

BASUG Quarterly Meeting Announcement

BASUG is excited to host Paul Dorfman and Don Henderson, two SAS legends, famous for their long-time contributions to SAS conferences, SAS R&D, SAS-L, and sasCommunity.org.

This meeting presents a deep dive into the inner workings of the SAS DATA step - essential knowledge for SAS programmers of all experience levels. This is a meeting you do not want to miss!

Please join us for these informative talks, and consider staying for the afternoon hash class (separate event), taught by Paul and Don. *For information on the training, please visit [Training Announcement](#)*

After the meeting, we will provide an informal light buffet lunch for all attendees. We hope you can stay for this opportunity to network and socialize with your fellow SAS users.

Topic	DATA Step Deep Dive
When	Thursday June 23, 2016 8:15 AM – Noon
Where	Microsoft New England Research and Development Center (NERD) ¹ One Memorial Drive Conference Center, First Floor Cambridge, MA 02142 857-453-6000 
Directions	Please visit the meeting site directions page
How to register	Individual, on-line registration required. Please visit the event registration page NO WALK-INS!
Payment	\$10 – if paid on-line by Monday June 13, 2016 \$15 – if paid on-line (through noon Wednesday June 22, 2016) \$20 – at-the-door (checks only)
Contact	If you have questions about the meeting, contact the meeting organizers at EventOrganizers@basug.org Quentin McMullen Jean Roth Brian Saper

Agenda*

8:15 AM	Sign in and Refreshments
8:45 AM	Announcements
9:00 AM	The SAS Supervisor <i>by Don Henderson, Henderson Consulting Services LLC</i>
10:00 AM	Break

10:15 AM	HOW to DOW <i>by Paul Dorfman, Dorfman Consulting</i>
11:15 AM	Break
11:30 AM	PROC STREAM and the DOSUBL Function – Two Little Known Additions to SAS 9.4 <i>by Don Henderson, Henderson Consulting Services LLC</i>
12:00 PM	Networking Lunch

**Note: Times (and sequence) are approximate and subject to change. Please re-visit the BASUG website (www.basug.org) for updated information.*

Speaker biographies and abstracts

The SAS Supervisor

by Don Henderson, Henderson Consulting Services LLC



How SAS processes jobs is the responsibility of the SAS Supervisor and an understanding of its function is important. While the details of how it works have changed over time, some of the basics of the SAS Supervisor have been reasonably consistent over time.

This paper was first presented at SUGI (now known as SGF) in 1983 and was a standard talk at many conferences back in the Jurassic period of SAS. It discusses the functions of the SAS Supervisor during the execution of a SAS DATA Step program.

The functions of the SAS Supervisor can be categorized as follows:

- Compiling SAS Source Code, and
- Executing Resultant Machine Code

The actions of the Supervisor during both the compile and execution phases of a SAS job will be illustrated.

When a SAS DATA Step program is written, the DATA Step "module" must be integrated within the structure of the SAS System. This integration is done by the SAS Supervisor. Gaining a more complete understanding of what the Supervisor does and how our program is controlled by it is crucial to using the SAS System more effectively.

Don Henderson is the Owner and Principal of Henderson Consulting Services, a SAS Affiliate Partner. Don has used SAS software since 1975, designing and developing business applications with a focus on data warehouse, business intelligence, and analytic applications. Don was one of the primary architects in the initial development and release of SAS/IntrNet software in 1996, and he was one of the original developers for the SAS/IntrNet Application Dispatcher. Don has presented numerous papers at SUGI and regional SAS user group meetings, and continues to be a great supporter of SAS and its products.

HOW to DOW

by Paul Dorfman, Dorfman Consulting



The DOW-loop is a nested, repetitive DATA step structure enabling you to isolate instructions related to a certain break event before, after, and during a DO loop cycle in a naturally logical manner. Readily recognizable in its most ubiquitous form by the DO UNTIL (LAST.ID) construct, which readily lends itself to control break processing of BY group data, the DOW loop's nature is more morphologically diverse and generic. In this workshop, the DOW-loop's logic is examined via the power of example to reveal its aesthetic beauty and pragmatic utility. In some industries like Pharma, where flagging BY group observations based on in-group conditions is standard fare, the DOW-loop is an ideal vehicle, greatly simplifying the alignment of business logic and SAS code.

Paul Dorfman began using SAS to compute some stuff pre-1990 while pursuing a degree in Physics. He went on to use it as a principal doing-whatever-with-data tool in a number of industries, such as telops, credit card/banking, pharma, and health insurance. In 1998, he introduced hashing into SAS programming and implemented all classic hash algorithms based on SAS arrays. After the advent of the canned hash object, he was first to have begun using it as a DATA step programming tool, then started propagandizing it and wrote the first SUGI user paper on the subject. Paul has invented a number of the hash object programming techniques (likely unintended by the SAS R&D), such as "summary-less" aggregation, array sorting, dynamic data set splitting, and hash memory footprint reduction by data portion disk off-loading and using the MD5 function.

PROC STREAM and the DOSUBL Function – Two Little Known Additions to SAS 9.4

by Don Henderson, [Henderson Consulting Services LLC](#)

PROC STREAM and the DOSUBL function are little-known tools that became production in SAS 9.4 and are incredibly flexible and powerful. PROC STREAM provides a facility to use the SAS macro facility to generate text files containing virtually any type of text markup or code (e.g., HTML, XML, CSV, and yes SAS code).

The DOSUBL function provides an interface to immediately run SAS code in, for example, the DATA step, or when used with the macro %sysfunc function, SAS code can be embedded and executed in an input file and provides a different way to run SAS code.

This presentation will provide an overview/sampling of the kinds of things you can do with these powerful Base SAS tools. Examples may include:

- JavaScript toolkit based graphics
- XML spreadsheets as an alternative to DDE
- An HTML table with expand/collapse capability to show summary data
- As an alternative to using MFILE when you want to %INCLUDE it and get proper line number info
- Immediately executing SAS code on an observation by observation basis in a DATA step

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- (1) The Microsoft New England Research & Development Center (NERD) is a research and software innovation campus located in the heart of Cambridge, Massachusetts. The NERD vertical campus spans two buildings with its primary presence and conference center located at One Memorial Drive and a recently renovated and expanded space located at One Cambridge Center. NERD is home to some of Microsoft's most strategic teams including Microsoft Research New England, Microsoft Application Virtualization (App-V), SharePoint Workspace, Microsoft Technical Computing, Microsoft Advertising, Microsoft Lync, Microsoft Office 365 and more. NERD has become a hub of activity for the local tech community and has hosted more than 500 events and welcomed more than 40,000 visitors during the past two years.