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UNIVERSITY OF MINNESOTA

# ACS Newsletter

Information Services

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## Changes on the Horizon— The Role of the CIO

*Mark Luker*

Acting Chief Information Officer

**I**n 1990 the University established a new administrative position, the Chief Information Officer, charged with creating a new, integrated approach to our information technology, one that spans academic and administrative computing, networks and telephones, video and multimedia instruction, libraries and databases, and strategies and policies across the entire institution. This decision recognized the new, critical importance of these services for quality instruction and research, as well as the fact that each is converging on the same basic technologies—digital electronics and computer networks—and so can benefit from coordinated planning and support. By taking the broader view, by working together, we can accomplish more and do it sooner. This new approach will require a basic shift in our ways of looking at information technologies and, eventually, our organizations that support these services in the University.

What is the nature of the shift? Some trends are clear—centralized computing is becoming distributed; libraries are making increasing use of networks to share and distribute information; data processing is giving way to information support systems; a small number of “open systems” are replacing many proprietary designs; point-and-click user interfaces are supplanting complex commands; client/server designs are simplifying access to information; graphics, FAX, voice, and video are moving into the workstations; and all will be linked together locally as well as nationally through the Internet. (Each of these points is a major topic of discussion in its own right.) Other developments are less clear, though probably even more revolutionary. All promise fundamental improvements in the ways we conduct our affairs as a University.

At Minnesota we will use two basic methods to chart and maintain our new course. In the first place, we will use strategic planning across all departments and technologies to identify the fundamental issues, problems, and opportunities that confront us and to select our basic responses. These issues will likely as not involve funding, training, organization, and other non-technical

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# ACS

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matters, and must be identified by our academic clients and justified in terms of our institutional goals. Secondly, we will use Total Quality Management, TQM, to focus our daily operations on the actual needs of our faculty and students, to measure their information technology problems, and to help solve them. This approach leads to a process of continuous improvement punctuated by breakthroughs to entirely new methods.

Although both systems take time to work, a number of problems have already been identified and can be addressed now. We plan, for example, to establish a single "help line" for questions regarding microcomputers, LAN's, mainframes, national networks, administrative systems, libraries, and telephones. Similarly, we plan to redesign our newsletters to provide a more coordinated view of all information services available at the University, leading eventually to a single newsletter of general interest and a collection of supplements and on-line bulletins for special needs. Both moves will require an explicit definition of our combined service offerings, to be determined through strategic planning and TQM to best serve the needs of the community. In the end, this will lead to a simpler but more powerful system of support for our faculty and students, and one that will respond more rapidly to changes in technology and needs.

The Information Services header on the cover of this newsletter signals the beginning of this process. You can expect to see specific service improvements in the near future, as well as the increased communications with clients required to maintain our long-term process of continuous improvement. You, as a client of the University's combined information services, will play a central role in the planning for these developments and our evaluation of their success. Please let us know how we are doing. Please suggest improvements. Thank you for your help.

## Lotus 1-2-3 on VAX VZ

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**A**s a service to University researchers and other University computer users who run the Lotus 1-2-3 spreadsheet package on their IBM-PCs and PC-compatibles, we've installed Lotus 1-2-3 for VAX/VMS on one of our smaller VAX machines, the VZ. This version is equivalent to PC Version 3.0 of Lotus 1-2-3.

**Figure 1** on the following page shows an example of a Lotus 1-2-3 spreadsheet created on VZ, as it would appear on a VT100 terminal.

You'll find that there are some advantages to using Lotus 1-2-3 on a VMS system: The VMS version runs with a faster processor and a virtual memory system. Also, multiple users can access the same spreadsheet, though not simultaneously with write permission.

Since it's possible to move spreadsheet files from a PC to VZ and back (as briefly discussed below), you could use the spreadsheet package on both systems to your maximum advantage.

To use Lotus 1-2-3 for VAX/VMS, you must first open an account on our VAX VZ. Contact ACS accounting, 625-1511, for this.

You'll also need a DEC VT100 terminal or a PC or Macintosh communications program that emulates this terminal. Other DEC terminals that you can use with Lotus 1-2-3 are VT102, VT220, and VT320. (These devices do not support graphics. Using Lotus 1-2-3 graphics will be described in another article in a future newsletter issue.)

### Compatibility

Lotus 1-2-3 for VAX/VMS is very closely compatible with the PC version. The only significant differences concern the

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VMS file system. For example, you must use file names in the usual VMS format, like `userh:[mydir]myfile.wk3;2`, instead of PC-DOS style names like `c:\mydir1\myfile.wk3`.

Macros are compatible so long as they don't control PC display or print devices or call VMS system-dependent devices or services.

It is possible to upload and download worksheet files between PCs and the VAX. However, you must be sure to use binary mode while doing the transfer. For example, use the **BINARY** command in the FTP program. Binary mode is the default in the KERMIT file transfer mode of ProComm.

## For More Information

We have prepared a Brief, *Lotus 1-2-3 on VAX VZ*, that provides more detail about using a Lotus spreadsheet on VZ.

## This Brief

- explains how to begin using Lotus 1-2-3 on VZ,
- provides a table of key equivalents for VT100 terminals,
- discusses in greater detail the compatibility between the PC and VMS versions,
- describes further documentation, including tutorial files on VZ, and
- discusses printing spreadsheets from the VMS version.

You can get a free copy of this Brief at our Computing Information Center, 1 Nicholson Hall, 625-7397.

The same information is available in an on-line document in our ListDoc documentation utility. On our VMS systems, type

`$ LISTDOC LOTUS`

A screenshot of a Lotus 1-2-3 spreadsheet on VZ. The window title is 'A:DIS:(,2)@SUM(D9..D13)' and the status bar shows 'READY'. The spreadsheet displays an income statement for 1989 for 'Sloane Camera and Video'. The columns represent quarters (Q1, Q2, Q3, Q4) and Year-to-Date (YTD). The rows include Net Sales, Costs and Expenses (Salary, Int, Rent, Ads, COG), Op Exp, and Op Income. The data is as follows:

	Q1	Q2	Q3	Q4	YTD
Net Sales	\$12,000.00	\$19,000.00	\$15,000.00	\$22,000.00	\$69,000.00
Costs and Expenses:					
Salary	2,000.00	2,000.00	2,000.00	2,500.00	8,500.00
Int	1,200.00	1,400.00	1,600.00	1,600.00	5,800.00
Rent	600.00	600.00	600.00	600.00	2,400.00
Ads	900.00	2,000.00	4,000.00	4,500.00	11,400.00
COG	4,000.00	4,200.00	5,000.00	8,000.00	21,200.00
Op Exp	8,700.00	10,200.00	13,200.00	17,200.00	49,300.00
Op Income	\$3,300.00	\$8,800.00	\$2,800.00	\$4,800.00	\$19,700.00

Figure 1: Example of a Lotus 1-2-3 Spreadsheet on VZ

## ML3 on VX

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One of the earliest and certainly most important uses of Fisher's probabilistic statistics was in the analysis of experimental plots for the Guinness brewery. In experimental agriculture, it was relatively easy. One could randomly assign plants to fields. A subsequent analysis of the variance among the plants is straightforward and powerful. It is said that the Student t-distribution was first derived from the need to approximate a normal distribution with small sample beer tasting. The results are well known. Beers were randomly assigned to tasters, the t-distribution is ubiquitous, and Guinness brews one of the finest stouts in the world.

In studies where randomization is impractical, proper analysis can be more difficult. In a multi-level setting, where hierarchical or nested relationships among the independent variables exists, or where longitudinal data has been collected over a wide variety of individuals, tools for appropriate analyses have been scant.

Multi-level analysis, popularized in the last decade, helps fill this gap.

Let us suppose that in my study, I have students who are grouped into classes. In the ideal world, I would be able to assign students at random to each of my classes. But very few principals will put up with this. So I am forced to adjust statistically for pre-existing differences. I might use the analysis of covariance, if I can come anywhere near meeting its onerous assumptions, but by assuming identical slopes among the levels of the covariate, I will overestimate the precision of my estimates and lose any knowledge of complex relationships between class and student characteristics.

A multilevel analysis provides a more realistic portrayal of the effects of grouping. It takes into account the fact that individuals within naturally occurring groups share common features; they are not the completely independent

entities assumed in ordinary linear modelling. For instance, standard error estimates are always larger than the corresponding values from an ANCOVA model, because the intraclass correlation among the measurements is taken into account.

In a multi-level system, coefficients in a linear model of a process occurring at one level of a hierarchical system (i.e., classes) can be viewed as variables that are functions of characteristics of units at another level (i.e., students). Coefficients of within-unit relations among variables are generally estimated *better* than they would be if a single level analysis was conducted for each group.

For example, suppose we are measuring the impact of attitude ATT on achievement ACH. Multi-level analysis would model ACH<sub>ij</sub> the response of student *i* in class *j* as:

$$ACH_{ij} = \beta_{0j} + \beta_{1j} ATT_{ij} + \epsilon_{ij}$$

rather than ignoring grouping as in the model

$$ACH_{ij} = \beta_0 + \beta_1 ATT_{ij} + \epsilon_{ij}$$

where the intercept and slope are constrained to be constant across classes. Multi-level analysis permits each class to have its own slope and intercept.

In addition, if I am measuring students repeatedly over time, I am often forced to assume that students do not learn at all (this is what a stable baseline really means), or that they all progress at the same rate. Multi-level analysis permits individuals to have their own growth curves.

### The Program

ML3 is a conversational program with a command structure similar to Minitab's. (This is not an accident.) All

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*ML3 continued from page 65*

commands may be abbreviated by their first four characters. But ML3's conversational nature makes it more difficult than necessary to use a command file or to obtain printed output.

ML3 was designed for microcomputers, but running it on a virtual machine such as our VAX provides much greater workspace for much larger models. It does not, however, permit high-resolution graphics.

To use ML3, type

```
$ ML3
```

at the \$ prompt. The program by default allocates a worksheet of 250,000 cells. If you want a larger worksheet you can use a command line parameter specifying the size of the worksheet in *thousands* of cells. Thus:

```
$ ML3 1000
```

would execute the program with a million cell worksheet.

## Input and Output:

To output your results to a file as well as to the terminal, type:

```
-> LOGOn filename.LIS
```

at the ML3 -> prompt. Everything that appears on your screen will also appear in *filename.LIS*. Listings may be turned off by use of

```
-> LOGoff
```

and reopened by use of

```
-> LOGAppend filename.LIS
```

*filename.LIS* can be printed in the usual way with the VMS PRINT command.

An ML3 input command file can be accessed only as a macro. If you have a set of ML3 instructions, in a file named, say, **COMMAND.ML3**, you can run them by typing

```
-> OBEY COMMAND.ML3
```

However, the macro implementation does not easily accept ML3 commands that prompt the terminal for information.

## Documentation

A limited amount of help is available by typing

```
-> HELP or
```

```
-> HELP command
```

at the ML3 -> prompt.

ML3 is fully documented in *ML3, Software for Three Level Analysis, User's Guide for Version 2*, by Prosser, Rasbash, and Goldstein (London: Institute of Education, University of London, 1991). This manual, while it does not contain an index, does contain a number of examples. The data for these examples are available in these files on VX:

```
ACS$STATROOT: [ML3] ILEA.DAT
ACS$STATROOT: [ML3] ASIAN.DAT
ACS$STATROOT: [ML3] RAO.DAT
ACS$STATROOT: [ML3] EMPLOY.DAT
```

and are described in the manual. The manual also provides a brief summary of multi-level analysis theory. A more complete description can be found in Goldstein and Harvey's *Multilevel Models in Educational and Social Research* (London: Griffin, 1987).

The *ML3 User's Guide* is available for perusal in the Computing Information Center in 1 Nicholson Hall.

## Saving and Editing LUMINA Output on Your PC

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**T**hose of you who use LUMINA from an IBM-PC microcomputer, or a PC-compatible, frequently ask us how you can get hard copy or disk file copy of your LUMINA searches so you can refer to them later. In this article I'll discuss the obstacles you may encounter in doing this and how to overcome them.

### The Limitations of PRINT SCREEN

As you may know, the PC Print Screen function will give you hard copy if you have an attached printer. But this printed copy is cluttered with information you don't need: the LUMINA menu line and, if you are using the ProComm communications package, the ProComm menu line. Many LUMINA users would like to be able to edit out these menu lines, so they need a PC file copy of their LUMINA sessions to edit and print.

### You Can't Edit a LUMINA Log File

You might expect that turning on the ProComm log file function would solve the problem. Those of you who use ProComm with ACS central systems know that this feature works well to preserve a file copy of a terminal session. Unfortunately, when you try this with LUMINA, your log file is just one long stream of characters with no line breaks—i.e., no carriage return or line feed characters in the file. Thus you can't edit the file with an ASCII editor or import it into a word processor such as WordPerfect.

This problem arises because LUMINA has a somewhat sophisticated user interface that controls its output by displaying it to you one screen at a time, using full cursor control to write the lines and to position the cursor for your response when the full screen is written. In writing the log file, ProComm doesn't know what to do with these cursor

control sequences—they often do not mean the end of a line and a start of a new line—so ProComm just deletes them.

### Using Screen Dump

However, both ProComm and ProComm Plus have a Screen Dump feature, **Alt-G**, which copies the information on your PC screen to a file. After LUMINA or any other similar software package has presented a full screen and is waiting for a response, hold the Alt key down on your keyboard while typing the G letter key. At that time there is a defined image on your screen of 80-character lines, usually 25 such lines. **Alt-G** copies the screen image to a dump file, which ProComm names PROCMM.IMG. To change this file in ProComm, type **Alt-S** (Setup Menu), then **4** (General Setup), then **4** again (Screen Image File), then type the new file name. Each successive screen copied with an **Alt-G** is added to the end of the file.

This **Alt-G** procedure is not as smooth as just activating a log file, but it is a workable solution to getting a file copy of your LUMINA session. Later you can edit the file with an ASCII editor, such as the Turbo Pascal editor, to get rid of the menu line clutter. Or you can input the line into a word processor such as WordPerfect, with its **Text In** feature. Be sure to define a wide page or a small font and specify that carriage return line feed characters are transformed into a Hard Return or the 80-character lines will fold into multiple shorter lines. Then you can use a word processor macro to delete all of the clutter lines.

After that you can format the result to your heart's content for printing or use WordPerfect's **Text Out** to produce another ASCII file for use with other software, such as a data base program.

A final note: ACS's INFO is a modern, user-friendly, state-of-the-art information system on our VX system. You might expect that using a ProComm log file with INFO would present the same problems you encounter with LUMINA. Sure enough, it does. For the time being, you can use the same **Alt-G** solution to record INFO sessions. The designers of INFO plan to implement a new feature that records an INFO document on the machine from which you're accessing INFO. At present you can access INFO only from VX.

## For Macintosh and MS-DOS Users: Using the AppleShare File Server

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**I**n this article we'll explain how users of the Apple Macintosh and IBM-PC compatibles running MS-DOS can access the ACS AppleShare File Server. We'll also outline how you can save your files on the ACS Network File Server, a low-cost storage medium.

### What's an AppleShare File Server?

A *file server* is a computer that stores files for one or more other computers connected to the same network. For Macintosh and MS-DOS users, AppleShare file servers are a popular way to access shared disk storage.

The advantage of storing your files on a file server is that you have access to much more disk storage than you have on your Macintosh or PC. And file servers are typically backed up regularly, which provides a convenient and inexpensive way of protecting your most important files.

### The File Server on UX

ACS provides an AppleShare file server on its UX system. Users with accounts on the UX system can store their Macintosh or MS-DOS files on this file server and access these files using methods already familiar to them. For example, if you're a Macintosh user, you would access your files using the normal Mac user interface, using your mouse to select and click a file. If you're an MS-DOS user, you would access your files by including the appropriate drive letter in your DOS commands.

ACS makes back up copies of all files stored on our UX file server—we copy them to magnetic tape daily. So by

using the file server you've made sure that you'll never lose one your important files.

Simply copy your files to the AppleShare volume that has been set up on UX and they will be available when you need them.

### Hardware and Software You Need

To communicate with the AppleShare file server, your Macintosh or PC must be connected to the campus Ethernet backbone network via a Kinetics FastPath gateway or a direct Ethernet connection. If you aren't sure if it is connected, talk to your local network administrator.

Each Macintosh on the network must have at least 512K RAM and must run Version 5.4 (or greater) of the Macintosh Finder. Release 6.0.2 (and later) of the Macintosh operating system includes the necessary AppleShare workstation software.

Each PC on the network must have an Apple LocalTalk PC Card, at least 256K (640K is recommended), and two disk drives (one of which may be a hard drive). You can purchase the Apple LocalTalk PC Card from the University Bookstores.

Each PC on the network must also run AppleShare-PC Version 2.0 or greater. This software is available from the Microcomputer and Workstation Networks Center.

For more information about AppleShare software, the Kinetics FastPath, or other AppleTalk hardware, call the Microcomputer Helpline at 626-4276 (MA-MICRO).

## Setting Up Your UX Account

If you do not already have an account on the UX system, you can get one by calling the ACS Accounting Department at 625-1511.

By default, your UX account is set up as one volume named the same as your account. In order to set up multiple volumes, volumes resident on low-cost storage, or just to be able to name each of your volumes, you have to log on to your UX account and create a file named **afpvols** (or **.afpvols**) in your home directory. This file contains one line for each AppleShare volume defined.

We'll assume that you've logged on to your UX account. The example below shows how you could set up two volumes; one for "active" files, the other for "backup" files.

Second you've used the **fsmkdir** command to create a special **backup** directory on the file server. Then you use the **mkdir** command again to create a second subdirectory called **microbackup**. This subdirectory is *within* the special backup directory on the file server, and automatically includes your department name and username, identifying it as your subdirectory within the general **backup** directory. (See the article "A Network File Server" in the February 1991 issue of this newsletter for more information about the **fsmkdir** command.)

The **cat** command is one way to create a new file, called **.afpvols**. This file contains one line for each AppleShare volume. After you type the **cat** command, all lines you type in become the contents of the named file until you type a **^D**. In this example, the directory named **micro** in your home directory (**~/micro**) is used as one AppleShare

```
ux% mkdir micro           {Create subdirectory}
ux% fsmkdir backup       {Create directory on file server}
  /backup/dept/username  {The system tells you the
                           name of the backup directory.}
ux% mkdir /backup/dept/username/microbackup {Create backup subdirectory
                                                on file server}
ux% cat > .afpvols       {Create .afpvols file}
~/micro:Active Files
/backup/dept/username/microbackup:Backup Files
^D
ux%
```

In the example above, the system will substitute your department name for *dept* and your username for *username*. Use the information the system supplies there in the second **mkdir** command and in the **.afpvols** file.

In this example, you're creating two subdirectories. First, using the **mkdir** command, you've created one subdirectory called **micro**. You've created this subdirectory within your home directory, the directory you're in when you log on to UX.

volume. From your microcomputer, this volume will be referred to as **Active Files**. The directory named **microbackup** in your backup directory (**/backup/dept/username/microbackup**) becomes a second AppleShare volume referred to on your micro as **Backup Files**.

If you are using Appleshare and you don't have an **afpvols** or **.afpvols** file, it is equivalent to having an **afpvols** file containing your login directory (or **~**) and your user name, as in the following line:

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```
~:username
```

If you want to add more volumes, like `/backup/dept/username`, you must create an `afpvols` file and include the above line to continue using that volume. In that case, your `afpvols` file would look like:

```
~:username  
/backup/dept/username:Backup Files
```

If you are using your account from a Macintosh, you must also create two subdirectories within each of the previously created directories. Use the commands shown below.

```
ux% mkdir ~/micro/.finderinfo  
ux% mkdir ~/micro/.resource  
ux% mkdir /backup/dept/username/microbackup/.finderinfo  
ux% mkdir /backup/dept/username/microbackup/.resource
```

These directories are used by the AppleShare server software to hold the Finder information and the resource information for the Macintosh files you will store on the UX system.

Once you have set up the necessary directories and the `afpvols` file, you will not need to set them up again.

## Connecting to the AppleShare File Server from a Macintosh

The ACS AppleShare file server is located in zone ACS and is named ACS-ENCORE. Use *Chooser* to select the zone and file server name. (See Figure 1.) After you have selected the file server, you must log on to it. You may either log on as a guest or as a registered user. (See Figure 2.) Logging on as a guest provides you with public Macintosh data. You must log in as a registered user in order to access the volumes that are set up on your UX

account. To do this, type in your UX user name and password (be careful to use upper- and lowercase correctly) and click the OK button when you're done.

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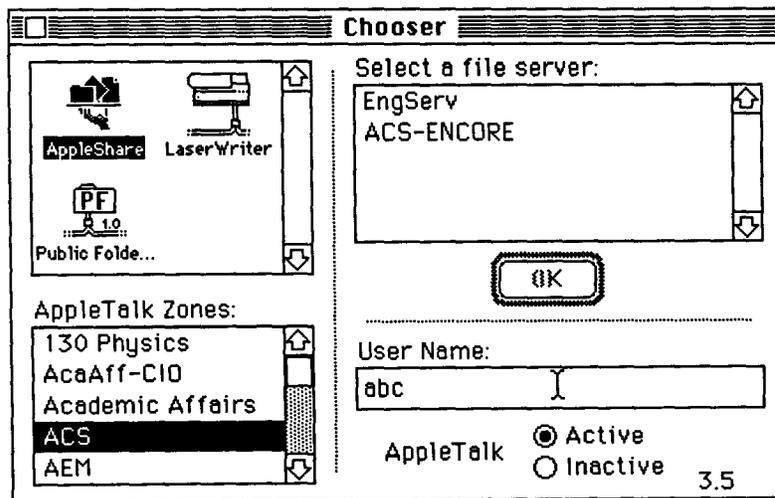


Figure 1: The Macintosh Chooser

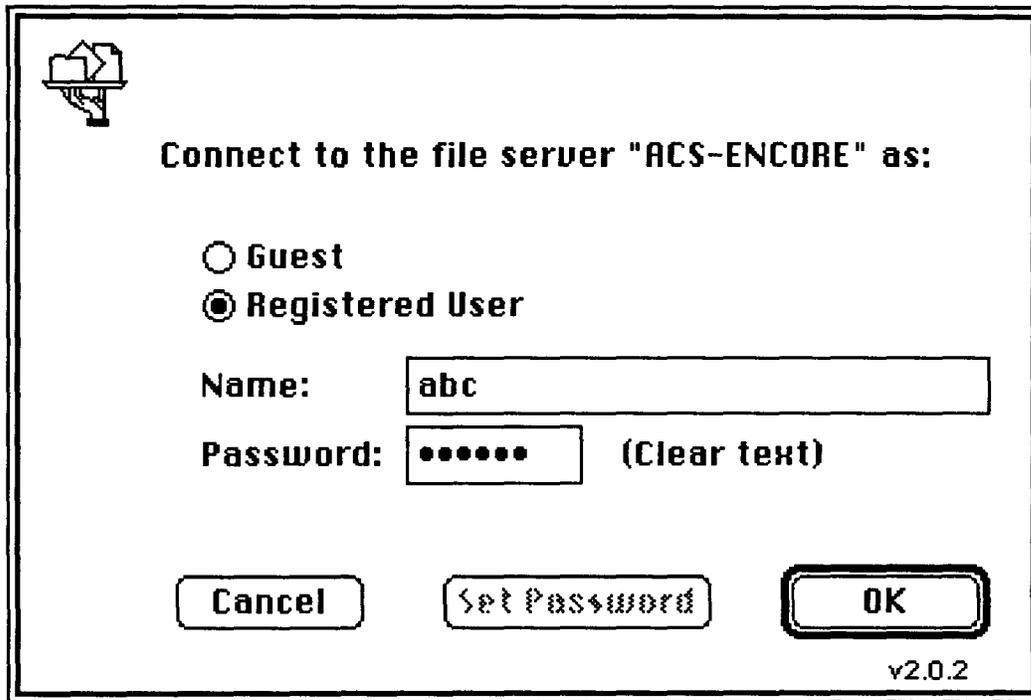


Figure 2: Logging on to the File Server

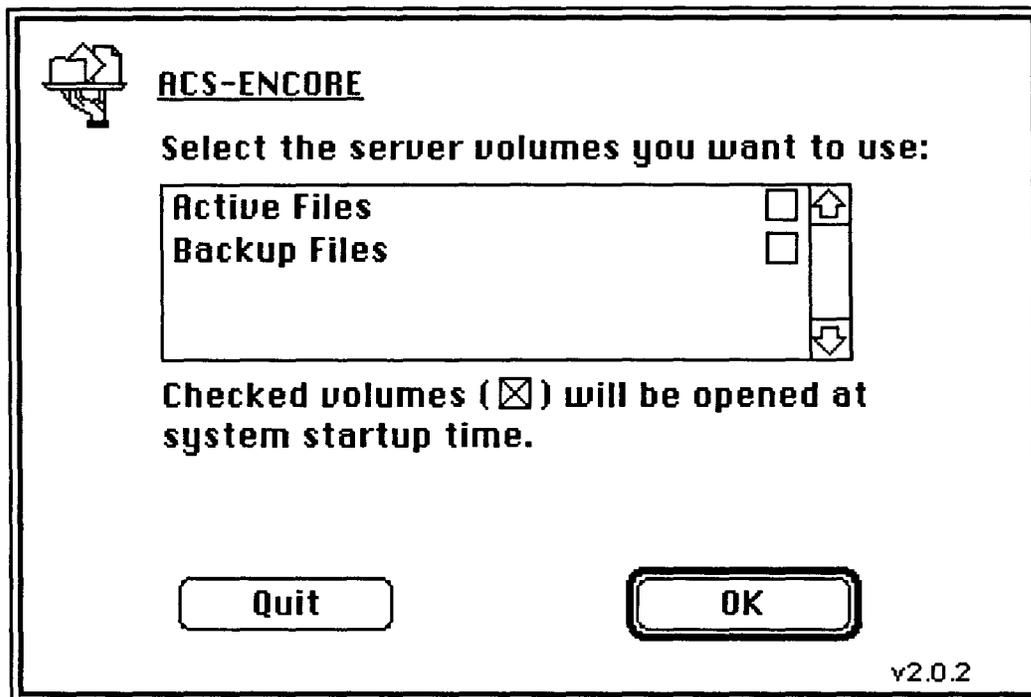


Figure 3: Selecting the Server Volume

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After you have connected to the file server, you are presented with a list of AppleShare volumes which you can mount. In the case of the previous example, two volumes would be available: **Active Files** and **Backup Files**. (See **Figure 3** on page 71.) Select the appropriate volumes: icons for the AppleShare volumes will be displayed on your screen. You then use the icons just as you would use a normal Macintosh disk.

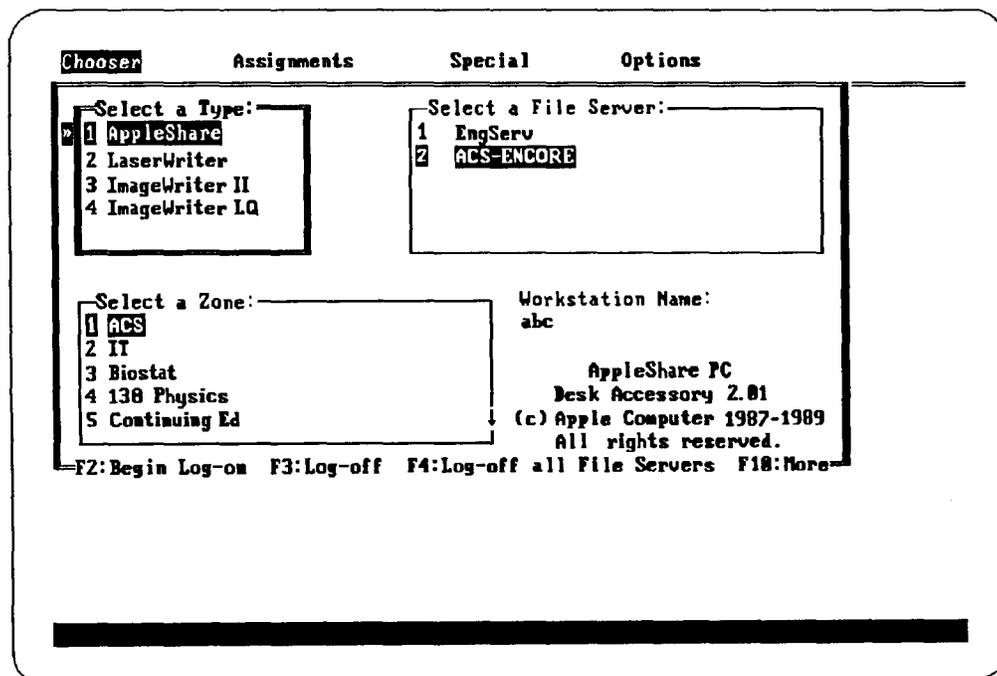
## Connecting to the AppleShare File Server from a PC

To connect to the file server from a PC, the procedure is somewhat different, but the concepts are the same. Invoke

the Desk Accessory program (DA) and use the *Chooser* menus to select the type (AppleShare), zone (ACS), and file server (ACS-ENCORE). (See **Figure 4**.) Log on to the file server by pressing the **F2** key. You must log on as a registered user. (See **Figure 5**.) Type in your UX user name and password and press the **F2** key again.

After connecting to the file server, you are presented with a list of AppleShare volumes that you can mount. (See **Figure 6**.) Select the appropriate volume and the drive letter that you want to assign to that volume. After typing the requested information, again press the **F2** key. At this point you can exit the Desk Accessory by pressing the **ESC** key. You can then use the new volume just as you would use a normal DOS disk by referring to the proper drive letter.

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**Figure 4: The PC Chooser**

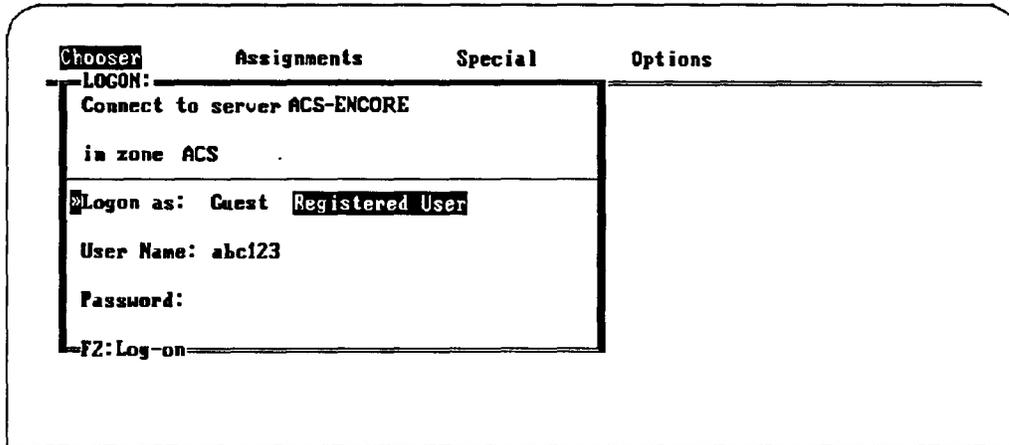


Figure 5: Logging on to the File Server

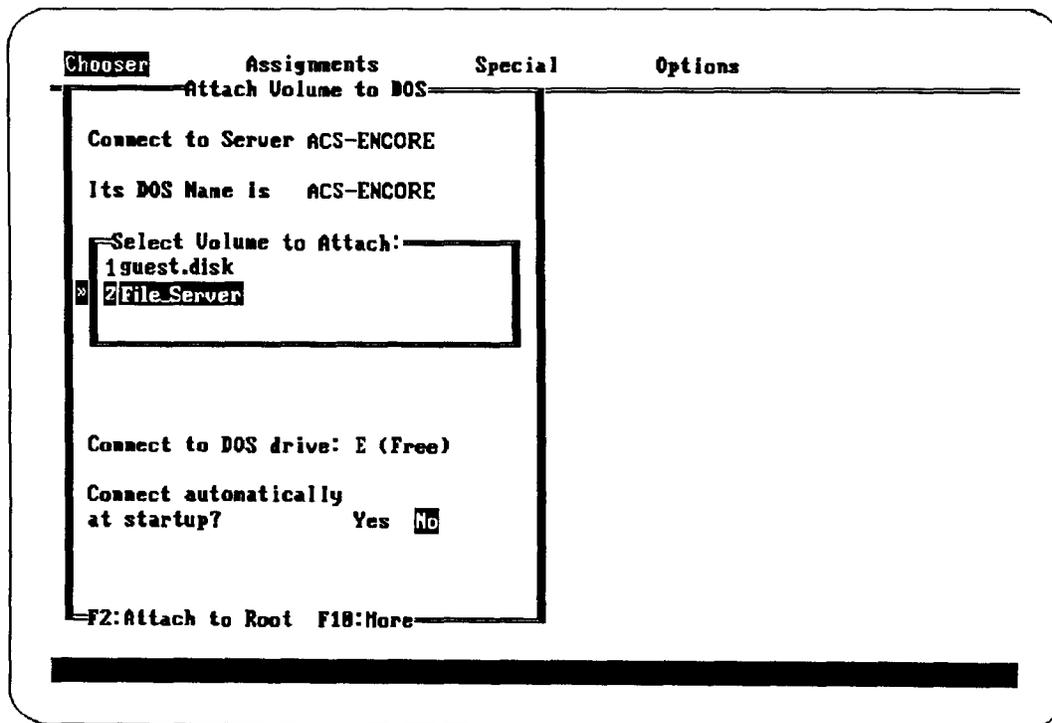


Figure 6: Selecting the Server Volume

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## *File Server continued from page 72*

It should be noted that with the current version of the AppleShare software, you cannot copy over files that already exist as you can with normal DOS disks. As a result, you must first delete the earlier version of a file and then copy the new version to the file server.

## **Other Articles of Interest**

The Microcomputer and Workstation Networks Center has published several articles of interest related to AppleTalk and AppleShare in their *Microcomputer Newsletter*. We have compiled a brief list of these articles below. For information on how to obtain copies of these newsletter articles, call the Microcomputer Helpline at 626-4276 (MA-MICRO).

### **Hardware**

PhoneNET: An AppleTalk Alternative .....	March 1987, p. 45
Kinetics FastPath/StandAlone .....	July 1987, p. 78
Kinetics FastPath/AppleTalk Internet .....	March 1988, p. 46
Tutorial: AppleTalk Networks .....	January 1988, p. 27
AppleTalk Phase II .....	March 1990, p. 58

### **Software**

Review: AppleShare .....	August 1987, p. 86
News: Macintosh Information Server .....	November 1987, p. 1
Mac Information Server and AppleTalk Internet .....	December 1987, p. 12
Mac Information Server .....	October 1989, p. 176, and October 1990, p. 173
IBM Information Server .....	October 1989, p. 175, and October 1990, p. 169
Telnet for the AppleTalk PC Card .....	November 1988, p. 15
AppleShare 2.0.1 Upgrade .....	December 1988, p. 26
Free AppleShare PC Upgrade .....	April 1990, p. 89

# Free Central System Computing Courses Spring 1991

Offered by St. Paul Computing Services (SPCS), Academic Computing Services (ACS), and Health Sciences Computing Services (HSCS)

Our courses teach you the operating systems and software on central system computers, large systems used by many people at the same time. These courses do not cover microcomputer software unless otherwise indicated in the following descriptions.

### How to Register

To register call 626-0032, 8:00 am to 4:30 pm, Monday through Friday.

Registration is located at the Computing Information Center, 1 Nicholson Hall. Mail registrations are accepted or you can also register by electronic mail—write to [classes@umnacvx](mailto:classes@umnacvx) or [classes@vx.acs.umn.edu](mailto:classes@vx.acs.umn.edu). Include a day-time phone number.

Please call to cancel if you later decide not to attend, so we know how many to expect. Deadline for registering is 4:30 pm on the last working day before the class begins.

### Operating Systems

#### Introduction to VAX/VMS Operating System (ACS)

*Tuesday and Thursday, April 16-25, 2:30-4:30 pm.* An extensive introduction to the VMS operating system, including files, editing, mail, DCL commands, and procedures.

#### vi: UNIX Editor (ACS)

*Section 1: Monday, April 15, 2:30-5 pm. Section 2: Wednesday, May 1, 2:30-5 pm.* Editing files in UNIX in line mode (ex) or screen mode (vi): commands and setup. You must know the UNIX operating system.

#### Magnetics Tapes on CA and VX (ACS)

*Tuesday and Thursday, May 14-23, 2:30-4:30 pm.* Learn to backup your files to tape on the CYBER CA and VAX VX central systems.

#### TeX and LaTeX Text Formatter (ACS)

*Thursday and Tuesday, May 2-7, 2:30-3:30 pm*  
Beginning use of TeX, a powerful text formatting package available under ACS's UNIX or VMS operating systems.

#### CMS BATCH (SPCS)

*Monday, April 15, 9:30-11:30 am.* Why, when, and how to submit programs to BATCH. You must know the CMS operating system.

#### CMS Tapes (SPCS)

*Wednesday, April 24, 9:30-11:30 am.* Specifying, reading, and writing tapes. You must know the CMS operating system.

#### CMS Utilities (SPCS)

*Wednesday, April 10, 9:30-11:30 am.* How to use CMS utilities for system enhancement, password and disk space management, and other functions.

#### Introduction to NOS/VE Part 1 (HSCS)

*Section 1: Thursday, April 11, 10:00 am-noon. Section 2: Wednesday, May 8, 2-4 pm.* Connecting to NOS/VE, entering commands, managing files, obtaining output, and on-line help.

#### Introduction to NOS/VE Part 2 (HSCS)

*Section 1: Thursday, April 18, 10 am-noon. Section 2: Wednesday, May 15, 2-4 pm.* Batch jobs, printing options, job/command control, special files, and file transfers on the NOS/VE operating system.

#### NOS/VE Full Screen Editor (HSCS)

*Section 1: Tuesday, April 23, 10 am-noon. Section 2: Thursday, May 16, 2-4 pm.* Creating and editing NOS/VE files, expanded on-line help for each function, and customized functions. You must know the NOS/VE operating system.

### Communications

#### CMS Electronic Mail (SPCS)

*Friday, April 26, 9:30-11:30 am.* Corresponding with other computer users locally and worldwide, via BITNET.

#### Internet Overview (SPCS)

*Friday, April 12, 10:30-11:30 am.* Using the CMS central system to log on to and transfer files to/from other computers on the Internet.

#### YTERM (SPCS)

*Wednesday, April 17, 10:30-11:30 am.* Demonstration of the YTERM terminal emulation package, as used with the CMS operating system.

*Short Courses continued on page 76*

# Short Courses

*Short Courses continued from page 75*

## ProComm (SPCS)

*Thursday, April 25, 10:30-11:30 am.* Demonstration of the ProComm terminal emulation package, as used with the CMS operating system.

## TinCan (SPCS)

*Tuesday, April 16, 10:30-11:30 am.* Demonstration of the TinCan terminal emulation package, as used with the CMS operating system.

## Electronic Mail & Networks (ACS)

*Monday and Wednesday, May 6-8, 2:30-4:30 pm.* Descriptions of the BITNET and Internet networks, and how to use them for electronic mail and transferring files, with emphasis on the VAX VMS system. You must know a central computing system.

## Electronic Mail on NOS/VE (HSCS)

*Section 1: Wednesday, April 17, 2-4 pm. Section 2: Thursday, May 9, 10 am-noon.* Using the E-mail system on NOS/VE to send and receive mail, transfer microcomputer files, and use bulletin boards and networks.

## Statistics

### SAS/STAT (ACS AND SPCS)

*Thursday, April 18, 9:30-11:30 am.* The statistical analysis features of SAS, such as correlation, regression, and analysis of variance.

### SAS on the PC (SPCS)

*Tuesday, April 30, 9:30-11:30 am.* Discussion of features specific to the IBM-PC version of SAS.

### Using SPSS (ACS, HSCS, SPCS)

*Monday, Wednesday, and Friday, April 22-26, 2:30-4:30 pm.* How to use the Statistical Package for the Social Sciences, available on several central computing systems. You must know a central computing system.

### SAS on the VAX (ACS)

*Wednesday, April 10, 2:30-4:30 pm.* Demonstration of SAS on the VAX/VMS system.

## Databases

### NOMAD2 (SPCS)

*Monday, April 29, 2-4 pm.* Demonstration of NOMAD2, a database management system on the CMS operating system.

## Graphics

### SAS/GRAPH (SPCS)

*Tuesday, April 23, 9:30-11:30 am.* Exploring SAS graphics for presentation of your data as plots, charts, maps, and contour plots. You must know the CMS operating system.

### PicSure Interactive Graphics (HSCS)

*Tuesday, May 14, 2-4:30 pm.* Using PicSure to create bar charts, scattergrams, line charts, pie charts, and combinations. Demonstrated on the NOS/VE operating system.

## Other

### PROFS Calendars (SPCS)

*Friday, April 19, 10-11 am.* Viewing, maintaining, and changing your electronic calendar on the CMS operating system.

### C Programming (ACS)

*Monday, Wednesday, and Friday, May 13-17, 2:30-4:30 pm.* Introduction to syntax, style, and structure of the C programming language. Requires some programming background. You must know the UNIX operating system.

## MinnesotaMEDLINE

Call the Bio-Medical Library at 626-5808 for information on class times and registration procedures.)

### Basics of MinnesotaMEDLINE Searching (HSCS)

*Section 2: Tuesday, April 16, 5-6:45 pm. Section 3: Wednesday, May 8, 2:30-4:15 pm. Section 4: Monday, June 10, 9:30-11:15 am. Section 5: Thursday, July 18, 1-2:45 pm. Section 6: Wednesday, August 7, 10-11:45 am.* Basic commands and the use of Medical Subject Headings (MeSH) in searching the medical literature database on the NOS/VE operating system.

### Intermediate MinnesotaMEDLINE Searching (HSCS)

*Section 1: Thursday, April 11, 10-11:30 am. Section 2: Monday, May 6, 1-2:30 pm. Section 3: Tuesday, June 25, 9:00-10:30 am. Section 4: Wednesday, July 31, 2:30-4:00 pm. Section 5: Thursday, August 15, 10-11:30 am.* Advanced searching capabilities of the MinnesotaMEDLINE system on the NOS/VE operating system, with emphasis on ways to narrow and broaden search strategy.

## Public Labs

Location	Central System Printing	Terminals	Micros	Phone Numbers
<b>East Bank</b>				
117 Appleby Hall			X	624-8376
148 Architecture			X	624-9583
278 Diehl Hall	laser printer	X	X	624-3128
4-204 EE/CSci	laser printer	X		625-9081
54 Eddy Hall Annex			X	625-0314
121 Elliott Hall	impact/laser printer	X	X	624-0866
14 Folwell Hall	laser printer	X	X	625-4896
1 Lind Hall	laser printer	X		625-0801
26 Lind Hall			X	626-0856
306B Lind Hall			X	625-9032
308 Mechanical Eng	laser printer	X		625-7352
8-425 Moos Tower			X	625-1477
1 Nicholson Hall	laser printer	X		625-5082
130 Physics	laser printer	X	X	625-6820
9 Walter Library	laser printer	X	X	626-1899
<b>St. Paul</b>				
B40 Central Library		X		624-3269
B50 Central Library	laser printer		X	
135 Classroom Office Bldg			X	624-9226
305 McNeal Hall			X	624-5367
436 Veterinary Science			X	624-3269
<b>West Bank</b>				
170 Anderson Hall	laser printer		X	624-6526
140 Blegen Hall	impact printer	X		624-5278
455 Blegen Hall			X	626-7778
B2 Wilson Library	laser printer		X	626-2205

Lab hours change quarterly, see the ACS Brief: Public Labs for current hours. These facilities have equipment that can access LUMINA, Info and The Calendar, ACS central systems (UX, UZ, VX, VZ, CA), HSCS central systems (NOS and NOS/VE), and SPCS and the School of Management's IBM central systems. Micros in public microcomputer labs that are connected to AppleTalk can access ACS services. Micro access cards, which you can purchase for \$30 at the Bursar's Office, permit you to use the microcomputers. You do not need a card to use terminals. The following residence halls also have public terminals: Bailey Hall, Centennial Hall, Comstock Hall, Frontier Hall, Middlebrook Hall, Pioneer Hall, Sanford Hall, and Territorial Hall.

# Help Page

## ACS HELP-Lines

### Central Systems (UX,VX,VZ,CA):

Software (including Graphics, Databases, and Statistics Packages), Hardware, Networking

626-5592 8 am to 5 pm, weekdays

### Artificial Intelligence:

625-8332 3 to 4 pm, Monday, Wednesday, Friday

### Humanities, Text Analysis:

625-8332 3 to 4 pm, Monday, Wednesday, Friday

### Equipment Repair:

625-1595 8 am to 4:30 pm, weekdays

### Lauderdale Tape Library:

626-1838 9 am to 3 pm, weekdays

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## Other HELP-Lines

### Health Science Computing Services:

5-235 Moos Tower  
625-2666 7:45 am to 4:30 pm, weekdays

### LUMINA (communications questions):

626-2272 8 am to 5 pm, weekdays

### Microcomputer and Workstation Networks Center:

125 Shepherd Lab  
626-4276 9 am to 4 pm, weekdays

### St. Paul Computing Services:

90 Coffey Hall  
624-6235 9 am to 5 pm, Monday through Thursday; 9 am to 4 pm, Friday

### Supercomputer Center

3030 SCC, 1200 Washington Ave. So.  
626-0808 9 am to 4 pm, Monday through Friday (Questions answered on a limited basis 24 hours a day.)

## Consulting

### Walk-In Consulting

1 Nicholson Hall 10 am to 4 pm, Monday through Friday

### Electronic Mail Consulting

Consulting is now available via the mail facility on all ACS systems (the UX, VX, VZ, and CA). Send mail to user name CONSULT for questions after hours and for low-priority questions that are not critical to your immediate computing work. Replies will be sent to your account through the mail facility on your system.

### Instructional Computing Consultant

Department instructors may call 626-0200 for assistance in choosing ACS systems (ENCORE/UNIX, VAX/VMS, CYBER/NOS), software, and for answers to any other inquiries on using computers for instructional computing.

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## Computing Information Center

1 Nicholson Hall, 625-7397  
MAD@UMNACVX, MAD@VX.ACS.UMN.EDU

**Computing account and grant applications** available for ENCORE, VAX, and CYBER computers.

**Short course enrollment.** Short course schedules and class descriptions available. Call 626-0032.

**Assistance in ordering vendor documentation.** Vendor documentation is not always available in the University bookstores and may be ordered directly from the company.

**Complete documentation collection.** Reference copies of vendor and all other documentation for ACS software.

**Free ACS documentation.** General information and central system information available.

**Computing Newsletters.** Subscribe to the *ACS Newsletter*. Newsletters from other computing centers are also available for reference.

## ACS Directory

100 Laud CF (campus mail)	626-1600	Magnetic Media Lib/Operations (9 am-3 pm)	626-1838
FAX	626-7440	Operations Coordinator	626-1646
Director—Michael Skow	625-6349	Services (tapes, laser disks, CD ROMs, Xerox, plotters) Supervisor	626-1661
Deputy Director—Lawrence Liddiard	625-4016	Users' room	626-0386
Adm. Assistant Dir—James Foster	625-1511	Networking—Paul Tranby	626-0815
Access: ACS systems (UX, VX, VZ, CA)		Newsletter and Publications:	
3/12/2400 bps + 7/Even/1	626-1630	ACS newsletter subscriptions	625-7397
12/2400 bps + 8/None/1	626-1631	Technical Publications—Steven Brehe	626-1828
Accounts: (8 am-12 pm, 1-4:30 pm)		NOS Systems—David Bianchi	626-1827
ENCORE, VAX, CYBER	625-1511	Operations, Asst Director—Richard Folden	626-0031
Assistance and Information:		Programming Environments—Jim Miner	626-1091
HELP-Line (including Graphics, Databases, Statistics Packages, and Text Processing)	626-5592	Shuttle Service	625-9525
Equipment repair	625-1595	System Status (recording) status and hours	626-1819
Computing Information Center	625-7397	UNIX systems—David Bianchi	626-1827
Short Course Registration	626-0032	User Services—Richard Hotchkiss	625-0795
Artificial Intelligence	625-8332	VMS Systems—Marisa Riviere	626-0268
BITNET/Electronic mail	625-1543		
Faculty Instructional Computing	626-0200		
Humanities/Text Analysis	625-8332		
Math and Engineering Packages	625-5830		
Contract Services—Cheryl Vollhaber	625-2303		
DEC CSLG/ESL Software Distribution	626-0268		
Engineering Services, LaudCF	625-1595		
Asst Director—Donald Clark	625-1583		
Equipment Maintenance/Repair	625-1595		
Info/Public Information Service	626-1527		
LaudCF: Computer Consoles	626-0550		
File Restoration	626-0595		

### Other University Computing Services

Health Sciences Computing Services	625-5444
Microcomputer and Workstation Networks Center	625-1300
St. Paul Computing Services	624-7788
LUMINA	625-6009
Supercomputer Center	626-1888

## Central Computing Systems

The UX research and instructional system, an ENCORE Multi-max multiprocessor running the UMAX 4.3 operating system (4.3 BSD UNIX).

The VX research and instructional cluster: a Digital Equipment Corporation VAX 6000-510, clustered with other VAX systems using the VMS 5.4 operating system.

The VZ system for non-University users: a Digital Equipment Corporation VAX 3100 using the VMS 5.4 operating system. The VZ is part of the VMS cluster system.

The CA research and instructional system: a Control Data Corporation CYBER 830, using the NOS 2 operating system. The CA provides interactive and batch computing for University researchers and students.

## Accounts

To use our central computer systems, you need a user name. This user name (with a secret password) is your authorization to use the computer systems. You can get application forms and rate information from ACS Accounting, 100 LaudCF (625-1511).

## Operating Hours

The ENCORE UX, VAX VX, VAX VZ, and CYBER CA systems run continuously from 6 pm Sunday until 6 am the following Sunday.

On the second and fourth Fridays of each month from 5 am to 7 am the CYBER CA system is unavailable. Low-rate hours are from 8 pm to 8 am Monday through Friday, and all operating hours on Saturday and Sunday.

## ACS Newsletter Subscription Request

Send to ACS Computing Information Center, 1 Nicholson Hall, 216 Pillsbury Drive SE, Minneapolis, MN 55455

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