

VIEWS

International SAS Programmer Community



News, Hints, Tips and Information for SAS® Users

Issue 37, 1st Quarter 2007

Peter Crawford, who is a member of the committee spearheading the Technical Event's planning:

"Our goal is to offer SAS professionals on our side of the Atlantic many of the benefits our colleagues in the USA and Canada obtain from attending their regional and local user group meetings. We are confident there is the same interest in and demand by SAS users in the UK, and elsewhere in Europe, for an event offering in-depth, independent, expert insights into how to make the most of core SAS tools, as there is in North America. But, as an all-volunteer effort, the Technical Event's leadership needs assistance and input from other SAS users to make this a successful event for everyone."

"Please use the Call for Papers and Participation link on our website to tell us what you would like to see presented at the Technical Event, and to also tell us how you can contribute to the success of the meeting. There will be many ways you can apply your expertise to make this a successful event, including giving presentations and assisting on the day of the event with delegate registration and introducing speakers."

Current plans are for a full day of presentations by both European and American SAS experts addressing a wide range of topics, including sessions designed for newer users of the SAS System's programming language and procedure tools. Those with presentations they would like to have considered for inclusion in the Technical Event should submit information via the Call for Papers link. Opportunities for consultancies and other firms to take part as Technical Event corporate sponsors will also be available.

Phil Mason, another member of the committee and noted UK-based SAS expert:

"We need SAS users who read the VIEWS newsletter to not only plan to attend the Technical Event themselves, but to also serve as 'evangelists' for the Technical Event at their workplace. The success of the Technical Event depends on communicating the value of the event to potential attendees wherever SAS is used in Europe, as well as in having people come to it willing to share their expertise with the other delegates. We need to spread the word within the SAS user community in order to make this a success."

Now that a date has been finalised for the Technical Event, it is hoped that full details will be available soon at www.technical-event.co.uk. Please visit that link often for updates and registration details. The committee can be reached via email at coordinator@technical-event.co.uk.

Andrew Karp, Technical Event Committee

A New Year and there is a promise of a new release very soon of SAS software version 9.2, while most of us are still trying to make the best use of 9.1.3 or 8.2! You'll be pleased to hear that, as well as providing more hints and tips, I have together some information about forthcoming events, including a rescheduled Technical Event in London in June, and PhUSE in Lisbon in October. Please also note that the SAS Forum International has become SAS Forum 2007, an executive conference, following the closure of SAS EMEA headquarters in Heidelberg.

In this issue of *VIEWS News* I have a number of articles from well-known sources: a web design tip from LeRoy Bessler, 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!

Call for Papers for the Technical Event

The link for the Call for Papers and Participation in the 2007 Technical Event for SAS Users is now available on-line at www.technical-event.co.uk.

This full-day event, scheduled for Friday 29 June 2007 at a central London venue, offers SAS Software users at all experience levels opportunities to develop their skills by hearing from leading experts about SAS core tools and techniques, thus enabling them to get the most from their organisation's current SAS install. Optional full and half-day intensive training sessions will be offered in conjunction with the Technical Event.

Did You Know?

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

Reporting with Visual Indicators

The output delivery system (ODS) enables us many uses of visual impact on text in our reports. Many such features have been demonstrated in user groups, not least by *VIEWS News*!

Adding graphics as visual indicators into reports can provide some stunning impact.

Consider the following table produced with PROC REPORT. The icons at the beginning of each line depict the relative position of each product in the current sales period versus the previous sales period; showing items 1–3 are in the same position, items 4–7 dropped down the table, etc.

Top 10 Position	Product	Sales Value	
		This Period	Previous Period
→ 1	Gazebo Spa & Hot Tub	£729,881	£951,617
→ 2	Party Tub	£389,922	£424,915
→ 3	Large Hot Tub	£279,920	£265,924
↓ 4	Large Octagonal Pool	£252,213	£252,213
↓ 5	Small Octagonal Pool	£213,511	£211,112
↓ 6	Small Hot Tub	£184,926	£194,922
↓ 7	Virtual Lake (Small)	£181,909	£139,930
↑ 8	Medium Hot Tub	£176,941	£263,912
↑ 9	Portable Spa	£141,669	£146,916
↑ 10	Rotivator	£115,620	£146,640

The COLUMN statement in PROC REPORT begins as follows:

```
COLUMN q2position q1position proddesc
<removed>;
```

Critically, the inclusion of this sales period sales position (Q2POSITION) and the previous position (Q1POSITION) are included.

Note that the previous position does not appear in the body of the report. The column is defined as NOPRINT in a DEFINE statement:

```
DEFINE q1position / ORDER NOPRINT;
```

A COMPUTE block is used to compare the value of the current sales position against the previous. Three images were selected to depict the movement of positions, in this case arrows in appropriate colours and are stored in image files.

CALL DEFINE is used to assign the appropriate STYLE attribute to the Q2POSITION column. The image is inserted before any data into the cell with the PREIMAGE attribute. The following code assumes the picture files (*.PNG) are in the same working folder as the SAS session. In reality these may be stored in a different folder; hence the full path should be included in the code:

```
COMPUTE q1position;
  IF q2position > q1position THEN
    CALL DEFINE("q2position", "STYLE",
      'STYLE = [PREIMAGE = "up.png"]');
  ELSE IF q2position < q1position THEN
    CALL DEFINE("q2position", "STYLE",
      'STYLE = [PREIMAGE = "down.png"]');
  ELSE IF q2position = q1position THEN
    CALL DEFINE("q2position", "STYLE",
      'STYLE = [PREIMAGE = "right.png"]');
ENDCOMP;
```

Once generated the Microsoft Word document, or PDF file, will contain the embedded image. A web page will contain external links to the image files.

As ever... your comments and questions are valued and encouraged!

Amadeus Consultancy Team

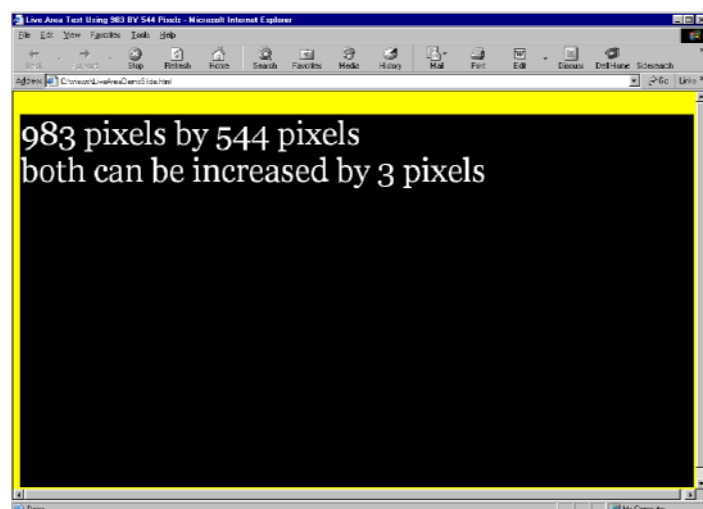
This example is reproduced from the forthcoming seminar by Amadeus Software "The How-To Seminar for SAS Programmers".

Optimizing Your Use of Web Page Space (a.k.a. "Live Area" or "Live Space")

"Live Area" or "Live Space" is the area available inside the browser window to display web page content. The frame used by Windows itself and the frame used by a web browser reduce the usable display space of a CRT monitor or a flat panel display.

Web page users do not really like to scroll. If you have a large text file, they may be tolerant of vertical scrolling. A map is a special case, which, unless it covers a very small area with sufficient detail, typically requires scrolling in both directions. A trend chart with very much history to cover does inherently justify horizontal scrolling, but then the user may also be interested in a companion trend chart with less "temporal granularity" so that an overall perspective can be obtained.

In almost all cases, a web graph should be sized so that it can be seen in full without scrolling. Graphs that are needlessly designed to require scrolling are irritating, prevent getting what could have been a coherent "full visual impression", and are apt to be unprintable as a convenient unit. At the same time, to maximize readability, graphs should be designed as large as will fit in the space available.



My focus here is on sizing a graph to make maximum use of the space inside the web browser frame, and below any optional toolbar(s) that the web user may have enabled. The SAS/GRAPH GSLIDE output in the web page above is deliberately under-sized only so that you can see the right-hand side and bottom edges of the image where the yellow web page background is peeking out.

The commonest file format used on the web for images that are not photographs is GIF (graphic interchange format). GIF is suitable for lines, text, logos, and “flat colour” areas (as opposed to continuous-tone colour photographs), and so it is an excellent choice for graphs. Its file size is usually smaller than any of the alternatives, which means that it will download quickly and not take up much disk space.

Another benefit of the GIF graphic device driver is that it supports GOPTIONS TRANSPARENCY. Transparency lets the web page background show through. The graphic picture elements and the text are opaque, and any graph background colour disappears. The image above was created with transparency turned off.

The size of the live area is affected by the screen resolution of the CRT monitor or flat panel. The commonest resolution in use today is 1024 pixels (width) by 768 pixels (height), with an aspect ratio of 4:3.

You can determine the resolution of your own screen on a Windows machine by clicking Start > Settings > Control Panel > Display Properties > Settings. The Screen Area slider shows your current setting, which you can change.

Other factors that affect the live space are the choice of web browser, the version of the web browser, and the absence or presence of optional toolbars, such as those for Google or Yahoo.

Within that context, the effective available space for your image is affected by the choice of ODS style (e.g. Minimal vs. Default) and the version of SAS. Also, SAS 8 and SAS 9 differ in the version of HTML language used, as well as in how that HTML language is used.

Just as the size of the available live area is measured in pixels, so, too, the size of a GIF graphic image is measured in pixels, and is controlled with GOPTIONS XPIXELS and YPIXELS.

Here is the code used to create the test web page above:

```
PROC TEMPLATE;
  EDIT Styles.Minimal AS
    Styles.Minimal_CXFFFF00;
  STYLE BODY /
    BACKGROUND = CXFFFF00; /* YELLOW */
  END;
RUN;

PROC CATALOG CAT=WORK.GSEG KILL;
RUN;
QUIT;

ODS NORESULTS;
ODS LISTING CLOSE;
ODS HTML PATH = "C:\VIEWS" (URL = NONE)
  FILE = "LiveAreaTestSlide.html"
  (TITLE =
    "Live Area Test Using 983 BY 544 Pixels")
  STYLE = Styles.Minimal_CXFFFF00
  GTITLE GFOOTNOTE;
```

```
GOPTIONS RESET = ALL DEVICE = GIF
          CBACK = CX000000 /* BLACK */
          NOBORDER XPIXELS=983 YPIXELS=544;

PROC GSLIDE NAME="AnyName";
  TITLE1;
  NOTE HEIGHT = 10 PCT
    COLOR = CXFFFFFF /* WHITE */
    FONT = 'Georgia'
    '983 pixels by 544 pixels'
    JUSTIFY=LEFT
    'both can be increased by 3 pixels';
RUN;
QUIT;

ODS HTML CLOSE;
ODS LISTING;
```

NOTE: Without warning, GOPTIONS BORDER is effectively disregarded when SAS/GRAPH code is compiled and executed for ODS HTML. However, the presence or absence of GOPTIONS BORDER in the code does affect the displayed size of the graphic image. I recommend turning it off, as above.

You should design your web pages for what you expect to be the typical worst-case situation of your intended web audience. During development, you should configure your own screen resolution and web browser to match those of your target.

Though this example shows how to fill the live space almost completely, it is prudent to instead leave a reasonable amount of extra space unused, if the resulting smaller graph is still readable. Then web users whose configuration actually provides less live space than your expected target configuration may be able to see the whole picture without scrolling.

LeRoy Bessler, Assurant Health

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 MPRINTNEST option in SAS9

Q: How can you see which macros you are using, and whether macros are calling other macros?

A: [SAS 9] A new option available within SAS9 is the MPRINTNEST option, which when selected will output a nested hierarchy of macro calls to the log. This differs from using MPRINT which will only display the macro that actually generated each specific line of code.

In this example **macro1** executes a data step and then calls **macro2** which runs some analysis on the data.

```
%MACRO macro1;
  DATA test2;
    SET test;
    var2 = var1 * 2;
  RUN;
%macro2
%MEND;
```

From the log it is not easy to see that **macro2** is called by **macro1**:

```
62 %macro1
MPRINT (MACRO1): DATA test2;
MPRINT (MACRO1): SET test;
MPRINT (MACRO1): var2 = var1 * 2;
MPRINT (MACRO1): RUN;

NOTE: There were 4 observations read from the data set
WORK.TEST.
NOTE: The data set WORK.TEST2 has 4 observations and 3
variables.
NOTE: DATA statement used (Total process time):
      real time           0.03 seconds
      cpu time            0.03 seconds

MPRINT (MACRO2): PROC MEANS DATA = test2 NOPRINT;
MPRINT (MACRO2): VAR var1 var2;
MPRINT (MACRO2): OUTPUT OUT = test3 (DROP = _TYPE_ _FREQ_)
SUM = sum1 sum2 MAX = max1 max2;
MPRINT (MACRO2): RUN;
```

Setting the MPRINTNEST option can solve this problem. In order for MPRINTNEST to work MPRINT must also be selected:

```
OPTIONS MPRINT MPRINTNEST;
```

Resubmitting the same code clearly shows that **macro2** is nested within **macro1**, i.e. **macro1** calls **macro2**. The exact hierarchy is represented by listing all the macros in order with a full stop separating each one:

```
65 %macro1
MPRINT (MACRO1): DATA test2;
MPRINT (MACRO1): SET test;
MPRINT (MACRO1): var2 = var1 * 2;
MPRINT (MACRO1): RUN;

NOTE: There were 4 observations read from the data set
WORK.TEST.
NOTE: The data set WORK.TEST2 has 4 observations and 3
variables.
NOTE: DATA statement used (Total process time):
      real time           0.03 seconds
      cpu time            0.00 seconds

MPRINT (MACRO1.MACRO2): PROC MEANS DATA = test2 NOPRINT;
MPRINT (MACRO1.MACRO2): VAR var1 var2;
MPRINT (MACRO1.MACRO2): OUTPUT OUT = test3 (DROP = _TYPE_
_FREQ_) SUM = sum1 sum2 MAX = max1 max2;
MPRINT (MACRO1.MACRO2): RUN;
```

This option is extremely useful when there are lots of nested macros or multiple calls of the same macro throughout the code.

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 **ROMANw**. SAS format writes numbers in Roman numerals after they have been truncated to integer values.

The **IN=** data set option can be used in parentheses after a SAS data set name in the SET, MERGE, MODIFY and UPDATE statements only. Values of **IN=** variables can be read by program statements during the DATA step, but cannot be saved in the SAS data set that is being created, unless they are explicitly assigned to a new variable. When you use **IN=** with BY-group processing, and when a data set contributes an observation for the current BY group, the **IN=** value is 1. The value remains as long as that BY group is still being processed and the value is not reset by programming logic.

[SAS 9] The **LARGEST()** function is used to find the *n*th largest non-missing value in a list of arguments. The related **SMALLEST()** function will find the *n*th smallest non-missing value in a list of arguments.

News

New from the SAS Press Series

In the Know...SAS Tips and Techniques From Around the Globe, Second Edition by Phil Mason.

You'll gain a world of knowledge through Phil Mason's inventive tips and techniques. Updated and expanded to cover the breadth of functionality offered in SAS 8 and SAS 9, this dynamic collection is packed with timeless classics and plenty of new material addressing such popular topics as the DATA step, SQL, macros, functions, ODS, and much more. Each tip is presented in a self-contained format that is both informative and easy to use. Every chapter contains a collection of related tips with frequent use of code and log examples to help improve productivity. Users of all levels will discover how to save time and effort by incorporating the wisdom found in these practical tips.

What the experts are saying:

Steve Morton, Applied System Knowledge:

"This book is an excellent resource for any SAS programmer, packed with gems that most of us don't have time to go hunting for. Whether you read from cover to cover or just dip in now and again, your time will be rewarded with Phil's insights to how SAS can work better for you."

Art Carpenter, California Occidental Consultants:

"This book has something for everyone. It is packed with tips, from the obscure to the commonly used. Written in a fairly terse style, Phil's book gets right to the point, and it gets there point after point. It covers topics that you don't know, topics that you don't know of, and most importantly it covers topics that you don't know that you need to know."

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

www.sas.com/apps/pubscat/bookdetails.jsp?catid=3D1&pc=3D56252

Liz Villani, SAS Press Marketing

New Custom Tasks for Enterprise Guide 4.1

I have been an enthusiastic user of Enterprise Guide since version 1.1, so I was interested in a number of threads in the SAS Enterprise Guide User Forum at:

support.sas.com/forums/index.jspa

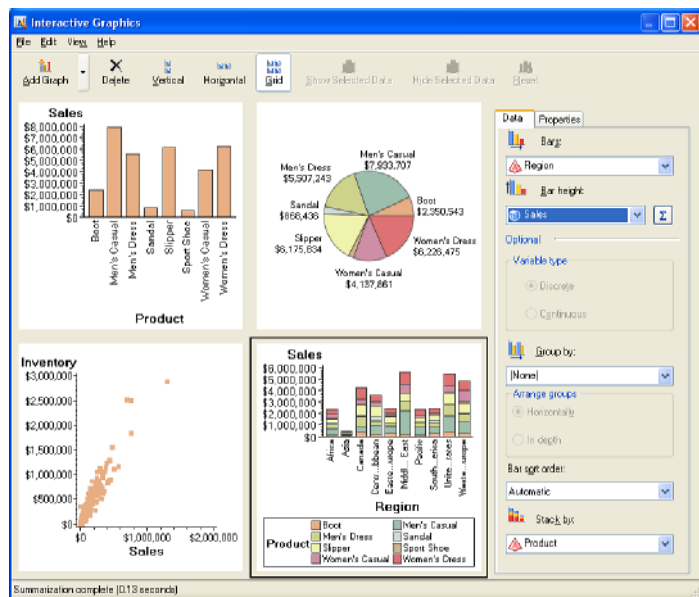
In the last few weeks 2 new experimental custom tasks for Enterprise Guide 4.1 have been made available for download from:

www.sas.com/apps/demosdownloads/setupcat.jsp?cat=SAS+Enterprise+Guide

Interactive Graphics:

This task will generate multiple bar charts, scatter plots and pie charts using drop-down menus. The individual graphs allow drill-down operations, which affect all the visible graphs, and each graph can be exported as JPEG image files. The tasks and parameters can be saved in Enterprise Guide project files for

re-running later, but generate no SAS code, so SAS/GRAPH does not need to be licensed.



Upload/Download SAS Data Sets:

These tasks will transfer SAS data sets between local and remote SAS servers. While Enterprise Guide can read SAS data sets without a locally installed SAS System, it can only save SAS data sets with the help of a local or remote SAS server. The tasks and parameters can be saved in Enterprise Guide project files for re-running later, but generate no SAS code, and you only see a Log node containing the details of the target location and the data transferred.

Philip R Holland (Newsletter Editor)

PhUSE News

PhUSE Conference 2007

Following a successful 2006 PhUSE Conference in Dublin, the 2007 PhUSE Conference will be held in Lisbon, Portugal from 8-10 October. For more details see the forthcoming PhUSE newsletter (out in February), or visit www.phuse.eu.

PhUSE Committee

In Brief

- Back issues of *VIEWS News* are available from the *VIEWS* web site.
- 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.

March 2007

29 How-To Seminar for SAS Programmers, Oxfordshire

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

April 2007

16-19 SAS Global Forum, Orlando, Florida, USA

The SAS Global Forum (formerly called SUGI) is held each year and focuses on the technical aspects of SAS software.

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

29 Technical Event for SAS Software Users, London

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

July 2007

12 How-To Seminar for SAS Programmers, Oxfordshire

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

25 How-To Seminar for SAS Programmers, Oxfordshire

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

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.

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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PhUSE	Web: www.phuse.eu
SAS UK	Tel: +44-(0)1628-486933 Web: www.sas.com/uk
SAS Press	Web: support.sas.com/publishing
<u>VIEWS</u>	
Web Site	Web: www.views-uk.org
Chairman	Email: chair@views-uk.org
Newsletter Editor	Email: newsletter@views-uk.org
Membership secretary	Email: membership@views-uk.org
Events secretary	Email: event@views-uk.org

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