

DCSUG Newsletter

Washington, DC SAS Users Group

Fourth Quarter Meeting

When: Tuesday, December 2, 1997
Time: 8:30a.m. to noon
Place: Bureau of Labor Statistics
Postal Square Building
Room G440
First Street North East
Washington DC



Agenda: 8:30 - 9:00 Registration and refreshments
9:00 - 9:15 Announcements
9:15 - 9:45 Douglas McAllaster, US Army
DATA Step vs. PROC SQL in a Many-to-Many Match Merge
9:45 - 10:15 User-to User Questions and Answers
Moderators - DCSUG officers
10:15 - 10:30 Break
10:30 - 11:45 Michael Davis, Bassett Consulting Services, Inc.
SCL for the Rest of Us: Non-Visual Uses of Screen Control Language
11:45 - noon Linda Atkinson, SAS Liaison
Giveaways - souvenirs from NESUG97

Visitors must use the visitor's entrance on First Street NE. Directions for those taking Metro: Take the Red Line to Union Station. Exit the station via the Amtrak exit, but do not go up to the train level. Instead, after going up to and out through the farecard gates, turn to the left where there is an exit to the street (First Street NE). Directly across from the exit are the employee and visitor's entrances to the building. After checking in with security, take the main elevators down to the G level. **BRING PICTURE ID!**



If you have special needs and are planning to attend this meeting, please contact any DCSUG officer no later than 11/28/97

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President's Message

Peter Knapp

I had a blast at this year's NESUG and I hope you did to. As I write this I'm reflecting on how far I've come in the world of SAS. Seven years ago, I attended my first SAS conference (NESUG '90) while still relatively new to SAS and was overwhelmed by the plethora of topics and products that were covered at the conference. Seven years later I've become very comfortable with SAS. Being part of the local and regional SAS community has helped me mature and improve as a SAS programmer. I hope you get as much out of attending local DCSUG meetings as I do. The next one is going to be held on December 2, 1997 at the Bureau of Labor Statistics near Union Station. Michael Davis, Bassett Consulting Services, Inc. and Major Doug McAllaster, U.S. Army will be our featured speakers. I hope to see you there!

Speaker Abstracts

SCL for the Rest of Us: Non-Visual Uses of Screen Control Language

Michael Davis, Bassett Consulting Services, Inc

Because of the increasing popularity of the SAS(r) System to create Graphical User Interfaces (GUIs), many have come to believe that the language used with SAS/AF(r) and SAS/FSP(r), Screen Control Language (SCL) is only used with visual objects.

The truth is that SCL can be used in conjunction with or in place of the SAS macro language to automate SAS batch programs and to better interface them to the computing environment. Specifically, SCL programs may be submitted from within batch programs run on MVS and UNIX host computers. This includes even those host computers on which SAS/AF is not installed!

This presentation will be an introduction to the subset of SCL that may be used for non-visual programming applications. Topics covered include:

- when to use SCL entries instead of DATA steps or macros
- interfacing SCL entries to SAS code executed in batch
- how to use the SCL on-line reference materials
- using SCL to get the properties of the operating environment
- controlling the execution of SCL code

No previous background knowledge of SAS/AF or SCL is presumed. Part of the presentation will be devoted to using the SCL debugger to learn how SCL programs work and debug those which do not.

Michael Davis is Vice President of Bassett Consulting Services, Inc. Previously, he worked for Blue Cross & Blue Shield of Connecticut and the Connecticut Hospital Association. A SAS user for 13 years, Michael specializes in creating SAS/AF FRAME applications. He is a recent past chairman of the Hartford Area SAS User Group and is a frequent presenter and section chair at NESUG and SUGI.

DATA Step vs. PROC SQL in a Many-to-Many Match Merge

Douglas McAllaster, US Army

This paper compares two methods for

accomplishing a many-to-many match merge. (1) The DATA STEP method uses a technique called "cross-matching" by Aster & Seidman in their book "Professional SAS Programming Secrets." The cross-matching method created an intermediate data set containing pointers and then uses these pointers for direct access to the right hand data set to be merged. (2) The PROC SQL method uses a SELECT statement with a WHERE clause. Performance figures are compared using SAS version 6.12 on a Pentium 133 MHz under Windows NT.

MAJ Doug McAllaster is an operations reseacher (business analyst) at HQ US Army, Office of the Deputy Chief of Staff for Personnel. He has used SAS for seven years. Doug is a DCSUG Steering Committee member.

Questions and Answers

Moderated by DCSUG Officers

Bring your SAS programming or procedure questions to DCSUG and its members. During this open session, you can ask questions of and get answers from experienced SAS users. All are welcomed to participate



If you are not currently a paid member of the DCSUG and are planning to attend the meeting, please **Email** Peter Knapp at Peter_Knapp@ita.doc.gov or call 202-482-1359 by November 28th and leave your name. Security at the Bureau of Labor Statistics is very tight and having your name on a list of possible attendees will make your entrance to the building easier.

Desktop Special Interest Group

by David Barnes

DCSUG's Desktop Special Interest Group will meet in the Spring (Date to be announced) at Westat, Inc. 1650 Research Blvd. in Rockville at 7:30PM. If you have any suggestions for future meeting topics, speakers, or alternate locations, or if you'd like to be added to our group's mailing list so you can get announcements of upcoming meeting events, please contact David Barnes at (301) 350-4752 or Yesvy Gustasp at (301) 589-4530. Also, if you need a ride from the Metro, please call either one of us.

Directions to Westat: Take I-270 8 miles from the Capital Beltway to exit #6B - Route 28 (toward Darnestown). Once on 28, go past the traffic light at the Shell station and turn right at the next traffic light, which is Research Blvd. The 1650 building is less than 1/4 mile on the left. You can park in any non-reserved space. Signs will be posted in the lobby to direct you to the meeting room. Westat has many buildings on Research Blvd. so make sure you're at 1650.



NESUG Proceedings

Linda Atkinson, SAS Liaison

The NESUG '97 Conference Proceedings provide 910 pages of extremely useful information about the use of the SAS System. Papers are included from sessions consisting of Advanced Tutorials, Applications, Beginning Tutorials, Coders' Corner, Database/Information Systems, Information Visualization, Internet/Intranets, the Web and SAS, Posters, SAS Solution Tracks, and Statistics. DCSUG has 24 paper copies of the Proceedings and 10 copies on CD, to be sold at our December meeting for \$10 each. We also have 33 copies of the Master Index to NESUG Conference Proceedings 1988-1997, which will be sold for \$5 each.

Giveaways

Linda Atkinson, SAS Liaison

We have some souvenirs of this year's NESUG conference held in Baltimore which will be given away as door prizes at the December meeting. These include carrying bags, mugs, clipboards, and a book called AKOS Notes, a compendium of SAS Tips published in various issues of the NYASUG newsletter. Attend the meeting, and be sure to put your name in the box for the drawing for the prizes.



Howard Schreier
DCSUG Steering Committee
Member, **WINS NESUG**
**1997 Problem-
Solving Contest**

Example of the questions asked:

Why must this program fail?

```
DATA COUNT;  
SET FEATURES;  
COUNT = (FAME = 'YES') + (FORTUNE = 'YES');  
  
PROC FREQ DATA=COUNT;  
TABLES COUNT / NOPRINT OUT=TEMP;  
  
PROC PRINT DATA=TEMP;  
TITLE 'OVERRATED SUCCESS FACTORS';
```

Answer will be printed in the next issue

Question reprinted with permission from Bob Virgile, Robert Virgile Associates, Inc. Woburn, MA

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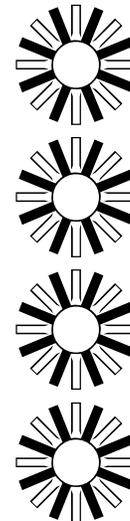
The 1998 SASware Ballot Survey

The SASware Ballot Survey is an opportunity for SAS software users to give us input for future enhancements and features to the SAS System. Every year, SAS software users vote in the SASware Ballot Survey to provide specific feedback on individual SAS software products or services. The votes help us plan the direction of future software development and assist us in setting goals and priorities.

The results of the 1998 SASware Ballot Survey will be announced at the SUGI 23 Conference in Nashville, Tennessee (March 22-25, 1998).

Visit <http://www.sas.com> for more information

Note: SASware Ballot Survey submissions will only be accepted through 11:59 pm EST on January 2, 1998. If you have any questions concerning the SASware Ballot, contact the Technical Support Division at SAS Institute from 9:00 a.m. to 5:00 p.m. Eastern Standard Time at 919-677-8008. Please indicate that you have a question concerning the SASware Ballot.



It Should Have Worked: What Was Wrong, Why Was It Wrong, How Did I Fix It, and What Did I Learn

Peter Knapp, U.S. Department of Commerce

What Was Wrong

I recently discovered that production code my office has been using for the last several years had an undocumented feature in it — a bug. The problem code is found in the Model Match program, a program designed to compare models sold in the U.S. market and home market (HM). For each U.S. model the program finds the “best” HM model. One criterion of a “best” model is that the sale month of the HM model must be “contemporaneous” to the sale month of the U.S. model.

“Contemporaneity” is defined as models being sold in a window of up to three months before and up to two months after the month of the U.S. model. The most contemporaneous match would be one occurring in the same month. The next most contemporaneous match would be one occurring one month back, then two months back, three months back, one month forward, and finally two months forward.

To speed up processing, the Model Match program sorts the HM database by month and finds the locations of the first and last contemporaneous HM model. It then uses those endpoints to narrow the list of HM models to which the U.S. model will be compared.

The original code follows:

```
IF EOF THEN
DO;
  DO CMPARMTH = 2 TO 32;
    MONTHU = CMPARMTH;
    FORMAT BACKMON FORWMON MONTHU MONYR.;
(1)   IF MODELS(CMPARMTH - 3) = 'Y' THEN
(2)     BACKMON = CMPARMTH - 3;
      ELSE
(3)   IF MODELS(CMPARMTH - 2) = 'Y' THEN
      BACKMON = CMPARMTH - 2;
      ELSE
(4)   IF MODELS(CMPARMTH - 1) = 'Y' THEN
      BACKMON = CMPARMTH - 1;
      ELSE
(5)     BACKMON = CMPARMTH;
(6)   IF MODELS(CMPARMTH + 2) = 'Y' THEN
      FORWMON = CMPARMTH + 2;
      ELSE
      IF MODELS(CMPARMTH + 1) = 'Y' THEN
      FORWMON = CMPARMTH + 1;
      ELSE
      FORWMON = CMPARMTH;

    OUTPUT WINDOW;
  END;
END;
```

```
RUN;
.
.
.
DATA WINDOW1 (RENAME = (MONTHH = BACKMON));
(7)  MERGE BWINDOW (IN = IN_WIN)
      HMMONTHS (IN = IN_HM DROP = LASTHMOB);
      BY MONTHH;
      IF IN_WIN AND IN_HM;
RUN;
```

The code first checks to see for a given U.S. month if HM models are sold three months before the U.S. Month (1). If HM sales are made three months before the U.S. month, the program sets BACKMON to three months before the U.S. month (2). If no HM models are sold three months back, the program checks for HM data two months back (3) and if it cannot find HM models two months back then it looks for data one month back (4). Finally, if it finds no data one month back the program chooses the U.S. month as BACKMON (5). A similar approach is used to find the last month in the window of the U.S. sale (6).

Why Was It Wrong

The program does not work properly in cases where there are no HM sales in the three-month window before a U.S. month and no HM sales in that U.S. month (but there are HM sales in the window after the U.S. month). If the program cannot find the beginning of the window three, two, or one month before the U.S. month, then it assigns BACKMON to the U.S. month (6). Since there are no HM sales in the prior window months or the month of the U.S. sale, when the program tries to find the location of the first HM model sold in the U.S. month, the merge will fail (7) and endpoints will not be found. For example, the first month of the review period is April. There are no HM sales in January-April and June, but there are HM sales in May. For the U.S. month of April, the program will determine that the beginning of the window is in April and the end of the window is in May. When it tries to find the first HM model sold in April, it will not find any models sold in April and fail to find endpoints.

The reason I coded the program this way is that I did not take into account the different combinations of possible inputs. In my experience, if a U.S. model was sold in month ‘x’, at least one HM model was sold in month ‘x-3’ through ‘x’ and at least one HM model was sold in month ‘x’ through ‘x+2’.

I coded the search algorithm in the same way I thought about the data.

How Did I Fix It

The program should have cycled through the entire window from three months back to two months forward looking for the first endpoint as opposed to stopping at the U.S. month. To find the last endpoint, the program should have cycled in the opposite direction. The revised code does just this .

```
IF EOF THEN
DO;
DO MONTHU = 1 TO &LSTWNMTH;
FOUND = 'N';
(8) DO MONCHECK = (MONTHU - 3) TO (MONTHU + 2);
IF (MODELS(MONCHECK) = 'Y') AND (FOUND = 'N')
THEN
DO;
FOUND = 'Y';
BACKMON = MONCHECK;
END;
END;
FOUND = 'N';
(9) DO MONCHECK = (MONTHU + 2) TO (MONTHU - 3) BY -1;
IF (MODELS(MONCHECK) = 'Y') AND (FOUND = 'N')
THEN
DO;
FOUND = 'Y';
FORWMON = MONCHECK;
END;
END;
IF FOUND = 'Y' THEN
DO;
(10) FRSTHMOB = INPUT(PUT(BACKMON, FRSTHMOB.), 8.);
(11) LASTHMOB = INPUT(PUT(FORWMON, LASTHMOB.), 8.);
IF (LASTHMOB - FRSTHMOB + 1) > MOSTMODS THEN
MOSTMODS = LASTHMOB - FRSTHMOB + 1;
OUTPUT HMPPOINT;
END;
END;
CALL SYMPUT('MOSTMODS', LEFT(PUT(MOSTMODS, BEST.)));
END;
RUN;
```

By cycling through the entire window in both directions (8)(9), the program will find the endpoints even if the endpoints fall in the opposite window one would expect. For example, For U.S. models sold in April, the revised program will determine the beginning and end of the April window is May and will assign the location of the first HM model sold in May to FRSTHMOB(10) and the location of the last HM model sold in May to LASTHMOB(11).

What Did I Learn

A wise proverb in the world of programming is *KNOW YOUR DATA*. I've heard this message many times and have even preached it to the staff I support. It's ironic that I didn't take my own advice. In trying to improve the efficiency of the

program I assumed that there would always be at least two HM matches for a U.S. model — an 'x-3' through 'x' match and an 'x' through 'x+2' match. The reality is that there could be instances of only 'x-3' through 'x' matches or only 'x' through 'x+2' matches.

Another wise proverb is *TEST YOUR PROGRAMMING THOROUGHLY*. I thought I had. But because I was blending two matching rules together (the windowing rule and the hierarchy of preferred matches rule) I accidentally created a third rule (there will always be an 'x-3' through 'x' match and an 'x' through 'x+2' match) that resulted in the program throwing out U.S. models that did not have at least one 'x-3' through 'x' match and one 'x' through 'x+2' match.

I hope this paper has illustrated the importance of knowing your data and testing your programming thoroughly. It was in trying to simplify the old code that I discovered the bug. To test different coding ideas, I used different test datasets including datasets with no HM models sold in months with U.S. models. The results were illuminating. I wish I had tested the original code as robustly. If I had, I might have caught the flaw in my original code.

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Election of 1998 DCSUG Officers



Peter Knapp — Candidate for Chair

Peter Knapp interned at the Bureau of Labor Statistics (BLS) where he learned the joys of SAS on an MVS mainframe environment. After contracting with BLS for three years, he joined the International Trade Administration (ITA) at the Commerce Department. For seven years Mr. Knapp has helped administer international trade law at ITA. During this time he has guided SAS processing from a central mainframe shop to an end user PC based system.

Arlene Siller -- Candidate for Treasurer

Arlene Siller is a Computer Specialist with the National Center for Health Statistics and has used SAS for 19 years. Her responsibilities include programming and analysis using SAS/Base and SAS/Stat for National health surveys. She is the SAS Site Representative for her agency and co-chair of the in-

house NCHS Users Group (NCHSSUG). She is very involved in providing support for NCHS SAS users, and enjoys this personal interaction part of her responsibilities the most. She has programmed using the TSO, Wylbur, VMS, DOS and Windows operating systems. She is currently trying to learn UNIX.

Larry Altmayer -- Candidate for Secretary

Larry Altmayer has been with the U.S. Census Bureau for nineteen years and is a computer specialist. He has more than seven years SAS programming experience, most recently with macros. He has used SAS and SUDAAN for modeling household survey nonresponse based on demographic person and household variables, and SAS for producing tables of employment percents and unemployment rates for the Current Population Survey. His programming experience has been mainly in the VMS operating system. He has a B.A. in Statistics from the Univ. of Buffalo, and Master of Applied Statistics from Ohio State University.

Linda Atkinson -- Candidate for SAS Liaison

Linda Atkinson is a statistician with USDA's Economic Research Service, and has used the SAS System for 21 years. Her areas of expertise include statistical analysis and econometric modeling. She has a strong interest in user interfaces. She has run jobs and consulted with users on SAS programs under the TSO, CMS, DOS and OS/2 operating systems, and is the SAS Site Representative for her agency. She has been an Invited Speaker at SUGI and NESUG conferences.

DCSUG 1998 BALLOT

Place an "X" In the Box beside the candidate of your choice. You may write in the name of someone who has not been nominated if you wish.

DCSUG Officers

Chairperson

Description: Lead DCSUG, delegate assignments, chair group meetings, preside over nomination and election of officers.

Peter Knapp

Treasurer

Description: Manage the group finances: collect dues and fees, make disbursements, maintain record of income and disbursements. The Treasurer will also prepare a report of income and disbursements for distribution at the fourth quarter general meeting.

Arlene Siller

Secretary

Description: Record minutes of group meetings, maintain membership list, prepare meeting notices.

Larry Altmayer

SAS Liaison

Description: Represent and increase the influence of DCSUG to the SAS Institute

Linda Atkinson

DCSUG Dues

Dues are set annually by the steering committee and voted on by the member ship at the fourth quarter meeting. Dues will be payable by the first quarter general meetings. Dues will be used to finance mailings, telephone charges, newsletter and other expenses as approved by the group of officers.

Keep proposed (current) rate (\$10.00 per year individual, \$50.00 per year corporate)
 Increase Decrease

Please mail ballot to:

**Washington DC SAS Users Group
P.O. Box 44670
Washington, DC 20026-4670**

Calendar of Meetings and Events

This feature is meant to give users an idea of some of the activities of area users groups and special interest groups, as well as regional and international groups. If your group would like to be regularly included in this feature, please call Mike Rhoads or one of the DCSUG officers. There is a DCSUG directory with phone, fax, and E-mail contact information elsewhere in this newsletter.

December 1997

2 DCSUG DC SAS Users Group, General Meeting
Time: 8:30 am - 12:00 noon
Site: Bureau of Labor Statistics
2 Massachusetts Ave. N.E.
Program: See front page announcement
Contacts: Linda Atkinson at (202) 219-0934
atkinson@econ.ag.gov
Peter Knapp at (202) 482-1359
peter_knapp@ita.doc.gov

March 1998

3 DCSUG DC SAS Users Group, General Meeting
Time: 8:30 am - 12:00 noon
Site: Bureau of Labor Statistics
2 Massachusetts Ave. N.E.
Program: TBA
Contacts: Linda Atkinson at (202) 694-5046
atkinson@econ.ag.gov
Peter Knapp at (202) 482-1359
peter_knapp@ita.doc.gov

22-25 SUGI 23 SAS Users Group International
Opryland Hotel
Nashville, TN

Contact: Sally Goostrey at (616) 344-4100
sagoostr@trilogyusa.com

Other Groups

CENSUG Census SAS Users Group
Contact: Rick Denby at (301) 763-8174

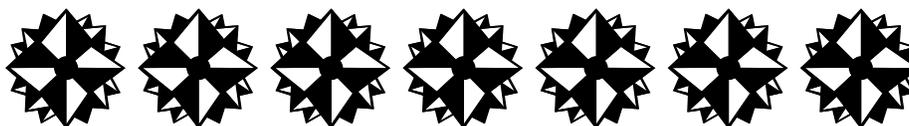
CONSUG Consultants SAS Users Group
Contact: Eric Brinsfield at (919) 518-1070
merecb@interpath.com

MDSUG Maryland SAS Users Group
Contact: Marjorie Bedinger, (410) 786-5800
mbedinger@hcfa.gov

NCHSSUG National Center for Health Statistics
SAS Users Group
Contact: Arlene Siller at (301) 436-8522
abs2@cdc.gov
or Linda Tompkins at (301) 436-7022

NIHSUG National Institutes of Health SAS
Users Group
Contact: Ray Danner at (301) 496-6037

VASUG Virginia SAS Users Group
Contact: Peter Rikard at (804) 786-4828



SAS Programmer Needed

Non-profit health policy research group is seeking a full-time computer programmer who is interested in working with a multi-disciplinary group of economists, sociologists, and public health researchers. Applicant must be familiar and comfortable with working with SAS in a Windows environment. Primary responsibilities include: perform quantitative data analyses; provide descriptive statistics by manipulating large data sets to produce tables and charts; provide help to staff in the use of office hardware and software; and provide input into new office automation methods. Salary range from \$28,000-\$38,000.

Prerequisites:

- o Strong SAS programming skills or familiarity with SAS language.
- o BS or BA in a social science field.
- o Good applied scientific and statistical skills are required.
- o Experience in PC and Windows setting.
- o Ability to design analytic and relational databases preferred.

Project HOPE, Center for Health Affairs (CHA) is a private, non-profit research center located at the Bethesda Metro. Interested applicants please send or fax a resume to: Roxanne Alvarez, Project HOPE, 7500 Old Georgetown Road, Suite 600, Bethesda, MD, 20814. Fax number: 301-654-0629. EOE/M/F/D/V

Membership Application/Renewal

Date: _____

Name: _____

Company Name: _____

Mailing Address: _____

City, _____

State, _____ Zip _____

Phone # _____

Fax # _____

E-Mail: _____

Preferred mode of contact (check one):

Fax

e-mail

SAS Version(s) _____

SAS Product(s): _____

Operating System(s) _____

Check one:

Individual membership
for 1 year is \$10.00

Corporate sponsorship
for 1 year is \$50.00

Please indicate a contact person for Corporate Sponsorships!

Check one:

New membership

Renewal membership

DCSUG Membership Directory

DCSUG is considering publishing a membership directory in 1997, containing members name, work affiliation (name of institution), work telephone number, e-mail address, and any areas of expertise that you would be willing to identify. This directory would be provided to DCSUG members only and would not be given to outside sources. If you would like to be included in such a directory please mark the boxes below, as appropriate.

- I would like to be included in the membership directory DCSUG is considering publishing. Include my name, work affiliation, and work telephone number.
- Include my e-mail address as shown on this form.
- Include the following areas of expertise (up to 2 products, platforms).

Mail to:
Washington DC SAS Users Group
P.O. Box 44670
Washington, DC 20026-4670

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ASG, Inc. is a SAS Institute Quality Partner™, a designation awarded to consulting firms with superior expertise using SAS systems software.



1998 Meetings

Plan ahead and mark your calendars now. The DCSUG will meet on the following dates in 1998: March 3, June 2, September 15, December 1. Meeting times and locations to be announced. If at any time you have a question about an upcoming meeting or other DCSUG information, call one of the members of the Steering Committee.

You're Invited
to visit the DCSUG
home page

The URL for the DCSUG home page on the Web:
<http://www.ita.doc.gov/industry/otea/dcsug/>

Washington DC SAS Users Group
P.O. Box 44670
Washington, DC 20026-4670



Remember to Join DCSUG!!!

Don't forget to renew your DCSUG membership for 1997. Dues are used to defray the costs of producing and mailing the newsletter and provide refreshments at our meetings. You'll make sure that you keep receiving the newsletter and keep DCSUG going. If you have not joined DCSUG, now is a great time to do so. Joining DCSUG is as easy as completing the membership form included in this newsletter. Individual memberships are only \$10; corporate memberships are \$50.