

VIEWS

International SAS Programmer Community

News, Hints, Tips and Information
for SAS® Users

Issue 39, 3rd Quarter 2007

The sasCommunity.org site is continuing to grow, so I would like to invite all the readers of *VIEWS News* to take a look at the site, and maybe tell the global audience about how you are using SAS software, or what you think about us. If you then tell *VIEWS News* about your pages, we will help you publicise them, both with links from our own sasCommunity page and here in the newsletter. Before the next issue I'll be presenting at the PSI Statistical Computing SIG and at the PhUSE Conference, as well as attending the SAS Forum UK. If you are at any events I'm attending, then please feel free to come up and tell me what you think of *VIEWS News*.

In this issue of *VIEWS News* I have a number of articles from well-known sources: designing graphics output for Blackberry or iPhone from LeRoy Bessler, a warning about a SAS feature from Neville Cope and some more useful tips from the Amadeus Software Consultancy Team. I would also like to welcome 2 new *VIEWS* Consultants, Nina Werner and Darren Blackley, who have written reports on recent conferences. I hope you will find them all interesting and helpful.

If you would like to contribute an article, or discuss the possibility of doing so, please send an email to me at newsletter@views-uk.org. A list of possible subjects for your articles can be found on the *VIEWS* web site, and anyone is very welcome to add to that list by sending emails with your own questions to newsletter@views-uk.org.

Philip R Holland (Newsletter Editor)

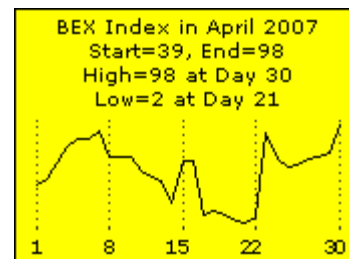
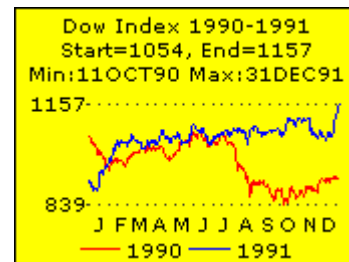
Membership of *VIEWS* is **free** and you can register for notification of all future *VIEWS* events by emailing us at membership@views-uk.org, making certain you include your name and postal address. If you would like to receive email notification whenever a new issue of the free quarterly *VIEWS News* is published on the web site, please remember to also include your email address.

Did You Know?

If you have a useful hint or tip, please send it to the Editor, and share it with the *VIEWS* membership.

SAS/GRAPH Output to BlackBerry or iPhone

[SAS 9] You might already know how to send email from SAS. The challenge addressed here is how to create a readable graph for a BlackBerry, iPhone, or other very small screen device. The available space will vary from device to device, but readability of the images below was verified on a BlackBerry and an iPhone. All three graphs provide a visual image for easy, quick inference, and essential precision detail for reliable inference.



The code for the first two images, too lengthy to publish here, is available from the author upon request. Here is the code used to create and send the 3rd image above:

```
DATA Top10CountriesByArea;  
LENGTH NameAndValue $ 19;  
INFILE DATALINES;  
INPUT @1 Name $13. @15 Value COMMA6.;  
NameAndValue = TRIM(LEFT(Name)) || ':' ||  
                TRIM(LEFT(PUT(Value, 5.)));  
  
DATALINES;  
Russia      17,075  
Canada      9,971  
China       9,561  
Brazil      8,512  
Australia   7,682  
India       3,287  
United States 9,373  
Argentina   2,767  
Kazakhstan  2,717  
Sudan       2,506  
;  
RUN;
```

```

GOPTIONS RESET = ALL;
GOPTIONS DEVICE = GIF
/* Default for GIF is 800 X 600.
   Preserve 4:3 aspect ratio, but use size
   for the small screen of a BlackBerry,
   iPhone, etc. */
YPIXELS = 129 XPIXELS = 172
/* Put the graph in a box. */
BORDER
/* RGB Yellow background for graph */
CBACK = CXFFFF00
/* height and font used for parts of graph
   where you make no explicit assignment, or
   where no direct controls are available */
HTEXT = 9 PCT FTEXT = 'Verdana'
GSFMODE = REPLACE GSFNAME = anyname;

FILENAME anyname "C:\FolderName\FileName.GIF";

TITLE1 FONT = 'Verdana' HEIGHT = 10 PCT
      "Top 10 Areas in 1000 sq km";

/* "footnote" as blank "left-side-note"
   to increase space at side of image */
FOOTNOTE1 A = -90 FONT = NONE HEIGHT = 1 ' ';

/* RGB Medium Dark Green bars, outline only */
PATTERN1 V = EMPTY COLOR = CX006600;

/* Remove all axis paraphernalia: */
AXIS1 LABEL = NONE MAJOR = NONE MINOR = NONE
STYLE = 0;
AXIS2 LABEL = NONE MAJOR = NONE MINOR = NONE
STYLE = 0 VALUE = NONE;

PROC GCHART DATA = Top10CountriesByArea;
  HBAR NameAndValue
    / SUMVAR = Value
    DESCENDING
    MAXIS = AXIS1 RAXIS = AXIS2
    NOSTATS /* no values at right margin */
    SPACE = 0; /* default width for bars,
               no space between them */
RUN;
QUIT;

FILENAME anyname2 EMAIL
TO = "bessler@execpc.com"
SUBJECT = "Graph for your iPhone"
ATTACH = "C:\FolderName\FileName.GIF";

DATA _NULL_;
FILE anyname2;
PUT 'Please see the attached graph.';
PUT 'Let me know if you have any questions.';
RUN;

```

You might get a message in the SAS log that the vertical axis could not be fit as specified and that values will overwrite. Do not believe it unless the image matches the warning. It is possible to fit up to twelve bars. For more, the label text for successive bars touches, and reducing the font size yields very fuzzy text.

Your SAS program can send email to multiple addresses, with multiple attachments, with a CC and/or BCC, etc. For more information about SAS email, in the SAS 9.1.3 OnlineDoc, go to: support.sas.com/onlinedoc/913/getDoc/en/lrdict.hlp/a002058232.htm

LeRoy Bessler, Assurant Health

Where WHEREs are Ignored!

Did you know that having two types of where clause in a data step does not have a cumulative result?

If you were to SET several datasets together in a Data Step and execute a WHERE statement, then you would expect that only records satisfying the criteria would be read into that Data Step, and ultimately be output.

However, if you have any additional WHERE data set options, these override the WHERE statement.

For example:

```

DATA test;
DO n = 1 TO 3;
  OUTPUT;
END;
RUN;

DATA all;
SET test (IN = a)
  test (IN = b)
  test (WHERE = (n = 2) IN = c);
WHERE n = 1;
IF a THEN source = 'A';
ELSE IF b THEN source = 'B';
ELSE IF c THEN source = 'C';
RUN;

```

Rather than the end result being a data set containing 3 observations with n=1, the third observation has n=2 because the WHERE data set option takes priority over the WHERE statement.

<u>Obs</u>	<u>n</u>	<u>source</u>
1	1	A
2	1	B
3	2	C

Neville Cope, Amgen

Useful Library Reference Names

LIBRARY

When calling a custom format to be used, SAS will by default only search the WORK library and a library called LIBRARY for any format definitions. SAS can be forced to search other libraries using the FMTSEARCH system option:

```

LIBNAME views 'c:\views';

OPTIONS FMTSEARCH = (views);
/* This will force SAS to search the
   VIEWS library for formats */

```

Creating a library called LIBRARY will remove the need for the FMTSEARCH option:

```

LIBNAME library 'c:\views';
/* This means that SAS will automatically
   search the VIEWS library for formats without
   specifying the FMTSEARCH options */

```

USER

Using a library reference of USER will mean that one-level names will point to the USER library instead of the WORK library:

```
LIBNAME user 'c:\views';

DATA test;
/* This data set will be stored in the USER
   library, rather than the WORK library */
SET views.test;
RUN;
```

Amadeus Software Consultancy Team

Ask The Consultant

This part of VIEWS News is where you can get your technical questions answered. Send your questions to the Editor.

Using the FILENAME PIPE device

Q: Do I have to run operating system commands using the X statement?

A: Instead of using an X statement to submit operating system commands in Windows and UNIX environments, consider using a FILENAME statement with the PIPE device. The approach has two advantages over using the X statement:

- In a Windows environment, there is no appearance of the DOS window.
- The output from an operating system command can be read into SAS as if it were an ordinary external file.

The syntax is:

```
FILENAME fileref PIPE
      'operating system command';
```

Use a Data Step with an INFILE statement to submit the operating system command that is specified for the given file reference. To capture the output that results from the command's execution, include an INPUT statement.

The following code shows two examples of the FILENAME PIPE device being used. The first one creates a new directory:

```
/* Create a new folder */
FILENAME f1 PIPE 'mkdir "c:\temp\target"';

DATA _NULL_;
  INFILE f1;
  INPUT;
  PUT _INFILE_;
RUN;
```

and the second one copies files into that new target directory:

```
/* Copy external files into new folder */
FILENAME f2 PIPE
  'copy "c:\temp\output" "c:\temp\target"';

DATA _NULL_;
  INFILE f2;
  INPUT;
  PUT _INFILE_;
RUN;
```

The PUT statement writes the results from each command to the Log, where _INFILE_ is an automatic Data Step variable which contains the contents of the input buffer:

```
1  /* Create a new folder */
2  FILENAME f1 PIPE 'mkdir "c:\temp\target"';
3  DATA _NULL_;
4  INFILE f1;
5  INPUT;
6  PUT _INFILE_;
7  RUN;
```

NOTE: The infile F1 is:

```
Unnamed Pipe Access Device,
PROCESS=mkdir "c:\temp\target",RECFM=V,
LRECL=256
```

NOTE: 0 records were read from the infile F1.

NOTE: DATA statement used (Total process time):

real time	1.43 seconds
cpu time	0.04 seconds

```
8
9  /* Copy external files into new folder */
10 FILENAME f2 PIPE
11   'copy "c:\temp\output" "c:\temp\target"';
12 DATA _NULL_;
13 INFILE f2;
14 INPUT;
15 PUT _INFILE_;
16 RUN;
```

NOTE: The infile F2 is:

```
Unnamed Pipe Access Device,
PROCESS=copy "c:\temp\output"
             "c:\temp\target",
RECFM=V,LRECL=256
```

```
c:\temp\output\report1.txt
```

```
c:\temp\output\report2.txt
```

```
2 file(s) copied.
```

NOTE: 3 records were read from the infile F2.

The minimum record length was 25.

The maximum record length was 26.

NOTE: DATA statement used (Total process time):

real time	0.32 seconds
cpu time	0.07 seconds

Amadeus Software Consultancy Team

Formats, Options, and Functions

This section is devoted to the description of useful, or unusual, SAS Formats, Options, and Functions.

The \$MSGCASEw. SAS format writes character values in uppercase letters, if the MSGCASE configuration and invocation system option is used.

[Windows, UNIX, z/OS] The MSGCASE configuration and invocation system option (-MSGCASE in Windows) changes all system-generated Log messages to uppercase. The default NOMSGCASE configuration and invocation system option (-NOMSGCASE in Windows) displays all system-generated Log messages in mixed case.

[SAS 8] The %SYSFUNC() macro function can be used to run Data Step or SCL functions at macro interpretation time, so, for example, titles can include formatted values or the results of function calls.

PSI Conference: Statistical Computing Day

This year the PSI (Statisticians in the Pharmaceutical Industry) held their 30th Annual Conference at the Carden Park Hotel near Chester, it was held on the 13-16 May 2007 and was a 3.5 day conference attracting a total of 247 delegates. The structure of this year's conference was 4 plenary sessions and 6 other sessions which included New Starters, a host of statistical sessions and one stream dedicated to Computing and SAS.

The Statistical Computing day was split into 4 sessions covering Current and Future technologies from SAS to the implementation of these technologies at Takeda. The day also included some more hands-on hints, tips and applications used at companies such as Roche and PPD.

As mentioned the first session of the day was dedicated to New Technologies and included a presentation from SAS who spoke about all the technologies they provide, this included a brief history of SAS followed by overviews of the SAS Management Console, Data Integration (DI) Studio, SAS Information Map Studio, Enterprise Guide, SAS Add-In for Microsoft Office and SAS Web Report Studio.

The second session was Process Orientated Environments and the main presentation was given by Takeda, this presentation covered their history, their requirements for a global computer system and the main SAS technologies used to implement the new system. This included SAS Drug Development, DI Studio and SAS Business Intelligence.

The third session covered more practical everyday uses of the SAS programming language and provided an interesting mix of more informal SAS presentations designed to enable people to ask questions about a particular topic being covered. These topics included SAS coding efficiencies using IF...THEN...ELSE logic, the SCAN function, to using DO loops and the SAS macro language.

Finally the last session was devoted to a number of smaller presentations including an overview of an Automated Validation Utility (AVU) to help with QC at PPD. The AVU consists of a package of SAS macros to help programmers QC Tables, Listings and Figures in a more efficient manner. All of the presentations are available for download on the PSI website, www.psiweb.org, but please note that you need to be a PSI member to access them.

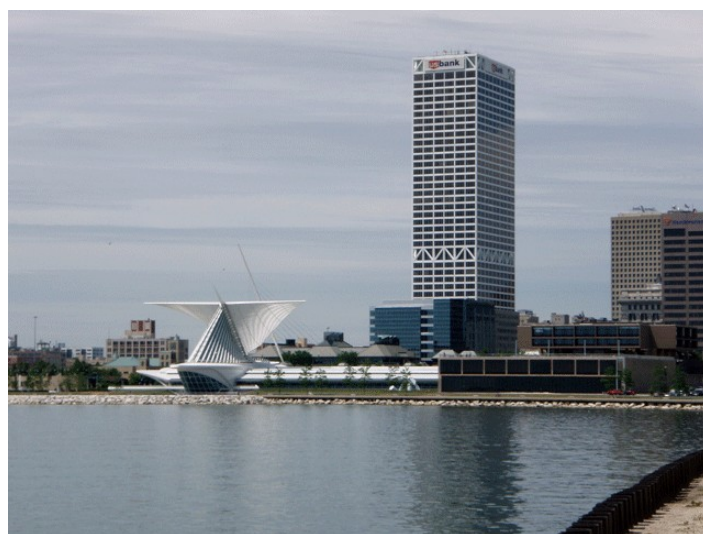
This was my first PSI conference and I was pleasantly surprised by the mix of presentations on offer when compared to past VIEWS, PhUSE and the myriad of conferences that SAS offer. The annual PSI conference really does offer something different for programmers.

Darren Blackley, GlaxoSmithKline

Wisconsin Illinois SAS Users Conference

An annual meeting at the Woman's Club of Wisconsin in Milwaukee, the Wisconsin Illinois SAS Users Conference is a terrific event, since it brings the finest speakers from around the globe to our little state. During the full day session, speakers from SAS Institute, SAS Global Forum (SGF), regional user groups and local talent present their best stuff. The relaxed atmosphere and excellent lunch make it easy to ask for advice on any of the little nagging problems you might encounter in your

daily programming; and the opportunity to interact with the speakers is worth the minimal admission fee. I enjoy the CD, which contains both speakers' papers and presentation slides, and a few bonuses from Dr Bessler. I try to attend every year.



Milwaukee - courtesy of David R Werner

So, early on Friday morning, 22 June 2007, nearly 100 SAS users in the upper Midwest USA woke to beautiful weather and headed for Milwaukee, Wisconsin for the annual Wisconsin Illinois SAS Users Conference.

The relaxed, elegant atmosphere of the Women's Club of Wisconsin promoted networking and conversation during the coffee breaks. The speakers each contributed multiple presentations, demonstrating their facility with SAS and their deft use of PowerPoint. Audience members participated by asking and helping to answer questions from the floor.

Kevin D Smith of SAS Institute spoke about ODS, giving an introductory overview on using styles and comparing HTML, PDF and RTF destinations. Kevin's afternoon presentation was a detailed, targeted PROC TEMPLATE tutorial explaining how and why to create your own table template using one of the templates that come with SAS as a parent.

Cynthia Zender of SAS Institute gave an excellent educational and entertaining version of her popular "Counting the Ways to Excel" presentation from SGF and other conferences. She explained in detail how to get SAS output or datasets from SAS to Excel, using many techniques like PROC EXPORT or PRINTTO for unformatted output or advanced SAS 9 techniques like ODS TAGSETS.EXCELXP for formatted output, including multiple sheets. Later, she answered one of my long-time questions, how to produce "Page X of Y", as well as many other tips in "Funny ^Stuff~ in My Code: Using ODS ESCAPECHAR". Cynthia showed us how to do many clever things.

Philip Holland spoke about Trellis Graphs he creates from R and SAS and then switched gears to discuss SAS Efficiencies. He also explained why an old coder like me should consider using Enterprise Guide 4.1, previewing his upcoming book.

Dr LeRoy Bessler spoke about emailing SAS/GRAPH output to be readable on a BlackBerry, recommending GIF device driver, along with detailed specifications. When my company switched from Lotus to Microsoft Office in the mid-nineties, I was pleased that I could finally follow Dr Bessler's font

recommendations. I use sans-serif Verdana or serif Georgia to this day.

As usual, the lunch was excellent, and there were many raffle prizes at the end of the day, including a couple of copies of Philip's soon to be published book, "Saving Time and Money Using SAS". Everyone went home with a CD containing all the presentations as well as papers and additional materials, including Dr Bessler's comprehensive "SAS-with-Excel Application Development DDE Toolbox".

Nina L Werner, Madison, WI, USA

New from the SAS Press Series

Saving Time and Money Using SAS by Philip R Holland.

In this expert collection of strategic and tactical solutions, author Philip Holland shows you how to save time and money by making the most of your SAS software. You'll gain a deeper knowledge of your existing SAS components, improve your coding efficiency, and learn how to develop applications that are easier to maintain. Filled with invaluable tips and hints and with coding examples that can be adapted to your specific projects, this book is the ultimate reference source that you will reach for again and again as you develop your business processes.

Peter Bennett, Director, IT Training Services Ltd, UK:

"Efficient software means reduced costs and maximum return on an organization's investment. The SAS System provides a myriad of tools to solve business problems, but the most efficient techniques are seldom obvious and often overlooked. What the programmer needs is a detailed reference manual, an efficiency tutorial, and a friendly mentor all rolled into one. That's what this book provides in superb fashion. Philip Holland has taken several of the key issues, explained the problems, suggested solutions, and even provided sample code. Keep this book on your desk!"

For more details including the table of contents, sample chapter and ordering information, please visit:

www.sas.com/apps/pubscat/bookdetails.jsp?catid=1&pc=59507

Liz Villani, SAS Press Marketing

PhUSE News

PhUSE Conference presentations available

Following the paper review meeting earlier this month, we are delighted that we have around 100 presentations at the conference, with 4 parallel streams. The abstracts can be found at www.phuse.eu/abstract.aspx. Many thanks to everyone who submitted papers for consideration.

We are also very pleased to announce that our keynote speaker will be Dr Armando Oliva MD, Deputy Director for Bioinformatics in FDA's Office of Critical Path Programs. Dr Oliva will address the development, implementation and adoption of data standards at FDA, with particular emphasis on activities related to CDISC, HL-7 and the Janus Data Warehouse. Dr Oliva will also provide insight on the use of standardized clinical trial data during the clinical review of a pre-marketing application.

As in previous years we also have a number of exhibitors at the conference. The list of sponsors and exhibitors can be found at www.phuse.eu/sponsors.aspx.

We are looking forward to seeing you in Lisbon!

Dirk Spruck, PhUSE 2007 Conference Chair,

Olivier Leconte, PhUSE 2007 Conference Co-Chair

In Brief

- Back issues of *IEWS News* are available from the *IEWS* web site.
- The Technical Event for SAS Practitioners, due to be held in London on 29 June 2007 unfortunately had to be cancelled, as not enough delegates had signed up for it in advance.
- Philip Holland will be presenting at the PSI Statistical Computing SIG in September and the PhUSE Conference in October. Please see the **Diary** section below for details.
- Phil Mason now has a SAS tips newsletter, which can be requested by going to www.woodstreet.org.uk and then clicking on Tips. Previous tips can also be found on the web site.
- More SAS hints and tips can be found on the SAS FAQ pages www.hollandnumerics.com/sasfaq and also on the Amadeus Software Tips pages at www.amadeus.co.uk/TipsList.aspx?ST=1.
- Looking for a SAS-related job? Try the following web pages: www.hollandnumerics.com/careers and www.amadeus.co.uk/Careers.aspx.

Diary

*Are you organising an event that would be of interest to the *IEWS* readership? Let us know as we are interested in all non-profit making events related to SAS.*

August 2007

23 SAS9 Business Intelligence-Delivered, Oxfordshire

See the Amadeus Software web site www.amadeus.co.uk for further details.

September 2007

3 PSI Statistical Computing SIG, Cheshire

The PSI (Statisticians in the Pharmaceutical Industry) Statistical Computing SIG is holding a half-day meeting on Coding Efficiencies at AstraZeneca's offices in Macclesfield. See www.psiweb.org for more details.

October 2007

8-10 PhUSE, Lisbon, Portugal

The Pharmaceutical Users Software Exchange (PhUSE) conference is the premier programming event for the pharmaceutical industry in Europe. See www.phuse.eu for more details.

25 How-To Seminar for SAS Programmers, Oxfordshire

See the Amadeus Software web site www.amadeus.co.uk for further details.

31-1 November SAS Forum UK, Birmingham

The SAS Forum UK is held each year and focuses on the latest SAS software releases. For more details please go to www.sas.com/uk/events/sasforum.

March 2008

16-19 SAS Global Forum, San Antonio, Texas, USA

The SAS Global Forum (SGF, formerly called SUGI) is held each year and focuses on the technical aspects of SAS software. See www.sasglobalforum.org for more details.

All VIEWS event information will be posted and/or emailed to registered members of VIEWS, and will include an event application form. Please send your queries about any VIEWS events to event@views-uk.org, and don't forget to look at the web site for the latest news.

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VIEWS News is published quarterly by VIEWS International SAS Programmer Community. VIEWS is a not-for-profit organisation. Our Mission Statement and Rules can be viewed on our web site together with a list of current committee members.