Paper 244-28

Where to Go From Here: Learning More about SAS®

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Knowledge is of two kinds: we know a subject ourselves, or we know where we can find information upon it.
—Samuel Johnson

Abstract

The vast amount of information on the SAS System, particularly that available through the Web, can be overwhelming.

You can save time by knowing where to find the information you need. This paper is about the variety of information and media available and describes where to go to learn more about SAS.

Introduction

Not having the information you need when you need it leaves you wanting. Not knowing where to look for that information leaves you powerless. In a society where information is king, none of us can afford that.
—Lois Horowitz

Information about SAS comes from many sources and is contributed by many people, including SAS professional writers, SAS developers, conference presenters, those with their own Web sites, and people asking and replying to questions on SAS-L, the electronic discussion group.

Throughout this paper, we will refer to papers from SUGI conferences and information located at the SAS Institute's Web site. See the section "Conferences and Proceedings" on how to access SUGI papers and the section "Useful Web Sites" on how to access and browse the SAS Web site.

Using RESOURCES as an acrostic, we have divided this paper into these nine sections:

R – Regular Books
E – Education
S – System Help
O – OnlineDoc
U – Useful Web Sites
R – Reading News
C – Conferences and Proceedings
E – Examples of Code
S – Sharing with Others

Regular Books

The man who does not read good books has no advantage over the man who cannot read them. —Mark Twain

Let us begin with regular books, that is, printed material.

"What was the last computer book you purchased? Why? What is your favorite all time computer book? Why?" These questions appear as potential interview questions in the SUGI 25 paper "The Ultimate Match Merge: Hiring the Best SAS Programmers" by Neil Howard. Answers to these questions could indicate to the interviewer whether or not you are willing to invest in learning more and keeping up with your profession.

Books may seem expensive compared to getting information for free from the Web or from the SAS OnlineDoc® CD-ROM. However, consider the hours spent doing searches versus finding the information concisely and thoroughly presented in a book. In particular, you will save yourself time and frustration when you find and use those books that teach you how to use a specific tool, such as macros or Output Delivery System.

SAS Books. The getting-started type books and example type books are not on the SAS OnlineDoc. Most users seem to prefer this type of material to be printed.

SAS Publishing has produced an excellent book for beginning and intermediate programmers called *Step-by-Step Programming with Base SAS® Software*. It is a how-to guide for how to use DATA step programming and base SAS procedures. It contains many examples with explanations. It's a worthwhile book for your own or for your company's library.

Books By Users. BBU books are written by SAS users, and published by SAS Publishing. There are more than 50 BBU books. They cover a variety of topics, including SAS applications and examples. BBU books run the gamut from beginning books to those on specific topics, such as using SAS with health care.

A BBU book can be a time-saver. For example, the BBU book, *Your Guide to Survey Research Using the SAS System* by Archer Gravely gives code and information about analyzing the results of a survey and producing graphs.

Other Computer Books. In his SUGI 27 paper "10 Things Experienced SAS® Programmers Don't Know – But Should*",* Doug Zirbel lists the results of an informal survey

regarding the most important skills needed by experienced SAS programmers. Although it was not among the top 10 vote-getters, knowledge of system development life cycle processes was mentioned as important with a reference to the outstanding book *Code Complete*: *A Practical Handbook Of Software Construction* by Steve McConnell, Microsoft Press (1993).

Also consider general computer books and books specific to your industry. Browse your local bookstore, your local college library, your company library, and online for useful computer books. The online bookstores usually have reviews of the books by readers.

Which Books Will Be Useful To You? One way to decide which books will be useful to you is to browse the books in the publications area of the Demo Area at the regional and SAS international conferences.

Another way is to visit the bookstore of the publications department at the SAS Web site at www.sas.com. Click on *Publications* and then *Bookstore*. Here you will find the Publications Catalog with a description and price of each book. Many of the books have additional information, which includes the book's table of content, a sample chapter and SAS code used in the book. You can read book reviews and browse information about the authors. Finally, you can order books online and track your order.

Education

> *A man will be imprisoned in a room with a door that's unlocked and opens inwards; as long as it does not occur to him to pull rather than push.*
> — Ludwig Wittgenstein

SAS Training is available in many formats and is available from SAS Institute and other sources. Visit the Training section of the SAS Web site to see the various training and courses offered by the Institute. Here is a partial list of some of the types of training offered.

Instructor-based Courses. SAS Institute instructor-based courses are offered in many cities and before and after the SUGI conference. The Course notes that you receive in the course are also sold in the Publications area on the SAS Web site.

Online Learning. SAS Tutor available for license for your desktop, and the SAS OnlineTutor, available for license on the SAS Web site, is a course that teaches you how to write programming code to access, manage, analyze, and present data. It has lessons from writing program code to inputting data to producing drill-down graphs. It consists of about 50-60 hours of training. The SAS Online tutor training via the Web can be licensed for either 60 or 90 days or annually.

Live Web Classes. SAS Institute offers live Web classes. By using a Web browser and telephone, you can take the course and interact with the SAS instructor and fellow students in real time.

SAS Learning. The new SAS Learning Edition is a package that provides a hands-on experience way to learn SAS, particularly for students at educational institutions. It includes educational software (valid through December 2006), an Enterprise Guide tutorial, online help, and a turnkey customized installation. Go to the Publications section of the SAS Web site to learn about this package and its cost.

Certification Program. SAS Institute has a global certification program. One way to prepare for the certification exams is the Web-based SAS Certified Professional Training Guide that is available for a 60-day license.

Getting Started with SAS Software. The drop-down menu of SAS system help points to the "Getting Started" tutorial, which has hands-on experience using SAS software. This same tutorial is available at the SAS site. Select *Training→E-learning* and then click on *Free Tutorials* on the right side of the page.

UCLA Learning Module. Some of the SAS related Web sites mention the free tutorials called SAS Learning Modules from UCLA Academic Technology Services. The modules are at www.ats.ucla.edu/stat/sas/modules.

SAS Users Groups. Hands-on workshops and pre/post conference training are offered at the regional conferences and at the SUGI conference. Sunday Seminars on a variety of topics are offered for a fee before the SUGI conference. Local users groups usually offer some training at their meetings. Look at Users Groups at the SAS Web site.

Other Vendors Training. Other vendors offer training on SAS. You may see them advertising in users group newsletters, offering training at regional conferences, and staffing booths in the conference demo area.
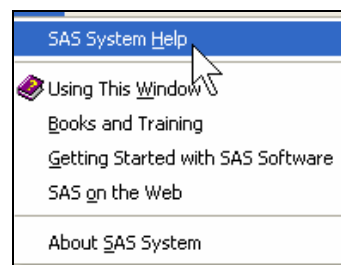
Adult Learning. Learning is a lifelong endeavor. Investigate courses in other topics, besides SAS, that are available through your local college or places offering adult learning. There are online classes (some are free) on varied topics from astrology to XML at Barnes and Noble University (www.barnesandnobleuniversity.com).
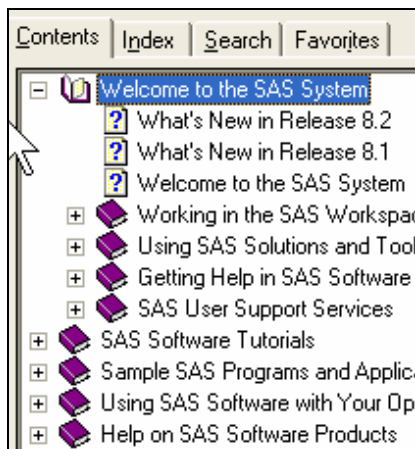
System Help

> *A ship in port is safe, but that's not what ships are built for.* — Admiral Grace Murray Hopper

The SAS System Help, accessible from within the SAS system, contains information about SAS software products, including the syntax of SAS procedures.

The Help drop-down menu in version 8 includes: *SAS System Help*, *Using this Window* (information about the currently selected window), *Books and Training* (SAS OnlineDoc and SAS/Tutor), *Getting Started with SAS Software* (tutorial), *SAS on the Web* (link to www.sas.com), and *About SAS System* (information about the SAS release on your system).
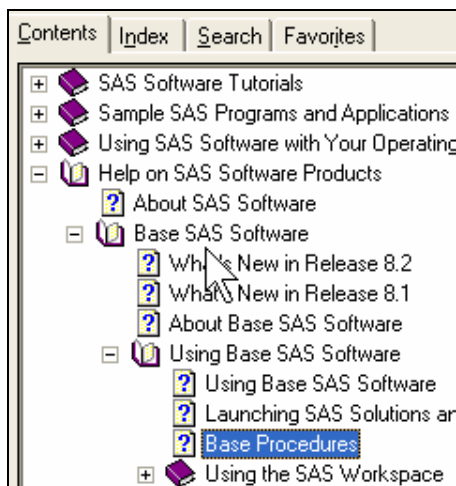
After opening the SAS System Help, click on the Contents tab to see the table of contents. Go down and expand the Welcome to the SAS System chapter. Here you will see the *What's New* sections. When you get a new release of SAS, browse this section for new features and enhancements.

Go down and expand all of the sections of interest to become familiar with the System Help. By becoming familiar with the layout, it will be easier to find the information when you are in a hurry.

As pointed out in the SUGI 27 paper *"Online Docs and Help: Tips for Old Dogs and New Pups"*, it is somewhat difficult to find the list of procedures in the Version 8 System Help. Here's the expanded list to show the location of the base procedures.

Once you locate the list of procedures, you may want to add it to the Favorites tab. If you are on a help page to which you want to return, then click on the Favorites tab, and click the add button at the bottom of the screen. If the name listed is not clear to you, then right mouse click on the name and rename it.

Another useful feature is the ability to put your cursor on a PROC name in the program editor and press F1 to go directly to the help for that procedure. For example, you are in the editor window and have typed PROC TABULATE and cannot remember the syntax. Put your cursor on TABULATE and press the F1 (help) key. Up pops the help window on that procedure.

Both SAS OnlineDoc and SAS System Help are covered in detail in the SUGI 27 paper "Online Docs and Help: Tips for Old Dogs and New Pups".

Using This Window. One of the menu items in the Help drop down menu is *Using This Window*. Click on this item to find out information about your currently active window. This is helpful for finding out features about commonly used windows and learning how to use a new window, such as the Query or Graph-N-Go Windows.

Version 9. Help and online documentation are now combined in Version 9. To access, select *Help and Documentation* from the drop-down Help menu.

OnlineDoc

> *"Joy in looking and comprehending is nature's most beautiful gift."* — Albert Einstein
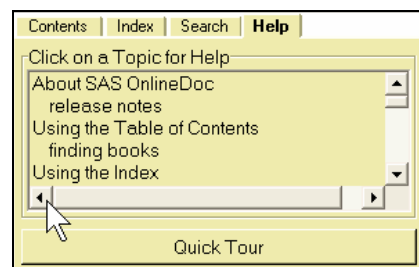
In 1976 there was one SAS manual, *A User's Guide to SAS 76*. It consisted of 330 pages and documented the 33 procedures in SAS 76. In 1996, there were more than 340 manuals and more than 100,000 pages. A quick calculation indicates that both the number of manuals and total pages doubled about every 2 ½ years.

Fortunately, SAS documentation is available online on the Web and on CD-ROM. The SAS OnlineDoc Version 8 CD-ROM contains 45 books and 21,000 pages of reference documentation. These books would cost over $2000. The CD-ROM is easier to carry around than a stack of reference manuals. You can also access the SAS OnlineDoc on the Web.
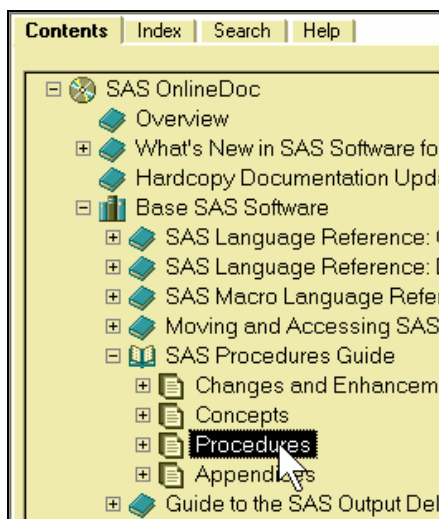
The SAS OnlineDoc includes descriptions of concepts, statements, functions, formats and procedures; documentation for specific operating environments; and examples for each procedure.

The HTML version is distributed free with the SAS version 8 software. With the HTML version, you can only print the pages individually. If you want to print chapters of the books easily, you can purchase the SAS OnlineDoc, with PDF Files CD-ROM for $199.
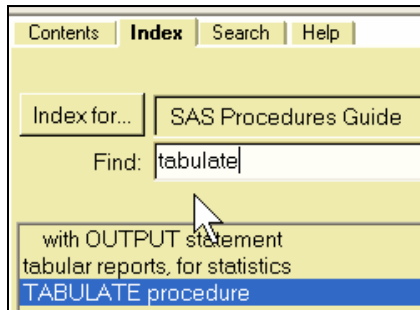
Using SAS OnlineDoc Version 8.2. From the menu bar of the SAS windowing environment, select Help and then Books and Training and then SAS OnlineDoc. This opens up the OnlineDoc in your Web browser. The SAS OnlineDoc can also be opened from your Web browser without starting a SAS session. Go to the Help tab and click the Quick tour button at the bottom of the screen to learn how to use the OnlineDoc.
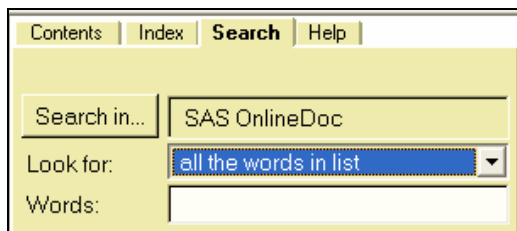
You can access the material through a table of contents, index, or text search. Browse the table of contents by selecting the Contents tab. Select the +/- sign next to each section to expand/collapse the table of contents.
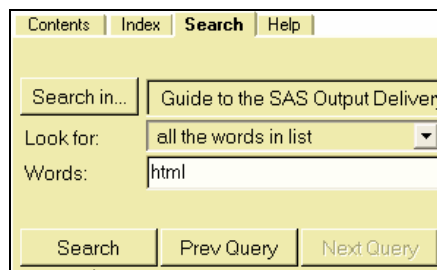

Select the Index tab to get the master index to all of the books. If you want to display an index for a specific book, use Index for ... to select the book. Being able to only search the index of a specific manual saves time.

The **Search tab** gives you access to text searching across all of the OnlineDoc. We recommend that you change the "Look for:" field to "all the words in list".
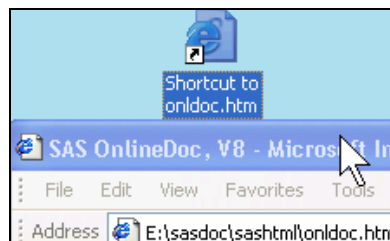

Enter the words in the Words field and click the Search button. Click one of the results listed to see it displayed in the window. The results are grouped by manual. You can also specify an advanced search criteria or just search within a particular book.

There is no Favorites tab in the OnlineDoc as there is in the System Help. However, you can add the page as a bookmark in the browser. Right mouse click on the bookmark to rename it to a more descriptive name. It would be best to organize bookmarked pages in a folder, such as one named "SAS OnlineDoc".

You can click on the icon by the address in the Address tool bar and drag it to your desktop to create a shortcut. Also create such a shortcut to the title page to reference the OnlineDoc without starting a SAS session.

The OnlineDoc and, in particular, this topic on bookmarking are covered in more detail in Mike Rhoads' and Deb Cassidy's SUGI 27 paper *"Online Docs and Help: Tips for Old Dogs and New Pups"*.

If you have any trouble setting up the SAS OnlineDoc, see the Technical Services information, *TS-646 User Troubleshooting Guide for SAS Online Documentation*. Your SAS config file may have an extra, but incorrect, pointer to the OnlineDoc if you have re-installed SAS Version 8.

Using SAS OnlineDoc on the Web Version 8 and 9. The SAS OnlineDoc is available in HTML format from the Web under SAS Publishing at the SAS Web site. You will need to first register online to use it. The userid and password are e-mailed to you promptly.

SAS OnlineDoc Version 9. Help and online documentation are combined into one resource from within your SAS session Version 9. The Version 9 installation installs only the documentation for the software licensed by your site. To reference SAS documentation from outside of your SAS session, SAS OnlineDoc 9 can be accessed at the SAS Web site by registered users. To register go to www.sas.com/v9doc. You can also purchase a CD-ROM to use from your Web browser.

Useful Web Sites

"*By means of electricity, the world of matter has become a great nerve, vibrating thousand of miles in a breathless point of time ... The round globe is a vast brain, instinct with intelligence.* — Nathaniel Hawthorne, 1851

With so much information now online, it is exceptionally easy to simple dive in and drown.—Alfred Glossbrenner

In his book *Information Anxiety*, Richard Saul Wurman writes:

If Orwell were writing 1984 today, he would not say, "Destroy the information." He would say, "Inundate people with information, they'll think they're free. Don't deny them. Give them more. Undigested information is no information at all, but it creates the fiction that you *have accessed it, even though you didn't benefit from it.*"

On the Web, you are inundated with so much information that it is overwhelming. The Internet is growing so rapidly that it is difficult to keep up with all the information and services. Therefore, it is useful to know where to look.
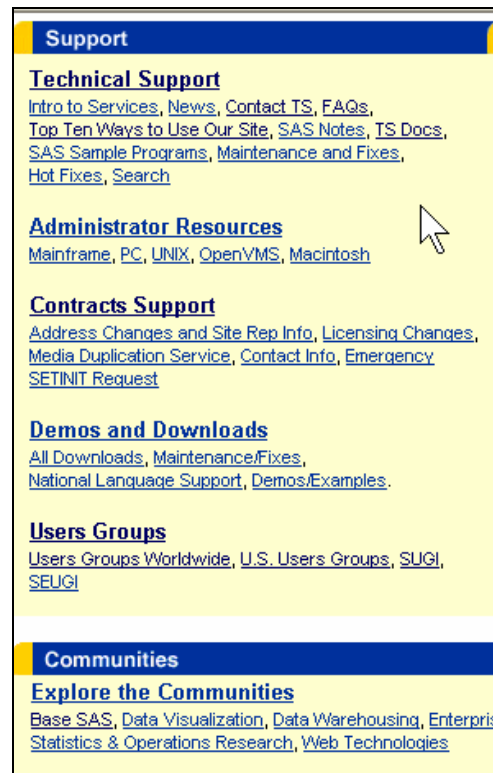
The screen shots listed in this paper are the way the contents of the Web site looked when this paper was written. Remember that the look and feel of the site may have changed by the time you read this paper.

SAS Institute's Web Site. SAS Institute's site is both for those who are interested in learning about the SAS products and for those who are already using SAS software. The home page is located at www.sas.com.

As a user of SAS software, you will want to choose Service and Support located on the lower left side of the home page. It's the bar above the list of departments.

Next, you will see the following screen.

One of your primary areas of interest will be the pages listed under Technical Support.

The first place to visit is Top Ten Ways to Use Our Web Site.

The Contact TS explains how to contact Technical Support about a problem. You can do an online problem or question submission or contact them at (919) 877-8008. You will be asked for your site number. The site number is displayed in the log when you first start the SAS System.

The SAS knowledge databases, known as SAS Notes, are where to search for information about a problem with SAS software and not your code. The databases contain information on known problems, fixes, documentation errors and corrections, usage issues and tips.

TS Docs is Technical Support Documents. Browse the index by number and review the titles of all the documents. You will find some gems here. For example, TS-664 *A DATA Stepper's Introduction to ODS* gives examples of using ODS in the data step *and TS-654 Numeric Precision 101* gives *a* basic overview of numeric precision and representation in SAS applications.

Be sure to visit Communities listed at the bottom of the Service page. It is a collection of information about a common area, such as Base SAS or Web Technology. If you are interested in ODS, the Output Delivery System, then go to ODS Resources in the Base SAS Community.

Under the Service topic, you will find Training and SAS Publishing. These departments were referenced earlier in this paper.

For more information about the SAS Web site, see the SUGI 27 paper "Tips, Downloads, Samples, and Training – Discover the Service and Support Web Site" by Renee Harper.

Other SAS Resource Sites. Other Web sites of interest to SAS programmers are those with collections of documents about SAS, collections of SAS code, SAS tips and the various sites that demonstrate running SAS programs from the Web. Some of these sites are supported by regional and special interest users groups and can be reached from the SAS Web site by selecting *Services and Support → Users Groups*. Then follow the link to a specific users group and see if there is a link to its Web site. Remember to bookmark sites of interest.

The SUGI 26 Paper "Internet and Web Resources for SAS Programmers and Statisticians" by Wei Cheng, gives an extensive list of SAS related Web sites. It is divided into categories, such as Useful Resources, Statistics Resources, Tutorials And Tips, and Personal SAS or Statistics Pages. An updated listing of resources is kept by Wei Cheng at www.geocities.com/prochelp. Use the table of contents listed in the frame on the right of the Web page to select a category.

E-newsletters. The following newsletters offer tips and techniques and are available online. SAS Views is the newsletter of the Independent UK SAS User Group. It is available at www.views-uk.demon.co.uk.

Ratcliffe Technical Services Web site offers an hints and tips e-mail newsletter at www.ratcliffe.co.uk.

SAS Related WebRings. WebRings are a collection of related sites. Any site that is part of a specific ring will have a navigational bar with links to sites within the ring.

There are 2 WebRings related to SAS software: The SAS Software WebRing (51 sites) and SAS FAQ's, Hints and Tips WebRing (9 sites). When using the WebRing, we found broken links and sites without the navigational bar.

Therefore, it is easier to follow the links from the WebRing pages at:

d.webring.com/webring?ring=sassoft;index
d.webring.com/webring?ring=sasfaq;index

Other Web Sites. The best way to discover what is available on the Web is to use a search engine. Well known search tools are Yahoo (www.yahoo.com) and Google (www.google.com).

For example, if someone sends you an e-mail that you think is a hoax, check it out with a Google search. Another place to check if a story or e-mail is a hoax is at the urban legends page at www.snopes.com.

In doing a Google search on the keywords "find data Internet", we found Robert Niles' page "Finding Data on the Internet". Niles is a journalist at latimes.com. The site is www.robertniles.com/data/. The page has links to a number of general interest sites for researchers and journalists and a link to his page tutorials on statistics and reporting. Niles' simple explanations of basic concepts in statistics might be helpful when you need to explain one of the concepts to someone else.

Web Skills. When searching, be careful of your time. The Web has a lot to offer. At the same time, it can be a time sponge. You can spend hours reading discussion groups and doing searches. You can find an enormous amount of information of which only a small portion is useful or you can find some extremely beneficial information. Just remember to keep your goal in mind and set a mental alarm clock.

Not all sources on the Web are equally valuable or reliable. When visiting sites while researching this paper, we found resources that were out-of-date or biased. Therefore, use your critical thinking skills when finding information on the Web.

Reading News

The more that you read, the more things you will know. The more that you learn, the more places you'll go. — Dr. Seuss

SAS-L is the most active SAS users group. It is a mailing list group devoted to the discussion of SAS software and has been in existence since 1986. It is also available as a newsgroup.

Join SAS-L so that you can give and receive SAS expertise. Once you start reading SAS-L messages, you will find that there are several SAS experts who consistently assist SAS users with their SAS questions.

There are thousands of people who read the SAS-L messages. Here are 3 ways to read the messages. You can subscribe to SAS-L and receive the messages in your mailbox. You can read the messages in the newsgroup through a newsreader client on your computer. Finally, you can read the messages through the Google Groups Web page.

Subscribing to SAS-L. To subscribe to the SAS-L discussion group, send an e-mail message to the address

LISTSERV@UGA.CC.UGA.EDU. In the body of the message, type:

SUBSCRIBE SAS-L your name

You may receive each message separately or you may get a daily compilation of the day's messages by sending the list server the message:

SET SAS-L DIGEST

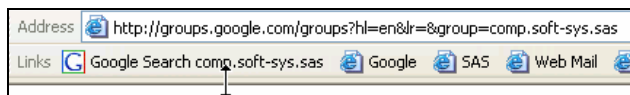To leave the list, send to the list server, the message:

UNSUBSCRIBE SAS-L

Newsgroup COMP.SOFT-SYS.SAS. You may want to view the messages via the newsgroup comp.soft-sys.sas. The advantage is that you don't have mail coming directly to your mailbox. The disadvantage is that messages on the newsgroup may be a few hours old.
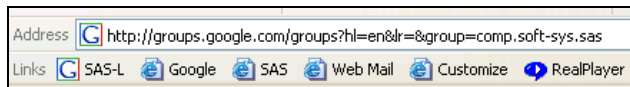
You can set up the newsreader client on your computer to access this newsgroup.

The easier way to view the newsgroup is to use Google Groups from your Web browser. Go to www.google.com and click on the Groups tab. It can also be found at groups.google.com (or even www.dejanews.com which is now the same as Google groups). Once you have the group messages listed, bookmark it or put it on the Links toolbar of your Web browser.

With the Internet Explorer, you can drag the address in the Address box to the Links toolbar.
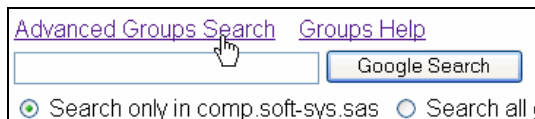

Then shorten the text of the link by right mouse clicking on the text next to the icon and renaming it "SAS-L". This way you can quickly call up the SAS-L group by clicking on your newly created link SAS-L.

Searching the SAS-L Archives. The SAS-L archives, a repository of previously sent messages, is a good source of information to search for answers. At the Google Group, you can search the archives. They are maintained back to July 20, 1993 for the SAS newsgroup. This first message announces the creation of the unmoderated newsgroup "comp.soft-sys.sas The SAS statistics package."
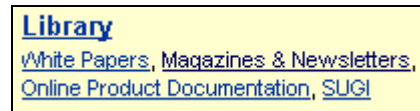
Be sure to check "Search only in comp.soft-sys.sas".

Use the Advanced Group Search to limit the date. Fill in the newsgroup name comp.soft-sys.sas.

Also, you can search the SAS-L archive at: www.listserv.uga.edu/archives/sas-l.html

E-Newsletters. Sign up for SAS Institute's e-newsletters *Your SAS Business Report* and *Your SAS Technology Report*, which are delivered on alternating Tuesdays. You can quickly read the few entries in the e-mail and select the links to articles of interest on the SAS Web site. To subscribe, go to Service and Support on the SAS Web site and select Magazines & Newletters under the Library section.

TSNEWS-L E-Mail. Technical Support sends e-mail Alert Notes and announcements to subscribers of TSNEWS-L. Send an e-mail message to LISTSERV@VM.SAS.COM to subscribe. In the body of the message, type: SUBSCRIBE TSNEWS-L your name

Conferences and Proceedings
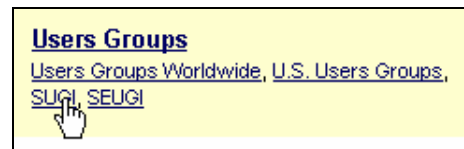
None of us is as smart as all of us.
  —Anonymous

SAS conferences offer numerous benefits, such as a place to talk with your peers, exchange ideas, attend papers on topics of interest to you and talk to SAS staff in the demo areas. They also offer hands-on workshops and pre /post conference training. Go to Users Groups on the SAS Web site to find out more about local, regional and international users groups and conferences.
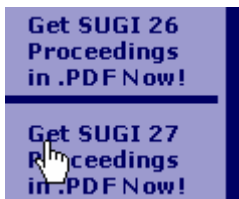
The conference *Proceedings* is a compilation of the papers and posters given at the conference. If you attend the SAS International Users Group (SUGI), you will get a CD-ROM version of the Proceedings. It usually has the current and the two previous conference *Proceedings*.

The SUGI *Proceedings,* beginning with SUGI 27, are also located at the SAS Web site. The Web version of the *Proceedings* is not searchable. Therefore, you will need to expand the sections on the Title page until you find the paper you want to read. You can purchase previous Proceedings from the Publications page at the SAS Web site.

To get to the *Proceedings* online, choose *Service and Support* and then *SUGI* under *Users Groups.*

Next select Online Proceedings. Then select which of the SUGI Proceedings in PDF that you want.

NESUG (The NorthEast SAS Regional Users Group) has their proceedings from 1997 to present available online at their Web site at www.nesug.info.

Notes About the Acrobat Reader. You will use the Acrobat Reader from your Web browser to view and print papers from the *Proceedings*, which are stored in Adobe PDF format. Download the Acrobat version with search capabilities by checking the box entitled "Include option for searching PDF files".

Adobe Acrobat Reader 5 allows you to select and cut columns of text, which is useful for cutting sample code from a paper. Attached to each document is certain security and permission parameters, such as restrictions on printing, copying, or cutting text from a document. You can view, but not change, the security settings for a PDF file by selecting *File* and then *Document Security* from the document pane of Acrobat Reader.
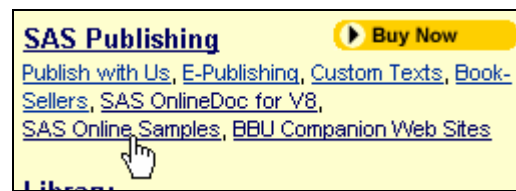
Examples of Code

> *The limits of my language are the limits of my mind. All I know is what I have words for.*
> — Ludwig Wittgenstein

Examples are an excellent way to learn about a procedure or feature. Examples of SAS code are located in many places. Usually you just need to select and copy the example into the editor window of your SAS session, check that you have any needed data and the libnames and filenames that point to data are correct for your operating system and then run the code.

Examples in SAS OnlineDoc. The OnlineDoc has many examples for the procedures. Usually any needed data is included with the code. You can see the Results by clicking on the Listing or HTML Results icons listed after the example. You can compare your results of running the code with the Results listed with the example.

Examples in the Conference Proceedings. Usually the papers in the conference *Proceedings* are in 2 columns. Adobe Acrobat reader 5, allows you to select and cut columns of text. This is useful if you want to cut examples of code from a paper in the *Proceedings*.

Examples in Books by Users and SAS Books. SAS Publishing has the example code from SAS Institute and BBU books. At the SAS Web site, go to Services and Support and click on SAS Online Samples under SAS Publishing for a list of books with sample code.

Examples in Technical Support. Staff within SAS Technical Support have written sample code. For a list by products or to search for a sample, visit the SAS site and go to Service and Support and select SAS Sample Programs under Technical Support.

Sample Library. The Version 6.12 sample library consists of over 1250 files and can be accessed through SAS Sample Programs under Technical Support mentioned above.

Sample Library from SAS System Help. The Samples from the Version 7 and above Sample Libraries are not on the Web Site. You can access them from the SAS System Help. After accessing Help in Version 8, click on the Contents tab and then on *Sample SAS Programs and Applications*. Under Version 9, click on *Learning to Use SAS* and then on *Sample SAS Programs.*

You can select, cut and paste the example into the Editor Window.

If the Sample SAS Programs are not accessible, please ask your SAS Installation Representative for the location of your local Sample Library or look on the distribution media for the SAS software.

Examples in SAS Community Page. Visit the SAS Communities on the SAS Web site for sample code in the various areas, such as ODS examples under the Base SAS Community or web-enabled data visualization samples under Data Visualization.

Saved Code Created in SAS Windows. There are a few Windows in the Windowing environment that use point and click to generate results. Some of these windows are Graph-N-Go, the Query Window, and Analyst Application.

They have the capability to also save the SAS code that generated the result. You can save the code to review and learn from it or to use it as a starting point for further development. To learn how to save the code, review the help for the particular active window by selecting *Using this Window* from the drop-down help menu.

Examples Of Code on SAS Resource sites. Some of the university, personal, and company Web sites also have examples of SAS code. You might have some success in finding code by doing a Google search, such as searching for "SAS code Tabulate".

Examples Of Code Written At Your Company. Don't forget to review code that is written at your company. You will want to get the company standards, if any, for writing and documenting SAS code.

Sharing with Others

> *You make a living by what you get. You make a life by what you give.*
> — Winston Churchill

Seek Out The SAS Expert. You probably know who is the SAS expert at your company and who is willing to answer questions and help with problems. If not, there is a designated SAS representative at your company. The site representative name is listed at the SAS Web site. Go to Services and Support and select Site Rep Info under Contracts Support.

You will be e-mailed the information.

Giving Back. When you feel comfortable using SAS, consider giving back to the SAS community by providing information to others. Exchange ideas and share expertise with your colleagues and within your organization. Become involved in a users group, SAS-L and conferences.

Users Group. Participating in a users group is one way of getting and sharing information. A list of the local, regional and special interest users groups is available from the SAS Web site. You will also find links to users groups that have their own homepage.

Conferences. Attend the annual SUGI conference, SEUGI conference and regional conferences. A list of the dates and locations can be found at the SAS Web site.

The international and regional conferences are planned and organized by SAS users, like you, who generously donate their time and talents. Volunteers are always needed and essential to the continued success of the conferences. A partial list of tasks and talents needed is section chairs, session coordinators, speakers, and judges. Regional conferences also need publication and registration coordinators, registration staff, and coordinators for the facilities, audio-visuals, special events, and pre and post-conference courses.

So, if you don't want to speak or give a poster, remember that there are many other ways to share your talents, time, and expertise at a conference.

Conclusion

> *Not everything that can be counted counts, and not everything that counts can be counted.* — Albert Einstein

There is a wealth of information about the SAS System ranging from hardcopy books to online discussion groups. This paper gave an overview of the resources available to help you find the answer.

Knowing how and where to find the answer, not necessarily knowing the answer, is an important skill for a SAS programmer to have.

References

Hawthorne quote about the invention of the telegraph is from remarks prepared for delivery by Vice President Al Gore, International Telecommunication Union, March 2, 1994.

Cheng, Wei, "Internet and Web Resources for SAS Programmers and Statisticians*", Proceedings of the Twenty-Six Annual SAS Users Group International Conference,* Paper 239-26.

Harper, Renee, "Tips, Downloads, Samples, and Training – Discover the Service and Support Web Site", *Proceedings of the Twenty-Seventh Annual SAS Users Group International Conference,* Paper 233-27.

Howard, Neil "The Ultimate Match Merge: Hiring the Best SAS Programmer", *Proceedings of the Twenty-Fifth Annual SAS Users Group International Conference,* Paper 245-25.

Rhoads, Mike and Deb Cassidy Online Docs and Help: Tips for Old Dogs and New Pups, *Proceedings of the Twenty-Seventh Annual SAS Users Group International Conference,* Paper 234-27.

Wurman, Richard Saul. *Information Anxiety*, Doubleday Edition, 1989.

Zirbel, Doug, "10 Things Experienced SAS® Programmers Don't Know – But Should", *Proceedings of the Twenty-Seventh Annual SAS Users Group International Conference,* Paper 240-27.

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