

# SPCS Newsletter

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St. Paul Computing Services

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University of Minnesota

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## Enhancing Your PROFILES

### The PROFILE EXEC

A file with a filetype of EXEC is known as an EXEC file. It contains a series of commands that are executed when its filename is entered as a command in response to the CMS Ready; message. The PROFILE EXEC file is special in that it is executed when CMS is invoked when the user logs on.

Every userid is given a PROFILE EXEC when it is set up, to make sure there is a PROFILE to be executed the first time the user logs on. This default PROFILE sets up the userid to run in CMS. This "set up" includes linking the userid to several System disks which run things like XEDIT, MAIL, FILELIST, Menus, and others. Without this PROFILE, none of those things would be available to the user! This is why a user should **NEVER ERASE the PROFILE EXEC file.**

The standard, default PROFILE EXEC contains only these three lines:

```
&TRACE OFF  
EXEC USERPROF  
&EXIT
```

Not real spectacular, is it? That's okay, because the point of this article is to show how you can jazz up your own PROFILE EXEC to make your computing life easier. Take a look at our sample PROFILE EXEC, which we'll be using to demonstrate a few features:

```
&TRACE OFF  
EXEC USERPROF  
CP SET PF01 IMMED BATCH Q USER (MSGCOUNT 5  
CP SET PF02 IMMED Q DISK  
CP SET PF03 RETRIEVE  
CP SET PF04 IMMED IBMROUTE PRINTER2 PRT  
CP SET PF05 IMMED SPOOL PRINTER CLOSE  
CP SET PF06 IMMED LINK * 201 201 RR#ACCESS 201 B  
CP SET PF07 IMMED LINK * 201 201 MR#ACCESS 201 B  
ACCESS 201 B  
EXEC FILELIST * * A  
&EXIT
```

All of the new lines were inserted between EXEC

USERPROF and &EXIT, because that's where they have to go in order to override or augment the default settings. And what have we done to jazz up this PROFILE? We'll start with the last two new lines. First,

```
ACCESS 201 B
```

This user uses the 201 disk often, and wants it to "be there" after logging on without always typing LINK and ACCESS commands. This line will make it "automatic" for the user to access the 201 disk with a filemode of B. The next line,

```
EXEC FILELIST * * A
```

causes the FILELIST screen to be automatically displayed, first thing after logging on.

### When is a command not a command?

This line had to start with EXEC because FILELIST is an example of a CMS "command" that isn't actually a CMS command — it's an EXEC file! This may be a surprise to you, because an EXEC file behaves just like a CMS command when the name of the file is typed after the CMS Ready; message. But you have to know it is an EXEC in order to invoke it from an EXEC file, as this user has done.

(To find out whether a command is an EXEC file, type this line after the CMS Ready; message:

```
FILELIST command * *
```

A FILELIST screen will show all files, if any, that have the same name as command.)

The rest of the new lines in our sample PROFILE define PF keys as specific, often-used commands. Notice the basic format: each line starts with CP SET PFnn, followed by the command or series of commands.

This user often runs BATCH jobs and used to spend a good bit of time repeatedly typing:

```
LINK * 201 201 RR  
ACCESS 201 B
```

and

```
LINK * 201 201 MR  
ACCESS 201 B
```

But now PF keys 6 and 7 'toggle' between these

read/only (RR) and read/write (MR) links to the B disk, thanks to these two new lines:

```
CP SET PF06 IMMED LINK * 201 201 RR#ACCESS 201 B  
CP SET PF07 IMMED LINK * 201 201 MR#ACCESS 201 B
```

Here, PF6 'toggles' to an RR link and PF7 'toggles' to an MR link.

IMMED specifies that the command will be executed immediately after the PF key is pressed. You should recognize the rest of the line as the text of the two commands, LINK and ACCESS, except for the pound sign (#). The pound sign is used to separate commands; without it we would be unable to put more than one command on a PF key.

PF keys 4 and 5 are set up by this PROFILE as another matched pair. Anyone familiar with the printer in 90 Coffey Hall (PRINTER2) will recognize the commands IBMROUTE and SPOOL PRINTER CLOSE. Now, instead of typing them day after day, this user can just press PF4 for IBMROUTE and PF5 for SPOOL. Imagine — never a typo!

### Other helpful uses

This user also set up PF keys 1, 2, and 3. PF1 saves time when monitoring or reviewing the progress of BATCH jobs. The (MSGCOUNT n specifies that only the last n BATCH jobs will be displayed. PF2 issues the QUERY DISK command, which isn't necessarily a great time-saver, but is at least a quick and painless way to check on disk space.

PF3 is set to something called RETRIEVE, which requires some explanation. RETRIEVE is not a CMS command, nor is it an EXEC file. It works ONLY in this context, being assigned to a PF key. The convenience of the RETRIEVE feature is that the user can recover any one of the last several CMS commands entered. Each press of PF3 causes the previous command to be displayed in the lower left corner of the screen; the command will not be executed until ENTER is pressed. The user can then choose which command to re-enter.

(The actual number of commands RETRIEVED varies, depending on the lengths of the commands. Enter the CMS command HELP CPSET PFN for more information.)

If IMMED had been used on the CP SET command for PF03, only the last command would be displayed, then immediately executed as well. That has almost no value in any context. Perhaps you

aren't struck by the usefulness of RETRIEVEing a recent command; our best advice is to just try it and see how useful you make it!

A further note about setting PF keys: it is common practice on our CMS system to set PF keys 13 through 24 to be the same as PF keys 1 through 12. This is not required, but it could make a difference with your keyboard, depending on how you usually activate a PF key. If you decide or need to follow this convention, include two SET commands for each key being defined, one for the key *nn* and one for the key *nn + 12*.

## The PROFILE XEDIT

XEDIT files (files with a filetype of XEDIT) are functionally much like EXEC files, but they operate in the XEDIT environment, not the CMS environment. The PROFILE XEDIT is special in that it is executed every time a user invokes XEDIT.

By default, PROFILE XEDIT X is the file that is executed when you edit a file. (The X disk is one of those System disks that PROFILE EXEC links to your userid.) To make changes to your own version of the PROFILE XEDIT file, first copy it from the X disk to your A disk, as follows:

```
COPYFILE PROFILE XEDIT X = = A
```

The default PROFILE XEDIT file is much larger than the PROFILE EXEC file, and more confusing to decipher. You won't need to know everything about it, though, so we'll just highlight a few sections.

There is a section (around line 20) in the PROFILE which looks like this:

```
COMMAND CMDLINE TOP
COMMAND SCALE OFF
COMMAND CURLINE ON 3
COMMAND NULL ON
COMMAND PREFIX ON RIGHT
COMMAND NUM ON
```

These lines set up some screen features you might want to change, or at least explore.

CMDLINE refers to the Command Line, indicated on the XEDIT screen by the arrow (====>). You can change TOP to a line number of the screen and alter where the command line would appear.

SCALE is a "ruler" that displays column positions

on the screen. Change OFF to ON *n* to make this ruler appear on the *n*th line of your screen.

CURLINE refers to the Current Line, which is always highlighted by XEDIT. Experiment with other positions of the current line just by changing the 3 to another number.

PREFIX refers to what is called the Prefix Area, which is where the line numbers are displayed. They appear on the right because this line says PREFIX ON RIGHT. Change RIGHT to LEFT if it makes more sense to you to have a Prefix Area which precedes each line of text.

NUM ON determines that line numbers appear in the Prefix Area. If you'd rather see equals signs (====) instead of the 5-digit number, change ON to OFF.

These are all you should try to alter in that section of the PROFILE. But there's another section (around line 120) that looks like this:

```
&IF &FTYPE EQ MEMO  COMMAND SET CASE M I
&IF &FTYPE EQ NEWS  COMMAND SET CASE M I
&IF &FTYPE EQ NOMAD COMMAND SET CASE M I
etc.
```

Does it drive you crazy when (as you're editing a file) you type a few lines in mixed case, then press ENTER and everything gets changed to uppercase? Sometimes, for some types of files, it probably does. You could stop and type CASE M I (for CASE Mixed Ignore) on the Command Line each time it happened, then re-type the lines. Or you can fix it for good: list here in the PROFILE any filetypes that should automatically accept mixed case input. Simply add lines like this:

```
&IF &FTYPE EQ ft  COMMAND SET CASE M I
```

where *ft* is the filetype.

That's as far as we'd like to take you into PROFILES for now. We encourage you to try these changes to see how you like them. As you do, you'll probably have further questions about the power of EXEC and XEDIT files. Our Help Desk staff is ready and willing to answer related questions.

Should you be interested in writing your own customized EXEC and XEDIT files, our CMS REXX short course will start you on your way. You'll find a Registration Form on page 15. ♦

# The Reconnected Message

Have you ever gone through the logon procedure and found the message RECONNECTED displayed on your screen? If so, this message indicates that something other than the normal logon process is taking place.

## Logon and Logoff at SPCS

The standard logon process begins when you enter your userid and password. If both are valid, your computer account will be activated with all of the features and resources to which you've been granted access. This collection of resources (storage memory, working memory, and so forth) is called the *virtual machine*. Controlled via your terminal, this virtual machine behaves as if it is your very own personal mainframe computer. In reality, each user working on the mainframe is using a separate virtual machine.

When you logoff from SPCS, your virtual machine is, in effect, turned off. An accounting record of usage is prepared, followed by the complete ending of your computing session.

## Disconnected state

On occasion, while using the mainframe, your terminal may be "disconnected" from your virtual machine. This does not mean that some cable has been pulled out of its socket but rather that your virtual machine has been left to run by itself; the terminal is freed for use by other computer accounts.

Terminals and virtual machines can be disconnected by choice or by accident. You may, by choice, disconnect your terminal from your virtual machine by issuing the CP command DISCONN. However, few users ever need to do so.

Disconnection more often occurs by accident, usually due to programming errors, mainframe failure, telecommunication line failures, or turning off the terminal without first properly logging off.

By choice or not, the user's virtual machine is now

said to be in a *disconnected state*.

## Reconnection Options

In any case, when you attempt to logon to an account that is in a disconnected state, you will see the message:

```
RECONNECTED AT time CST date
```

displayed on the screen. At this point, you have three choices:

- 1) If you want to continue or resume what you were doing before getting disconnected, type:

```
                B  
or  
                BEGIN
```

and press ENTER.

If the word RUNNING is displayed in the lower right hand corner of the screen, then press ENTER again. You should now be back to where you were before you were disconnected.

- 2) If you DON'T want to resume execution (maybe you were stuck in a loop, your terminal was hung, or you were in some sort of trouble), then it might be better to stop the computer session and re-enter CMS. To do this, type:

```
IPL CMS
```

and press ENTER.

The IPL (Initial Program Load) command re-establishes contact with the CMS environment. Then follow the prompts as usual.

- 3) If you want to end the terminal session, then log off. Type:

```
LOGOFF
```

and press ENTER.

If you have further questions after reading this article, please call the Help Desk at 624-6235. ♦

# Care and Cleaning of the Micro Keyboard

*This article was originally published in the CSC Link Newsletter, University of Maryland at College Park, Winter 1988, Volume 22, Number 4, Page 7.*

Are coffee stains and chocolate smudges making it difficult for you to read the characters on your keyboard? Could you stuff a mattress with the dust accumulating on your screen? Could you plant a garden in the sediment growing between your keys? If so, it's time to clean your micro. Here are some helpful tools and advice on hazards to be avoided.

First and foremost, never try to clean your screen, keyboard, or even the immediate environment around your micro with industrial strength products such as ammonia, cleanser, or tile or porcelain cleaner. We recommend using a cotton swab, Qtip, or lint-free cloth in combination with either water or alcohol. Wipe the screen and dry it with the cloth, and use the swab to clean keys. The Qtip is handy for cleansing the area between keys and the lip of the external disk drive(s). Clean only the external surfaces.

The following advice from the Office for Information Technology at Harvard University is valuable (be sure your machine is turned off):

- remove loosed particles from between or under keys by turning the keyboard upside down and tapping gently.
- upright the keyboard and blow on the keys to remove remaining loose material.
- use a syringe or bulb to gently pump air around the keyboard area. Then use a cotton swab or Qtip to get at really stubborn particles.
- mini cleaners are also effective for dislodging loose dust particles.
- use a cotton swab dipped in mild alcohol to gently remove surface grime from keys. You can also remove each key, except for the space bar, by gently prying it up.
- screen should be cleaned with water, diluted alcohol, or a residue-free glass

cleaner and a lint-free cloth. The anti-static cleaning pads available commercially are also effective.

- if you have a display monitor with a mesh screen surface do not use any liquid cleaning agent. Instead, use only a lint-free cloth, or pat gently with the sticky side of masking tape. ◆

## Where to Find Reference Manuals

*This article is adapted from an article by Mike Dunham for the ACSS Newsletter.*

St. Paul Computing Services (SPCS), Academic Computing Services and Systems (ACSS), and Health Sciences Computing Services (HSCS), under the direction of Information Systems, have placed a collection of computer manuals in three libraries on the Minneapolis and St. Paul campuses. This project was implemented in order to provide our users with greater access to hard-to-locate documentation.

Manuals are available from the Reserve Desks in Wilson Library, Walter Library, and St. Paul Campus Central Library. The collection in each library (the same titles are at each site) includes the most frequently used and requested manuals for SPCS (IBM running CMS), ACSS (Cybers running NOS and NOS/VE, VAX running VMS, Encore running UNIX), and HSCS (Cybers running NOS and NOS/VE) hardware and software.

The manuals were cataloged by the University Libraries' staff and entries for each manual appear in LUMINA, the Libraries' on-line catalog. For information about using these materials, please contact the appropriate Reserve Desk. Or if you want to see a complete listing of the manuals, please call Mike Dunham (625-7397) or send him a MAIL or BITNET message (MAD@UMNACVX, MAD@UMNACCA, MAD@UMNACUX). ◆



**Watch for an April announcement of new weekend hours for computer access**

## Software Notes

### The SAS System for Personal Computers

The products currently available in the PC SAS System are:

**Base SAS Software** — the foundation of the SAS System, featuring a powerful fourth-generation language and ready-to-use data management and reporting tools.

**SAS/STAT Software** — a full-function statistical package for everything from simple descriptive statistics to advanced regression.

**SAS/GRAPH Software** — for information presentation and color graphics.

**SAS/FSP Software** — for full-screen data entry, editing, and querying.

**SAS/IML Software** — an interactive matrix language for advanced mathematical, engineering, and statistical applications.

**SAS/ETS Software** — for econometric and time series analysis, forecasting, and financial modeling.

**SAS/QC Software** — for statistical quality control.

**SAS/AF Software** — for building user-friendly front-ends to SAS software applications or other applications.

**SAS/OR Software** — for project management, decision support, and mathematical programming.

St. Paul Computing Services currently distributes the BASE, STAT, and GRAPH products of the SAS System for Personal Computers and will soon begin distribution of the FSP and IML products. If you are interested in other SAS products for Personal Computers, please call the SPCS Help Desk to let us know. SAS Institute has recently announced the availability of the ETS and QC products for the PC. If there is enough interest, we will consider obtaining site licenses for these products. ♦

### PC SAS/STAT Update

Coming your way soon: an update to your SAS/STAT software. This update contains the following new procedures:

**PROC CORRESP** for performing simple and multiple correspondence analysis.

**PROC PRINQUAL** for obtaining principal component analysis with nonlinear transformations.

**PROC TRANSREG** for regression analysis with nonlinear transformations.

Two Version 5 procedures, LIFETEST and PROBIT, are also contained in this update. The new procedures are documented in SAS Technical Report P-179: Additional SAS/STAT Procedures, Release 6.03. In addition to the new procedures, there are replacement modules for PROC GLM and PROC LIFEREG. When you install the update, check to see that these modules are installed. These new modules contain important changes to the original versions of these procedures.

Installation instructions and documentation will be sent with your update. If you have any further questions, please call the Help Desk (624-6235). ♦

### SAS User's Group

The Twin Cities Area SAS User's Group's next meeting will be held from 2:30 - 4:00, April 20 (Thursday) at Chi Chi's Restaurant in the Midway Area of St. Paul. There will be a review of SUGI 14 (SAS User's Group International, 14th Annual Conference), held April 9 - 12 in San Francisco. The Twin Cities Group welcomes all new or prospective individuals or company members. If you have any questions about the group, contact Howard Levine (377-5714). ♦

### SAS Manuals

Most of the manuals and technical reports produced by the SAS Institute for Version 5 of the SAS System for CMS and Version 6 of the SAS System for Personal Computers are available for reference at the SPCS Help Desk in Coffey Hall. Campus bookstores stock many SAS manuals and will order others upon request.

Books Underground in Room 7 of the Student Center on the St. Paul campus carries the largest selection of SAS manuals. For Version 5 of SAS they currently stock the SAS Introductory Guide, SAS User's Guide: Basics, SAS User's Guide: Statistics, SAS/ETS User's Guide, and SAS Companion for the CMS Operating System. They also stock several manuals for the SAS System for Personal Computers. The Minnesota Book Center in Room 290 Williamson Hall carries the SAS Introductory Guide, SAS User's Guide: Basics, and SAS User's Guide: Statistics, while the Health Sciences Bookstore in Room 2-554 of the Moos Health Sciences Tower currently stocks the SAS User's Guide: Basics. ♦

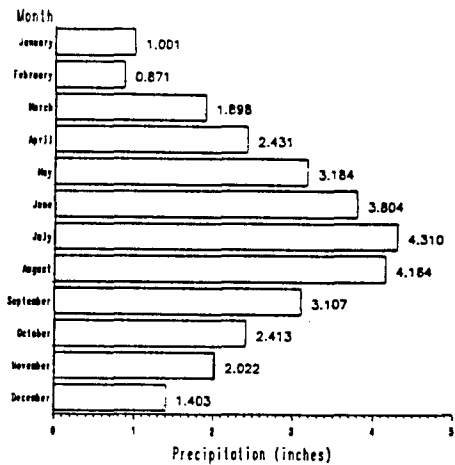
# SAS/GRAPH Hints

The most effective guide to designing a chart is your own eye. By using SAS/GRAPH interactively, you can experiment to determine the best use of options for the information being presented and for the audience interpreting the message. Try out options interactively, and when the picture is in its final form, route it to the plotter.

Many users find that the quickest way to get started is to modify one of the example flows illustrated in the SAS/GRAPH example notebook (available for reference at the Help Desk) or in the SAS/GRAPH User's Guide, Version 5 Edition.

The following graphs and plots are examples using SAS/GRAPH procedures. Climate data was provided by Greg Spoden, State Climatologist, Minnesota DNR.

Average monthly precipitation for St. Paul - Minneapolis area



Good graphics are simple, yet convey all the meaningful information to the audience. Design considerations:

### Readability

Consider audience distance from the final output. Is the graphic bold and simple so it can be understood from the distance the audience will be from the image?

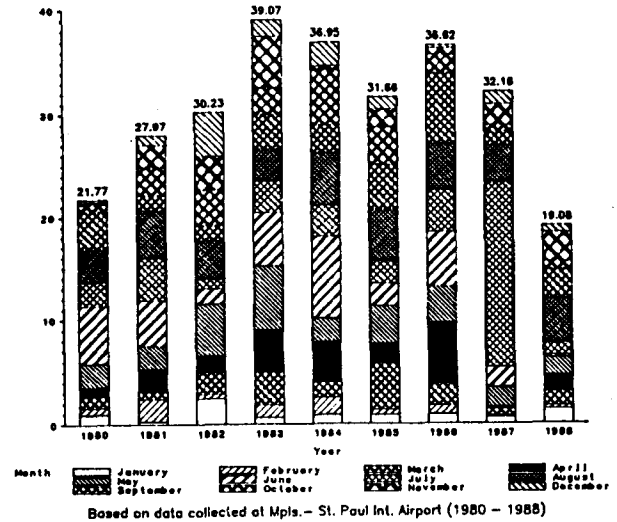
### Attention-directing

Does the use of color and pattern attract the audience to the essential information in the graphic?

### Simplicity

Is the chart trying to show too much or too little data?

Twin Cities: total precipitation (inches) by month and year



### Clarity

Do the characteristics of the chart accurately represent the data and make the information easy to understand?

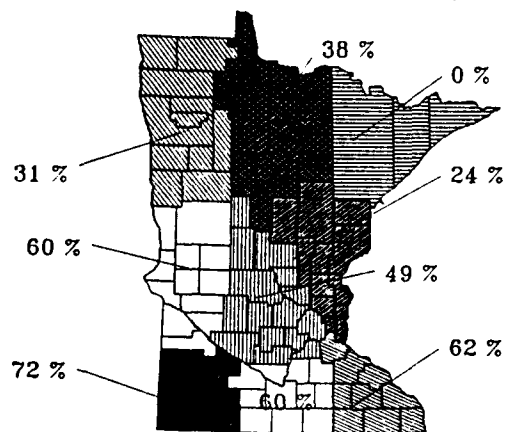
### Effectiveness

Do all the parts of the graphic work together to convey the important information?

### SAS/GRAPH Map Data Sets

There are special SAS/GRAPH map data sets available to users. These data sets include U.S. state and county boundaries and names, Canadian province boundaries and names, and the world. Appendix 2 in the SAS/GRAPH User's Guide has information on how to call up these data sets. ♦

Percentage of Corn Denting for August, 1988



Ref: Minnesota Agricultural Statistics Service, No. CW-22-88, August 22, 1988

## Attention Time Grant Users!

By University policy, grant users are required to establish their eligibility for computer processing Time Grant support ANNUALLY. To administer this policy, we are required to close all Time Grants at the end of the fiscal year (June 30, 1989). After your Time Grant account is closed, you will lose all permanent files stored under your userid.

SPCS will be mailing Time Grant Renewal Forms and instructions during the month of May. To continue your Time Grant without interruption, complete and send in your form by July 1, 1989. If you have not received your renewal notice by June 1, please call the Main Office (624-7788). ♦

## DATA ENTRY SERVICES

**Room 6, North Hall**  
**8:00 am - 4:30 pm, M - F**  
**Call 624-7297**

Services include:

- Data entry and data verification
- Assistance in efficiently preparing coding sheets, questionnaires, and all other forms
- Output on 3.5" or 5.25" diskettes; 1600 or 6250 bpi tape; or as a file on your mainframe account
- Hard copy of your output.

## ST. PAUL MICROCOMPUTER LAB

Room B50 St. Paul Central Library 624-3269

The SPCS Microcomputer Lab is open to U of M students, staff, and faculty. Entry to the lab requires a Microcomputer Access Card (available for \$30.00/quarter at the St. Paul Bursar's Office). High quality printing is available using the Apple LaserWriter Plus, HP LaserJet Plus, or the HP ColorPro plotter. To use one of these printers, you'll need a Laser Printer Access Card, available for \$1.00 (good for 10 pages) at the Bursar's Office. The lab is operated on a first-come, first-served basis. Each user is limited to 2 hours/session, with a 2 hour waiting period between sessions.

### Software available in the lab:

<u>IBM</u>	<u>Macintosh</u>	<u>Apple IIe</u>
Minitab	MacWrite 4.6	Appleworks
Statistix	Mac Paint 1.5	MousePaint
GLIM	MacTerminal	MouseWrite
WordStar	MacPascal	
WordStar 2000	MacSpell+	
WordPerfect 4.2	MS Word	
Lotus 123 *	MS File	
dBase III	MS Chart	
Turbo Pascal	MS Multiplan	
PC Paintbrush	MS BASIC	
PC DOS	TinCan	
PC SAS		

\*commercial version only

### System configuration

12 IBM PCs with 640K memory  
 1 IBM PC/AT with 512K memory  
 6 Macintosh Plus with Mb memory  
 1 HP 2686A Laserwriter (for IBM's)  
 1 Apple IIe with 128K memory  
 1 LaserWriter Plus (for Macintoshes)  
 2 PS/2 Model 50  
 3 Macintosh SE  
 1 Macintosh II

### Hours

Monday through Friday: 8:00 a.m. to 10:00 p.m.  
 Saturday: 10:00 a.m. to 2:00 p.m.  
 Sunday: 6:00 p.m. to 10:00 p.m.



## Consulting Corner

**Q.** Running online noninteractive SAS, I was linked in read/only (R/O) mode to my B disk. I thought this wouldn't be a problem because the raw data files are on my A disk, and I wanted to create the data sets on A, too. But my job didn't run because SAS complained that it couldn't create some data sets on my B disk. Why did SAS try to put them on my B disk?

**A.** It has to do with librefs (library references) and filerefs (file references). Permanent SAS data set names have two parts, separated by a period (.). The libref is the first part, to the left of the period, and the fileref is the second part, to the right:

*libref.fileref*

Looking at your code, we see that the data sets you're creating have permanent names. In some of those permanent names, the libref is the same as some of the data sets already on the B disk. SAS tries to group, on the same disk, all permanent data sets having the same libref. Since the B disk is linked R/O, SAS can read that some data sets for that libref already exist, and but can't write the new data sets (with matching librefs) onto the B disk. That causes the error.

Your program will successfully create the data sets on your A disk, if you do one of two things. Either change the librefs in the program to be different from all librefs that are already on the B disk, or break the link to your B disk (so SAS won't know that that libref already exists) and re-run the program without making any changes to it.

**Q.** I need a quick way to find the number of students of each sex and age in a SAS dataset.

**A.** One way would be to use Proc FORMAT to group the age and sex values, and then run Proc FREQ. Note the use of the keywords HIGH, LOW, and OTHER (OTHER will catch miscoded students).

```
PROC FORMAT;
  VALUE $SEXFMT
    'M' = 'Male'
    'F' = 'Female'
    OTHER = 'Miscoded';
  VALUE AGEFMT
    LOW - <12 = '< 12 years old'
    12 - <21 = 'Teens'
    21 - <31 = 'Twenties'
    31 - <41 = 'Thirties'
    41 - <51 = 'Forties'
    51 - HIGH = 'Fifties +';
```

```
PROC FREQ DATA=STUDENTS;
  TABLES SEX AGE;
  FORMAT SEX $SEXFMT. AGE AGEFMT.;
RUN;
```

Another way would be to run Proc CHART (VBAR or HBAR) using the default midpoints:

```
PROC CHART DATA=STUDENTS;
  VBAR AGE;
RUN;
```

### **EXAMPLE:**

The STUDENTS data set:

OBS	SEX	AGE
1	M	10
2	F	27
3	M	78
4	F	1
5	M	28
6	.	15
7	F	22
8	M	33
9	F	44
10	M	55
11	F	9

The output from Proc FREQ and Proc CHART are shown on page 10.

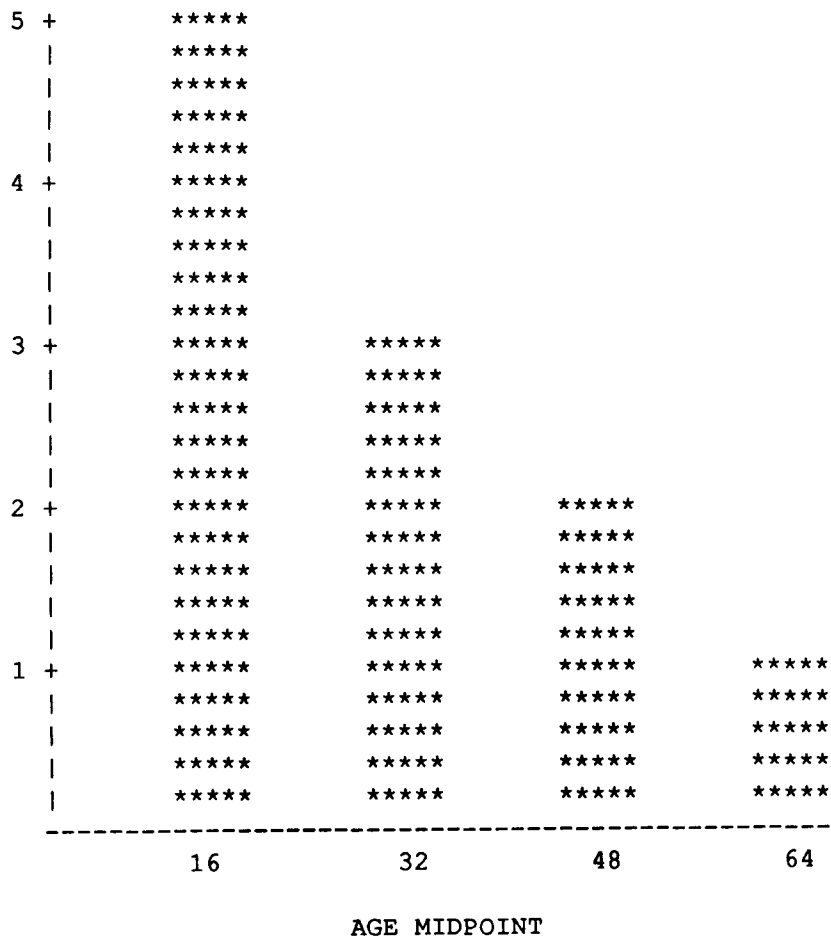
**Proc FREQ Output:**

SEX	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
Miscoded	1	.	.	.
Female	5	50.0	5	50.0
Male	5	50.0	10	100.0

AGE	FREQUENCY	PERCENT	CUMULATIVE FREQUENCY	CUMULATIVE PERCENT
< 12 years old	3	27.3	3	27.3
Teens	1	9.1	4	36.4
Twenties	3	27.3	7	63.6
Thirties	1	9.1	8	72.7
Forties	1	9.1	9	81.8
Fifties +	2	18.2	11	100.0

**Proc CHART Output:**

FREQUENCY BAR CHART  
FREQUENCY



**Q.** Is there an alternative to PROC PRINT for listing my data set?

**A.** Yes. If a data set has only a few variables but many observations, you can format the output to look like a phone book, so the list of observations continues in a new column on the same page. When there are many variables in a data set, PROC PRINT breaks up each observation over several pages. There is a way to get around this, too.

These alternatives are available thanks to PROC QPRINT and a couple of handy keywords. For the first situation, the keyword is MULTIPLE, as shown in this example:

```
PROC QPRINT DATA=TWINCITY.CLIMATE MULTIPLE;  
  OBS;  
  VAR HI LOW;  
RUN;
```

Specify MULTIPLE on the PROC QPRINT statement to fit as many columns as possible on one page. In this example, only the observation number (due to the OBS; statement) and the variables HI and LOW are being printed. The output will look something like this:

OBS	HI	LOW	OBS	HI	LOW	OBS	HI	LOW	OBS	HI	LOW
1	31	24	55	29	17	109	75	44	163	81	51
2	26	13	56	18	3	110	80	50	164	78	61
3	20	13	57	36	1	111	83	45	165	81	63
52	37	34	106	57	38	160	71	45	214	92	59
53	36	25	107	62	34	161	78	57	215	83	64
54	29	15	108	72	39	162	72	49	216	85	57

For the second situation, the keyword is ROWS=WRAP. In the following example, all variables are printed, by default (along with the observation number, again).

```
PROC QPRINT DATA=SURVEY.DATA ROWS=WRAP;  
  OBS;  
RUN;
```

The output will group together each observation's rows, to look something like this:

OBS	ID	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10
	V11	V12	V13	V14	V15	V16	V17	V18	V19	V20	
1	001	1	1	1	.	2	0	1	.	.	2
	6	1	387	2	0	0	1	.	22	1	
2	005	1	1	1	1	1	.	.	1	2	.
	2	2	1400	30	.	53	2	1	30	2	

etc.

There are many other options and keywords in PROC QPRINT. Further documentation on PROC QPRINT can be found in the SAS Technical Report P-146: Changes and Enhancements to the Version 5 SAS System, April 1986, p. 89. There is a copy available for reference at the Help Desk. ♦

# Newsletter Directory

We've compiled a listing of still-current articles published in past newsletters (see below). These files are available on the SPCS Bulletin Board through the Project-Group Menu. Remember: you may read, print, and/or download files from the Bulletin Board. A limited number of back copies of SPCS newsletters are available in 50 Coffey Hall.

## January 1988

Electronic Communication  
A Guide to the Ethical and Legal Use of Software for Members of the Academic Community  
ACCOUNT STATUS Command Update  
Software  
PC SAS Renewals  
Online Consulting

## April 1988

VM/SP Release 5.0 at SPCS  
Time Grant Account Renewal  
LINKACC Changes  
SAS CBT Courses  
Software  
New Release of TinCan (3.0)  
General Information about Version 6.03 PC SAS  
Changes in Release 6.03  
(PC Base and PC STAT)  
PC SAS/GRAPH (6.03) Available

## June 1988

Command Changes (GET changed to GETPROD)  
New CMS EXEC Class  
Documentation Note 23: ACCSTAT  
Software That Destroys  
Software  
CMS Release 5.0  
NOMAD2 Version 4.5  
PC SAS Version 6.03  
Good-bye Computer Cards  
Services  
IBM Higher Educational Software Consortium  
Time Grant Renewal  
Beyond BITNET  
TPRINT Problems

## October 1988

Electronic Postmaster  
New Data Entry Equipment  
New Disk Drives

New Temporary Disk Allocation  
Rate Decrease  
Communications  
TELNET and FTP Components of TCP/IP at SPCS  
Microlab Changes  
Software Notes  
SPSSx  
SAS  
ARCHIVE

## January 1989

VMARCHIVE  
Electronic Postmaster Available  
VS Pascal Available  
Uploading/Downloading  
Computer Viruses  
Services  
ISAAC  
IBM Higher Education Software Consortium  
Electronic Communication (BITNET)  
Software Notes  
NOMAD2 Version 4.5



## Statistical Clinic

The Statistical Clinic, located in room 133 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. Faculty with research questions may prefer to contact the Director of the Center. Many statistical problems can be handled by the personnel in the Clinic; however, more difficult problems will be referred to an Applied Statistics faculty member. The staff of the Clinic aids researchers on questions of experimental design, analysis, and interpretation.

The Clinic is open twelve months a year, with reduced hours during the summer and over University vacation periods. The facilities are ordinarily available on a walk-in basis, although appointments are recommended. The usual hours of the Clinic are weekdays from 9 to 4, with some blocks of time left uncovered. Call 625-7030 to obtain exact hours or 625-3121 to make an appointment. ◆

# ☛ Spring Short Courses ☛

## March - April 1989

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
26	27	28 <b>User Orientation</b> 2 - 4 125 Coffey Hall	29 CMS Electronic Mail 2 - 4	30 CMS Intro (SP1) 2 - 4	31	1
2	3 CMS Intro (WB1) 9 - 11	4 CMS Intro (SP2) 2 - 4	5 CMS Intro (WB2) 9 - 11	6 CMS BATCH (SP) 2 - 4	7 CMS BATCH (WB) 1 - 3	8
9	10 CMS Utilities 2 - 4	11 YTERM 3 - 4	12 CMS Tapes 2 - 5	13 TinCan 3 - 4	14 CMS REXX 2 - 4	15
16	17 SAS/ Base (SP1) 2 - 5	18 SAS/ Base (WB1) 8 - 11	19 SAS/ Base (SP2) 2 - 4	20 SAS/ Base (WB2) 9 - 11	21 SAS/ Stat 2 - 4	22
23	24 SAS /Graph 2 - 4	25 PROCOMM 3 - 4	26 NOMAD2 2 - 4	27 CMS Electronic Mail 2 - 4	28 PC SAS Overview 2 - 4	29

SP = St. Paul Campus  
WB = West Bank Campus



### Policies and Procedures

Each quarter, St. Paul Computing Services (SPCS) offers a number of short courses. These courses are offered to the University community for a modest fee, and to the public for a slightly higher fee. Special course arrangements for groups of 6 or more are available for a negotiated fee. Course credit is not earned for short course offerings.

# Short Course Descriptions

## 001 User Orientation

March 28, 2 to 4 pm

**FREE** 125 Coffey Hall

Introduction for new and prospective users to our facility, with a brief description of the available hardware and software and a short tour of the Computer Center.

## 100 CMS Introduction

St. Paul

West Bank

March 30, April 4

April 3, 5

2 to 4 pm

9 to 11 am

Introduction to the Conversational Monitor System, the operating system on the IBM mainframes at SPCS and Carlson School of Management. Introductory topics include the full screen editor XEDIT, executing programs (examples in SAS, FORTRAN, NOMAD2), and basic communication with other users.

\$10/\$15/\$20

## 110 CMS Electronic Mail

St. Paul

St. Paul

March 29

April 27

2 to 4 pm

2 to 4 pm

Introduction to electronic correspondence with computer users at SPCS and, via networks, worldwide. Among the accessible networks is BITNET, which includes 1127 research and educational institutions in Europe, Asia, the Americas, and Africa.

No Charge

## 120 CMS BATCH

St. Paul

West Bank

April 6

April 7

2 to 4 pm

1 to 3 pm

Presentation of the CMS BATCH processing facility. Learn about Job Control Language (JCL) for submitting programs to BATCH, the advantages of running BATCH programs, and special features of using BATCH. Prerequisite: CMS Introduction or equivalent knowledge.

\$10/\$15/\$20

## 130 CMS Utilities

April 10, 2 to 4 pm

Presentation of using CMS utilities for doing the following tasks: inexpensive archival storage and retrieval of files, disk space and password management, querying the system for information,

temporary disk usage, and others. Prerequisite: CMS Introduction or equivalent knowledge.

\$10/\$15/\$20

## 140 CMS Tapes

April 12, 2 to 5 pm

Presentation of CMS tape management facilities. Topics include tape specifications, reading and writing standard labeled and unlabeled tapes, and tape positioning and formatting commands.

Prerequisite: CMS Introduction or equivalent knowledge.

\$10/\$15/\$20

## 150 CMS REXX

April 14, 2 to 4 pm

Introduction to writing macros in CMS programming languages REXX and EXEC2. Learn to make the power of these languages work for you -- save time, reduce errors, and relieve tedium. Previous programming may be helpful, but is not necessary. Prerequisite: CMS Introduction or equivalent knowledge.

\$10/\$15/\$20

## 200 SAS/Base

St. Paul

West Bank

April 17; 19

April 18; 20

2 to 5; 2 to 4 pm

8 to 11; 9 to 11 am

Presentation of the essentials of SAS, a comprehensive statistical package that provides software tools for analysis, data storage and retrieval, report writing, general programming, and graphics. Prerequisite: CMS Introduction or equivalent knowledge.

\$15/\$20/\$30

## 210 SAS/Stat

April 21, 2 to 4 pm

Presentation of the statistical analysis features of SAS, including correlation, regression, analysis of variance, and other exploratory data analysis and modelling techniques.

Prerequisite: SAS/Base or equivalent knowledge.

\$15/\$20/\$30

## 220 SAS/Graph

April 24, 2 to 4 pm

Introduction to SAS graphics capabilities for displaying data as 2-D or 3-D plots, charts (bar, block, pie, or star),

tables, maps, contour plots, and viewgraph presentations.

\$10/\$15/\$45

## 230 PC SAS Overview

April 28, 2 to 4 pm

Covers some of the basic features specific to the PC version of SAS. Prerequisite: SAS/Base or equivalent knowledge.

\$10/\$15/\$45

## 300 YTERM

April 11, 3 to 4 pm

Demonstration of YTERM's terminal emulation capabilities as well as its features for transferring files between the SPCS mainframe and your PC and for printing mainframe files on a printer attached to your PC. SPCS distributes YTERM and highly recommends it to those who use their IBM PC's or compatibles as terminals for the SPCS mainframe.

No Charge

## 310 TinCan

April 13, 3 to 4 pm

A demonstration of TinCan's terminal emulation capabilities as well as its features for transferring files between the SPCS mainframe and your Mac and for printing mainframe files on a printer attached to your Mac. SPCS distributes TinCan and highly recommends it to those who use their Macintoshes as terminals for the SPCS mainframe.

No Charge

## 320 PROCMM

April 25, 3 to 4 pm

A demonstration of PROCMM's terminal emulation capabilities as well as its Kermit features for transferring files between the SPCS mainframe and your PC.

No Charge

## 400 NOMAD2

April 26, 2 to 4 pm

An introduction to NOMAD2, a database management system with powerful report writing and programming features.

No Charge



**PRICES:** Short course charges are categorized as follows:

(1) University Student / (2) University Faculty/Staff / (3) SPCS Non-University User

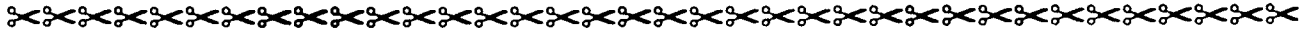
The prices listed under each course description apply to groups 1, 2, and 3, respectively.

**PREREQUISITES:** 100 CMS Introduction or equivalent knowledge is required for CMS BATCH, CMS Utilities, CMS Tapes, CMS REXX, SAS/Base, SAS/Stat, and SAS/Graph. 200 SAS/Base or equivalent knowledge is required for SAS/Stat, SAS/Graph, and PC SAS Overview.

**REGISTRATION POLICY:** The deadline is 4:30 p.m. on the day before the course begins. Full payment is due at the time of registration. Fees may be paid by cash, check, University budget number, or may be charged to your authorized SPCS user account. Most courses have an enrollment limit, so please register early.

When registering by mail, please allow one week for SPCS to return your copy of the completed registration form (required for course entry). If we receive your registration within a week of the course start date, we will retain your copy of the form in our main office (50 Coffey Hall) for pick-up. Although short course dates and times are published, locations are made known only on completed registration forms. If a course is cancelled, an attempt will be made to contact registrants, and refunds will be processed.

**REFUND POLICY:** No refunds will be made after the course has begun. You may request a refund in person or by mail, but you must return your copy of the registration form. Please allow 2-3 weeks for processing refunds or credits.



## SPCS Short Course Registration Form

### Spring 1989

**STATUS**

(1) U of M student       ID # \_\_\_\_\_  
(2) U of M Faculty/Staff       Department \_\_\_\_\_  
(3) Non-U of M User       Employer \_\_\_\_\_

**METHOD OF PAYMENT**

cash  
 check  
 U of M Budget #: \_\_\_\_\_  
 SPCS Account #: \_\_\_\_\_

**NAME** \_\_\_\_\_  
**ADDRESS** \_\_\_\_\_  
(campus/ \_\_\_\_\_  
U.S.) \_\_\_\_\_

**DEPARTMENT** \_\_\_\_\_  
**PHONE** \_\_\_\_\_

Course Number	Course Name	Start Date	Fee	Location (SPCS will complete)
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

**SPCS USE ONLY:** Date Received \_\_\_\_\_ Receipt Number \_\_\_\_\_

## General Information

<b>Main Office</b>	50 Coffey Hall	M - F	8 am - 4:30 pm	624-7788
<b>Help Desk</b>	90 Coffey Hall	M - Th	9 am - 5 pm	624-6235
		F	9 am - 4 pm	
	140 Blegen Hall	M, Th	3 pm - 5 pm	624-5278
		W	9 am - 11 am	
<b>Stat Clinic</b>	133 COB	M - F	call for hours	625-3121
<b>Micro Lab</b>	B50 Central Library	M - F	8 am - 10 pm	624-3269
		Sat	10 am - 2 pm	
		Sun	6 pm - 10 pm	
<b>Data Entry</b>	6 North Hall	M - F	8 am - 4:30 pm	624-7297
<b>Interactive Dialup</b>				624-4220
<b>Operations</b>				624-3482

- Computer Hours**
- From 8 am Monday to 4 pm Saturday  
(except 5:00 - 5:30 am Tuesday through Saturday)
  - Sunday 2:40 pm to 10 pm

**NOTE:** User rooms (90 Coffey Hall) are open during Computer Hours, but after 6 pm and on Saturday and Sunday, the outside doors to Coffey Hall are locked. You can still get to the User Room through the tunnel from the St. Paul Central Library or the Student Center.

The University of Minnesota is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, religion, color, national origin, sex, handicap, age, or veteran status.

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### St. Paul Computing Services

University of Minnesota

50 Coffey Hall

1420 Eckles Avenue

St. Paul, MN 55108