Custom Google Searches, PDF Sticky Notes, and Other Tips for Organizing and Accessing SAS® Help Resources

Roger D. Muller, First Phase Consulting, Inc., Carmel, IN
Joshua M. Horstman, First Phase Consulting, Inc., Indianapolis, IN

Abstract

Today's SAS® programmer enjoys access to a wide variety of electronic SAS help resources, both from SAS Institute and other sources. These include help files accessible within the SAS interactive environment, SAS online documentation in both HTML and PDF formats, SAS technical notes, proceedings from SAS Global Forum and regional conferences such as MWSUG, and other websites that have become popular within the SAS user community.

In this paper, we describe these resources, discuss how to access them, and recommend ways to organize these resources to maximize their usefulness and convenience. We show how techniques such as site-specific custom Google searches and PDF sticky notes make these resources even handier than those paper SAS manuals sitting on your shelf.

This paper provides a wealth of useful information for the novice SAS programmer, but even experienced professionals will probably find something new.

1 Introduction

It's a good time to be a SAS programmer. The resources available to help you complete your job are extensive and include everything from books to websites. With so much help at our disposal, it can be a bit overwhelming to find the help you need in a particular situation.

In this paper we describe several of these resources. We then discuss some best practices for working with electronic SAS manuals in PDF format, including placing sticky notes in the manuals. We also describe techniques for searching for SAS help using the Google site-specific search. Finally, we present a method for organizing disparate SAS resources using the bookmark feature of a web browser.

2 Resources for SAS Help

One of the first SAS help resources with which a new SAS programmer is presented is the help facility built into the interactive SAS environment. This help facility is rather limited and unwieldy to use. Fortunately, there are a great many resources available to the SAS programmer outside of the SAS application. We will briefly describe several such resources before we present some tips for accessing and organizing them.

Traditional SAS Documentation

SAS Institute has traditionally published an extensive set of paper documentation covering all aspects of the various SAS products. More recently, this documentation has become available in an electronic format, both on CD-ROM and online.

The SAS online documentation is available in two different formats: HTML and PDF. The HTML documentation contains the same content that is found in the printed publications, but it is formatted for display in a web browser and includes extensive internal hyperlinking. The PDF documentation preserves the precise layout of the printed publications, but can only be read in an application capable of displaying a PDF document, such as the ubiquitous Adobe Reader or its associated browser plugin.

The SAS Product Documentation website (http://support.sas.com/documentation) can be a bit confusing. From the main page (shown on the next page), there are multiple paths forward.

If you know the particular product for which you wish to see the documentation, scroll through the A-Z index on the right-hand side. Selecting an item from this list will link to another page offering documentation in both HTML and PDF formats as well as links to purchase traditional paper manuals where available.

Alternatively, clicking on "SAS 9.2" in the left panel leads to a knowledge base search engine. This can be useful if you have no idea where to find something in the documentation.

SAS Support Website

The online SAS documentation is part of a vast knowledge base located on the SAS support website (http://support.sas.com). This knowledge base contains a wealth of information of interest to SAS users such as a searchable repository of sample code and SAS notes, as well as an extensive collection of technical papers.

Also located on the SAS support website are the complete proceedings from all of the past SAS Global Forum (formerly SUGI) conferences. These contain the collected wisdom and experience of hundreds of SAS experts from a variety of industries and companies.

Non-SAS Websites

It should come as no surprise that the Internet is replete with help for SAS programmers from a variety of sources. Since an exhaustive list of these sources would be impossible, we will simply mention a few that we have found useful.

SAS-L (http://www.listserv.uga.edu/archives/sas-l.html) has long been one of the most well-known resources for SAS programmers seeking help from other SAS programmers. SAS-L is actually an email list, but the complete archives are searchable through its web interface. The content is also accessible through the Usenet group comp.soft-sys.sas, which is archived on Google Groups (http://groups.google.com/group/comp.soft-sys.sas/topics).

Another Internet gem is Lex Jansen's website (http://www.lexjansen.com), which has become the unofficial repository for proceedings from SAS user group meetings. This site maintains a completely searchable archive consisting of tens of thousands of papers from SAS Global Forum, SUGI, PharmaSUG, NESUG, SESUG, PhUSE, WUSS, MWSUG, PNWSUG and SCSUG.

Finally, another worthwhile website for SAS users is SASCommunity.org. This is a relatively new site that takes the form of a wiki for information about SAS.

3 Working with the PDF Manuals

Of the many forms in which SAS Institute makes its product documentation available, perhaps the most versatile is the PDF. In this section, we will discuss some basic properties and features of the PDF format as they relate to SAS documentation. In particular, we will see how the commenting feature, which has been recently enabled in version 9.2 of the SAS documentation, allows us to marry the benefits of electronic documentation with some of the most-loved features of traditional paper manuals. The following discussion is based upon features present in Adobe Reader version 8.1 released in 2007.
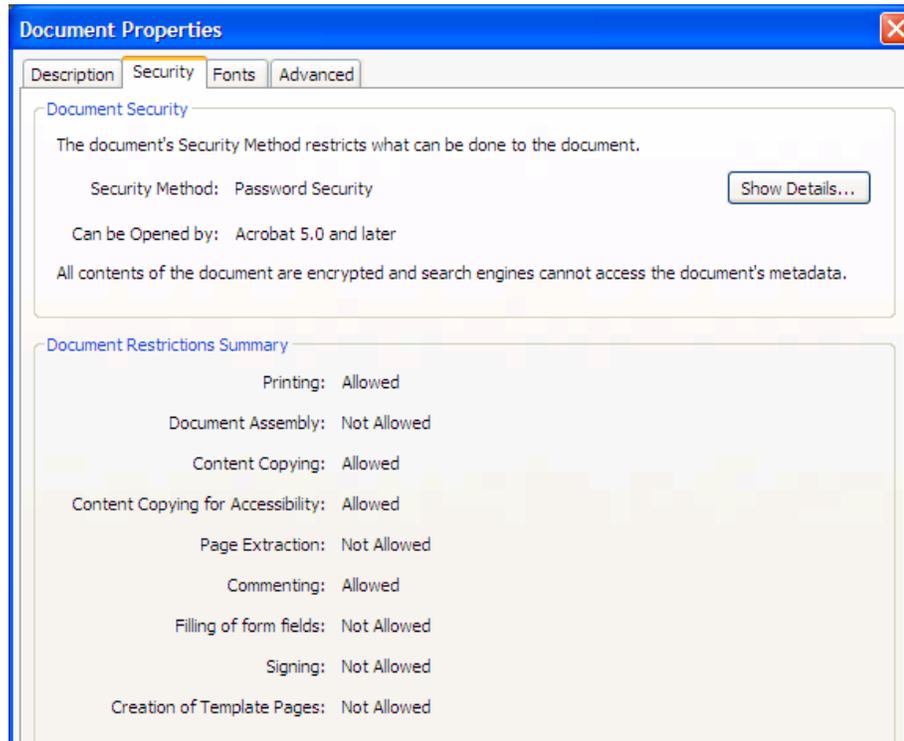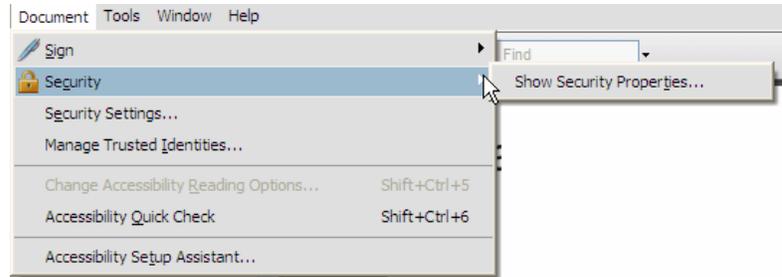
Use of PDF Documents on SAS Website

PDF documents found on the SAS Institute Web Site may be viewed interactively online, or saved locally on the user's computer. (CD-ROM versions are also available.) If the user wishes to invoke features such as commenting, the document must be downloaded so write access is available. To download the document, simply open it through a web browser and save the PDF file to the location of your choice (or right click on the download link prior to opening). It is strongly encouraged to store the document on a primary hard drive as opposed to a network drive or other secondary drive, particularly on portable computers. This will permit for mobility and for easier upgrading of hardware, software, and of the PDF files.

Document Properties

It is essential that the user understand the function of the document properties in controlling what can and cannot be done with the document by the user of Adobe Reader. Tools available to the originator of a PDF document can disable or enable assorted features in Adobe Reader.

To examine the security-related settings in a document, open the document and select the menu item: Document → Security → Show Security Properties (shown at upper right). This opens the panel shown at the lower right.

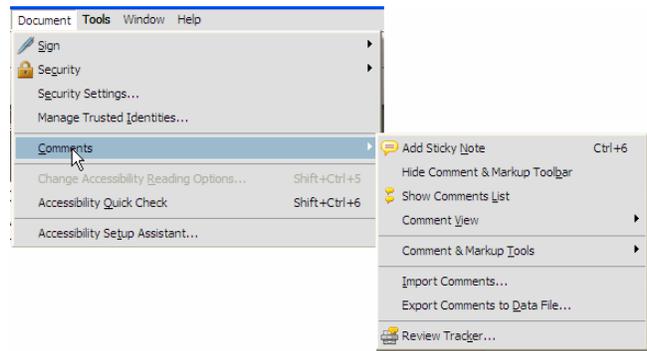**Security Settings in Document Properties**

Inspection of the security settings of the SAS 9.2 documentation PDF files reveals the following:

1. There is a password on the document. Thus only SAS Institute personnel in charge of development and maintenance of this document can change content.
2. Printing is allowed.
3. Copying of content by highlighting with the mouse and using the Windows clipboard for copy and paste functions is allowed. This provides for limited extraction of segments of the document to be moved to new documents you might create.
4. Most importantly, "Commenting" is allowed. This permission is new to the SAS PDF manuals with the release of Version 9.2. This enables the reader to utilize the "sticky note" capability as well as other commenting tools. This permission was not granted in previous versions of the SAS documentation.
5. While the meta-data for the document is shielded from web search engines such as Google, the content is not and thus will show up in search results.
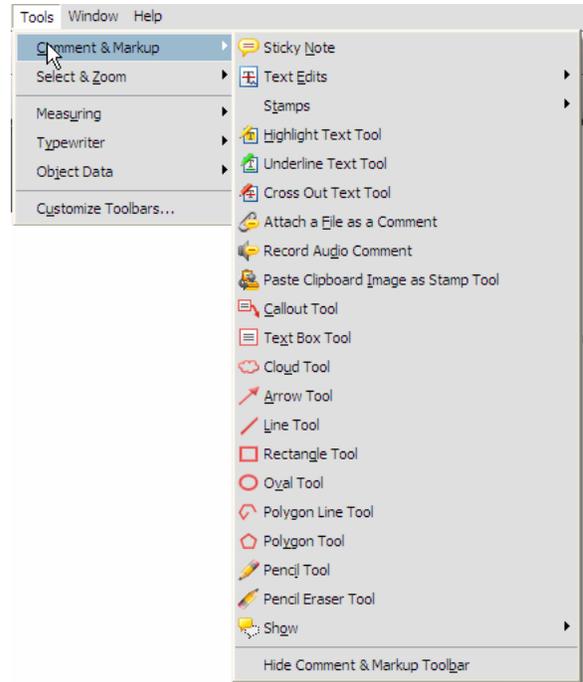
Accessing the Commenting Tools

There are numerous ways to access the commenting tools and there is overlap between the methods.
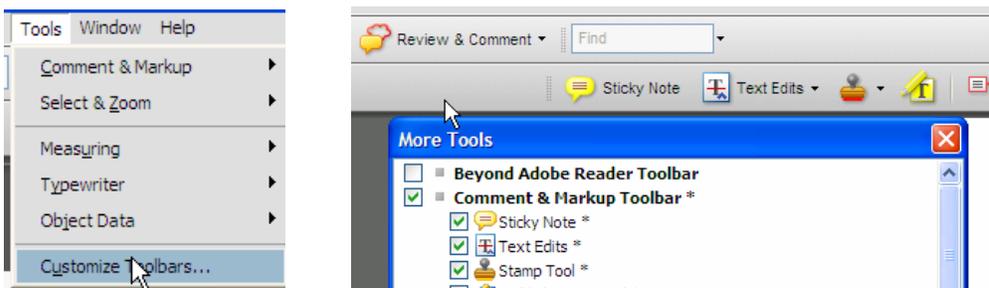
Method #1: Select the menu item Document → Comments.

Method #2: Select the menu item Tools → Comment & Markup.

Method #3: Select the menu item Tools → Customize Toolbars. This will allow you to add commenting tools to the toolbars.
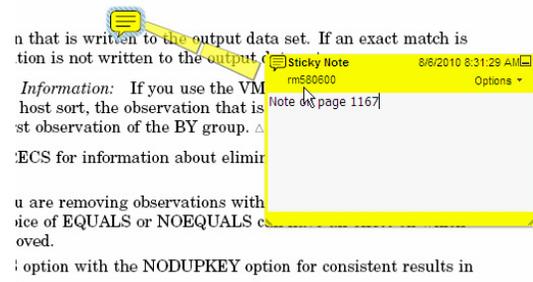
Method #4: Adobe Reader provides several keyboard shortcuts to access the commenting features. The most useful of these is Control-6, which inserts a sticky note.

Types of Comments

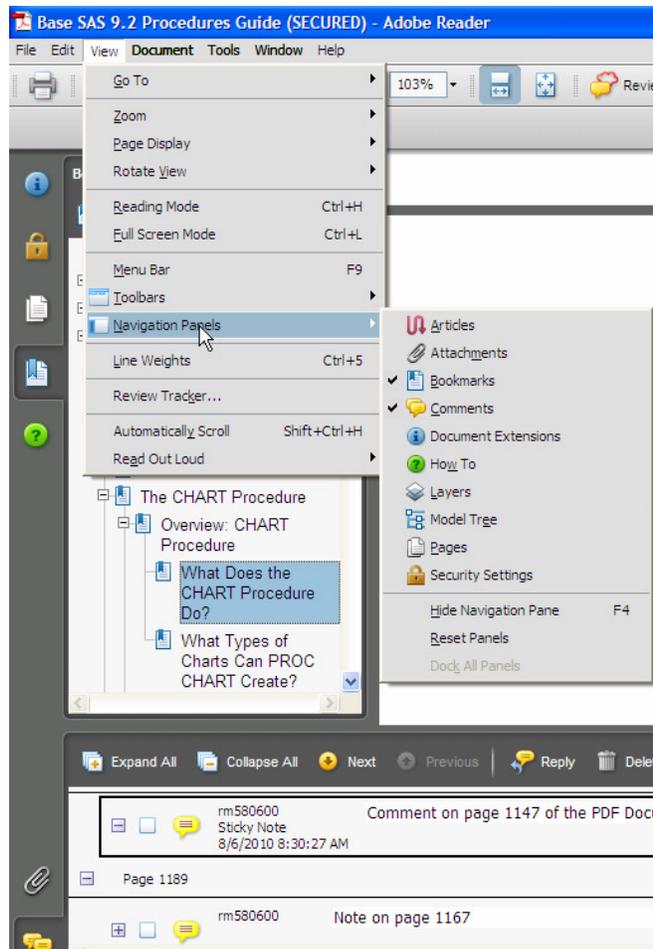Several types of comments are available in recent versions of Adobe Reader:

- Sticky notes – the classic yellow sticky note (see right)
- Text editing – not applicable for simply using documentation
- Graphics symbols – shapes, arrows, etc.
- External files
- Audio notes
- Stamps (time stamp)
- Highlight text (yellow highlighter)
- Underline text

Panels to View Comments and Bookmarks

Turning on the Navigation Panels for Comments and Bookmarks (select menu item View → Navigation Panels, shown at right) brings up a list of available panels, two of which are very helpful here:
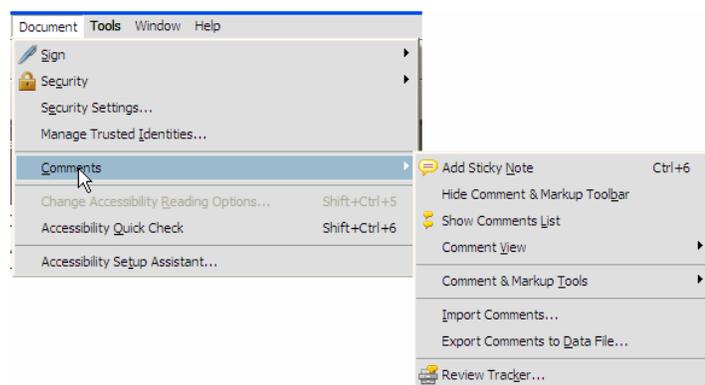
1. Bookmarks (left hand side) is a hypertext index that helps you navigate to various sections of the document. Sections are defined by the document originator and are not editable.

2. Comments (bottom) brings up a listing of comments that have been created by the user in Adobe Reader.

Utility functions that work with comments

There are numerous utility functions that help utilize, manage, and search comments. These are found on toolbars and menus (shown at lower right).

- Show/Hide Comments
- Show Comments Lisa
- Comment View (with numerous suboptions)
- Export Comments to Data File – useful for sharing comments with others who may import them; also useful copying and moving comments when a document has moved to a new version
- Import Comments (from a data file) – note that major document updates may require some user involvement to correctly place all imported comments
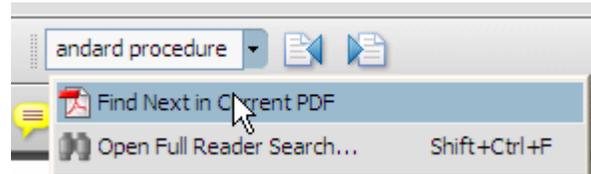
Searching PDF Files

Search capabilities have expanded with the introduction of new versions of Adobe Reader and expansion of capabilities of the PDF creation tools. Early versions (and some of these PDF files still exist) were simply scanned images that had not undergone Optical Character Recognition and thus were not searchable.   Early search facilities were simply a "find-next-occurrence " of the phrase in the documents. With introduction of Acrobat Reader 5, an indexed database search was available and remains the search methodology of choice for documents that have been indexed. The following discussion illustrates using the search capabilities in Version 8 of Adobe Reader with the Base SAS 9.2 documentation PDF file
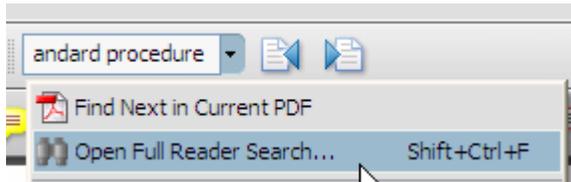
Simple "Find Next" Search

The simple search crawls through the document finding one occurrence of the search string at a time. To invoke it, type the search term into the "Find" box and hit enter (shown at right).
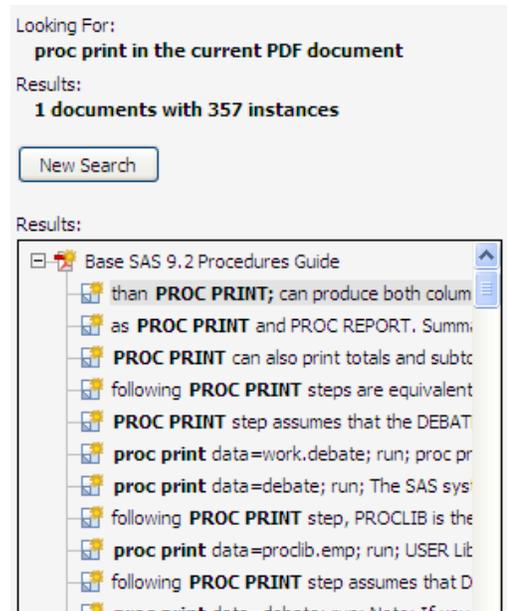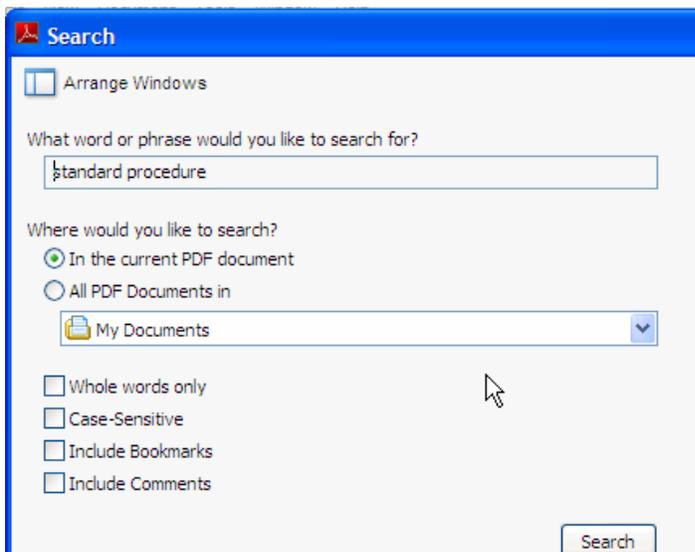

Indexed Search

The indexed search is the preferred search method if the document has been indexed. Select "Open Full Reader Search…" as shown below.

This opens the panel shown below on the left.

By default only the current PDF is searched. The option to look at all PDF documents in the current directory is extremely powerful and has many ramifications regarding how you might store and organize your documents. In any event, when "Search" is pressed, the results that are returned very rapidly cover the entire PDF (for example, 357 instances of "proc print" in one document as shown below on right). The results are hyperlinked to the page on which the searched item is found.

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4 Site-Specific Google Searches

While the SAS documentation is a valuable source of information, the SAS programmer will often wish to consult other resources to see additional examples, gain from the experience of other users, or learn about undocumented features of the language. One of the most effective ways to find what you are looking for among the many SAS resources available online is by harnessing the power of Google site-specific searches. This feature allows you to utilize the Google search engine while restricting search results to those found on a particular website or a particular folder on a website.

To perform a Google site-specific search, simply enter the desired search terms into the Google search field at www.google.com and include the term "`site:`" followed immediately by the URL of the desired website. For example, to restrict search results to those found on the SAS website, include the text "`site:www.sas.com`" within

the search field along with your search terms (shown at right). It does not matter whether this parameter comes before, after, or in between your search terms.

The following table lists several examples of site-specific Google searches that might be useful to SAS programmers.

Search Syntax	Content Searched
site:support.sas.com	SAS Support Website
site:support.sas.com/documentation	SAS Online Documentation
site:support.sas.com/documentation/cdl/en/graphref	SAS/GRAPH® Documentation
site:www2.sas.com/proceedings	SAS Global Forum (formerly SUGI) Proceedings
site:www.mwsug.org/proceedings	MWSUG Proceedings
site:lexjansen.com	Lex Jansen's archive of SAS user group proceedings (SAS Global Forum, SUGI, PharmaSUG, NESUG, SESUG, PhUSE, WUSS, MWSUG, PNWSUG and SCSUG).

Another useful Google search feature is the "`intitle:`" option. Search terms that are used with this option will restrict the search results to only those which contain these search terms in the document title. For example, if you wanted to find documents in the MWSUG proceedings that contained the term "macro" in the title, you would enter the text "`site:www.mwsug.org/proceedings intitle:macro`" into the Google search field as shown below.

Search engines such as Google periodically "crawl" a website and its documents to create indexes which surface the content when searched. It is important to understand that restrictions placed upon these searches by the site may restrict what is "crawled".   SAS Institute documentation files as of version 9.2 are crawled in both HTML and PDF formats. Typically, Google search results will return multiple occurrences of search terms within an HTML document but only one occurrence of a search term within a PDF document. Google also seems to generally rank HTML results higher than those in PDF format.

5 Organizing the Resources

Since all of the resources we've described can be accessed using a web browser, bookmarks (also known as favorites in some web browsers) are a convenient way to organize them. This method can be implemented using any common web browser. In this discussion, we assume that the user is familiar with the basic use of a web browser, including creating, renaming, and organizing bookmarks or favorites.

A sample bookmark structure is shown below along with a list of the corresponding URLs. The reader will, of course, want to adapt this to suit his or her own needs and preferences. For ease of use, we chose to group our bookmarks into folders. We began each of the folder names with a number so that the folders would sort in the desired order.

📁 SAS Resources
    📄 00 SAS Customer Support   http://support.sas.com/
    📁 01 SAS Online Documentation
        📄 SAS 9.2 Documentation (HTML)   http://support.sas.com/documentation/cdl_main/index.html
        📄 SAS OnlineDoc, v9.1.3 (HTML)   http://support.sas.com/onlinedoc/913/docMainpage.jsp
        📄 SAS OnlineDoc, V8 (HTML)   http://v8doc.sas.com/sashtml/
    📁 02 SAS PDFs on SAS Support Website
        📄 Base SAS 9.2 Procedures Guide (PDF)   http://support.sas.com/documentation/cdl/en/proc/61895/PDF/default/proc.pdf
        📄 SAS 9.2 Companion for Windows (PDF)   http://support.sas.com/documentation/cdl/en/hostwin/61924/PDF/default/hostwin.pdf
        📄 SAS 9.2 Macro Language Reference (PDF)   http://support.sas.com/documentation/cdl/en/mcrolref/61885/PDF/default/mcrolref.pdf
        📄 SAS GRAPH 9.2 Reference (PDF)   http://support.sas.com/documentation/cdl/en/graphref/61884/PDF/default/graphref.pdf
    📁 03 SAS PDFs on my PC
        📄 Base SAS 9.2 Procedures Guide.pdf   file:///C:/SAS_PDF_Docs/Base%20SAS%209.2%20Procedures%20Guide.pdf
        📄 SAS GRAPH 9.2 Reference.pdf   file:///C:/SAS_PDF_Docs/SAS%20GRAPH%209.2%20Reference.pdf
        📄 SAS 9.2 Companion for Windows.pdf   file:///C:/SAS_PDF_Docs/SAS%209.2%20Companion%20for%20Windows.pdf
        📄 SAS 9.2 Macro Language Reference.pdf   file:///C:/SAS_PDF_Docs/SAS%209.2%20Macro%20Language%20Reference.pdf
    📁 04 Google Search of SAS HTML Documentation
        📄 Google Search SAS Online Documentation   http://www.google.com/webhp?hl=en&q=site%3Asupport.sas.com/documentation
        📄 Google Search SAS Support Website   http://www.google.com/webhp?hl=en&q=site%3Asupport.sas.com
        📄 Google Search SUGI Proceedings   http://www.google.com/webhp?hl=en&q=site%3Awww2.sas.com/proceedings
        📄 Google Search Proceedings at LexJansen.com   http://www.google.com/webhp?hl=en&q=site%3Alexjansen.com
    📁 05 Other SAS Resources
        📄 Samples and SAS Notes   http://support.sas.com/notes/index.html
        📄 SAS Global Forum Online Proceedings   http://support.sas.com/events/sasglobalforum/previous/online.html
        📄 SAS Conference Proceedings at Lex Jansen   http://www.lexjansen.com/
        📄 Google Groups - comp.soft-sys.sas   http://groups.google.com/group/comp.soft-sys.sas/topics
        📄 Don't Be a SAS Dinosaur by Warren Repole   http://www.repole.com/dinosaur/

The bookmark entitled "00 SAS Customer Support" simply links to the top level of the SAS support website. The bookmarks in the folder called "01 SAS Online Documentation" link to the HTML-format documentation for the various versions of the SAS software. Links to the same documentation in PDF format are located in the folder called "02 SAS PDFs on SAS Support Website."

The folder called "03 SAS PDFs on my PC" is a bit different in that it links to copies of the PDF documentation that have been downloaded to the local hard drive. This demonstrates the versatility of this approach by allowing us to organize both local and Internet resources together for ease of use. The precise form of these URLs will depend upon the folder structure in which the documents have been placed.

In the folder entitled "04 Google Search of SAS HTML Documentation," we make use of the site-specific Google search described previously. These bookmarks will link to the main Google search website with the search field preloaded with the "site:" term. The user then need only add their desired search terms and proceed with their Google search in the normal manner. Note that any arbitrary search terms can be preloaded into the Google search field by manipulating the query string at the end of the URL. Since the colon character has a special meaning with a URL, it is converted to "%3A". Similarly, spaces are disallowed in URLs and must be rerpresented by "%20".

The final folder, "05 Other SAS Resources," includes links to various other websites that may be useful resources for the SAS programmer. We do not describe them all here, but we encourage the reader to explore them at his or her convenience.

6 Conclusion

The enabling of the commenting facilities in the PDF documentation files for SAS 9.2 provides exciting capabilities for the SAS programmer to more effectively use Adobe Reader. Indexed full-document and full-directory searches of PDF files and the Bookmark capabilities also improve search capabilities.

An understanding of the site-specific searches and intitle searches provided by Google also enhance the programmer's web-search experience in more specifically and rapidly retrieving the desired information.

Finally, programmers may improve their efficiency by investing the time and effort to organize various SAS resources in a way that suits their personal preferences and the nature of their work. The bookmark structure exhibited herein provides a useful example.

Recommended Reading

Google Search Tips (Ultimate Google Guide): http://www.mapelli.info/tips/ultimate-google-search-tips-guide

Contact Information

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

Roger D. Muller
First Phase Consulting, Inc.
317-846-5782
rdmuller@hotmail.com

Joshua M. Horstman
First Phase Consulting, Inc.
317-815-5899
jmhorstman@gmail.com

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