

VIEWS

International SAS Programmer Community



News, Hints, Tips and Information for SAS® Users

Issue 38, 2nd Quarter 2007

While it appears that the promised release of SAS software version 9.2 is not now going to happen until 2008, this year is still going to be an interesting one. The announcement of [sasCommunity.org](http://sascommunity.org) at the SAS Global Forum will give everyone a chance to have their say about the future of SAS software development, and will hopefully spread the word about *VIEWS News* to a wider audience. I have written a report about the SAS Global Forum, and there are previews of 2 other events, the Wisconsin Illinois SAS Users Conference in Milwaukee and the Technical Event for SAS Practitioners in London, where I'll be presenting during the summer before the next issue. 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: a graphics design tip from LeRoy Bessler, an undocumented SAS informat from Peter Crawford and some more useful tips from the Amadeus Software Consultancy Team. 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.*

Stop Press!

Technical Event for SAS Practitioners

Plan now to attend the 29 June Technical Event for SAS Practitioners (TE) at the MI Centre in Central London. This full day session offers an outstanding opportunity to expand your SAS Software skills by listening to presentations by SAS Institute and independent experts on a wide range of topics, including data warehousing/data integration, macro language programming, ODS, programming efficiency and SAS/GRAPH Software.

The Technical Event will be given at the centrally located MI Centre near the Euston railway and underground stations. Maps and other details are available at the TE web site (see below).

The early registration rate of £129 (on, or before, 8 June) per person includes the full day's events, continental breakfast, buffet lunch and afternoon refreshments, as well as a printed and bound copy of all the presentations that will be given on 29 June. An evening reception, hosted by our corporate sponsors (see below) is offered at no additional charge to delegates. After 8 June, the delegate rate is £149.

SAS Institute Vice President of Strategy Allan Russell will give the Morning Plenary address on SAS' strategic initiatives and future technical directions. SAS speakers will also give presentations on 29 June about stored processes and on major announcements from last month's SAS Global Forum in Orlando, Florida.

The Technical Event also features presentations from well-known independent SAS experts from the United Kingdom, Switzerland and the United States. Delegates will also have opportunities to visit display areas staffed by representatives of our Platinum and Gold Sponsors, including SAS UK, Amadeus Software, Business and Decision, and Base 3 Systems. A draw will be held during the closing session giving delegates a chance to win one of 10 recent titles in the SAS Press series generously donated to the Technical Event by SAS Publications in Cary.

Delegates to the 29 June Technical Event for SAS Practitioners receive a discount on the full- and half-day training seminars at the MI Centre offered by US-based SAS expert Andrew Karp. More details are available from the TE web site and at www.sierrainformation.com/seminars.php.

For the latest details please visit the Technical Event web site at www.technical-event.co.uk about the 29 June event, and email coordinator@technical-event.co.uk if you have any questions. We look forward to seeing you on 29 June!

Andrew Karp, Technical Event Committee

Did You Know?

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

The GROUPFORMAT option

[SAS 9] The GROUPFORMAT option can be used in the data step to apply by-group processing to formatted ranges of values.

In order to use this option, the BY variable in question must have the relevant format applied. This option can only be used in the data step. Reading a SAS data set, using the GROUPFORMAT option on the BY statement, will then generate FIRST. and LAST. variables based on the formatted values as opposed to the raw column values. This is particularly useful when it is desirable to perform by-group processing when working with continuous data. See the example below:

```

PROC FORMAT;
  VALUE salary_bands
    0 - <20000 = 'Under 20k'
    20000 - <30000 = '20-30k'
    30000 - <40000 = '30-40k'
    40000 - <50000 = '40-50k'
    50000 - HIGH = 'Over 50k';
RUN;

PROC SORT DATA = demog OUT = sorted_demog;
  BY salary;
RUN;

DATA num_employees
  (KEEP = salary count_employees);
  FORMAT salary salary_bands.;
  SET sorted_demog;
  BY GROUPFORMAT salary;
  IF FIRST.salary THEN count_employees = 0;
  count_employees + 1;
  IF LAST.salary THEN OUTPUT;
RUN;

PROC PRINT DATA = num_employees NOOBS LABEL;
  LABEL count_employees = 'Number of Employees'
        salary = 'Salary Bands';
RUN;

```

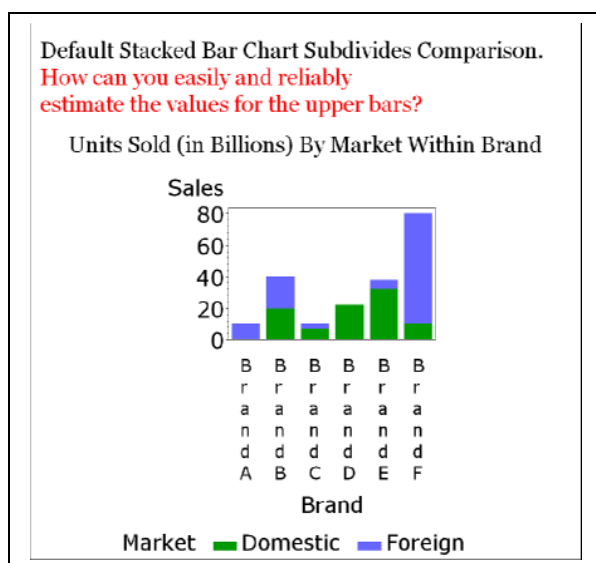
This code gives the following output:

Salary Bands	Number of Employees
Under 20k	53
20-30k	34
30-40k	10
40-50k	5
Over 50k	1

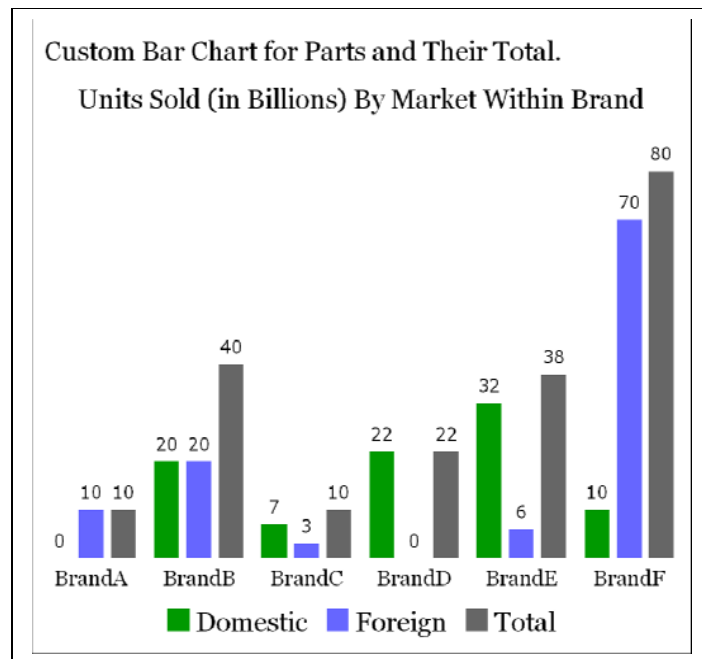
Amadeus Software Consultancy Team

Better than a Stacked Bar Chart

Below is an example of the popular stacked bar chart. You might also encounter this presentation of parts and their whole in a horizontal bar chart with the parts laid end-to-end, with the same resulting problem. For a different data set, the stacked bars may consist of more than just two parts, in which case the communication ambiguity is multiplied. I could have tried to improve the appearance of this graph, but the fundamental communication defect for the upper bars would persist.



Here is a better solution, which requires a small amount of pre-processing, the use of symbolic (a.k.a. “macro”) variables, and a trick to compensate for SAS/GRAPH’s non-provision of the needed legend for the side-by-side bar chart.



Here is the code used to create the custom bar chart above:

```

DATA UnitsSoldByBrandAndMarket;
  INFILE DATALINES;
  INPUT @1 Brand $6.
        @8 Market $8.
        @17 Value 2.;
DATALINES;
BrandF Domestic 10
BrandF Foreign 70
BrandA Domestic 0
BrandA Foreign 10
BrandB Domestic 20
BrandB Foreign 20
BrandC Domestic 7
BrandC Foreign 3
BrandD Domestic 22
BrandD Foreign 0
BrandE Domestic 32
BrandE Foreign 6
RUN;

PROC SORT DATA = UnitsSoldByBrandAndMarket;
  BY Brand Market;
RUN;

DATA UnitsSoldWithTotals;
  LENGTH Market $8;
  RETAIN Total 0;
  SET UnitsSoldByBrandAndMarket;
  BY Brand;
  Total = Total + Value;
  OUTPUT;
  IF LAST.Brand;
  Market = 'Total';
  Value = Total;
  OUTPUT;
  Total = 0;
RUN;

```

```

GOPTIONS RESET = ALL;
GOPTIONS DEVICE = GIF;
GOPTIONS YPIXELS = 900 XPIXELS = 960;
GOPTIONS CBACK = CXFFFFFFF BORDER;
GOPTIONS HTEXT = 3.5 PCT FTEXT = 'Verdana';
/* above controls the bar end labels */
GOPTIONS GSFMODE = REPLACE GSFNAME = anyname;

FILENAME anyname "C:\VIEWS\AnyFileName.GIF";

TITLE1 HEIGHT = 2.5 PCT ' '; /* spacer */
TITLE2 HEIGHT = 5 PCT FONT = 'Georgia'
JUSTIFY = LEFT
' Custom Bar Chart for Parts and The Total';
TITLE3 HEIGHT = 2.5 PCT ' '; /* spacer */
TITLE4 HEIGHT = 5 PCT FONT = 'Georgia'
'Units Sold (Billions) By Market Within Brand';
TITLE5 HEIGHT = 5 PCT ' '; /* spacer */

/* Create the legend with a footnote: */
FOOTNOTE1 HEIGHT = 5 PCT JUSTIFY = CENTER
FONT = 'Monotype Sorts'
COLOR = CX009900 '6E'X
FONT = 'Georgia'
COLOR = CX000000 ' Domestic '
FONT = 'Monotype Sorts'
COLOR = CX6666FF '6E'X
FONT = 'Georgia'
COLOR = CX000000 ' Foreign '
FONT = 'Monotype Sorts'
COLOR = CX666666 '6E'X
FONT = 'Georgia' COLOR = CX000000 ' Total';
FOOTNOTE2 HEIGHT = 2.5 PCT ' '; /* spacer */

PATTERN1 V = SOLID COLOR = CX009900;
PATTERN2 V = SOLID COLOR = CX6666FF;
PATTERN3 V = SOLID COLOR = CX666666;

AXIS1 LABEL = NONE MAJOR = NONE MINOR = NONE
STYLE = 0 VALUE = NONE;
AXIS2 LABEL = NONE MAJOR = NONE MINOR = NONE
STYLE = 0 VALUE = NONE OFFSET = (0.5, 0);
AXIS3 LABEL = NONE
VALUE = (FONT = 'Georgia' HEIGHT = 4 PCT);

PROC GCHART DATA = UnitsSoldWithTotals;
VBAR Market / SUMVAR = VALUE
SUM /* SUM triggers the bar end labels */
MAXIS = axis1 RAXIS = axis2
GROUP = Brand GAXIS = axis3
PATTERNID = MIDPOINT;
RUN;
QUIT;

```

The VBAR statement above, the GROUP variable assignment, and PATTERNID=MIDPOINT are the keys to producing the general side-by-side bar chart, irrespective of this application which uses it to compare parts and their total. If you add LEGEND=LEGEND1 to the VBAR statement, and supply a LEGEND1 statement to define your legend, SAS/GRAPH will neither deliver a legend, nor provide any message in the SAS log to notify you that your request was ignored.

The recommended alternative to the stacked bar chart is equally effective if rendered as a horizontal bar chart. If the values for the group variable (in this case, Brand) were longer, they would display OK without need for tilted or vertical text.

LeRoy Bessler, Assurant Health

Yet Another Undocumented Informat

[SAS 9] There is yet another undocumented informat, which adds something not otherwise available. There are no informats documented that will read this string as a datetime value:

```
string = '2006-10-27-12.27.30.639624';
```

However, use of the trickery offered recently (in *VIEWS News* issue 36), performs the complete search of all numeric informats and reveals the singular solution: a SAS informat called **YMDDTTM**:

```

DATA test;
SET sashelp.vformat;
* just informats;
WHERE fmtype = 'I';
* and not character informats;
WHERE ALSO fmtname NE ':'$';
string = '2006-10-27-12.27.30.639624';
nd = INPUTN(string, fmtname, 27);
IF NOT _ERROR_;
IF nd OR fmtname = ':ANYDTDTM';
PUT fmtname =
      nd = BEST16.
      +3 nd DATE9.
      +3 nd DATETIME.
      +3 string =;
OPTION ERRORS = 1;
RUN;

```

The only documentation I can find for this is in usage note support.sas.com/techsup/unotes/SN/015/015803.html, which is referred to as “undocumented” in the usage note title.

In fact there are 2 undocumented informats **YMDDTTMw.d** and **MDYAMPMw.d**, and a related format **MDYAMPMw.d**. The format **MDYAMPM** is useful where the date style 7/21/2006 1:57 PM is tolerated.

I thought that the informat **ANYDTDTM** read more datetime string formats than anything else, but the code below would produce this line for that informat:

```

fmtname=ANYDTDTM
nd=.
string=2006-10-27-12.27.30.639624

```

But this is the line which shows there is an informat to handle that datetime string, correctly:

```

fmtname=YMDDTTM
nd=1477571250.63962 ***** 27OCT06:12:27:31
string=2006-10-27-12.27.30.639624

```

The name **YMDDTTM** suggests it's a short-form for "yymmdd with date and time". Notice that it has read the decimal fraction of seconds correctly (the seconds are correctly rounded-up by the datetime format)! As I said "something not otherwise available".

Peter Crawford, Crawford Software Consultancy

Ask The Consultant

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

Improving the Performance of SQL Merges

Q: How can you improve the performance of SQL merges?

A: If you are looking to improve performance of your SQL code consider the following options:

- Include all your numeric, date or datetime variables first in the SELECT statement and leave the character variables to the end. Character variables are not padded when included last, meaning fewer I/O operations and lower CPU consumption.
- Add the parameter `_METHOD` to your SQL code. It will write debugging messages to the log about the type of join used by the SQL optimizer.
 1. **sqxjm:** sort-merge join - The algorithm most commonly used by the optimizer. First it will sort the data files and then perform the join. You can influence the optimizer to try to select this method by adding `MAGIC=102` to your PROC SQL statement:

```
PROC SQL _METHOD MAGIC = 102;
```

2. **qxjndx:** index join - Using indexes present in the data sets. You can try to influence the optimizer for this method by adding the data set option `IDXWHERE=YES`:

```
FROM library.index_data (IDXWHERE = YES)
```

3. **qxjhsh:** hash join - The smaller table in the join is loaded in memory. You can influence the optimizer by increasing the default value from 64K for the `BUFFERSIZE` option:

```
PROC SQL _METHOD BUFFERSIZE = 1048576;
```

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 **QTRw.** SAS format writes date values as the quarter of the year in numbers.

[SAS 9] The **HEADERY=** and **FOOTERY=** options for the ODS RTF statement can be used to determine the locations of the header and footer information. There is no checking on the validity of either of these values. If they are specified, they are used, so the options should be used with great care! The values are in twips, which are 1/1440th of an inch. To cancel these options use:

```
ODS RTF HEADERY = 0 FOOTERY = 0;
```

The **RMS()** function is used to find the root mean square of the non-negative numeric argument. The root mean square is the square root of the arithmetic mean of the squares of the values. If all the arguments are missing values, then the result is a missing value.

News

Report from the SAS Global Forum 2007

There were several surprises at the SAS Global Forum (SGF) from 16-19 April in Orlando, Florida:

1. SAS 9.2 is unlikely to be released before mid-2008!
2. 23% of the 3,700 attendees were from outside the US!
3. It was colder there than in the UK on April 16 at 21C!

I must admit that, in spite of very good intentions and an interest in the conference theme of innovation, I didn't get to see many presentations, but spent most of the conference in the Demo Room. Talking to the developers of ODS Statistical Graphics, Enterprise Guide, and a lot more, was too good an opportunity to miss!

However, I did see the announcement of [sasCommunity.org](http://sascommunity.org), a Wiki hosted by SAS Institute for the wider SAS community, i.e. you! All you need to do is create a user name on the web site, www.sascommunity.org, and start creating web pages about your SAS interests using the **Create a New Article** link. There are also links to **SAS Books, Events, Provider's Registry** and **Sasopedia**, amongst others, or you could record your own Blog, using the **My Blog** link. For help with your Wiki entries there is a **Using a Wiki** link, or you can look at anyone's page for ideas, like my **Philip R Holland** page. Finally, you can find the **VIEWS News** page using the side panel **User Groups** link, or just go straight to the **VIEWS News** page (see this page's footer!), where you'll find links to the latest issue and all back issues.

The last time I went to the USA was for SUGI 24 in Miami Beach, Florida, in 1999. I'm not going to wait for another 8 years before I return to another SGF. In fact I had such a good time at SGF 2007 that I'm already planning my return to SGF 2008 from 16-19 March in San Antonio, Texas!

Philip R Holland, Newsletter Editor

Having not travelled to the USA for 8 years, I will be back again in the USA in June this year to present at the Wisconsin Illinois SAS Users Conference in Milwaukee on 22 June.

Philip R Holland, Newsletter Editor

The Wisconsin Illinois SAS Users Conference

The Wisconsin Illinois SAS Users Conference will be held at the Woman's Club of Wisconsin, in Milwaukee on 22 June. SAS Experts from England, New Mexico, Colorado, and Wisconsin will share their knowledge and experience with you. Join the opportunity to network with SAS users from around the North Central USA.

Whether you are a novice or a very experienced SAS user, this is the place to enhance your SAS skills. You will get a full day of practical in-depth education from: an instructor and course developer from SAS Institute; a software developer from SAS Institute; and two users with, between them, over fifty years of

practical hands-on SAS experience. If you want to know how to display and deliver SAS output exactly the way that you want it and exactly the way that your customer or your boss wants it, this is the place to learn.

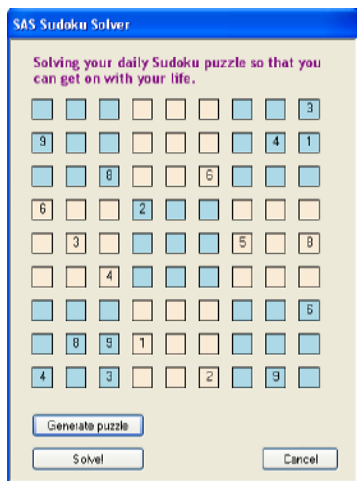
Cynthia Zender, SAS Curriculum Manager for Report Writing and the Output Delivery System, will explain ways to use SAS for Excel output, and how to exercise ultimate control over output with ODS ESCAPECHAR. **Kevin Smith**, SAS ODS developer, will provide an introduction to the Output Delivery System, and will show how to build custom tables with ODS PROC TEMPLATE. Visiting us from England will be the versatile SAS expert **Phil Holland**, author of *Saving Time and Money Using SAS Software*. He will talk about Enterprise Guide (the new standard user interface to SAS software), what is efficient SAS coding, and the new ODS Statistical Graphics, with his trellis graph implementation as an example. An examination copy of his book will be available. **LeRoy Bessler** will share with you the most useful things that a user of SAS/GRAPH (or ODS with SAS/GRAPH) needs to know. The Conference/Tools CD will also include his SAS-Excel DDE Toolbox. Please visit the web site, webpages.charter.net/wiilsu, for more information.

LeRoy Bessler, Assurant Health

EG 4.1 Custom Task for Solving Sudoku

Another interesting thread has appeared recently in the SAS Enterprise Guide User Forum at:

support.sas.com/forums/index.jspa



An experimental custom task for Enterprise Guide 4.1 that can solve your Sudoku puzzles can be downloaded from:

support.sas.com/documentation/onlinedoc/guide/customtasks/index.htm

Solution found in 12 iterations

S	U	D	O	K	U	S	A	S
1	4	6	9	2	7	8	5	3
9	2	7	8	3	5	6	4	1
3	5	8	4	1	6	7	2	9
6	9	5	2	7	8	3	1	4
2	3	1	6	4	9	5	7	8
8	7	4	3	5	1	9	6	2
7	1	2	5	9	3	4	8	6
5	8	9	1	6	4	2	3	7
4	6	3	7	8	2	1	9	5

Philip R Holland (Newsletter Editor)

Developed for a SAS Global Forum presentation by Chris Hemedinger at SAS, you can read more about it at:

blogs.sas.com/sascom/index.php?/archives/27-Puzzling-presentations.html

PhUSE News

Registration for the PhUSE Conference 2007

Just to let you know that the registration and paper submission portals for PhUSE Lisbon 2007 are now open. Click on the link to access www.phuse.eu, from where you can either register to attend this years conference or submit an abstract. You'll also find a link to the March newsletter from the home page.

If you have problems accessing the PhUSE website or members area, please don't hesitate to contact me using the email address kevin.kilminster@novartis.com.

Finally, we've been made aware of at least one company cold-calling and offering reductions on registrations to the PhUSE conference. These calls are not sanctioned by PhUSE and should be ignored.

Kevin Kilminster, PhUSE Committee

In Brief

- Back issues of *VIEWS News* are available from the *VIEWS* web site.
- **Saving Time and Money using SAS**, a new book by Philip R Holland, is scheduled for publication in July 2007. See the SAS Press web site for more details.
- Philip will be presenting at the Wisconsin Illinois SAS Users Conference, Technical Event and PSI Conference in June and July. 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/knowledge/tips/index.php.
- Looking for a SAS-related job? Try the following web pages: www.hollandnumerics.com/careers and www.amadeus.co.uk/about/jobs.php.

Diary

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

May 2007

22-23 SAS Forum 2007, Stockholm, Sweden

Following the closure of the SAS EMEA HQ, the SAS Forum International has become SAS Forum 2007, an executive conference.

24 SAS9 Business Intelligence-Delivered, Oxfordshire

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

June 2007

13 SAS UK Special Interest Groups, Marlow

SAS UK are running Special Interest Groups on a range of subjects. There will also be free certification tests available on a first-come first-served basis. For more details please visit the web site, www.sas.com/uk/events/sigs.

22 **Wisconsin Illinois SAS Users Conference**, Milwaukee, Wisconsin, USA

A full day of practical in-depth education from an instructor and course developer from SAS, a software developer from SAS, and two users with, between them, over fifty years of practical hands-on SAS experience. For details please visit the web site, webpages.charter.net/wiilsu.

27 **Summarising and Reporting Data Using the SAS System**, London

A full-day class with Andrew Karp. For further details please go to www.sierrainformation.com/seminars.php.

28 **Advanced SAS Reporting Techniques**, London

A full-day class with Andrew Karp. For further details please go to www.sierrainformation.com/seminars.php.

29 **Technical Event for SAS Practitioners**, London

A full day of in-depth technical presentations by leading independent experts and SAS staff. For more details please visit the web site, www.technical-event.co.uk.

July 2007

2 **SAS System Programming Efficiencies: Tips & Techniques**, London

A full-day class with Andrew Karp. For further details please go to www.sierrainformation.com/seminars.php.

3 **Success with the SAS Output Delivery System**, London

A full-day class with Andrew Karp. For further details please go to www.sierrainformation.com/seminars.php.

4 **Exchanging Data Between SAS and Microsoft Products**, London

A morning class with Andrew Karp. For further details please go to www.sierrainformation.com/seminars.php.

4 **Unleashing the Power of PROC REPORT**, London

An afternoon class with Andrew Karp. For further details please go to www.sierrainformation.com/seminars.php.

5 **Getting the Most from SAS 9 Software**, London

A full-day class with Andrew Karp. For further details please go to www.sierrainformation.com/seminars.php.

12 **How-To Seminar for SAS Programmers**, Oxfordshire

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

13-16 **PSI Annual Conference**, Cheshire

The conference of Statisticians in the Pharmaceutical Industry (PSI) provides a forum for the discussion of the application of statistics, new developments and other topics impacting on the work of statisticians and statistical programmers in the industry. See www.psiweb.org for more details.

August 2007

23 **SAS9 Business Intelligence-Delivered**, Oxfordshire

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

November 2007

29 **SAS9 Business Intelligence-Delivered**, Oxfordshire

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

December 2007

4 **How-To Seminar for SAS Programmers**, Oxfordshire

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

March 2008

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

The SAS Global Forum (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.