

Paper 172-2019

Transporting Your SAS® Content to SAS® Communities and Integrating Your Content into GitHub

Louise S. Hadden, Abt Associates Inc.

ABSTRACT

As of January 1, 2018, SasCommunity.Org was set to "read-only". This meant that the 9, 514 users with 2,688,280 views on the wiki-based site need to find a new home for their content. Although the site is still available for now - even e-archives are ephemeral. Some of the older SAS collaboration tools are still relevant, and some have drifted into obscurity. I began moving my content to SAS® communities in 2018 to try and preserve some of my personal history - and discovered a few things along the way. This paper and presentation will serve as a "how to" for introducing new content and moving old content to SAS Communities and SAS's GitHub.

IN THE BEGINNING, THERE WAS HYPERTEXT

SASCommunity.org is based on Wiki software, which was at least partially an outgrowth of hypertext. Hypertext variations began rolling out in the 1970s, to help manage and document software products. Eventually, the world wide web was developed in 1990 as a hypertext client for CERN (Conseil Européen pour la Recherche Nucléaire) and made public in 1994. The world has never been the same. Shortly thereafter, Ward Cunningham developed the "WikiWikiWeb" using PERL, to accomplish the goal of managing and documentation software products in a collaborative fashion. The meaning of "wiki" is quick in Hawaiian. The concept of an editable website with pages and links documented with a version history quickly caught on. Numerous "wikis" were developed, forming a wiki culture. In 2001, Wikipedia was initiated, and remains enormously popular today. By 2007 the Oxford English Dictionary had added "wiki", signifying the popularity of the concept.

BACKGROUND ON SASCOMMUNITY.ORG

In 2007, the SAS Global Users Group Executive Board sought to form a collaborative website for SAS users and developers alike. Although there were thriving platforms and knowledge centers such as SAS-L, User Group Forums, etc. SAS wanted to have a single, international platform that would act as a platform to all resources on using SAS software which allowed contributions (and questions) from all interested parties. SAS luminaries developed workshops on how to use the site, created a SASopedia, and began blogging. Wiki was the right tool at the right time, and SAS developers and users alike jumped into the task of collaborating, creating, discussing and discovering SASCommunity.org.

MY PRESENCE ON SASCOMMUNITY.ORG

As a newer SAS author and nervous presenter (my first paper was written and presented in 1997 at SUGI 22), I wasn't ready, even 10 years later in 2007, to write my own blog, host my own website or share my SAS story beyond presenting at NESUG and SUGI / SAS Global Forum each year. My co-authors on several papers urged me to look at SASCommunity.org and it was a perfect fit for me and my growing list of papers and presentations. Below is a word cloud of authors of SAS papers on Lex Jansen's website (another fabulous resource for SAS practitioners).

← → ↻ Not secure | sascommunity.org/mwiki/index.php?limit=50&tagfilter=&title=Special%3AContributions&contribs=user&target=Ceeotter56&namespace=&topOnly=1&year=2019&month=...

Ceeotter56 Talk Preferences Watchlist Contributions Log out

Special page Search

As the first step in the decommissioning of sasCommunity.org the site has been converted to read-only mode.

Here are some tips for How to share your SAS knowledge with your professional network

User contributions

For Ceeotter56 (talk | block log | uploads | logs)

Search for contributions

☐ Show contributions of new accounts only

☒ IP address or username: Ceeotter56

Namespace: Invert selection ☐ Associated namespace

☒ Only show edits that are latest revisions

From year (and earlier): 2019 From month (and earlier): all Search

(newest | oldest) View (newer 50 | older 50) (20 | 50 | 100 | 250 | 500)

- 09.09, 16 August 2017 (diff | hist) ... (-117) ... User:Ceeotter56 (current)
- 12.30, 23 May 2017 (diff | hist) ... (+65) ... N File Hadden QT-07 Pharnasug2017 revised2.pdf (PDF paper for PROC DOC III: Self-generating Codebooks Using SAS®) (current)
- 12.27, 23 May 2017 (diff | hist) ... (+79) ... N File QT-07 PharmaSUG2017 Hadden.pptx (Powerpoint presentation for PROC DOC III: Self-generating Codebooks Using SAS®) (current)
- 11.08, 23 May 2017 (diff | hist) ... (+145) ... N File WUSS2016 HaddenGlass Session27 20160907r.pptx (Presentation for Document and enhance your SAS® code, data sets, and catalogs with SAS® functions, macros and SAS® metadata with Roberta Glass) (current)
- 10.43, 23 May 2017 (diff | hist) ... (+33) ... N File QT-07 PharmaSUG2017 Hadden IncludedCode.zip (Self-generating codebook Code zip) (current)
- 10.31, 23 May 2017 (diff | hist) ... (+40) ... N File 1314-2017-poster.pdf (Metadata PPT e-Poster with Roberta Glass) (current)
- 10.30, 23 May 2017 (diff | hist) ... (+37) ... N File 1314-2017.pdf (Metadata Paper PDF with Roberta Glass) (current)
- 12.08, 25 October 2016 (diff | hist) ... (+20) ... N File Chryse.png (Mapping Mars surface) (current)
- 12.03, 25 October 2016 (diff | hist) ... (+51) ... N File MWSUG2016 wordcloud DV05R2.jpg (Wordcloud for Red Rover, Red Rover: MWSUG 2016 DV05) (current)
- 12.02, 25 October 2016 (diff | hist) ... (+47) ... N File MWSUG 2016 Hadden DV05R2.pdf (Paper for Red Rover, Red Rover: MWSUG 2016 DV05) (current)
- 12.01, 25 October 2016 (diff | hist) ... (+55) ... N File MWSUG 2016 DV05R1.pptx (Presentation for Red Rover, Red Rover - MWSUG 2016 DV05) (current)
- 15.41, 20 July 2016 (diff | hist) ... (+117) ... m Tips Talk Setting Data using Data list (current)
- 08.53, 9 April 2015 (diff | hist) ... (+54) ... N File Poster3459-2015.pptx (e-Poster for PROC CATALOG: The Washbook SAS Procedure) (current)
- 08.52, 9 April 2015 (diff | hist) ... (+57) ... N File Paper3459-2015.pdf (Final paper for PROC CATALOG: The Washbook SAS Procedure) (current)

COMMUNITIES.SAS.COM

My desire to find a new home for my papers and other materials led me to SAS communities, on communities.sas.com. There are many excellent resources describing how to get started, including blogs and articles in the SAS communities libraries, but there weren't any on how to do a wholesale move of content from one platform to the other. Spoiler alert – there isn't a way for content to magically apparate between the two sites! I told Chris Hemedinger, one of the community managers and an amazing SAS practitioner and generous blogger, of my predicament, and he, Shelley Sessoms and I went through the process of moving a page on www.sascommunity.org to an article on communities.sas.com. There's a lot of great functionality on communities.sas.com that both mirrors the capabilities on sascommunity.org and builds on them, including a very robust Q&A section, that I encourage readers to explore; however, this paper is focused on articles. There's also an excellent article on communities.com on how to write an article, noted in the references, that is very helpful for starting and editing an article, but it does not cover how to retrieve content from www.sascommunity.org.

SET UP A USER ACCOUNT ON COMMUNITIES.SAS.COM

In order to author articles, you need to establish a presence on the site. Join an affinity group – are you going to a user group conference? Are you using SAS Viya? There are groups for all interests. Accumulate points by reading and commenting on posts, asking and answering questions, communicate with community managers, etc. There's also SAS swag for active participants! Once you have enough points (it's not hard, I promise!), when you go into the SAS communities library, you'll see an option to start a New Article. If you are starting a new article from scratch, you can just jump right in, following the published guidelines. The community managers are there to help you – ask questions if you need.

RETRIEVE CONTENT FROM SASCOMMUNITY.ORG (OR ELSEWHERE!)

In order to author articles, you need to establish a presence on the site. Join an affinity group – are you going to a user group conference?

← → ↻ Not secure | sascommunity.org/wiki/PROC_DOC_III_Self-generating_Codebooks_Using_SAS®

As the first step in the decommissioning of sasCommunity.org the site has been converted to read-only mode.

Here are some tips for How to share your SAS knowledge with your professional network.

PROC DOC III: Self-generating Codebooks Using SAS®

Author: Louise Hadden, Abt Associates Inc.

Abstract

This paper will demonstrate how to use good documentation practices and SAS® to easily produce attractive, camera-ready data codebooks (and accompanying materials such as label statements, format assignment statements, etc.) Four primary steps in the codebook production process will be explored: use of SAS metadata to produce a master documentation spreadsheet for a file, review and modification of the master documentation spreadsheet, import and manipulation of the metadata in the master documentation spreadsheet to self-generate code to be included to generate a codebook, and use of the documentation metadata to self-generate other helpful code such as label statements. Full code for the example shown (using the SASHELP. HEART data base) will be provided upon request.

The most onerous task any SAS programming professional faces is to accurately document files and processes. The truth is that there are no easy answers to the documentation quandary. It takes hard, painstaking work! By setting careful standards at the outset of a programming task, documenting your processes, labelling your data files and variables, providing value labels (formats) for your variables when appropriate, and using the many tools the SAS® system provides to assist in the documentation process, producing codebooks can be a piece of cake.

Electronic Files

View the paper PDF for PROC DOC III: Self-generating Codebooks Using SAS®.

View the PowerPoint Presentation for PROC DOC III: Self-generating Codebooks Using SAS®.

Sample Code for PROC DOC III: Self-generating Codebooks Using SAS®. [ZIP file](#).

Additional Information



Scan the QR code or click below for more of my papers and presentations (some with friends!)

Extension: C:\Users\Hadden\Documents | PharmaSUG 2017

www.sascommunity.org/wiki/File:Ceeotter56_Papers_and_Presentations_QR_Code.png

QT-07_PharmaSUG...zip Hadden_QT-07_Ph...pdf QT-07_PharmaSU...pptx Show all

Go to the location of your chosen contents (I chose a paper on self-generating codebooks). I copied the abstract and pasted directly into the body of a matching article I'd created on Communities.sas.com, but needed to download the files in the Electronic Files to my computer. Like the original wikis, sascommunity.org stores metadata on revisions, etc. as seen below.

← → ↻ Not secure | sascommunity.org/wiki/File:Chryse.png



NAME

Chryse ridged plains material	Chryse unit 1	Chryse unit 2
Chryse unit 3	Chryse unit 4	Cratered terrain
Vallis unit 1	Vallis unit 2	Lunar ridged plains material
Member 4 of Tharsis Formation	Member 5 of Tharsis Formation	Older channels
Syria Planum Formation	Vallis Marineris interior deposit	Xanthe chaotic terrain
Xanthe outflow channels		

Size of this preview: 720 × 600 pixels.

Original file (864 × 720 pixels, file size: 91 KB, MIME type: image/png)

Mapping Mars surface

File history

Click on a date/time to view the file as it appeared at that time.

	Date/Time	Thumbnail	Dimensions	User	Comment
current	12:08, 25 October 2016		864 × 720 (91 KB)	Ceeotter56 (Talk contribs)	Mapping Mars surface

• Upload a new version of this file

File usage

The following page links to this file:

- Red Rover, Red Rover, Send Data Right Over: Exploring External Geographic Data Sources with SAS

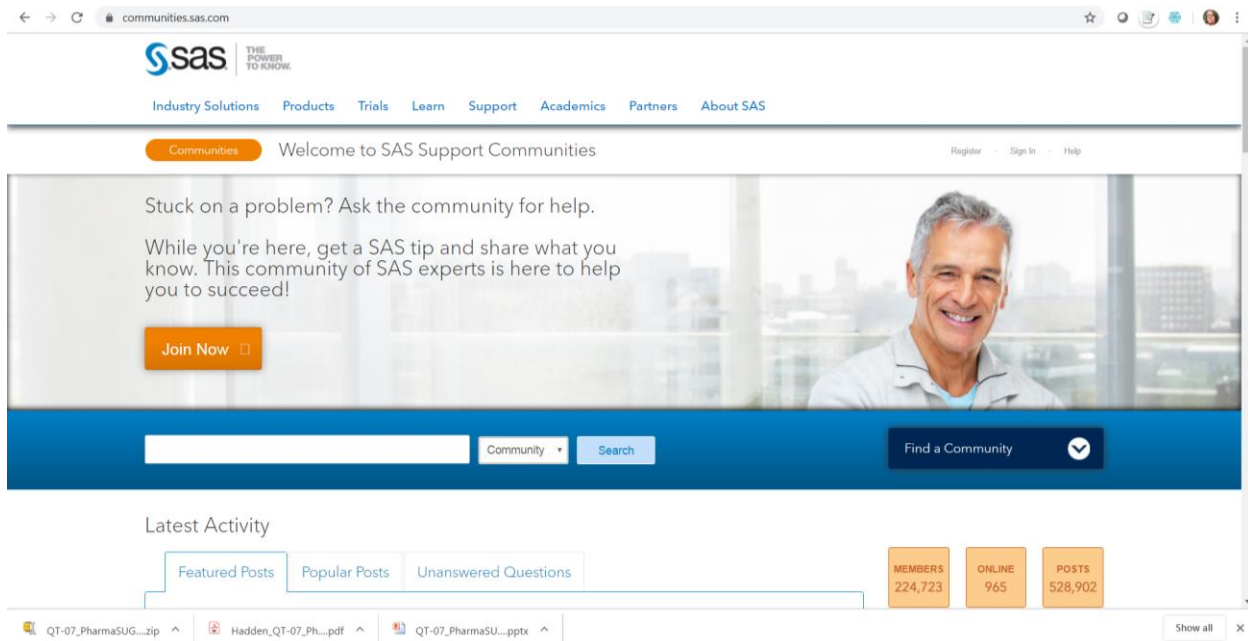
Metadata

This file contains additional information, probably added from the digital camera or scanner used to create or digitize it. If the file has been modified from its original state, some details may not fully reflect the modified file.

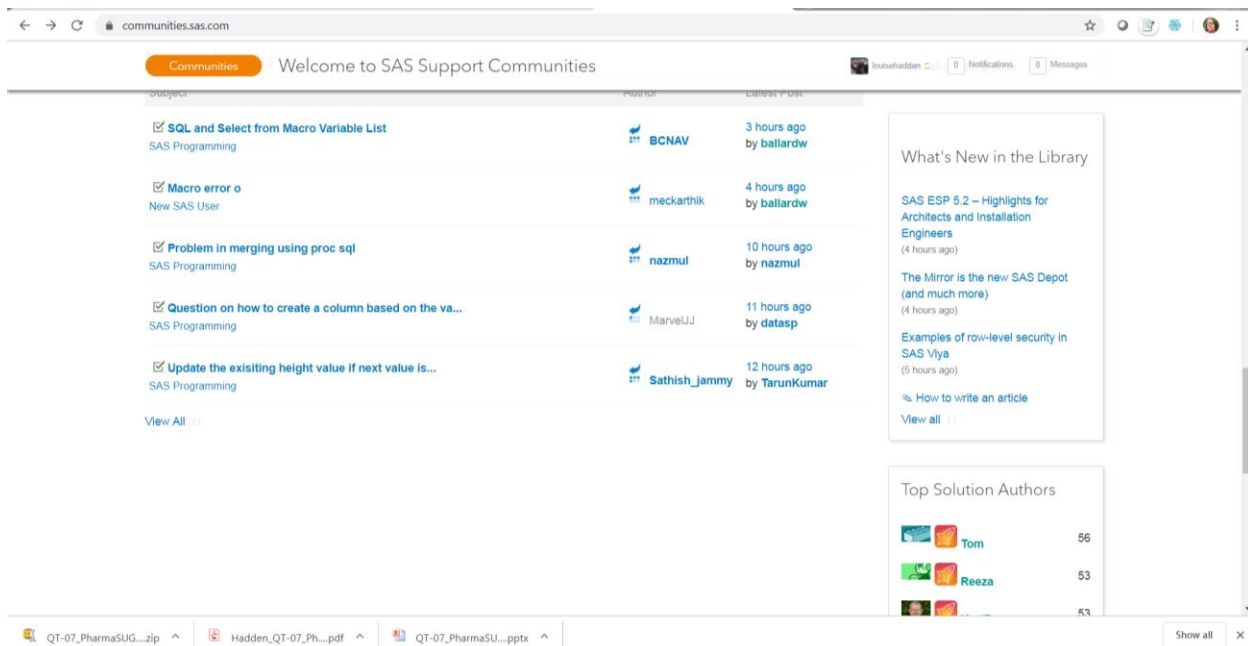
[Show extended details](#)

QT-07_PharmaSUG...zip Hadden_QT-07_Ph...pdf QT-07_PharmaSU...pptx Show all

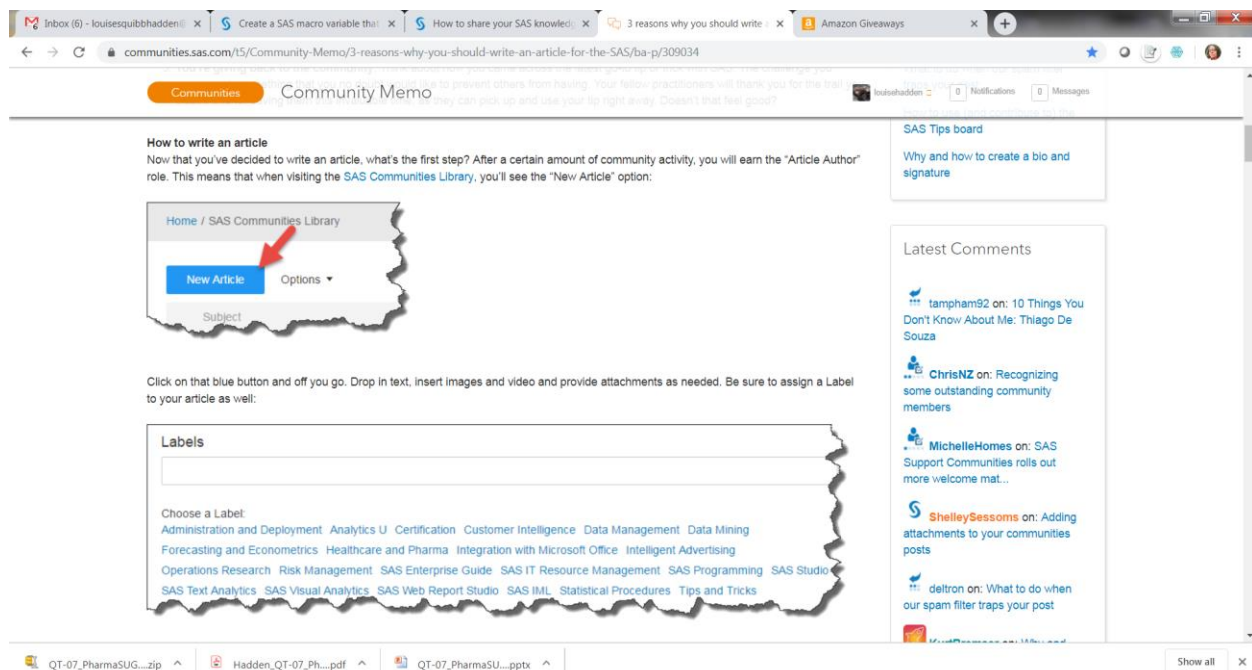
Once the content you want to transfer has been downloaded, open your article on communities.sas.com (if it is not already open).



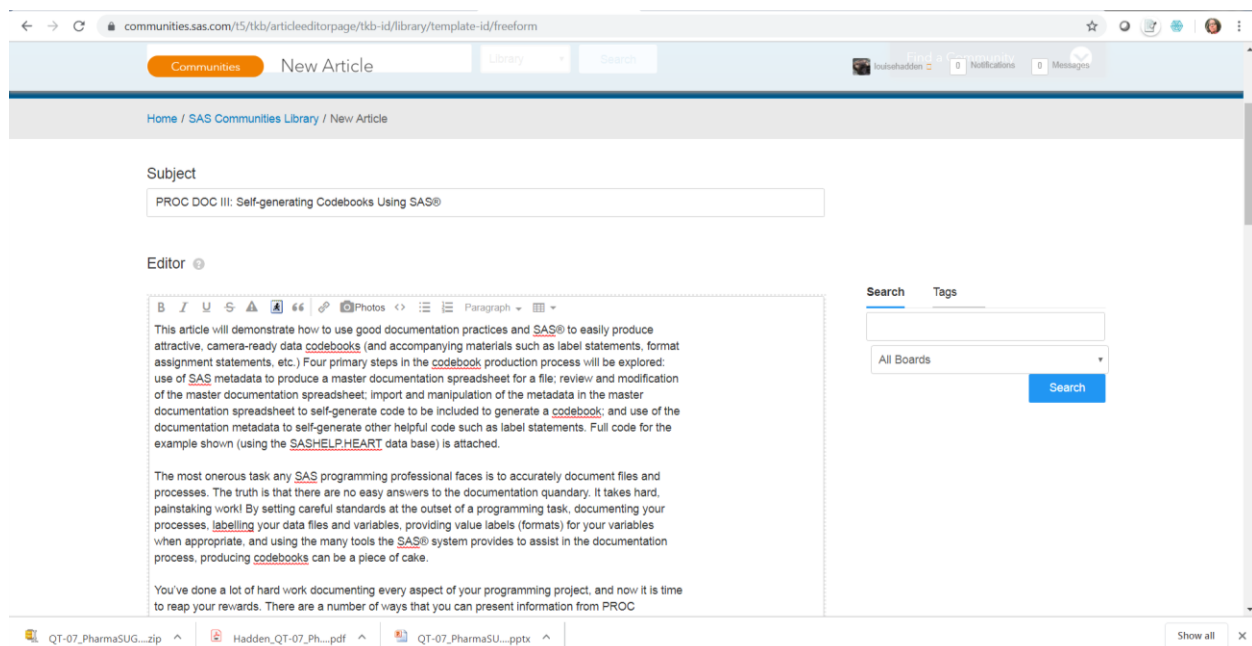
Once the content you want to transfer has been downloaded, log into communities.sas.com and open the matching article (if it is not already open). Note that on the bottom right there's a link to "How to write an article" which I highly recommend keeping open as you work as a reference.



Once the content you want to transfer has been downloaded, log into communities.sas.com and open the matching article (if it is not already open). Note that on the bottom right there's a link to "How to write an article" which I highly recommend keeping open as you work as a reference.



Follow the instructions and press the blue button! Put the title of your article in the subject section and enter text in the editor.



Note the tool bar in the editor. It includes a button for a special window to insert SAS code, the ability to insert pictures, and the ability to manage quotes, etc. In addition, before you can publish an article, you need to choose labels, or keywords.

communities.sas.com/t5/tkb/articleeditorpage/tkb-id/library/template-id/freeform

New Article

2gen_metadata_PHARMASUG_2017_QT07.sas. I am using a modified copy of SASHELP.HEART as the sample data set. For several reasons, one of which is that not all variables are labelled, requiring some changes. Another reason is that this data set is available to all SAS users.

Code snippet from gen_metadata_PHARMASUG_2017_QT07.sas:

Autosaved at 5:06 PM

Labels

SAS Conference Papers, SAS User Groups, Tips and Tricks, SAS Programming

Choose a Label:

Administration and Deployment Analytics U Architecture Certification Customer Intelligence Data Management Data Mining Data Science Academy SAS Event Stream Processing Fraud and Financial Crimes Forecasting and Econometrics Healthcare and Pharma Integration with Microsoft Office Intelligent Advertising Internet of Things New SAS User Operations Research Risk Management SAS Enterprise Guide SAS IT Resource Management SAS Integration Technologies SAS Programming SAS Studio SAS Text Analytics SAS Visual Analytics SAS Viya SAS Web Report Studio SAS IML Statistical Procedures Tips and Tricks SAS User Groups SAS Visual Investigator SAS Conference Papers Developers

Featured Article Teaser

The text you enter here appears as an introductory teaser when this article is featured.

Let your program write your `codebook` for you! Easy, reproducible documentation is possible with the click of a mouse.

Related Links

This Revision

No Related Links for this Revision

Contributors

This Revision

No Contributors for this Revision

Subscriptions

Show all

QT-07_PharmaSUG.zip Hadden_QT-07_Ph...pdf QT-07_PharmaSU...pptx

You have several choices when publishing – I usually choose to save, but not publish, until I’m sure my article is correct. You are able to go back and edit at any point.

communities.sas.com/t5/tkb/dashboardpage/tkb-id/library

Library Article Dashboard

Find a Community

Home / SAS Communities Library / Library Article Dashboard

Nominated Posts (8) Approved Topics (2) **Drafts (44)** Unpublished Revisions (20)

Subject	Author	Started	Revised by	Revised
PROC DOC III: Self-generating Codebooks Using SAS®	louisehadden	3m ago	louisehadden	3m ago
Extracting Information from Text Documents in Busi...	PatriciaNeri	6 hours ago	PatriciaNeri	6 hours ago
How to create more SAS Visual Analytics visualizat...	NasMuhammad	Monday	AnnaBrown	Tuesday
Extracting Information from Text Documents in Busi...	PatriciaNeri	07-01-2019 12:55 PM	PatriciaNeri	07-01-2019 12:55 PM
Why combining Data Driven Content, D3 and CAS is G...	Mark_Geldart	06-21-2019 05:22 AM	Mark_Geldart	06-21-2019 05:22 AM
Factorization Machines, Visual Analytics & Persona...	suneelgrover	05-23-2019 10:37 AM	suneelgrover	05-23-2019 10:37 AM

QT-07_PharmaSUG.zip Hadden_QT-07_Ph...pdf QT-07_PharmaSU...pptx

You have several choices when publishing – I usually choose to save, but not publish, until I’m sure my article is correct. You are able to go back and edit at any point by looking in the drafts.

communities.sas.com/15/SAS-Communities-Library/PROC-DOC-III-Self-generating-Codebooks-Using-SAS/ta-p/578834

Communities SAS Communities Library Success! Your changes were saved as revision 4. louisehadden 0 Notifications 0 Messages

[Edit](#) [Article Options](#)

PROC DOC III: Self-generating Codebooks Using SAS® (2 Views)

by [louisehadden](#) a minute ago

Labels: [SAS Conference Papers](#), [SAS Programming](#), [SAS User Groups](#), [Tips and Tricks](#)

This article will demonstrate how to use good documentation practices and SAS® to easily produce attractive, camera-ready data codebooks (and accompanying materials such as label statements, format assignment statements, etc.) Four primary steps in the codebook production process will be explored: use of SAS metadata to produce a master documentation spreadsheet for a file; review and modification of the master documentation spreadsheet; import and manipulation of the metadata in the master documentation spreadsheet to self-generate code to be included to generate a codebook; and use of the documentation metadata to self-generate other helpful code such as label statements. Full code for the example shown (using the SASHELP.HEART data base) is attached.

The most onerous task any SAS programming professional faces is to accurately document files and processes. The truth is that there are no easy answers to the documentation quandary. It takes hard, painstaking work! By setting careful standards at the outset of a programming task, documenting your processes, labelling your data files and variables, providing value labels (formats) for your variables when appropriate, and using the many tools the SAS® system provides to assist in the documentation process, producing codebooks can be a piece of cake.

You've done a lot of hard work documenting every aspect of your programming project, and now it is time to reap your rewards. There are a number of ways that you can present information from PROC CONTENTS and PROC DATASETS covered in many other papers, including some of my own. We are going to focus on the use of an intermediate spreadsheet to drive creation of a robust codebook with self-generating code.

[Learn more](#)

Looking for the Ask the Expert series? Find it in its new home: [communities.sas.com/askexpert](#).

QT-07_PharmaSUG...zip Hadden_QT-07_Ph...pdf QT-07_PharmaSUG...pptx Show all

SAS AND GITHUB

You may have noticed that sascommunity.org allowed posting of SAS code and other items in zip files on pages. As the website became read-only, contributors looked for other venues to post their work. As you can see in the screenshot below, a search for github in sascommunity.org shows that contributors have moved some content to github – and this was prior to SAS providing numerous opportunities to use github as a versioning tool within SAS software products.

Not secure | sascommunity.org/mwiki/index.php?search=github&title=Special:Search

...script to get tables and columns information from SAS metadata (hosted on **GitHub**) ...overShell script to run a SAS program on a SAS Workspace server (hosted on **GitHub**)
3 KB (379 words) - 14.51, 9 April 2013

What's New
...r more recent SAS conferences. Code-based projects may be a better fit on **GitHub**, a site designed specifically for sharing code related to any technology
50 KB (7,524 words) - 09.26, 15 August 2018

Version control
...and paid closed-source plans. You can install their software [https://help.github.com/articles/set-up-git/ by selecting your operating system here]
...[https://red-badger.com/blog/2016/11/29/github-in-plain-english Git and **GitHub** in Plain English]
10 KB (1,647 words) - 14.16, 24 October 2017

SAS Viya
...hub.com/sassoftware/sas-viya-programming SAS Viya Programming Examples] on **GitHub**
1 KB (222 words) - 09.49, 27 October 2017

An Easier and Faster Way to Untranspose a Wide File
...munity.org, the macro, paper, Powerpoint, and Tip Sheet have been moved to **github** and can be downloaded by clicking on the following link: <tr><td valign="top"> [https://github.com/gerhard1050/Untranspose-a-Wide-File Click here to download the macro.p
3 KB (426 words) - 14.07, 6 April 2018

Excelling to Another Level with SAS
...munity.org, the macro, paper, Powerpoint, and Tip Sheet have been moved to **github** and can be downloaded by clicking on the following link: <tr><td valign="top"> [https://github.com/FriedEgg/Papers/tree/master/Excelling_to_Another_Level_with_SAS Click h
3 KB (422 words) - 08.39, 11 April 2018

View (previous 20 | next 20) (20 | 50 | 100 | 250 | 500)

Git was originally designed as a version control system for software development in the early 2000s. It was created by Linus Torvalds to assist with the development and maintenance of the Linux operating

system. It does not require access to a network or central server – it can function as a repository on stand-alone computers. Today, Git repositories have both remote (on a server) and local (on a computer) locations. Repositories may be transferred between remote and local locations, through committing, merging, pulling and cloning.

There are a number of Git repository hosting tools. My company uses Bitbucket and SourceTree to manage our Git repository. There are pros and cons to each type of hosting tool, and companies should research the choice of a hosting tool carefully. For the purposes of sharing SAS code, and not necessarily functioning as a versioning tool, SAS has set up its own Git repository, which can be accessed with different SAS features.

SAS GLOBAL FORUM 2019 GIT REPOSITORY

To accommodate presenters with code samples associated with their papers and presentations, SAS opened up a repository for SAS GF 2019. There were over 50 presentations represented in 2019. Code was submitted in a variety of fashions, and SAS has recorded a video presentation about using SAS with GIT, located at https://www.sas.com/en_us/webinars/using-sas-with-git.html.

- A literal string within double quotes. Examples: "dynamic data exchange" o
- Multiple words separated by a plus (+). The results must contain all words.
- Multiple words separated by blanks. The results must contain at least one o

TITLE contains

AND AUTHOR contains

Sort by: ☒ Date ☐ Title

Maximum number of results returned: **600**

Returned **16** result(s) sorted by month DESC, title.

[Experimental new feature] Save all search results as:

Filter

[1] [SAS® Functions to Drive Source Control with Git](#)
Danny Zimmerman
SAS Global Forum 2019
Keywords: SAS Studio, Git, Base SAS
 [code from GitHub](#)
[sgf2019.3057-2019]



Shown directly above is a screen shot of a search in Lex Jansen's web site. As you can see, code for the paper is available in GitHub via a link. It's one stop shopping at its best!

USING GIT FROM WITHIN SAS

As of SAS V9.4 M6, SAS has built on a number of ways to seamlessly incorporate GIT into SAS processes:

- Git Functions (GITFNs) – can be used with data _null_;
 - GITFN_CLONE: clones a Git repository to the SAS server
 - GITFN_COMMIT: commits staged files to the local repo
 - GITFN_DIFF: returns differences between commits in the local repo, and documents the committed differences in a record object
 - GITFN_PUSH: sends the committed files in the local repo to the remote repo
 - GITFN_NEW_BRANCH: Creates a Git branch
- Git plug-in in SAS Data Integration Studio

- Git support in SAS Enterprise Guide
 - Built-in Git support within EGPs
 - Store EGPs and SAS programs together in Git repo
- Git support in SAS Studio (production in V3.8)
 - Manage SAS Studio programs in a Git repository
 - Add custom tasks from GitHub

All these tools in a variety of platforms and products allow the SAS practitioner to manage and share SAS code seamlessly.

CONCLUSION

SAS users, and SAS, provided a great collaboration tool in sascommunity.org, which set a high bar for functionality at a time when SharePoint, Confluence and the like did not yet exist. Content that was built on the sascommunity.org platform can be transported to the SAS hosted communities.sas.com and to Git repositories, some SAS conference specific, via SAS procedures and products. All SAS users are welcome to contribute to communities.sas.com, through supplying contents, and asking and answering questions in community forums, and to utilize SAS to publish code to Git repositories through SAS functions and products such as Enterprise Guide, SAS Studio and SAS Data Integration Studio.

REFERENCES

- Brown, Anna. "3 Reasons why you should write an article for the SAS Communities Library." <https://communities.sas.com/t5/Community-Memo/3-reasons-why-you-should-write-an-article-for-the-SAS/ba-p/309034>
- Brown, Anna. "User Guidelines for SAS Support Communities – SAS Support Communities." https://communities.sas.com/t5/tkb/articleprintpage/tkb-id/community_articles/article-id/281
- Brown, Beverly. "Meet your community managers – SAS Support Communities." https://communities.sas.com/t5/tkb/articleprintpage/tkb-id/community_articles/article-id/258
- Brown, Beverly. "5 Features of an Awesome SAS Communities Profile – SAS Support Communities." https://communities.sas.com/t5/tkb/articleprintpage/tkb-id/community_articles/article-id/300
- Carlson, Aaron. April 2018. "From Idea to Implementation: How a SAS® Communities Thread Changed How Sleep Number Direct Markets." *Proceedings of SAS Global Forum 2018 Conference*, Denver, CO. <https://www.sas.com/content/dam/SAS/support/en/sas-global-forum-proceedings/2018/2756-2018.pdf>
- Carpenter, Art. May 2010. "sasCommunity.org - Your SAS® Site: What it is and How to Get Started." *Proceedings of PharmaSUG 2010 Conference*, Orlando, FL. <https://www.lexjansen.com/pharmasug/2010/TT/TT09.pdf>
- Carpenter, Art and Henderson, Don. April 2013. "Taking Full Advantage of sasCommunity.org: Your SAS® Site." *Proceedings of the SAS Global 2013 Conference*, San Francisco, CA. <https://support.sas.com/resources/papers/proceedings13/147-2013.pdf>
- Childress, Spencer and Rosanbalm, Shane. February 2019. "Make Github Your Code Repository." *Proceedings of the PhUSE 2019 Conference*, Baltimore, MD. <https://www.lexjansen.com/nesug/nesug08/as/as07.pdf>
- Cloutier, Ray. September 2018. "The WWW of the WIKI sasCommunity.org." *Proceedings of the Northeast SAS Users Group 2008 Conference*, Pittsburgh, PA. <https://www.lexjansen.com/phuse-us/2019/ct/CT06.pdf>
- D'Agostino McGowan, Lucy. April 2017. "Streamline Your Workflow: Integrating SAS, LATEX, and R into a Single Reproducible Document." *Proceedings of SAS Global Forum 2017 Conference*, Orlando, FL. <https://support.sas.com/resources/papers/proceedings17/0876-2017.pdf>

Debois, Patrick. “8 ways to share your git repository”. www.jedi.be/blog/2009/05/06/8-ways-to-share-your-git-repository/

DeMars, AnnMaria. “Another tip for becoming a better programmer – AnnMaria’s Blog.” <https://www.thejuliagroup.com/blog/another-tip-for-becoming-a-better-programmer/>

Dundas-Lucca, Carrie and Gomez, Ivan. October 2017. “Git with It and Version Control!” *Proceedings of PhUSE 2017 Conference*, Edinburgh, Scotland. <https://www.lexjansen.com/phuse/2017/ct/CT10.pdf>

Flynn, Joe, Smith, Casey, and Song, Alex. March 2014. “Check it Out! Versioning in SAS® Enterprise Guide®.” *Proceedings of SAS Global Forum 2014 Conference*, Washington, DC. <https://support.sas.com/resources/papers/proceedings14/SAS179-2014.pdf>

Harper, Renee and Zender, Cynthia. April 2012. “Community Discovery: Best Tips and Features from Communities on SAS®.” *Proceedings of SAS Global Forum 2012 Conference*, Orlando, FL. <https://support.sas.com/resources/papers/proceedings12/189-2012.pdf>

Hemedinger, Chris. “Using built-in Git operations in SAS - The SAS Dummy.” Available <https://blogs.sas.com/content/sasdummy/2017/12/14/sas-professional-sharing/>

Hemedinger, Chris. “How to share your SAS knowledge with your professional network - The SAS Dummy.” Available <https://blogs.sas.com/content/sasdummy/2019/01/17/git-in-sas/>

Hemedinger, Chris. “How to use (and contribute to) the SAS Tips board.” <https://communities.sas.com/t5/Community-Memo/How-to-use-and-contribute-to-the-SAS-Tips-board/ba-p/447506>

Hu Jiangtang. October 2013. “The Hitchhiker's Guide to Github: SAS Programming Go Social.” *Proceedings of the Southeast SAS Users Group 2013 Conference*, St Pete Beach, FL. <https://analytics.ncsu.edu/sesug/2013/PA-04.pdf>

Lafler, Kirk Paul and Shipp, Charles Edwin. November 2014. “Connect with SAS® Professionals Around the World with LinkedIn and sasCommunity.org.” *Proceedings of the South Central SAS Users Group Conference 2011*, Austin, TX. <https://www.lexjansen.com/scsug/2014/Connect-with-SAS-Professionals-Around-the-World-with-LinkedIn-and-sasCommunity.pdf>

Lafler, Kirk Paul and Shipp, Charles Edwin. May 2011. “Using LinkedIn and sasCommunity.org as Human Resource Tools for Managing a Network of SAS® Professionals.” *Proceedings of the PharmaSUG Conference 2011*, Nashville, TN. <https://www.lexjansen.com/pharmasug/2011/MA/PharmaSUG-2011-MA06.pdf>

Muller, Roger D. October 2015. “Making Historical Versions of SAS® Code While Developing in Enterprise Guide 7.1.” *Proceedings of the Midwest SAS Users Group Conference 2011*, Omaha, NB. <https://www.lexjansen.com/mwsug/2015/RF/MWSUG-2015-RF-16.pdf>

Sessoms, Shelley. “Introductions are in order – SAS Support Communities.” <https://communities.sas.com/t5/tkb/articleprintpage/tkb-id/library/article-id/48>

Shipp, Charles Edwin. November 2011. “Connect with SAS® Professionals Around the World with LinkedIn and sasCommunity.org.” *Proceedings of the South Central SAS Users Group Conference 2011*, Fort Worth, TX.

Shipp, Charles Edwin. November 2011. “Connect with SAS® Professionals Around the World with LinkedIn and sasCommunity.org.” *Proceedings of the South Central SAS Users Group Conference 2011*, Fort Worth, TX.

Slain, Jared. March 2017. “A User Guide for the PhUSE GitHub Repository”. *Proceedings of the CSS-US PhUSE Conference 2017*, Silver Spring, MD. https://www.lexjansen.com/css-us/2017/PP17_Final.pdf

Sridhar, Aditya. “An introduction to Git: what it is, and how to use it.” <https://www.freecodecamp.org/news/what-is-git-and-how-to-use-it-c341b049ae61>

Zimmerman, Danny. April 2019. “SAS Functions to Drive Source Control with Git.” *Proceedings of SAS Global Forum 2019 Conference*. Dallas, TX. <https://www.sas.com/content/dam/SAS/support/en/sas->

[global-forum-proceedings/2019/3057-2019.pdf](https://github.com/sascommunities/sas-global-forum-2019/tree/master/3057-2019-Zimmerman) <https://github.com/sascommunities/sas-global-forum-2019/tree/master/3057-2019-Zimmerman>

ACKNOWLEDGMENTS

The author would like to express her appreciation for the help and advice from Chris Hemedinger and Shelley Sessoms, and my colleague Claire Lay for her patient instruction on Git.

CONTACT INFORMATION

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

Louise S. Hadden
Abt Associates Inc.
617-349-2385
Louise_hadden@abtassoc.com
abtassociates.com

SAS and all other SAS Institute Inc. product or service names are registered trademarks or trademarks of SAS Institute Inc. in the USA and other countries. ® indicates USA registration.

Other brand and product names are trademarks of their respective companies.