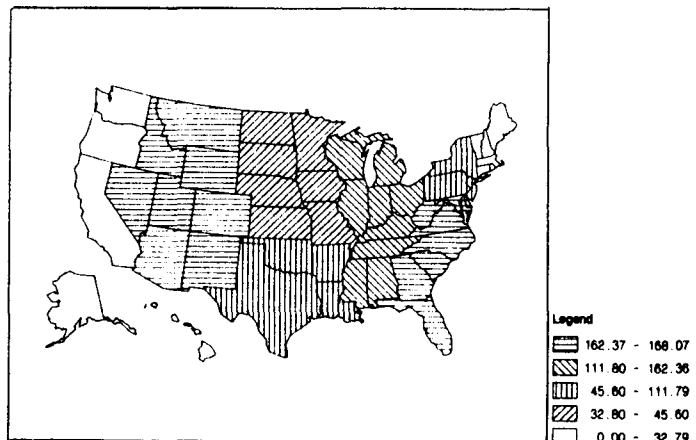
BONUS IN 1982



EMPLOYEE'S AGE IN 1980

Coal Production

In Millions of Metric Tons



Legend
162.37 - 168.07
111.80 - 162.36
45.80 - 111.79
32.80 - 45.79
0.00 - 32.79

GRAPH Command of SPSS

This command is only described on pp. 246-274 in the *SPSS Reference Guide* (SPSS Inc., 1990) in reference manual format. If you have something simple to plot, the *GRAPH* command is easier to use (see the example). However, SPSS doesn't give you any prompts and requires you to know ahead of time what you want to do. Some of the questions you might have about the *GRAPH* command are answered in the SPSS Graphics manual (which doesn't explicitly discuss the *GRAPH* command).

When you use the *GRAPH* command from within SPSS, SPSS builds a file of commands that it saves on your directory and then it internally calls SPSSGRAPHICS. If you run SPSS interactively, you will see the SPSS-GRAPHICS greeting screen and watch it zip through all the menus. (You can also run it step-by-step.) If you use *SUBMIT* to run SPSS in batch mode, the menus aren't listed because you can't control them interactively anyway.

Plot Output

For both methods, plots can be sent to PostScript printers and many other plotting devices. They can be viewed on your screen from within SPSSGRAPHICS if you have a graphics terminal (though not X-Windows terminals yet). For example, Tektronix graphics terminal emulators are built into the NCSA Telnet programs for both the Macintosh and IBM PC.

SPSS Graphics Examples

To give you an indication of the types of plots you can generate, we put together some SPSS Graphics examples from the *SPSS Graphics Reference* manual. We excluded common bar and pie chart examples. Figure 3 shows the examples from their manual.

Graph Command Example

We want to make a simple bar chart; see Figure 2. First, create a file

```
graph.sps
```

using the editor. The file is shown in Figure 4.

The *GRAPH* command option */bar* indicates a bar chart, */adevice=vt100* tells SPSS Graphics that the alphanumeric input device for entering data is a VT100 terminal, and */gdevice=postscrp* indicates that the graphics device is PostScript output in portrait mode. Finally, */gout=xx.ps* asks SPSS Graphics to put the PostScript output on the file *xx.ps*.

The *GRAPH* command has options which correspond to the most basic menu selections of *SPSSGRAPHICS*. The required options are */adevice*, */gdevice*, and a chart type (here, */bar*). You also need */gout* if you're sending the output to a plotter or PostScript device.

Figure 4: GRAPH.SPS Example

```
data list list/salary job.
begin data.
17000 1
23000 2
14000 1
54000 2
45000 3
34000 3
29000 1
21000 2
16000 3
end data.
variable labels salary 'SALARY' /job 'JOB CATEGORY'.
value labels job 1 'CLERICAL' 2 'TECHNICAL' 3 'MANAGEMENT'.
graph /title='Mean Salary for Job Groups'
  /bar=mean(salary) by job /adevice=vt100 /gdevice=postscrp /gout=xx.ps.
```

Now, generate the plot by typing:

```
spss.graphtes.sps
```

If you do this interactively, you will get an *SPSSGRAPHICS* screen display near the end of the run, to which you should respond with a **Return** key.

When *SPSSGRAPHICS* has gone through all its menus, respond with another **Return** key. After that, press the **2** key on the numeric keypad (not the **2** on the regular keyboard). Then type **A** and press the **1** key on the numeric keypad to leave *SPSSGRAPHICS* and to complete the job.

Now that the graph is in file *xx.ps*, plot it by sending it to a PostScript printer (in this case, at Nicholson Hall 1, bin 425):

```
print xx.ps /queue=nich1a /name=ea.425
```

Manuals

You can order the manuals *SPSS Graphics, Revised Edition* and *SPSS Reference Guide* from SPSS Inc. by calling them at 312/329-3500. Copies are on reserve in Nicholson Hall 1.

SPSS Graphics Help

There is an online help file for *SPSSGRAPHICS*. To enter it, type:

```
help.spssgraphics
```

From inside *SPSSGRAPHICS* you can enter

```
&local
```

to get some information about the package.

You can call our Statistics Help Line at 626-5592 if you have questions about *SPSS Graphics*. You can also send E-mail to

```
consult@vx.cis.umn.edu
```

at any time. E-mail inquiries will usually be answered the next working day.

▼ SPSS 4.1 Available on VMS



SPSS (Statistical Package for the Social Sciences) is the most heavily used statistical package on our machines running VMS, so we try to keep it as up-to-date as possible. Thus we have installed a new version of *SPSS* on VMS: machines VX and VZ. *SPSS 4.1* is completely upward compatible with version 4.0. It only corrects errors found in version 4.0; there are no new features in it. Version 4.1 works with *SPSSGRAPHICS*, as announced elsewhere in this newsletter.

Corrections for REGRESSION

For *REGRESSION*, the new residuals variables *MCIN* (lower and upper bounds for the prediction interval of the mean predicted response) and *ICIN* (lower and upper bounds for the prediction interval for a single observation) are now calculated correctly. In 4.0, they were obviously wrong, with the lower values positive and the upper-bound values negative.

Corrections for CROSSTABS

For *CROSSTABS*, in *general* mode when the upper left cell of the crosstabulation table is empty, the kappa value and *ASE1* for kappa statistics are now calculated correctly. Also in *general* mode when one of the cells in the first column is empty, the risk statistic is now computed correctly. (For these cases in *integer* mode, all these statistics were correct in 4.0.) When *ASE0* for the uncertainty statistic is zero, no values will be printed for the *t* statistic (rather than printing an incorrect value). Note that the user manuals and algorithm documentation should say that *ASE0* and the *t* statistic are based upon the normal curve approximation (rather than being based on the *t*-approximation).

Corrections for Batch Log File Output

For submitted batch jobs, the log file no longer contains a duplicate of the printable output if the */OUTPUT* qualifier is used on the *SPSS* command.

Running Version 4.1

To make *SPSS 4.1* available on VX or VZ, at the \$ prompt type:

```
select spss41
```

For information on the *SELECT* command, type

```
help select
```

To run SPSS 4.1, type

```
spss /output=outfile command_file
```

where *command_file* contains your input to SPSS and *outfile* will contain the printable output when SPSS is done. Alternatively, you can use the menu-driven front-end called the SPSS Manager by entering:

```
spss /manager
```

SPSS Manager helps you build commands and review output. It includes a menu-based command generator with context-sensitive help, an online glossary, and extensive editing capabilities. Although it's similar to the way SPSS/PC and SPSS for the Macintosh operate, it isn't as easy to use as the microcomputer versions.

Schedule for Version Changes

SPSS 4.0 will continue to be the default version until mid-June when 4.1 will become default. In late August, we plan to remove version 4.0.

Documentation and Help

SPSS is documented in the:

- *SPSS Base System User's Guide* — tells how to use SPSS commands and explains statistical concepts
- *SPSS Advanced Statistics Users Guide* — discusses more advanced SPSS commands
- *SPSS Reference Guide* — documents and gives examples of all commands in alphabetical order
- *SPSS for VAX/VMS Operation Guide* — gives basics on VMS EVE and EDT editors, tells how to run SPSS on VMS and has extensive information on SPSS Manager.

There's some online information about SPSS. Type *HELP SPSS* or type *LISTDOC* and select *Statistics*. If you have questions about SPSS or about statistical software on central systems or microcomputers, please call 626-5592. You can also send E-mail at any time to

```
consult@vx.cis.umn.edu
```

SPSS on Other Central Systems

On both the EP/IX (UNIX) system `epr.cis.umn.edu` and the IBM VM/CMS system `vm1.spcs.umn.edu`, the current version of SPSS is 4.0.

▼ What vi Mode Are You Using?



This article originally appeared in the April, 1993 News Cache published by Rensselaer Polytechnic Institute in New York. It's reprinted by permission; we've only changed computer names.

“Insert mode or command mode? It can be so confusing, especially if you are new to vi, a text editor available on EP/IX (`staff.tc.umn.edu` and `student.tc.umn.edu`). However, there is a command you can use in vi to display the mode you are currently using.

“In vi, press the `[Esc]` key to go to command mode, then press the *colon* key and enter

```
set showmode
```

“This command will make a phrase such as *INPUT MODE* or *REPLACE MODE* appear in the lower right corner of the screen on the status line when you are in insert mode. Insert mode allows you to add or replace text. When you press `[Esc]` to go to command mode, the status line will become blank. Command mode allows you to press the *colon* key to move the cursor to the command line and issue commands such as “w” for *write* and “q” for *quit*.

“To use *showmode* in every vi session, edit or create a file in your home directory called

```
.exrc
```

“In this file, add the line

```
set showmode
```

without the colon used in vi. Save the file, and the next time you use vi, it will automatically show you what mode you are using.”

Note: *showmode* is not a “standard” vi feature. Thus, it's not available in Ultrix that runs on machine UZ. However, if you use UNIX on other systems, it may work there. You can just type the command and see if vi accepts it.

▼ DISSPLA, PICTURE, DI-3000 to be Removed from VMS



Due to the expense of the graphics packages DISSPLA, PICTURE, and DI-3000 and their lack of use on our VMS systems, we will delete them when their current contracts expire.

Graphics Software	Will Be Turned Off
DISSPLA	June 14
PICTURE	July 28
DI-3000	July 28

Your Other Choices

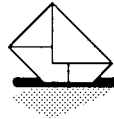
The remaining graphics library software on VMS is a Calcomp-to-Postscript library adapted from some public domain code.

We plan to make this code available on the EP/IX system in the future. We also plan to examine other low-cost graphics software that can run both on UNIX and VMS. Other graphics alternatives are SAS/Graph and the SPSSGRAPHICS package (announced elsewhere in this newsletter).

If you have questions or comments about graphics or about the planned software removal, please contact Mike Frisch at 625-5830, or

mjfrisch@vx.cis.umn.edu

Macs, the Kodak Printer, and Merged Files



If you read the article in our March issue on sending Macintosh files to the Kodak CENTRAL printer, you already know where to obtain the Kodak Lionheart software, the documentation, and how to install it on your Macintosh. (The March newsletter is on Gopher in its usual place in the *Computer Information* section.) If you need more information, you can call Peter Bartz at 626-1661 to set up an account to use the printer.

When you install the Lionheart software, you also install three desk accessories that show up in your menu: File Merge, Info Merge, and Utility. In this article, you'll learn how to use the File Merge accessory for combining several Macintosh files into a single long file that is printed on the Kodak CENTRAL printer.

The Preliminaries

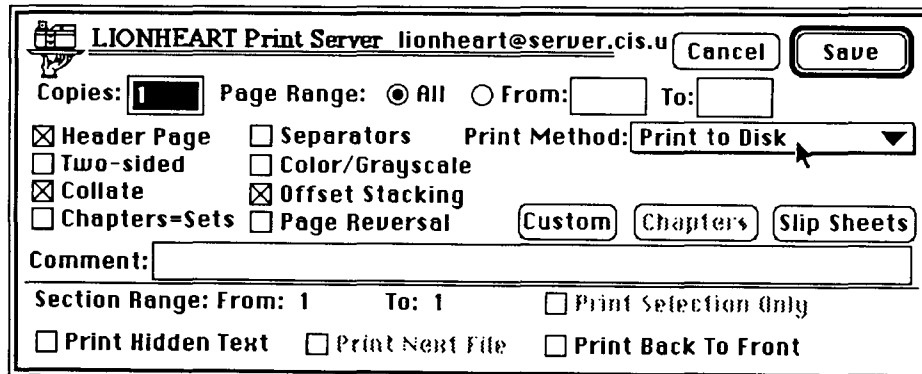
First go to the *Chooser* in the menu and select the *Lionheart Print Server*, as explained in our March article.

In some cases, the Lionheart software may not be able to tell how many pages are in the documents you're merging. In that case it will ask you for the number of pages. For your own convenience, check the number of pages in each file before you begin merging.


Then make sure that the files you want to merge and print are in plain PostScript format, ready to send to the Kodak. The Lionheart software provides a way to do this. Open the files and, for each one, select the *Print* option from the *File* menu. The Lionheart print server window will open up (Figure 1).

Go to the *Print Method* option in this window and select the *Print to Disk* option, which is displayed in Figure 1. This "converts" the file to a plain PostScript format. Save the file under a new file name. It is this new file that you will send to the Kodak. (If you try to send an unconverted file from a word processor or graphics package, it may not print successfully.)

Figure 1: Save a "Plain" PostScript Version



Merging Files

Now go to the  menu and select *File Merge*. The File Merge window (Figure 2) will open on your screen. Click *Add Local Doc* to select the first file that you want to merge. Another window will open from which you can select any file on your disk. Select the file you want and click the *Add* button.

At this point the File Merge software may ask you for the number of pages in the selected file. Type in the correct number and click the *OK* button.

Next you'll return to the first File Merge window; notice that your selected local document is now displayed in that window.

Repeat these steps for each file you want to merge. Eventually you'll have several files listed in the File Merge window (Figure 3). The files will be merged and printed in the order they appear in this list. Therefore, if you want to change the order, select a file you want to move and use the appropriate buttons — *Move Up* or *Move Down*. You can also use the *Remove Document* button to remove files from the list.

When you've finished adding, removing, and rearranging files, go to the File Merge menu and select *Page Setup* to select the options you want for your printed file. These options were discussed in our March issue.

Then, returning to the File Merge window, click *Merge Files*. Another Print Server window will appear. Click *OK* and the merged files are on their way to the Kodak CENTRAL printer.

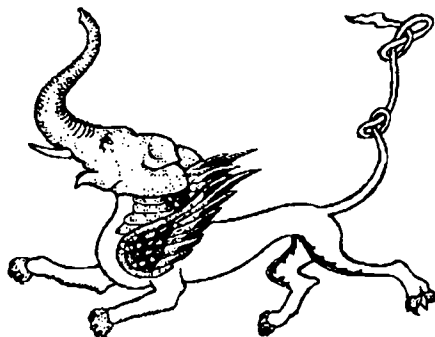


Figure 2: File Merge Window

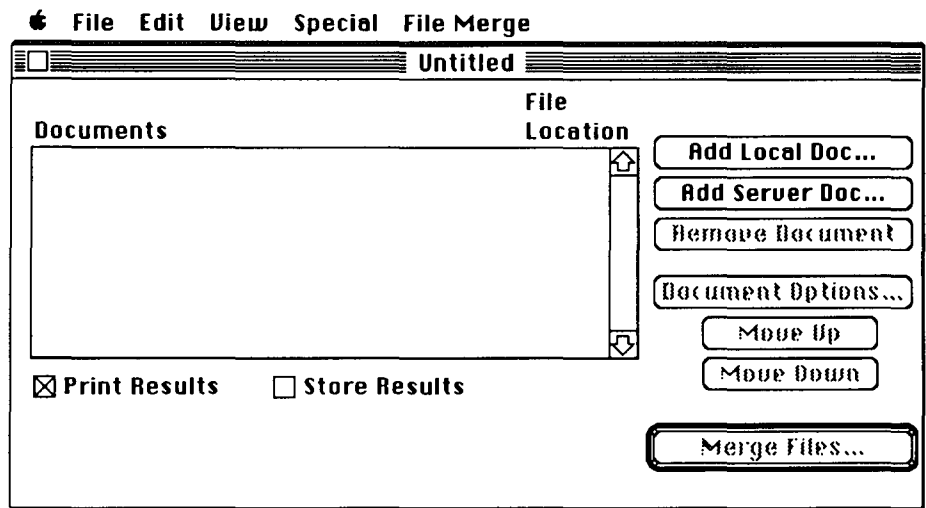
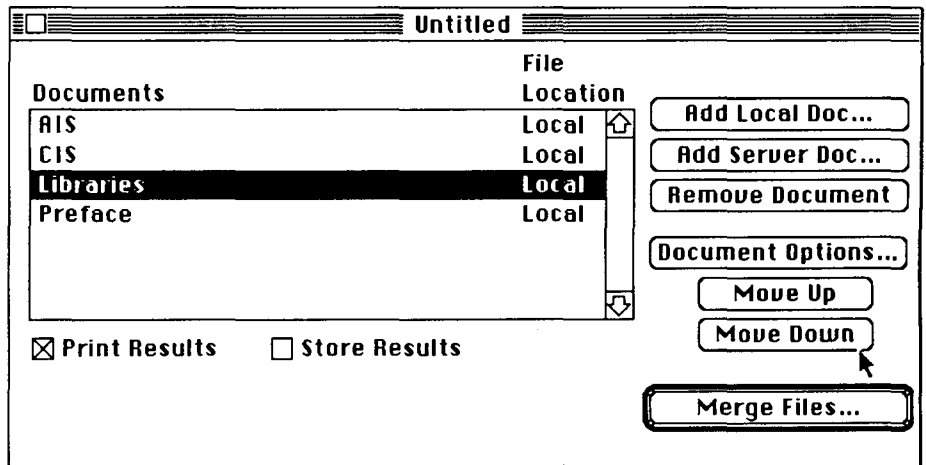


Figure 3: Documents That Have Been Selected to Merge



Server Options Not Available

In various windows and menus, as in the File Merge window in Figure 2, you have the option to store files on a print server, select files that have already been stored on a print server, or delete files from a server. At this time, we do not permit you to store files on our print server, so none of these options are available.

In rare cases, it may be necessary to store files on our print server to print your job. If this is the case, call Peter Bartz at 626-1661 for more information.

Site License Corner



We administer a wide variety of site licenses and volume discounts for software for Macintoshes, IBM/MS-DOS systems, UNIX-based workstations, and much of the software that is used on the IBM and DEC mainframes and minicomputers. You can call our department office at 625-1300 for information.

In this issue we introduce two new licenses and explain how the site license program works.

▼ Mathematica, Available May 1

As of May 1, 1993, we will have the Mathematica software available for departmental use. Departments have two ways to buy into the University-wide site license: purchase individual copies or purchase a departmental license.

Individual: for Macintoshes and IBM/MS-DOS systems the cost is \$200 per computer for the first year. To continuing using the license the next year, departments must pay \$100. The renewal fee must be paid each year. For workstations (UNIX-based and DECstation) the initial cost is \$450 per computer; the renewal fee is \$225 per computer.

Departmental: install Mathematica onto all departmental computers on all available platforms. The fee is \$2000 the first year. The annual renewal fee is \$1,000.

The license is just for software. You must purchase documentation separately. Here are some Mathematica titles the Book Center currently carries. (You will receive a 10% discount at the cash register.)

Mathematica by Wolfram, \$35.50; *The Mathematica Reference Guide* by Wolfram, \$20.50; *The Beginners Guide to Mathematica version 2* by Gray, \$20.50; *The Mathematica Handbook* by Abell, \$32.50; *Exploring Calculus with Mathematica* by Finch, \$21.50; *Mathematica for the Sciences* by Crandall, \$35.50; *Economic and Financial Modelling with Mathematica* by Barian, \$44.95; *Differential Equations with Mathematica* by Abell, \$44.95.

▼ EduTech Products

We also have several products from EduTech available at reduced prices. Here is a list of what's available:

Software	University Price
Action for Macintosh	\$ 80
AuthorWare Pro for Macintosh or Windows	315
SoundEdit Pro for Macintosh	51

The license includes the software only. You must purchase the documentation from EduTech.

In addition to these products, we are looking into volume discounts for other EduTech products for both the Macintosh and IBM/MS-DOS systems. As more information becomes available we will announce it here.

▼ How the Program Works

We get many requests from departments that would like us to obtain a site license or volume discount on various software. We use several guidelines to determine whether such a program is worthwhile to the University.

To be eligible for this program the software must be something that will benefit more than one department. In many cases, the cost of a license is substantial. We must have assurance that we will be able to offer the software to departments at a better price than would otherwise be possible through the Book Center or from the vendor. In addition, we must be able to cover the cost of the license through our charges to the departments.

Given these criteria, here is how we go about obtaining a site license or volume discount.

The first step is for a faculty or staff member to contact us and request that we investigate the potential for a license. Through various media, we determine the University-wide interest. We do this through our monthly newsletter, the Technical Coordinators, and other channels.

In general, if we find interest among 25 people from several departments, we will initiate negotiations with the software vendor. In other instances, we need to evaluate the viability of a University-wide license.

When we come to an agreement with the vendor, we advertise the availability of the product through this newsletter and various E-mail lists so we can begin distribution.

This is a very brief overview of how the Site License Program works. If you have questions about this, or if you would like to suggest software for the program, please contact Phil Kachelmyer. His phone number is 625-6821 and his E-mail address is

phk@boombox.micro.umn.edu

Book Center News: 625-3854



The offers listed here are made to University departments, employees, and students, and are subject to the eligibility rules of the Computer Discount Program. The Computer Desk in Williamson Hall is open Monday-Friday from 8:30 am to 5:30

pm during the Fall, Winter, and Spring quarters and for reduced hours at other times. For more complete descriptions of the hardware products listed here or of those available through the discount program, consult our handouts. Paper handouts are available at all Microcomputer HelpLines. Electronic versions are available in their usual *Computer Information* section on Gopher.

▼ 24-Hours-A-Day-Service

Anyone with access to Gopher can search the Computer Desk's database to find out part numbers, prices, and product availability. Here is where to look for the Gopher "Electronic Ordering" option:

Computer Information
Microcomputer Prices
Minnesota BookCenter...Electronic Ordering

You can charge your purchases on your MasterCard or Visa accounts. You can even copy the *Order Form* you'll find on Gopher to fax or E-mail an order. To expedite this process, be sure to fill out the order form completely.

Individuals must add 7% sales tax to all prices listed here, in our handouts, or on Gopher. University departments do not have to pay sales tax.

▼ Sign Up for E-mail Notification

You can get product and price change bulletins for the products sold through the Computer Desk via E-mail. To be added to the mailing list, E-mail a request to: request@boombox.micro.umn.edu

Once you are on the mailing list, you will receive notification via E-mail as soon as we have new prices or products.

▼ *New* - PSI Modems

The Computer Desk is carrying two new modems from PSI Integration. Like all full featured modems, they support several dialing options: pulse, tone, manual, and automatic. Both modems are Hayes AT compatible and come with a limited one year warranty with a five year option.

PSI Modem	Book Center Price
• ComStation V: external — modem to computer cable not included	\$ 330
• PowerModem IV: internal — for Mac PowerBooks with hard drive and 2MB of RAM	\$ 345

These PSI modems support similar specifications. Both support send/receive FAX (Group III) and work at speeds up to 14.4 bps (bits per second) for data and FAX.

Data Standards

The data standards they support are: V.21, V.22, V.22bis, V.32, V.32bis, and Bell 212A and 103. They also support V.42, MNP10, and MNP4,3,2 error correction

V.42 and the University

The V.42 standard provides for MNP5 and LAP-M data compression, an important consideration whenever you must go through the University's modem pool.

PowerModem Installation

To preserve your PowerBook and PowerModem warranties, the PSI PowerModem IV must be installed by an Apple Certified Technician, such as Engineering Services (625-1595). The \$345 price includes installation costs.

ARA for Macs

Both modems are compatible with AppleTalk Remote Access (ARA), software for Macintoshes.

▼ *New* - **Apple Workgroup Server 95**

Apple recently added a Workgroup Server to their line of computers. Sample prices and features are shown in Table 1. To use these machines you must purchase a monitor. Our handouts contain additional Workgroup Server parts, such as speakers for \$137.

DDS-DC

DDS-DC (Digital Data Storage–Data Compression) is tape-drive technology that allows backup of large amounts of data, for example 4–6 gigabytes.

Upgrade Kit

Upgrade Kit M6945Z/A for Apple Workgroup Server 95 PDS Card/DDS-DC Drive is available from Engineering Services for \$3300.

Table 1: Apple Workgroup Server 95

Basic			
Microprocessor	68040		
• speed	33MHz		
• FPU	integral		
Memory, maximum	16MB to 256MB (30-pin SIMM)		
• VRAM			
— installed	1MB		
— maximum	2MB		
Floppy Drive	one FDHD		
Expansion slots			
• NuBus	5		
• in-line PDS	1 with 512K SRAM		
Networking	Ethernet and LocalTalk		
• concurrent users	up to 50 active users		
SCSI support	4 and 2 are DMA (Direct Memory Access)		
• connected devices	20 maximum		
Operating System	A/UX 3.0.1 (with System 7 interface)		
Variables			
Part No. M68...LL/A	56	75	95
Price	\$7537	\$9616	\$9684
Memory			
• installed (MB)	16	32	48
Drives			
• Hard Disk(s) MB	500	1000	1000
			230
• Backup	DDS-DC	DDS-DC	DDS-DC



Table 2: ZEOS LiteLine Features

▼ *New* - **ZEOS LiteLine**

Recently ZEOS introduced a new line of 486SX computers, the LiteLine, shown in Table 2. ZEOS also carries 486SX machines in their Upgradable line. The hard disks in the LiteLine packages tend to be “smaller,” than in the Upgradable package, for example 214MB instead of 304MB.

Basic				
• System:	486SX-25 or 486SX-33			
• Memory, maximum:	32MB			
• System cache:	64K SRAM			
• Drives, Floppy:	two: 3.5" 1.44MB and 5.25" 1.2MB			
• Drives, Hard:	includes built-in 32K cache			
• Video Monitor	14" SVGA color 1024x768 non-interlaced with tilt/swivel base			
• Video Board:	on-board SVGA color			
• Expansion slots:	five 16-bit			
• I/O ports:	2 serial, 1 parallel, 1 mouse			
• Mouse:	Microsoft			
• Power supply:	200 watt, 115/230V switchable			
• Software:	MS-DOS 6.0 and Windows 3.1			
Variables				
	486SX-25		486SX-33	
• Package	1	2	1	2
• Price	\$1325.25	1610.25	\$1420.25	1705.25
• Memory, installed (MB)	4	8	4	8
• Hard Drive (MB)	107	214	107	214
• Video RAM:	512K	512K	1MB	1MB

▼ *New* - Apple Ergonomic Keyboard

Apple's Adjustable Keyboard is divided into two hinged sections. This design allows users to find the angle that keeps their wrists in a comfortable position when typing. The keyboard also has adjustable feet that control the keyboard's slope and height. You can rest your hands on the contoured surface of the detachable palm rests. This option can reduce stress on the neck and shoulder muscles and may minimize wrist-flexing.

This keyboard is compatible with any Macintosh running System Software 6.0.7 or later. Like other keyboards, this one plugs directly into the Apple Desktop Bus (ADB) port.

The Microcomputer HelpLine in Shepherd Labs has a keyboard you can try out.

Obtaining the Keyboard

You can purchase the ergonomic keyboard at anytime for \$179. If you select it when you purchase a Mac, then you can substitute the ergonomic keyboard for the standard keyboard by adding \$96 to the computer's price.

Ergonomic Keyboard	Price
— if purchased separately	\$ 179
— if purchased with selected Mac	96

▼ *New* - MS-DOS 6.0: \$45 Until May 28

Microsoft recently released MS-DOS 6.0 and is offering the upgrade at reduced prices through the end of May. The introductory price for one copy is \$45 and for 10-packs is \$360. On June 1st the single copy price will go up to \$75, and the 10-pack price will become \$469.

MS-DOS 6.0 has built-in help and new features such as MemMaker, a built-in memory optimizer and memory manager. You can install the MS-DOS 6.0 upgrade over IBM/MS-DOS versions 2.11 or higher.

The Microcomputer HelpLine in Shepherd Labs has installed MS-DOS 6.0 on a few machines. However, at press time we had little experience with IBM DOS 6.0. Look for a more detailed overview of DOS 6.0 in an upcoming issue of this newsletter. Microsoft has a non-technical Hot Line for questions about the MS-DOS upgrade: 800/228-7007.

▼ Price and Product Change Samples

Part	Memory (MB)	Hard Disk (MB)	New Price
• ZEOS 486SLC-25 desktop			
Pkg 2	1	42	\$ 1325.25
Pkg 3	2	42	1705.25
Pkg 4	4	107	1895.25
• ZEOS Notebook 286-12 desktop			
Pkg 1	1	20	\$ 945.25
Pkg 2	3	60	1515.25
Pkg 3	5	60	1895.25
• ZEOS Color Notebook			
Pkg 1	2	60	\$ 1895.25
Pkg 2	4	60	2370.25
Pkg 3	8	130	2845.25
• ZEOS Freestyle/SL Notebook			
Pkg 1	2	60	\$ 1420.25
Pkg 2	6	120	1895.25
Pkg 3	10	180	2370.25
• ZEOS Contenda Notebook			
Pkg 1	2	80	\$ 1420.25
Pkg 2	4	80	1705.25
Pkg 3	4	80	1995.25

- Apple Computers
- PowerBook Duo 210 *bundle*
- B1304LL/A 4 80 \$ 1599
- with external floppy drive and floppy adapter
- PowerBook Duo 230
- M4195LL/A 4 80 \$ 1875
- M4196LL/A 4 120 2170
- M4194LL/A 4 120 2365
- M4194LL/A comes with Express Modem
- Centris 650
- M1209LL/A 8 500 \$ 3465

- Apple Peripherals
- Printer: Personal LaserWriter NTR \$ 1275
- Printer: LaserWriter IIg 1750
- Modem: Apple Express price now includes installation 283

- Asante Ethernet Cards for Macintosh LC III, LC II, and LC
- (Asante cards for the LC II will not work in the III, but the LC III cards will work in the LC II and LC.)

With FPU socket only

MC+LCIII	Thin and 10baseT	\$ 196
MCLCTNIII	Thin	150
MCLC10TIII	10baseT	150

With FPU chip

MC+LCMCIII	Thin and 10baseT	286
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- PowerBook Close Out
- M1058LL/A Adapter models 100, 140, 145, 170 \$ 40

• NeXT products are no longer availablena

And Books, Too



If you cannot find the computer books you want in the Book Center's Reference section, tell us what books you want to buy. Send specific titles or areas of interest to: Maureen O'Brien, 160 Williamson Hall, Minnesota Book Center, 231 Pillsbury Drive SE, Minneapolis, MN 55455.

A 10% Discount

The prices listed below are suggested retail prices. The amount you actually pay will be less because you will receive a 10% discount at the cash register.

New Books

Here's what is new in the Reference section:

- ✓ *DOS for Dummies, Second Edition* by Gookin from IDG Books, a \$16.95 publication.
- ✓ *DOS 6 Handbook, Second Edition*, from IDG Books, International Data Group, a \$34.95 publication.
- ✓ *Mastering DOS 6, Special Edition* by Robbins, a Sybex publication for \$24.95.
- ✓ *Inside Macintosh, QuickTime* from Apple, an Addison-Wesley publication for \$29.95.

The Internet

- ✓ *Exploring the Internet, a Technical Travelogue* by Malamud, a Prentice Hall publication for \$26.95.
- ✓ *Internet Companion* by Laquey, an Addison-Wesley publication for \$10.95.
- ✓ *Internet System Handbook* by Lynch, an Addison-Wesley publication for \$59.95.
- ✓ *Internet, Getting Started* by Marine, a Prentice Hall publication for \$28.
- ✓ *The Internet Message: Closing the Book with Electronic Mail* by Rose, a Prentice Hall publication for \$47.25.
- ✓ *The Whole Internet: User's Guide and Catalog* by Ed Krol, an O'Reilly & Associates, Inc. publication for \$24.95.
- ✓ *Zen and the Art of the Internet* by Kehoe, a Prentice Hall publication for \$22.00.

Bargains

▼ Free Mac System Updates



Note: those who subscribe to our E-mail "news" bulletin service already received this information electronically via *Microcomputer News*. The *Free E-mail Services* section on the back page of each newsletter tells you how to subscribe.

🍏 32-Bit System Enabler for Selected Macs

You may want Apple's 32-Bit System Enabler if:

1. you have a Mac II, IIx, IICx, or SE/30 *and*
2. you have upgraded to System 7.1

Only System 7.1 users with these "older" computers should install the enabler.

Obtaining 32-Bit System Enabler

Apple's 32-bit system enabler is on the Mac Information Server. The files are free but are currently available only as 800K disk images (high density disks won't work). Look in the following folders on the information volume:

- System Software
 - Goodies for System Software:
 - 32-Bit System Enabler

32-Bit Addressing

The 32-bit System Enabler is a System extension that gives those using a Mac II, IIx, IICx, or SE/30 more memory options. Once the enabler is stored in the System folder, the System can take advantage of 32-bit addressing.

This System Enabler allows users of the Mac IIx, IICx, and SE/30 to access up to 128MB of physical RAM; those with a Macintosh II can access up to 68MB of RAM. The 32-bit System Enabler also allows these Macs to access virtual memory – although a Mac II needs a paged memory management unit (PMMU) to access virtual memory.

🍏 Mac System Update 1.0 for System 7.1

Is Apple's Macintosh Hardware System Update version 1.0 for you? Read on only if you

1. are running System 7.1
2. have a Macintosh LC, LC II, IIsi, IIvx, IIvi, Classic II, Quadra 900, or Quadra 950, *and*
3. have encountered a problem with the system clock, with high-speed modem communication, or with ejecting disks during system shut-down.

Not all the Macintosh configurations named here have experienced these problems. If the above does not sound like you, *do not* install this update. Update 1.0 contains software enhancements that fine-tune the system. Future versions of System 7 will include the enhancements.

Obtaining Update 1.0

Apple's Macintosh Hardware System Update 1.0 is on the Mac Information Server. The update is free and is only available as an HD (1.44MB) disk image. (Although 800K disks will not work, none of the Macs that can use this update have 800K disk drives.) Look in the following folders on the information volume:

- System Software
 - Goodies for System Software:
 - hardware-system-update

Available Directly from Apple

Customers can also obtain disk-based copies directly from Apple by calling 800/892-4649. (A \$10 shipping and handling fee applies.)

▼ "Calling" Bulletin Boards with Telnet



The E-mail help line recently received this question about Bulletin Boards. To reach the typical Bulletin Board (BB), you must use a modem and modem communications software, such as ProComm or TinCan.

Question

I don't use a modem. I have a computer on the network, but I still need to contact some BBs. Is there a way to dial out from a machine on the UM internet network? That is, if I can use the U's bank of dial out modems, then I would not have to purchase a modem.

Answer

Yes, you can access outside services using Telnet and the University's modem pool. Before you can use this service you must have a 9-digit UPAC (University Personal Access Code). This number is used for charging any long distance fee for such calls. Although there is no charge for local calls, you still need the UPAC number.

To get a UPAC number, send a Change Request Form (#GS92317) to Telecommunications. You must fill out sections 1-5 on the form:

1. All departmental and contact information
2. Action: check the box for "Add"
3. Other Services: check "M-NET" (this option will be updated to include UPAC)
4. Additional Information: include the UPAC holders name and address
5. Include all current budget numbers

Once Telecomm receives this form, it is processed within 24-48 hours. If you have additional questions, you can call Telecommunications at 625-1388.

Once you have the UPAC code, you can access bulletin boards by following these steps:

1. Telnet to
`mko.telecomm.umn.edu`
2. Wait for the menu prompt and select "O" for Outside.
3. Enter your UPAC code when requested.
4. Follow the menus the rest of the way.

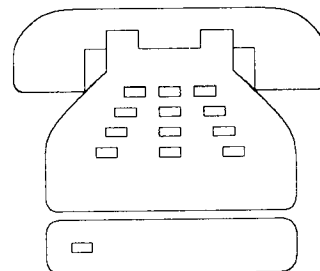
The exact IP address for "mko.telecom" is

`128.101.53.99`

Dr. Sawbones, a BBS

Dr. Sawbones is a local computer bulletin board system (BB or BBS) you reach by calling 827-9131. This BBS lets you read files on medical subjects. You can also leave health-related messages and read responses from others. Personal answers (with password protection) are available.

You can call Dr. Sawbones at speeds ranging from 300 to 2400 baud. Your other communications settings are 81N, that is, 8 data bits, 1 stop bit, and no parity.



Three Good Books on Using the Internet

Susan Mathews, Berkeley Computing



Here is a reprint from the January-February 1993 issue of *Berkeley Computing*. The prices given are list prices.

“Crossing the Internet Threshold: An Instructional Handbook, by Roy Tennant, John Ober, and Anne Lipow, 134 pages, spiral bound, Library Solution Press, \$45.

“Zen and the Art of the Internet: A Beginner’s Guide, Second Edition, by Brendan P. Kehoe, 112 pages, paperback, Prentice Hall, \$22.

“The Whole Internet: User’s Guide and Catalog, by Ed Krol, 376 pages, paperback, O’Reilly & Associates, \$24.95.

“The worldwide Internet is a rapidly growing information resource. The information available is voluntarily supplied, uncataloged, and constantly changing. Explaining how to get started exploiting the resources of the Internet is not an easy task. It’s an even more complex task to learn how to understand the Internet’s purpose and how to make full use of it. Fortunately, there are several good books on these topics. These books are reasonably up-to-date, clearly written, and well-organized. If you read many computer books, you will realize that this is not faint praise. Each of these books has a different focus.

“The authors of *Crossing the Internet Threshold* are from the Library and the School of Library and Information Studies on campus. This book is intended as both an introductory handbook and an instructor’s guide-book. It can be used in a course with a hands-on lab. Using only commands for electronic mail, remote

login, and file transfer, the exercises cover many different Internet resources. Since the authors are librarians, most of the examples use library catalogs; there are clear references for further information. A variety of types of Internet services are covered by one page Fact Sheets in an appendix. This concise volume is well-aimed at the librarian or academic researcher.

“Zen and the Art of the Internet provides general but practical information. As you might guess from the number of pages, *Zen and The Art of the Internet* is concise as well as clear and lively. Kehoe tries to point you to the places where you can find up-to-date specifics; he includes enough examples to give you an idea of the variety of resources out there. This edition is slightly dated because it doesn’t mention Gopher...as a way to access the Internet. Kehoe frequently describes the historical processes by which things on the network have come to be. *Zen and the Art of the Internet* is a good book to use when you already have access to the Internet, as many people at Berkeley do. It guides and challenges you to make creative use of the resources on the Internet.

“The Whole Internet is entertaining, and surprisingly non-technical in language, as well as comprehensive. No book can possibly cover all that is available on the Internet, but *The Whole Internet* covers most of the common tools and exhorts the reader to be imaginative in using them. The last part of the book is a catalog of selected resources on the Internet organized by academic discipline and presented in the style of the Whole Earth Catalog. While only a partial list, this catalog creates a vivid picture of the variety of information accessible on the Internet.

“To make full use of the Internet, you will need documentation for your specific computer, since the exact form of commands will vary. All three of these books are informative and useful—you may well want to read more than one of them.

“Crossing the Internet Threshold is available from Library Solution Press, 1100 Industrial Road, Suite 9, San Carlos, CA 94070. *Zen and the Art of the Internet* and *The Whole Internet: User’s Guide and Catalog* should be available in most local technical bookstores, but frequently have been sold out. You can order them from the Computer Literacy Bookshops, Inc., PO Box 641897, San Jose, CA 95164-1897. For more information, send electronic mail to info@clbooks.com. (You’re already learning one of the amazing things you can do with the Internet.)”

Computer Bookshop

We E-mailed an inquiry to the Computer Literacy Bookshops at

info@clbooks.com

and got a prompt reply that included their Internet ordering instructions and information on setting up a personal E-mail account with them. The personal account helps protect your credit card information.

Once you’ve established an account, you can order 30-40,000 books via E-mail. They will charge your VISA/MC, American Express, or Diner’s Club cards and ship the book(s) to you.

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Help: Computer and Information Services

▷ *Distributed Services and Planning*

Phone

Help Line Hours

Computer Services Information

625-1555

anytime

If you do not know which computer service number to call, dial the Computer Services Information Line.

Central Systems

These systems require a user name and password, which you get when you open an account.

Qualified users can apply for grants to cover some computing-related costs.

- EPX (UNIX), NVE (NOS/VE), UZ (Ultrix), VX and VZ (VMS) 626-5592 Monday-Friday 9 am to 4 pm
1 Nicholson Hall Walk-in Consulting Monday-Friday 10 am to 4 pm
- VM1 (IBM/CMS), 99B Coffey Hall Walk-in Consulting 624-6235 Monday-Friday 9 am to 4 pm
- MEDLINE (MinnesotaMEDLINE on NVE) 626-8366 Monday-Friday 9 am to 4 pm

Microcomputers and Workstations

Software, hardware, peripherals, local area networks 626-4276 Monday-Friday 9 am to 4 pm

- East Bank 152 Shepherd Labs above above
- West Bank 93 Blegen above Tue. and Fri. 1-4, Thur. 9-noon
- St. Paul 99B Coffey Hall above Mon. and Fri. 9-12, Wed. 1-4 pm

E-mail, Statistics, and LUMINA

- E-mail: call for help using your University account 626-7676 Monday-Friday 9 am to 10 pm
Walk-in help available in most campus Public Computer Facilities.
- Statistics: Microcomputer and Central Systems 626-5592 Monday-Friday 9 am to 4 pm
- LUMINA: call if you have trouble connecting 626-2272 Monday-Friday 9 am to 4 pm

General Information

Acting Associate Provost with Special Responsibility for Computing & Information Systems on the Twin Cities Campus

Donald R. Riley 626-9816

Computer and Information Services

Distributed Services and Planning Shih-Pau Yen
Engineering Services Don Clark
Networking Services Lawrence Liddiard
Software Services and Operations Lee Croatt
St. Paul Services Mel Sauve
Central System Accounts, IBM CMS 624-7788
EPX, NVE (includes MEDLINE), UZ, VX, VZ 6-8366
Disability and Computing Services, voice 6-0365
TDD 6-0569
Equipment Repair and Warranties (Engr. Serv.) 5-1595
Faculty Resource Center (to make an appointment) ... 5-1300
Kodak Printer Service 6-1661
Network Addresses (130 Lind) 5-8888
Public Computer Facilities (obtaining access) 5-1300
Software Services (includes contract programming) .. 5-2303
Data Entry, Minneapolis 6-8351
Data Entry, St. Paul 4-7297
Gopher Setup 5-2303
Statistics 5-2303 or 4-0758
Tape Librarians (Central Systems)
EPX, NVE, UZ, VX, VZ (Lauderdale Comp. Facility) .. 6-1838
VM1 (IBM/CMS in St. Paul) 4-3482
Training, Course Registration (190 ShepLab) 5-1300


Other Departments

Computer Desk, Williamson Hall Book Center 625-3854
(also Gopher's Microcomputer Prices/Electronic Ordering)
AIS (Admin. Info. Services) Customer Assistance 4-0555
Supercomputer Center Help (3030 SCC) 6-0808
Telecommunications, Networking Services
Information 6-7800
Repair 5-0006

Access Information


SLIP: 2400/9600 626-1920



SLIP: ADI-100 and ITE (with MKO) 3-0291

 Terminal settings for these systems are 8-1-N (8 data bits, 1 stop bit, no parity) unless otherwise noted. The number you dial may depend on the modem's bps or baud rate.



▷ Dial-in Server: 626-0300, -1200, -2400, -9600

- At 9600 Telecomm supports V.32 and MNP level 5 error correction.
- On campus ADI-100 and ITE setups use 626-2400.



 Internet addresses.

LUMINA: 300/1200/2400 625-6009 
LUMINA.LIB.UMN.EDU 


E-mail and Internet Interactive Sessions, Twin Cities


Students GOLD.TC.UMN.EDU 
Faculty and Staff MAROON.TC.UMN.EDU 

Gopher (log in as *gopher*)




300, 1200, 2400, 9600 see *Dial-in Server* 
CONSULTANT.MICRO.UMN.EDU 

Consulting via E-mail: *low priority Central System ques*



Format ____CONSULT@MACHINE.NAME.UMN.EDU
ExampleCONSULT@EPX.CIS.UMN.EDU 

PUBINFO (tn3270 only) ____PUBINFO.AIS.UMN.EDU 




EPX, NVE (includes MEDLINE), UZ, VX, VZ

300, 1200, 2400, 9600 see *Dial-in Server* 
300/1200/2400 at 7-1-even 626-1630 
EPX or UZ or VX or VZ or NVE.CIS.UMN.EDU 

EPX, NVE (includes MEDLINE)

300/1200/2400 625-1445 
up to 19.2 campus data phone 6-2400 

VM1 (IBM/CMS) at 7-1-even

1200/2400 624-4220 
up to 19.2 campus data phone 4-4220 
VM1.SPCS.UMN.EDU 



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June 1993

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Computer and Information Services

The University of Minnesota is committed to the policy that all persons should have equal access to its programs, facilities, and employment without regard to race, color, creed, religion, national origin, sex, age, marital status, disability, public assistance status, veteran status, or sexual orientation.

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