



PRODUCTIVITY THROUGH METADATA VISIBILITY

Ten Treasure Trove Tips to Takeaway for SAS professionals

Michelle Homes
24th October 2017



Ahoy me hearties!



Yo Ho Ho! Get yer swagger on...
It's #TalkLikeAPirateDay



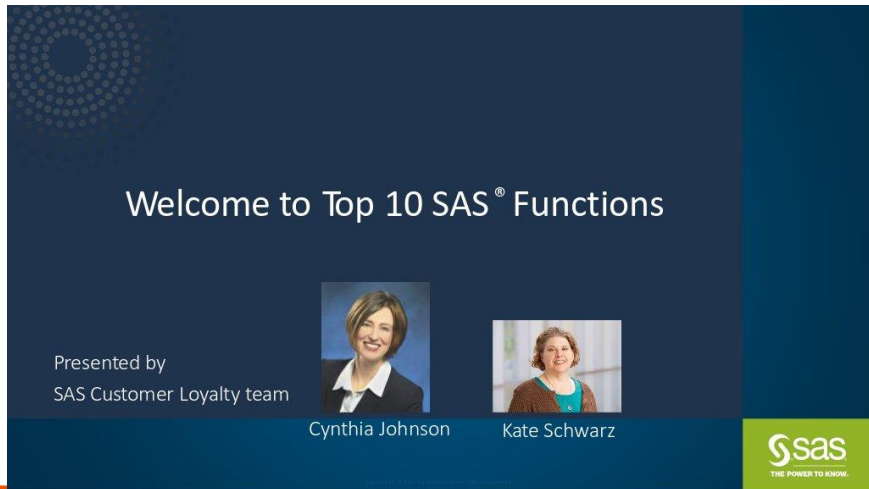
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Avast ye... Ten Treasure Trove Tips to Takeaway


Inspired by the August SAS Ask The Expert,
Top 10 SAS Functions webinar


<https://communities.sas.com/t5/SAS-Communities-Library/Top-10-SAS-Functions-August-22-2017-Q-and-A/ta-p/391244>




Welcome to Top 10 SAS® Functions

Presented by
SAS Customer Loyalty team

 Cynthia Johnson

 Kate Schwarz

 **sas**
THE POWER TO KNOW.



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Tip One

SAS Viya



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Tip One: SAS® Viya – where to start?

- SAS Viya Training Path
 - <http://support.sas.com/training/us/paths/viya.html>

Getting Started

FREE SAS Viya Enablement

FREE Ask the Expert

Administration

SAS Viya Administration:
Fundamentals

FREE SAS Viya Deployment and
Administration

Programming and Analytics

FREE An Introduction to SAS Viya
Programming for SAS 9
Programmers

FREE Statistical Procedures
videos

FREE Data Mining and Machine
Learning Procedures videos

FREE SAS APIs for Other
Languages videos

FREE SAS Econometrics videos

FREE SAS Forecasting videos

FREE SAS Optimization videos

SAS Visual Analytics on SAS Viya

NEW SAS Visual Analytics 1 for
SAS Viya: Basics

FREE SAS Visual Analytics on
SAS Viya: Video Library

FREE SAS Visual Data Mining and
Machine Learning: Video Library

NEW SAS Visual Statistics on SAS
Viya: Interactive Model Building

FREE SAS Visual Statistics on
SAS Viya: Video Library

Solutions

NEW SAS Visual Investigator:
Building the Interface

FREE SAS Visual Investigator:
Video Library



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Tip One: SAS® Viya – where to start?

■ Videos

- <http://video.sas.com/#category/videos/an-introduction-to-sas-viya-programming-for-sas-9-programmers>

How To Tutorials / SAS Viya /

An Introduction to SAS Viya Programming for SAS 9 Programmers

1-11 of 11

Search



Sort: Most Recent



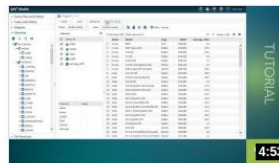
SAS® Viya™ Programming for SAS® 9 Programmers: Overview



Understanding Caslibs and Loading Data in SAS® Viya™



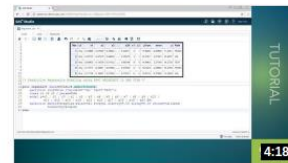
Using the DATA Step in SAS® Viya™



Processing Data in Groups with the DATA Step in SAS® Viya™



Creating User-Defined Formats with the FORMAT Procedure in SAS® Viya™



Regression Modeling Using the REGSELECT Procedure in SAS® Viya™



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Tip One: SAS® Viya – where to start?

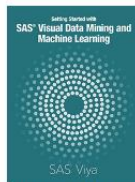
■ Documentation

- <http://support.sas.com/documentation/online/doc/viya/index.html>



SAS Viya 3.2

Featured Titles



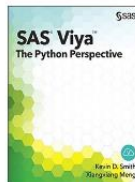
Getting Started with
SAS Visual Data Mining
and
Machine Learning



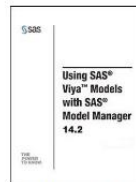
SAS Cloud Analytic
Services: Fundamentals



Differences in the SAS 9
and SAS Viya 3.2
Platforms



SAS Viya:
The Python
Perspective



Using SAS Viya
Models with SAS Model
Manager 14.2

What's New in SAS Viya 3.2

SAS 9.4 and SAS Viya 3.2 Programming Documentation

Deployment and Administration

- [Deployment Guide \(Linux\)](#)
- [Deployment Guide \(Cloud Foundry\)](#)
- [Administration](#)

Solutions and Offerings

- [SAS Visual Analytics](#)
- [SAS Visual Statistics](#)
- [SAS Visual Data Mining and Machine Learning](#)
- [SAS Optimization](#)
- [SAS Econometrics](#)
- [SAS Visual Forecasting](#)



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Tip One: SAS® Viya – where to start?

- SAS Global Forum 2017 Papers
 - Basic Ingredients for Blending the SAS® Client with SAS® Viya™
 - » <http://support.sas.com/resources/papers/proceedings17/SA0287-2017.pdf>
 - DATA Step in SAS® Viya™: Essential New Features
 - » <http://support.sas.com/resources/papers/proceedings17/SA0118-2017.pdf>
 - SAS® Viya™: What It Means for SAS® Administration
 - » <http://support.sas.com/resources/papers/proceedings17/SA0644-2017.pdf>



Tip Two



SAS Administration





Tip Two: SAS Security Best Practices

- Five papers on Recommended SAS 9.4 Security Model Design ([part 1](#) & [part 2](#)) as published by David Stern, Principal Technical Architect from the SAS Global Enablement and Learning (GEL) team.
- Following SAS GEL Security Rules with Metacoda Security Tests by Paul Homes
 - <https://platformadmin.com/blogs/paul/2017/06/sas-gel-security-rules-with-metacoda-security-tests/>





Tip Two: SAS Security Best Practices

- SAS® Security Model Design Golden Rules, Validation, and Monitoring webinar on 9th October
 - <http://bit.ly/SASUKMetacodaWebinar>

<div><div>+</div><div>...</div><div></div></div>							
<div><div>GEL Rule Summary:</div><div><div>GEL#1: ACTs (not ACEs)</div><div>GEL#2: Groups (not Users)</div></div><div><div>GEL#3: Explicit Groups Only Grant</div><div>GEL#4: Deny PUBLIC/SASUSERS</div></div><div><div>GEL#5: Remember Admins ACT</div><div>GEL#6: Design 1st, Implement Early</div></div><div><div>GEL#7: ACTs on Folders</div><div>GEL#8: Clear Simple Names</div></div></div>							



Tip Three



SAS programming



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Tip Three: INTNX and INTCK

- Computing the interval between two dates (a start date and an end date) there are two SAS functions that you absolutely must know about.
 - [The INTNX function](#) returns a SAS date that is a specified number of time units away from a specified date.
 - [The INTCK function](#) returns the number of time units between two dates.
- Rick Wicklin's blog post – options to compute anniversary dates 'CONTINUOUS' and 'SAME'
 - <https://blogs.sas.com/content/iml/2017/05/15/intck-intnx-intervals-sas.html>



Tip Four

SAS Visual Analytics



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Tip Four: Working with dates in SAS Visual Analytics

- Compare data for a selected date to data from the same day of the previous year.

Enter date			
23jun2003			
Transaction Date ▲	Product Sale	Transaction Weekday	
06/24/2002	14,384	Monday	
06/23/2003	13,282	Monday	

- [Bobby Wagoner](https://blogs.sas.com/content/sgf/2016/08/22/working-with-dates-in-sas-visual-analytics-comparing-to-the-previous-year/) series of date related SAS Visual Analytics blog posts
 - <https://blogs.sas.com/content/sgf/2016/08/22/working-with-dates-in-sas-visual-analytics-comparing-to-the-previous-year/>





Tip Four: Working with dates in SAS Visual Analytics

- SAS Visual Analytics Functions – Now, Parse, TreatAs

```
[ IF Param date NotMissing  
  RETURN Parse [ Param date  
                  ANYDTDTE20.  
                ]  
  ELSE DatePart ( Now ( ) )  
]
```

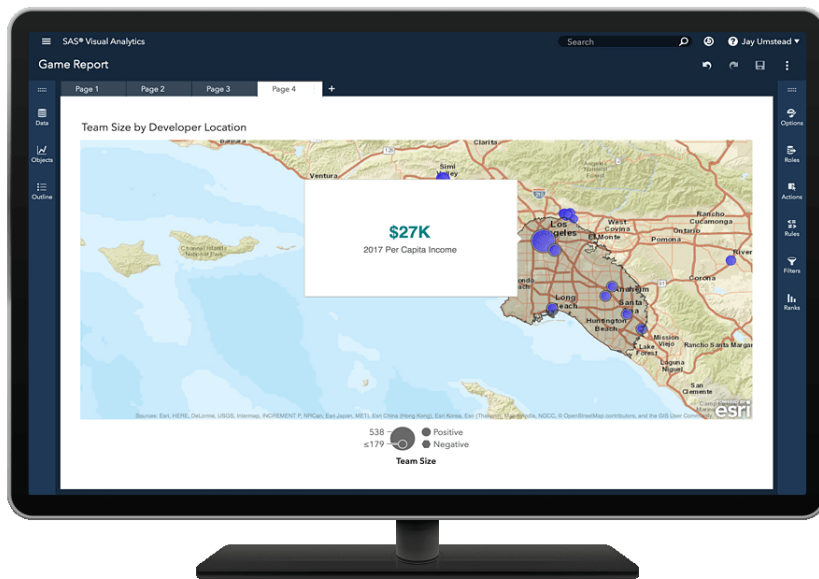
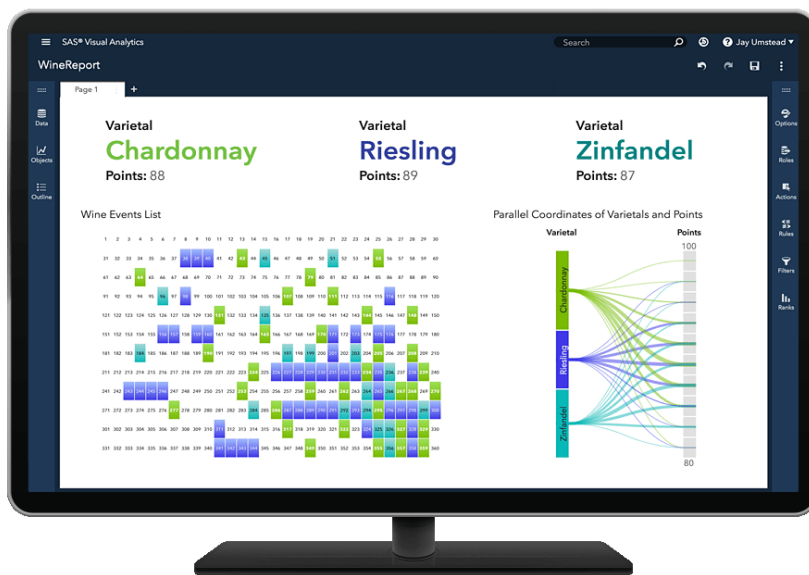
```
TreatAs [ _Date_ | ▼  
  ( TreatAs [ _Number_ | ▼  
              Ref Date  
            ] - 364 )  
]
```





Tip Four Bonus: SAS Visual Analytics 8.2 upcoming features

- New features planned for the next release
 - https://www.sas.com/en_us/software/visual-analytics/upcoming-features.html



Tip Five

New Features in Base SAS 9.4M5





Tip Five: New Features in Base SAS 9.4M5

- Gert Nissen – #SASNordicFANS shared highlights:
 - DATA step can run on the CAS server
 - ODS PDF statement ACCESSIBLE option is fully supported
 - New ODS destinations are EPUB, EPUB3, HTML5, and the ODS destination for PowerPoint
 - ODS Graphics now supports data tips and drill-down with HTML5 output
 - New ODS Graphics procedure SGMAP
 - New automatic macro variables
 - the ENCRYPT= data set option supports AES2 encryption
 - EMAIL (SMTP) supports attaching more than one file using multiple !EM_ATTACH! directives
 - ODS EXCEL option SHEET_INTERVAL= “NOW” to create a new worksheet.
 - FEDSQL/DS2 access the Amazon Redshift, Microsoft SQLServer, and Vertica data sources
 - In SAS 9.4M5, Windows 2016 is supported and much more.....

» <http://go.documentation.sas.com/?docsetId=basewn&docsetTarget=n0aoxnlicuhy0kn1l0pvgnn2k15e.htm&docsetVersion=9.4&locale=da>





Tip Five: another Gert #SASNordicFANS tip...

- Most popular posts on support.sas.com:
 - [Sample 24835](#): Sorting Your Data with PROC SORT (for Beginners)
 - [Sample 24590](#): Convert variable values from character to numeric or from numeric to character
 - [Sample 43303](#): Using the equivalent of CONTAINS and LIKE in an IF statement
 - [Sample 24591](#): Convert a character variable that represents a date into a SAS® date
 - [Sample 24670](#): Determine if a data set exists and conditionally execute additional steps
 - [Installation Note 38120](#): Support for SAS® Add-In for Microsoft Office in Microsoft Office 2016, 2013...
 - [Installation Note 34960](#): SAS® Enterprise Guide® support matrix
- <https://communities.sas.com/t5/SAS-Nordic-Users-Group/Blog-article-Some-of-the-most-viewed-on-http-support-sas-com/gpm-p/400686>



Tip Six

Making Graphs in SAS



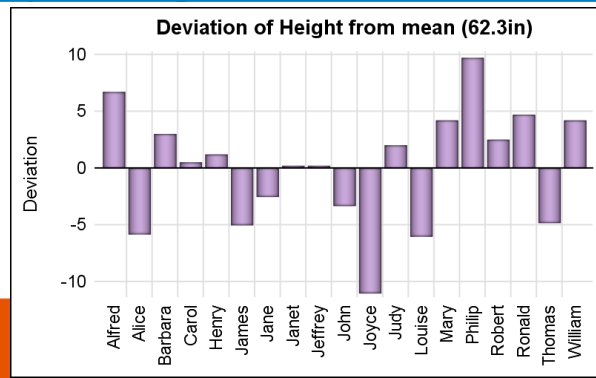
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Tip Six: Making Graphs in SAS

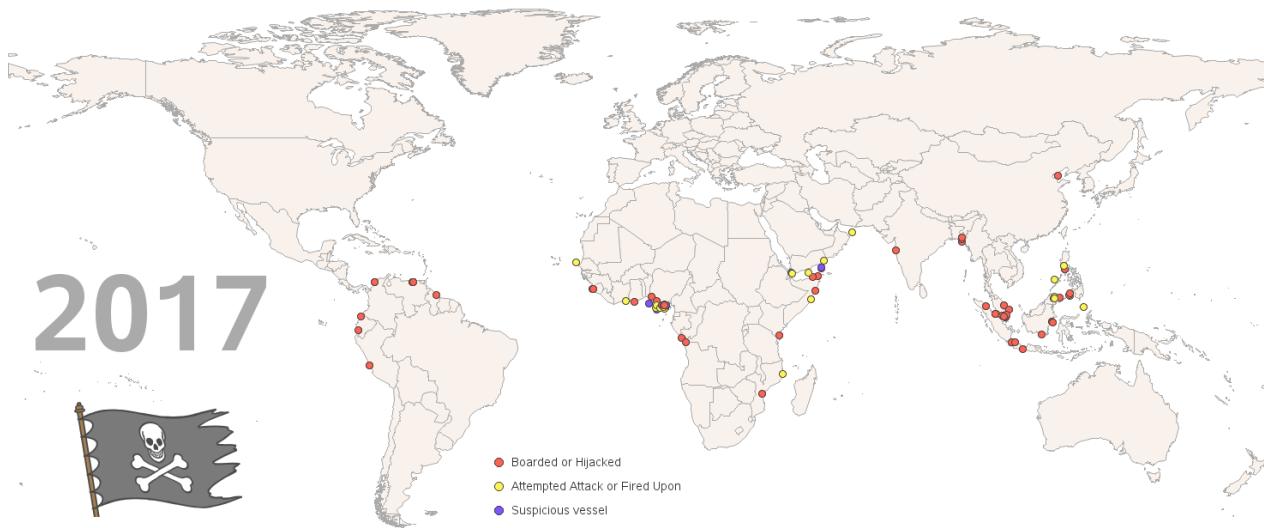
- Looking for a way to understand how ODS graphics work from the inside out?
 - ODS Graphics presentation by Sanjay Matange, R&D Director in the Data Visualization Division <https://communities.sas.com/t5/SAS-Communities-Library/Creating-graphs-with-ODS-Graphics-special-presentation/tap/373716>
- New features with SAS 9.4M5 <https://blogs.sas.com/content/graphicallyspeaking/2017/10/06/new-features-sas-9-40-m5/>



Tip Six: More dataviz tips!

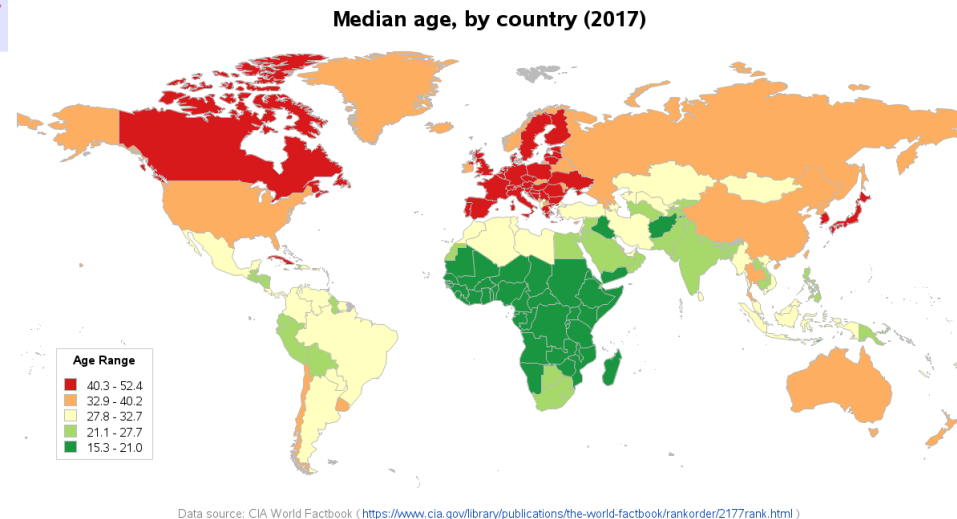
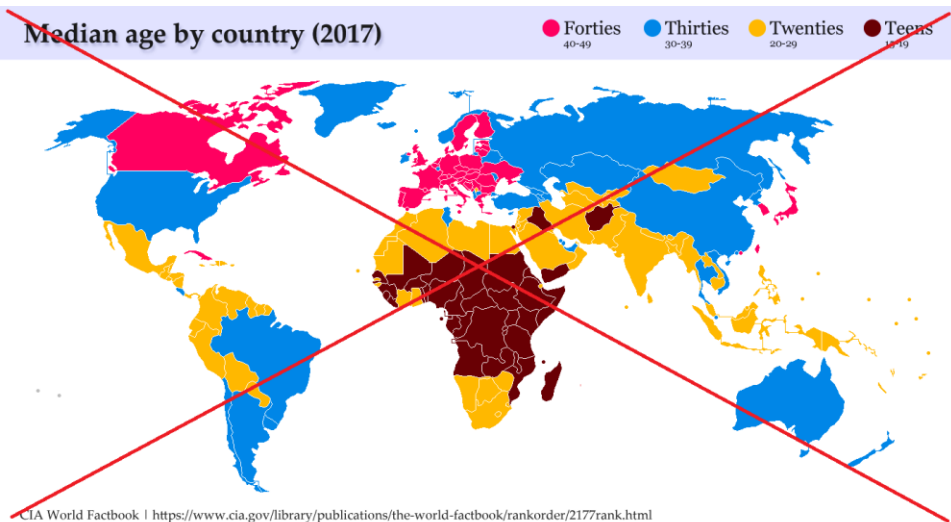
- Robert Allison's blog – SAS/Graph expert <https://blogs.sas.com/content/author/robertallison/>
- Where do modern day pirates attack?
<https://blogs.sas.com/content/sastraining/2017/09/01/where-do-modern-day-pirates-attack/>

This Year's Pirate Attacks (report generated: 31AUG2017)



Tip Six: More dataviz tips!

- Map: Median Age by Country <https://blogs.sas.com/content/sastraining/2017/06/15/map-median-age-by-country/>



Tip Seven

SAS Studio



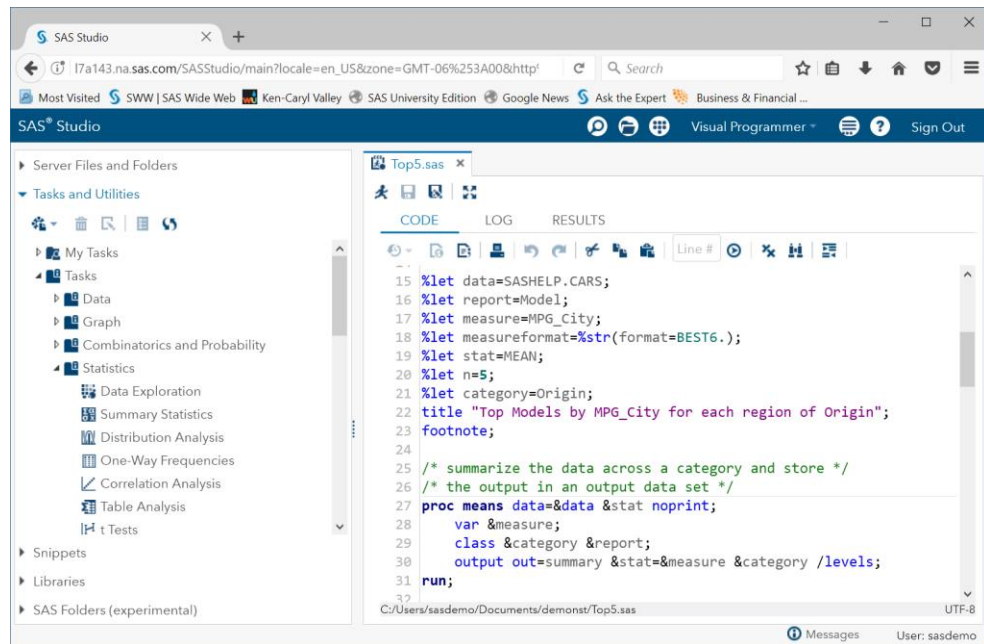
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Tip Seven: SAS Studio

- Show of hands...
 - If you know what SAS Studio is?
 - If you are using SAS Studio?
- Where to start learning SAS Studio?
 - Ask The Expert – SAS Studio: An Introduction (webinar recording, Q&A)
<https://communities.sas.com/t5/SAS-Communities-Library/Ask-the-Expert-SAS-Studio-An-Introduction-Webinar-recording-and/ta-p/373803>
 - SAS Studio Help Centre
http://support.sas.com/software/products/sas-studio/faq/SASStudio_what_is.htm



Tip Seven: SAS Studio - Tasks

- Tasks
 - Built-in tasks
 - Custom Tasks – Velocity Template Language
 - <https://communities.sas.com/t5/SAS-Communities-Library/Always-looking-for-a-shortcut-Custom-Task-Tuesday-is-for-you/ta-p/320053>
- [#CustomTaskTuesday](#)
- [SAS Studio Tasks on GitHub](#)



Tip Seven: SAS Studio - Tasks

■ Last week....

■ Three-panel Visualization SAS Studio Task

» <https://communities.sas.com/t5/SAS-Communities-Library/SAS-Custom-Task-Tuesday-How-to-create-the-Three-panel/tac-p/405832>



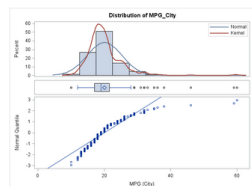
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Blogs

Business Technology Blog Directory Subscribe

A three-panel visualization of a distribution

By Rick Wicklin on The DO Loop | May 8, 2013



At a recent conference, I talked with a SAS customer who told me that he was using an R package to create a three-panel visualization of a distribution. Unfortunately, he couldn't remember the name of the package, and he has not returned my e-mails, so the purpose of today's article is to discuss some ideas related to this visualization and to solicit critiques of my implementation.

The customer wanted to create a paneled display in SAS that includes three graphs: a histogram, a box plot, and a normal quantile-quantile (Q-Q) plot. We sketched out an idea, and the plot at the left is my implementation of our sketch. (Click to enlarge.)

<https://blogs.sas.com/content/iml/2013/05/08/three-panel-visualization.html>

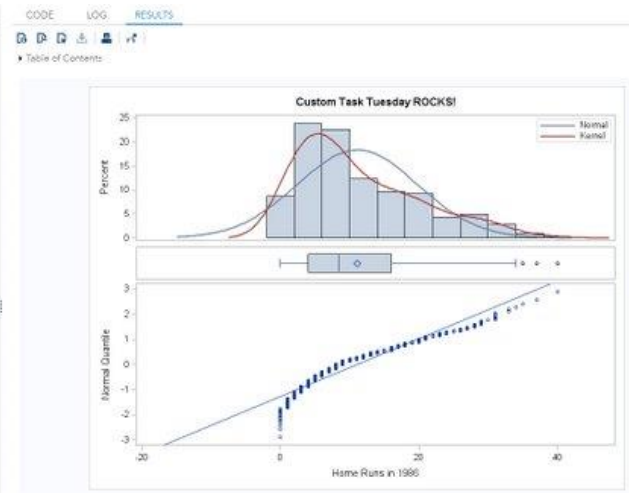
OPTIONS INFORMATION

• DATASET
SASHELP.BASEBALL

• PLOT VARIABLE
*Select variable to plot: (name) +
nhits

• OPTIONS
Enter a name plot title (optional):
Custom Task Tuesday ROCKS!

Height: 400
Width: 800



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Tip Eight

SAS Data Integration Studio



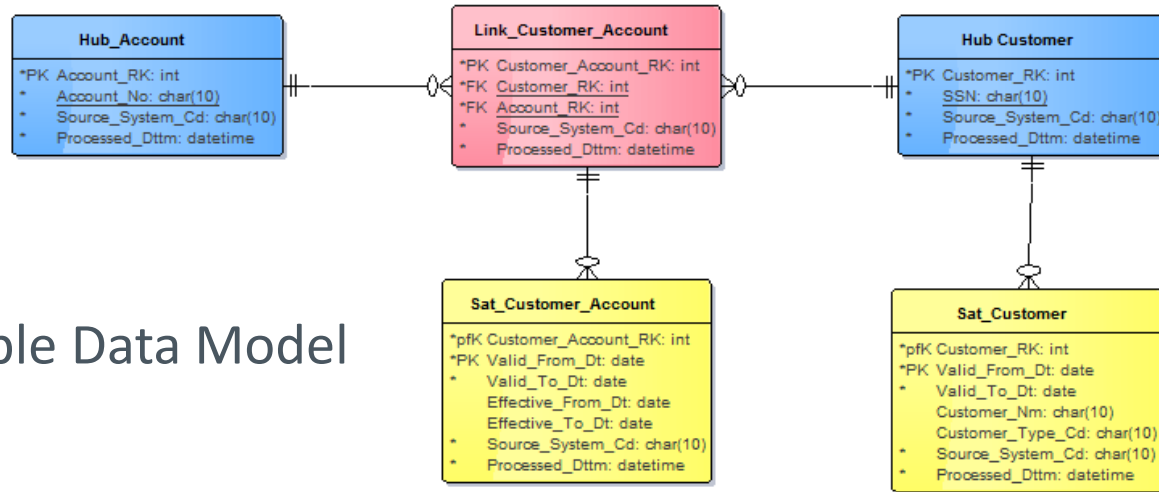
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Tip Eight: SAS DI Studio to Load a Data Vault

- Data Vault has been presented at previous QUEST meetings
- Summary article in SAS Community by Linus Hjorth
 - <https://communities.sas.com/t5/SAS-Communities-Library/Using-SAS-DI-Studio-To-Load-A-Data-Vault/ta-p/221697>

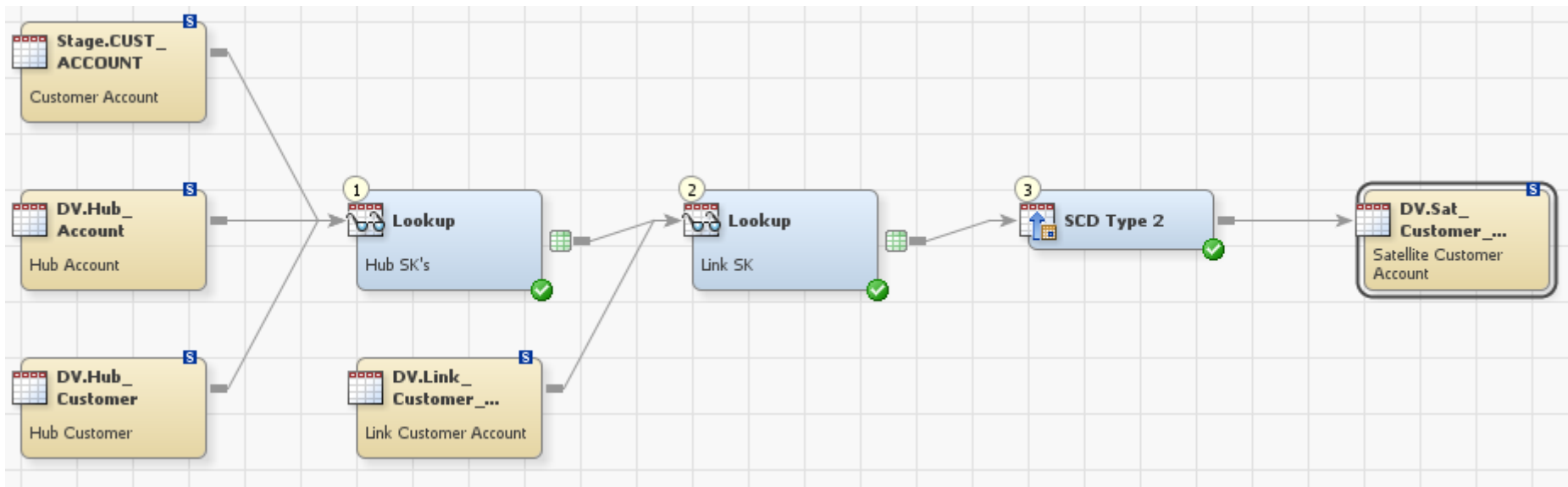


Sample Data Model



Tip Eight: SAS DI Studio to Load a Data Vault

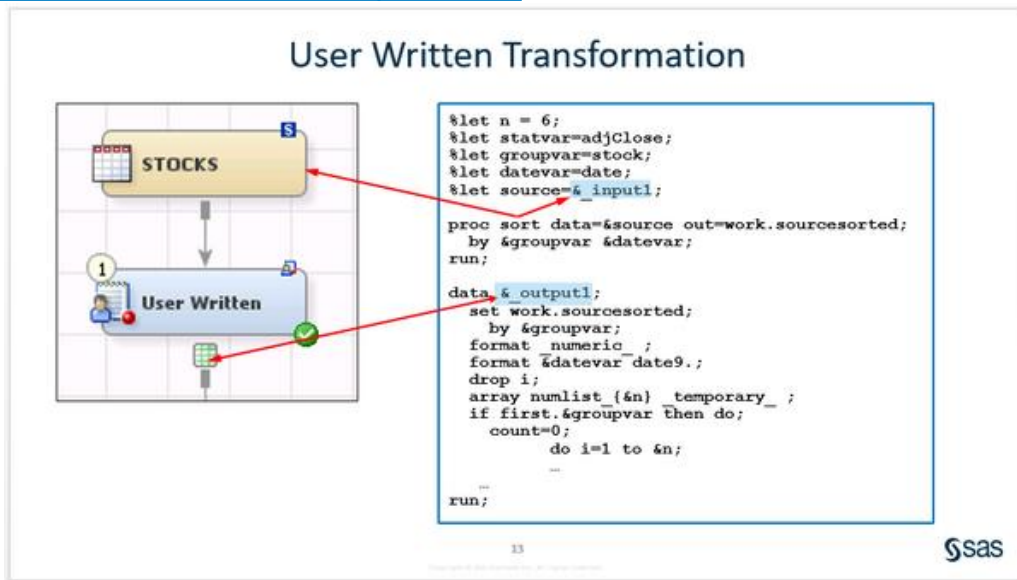
- Describes how to use SAS DI Studio for loading a data vault
 - Example - loading a link satellite





Tip Eight: Another SAS DI tip...

- Techniques for User Code in SAS Data Integration Studio
 - “user written body” – default choice
 - <https://communities.sas.com/t5/SAS-Communities-Library/Techniques-for-User-Code-in-SAS-Data-Integration-Studio-Ask-the/ta-p/399567>



Tip Nine

SAS Enterprise Guide



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Tip Nine: Enterprise Guide programming & non-programming tips

#SASNordicFANS Webinar
Tips & Tricks in SAS Enterprise Guide

- Autocomplete SAS code
- Style Manager
- Changes/commit/history
- Syntax tool tips
- Format code
- Prompts in EG Projects
- Clean up after submit
- Split screens
- Notes
- Three Log windows
- Analyze Program Flow
- SAS Macro Variable Viewer
- Conditional Execution
- System Options Viewer
- Projects with more flows
- Code highlighting
- Autoexec
- saspgrm.sas text files in EG Projects
- Zoom windows
- Type Where condition
- Data Step Debugger

September 4th 2017, 11am (CET)

<https://www.sas.com/sas/offers/nordic/17/nordic-webinar-series.html>



- <https://communities.sas.com/t5/Nordic-Events-and-Presentations/SASNordicFANS-Webinar-2-Sep-17-SAS-Enterprise-Guide-and/ba-p/392960>



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Tip Nine: Enterprise Guide “Hats”

- For All the Hats You Wear: SAS® Enterprise Guide® Has Got You Covered
 - <http://support.sas.com/resources/papers/proceedings13/412-2013.pdf>
- Ten SAS Enterprise Guide program editor tricks
 - <https://blogs.sas.com/content/sasdummy/2017/07/03/sas-program-editor-tricks/>



Tip Nine: Enterprise Guide “Hats”

- Define abbreviations for commonly used code

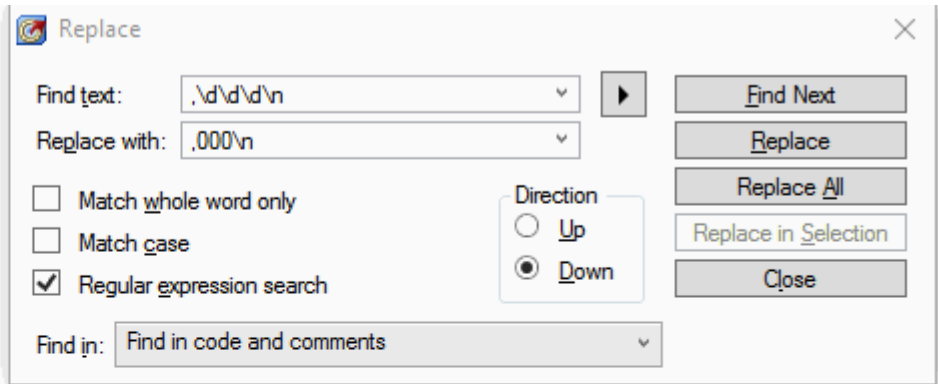
```
1 /* I've saved my libname in a snippet */ | I
```



Tip Nine: Enterprise Guide “Hats”

- Find (and replace) using regular expressions

3	Asia	\$36,945
4	Asia	\$23,820
5	Asia	\$26,990
6	Asia	\$33,195
7	Asia	\$43,755
8	Asia	\$46,100
9	Asia	\$89,765
10	Europe	\$25,940
11	Europe	\$35,940
12	Europe	\$31,840
13	Europe	\$33,430
14	Europe	\$34,480



Replace dialog box showing the configuration for finding and replacing text using regular expressions.

Find text: Find Next

Replace with: Replace

☐ Match whole word only

☐ Match case

☒ Regular expression search

Direction: ☐ Up ☒ Down

Replace All

Replace in Selection

Close

Find in:



Tip Ten

Get statistics into a data set



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Tip Ten: Get statistics into a data set

- Rick Wicklin's ODS blog - <https://blogs.sas.com/content/iml/2017/01/09/ods-output-any-statistic.html>

```
ods trace on;                                /* write ODS table names to log */  
proc reg data=Sashelp.Cars plots=none;  
    model Horsepower = EngineSize Weight;  
quit;  
ods trace off;                               /* stop writing to log */
```

Root MSE	44.37883	R-Square	0.6201
Dependent Mean	215.88551	Adj R-Sq	0.6183
Coeff Var	20.55665		

```
Output Added:  
-----  
Name:      FitStatistics  
Label:     Fit Statistics  
Template:  Stat.REG.FitStatistics  
Path:      Reg.MODEL1.Fit.Horsepower.FitStatistics  
-----
```





Tip Ten: Get statistics into a data set

- Specifically request only the FitStatistics report output as a data set

```
ods output FitStatistics=Output; /* the data set name is 'Output' */  
proc reg data=sashelp.cars plots=none; /* same procedure call */  
    model Horsepower = EngineSize Weight;  
quit;  
  
proc print data=Output noobs;  
run;
```

Model	Dependent	Label1	cValue1	nValue1	Label2	cValue2	nValue2
MODEL1	Horsepower	Root MSE	44.37883	44.378827	R-Square	0.6201	0.620136
MODEL1	Horsepower	Dependent Mean	215.88551	215.885514	Adj R-Sq	0.6183	0.618348
MODEL1	Horsepower	Coeff Var	20.55665	20.556649			0





Tip Ten: Get statistics into a data set

- Read the value of the statistic into a macro variable

```
data _null_;  
set Output;  
if Label2="R-Square" then call symputx("RSq", nValue2);  
run;
```

```
%put RSq = &RSq;
```

```
RSq = 0.6201360929
```

- Side note macro trick...
 - `%put RSq = &RSq;` since [SAS 9.3](#) this can be rewritten as `%put &=RSq;`



One more...
Terrific Treasure Tip



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Treasure Tip: SAS Support Communities

- <http://communities.sas.com>
- 3 Ways to Get Involved in SAS Communities



- <https://youtu.be/3jbotZsNrX0>



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Treasure Tip: SAS Communities are aWEsome!

Join Today – <http://communities.sas.com>



<https://www.metacoda.com/en/2017/09/sas-communities-are-awesome/>



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Questions?



Email: michelle.homes@metacoda.com



Web: www.metacoda.com



Twitter: twitter.com/homesatmetacoda



LinkedIn: linkedin.com/in/michellehomes



Facebook: facebook.com/Metacoda



YouTube: www.youtube.com/user/metacoda



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PRODUCTIVITY THROUGH METADATA VISIBILITY