

## Technical Resources for Beginning SAS Programmers

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### Abstract

Between SAS® Technical Support, support.sas.com and the SAS help tools within a SAS installation; there are many free resources that can help accelerate ones learning, problem solving and troubleshooting abilities. These are valuable for SAS developers that are new to SAS or new to a particular SAS module, product or solution. Leveraging these free resources will result in more efficient and better SAS development.

### Introduction

This paper intends to highlight information that is easily obtainable and free for any SAS user or administrator whether they are new to SAS or just new to a particular area of SAS. Some of the reference materials will be obvious while some of the others will not be so obvious. There is often information from your company and colleagues that will be particularly helpful as a resource in your day to day work.

<http://www.support.sas.com>

The screenshot shows the SAS Customer Support website in a Mozilla Firefox browser window. The browser's address bar displays <http://support.sas.com/index.html>. The website's header includes the SAS logo, the tagline "THE POWER TO KNOW.", and a search bar. Below the header is a navigation menu with links to "support.sas.com", "Knowledge Base", "Support", "Training & Bookstore", and "Community". The main content area is titled "SAS CUSTOMER SUPPORT /" and features a sidebar with a "KNOWLEDGE BASE" menu. The main content area includes a "SAS Global Forum 2011" announcement, a "SAS Web Report Studio Performance Improvements" article, and a "SAS Software" section with links to "What is SAS 9.2?", "Do I need maintenance?", and "Product A-Z Listing". There is also a "SPOTLIGHT" section for "SAS Statistical Procedures Discussion Forum" and a "Featured Book" section for "Statistical Programming in SAS". The bottom of the page has a "Dione" footer.

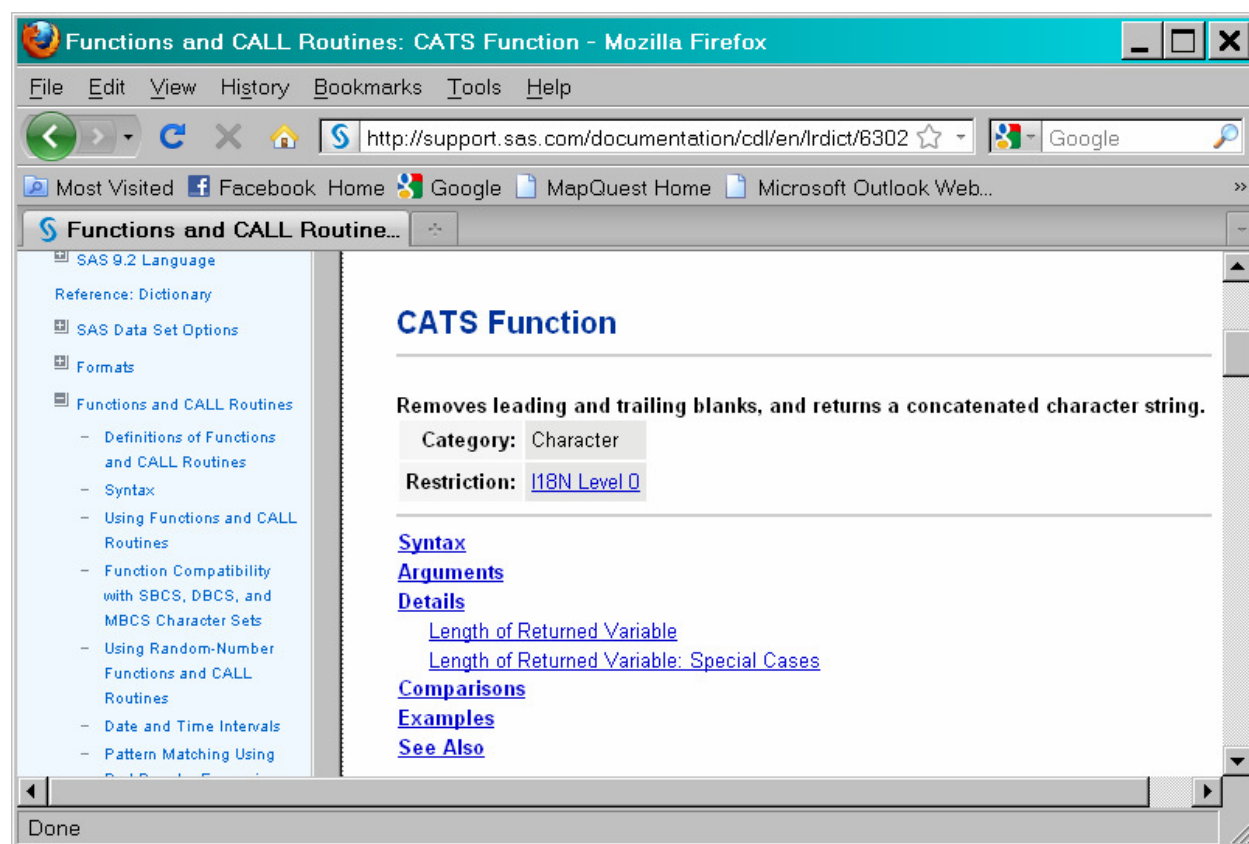
You will notice that along the left hand side of the page, there are four major sections: Knowledge Base, Support, Training & Bookstore and Community.

### Knowledge Base

The Knowledge Base is a very useful area for reference materials. This section is further divided into more sub-sections.

If you are a person responsible for deploying SAS software, the following sections will be very valuable: “System Requirements”, “Install Center” and “Third-Party Software Reference”. These sections contain materials with step by step processes for pre-installation, installation, and post-installation activities.

The “Documentation” section contains online documentation for versions spanning from SAS 8.2 through SAS 9.2. The reference area for each version contains a section called “What’s New in SAS” as a handy area to keep up with the new features and functionality when that version was released. For example, under “documentation”, if I click on “SAS 9.2”, a search facility comes up. If I need information on the CAT function, I can easily drill down to documentation as below:



As you can see, complete documentation along with examples and similar functions is right at your fingertips.

### Support

The support area is a convenient place to interact with SAS Technical Support. If you are experiencing a problem and you need input from SAS, this area, use the links “Submit a Problem”, “Update a Problem”, and “Check Problem Status”. You can also call in using the SAS Technical Support line of 919-677-8008. You will need your SAS Site number from the top of your SAS log to use these services.

### Training & Bookstore

In addition to a plethora of SAS books, Books by Users and SAS Tip Sheets, there is also information about “Training” and “Certification”. Although, these are not free, it is a place to plan your SAS training.

### Community

The SAS Community area is a place to explore for information about events, discussions, tips, etc. Below is an excerpt from the SAS Community website explaining in more detail.

## Users Groups

Whether you're a seasoned SAS software user with experiences to share or a newcomer who'd like to interact with other users, a users group is an excellent way to help you get the most value from the SAS System. These autonomous organizations can be found around the globe on the local, regional, international, special-interest, and in-house levels. Many users groups hold regular meetings and sponsor conferences and Web sites.

## Events

We've expanded the events calendar to include a permanent listing of major SAS-sponsored conferences and events. The events page also includes a list of up-coming webcasts and podcasts that are of interest to SAS customers.

## e-newsletters

SAS e-newsletters deliver timely news right to your desktop via the Web. The following newsletters are written for current SAS users. They provide SAS software users with technical tips, information about new books and training classes, announcements about online documentation and general news items, as well as a current list of technical events.

## Author with SAS

SAS Press books are written by SAS users for SAS users. Get the scoop on our publishing program, authors, featured articles and promotions, author podcasts, free sample code, and more.

## RSS & Blogs

If you want real-time information from SAS, be sure to subscribe to our RSS feeds. You can get feeds for SAS Notes, SAS Samples and customer success stories, among others. Our blogs allow you to hear from SAS personnel, in their own words. SNOTES-L and TSNEWS-L, two Listservs from Technical Support, distribute information about the availability of SAS Notes and technical information to customers. Find out what's happening on support.sas.com and in SAS R&D.

## Discussion Forums

SAS Discussion Forums are an online resource for peer-to-peer information exchange. SAS employees occasionally drop into a forum with an informational post or help for a difficult question. The discussion forums are not a replacement for SAS Technical Support.

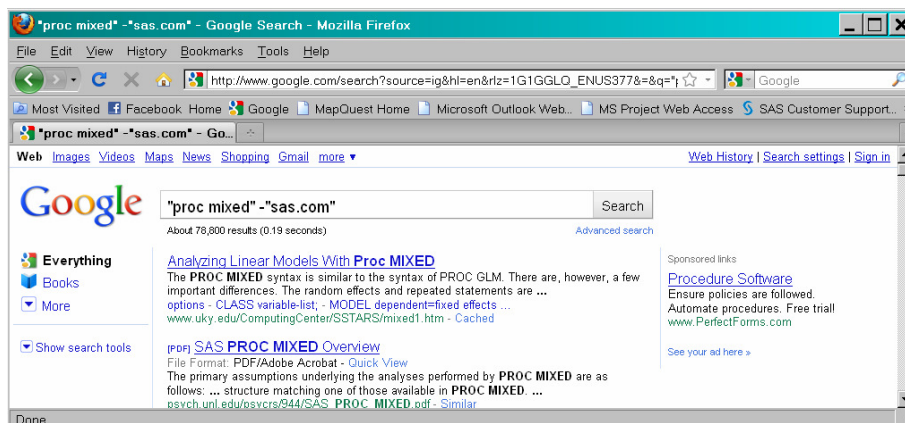
## sasCommunity.org

sasCommunity.org is a Web site managed and populated by SAS users. You are invited to add technical articles to the site to share your knowledge and help other users of SAS software. If you aren't ready to share, then stop by, visit, and learn.

## **Google It!**

We can not have a discussion about resources without mentioning Google. Although most of the results that come up when using Google will point back to the SAS support website, there are times when good reference materials are discovered at SAS consulting and university web sites. One way to avoid SAS web site results returned is to add a "-sas.com" to the search request.

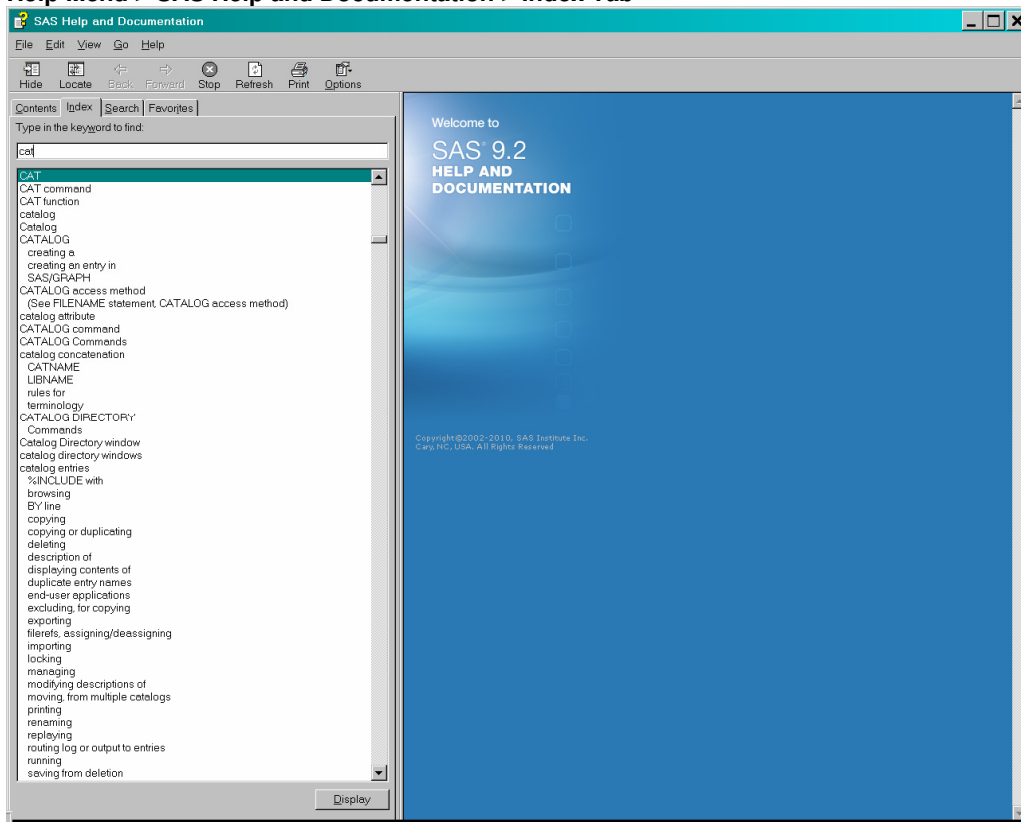
For example, if you wanted to find information about PROC MIXED but wanted to find sources other than the SAS web site, just specify ***"proc mixed" -"sas.com"***



## SAS Software Help / Tutorials

The SAS Help and Documentation is similar to the online documentation from support.sas.com web site. The look and feel is a little different because this is a thick client that is within SAS Display Manager versus a web based application.

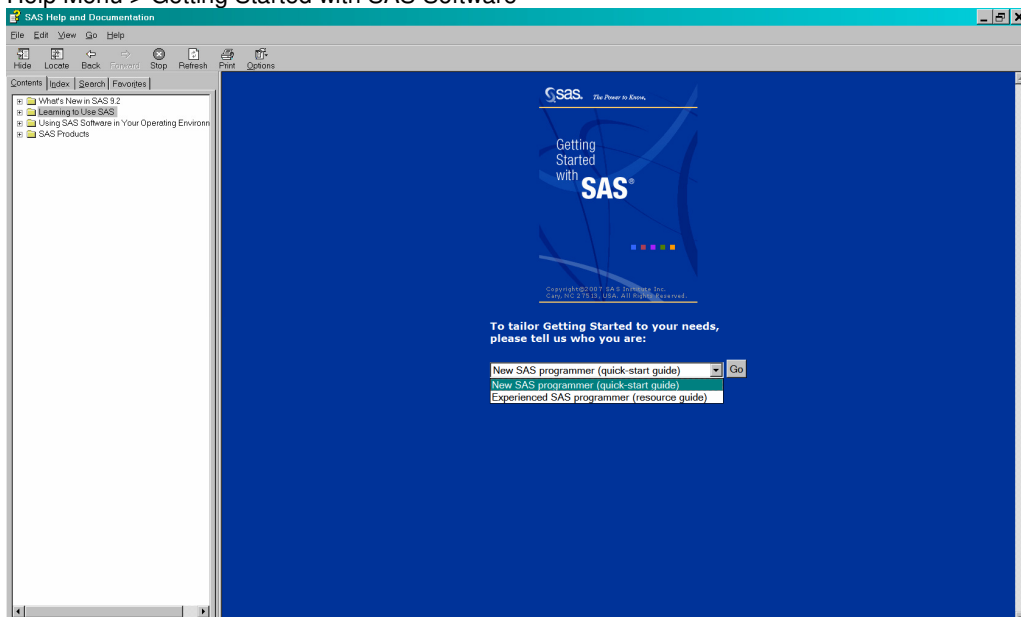
### Help Menu > SAS Help and Documentation > Index Tab



An extended demonstration will take place in the presentation.

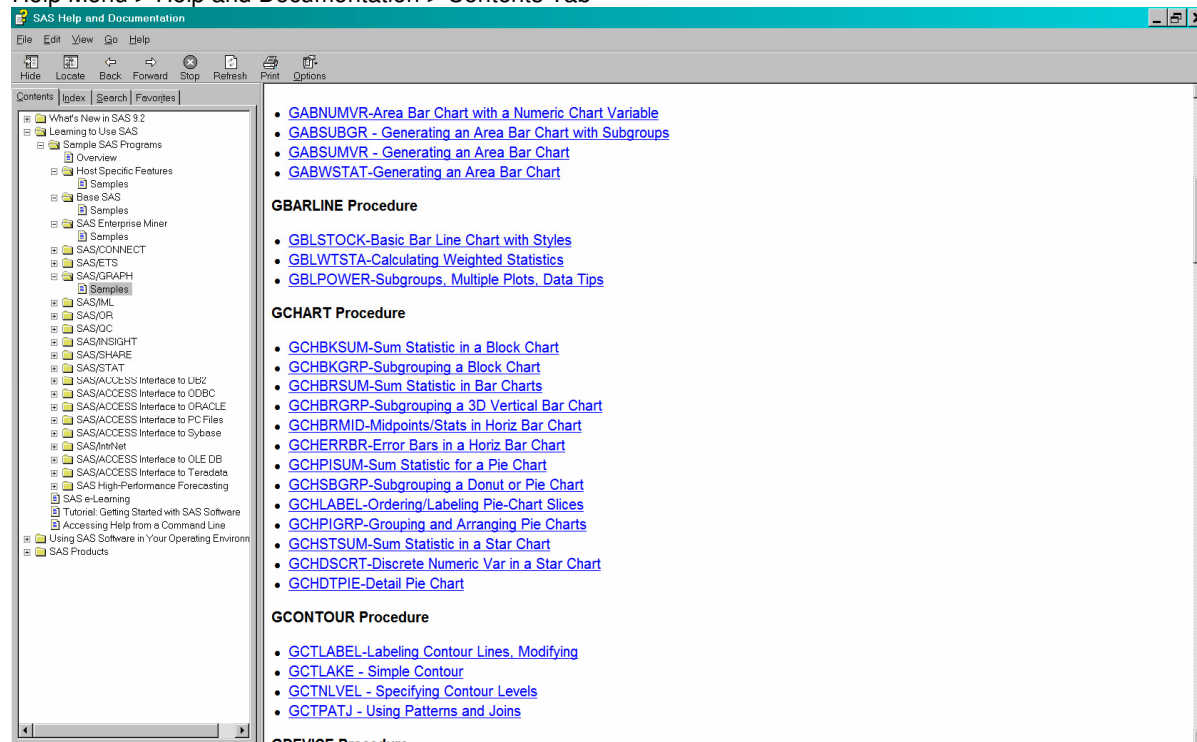
## SAS Tutorial

### Help Menu > Getting Started with SAS Software



## SAS Sample Programs

Help Menu > Help and Documentation > Contents Tab



These sample programs match up with sample programs within your SAS installation. Many of these sample programs are also available from the SAS online documentation at [support.sas.com](http://support.sas.com).

## SAS Internal / SAS Automatically Generated Programs

Within your SAS installation are SAS programs that have been written by SAS Institute developers. What better place to pick up tips and tricks for SAS development? An example follows:

### SAS Supplied Macros such as %left

Code executed when %left(<text>) is called.

**SASROOT!\core\sasmacro\left.sas**

```
%macro left(text);
%*****
%*   MACRO: LEFT                               *
%*                                     *
%*   USAGE: 1) %left(argument)              *
%*                                     *
%*   DESCRIPTION:                             *
%*   This macro returns the argument passed to it without any *
%*   leading blanks in an unquoted form. The syntax for its use *
%*   is similar to that of native macro functions.              *
%*                                     *
%*   Eg. %let macvar=%left(&argtext)          *
%*                                     *
%*   NOTES:                                   *
%*   The %VERIFY macro is used to determine the first non-blank *
%*   character position.                                     *
%*****
%local i;
%if %length(&text)=0 %then %let text=%str( );
%let i=%verify(&text,%str( ));
%if &i %then %substr(&text,&i);
%mend;
```

There is also SAS code generated from SAS applications such as SAS Enterprise Guide and SAS Data Integration Studio. Reviewing this code may be helpful to you to learn features of SAS.

### **Existing SAS Programs at your Site**

In the SAS Software language, there are many different ways to code a solution to the same problem. It is beneficial to review SAS programs written by others at your company to pick up on styles for coding and documentation (or lack thereof!). When reviewing others programs, you will run across features and functionalities that you are unfamiliar with. Much can be learned from discussing programming approaches with peers at your site.

One of the best ways to learn and share insights is to have code walk-through sessions with your colleagues as a brown bag lunch or meeting.

### **Standard Operating Procedures / Best Practices at your Site**

At many companies that use SAS, there are written standard operating procedures or best practices for writing, documenting, maintaining and placing SAS code into production. This is a must read in order to learn and exist in your SAS coding environment.

### **SAS Global Forum /User Group Proceedings**

Even if one cannot make it to a user group meeting, the proceedings can be a valuable resource. The following web sites have facilities for searching past conference proceedings.

#### **SAS Global Form**

<http://support.sas.com/events/sasglobalforum/2011/index.html>

#### **Southeast SAS Users Group (SESUG) Conference**

[www.sesug.org](http://www.sesug.org)

#### **MidWest SAS Users Group (MWSUG) Conference**

[www.mwsug.org](http://www.mwsug.org)

#### **Western Users of SAS Software (WUSS) Conference**

[www.wuss.org](http://www.wuss.org)

#### **South Central SAS Users Group (SCSUG) Conference**

[www.scsug.org](http://www.scsug.org)

#### **NorthEast SAS Users Group (NESUG) Conference**

[www.nesug.org](http://www.nesug.org)

There are also many local, in-house and special interest user groups that are more local in scope but have many great resources available.

<http://support.sas.com/sasusersupport/usergroups/findGroup>

### **SAS Reference Documentation**

There are numerous SAS reference documents that can be downloaded as a PDF document from the SAS web site that are very good resources to use for learning SAS. One such document is "Step by Step Programming with Base SAS Software".

### **Other SAS Web Sites**

As mentioned earlier, there are numerous other web sites available from SAS Partners and Universities.

## **Conclusion**

The resources for learning about SAS features and functionalities are plentiful if you know where to look. It is important to understand what resources are available and where to find these resources if you want to become knowledgeable and efficient when using the SAS applications and language.

## **Recommended Reading**

All resources mentioned above! If you see some that I have missed, please e-mail me so I can include them the next time I present this paper.

## **Contact Information**

Your comments and questions are valued and encouraged. Contact the author at:

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