
ST. PAUL COMPUTER CENTER

S A S N O T E S

THIS SECTION CONTAINS IMPORTANT INFORMATION FOR ALL SAS USERS.

Changes in the disk storage system.

Since July, 1980, when SPCC first offered SAS, most SAS users have shared a common disk area for permanent SAS datasets. This has proven to be very convenient and has normally worked very well. However, there are several drawbacks to this approach:

1. VM mini-disks may not reside on more than one disk volume. This limits the ultimate size of the data area used by SAS, or any other product. Our IBM 3370 disk drives each have a capacity of 279 megabytes. This may seem like a lot, but the SAS data area is currently more than 70% full. At the current rate of growth, we will run out of space in less than a year.
2. VM does not allow secure, simultaneous write access to mini-disks by more than one user. This, combined with our shared disk area, has prevented us from providing multiple batch machines for CMS. Users who have suffered through a long wait because their SAS job was stuck in the queue behind a large GLM run should be able to appreciate the severity of this problem. We will be installing a new multiple machine batch facility which will allow more than one batch job to run simultaneously. This facility will provide a higher level of service for all CMS batch users, including SAS users, but we will have to abandon the shared disk space approach to achieve this service.
3. The shared approach to disk space does not provide adequate data security and integrity.

We will be changing the system for storing SAS datasets during fall quarter. The new system will become available during November, and use of the new system will become mandatory beginning on February 1, 1984. Both systems will be available during that interval.

There will be some inconvenience to all SAS users because of this change. In particular:

1. All SAS datasets will have to be moved from the shared disk area to the user owned disk areas.
2. A few (one or two) additional statements will have to be added to all SAS jobs.
3. In contrast to some systems (MUSIC and its save library file system, for instance) CMS does not dynamically allocate disk space as the user needs it. CMS allows users to own one or more fixed areas of disk space. These are called

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mini-disks. CMS does a fine job of managing the space within the mini-disks, but the size of mini-disks is relatively inflexible in that it cannot be changed on a minute to minute basis as your needs change. A user may create, modify or erase files at will, without special considerations, only as long as the total size of all of the files on the mini-disk is less than the size of the mini-disk. Mini-disk sizes can be changed, but this will require a conscious effort by the user. It will not be automatic. The end result of all of this is:

All users will need to be more aware of how much space they own, and how much of that space is consumed. If a job requires more space than is available, it is aborted, and will have to be rerun after space is made available. Currently, most of our users are not extremely conscious of the amount of disk space they consume. In this regard, it could be argued that the change is for the better.

Most (if not all) users will own, and therefore be charged for more space than they actually require to contain their data. This means that your disk storage bills will increase. We don't feel this will be a major hardship, since disk storage charges constitute a relatively small fraction of the total computing cost at SPCC.

We will be taking the following measures to minimize these inconveniences:

1. The owners of all SAS datasets will be contacted by a member of our staff. You will be advised about the amount of disk space needed and the process of acquiring the space and moving your datasets.
2. Extensive documentation about the new system and the process of moving your datasets will be available. It is our intent to document 'everything you ever wanted to know' about the new system. We might even succeed.
3. Help will be available for those users who desire it when moving datasets.
4. We will be providing a new method for requesting changes in user mini-disk allocation. This will allow users to request changes using computer commands. These requests would be serviced within approximately one hour, as opposed to one or two days, as it is with the current manual system.

We apologize for any inconvenience that these changes will cause. We did not consider this decision lightly. The potential impact on the user community has always been, and continues to be the most important factor in all of our software and hardware decisions. This change might have occurred some time ago, but we have searched in vain for a better alternative. We don't feel that it would be wise to wait any longer. This new approach to disk storage will remove several impediments to better batch service. The improvements that we have in mind will provide expanded capabilities within batch jobs, more control over batch jobs by users and operators and faster turnaround for small and moderately sized jobs. We are confident that all

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users will agree that the improved batch service is well worth the inconveniences caused by the transition to a different approach to managing disk space.

SAS 79.6 has been installed.

During the summer SPCC installed SAS 79.6. SAS 79.6 is primarily a maintenance release, but it does include a few new features. The major difference users will notice is that the cost of a typical job DECREASED by about 30%. The largest decreases have been on jobs which do not concentrate all of the work in one step, such as large GLM runs do. The cost decrease for large GLM and other 'number crunching' PROCs was much less dramatic. There are two new PROCs available. PROC APPEND allows users to append one SAS dataset to another. This is not a new capability, but PROC APPEND will cost less than the DATA step which would accomplish the same function. PROC TPRINT is a new version of PROC PRINT which will use variable labels as column headings instead of variable names.

SAS 82.3

SAS 82.3 has finally been released for CMS. This release includes many new major features, including but not necessarily limited to:

The product more closely matches the available documentation.

There is an entirely new MACRO facility which will allow the sophisticated user to develop very complex SAS programs.

SAS 82.3 includes a HELP facility. This will benefit the interactive user most, but should be useful for all users.

PROC ANOVA and PROC GLM contain several new means separation options on the MEANS statement. This is a major improvement over previous versions, where one could have anything one wanted, as long as the name contained the word DUNCAN.

The availability date for SAS 82.3 at SPCC will be announced during fall quarter.

CMS O P E R A T I N G S Y S T E M

The St. Paul Computer Center announces the availability of CMS (Conversational Monitor System) for the general user. In making CMS openly available, the Center has developed documentation materials and a short course for users who may be interested in exploring the very powerful and highly flexible features of CMS.

CMS is an interactive system complete with a collection of utilities, compilers, and application packages. Concurrent users may perform such diverse activities as problem solving, program development, file editing, text processing, data base oper-

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ations, and much more. CMS supports a broad spectrum of terminals and microcomputers. It supports ASCII-type terminals through dialup access and versatile 'full screen' terminals that are IBM 32xx compatible (dialup or online). Full screen operations make file management, file editing, and the use of application software easy and efficient to use.

CMS jobs can be routed to a batch environment for processing, allowing the user to continue with other interactive activities or log off the system. The same command language is used for both interactive and batch processing, thus making them easy to remember and use.

Some of the highlights of CMS are shown below:

- o Provides compilers for FORTRAN, COBOL, PASCAL and ASSEMBLER languages.
- o Contains DCF (SCRIPT/VS), a text processor facility, which may be used for document or correspondence preparation.
- o Contains PROFS (Professional Office System) which can be used for electronic mail, appointment scheduling, room reservations and document preparation.
- o Contains SAS (Statistical Analysis System) which provides tools for statistical analysis, application programming, data management, report writing and graphics.
- o Contains NOMAD (Data Base Management System), a fourth generation language, which may be used for data management, retrievals, application programming, data entry, report writing and graphics.
- o An EXEC processor allows users to store, retrieve and execute frequently used CMS commands.
- o A user's CMS operating environment or terminal session may be tailored easily to suit individual needs.

An Introductory CMS short course will be offered several times this quarter and will cover some of the features noted above (see topic on Short Courses). SPCC prepared CMS documentation and IBM manuals for CMS are available in our main office, 50 Coffey Hall.

ARCHIVES

An archive utility will be installed on October 15 for use by CMS users. ARCHIVE allows users to store, retrieve, and delete files, and to obtain information about files in storage. ARCHIVE can be used to free space on the minidisk and to store multiple versions of a file. It also offers a reduced rate for data storage. A

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short description of the ARCHIVE commands is presented in the SPCC CMS Guide. A full description of the commands is available in the VM/SP Archival Storage Subsystem User's Guide which is available from the St. Paul Computer Center office in 50 Coffey Hall for a small charge. There are also on-line help files available by entering

help archive

or

help archive menu

L E T T E R Q U A L I T Y P R I N T E R

SPCC no longer has access to the IBM 6670 LASER printer, but it does have access to the 9700 XEROX printer at Administrative Data Processing.

If you are a MUSIC user, pick up a copy of the MUSIC XEROX 9700 User's Memo at the SPCC main office.

If you are a CMS user, pick up a copy of the CMS XEROX 9700 User's Memo at the SPCC main office.

See Janice Jannett, room 90 Coffey Hall, phone 373-0987 when you are ready to have your final copy printed.

N O M A D 2

NOMAD is a comprehensive database management and reporting language that is now available at SPCC under the CMS timesharing system. NOMAD is designed allow a person with a modest background in computers to use an existing database and do reporting from it, yet allow the experienced programmer to quickly develop advanced database applications. Applications can be developed using NOMAD in a fraction of the time compared to conventional languages like FORTRAN and COBOL.

NOMAD databases can be relational, hierarchical or a combination of the two. This will allow you to structure your database the way you envision your data and work with it.

NOMAD allows reports to be created using English-like commands. By using the LIST command, your data is retrieved, sorted, and displayed as you want it to appear. NOMAD has many reporting functions like MIN, MAX, AVG to allow you to consolidate your reports by various groupings.

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Data integrity checks can be built right into the description of the database. These checks will be automatically performed by NOMAD whenever any of the data is changed or entered. No extra programming is needed to get these checks to be done.

Full screen data maintenance procedures can be designed using NOMAD's screen handling commands. If you have an IBM 3101 terminal or an IBM PC, you will be able to use NOMAD's full screen capabilities over a dialup line.

If you have your data in a NOMAD database and need to get that data out to an external file or tape, NOMAD has a simple command called CREATE to accomplish that task. Most of the functions available in the LIST command can be used in the CREATE command to allow you to put not only raw data out to the external file, but also averages, minimums, maximums, sums, counts etc.

FALL QUARTER SEMINARS

The St. Paul Computer Center will be offering the short courses shown below during the fall quarter. The User Orientation presentation introduces new and prospective users to the SPCC facility. Following a brief description of the hardware and software available at SPCC, a short tour of the computer center will be given.

The SAS course will cover the Statistical Analysis System (SAS), a comprehensive statistical package available on the IBM 4341 computer at SPCC. In addition to statistics, SAS provides software tools for data storage and retrieval, report writing, general programming, and graphics.

The MUSIC course will cover the McGill University System for Interactive Computing, an interactive operating system called MUSIC. The MUSIC operating system allows one to edit and save files, submit batch jobs, or run jobs interactively.

For those users who would like to access SAS remotely via an interactive terminal, MUSIC will allow you to submit jobs to SAS and get the output back on a MUSIC disk file.

The CMS course will introduce the Conversational Monitor System, an operating system that allows one to edit and save files, submit batch jobs, and run jobs interactively. The CMS editor XEDIT offers many more options and capabilities than the editor for MUSIC. SAS and NOMAD (a new data base management system) may be accessed interactively through CMS.

The NOMAD demo introduces a Data Base Management System now available at SPCC. NOMAD is a fourth generation language, which may be used for data management, retrievals, application programming, report writing, and graphics. All courses will be given on the St. Paul campus.

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Course schedules :

User Orientation	Oct 13	(Th)	3:00-5:00
SAS	Oct 17,19,21	(M,W,F)	3:00-5:15
MUSIC	Oct 24,26,28	(M,W,F)	3:00-5:15
CMS Intro	Oct 25,27	(T,Th)	3:00-5:15
	Nov 15,17	(T,Th)	3:00-5:15
	Nov 29,Dec 1	(T,Th)	3:00-5:15
NOMAD Demo	Nov 3	(Th)	3:00-5:15
	Nov 17	(Th)	3:00-5:15
	Dec 8	(Th)	3:00-5:15

The User Orientation will be held in B35 COB (St. Paul Campus), with no registration required. To register for the other courses shown above please obtain and complete a short course registration form from the SPCC (373-0987; 50 Coffey Hall) and return it to the main office, 50 Coffey Hall prior to the start of the class. Most short courses have a modest fee associated with them and require full payment before the class begins. No refunds are made after the class begins.

If you have questions about short courses, their cost, or registration, please call Mel Sauve or Diane Suski (373-0987).

If you have a group of 6 or more people interested in any of the short courses, SPCC can schedule a class just for your group. Please contact Mel Sauve at 373-0987 to make the necessary arrangements.

COMPUTER TIME GRANTS

Many are already aware of the significant change in the University time grant policy, which was described in Vice President Keller's July memo to department heads. In essence, the new policy raises time grant support upward to a ceiling of \$1,000 for computer resources utilized and now includes supply-related costs (such as disk storage, printer and card output, and connect time). Off-line costs, such as material purchases (manuals, magnetic tape, etc.) and short courses will remain billable on the new policy. These changes were implemented immediately beginning with July 83 grant activity.

This new policy affects both the G-grants (graduate thesis) and R-grants (unfunded faculty research). The new guidelines and limitations are described below:

1. An initial payment of \$30 (not refundable) will be charged per user to establish an account.
2. Once a G or R grant is established, computer resource and processing cost will be covered up to a limit of \$1,000 (\$30 initial fee and \$970 in grant support).

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3. Usage beyond this limit will be fully charged. However, grants may be further available under programs presently managed by computer grant committees.

It should be noted that many research grants and contracts include funds for computing. Users are expected to utilize these funds first before applying for a computer grant. We can not emphasize this enough. If this practice is not followed, available University funds may not permit continuation of this more generous policy for unfunded research.

The policy regarding instructional grants remains the same. These grants, the I1 (course-related student use) and I2 (course development), continue to have their computer usage covered by connect time charges.

S T A T I S T I C A L C L I N I C

The Statistical Center provides statistical consulting to researchers at the University of Minnesota. The services of the Center are available to the University community, generally without charge. Assistance on appropriate experimental designs and methods, data analysis, and the interpretation of results are part of the mission of the Center.

The Statistical Clinic, located in room 125g, Classroom Office Building, on the St. Paul Campus, is staffed by graduate students of the School of Statistics, and supervised by faculty members of the Applied Statistics Department. It is intended to provide an initial contact between the Center and students with research problems. Many statistical problems can be handled completely by the personnel in the Clinic; however, more difficult problems will be referred to an Applied Statistics faculty member. The exact hours of the Statistical Clinic for Fall Quarter 1983 are:

Monday : 8:00-5:00
Tuesday : 8:00-3:30
Wednesday: 8:00-5:00
Thursday : 8:00-3:30
Friday : 8:00-5:00

Room: 125g COB
Phone: 376-3845

L O N G O U T P U T L I S T I N G S

Output listings that are identified as requiring more than fifteen minutes to print will be ordered and printed after listings that require less time. This guideline will be used by the operator staff during periods of extensive printer demands. Users will be notified by the posting of turnaround time at the I/O station (Rm. 90 - Help Desk Area).

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D A T A E N T R Y

At the present time, the data entry workload is such that the turnaround time is very good. For more information, call Linda Pichner or Cleo Medlock at 376-9222.

Account numbers for data entry must be obtained from Diane Suski in the main office.

F O R S A L E

The Center has the following items for sale (please contact Mel Sauve, 373-0987, 50 Coffey Hall):

- o IBM 083 Card Sorter \$375
- o IBM 514 Card Reproducer \$150
- o Three IBM 029 Key Punches \$465 / each

The Agricultural Extension Service has the following items for sale (contact Vicki Weinkauf, 373-1621, 20 Coffey Hall).

- o Single-sided, single density, 5 1/4" Nashua floppy disks at \$1.25 each.

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SPCC general hours and telephone numbers:

MAIN OFFICE	:	50 Coffey Hall	373-0987	(8:00- 4:30)
USERS ROOM	:	90 Coffey Hall		(7:00-10:00)
HELP LINE	:		376-4602	(10:00-12:00) (1:00- 4:00)
DATA ENTRY	:	6 North Hall	376-9222	(8:00- 4:30)

SPCC computer and user room hours:

Monday-Friday	:	7:00 AM - 10:00 PM
Saturday	:	8:00 AM - 4:00 PM

If you would like to be placed on the SPCC newsletter mailing list, please contact Diane Suski at 373-0987.