



In this issue

- [Executive Update](#)
- [Tips & Tricks:](#)
 - [Shortcuts with Arrays](#)
 - [Last Business Day of the Month](#)
 - [Quicker Jobs with PROC SQL](#)
 - [Breaking Up Code into Macros](#)

Who We Are

The Vancouver SAS Users Group (VanSUG) is an informal group of SAS users in the Vancouver area who meet and share their knowledge. There are no fees – we simply meet twice annually (spring and fall) to have a half day of presentations, networking, and fun! Check us out at vansug.ca.

Newsletter Inputs

This newsletter is for and by the local Vancouver SAS community. If you'd like to contribute to a future newsletter, please email us at vansug@gmail.com!

Executive Team

President:

Colleen McGahan
(BC Cancer Agency)

Vice President:

Nate Derby (Stakana Analytics)

Other Members:

Scott Albrechtsen (BC Hydro)
Fareeza Khurshed
(BC Cancer Agency)
Libo Lu (KBM Group)
Sharon Relova
(Cardiac Services BC)
Cathy Rupp (BC Hydro)
Brian Sun (Rick Hansen Institute)
Julia Zhu
(Cardiac Services BC)

Executive Update

Colleen McGahan: vansug@gmail.com

Since our last meeting in the fall we have had major changes to the Executive Team. Mei Chong had taken over as President last fall, but due to changes at her work, we are regrettably losing her from the Executive. On behalf of everyone, I'd like to thank Mei. She has contributed a lot during her involvement on the Exec since its initiation in 2005. With Mei stepping down, I will once again be President with Nate Derby as Vice President and Sharon Relova continuing in her role.

We were excited to see some very positive feedback from our Fall meeting on the Business Analytics (BA) talk and so we are looking to add the BA session permanently. We reached out to you, asking for volunteers to join the Executive to help with this. To those who offered (20 in total) we are very grateful and those who could not make the inaugural meeting, we hope you will still consider getting involved in the future. I'd like to welcome Brian Sun, Cathy Rupp (returning), Fareeza Khurshed, Julia Zhu, Libo Lu and Scott Albrechtsen as new members on the Executive Team.

TIPS & TRICKS: Shortcuts with Arrays

Scott Albrechtsen: scott.albrechtsen@bchydro.com

SAS arrays are useful tools for identifying and processing a group of related variables within a data step. Once an array of variables has been defined, the programmer can apply logic to the array without the convolution of applying that logic to each variable individually.

Below we have the variables a1, b2, c5, d2, g5, and f3, which we would like to multiply by 1.25 in a DATA step using an array.

```
DATA output;
  SET input;
  ARRAY vars a1 b2 c5 d2 g5 f3;
  DO i=1 to 6;
    vars(i) = vars(i) * 1.25;
  END;
  DROP i;
RUN;
```

Here the programmer must know that there were six variables within the array vars. Often in sophisticated programs this requires a separate macro function to determine the number of variables within the array. That's a waste of programmer and processing time. The programmer must then also drop the i declared variable from the DO loop.

Instead, using the DO OVER <array name> statement eliminates the need to declare the number of variables within the array or drop the declared i variable at the end!

```
DATA output;
  SET input;
  ARRAY vars a1 b2 c5 d2 g5 f3;
  DO OVER vars;
    vars = vars * 1.25;
  END;
RUN;
```

TIPS & TRICKS: Last Business Day of the Month

James Profitt: james_profitt@yahoo.co.uk

If you have a list of dates and want to calculate the last business day of the month, you can do so via `proc means`:

```
data dates;
  do bill_date=mdy( 2, 1, 2011 ) to mdy( 3, 1, 2013 );
    workday = weekday( bill_date );
    year = year( bill_date );
    month = month( bill_date );
    output;
  end;
  format bill_date date9.;
run;

proc means data=dates(where=(workday not in ( 1, 7 )))
  nway noprint;
  class year month;
  var bill_date;
  output out=maxdates( drop=_TYPE_ _FREQ_ ) max=;
run;
```

Be sure to use the `nway` option in the header and the `max=` option in the output statement, or you'll get some surprises.

TIPS & TRICKS: Breaking up Code into Macros

Nate Derby: nderby@stakana.com

If you have a lot of code, you can break it up into macros which are named after what that section of code does:

```
%readData;
%analyzeData;
%exportOutput;
```

This can make it more manageable to work on. You have to tell SAS where those macro definitions are located, which you can do by this line at the beginning of the program (where `&root` is the home directory):

```
OPTIONS SASAUTOS=( "&root" )
  MAUTOSOURCE;
```

More information about this can be found at goo.gl/4DzWP.

TIPS & TRICKS: Quicker Jobs with PROC SQL

Yonah Karp: yonahkarp@gmail.com

I frequently connect to an Oracle database via SAS. My code hits a warehouse with hundreds of tables, each with 2-15 fields. Typical queries hit between 4 and 10 tables with various types of joins, subsetting, and various other DATA steps after one or more PROC SQL hits to the warehouse.

The `-NOTHREADS` system option and the `READBUFF=n LIBNAME` option are the two tools I experimented with to whittle my time down. `READBUFF` changes the number of rows from the RDBMS held in memory; `THREADS` allows parallel processing (increases performance of sorting operations that involve large amounts of data), but in my case, suppressing the overhead required to do parallel processing with `-NOTHREADS` actually gave me a performance boost.

Time (mm:ss)	READBUFF= <i>n</i>	-NOTHREADS	Comments
61:32	didn't use	no	Baseline run
10:22	<i>n</i> =12,000	no	
6:16	<i>n</i> =12,000	yes	
6:54	<i>n</i> =15,000	no	
5:35	<i>n</i> =15,000	yes	
8:41	<i>n</i> =18,000	no	starting to swap to disk
5:26	<i>n</i> =18,000	yes	NOTHREADS optimized this combo, but 18K performance degraded over 15K

Conclusion: `READBUFF` rocks! `-NOTHREADS` gives mild improvement for this PROC SQL code.

Our next meeting will be on **November 2, 2011**. Check out the VanSUG website at vansug.ca later for more information!

Archives presentations and newsletters, as well as a link to scheduled SAS training courses held in Vancouver, can all be found on the VanSUG website at vansug.ca!

The **Puget Sound SAS Users Group (PUGSUG)** is a new SAS users group that will have its next meeting on **June 14, 2011**. It is a resource for the SAS community all along the Puget Sound, from Bellingham to Olympia. Everyone (including Canadians) are welcome to join in on their meetings! Check pugsug.org for details.

The **2011 Western Users of SAS Software (WUSS) Conference** will be held in San Francisco on October 12-14. Come on down! Information can be found at wuss.org.