

# DCSUG Newsletter

Washington, DC SAS Users Group

## Third Quarter Meeting

When: Tuesday, September 12, 2000  
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	Michael Yu, Digital Intelligence Systems Chap Gleason, EPA <b><i>Dynamic Drillable Map on the Internet Using the Output Delivery System and SAS/Graph Software</i></b>
	9:45 - 10:15	Gary Schlegelmilch, Bureau of the Census <b><i>SAS as a Utility Language: Using SAS for Solving Little Problems</i></b>
	10:15 - 10:30	Break
	10:30 - 10:45	User-to User Questions and Answers Moderators - DCSUG officers
	10:45 - 11:45	S. David Riba, JADE Tech, Inc. <b><i>How to Use the Data Step Debugger</i></b>

**\*Presentation times subject to change**

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 9/5/2000

SAS® is a registered trademark of the SAS Institute, Cary, NC

nnnnnnnnnnnn

FFFFFFFF If you are not currently a paid member of the DCSUG and are planning to attend the meeting, please Email Larry Altmayer at [Lawrence.W.Altmayer@ccmail.census.gov](mailto:Lawrence.W.Altmayer@ccmail.census.gov) or call 301-457-2581 by Sept 6<sup>th</sup> 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. FFFFFFFF

### President's Message

Peter Knapp

We have an excellent program for our September meeting. We are fortunate to have local speakers, Michael Yu, Chap Gleason, & Gary Schlegelmilch, who will be presenting their papers at the regional NESUG & SESUG conferences. Dave Riba, who is very active in the SAS community, will be presenting his paper that was very well received at SUGI 25. There will be a lot of good information to take back to your offices. Suggestions for future meetings are always welcome. I am looking forward to the presentations and to seeing you at the meeting.

## Speaker Abstracts

### Dynamic Drillable Map on the Internet Using the Output Delivery System and SAS/GRAPH Software

Hsiwei Yu, Digital Intelligence Systems  
Chapman Gleason, EPA

This paper documents our recent efforts to deliver dynamic data in a geographic form to the Internet. Combining new features from Output Delivery System (ODS) and SAS/GRAPH software in Version 8, it is possible to create static drillable maps, not only hyper-linked for each region but also for annotated geographical points. We further developed techniques to send the resulting image and HTML file directly to Internet, achieving dynamic drillable maps.

*Hsiwei Yu (Michael) works for Digital Intelligence Systems (Disys) on site at the U.S. Environmental Protection Agency in Washington, DC. Michael has been programming in SAS for over 10 years. His current assignment is to develop dynamic Web-based solutions using SAS and other tools.*

*Chapman Gleason has been using SAS for more than 20 years. He is Data Center Director for the U.S. Environmental Protection Agency's Center for Environmental Information and Statistics.*

### SAS as a Utility Language: Using SAS for Solving Little Problems

Gary E. Schlegelmilch, U.S. Dept. of Commerce,  
Bureau of the Census, Suitland MD

SAS, from its very conception, was intended to provide methods for determining and handling statistics cleanly, clearly, and effectively. It does so with speed, strength, and versatility. However, the tools that effect its versatility lend themselves with equal ease to nonstatistical projects as well. Small day-to-day tasks – impromptu reports, quick reviews of data, and other small utility programs - are handled in SAS quickly and efficiently. Because SAS provides minimal data field definition, a modular approach in the DATA step, and clearly defined processes in the PROC step, small tasks can be programmed with a minimum of effort. In addition, the turnaround time will frequently be less than the same routine written with a compiled/linked language. When time is of the essence, SAS may very well be the best candidate.

*Gary E. Schlegelmilch is a Computer Specialist (Programmer/Analyst) for the US Bureau of the Census. He is a relatively*

*new user of SAS, having only been introduced to it a short three years ago. He has used primarily Base SAS, macros, and SAS/CONNECT in producing applications for the support of Retail Sales, Wholesale Sales, and Construction surveys conducted by the Bureau. He has nearly three decades of programming experience behind him, an education provided by Troy State University in Montgomery AL and St. Leo University in Tampa FL - and a deep desire to learn just a little bit more.*

### How to Use the Data Step Debugger

S. David Riba, JADE Tech, Inc., Clearwater, FL

All SAS® programmers, no matter if they are beginners or experienced gurus, share the need to debug their programs. Many techniques have been suggested over the years to solve the problem of debugging Data step logic. Until now SAS programmers have never been able to interactively watch the Data step execute and debug their logic as it executes.

Introduced in Release 6.11 of SAS, the Data Step Debugger is part of Base SAS software. It is an interactive tool that allows the SAS user the ability to watch and control DATA step execution.

The Data Step Debugger can be used to:

- watch program logic execute
- examine variable values as they change
- repeat program statements
- jump to other sections of the DATA step
- modify DO loops interactively
- test for "dead" code
- give commands
- observe the results interactively.

The Data Step Debugger is a very useful tool, whether you are a Beginning SAS Programmer or a SAS veteran. This Tutorial will demonstrate how to use the Debugger. It will review the Debugger commands, and demonstrate how they can be used to improve the debugging process. While this is a Beginning Tutorial, the subject matter is appropriate for all levels of SAS expertise if you have not previously been introduced to the Data Step Debugger.

*S. David Riba is CEO of JADE Tech, Inc., a SAS Institute Quality Partner and SAS Certified Professional. With almost 20 years of hands-on SAS software experience, Dave has presented at numerous SUGI and regional SAS user conferences. He has taught public and private courses on SAS throughout the United States. Dave is currently the conference co-chair for SSU2001, the joint SouthEast and SouthCentral SAS Users Group conference to be held in New Orleans.*

# SAS Talk

## By Ian Whitlock

Let's take a look at how SAS macros can be used to extend the SAS language of functions. Such macros must resolve to a SAS expression. Hence they can contain macro instructions, but they cannot include SAS statements used as SAS statements within the macro. I will take two examples that have been presented on SAS-L by other programmers.

My all time favorite was posted by William Kreuter on SAS-L about 1993. The question was how can you compute an exact age. The answer reminds me of one of my farmer jokes. Two farmers are traveling by train to the city. As they gaze out the window, the train passes a field of grazing cows. The first farmer turns to his friend and says, "Do ya know there are 176 cows standing in that field?" The amazed friend asked, "How did you count them so fast?" The reply, "Why it's easy I just counted the legs and divided by 4."

So what is the stable quantity in counting years? Months! There are always 12 of them, in each year (leap year or not). Now suppose we start in January and go to the next January. Has a year passed? Well it depends on the day of the month we started and ended. If the end day is greater than or equal to the start day then a full 12 months have passed and we have a year. If not then only 11 months have passed and we are short of a year. William's insight was that this correction doesn't matter when the months are different. Either we have more than 12 months and taking one off will not change the year count, or less and it still won't add up to a year.

The number of months is given by

```
intck ( 'month' , birthdate , refdate )
```

Now the correction amounts to subtracting either 1 or 0. If

```
day(refdate) < day(birthdate)
```

then subtract 1. But the above is a logical formula that resolves to 1 or 0 according to whether the expression is true. It remains to do the integer division by 12. Putting it all together we have

```
int((intck("month",birthdate,refdate)  
-(day(refdate)<day(birthdate)))/12)
```

To package it as a macro we get

```
%macro age ( birthdate , refdate ) ;  
  (int ( ( intck("month",&birthdate,&refdate)  
        -(day(&refdate)<day(&birthdate))  
        ) / 12 ))  
  
%mend age ;
```

I added the outer parentheses to insure that it would work correctly in all formulas. This may be overkill when the whole thing is wrapped in a function call, but it is a good habit. BIRTHDATE and REFDATE must resolve to expressions yielding SAS dates. These expressions can be variables, literals, or function calls. For example, consider a DATA step to calculate the age today of man born on February 3 , 1980.

```
Data _null_ ;  
  age = %age ( "3feb1980"d , today() ) ;  
  put age= ;  
run ;
```

Note that the macro does no more than relieve us of the burden of remembering a combination of function calls. In more complex cases some macro instructions may be needed. But if the macro is to be used as a DATA step function then it cannot contain any SAS code except that in the expression being generated.

For a second example, Paul Dorfman gave neat macro function on SAS-L this year to make the first letter of each word in a character string upper case. Usually this is done with SAS code and it cannot be used as a function. Moreover, the code calls for looping with a call to SUBSTR in the loop, which is relatively slow.

Paul's insight was to ask what should you do for making all first letter A's upper case. He used the expression

```
tranwrd ( " " || string , " a" , " A" )
```

By using TRANWRD the space can be used to identify first letters. What if the first letter is not an A? Then nothing happens. To handle both A and B we get

```
tranwrd (tranwrd(" "||string, " a", " A"), " b", " B")
```

To consider every letter we need to nest 26 calls to TRANWRD. Can that save time? Yes! Looping and SUBSTR are so slow in SAS that even nesting 26 calls to TRANWRD is much faster. There is still looping but now it is done in the underlying C code and hence much faster. In addition to speed, we get the function form free of charge.

How can we use a %DO-loop to write the nested function calls? The answer lies in making a macro variable to hold the result. For the above case of A and B we would have

```
%let ret = " " || string ;
%let ret = tranwrd ( &ret , " a" , " A" ) ;
%let ret = tranwrd ( &ret, " b", " B")
```

The pattern is clear - initialize RET and then loop through all letters. Using hard coded letters makes it difficult. The BYTE function translates numbers to letters, thus making the required numeric loop index possible. For example

```
"A" = BYTE(65)
```

and

```
"a" = BYTE(65 + 32)
```

What about BYTE, when should it execute? If we let SAS execute it then it will be executed 52 times for every string. The letters are fixed. We just want to write them once. This means we want the macro facility to execute the function BYTE to generate the required letters, instead of letting SAS do it over, and over. Thus, we use

```
"%sysfunc(byte(65))"
```

to get "A". %SYSFUNC is a macro function for executing DATA step functions during macro execution time. In our case it is during the time that the DATA step compiles. Hence the code is executed once (BYTE is called twice for each letter). Now here is the macro.

```
%macro up ( string ) ;
  %local i ret ;
  %let ret = lowercase(" "||&string) ;
  %do i = 65 %to 90 ;
    %let ret =
      tranwrd ( &ret
                , "%str( )%sysfunc(byte(&i+32))"
                , "%str( )%sysfunc(byte(&i))" ) ;
  %end ;
```

```
        substr(&ret,2)
    %mend up ;
```

To test the macro, one might use

```
data _null_ ;
    string = "ABC DEF GHI ZYX" ;
    string = %up(string) ;
    put string= ;
run ;
```

%UP does not solve capitalization in messy name problems such as "MARY O'REGAN III", but then it isn't intended to and nothing but a lot of special case hard programming work will solve this form of the problem.

Hopefully you will find the macros useful. Certainly, any time spent understanding how they work and how to make the techniques demonstrated your own will be well rewarded whether you use these macros or not.

---

**DCSUG** is pleased to announce that we have arranged for **David Riba** to present a one-day **Output Delivery System course** on September 13. Dave is a long-time SAS consultant, trainer, and contributor to DCSUG and other SAS users groups (full bio below). The course was taken by about 80 students earlier this summer in Boston and was very well received. The Output Delivery System is probably the most significant new development in Versions 7 and 8 of SAS, and this should be an excellent way to get up to speed. We initially announced this course via e-mail to DCSUG members for whom we had current e-mail addresses. As of the time this newsletter went to press, some openings were still available. Details are below.

**WHAT: Introduction to the SAS(r) Output Delivery System**

**WHEN:** Wednesday, September 13, 2000 8:30 am - 4:30 pm

**WHERE:** DC location TBA shortly

**REGISTRATION:** OnLine at <http://www.jadetek.com/training.htm> Phone at 1-800-523-3835

**COST:** \$225.00 Individual ( See website for Group pricing) Fee includes all course notes and examples

**CONTACT:** S. David Riba

E-Mail: [dave@jadetek.com](mailto:dave@jadetek.com)

**INSTRUCTOR:** S. David Riba, JADE Tech, Inc.

#### **COURSE DESCRIPTION:**

Beginning with Version 7 of SAS software, all procedures use the Output Delivery System (ODS) to manage their output. New features provided by ODS include automatic rendering of procedure output in HTML for the Web, rich-text, Postscript or PCL format, output datasets from any printed output, and ability to edit the look and feel of most reports. This one-day course is an intensive look at ODS and how to use it to solve your report formatting problems.

#### **Course objectives:**

Upon completion of the course, attendees should have an understanding of ODS and how to use the Output Delivery System to control the formatting and destination of their SAS output. They should also have an understanding of advanced ODS topics, including Templates and Style Sheets.

#### **The course will cover the following subject areas:**

1. Introduction to ODS
2. ODS Syntax
3. Generating HTML, PDF, RTF, and LaTeX output
4. Defining and Using ODS Templates
5. Defining and Using ODS Style Sheets
6. Customizing Graph output
7. Advanced ODS Topics

The course assumes that all attendees will have a fundamental understanding of SAS programming. No advanced programming experience is required.

# DCSUG 2000 Steering Committee OFFICERS

## CHAIR -- Peter Knapp

(202) 482-1359 (202)482-1388(fax)  
peter\_knapp@ita.doc.gov

## Frank Fry

(202) 452-2666 (202) 452-6433 (fax)  
ffry@frb.gov

## SECRETARY -- Larry Altmayer

(301) 457-2581 (301) 457-4437 (fax)  
Lawrence.W.Altmayer@ccmail.census.gov

## Michael Raithel

(301) 610-4997 (301) 315-5934 (fax)  
marraithel@erols.com

## TREASURER -- Arlene Siller

(301) 458-4498 (301) 458-4032 (fax)  
asiller@cdc.gov

## Linda Atkinson

(202) 694-5046 (202) 694-5718 (fax)  
atkinson@ers.usda.gov

## SAS LIAISON -- Mike Rhoads

(301) 251-4308 (301) 294-2040 (fax)  
rhoadsm1@westat.com

## Howard Schreier

(202) 482-4180 (202) 482-4614 (fax)  
Howard\_Schreier@ita.doc.gov

## DESKTOP SPECIAL INTEREST GROUP

## OTHER COMMITTEE MEMBERS

### Karen Dennis

(301) 294-3876 (301) 294-2034 (fax)  
dennisk1@westat.com

### CO-CHAIR -- Joe Mirabal

(703) 265-4620  
jmmirabal@aol.com

### VICE-CHAIR -- Yesvy Gustasp

(301) 589-4530 (202) 307-5888 (fax)  
Yesvy.Gustasp@mix.cpcug.org

## Desktop Special Interest Group

*The Desktop Special Interest Group is looking for a new place to meet twice a year in the evening. If you know of any convenient place, please contact the co-chairs.*

The next meeting TBA

Check the DCSUG home page for the next meeting announcement:  
<http://www.ita.doc.gov/industry/otea/dcsug>

Please contact Yesvy Gustasp or Joe Mirabal (see Steering Committee column) with questions, requests, suggestions, and offers.

## VERY IMPORTANT!!!!!!

Due to the high cost of mailing out newsletters, DCSUG will be **emailing** notices of the availability of accessing the quarterly newsletter (and other important announcements) at the DCSUG Internet site. If you are receiving this newsletter by mail, please check the upper right corner of your label. If you see the following symbol '?@?' it means we do not have your correct email address.

Please notify Larry Altmayer at [Lawrence.W.Altmayer@ccmail.census.gov](mailto:Lawrence.W.Altmayer@ccmail.census.gov) with the email address you want to use to receive notification of the publication of the newsletter. Members will have the option of continuing to receive a hard copy of the newsletter upon request. Please check the upper left hand corner of the label for the renewal date of your membership.

**Please keep your membership current**

## 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

Mail to:

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

---

---

## Nominations for 2001 DCSUG Officers

Its that time of year again. We need to elect officers for DCSUG for next year and we need your help. Please nominate people to fill the following positions. Give your nominations to any current DCSUG officer or send them to:

DCSUG  
P.O. Box 44670  
Washington, DC 20026.

President  
Treasurer

Secretary  
SAS Liaison

---

## 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

## 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.

### September

12 **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:  
Mike Rhoads at (301) 251-4308  
RhoadsM1@Westat.com  
Peter Knapp at (202) 482-1359  
peter\_knapp@ita.doc.gov

24-26 **NESUG** NorthEast SAS Users  
Group  
Site: Adam's Mark Hotel  
Philadelphia PA  
Contacts:  
Erik Larson at (703) 568-3083  
nesug2000@aol.com  
Alexa Parliyan at (212) 733-6584  
parlia@pfizer.com

### October

15-17 **SESUG 2K** SouthEast SAS Users  
Group  
Site: Adam's Mark Hotel  
Charlotte NC  
Contacts:  
Maribeth Johnson at (706) 721-3785  
maribeth@stat.mcg.edu  
Philip J. d'Almada at (404) 639-6120  
pxd2@cdc.gov

### December

5 **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

### Other Groups

**CENSUG** Census SAS Users Group  
Contact: Andrea Potter at (301) 457-1687

**MDSUG** Maryland SAS Users Group  
Contact: Mr. R.H. Miller, (410) 740-4229  
refa09a@prodigy.com

**NCHSSUG** National Center for Health Statistics  
SAS Users Group  
Contacts: Arlene Siller at (301) 458-4498  
asiller@cdc.gov  
Linda Tompkins at (301)  
436-7022

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

**NOVASUG** Northern Virginia SAS Users Group  
Contact: Joe Mirabal at (703) 265-4620  
jmmirabal@aol.com

**VASUG** Virginia SAS Users Group  
(Richmond area)  
Contact: Beth Wilson at (804) 967-1000  
beth.wilson@capitalone.com



# SAS® Software Training Seminars in Washington, DC

Presented by Sierra Information Services, Inc.

Location:

The George Washington Univ. K Street Center for Professional Education  
2020 K Street NW, Washington, DC (Farragut West Metro Stop on the Blue & Orange Lines)

- C **Summarizing and Reporting Data Using the SAS® System** *Wed., November 29<sup>th</sup> (9am-4:30 pm)*  
This one-day seminar shows you **how to implement core data summarization and reporting tools** in the SAS System. **Completely revised and updated with the latest enhancements in Version 8**, the seminar **unlocks the mysteries of PROC MEANS**, shows you **why PROC REPORT is better** than doing it yourself with the DATA \_NULL\_ facility, how to use PROC TABULATE, and the role of PROC FORMAT in both data summarization and effective presentation of the values in a SAS data set.
- C **SAS System Programming Efficiencies: Tips & Techniques** *Fri., December 1<sup>st</sup> (9am-4:30 pm)*  
Learn the tools to **make your SAS programs run faster and require fewer machine resources to execute**, how to **reduce the size of your SAS data sets**, and to **speed retrieval** of observations for large SAS files. This seminar is packed with dozens of **actual "before and after" examples** demonstrating often little known SAS efficiency techniques and BASE SAS procedures that often **reduce the need for tedious Data Step coding**. This seminar, long popular with SAS users around the world, has **been updated with the latest efficiency tools available in Version 8** of the SAS System.

## Detailed Seminar Outlines at [www.SierralInformation.com](http://www.SierralInformation.com)

- C **Seminar Author and Presenter:** These seminars are written and presented by Andrew Karp, President of Sierra Information Services, Inc. An 18-year SAS Software user, Andrew has presented these and other seminars in conjunction with NESUG and other regional SAS user group conferences throughout the USA, and to SAS users in Australia, New Zealand, the United Kingdom and Belgium. His firm is a **Quality Partner™ of SAS Institute, Inc.**

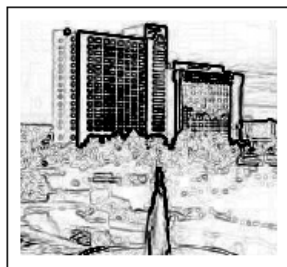
**Tuition: \$269 per seminar** (includes full set of course notes, continental breakfast and afternoon refreshments.) *Group discounts available for three or more persons from the same organization attending the same seminar on the same day. Please call for details.* These seminars are not academic offerings of The George Washington University.

**Registration and Other Details:** Check payable to Sierra Information Services, Inc., or by purchase order, VISA, MasterCard or American Express. Please mail payments to: Sierra Information Services, Inc. 19229 Sonoma Highway PMB 264 Sonoma, CA 95476. **Phone: 707 996-7380** Fax: 707 996 4996. Federal Tax ID: 94-3199501. Attendance is limited to those for whom payment (or purchase order) is received in advance of the event. Sierra Information Services, Inc. reserves the right to cancel one or both of these seminars, and if we do cancel, our liability is limited to refund of fees paid. **We are not liable for special or consequential damages arising from workshop cancellation.** SAS and Quality Partner are registered trademarks of SAS Institute, Inc. in the USA and other countries. ® indicates USA registration.



NorthEast  
SAS Users Group  
13th Annual  
Conference

September 24-26th, 2000



SESUG 2K  
October 15-17, 2000

## 2000 Meetings

Plan ahead and mark your calendars now. The DCSUG will meet on the following dates in 2000: June 13, September 12, December 5. 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>**

## Remember to Join DCSUG!!!



Don't forget to renew your DCSUG membership for 2000. 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.

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