

Empowering SAS® Users through a Webpage on Your Intranet

John M. LaBore, Eli Lilly & Co., Indianapolis, IN

Abstract

SAS users in any organization can benefit from a webpage on their Intranet. This paper describes web browsing basics and assists the user in constructing a basic webpage. Internet websites with useful tutorials and tools will be listed for the budding webpage developer. Potential webpage developers will be provided a framework for SAS-related webpage content and given the uniform resource locators (URLs) for a number of recommended SAS-related sites which can be "linked" into their webpages; plus, the presentation will include an on-line demonstration of an actual Intranet webpage for SAS users.

Introduction

Your organization will benefit from your staff mastering the SAS system. However, the SAS system includes a wide range of products, and frequently there is more than one way to complete a given task. This makes it very difficult for a given individual to become a "master." Anyone who has been a SAS user for very long is well aware of the extensive hardcopy manuals and documentation associated with the SAS software. SAS Institute is alleviating the situation by making documentation available online in the Help menus of the software, by providing point-and-click functionality, and by augmenting their superior telephone technical support with online methods.

Ginger Carey and Helen Carey, in their SUGI 22 paper titled "Becoming a SAS Master", point out that information is not the same as knowledge. For example, your organization may own several dozen SAS manuals, indicating that information is available, but this is certainly not a true indicator that any given individual in your organization is knowledgeable about the SAS system. Being knowledgeable can mean one of two things – you either know a subject yourself, or you know where you can find information about it. A SAS user, who knows of the existence of the SAS resources in your organization and who is able to find needed information, is, in fact, knowledgeable.

The Carey paper notes there is no shortcut to mastery, and that it takes vision, planning, learning, patience, commitment, and action to become a SAS

"Master." They describe six attributes which distinguish a SAS "Master", using the acronym **SKILLS** for these attributes:

Searches for Information: "Searches effectively and efficiently for information and evaluates the quality of the information....When searching for information, keep your purpose in mind. Start by knowing where you want to end up. Keep in mind what questions you want answered."

Keeps Learning: The Careys quote Charles Handy from his book, *The Age of Unreason*: "Those who are always learning are those who can ride the winds of change and who see a changing world as full of opportunities rather than dangers."

Improves Personal Skills: "Improves personal skills so they are peak performers." These skills include thinking, reading, listening, memory, writing, and speaking.

Listens to Self: "Listens to self, cares about their work and enjoys their work." Eat right, get plenty of exercise, and create a good work environment (good lighting and ergonomics).

Looks at the Big Picture: "Looks at the big picture, sets goals and accomplishes them." Understand how your work fits into the overall system. Consider both the short- and long-run implications of what you are doing.

Shares Information: "Shares information and supports others." Helping someone else learn usually will result in your learning more about the topic as well.

If you are the SAS consultant or the SAS representative for your site, you undoubtedly have a strong interest in helping your SAS users become SAS "masters." If so, you are constantly searching for tools that will give them more power to resolve programming problems or to answer SAS-related questions.

Putting power into the hands of a SAS user at an organization can take many forms. Numerous papers and presentations at past SUGI conferences (see the *References* section of this paper) have addressed various electronic means of empowerment such as

the Internet, the World Wide Web, List Servers, Newsgroups (and newsgroup archives), FTP Servers, E-mail, Bulletin Board systems, etc.

In the past couple of years, a new electronic phenomena, the Intranet, has appeared. The Intranet is an internal implementation of the Internet/World Wide Web within an organization. The Intranet differs from the globally accessible Internet/World Wide Web only in that there is a "firewall" between webpages hosted on the Intranet and those hosted on the Internet. However, firewalls do not prevent people within the organization from interacting with sites on the global Internet. The firewall, rather, is to keep individuals who are not a part of your organization from viewing any webpages that are hosted on your Intranet; webpages which may contain material that is proprietary to your organization.

If your organization has an Intranet in place, then there is a tremendous resource available which has great potential benefit to SAS users at your site. A major advantage of an Intranet is that it can give your organization access to many of the electronic tools described above. Perhaps just as important to time-stressed SAS users, the Intranet can also provide a convenient "toolbox" where various productivity-enhancing aids are only a mouse-click away.

If you read the previous SUGI papers which describe available electronic tools, you quickly realize that any single individual has to remember many directions and protocols to access those tools. This paper will describe an Intranet webpage that ties many of the electronic tools into one place so that SAS users can quickly access information they need. Any reader who has a rudimentary knowledge of web browsers (such as Netscape Navigator or Microsoft Internet Explorer) and common word processing software should be able to create a basic webpage for SAS users in his/her organization after reading this paper.

Author's Note: Unless otherwise specified, all subsequent references to items on browser screens specifically refer to Netscape Navigator.

Part 1: Explore!

The first step, of course, in any endeavor is to conduct some background research and gain an understanding of your topic. Acquiring and installing web browser software on your desktop is your first order of business. If your organization already has an Intranet in place, then contact the Intranet staff and find out if your organization has a site license for web browser software; if so, then follow the necessary requisition process to get your copy of the software. If your organization does not have a site

license, then ask your Intranet staff for recommendations on how to acquire the appropriate software.

Once your browser software is installed, begin exploring! Generally, your Intranet staff will have in place a default "home" page that initially pops up for all users firing up browser software at your site. On this initial page they may have a number of "links" to useful webpages elsewhere on both the Intranet and Internet.

The first step, once you fire up the browser software and have an active webpage visible, is to understand what you are seeing. Readers are referred to an excellent paper by JoAnn Matthews in the SUGI 22 Proceedings entitled "Creating a Homepage on the WWW for Your Local User Group - An Unlimited Resource for Local User Group Recruitment Strategies". Her paper contains many helpful explanations.

Finding relevant information on a topic that interests you can be as quick and easy as using one of the "search engines" on the Web. Try out the search capabilities at some of the following sites:

Excite Netsearch	http://www.excite.com/
AltaVista Search	http://www.altavista.digital.com/
Yahoo!	http://www.yahoo.com/
Lycos	http://www.lycos.com/
Deja News	http://www.dejanews.com/

There are sites with reference utilities as well. Need to find the phone number of a person or a business somewhere in the U.S.? Try using:

Switchboard	http://www.switchboard.com/
GTE SuperPages	http://yp.gte.net/
BigYellow	http://s13.bigyellow.com/

Need to get an online map (which can also be sent to your printer) of a particular location, or need to have directions for traveling by road between two points?

Try:

MapQuest	http://www.mapquest.com/
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One final word as you explore the web. There is a menu item at the top of your browser labeled "View." One handy thing you can do with this is examine the underlying HTML source code which created any particular webpage you happen to have active in your browser at the moment. If you click on the "View" box, then click on "Document Source" in the dropdown menu, a screen is displayed that contains the text that you see when the webpage is open in the browser, plus any HTML tags that were used to create the webpage. Later on, as you begin developing your own webpages, you may want to use this capability to study how someone else created a webpage, so that you can apply the same or similar techniques to your webpages.

Note to Netscape 3.01 (or later version) users: You will also have a "Frame Source" option that is bolded in the dropdown menu if you are viewing a webpage that uses frames. Clicking on the "Frame Source" will show you the HTML source code for whichever frame you have clicked in just prior to selecting "Frame Source". Clicking on "Document Source" when you have a webpage open that uses frames will show you the HTML code used to set up the frame structure.

Part 2: Creating Your First Web Page

Taking the leap to create your first web page is really not any harder than creating a short document with your word processor. Hypertext Markup Language (HTML) sounds like a mouthful, but it's a jog in the park compared to the sometimes herculean task of wrestling with SAS programming code!

The first step is to create some text (using your standard word processor), then add "tags" before and after pieces of the text which will generate a desired effect within a web browser. Next, save the document as a standard text file. Finally, you start up your browser software and open the file within your browser.

Below is a very simple document containing some HTML tags. Enter the text (including the HTML tags) into a blank document on your word processor, then save the file as a standard text file (not as, for example, a Microsoft Word® 7.0 document) with the name SUGI1.HTM. Note: you will need to save the file with the extension ".htm" instead of ".txt".

```
<html>
<head>
<title>Example HTML Document</title>
</head>

<center><h2>Example HTML Document</h2></center><p>

<dl>
<dt><h3>Example of a List</h3>
<dd><b>MVS SAS 6.09E</b> - is now up and running at
our site
<dd><a href="sugi2.htm">Link to Another Webpage</a>
<dd><b><i>Call 7-6387 to Request Windows SAS</i></b></i>
</dl>

</html>
```

After saving the above file as SUGI1.HTM, create and save another file, containing the text below, as SUGI2.HTM. Be sure and save it in the same directory as SUGI1.HTM.

```
<head>
<title>Another Example HTML Document</title>
</head>

<h1>Another Example HTML Document</h1><p>

<ul>
<li><h3>Other Webpage List of Items</h3>
<ol>
<li><b><i>Do the SAS Data Step!</i></b></li>
<li><b><i>Call the Local SAS Account Rep Today!</i></b>
</ol>
</ul>
<p>
```

Click on the "Back" button at the top of your screen to go back to the first page you created.

After saving both SUGI1.HTM and SUGI2.HTM, start up your browser. Click on "File" at the top of the screen, then click on "Open File..." which appears in the dropdown menu. You will see a standard file directory structure; browse it until you find the SUGI1.HTM file, then double-click on it.

Once it loads into the browser, review what you generated. Next, click on the highlighted and underlined text "Link to Another Webpage" and you will see the information from the SUGI2.HTM text file. Review what the SUGI2.HTM hypertext markup tags generated. You should be able to quickly match the HTML tags to their effect on the browser image. A complete description of the various HTML tags and their effects can be found by checking out the HTML tutorials and reference documents listed in the next section of this paper.

Note: SAS users who are embarking on webpage development efforts are referred to the paper by JoAnn Matthews. In her paper there is a wealth of additional information on writing HTML code and creating webpages. JoAnn's email address and phone number are listed in the *References* section so that you can contact her to obtain a copy of her paper. Her paper was honored as the "Best Contributed Paper" in the Internet, Intranets, and the Web section of the 1997 SUGI conference in San Diego.

Various other means of authoring webpages now exist. The SUGI1.HTM and SUGI2.HTM code showed how to create webpages using only a text editor and then checking the result through a browser. Webpage creation tools/capabilities are beginning to appear in word processors, spreadsheets, and other software which will make the generation of HTML-coded documents quite easy (see the HTML Authoring Tools list in the next part of this paper).

One example of these new new webpage authoring tools is Netscape Navigator Gold. This "Gold" version of Netscape Navigator includes an "Edit Document" feature which allows WYSIWYG editing in the browser window. It also has the capability to "clean up" HTML code. For example, opening the SUGI1.HTM file (used in the previous example) into Netscape Navigator Gold, then clicking on Edit Document takes you into full editing mode for this file. If this file is resaved, before doing anything further to it, the underlying HTML file changes so that it looks as follows:

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 3.2//EN">
<HTML>
<HEAD>
  <TITLE>Example HTML Document</TITLE>
  <META NAME="GENERATOR"
CONTENT="Mozilla/3.01Gold (Win95; I) [Netscape]">
</HEAD>
<BODY>

<H2 ALIGN=CENTER>Example HTML Document</H2>

<DL>
<H3>Example of a List</H3>

<DD><B>MVS SAS 6.09E</B> - is now up and running at
our site </DD>

<DD><A HREF="sugi2.htm">Link to Another Webpage</A>
</DD>

<DD><B><I>Call 7-6387 to Request Windows SAS</I></B>
</DD>
</DL>

</BODY>
</HTML>
```

Netscape Navigator Gold made many changes in just this short section of HTML code, including:

1. Adding a descriptive tag regarding the document type at the beginning of the code.
2. Adding a <META> tag which provides another line of descriptive information about the software environment at the time of the edit.
3. Adding a <BODY> tag.
4. Adding an ALIGN=CENTER within the heading and eliminating the <CENTER> and </CENTER> tags.
5. Removing the <DT> tag.
6. Adding <DD> tags for all three list items.
7. Adding a closing </BODY> tag.

These changes illustrate some of the power of the new webpage authoring tools.

Once you begin creating webpages to place on your organization's Intranet, you will need to contact your

Intranet staff to get your pages "linked" into the Intranet. They will assign a directory for your files on the webserver, and you will copy your files up to that location. Another item to keep in mind is that once they assign you a directory, the file DEFAULT.HTM (in the assigned directory) is the one that will automatically load from that directory whenever a user accesses the directory via his browser. Thus, your first page, to which all your other pages should be linked, should be saved as a file named DEFAULT.HTM.

Now, let's assume the information in the following box has been saved as your DEFAULT.HTM file. What calls (links) other pages to this page?

```
<html>
<head>
<title>The First WebPage</title>
</head>

<center><h2>Example First Webpage</h2></center><p>

<h3>Example Links</h3><p>
<a href="staff.htm">Meet your SAS Support Staff</a><p>
<a href="http://www.sas.com">SAS Institute</a><p>
<a href="http://www.pharmasug.org">PharmaSUG</a><p>

</html>
```

In the code above, the line containing the phrase "Meet your SAS Support Staff" will be highlighted and underlined when this file is opened in the browser. When you click on the phrase, your browser will open the file "STAFF.HTM" in the directory on your webserver (if you've already created the "STAFF.HTM" file). Likewise, once you have the above DEFAULT.HTM file saved on an actual webserver, clicking on the phrase "SAS Institute" will link you to SAS Institute's website in North Carolina. Finally, the last link, "PharmaSUG", will link you to the Pharmaceutical Industry SAS Users Group webpage when you click on it.

Note the common features of each of the three lines referenced above; in the HTML code, there is an follows the linked file address; then there is some text describing the file, which is the text that will be highlighted when the file is opened in the browser; and last, there is an to close the tag.

This completes a quick summary of how to create some basic webpages. For more detailed information, please check out the references in the following section.

Part 3: Webpage Developer Tools

This paper will not attempt to be a complete tutorial on webpage development, since there are many excellent webpages with tutorials and other resources which you will find useful as you enhance your knowledge of HTML coding and webpage construction.

Some recommended webpages (at the time of writing this paper) include the following links:

Copyright Considerations for Your Web Page

<http://scilib.ucsd.edu/electclass/CopyrightTips.html>

HTML Reference Guides

WebReference.Com
<http://webreference.com/>

HTML Specification, Version 3.2 (CERN, Switzerland)
<http://www.w3.org/pub/WWW/MarkUp/Wilbur/>

All about URL's (CERN, Switzerland)
<http://www.w3.org/pub/WWW/Addressing/Addressing.html>

Numerous HTML and Web-related books are available (full text) online as part of Que's Digital Bookshelf
<http://www.mcp.com/que/bookshelf/>

Netscape Navigator Handbook – including a Tutorial, JavaScript Guide, and Plug-in Guide
<http://home.netscape.com/eng/mozilla/3.0/handbook/>

HTML Tutorial

WRITING HTML - a tutorial for creating World Wide Web pages
<http://www.mcli.dist.maricopa.edu/tut/index.html>
by Alan Levine at Maricopa Community Colleges

HTML Authoring Tools

HTML Editors (Yahoo)
http://www.yahoo.com/Computers/World_Wide_Web/HTML_Editors/

HTML Converters (Yahoo)
http://www.yahoo.com/Computers_and_Internet/Software/Internet/World_Wide_Web/HTML_Converters/

HTML Authoring and Style Guides

Web Style Manual by Patrick J. Lynch (Yale Center for Advanced Instructional Media)
<http://info.med.yale.edu/caim/manual/contents.html>
A Style Guide on Online Hypertext by Tim Berners-Lee (CERN, Switzerland)
<http://www.w3.org/pub/WWW/Provider/Style/Overview.html>

NCSA HTML Style Sheet by Ken Chang (NCSA, Illinois)
<http://www.ncsa.uiuc.edu/Pubs/StyleSheet/NCSAStyleSheet.html>

Composing Good HTML by James "Eric" Tilton (Carnegie Mellon University)
<http://www.cs.cmu.edu/~tilt/cgh/>

Frames

Framing the Web (by Dan Brown)
<http://webreference.com/dev/frames/>

Graphics Resources

Image Libraries
<http://www.lookup.com/image/SMARTlib/>
and
http://www.yahoo.com/Computers_and_Internet/Multimedia/Pictures/Clip_Art/

Pixelsite (Interactive Visual Design tool)
<http://www.pixelsight.com:80/PS/pixelsite/pixelsite.html>

GIF Animation
<http://members.aol.com/royalef/gifanim.htm>
and
<http://www.mindworkshop.com/alchemy/alchemy.html>
(check out the downloadable "GIF Construction Set")
and
http://www.yahoo.com/Computers_and_Internet/Graphics/Computer_Animation/Animated_GIFs/

Background Colors (RGB Hex Triplets) - Doug Jacobson
<http://www.phoenix.net/~jacobson/rgb.html>

Background Images
http://home.netscape.com/assist/net_sites/bg/backgrounds.html

Transparent Background Images
<http://www2.ncsu.edu/bae/people/faculty/walker/hotlist/transparent.html>

Imagemap Editing Tools
<http://www.boutell.com/mapedit/>

Java

<http://java.sun.com/>

SAS Web Tools

<http://www.sas.com/md/web/sitemap.html>

Part 4: SAS-specific Intranet Webpage Content

While going through the steps in Parts 1-3, spend some time thinking about the needs of SAS users at your site. In fact, since the webpage will likely be viewed by non-SAS users in the organization, you should consider including a section that tells those individuals about SAS products. SAS Institute's website has many excellent webpages, geared toward informing the non-SAS user about SAS products, which can be linked directly from your webpage.

In our organization, the webpage our team placed on the Intranet is called the "SAS and JMP Users Homepage". JMP information is included for two reasons: it is a SAS Institute product which our particular team supports, and it is a very popular piece of software (our organization is, at this writing, the largest single client site for the JMP software, according to SAS Institute).

On the "SAS and JMP Users Homepage", we have settled on the categories of News, Events, Training, Troubleshooting Tools, Reference Information, Computing Platforms, and a final category called "What Are SAS & JMP?" for our main page. The "Homepage" uses frames; one small framed area has links to current "hot topics", a second frame has a "toolbar" of quick links to the categories listed above, and a third frame has a quick link to information about the next demo or tutorial session that will be taking place at our organization. The frames have been coded so that the smaller frames remain on-screen (giving users access at any time to key links), while the information on largest frame changes. In an earlier version of the webpage, some simple Java scripting code plugged scrolling information into the small horizontal bar at the bottom of the browser screen. However, this (scrolling information) was annoying and has been eliminated.

Within the News category of our "Homepage", some examples of recent listings include:

- Rollout of new versions and/or retirement of old versions of SAS or JMP within the company
- Changes to our site license agreements
- Availability of SAS or JMP beta versions for testing by users
- Information about performance improvements that are underway or completed (author's note: see a paper by Fred Forst in the SUGI 22

Proceedings which elaborates on performance gains realized from the our implementation of SAS hiperspaces in MVS SAS; if your site runs SAS on a mainframe it is highly recommended you pass this information on to the appropriate staff at your site)

- Special announcements from SAS Institute about new products/capabilities
- Links to our online demos of new SAS products (at the time of this writing, several SAS/IntrNet applications were accessible through our webpage, as were examples of the SAS multidimensional database tool)

Information listed under the Events category on the "Homepage include:

- Upcoming SUGI, SEUGI, PharmaSUG, and regional/local users group meetings
- Special seminars sponsored by SAS Institute in the local area (such as their recent series on "Data Warehousing", "Data Mining", etc.)
- Hands-on demo/tutorial sessions being held in our training rooms to familiarize our users with new SAS or JMP capabilities

Items in the Training category on our "Homepage" include:

- SAS and JMP training courses offered through our company, including dates, times, locations, costs, and enrollment information
- How to access the SAS computer-based tutorials on our platforms, and direct links to web-based SAS training courses offered through our company's Virtual Learning Center
- Any special offers or discounts offered by SAS Institute on their training courses/materials
- Direct links to SAS Institute webpages which show their courses offered at all their locations (separate links by courses or by locations are listed)
- Information (via a link direct to the appropriate SAS Institute webpage) on how to order a free subscription to their training catalog

The Troubleshooting Tools section on the "Homepage" accesses:

- The SAS-L Newsgroup
- The SAS-L (searchable) Archives
- SAS Institute's (searchable) SAS Version 6 Usage Notes (at SAS Institute; thus this is assumed more current compared to the Notes shipped with maintenance releases of SAS software)
- SAS Institute's Technical Notes
- Frequently asked questions and answers (we have a link to both the SAS Institute webpage on this topic, and a link to our own page which

covers questions and answers we have handled in our company)

- A series of pages that takes users through an online "problem resolution process" (presently this takes them through a search of the SAS Version 6 Usage Notes, then a search of the SAS-L Archives, and finally a search of the SAS Technical Notes). Of course, if they still can't find a resolution, they call or email us!
- SAS tips accessible at a variety of worldwide websites
- Frequently Asked Questions (FAQ) about SAS at several universities
- Information on how our users can join the JMP-L Listserver using Internet email
- A direct link to SAS Institute's "JMP Patches" webpage so that our JMP users can download and install the latest JMP patches through the webpage

Our "Homepage" Reference Information category includes:

- Direct links to the main SAS Institute webpage, and all known webpages maintained by SAS Users groups
- Links to the SAS Sample Library File Contribution Server and the JSE SAS program archive
- Quick links to SAS Institute webpages for the online SAS Publications catalog, and subscription information for periodicals published by SAS Institute, such as: *SAS Communications, Observations, Authorline, and Inform*. We have a direct link to the online version of *JMPer Cable*, the SAS Institute newsletter for JMP users.
- Links to the SUGI 19 - SUGI 22 list of papers and abstracts (we also have the full text of the SUGI 22 Proceedings papers accessible for our users via an online CD)
- A set of links to information on the Year 2000 problem
- A link to population and demographic resources on the web

The "Homepage" Computing Platforms category has:

- A link to SAS Institute webpages which detail all the possible platforms for the SAS system
- A listing of platforms on which our company has licensed either the SAS system or the JMP product, the specific versions and modules available, and a listing of the system requirements for each product on the desktop platforms
- Links to our database of currently licensed users of SAS and JMP on various platforms

Finally, the "What Are SAS and JMP?" category on the "Homepage" has:

- Links to SAS Institute webpages which describe the SAS system and each individual module
- A link to SAS Institute's JMP page, which has a good description of JMP, plus a downloadable demo version of JMP
- A webpage that details current and recent usage levels (or number of desktop installations) of the SAS and JMP products at our company

Part 5: Some Final Do's and Don'ts

DO take advantage of freeware and shareware resources and online tools as appropriate; you can do a lot of webpage development using inexpensive software tools plus the software you probably already have available on your system.

DO make sure all browsers in use on your Intranet can support frames, OR that you have a `<noframes>` tag in place to warn those with browsers that are incapable of viewing your framed webpages. See the box below for example code to generate a noframes warning – and be sure, within the code, to provide users with a link to a webpage where they can download a newer browser version if it is possible to do so on your organization's intranet.

```
<NOFRAMES>
<h1 align=center><blink>Frame ALERT!</h1>
<h3 align=center>
<p>
The <|>SAS and JMP Users Homepage</|> is now
designed to be viewed using <b>Netscape version 2.0 (or
higher)</b>, which supports the Frame features. If you are
seeing this message, you are using a browser incapable of
displaying the Frame features, i.e, you are using a version of
Netscape lower than 2.0.
</p>
<p>
Information on how to upgrade your browser to Netscape
2.02 (which is <b>Frame-capable</b>) is located on the
<a href="newvers.htm"> Netscape Navigator 2.02 Now
Available! </a>page of the Lilly Internet Services Group.
</h3>
</p>
</NOFRAMES>
```

DON'T key-in a page when you could simply link to the information somewhere else on your Intranet or the Internet.

DO be wary of boundaries – keep in mind the maximum pixel height/width viewable on smallest screen in your organization when creating your webpages. Another user with a different monitor and different video driver probably won't see the same

thing you do. Check with your Intranet staff for recommended maximums.

DON'T get carried away creating or using excess graphics in your webpage; users will get frustrated if your webpages take a long time for their systems to load onto their browsers.

DO increase the value of your site by linking to useful data resources, not just SAS-related sites.

DO monitor your webpage, checking links from time to time, as links (especially those you've linked to on the world wide web that are outside your Intranet) may move or be deactivated; you will need to update or eliminate your links appropriately.

DO spread the word about your website to SAS users; many may find that the availability of useful information on their Intranet gives them a business reason to use their browser software. Other ways to spread the word include:

- Informing new users at the time they install desktop versions of SAS
- Sending email to users
- Visiting in-house SAS and JMP training classes to mention the webpage and other SAS support services that are available at your site
- Inserting a note that appears at the top of the Log file in SAS jobs on mainframe platforms
- Modifying the browser icon (the one that is a blue-and-green representation of the Earth) on the toolbar of desktop versions of SAS so clicking on it opens your in-house webpage instead of the main SAS Institute webpage. The icon is easily modified by clicking on the Options menu item, then clicking on Edit Tools, then scrolling down to the web browser icon line, clicking on it, then modifying the command line to read WBROWSE "http://<your home page url>". Note that you will need to enclose the text following WBROWSE in double quotes. Don't forget to click on "Save" when you are through with the modification.
- Having other groups with webpages build links to your webpage (for example, have your computing support center and/or statistics department add a link on their webpages to your webpage).

DO keep your eyes open for information that will help you structure a successful website; one such example is "The Eggman's Concise Rules for a Successful Website"
<http://www.access.digex.net/~nuance/webtips.html>

References

Carey, Ginger and Helen Carey, *Becoming a SAS Master*, Proceedings of the 22nd Annual SAS Users Group International Conference, Cary, NC; SAS Institute, Inc., 1997, pp. 1504-1511.

Carey, Helen and Ginger Carey, *How SAS Software Users Can Benefit from the Internet*, Proceedings of the 21st Annual SAS Users Group International Conference, Cary, NC; SAS Institute, Inc., 1996, pp. 1592-1601.

Carey, Helen and Ginger Carey, *The Lazy Man's Guide to SAS Software*, Proceedings of the 19th Annual SAS Users Group International Conference, Cary, NC; SAS Institute, Inc., 1994, pp. 1254-1259.

Davis, Michael, *The One-Eyed Guide to INTERNET, E-MAIL, LISTSERV, and SAS-L*, Proceedings of the 18th Annual SAS Users Group International Conference, Cary, NC; SAS Institute, Inc., 1993, pp. 1183-1192.

Hill, Nancy J., *Don't Be Roadkill on the Information Superhighway: Using the Internet to Support SAS Software*, Proceedings of the 20th Annual SAS Users Group International Conference, Cary, NC; SAS Institute, Inc., 1995, pp. 1420-1424.

Matthews, JoAnn, *Creating a Homepage on the WWW for Your Local User Group - An Unlimited Resource for Local User Group Recruitment Strategies*, Proceedings of the 22nd Annual SAS Users Group International Conference, Cary, NC; SAS Institute, Inc., 1997, pp. 900-905. (Email JoAnn at jmatthews@v1.wpic.pitt.edu or call her at 412 624-1451 if you would like a copy of her paper)

Nocola, Rick, *An Electronic Roadmap to SAS Discussion and Support*, Proceedings of the 21st Annual SAS Users Group International Conference, Cary, NC; SAS Institute, Inc., 1996, pp. 1641-1645.

Shipp, Charles E., Laffer, Kirk Paul, and Sunil K. Gupta, *SAS Tools and Internet*, Proceedings of the 21st Annual SAS Users Group International Conference, Cary, NC; SAS Institute, Inc., 1996, pp. 1141-1144.

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Author Contact

John M. LaBore
Eli Lilly & Co.
Lilly Corporate Center
DC 2133
Indianapolis, IN 46285
(317) 277-6387
email: jml@lilly.com

Appendix: SAS-related URLs

SAS Institute Inc.
<http://www.sas.com/>

SAS-L Archives (searchable)
<gopher://jse.stat.ncsu.edu/11/othergroups/sasl>

SAS FAQ - Cornell University
<http://www.ciser.cornell.edu/FAQ/SAS.html>

SAS FAQ - University of Southern California
<http://cwis.usc.edu/UCS/userserv/consult/statistics/help/sas/faq>

SAS - University of Central Florida
<http://garfield.ir.ucf.edu/manual/aix/sas.html>

Pharmaceutical Industry SAS Users Group
<http://www.pharmasug.org>

MidWest (U.S.) SAS Users Group
<http://www.biostat.wustl.edu/mwsug>

Western (U.S.) SAS Users Group
<http://www.webworldinc.com/wuss>

Valley of the Sun (Phoenix, Arizona, U.S.) SAS Users Group
<http://www.getnet.com/~kairis/valsug.html>

Bay Area (San Francisco, California, U.S.) SAS Users Group
<http://www.basas.com>

SAS-CONSIG: SAS Consultants Special Interest Group
<http://pages.prodigy.com/SASCONSIG/saconsig.htm>

Boston (Massachusetts, U.S.) Area SAS Users Group
<http://world.std.com/~mmurphy/basug.html>

North Texas (Dallas-Ft.Worth, Texas, U.S.) SAS Users Group
<http://www.jit.com/ntsug>

Washington, D.C. (U.S.) SAS Users Group
<http://www.ita.doc.gov/industry/otea/dcsug>

Michigan (U.S.) SAS Users Group
<http://cyber-active.com/windcave/msug/default.htm>

Pittsburg (Pennsylvania, U.S.) SAS Users Group
<http://www.pitt.edu/~jmatthew/psug.html>

The SAS Sample Library File Contribution Server
<ftp://ftp.uga.edu/pub/sas/contrib>

JSE (Journal of Statistics Education) SAS program archive
<gopher://jse.stat.ncsu.edu/11/software/sas>

Useful SAS Programs and Macros - available via a webpage at Thomas Jefferson University
<http://www.tju.edu/tju/dis/stats/sas/progs>

World Wide Web (WWW) Virtual Library: Statistics
<http://stat.ufl.edu/vlib/statistics.html>

The Year 2000 Information Center
<http://www.year2000.com/cgi-bin/clock.cgi>

Demographic and Population Studies Resources
<http://coombs.anu.edu.au/ResFacilities/DemographyPage.html>

SAS Tips - a webpage with an array of expert tips and information posted by Phil Mason
<http://www.wood-st.demon.co.uk/Tips.htm>

SAS Tips - a series of web pages (including graphics) posted on the WWW by PW Consulting (in the Netherlands)
<http://www.csa.nl/bedrijven/pwcon/tips.html>

Coder's Corner Page - coding tips, macros, and solutions on a page maintained by the Valley of the Sun (Arizona) SAS Users Group
<http://www.getnet.com/~kairis/coders.html>

SAS Tips and Tricks - a webpage posted by the University of North Carolina
<http://help.unc.edu/cgi-bin/getdocs?docnumber=sas08>

Coding Tips and Tricks - tips posted on the Michigan SAS Users Group webpages
<http://cyber-active.com/windcave/msug/code.htm>

Tips on Using SAS/Assist on Windows - a helpful webpage for those learning to use SAS/Assist.
<http://help.unc.edu/cgi-bin/getdocs?docnumber=sas09>

SAS Information Guides - from York University, developed by Michael Friendly; quite a bit of useful material and a recommended site to browse
<http://www.yorku.ca/dept/psych/lab/sas>

SAS Utility Macros - posted by Roger DeAngelis
<http://members.aol.com/xlr82sas/uti.html>