

Paper SAS5188-2020

20 in 20: Quick Tips for SAS® Enterprise Guide® Users

Kelly Gray, SAS Institute Inc.

ABSTRACT

There are many time-saving and headache-saving tips and tricks you can use to make working in SAS® Enterprise Guide® a breeze. Did you know that you can create a process flow from a program with the click of a button? You will learn 20 tips and tricks for working in SAS Enterprise Guide in 20 minutes – tips for both SAS Enterprise Guide 7.x and 8.x. One tip per minute, and out of the twenty, you are guaranteed to find at least one nugget that will make your life easier.

INTRODUCTION

There is a difference between programming and programming efficiently. You might know how to get your code to run and generate results, but are you doing it as painlessly as possible? In this paper, you will learn 20 tips for working in SAS Enterprise Guide that will help you become a more efficient and happier programmer. You will learn how to make SAS Enterprise Guide feel more like “old school Base SAS,” or how to make it feel totally cutting edge. Just as there are often several ways to get the same results, there are many features to get the SAS Enterprise Guide experience and performance that meets your needs. The goal of this paper is to show you at least one **feature you haven’t been using but that you can’t wait to implement**

CUSTOMIZING GENERAL OPTIONS

Regardless of whether you spend a lot of time or a little bit of time using SAS Enterprise Guide, you want it to be the most user-friendly experience you can have. But since your definition of user friendly might not be the same as another users, SAS Enterprise Guide has options that you can use to customize your experience.

From the main menu, select Tools → Options.

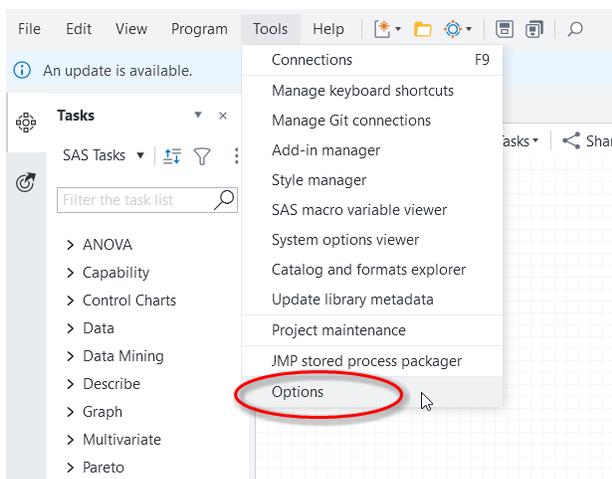


Figure 1: Options in the Tools Menu

1. FILE OPEN WINDOW

One of the first things you might want to do when working in SAS Enterprise Guide is to open a program file or a data set. SAS Enterprise Guide 8 makes this easier and faster than ever. Now, you can select File → Open to **see all the items you've used** recently. If you click My Computer, you have the option to navigate to **whatever file location you'd like, and you can choose to "pin" that location** so that you can access it without the hassle of navigating to it each time. You can also see your recent locations from this view and pin them as well.

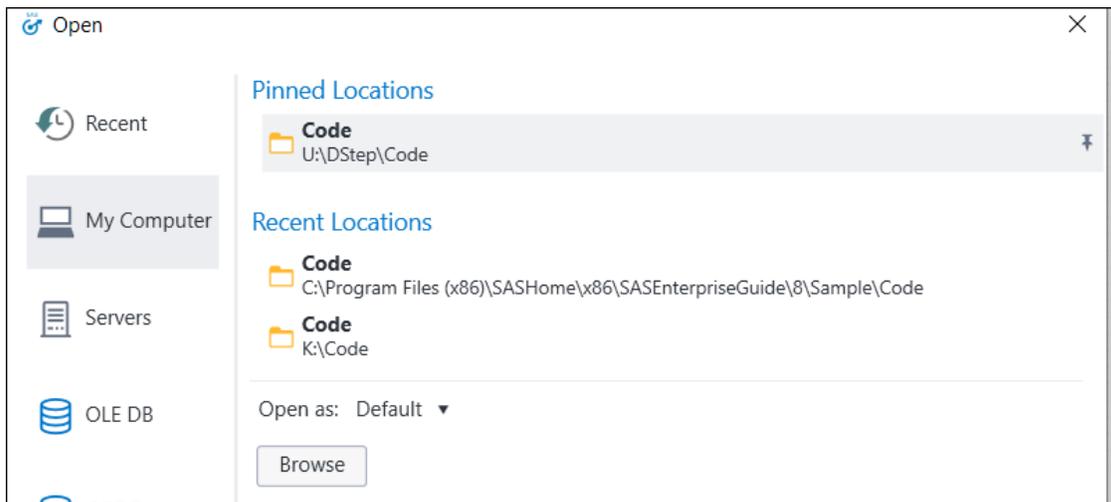


Figure 2: Pinned and Recent Locations

2. AUTOEXEC PROCESS FLOW

Another time saver is the **Automatically run "Autoexec" process flow when project opens** option. For example, you can create a process flow named Autoexec that defines all your macro variables or your LIBNAME statements. Now, every time you open the project, the Autoexec process flow runs automatically, and the macro variables or libraries are ready to use.

3. SPLIT VIEW INTO MULTIPLE WINDOWS

By default, SAS Enterprise Guide displays only one item at a time. But you can easily change this and show two items at a time using the Workspace Layout option. You might **want to have your Program Editor open, and see the input data set you're working with. Or the log and Program Editor. Or the output data set and the result** – the combinations are endless!

In SAS Enterprise Guide 7 to view two windows at once, select View → Workspace Layout and then select Stacked or Side-by-Side. To specify the window you want something to open in, click  in the upper right corner of the workspace.

In SAS Enterprise Guide 8, the workspace is extremely customizable, and you are not **limited to two workspaces. In fact, you don't have to use a project at all, and you can even have workspaces open on different monitors.**

4. RESET DEFAULT LAYOUT

Sometimes your project might seem to be misbehaving – you have lost a window, or it **won't go where you want it, or your cursor is nowhere to be found**. In SAS Enterprise Guide 7, try the Restore Window Layout option in the General panel. (Note: In SAS Enterprise Guide 8, this option is on the main menu under View-> Reset to default layout).

5. AUTOMATICALLY REPLACE TASK RESULTS

In releases prior to SAS Enterprise Guide 8, you are prompted replace the results of a task each time you run the task. This is the default behavior and can be annoying if you always want to replace the results. You can control this behavior by setting the Replace results option to Replace without prompting. If you are using SAS Enterprise Guide 8, Replace without prompting is now the default setting.

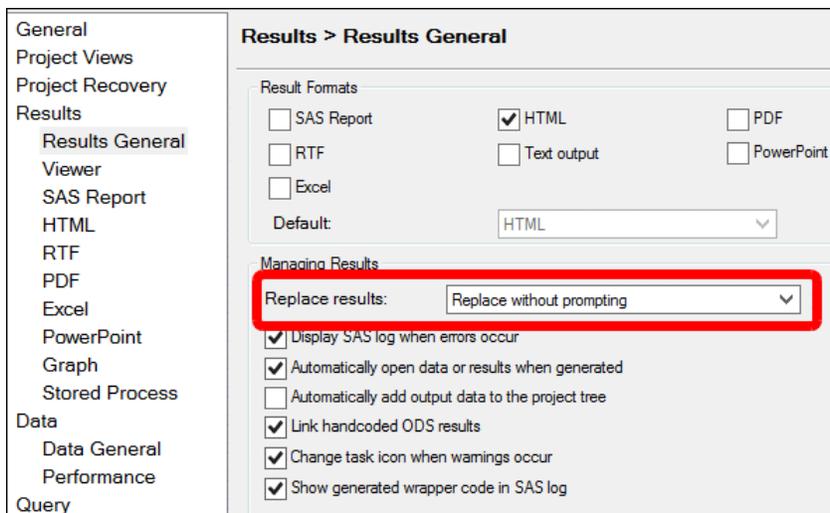


Figure 3: Automatically Replace Results

6. AUTOMATICALLY SUBMIT CUSTOM SAS CODE

There might be code that you want to run every time you open SAS Enterprise Guide, or every time before or after you submit code from a program node. For example, you might want to create certain macro variables or work tables or assign or unassign libraries. You can include this code and set it to automatically run by selecting the SAS code options in the SAS Programs panel.

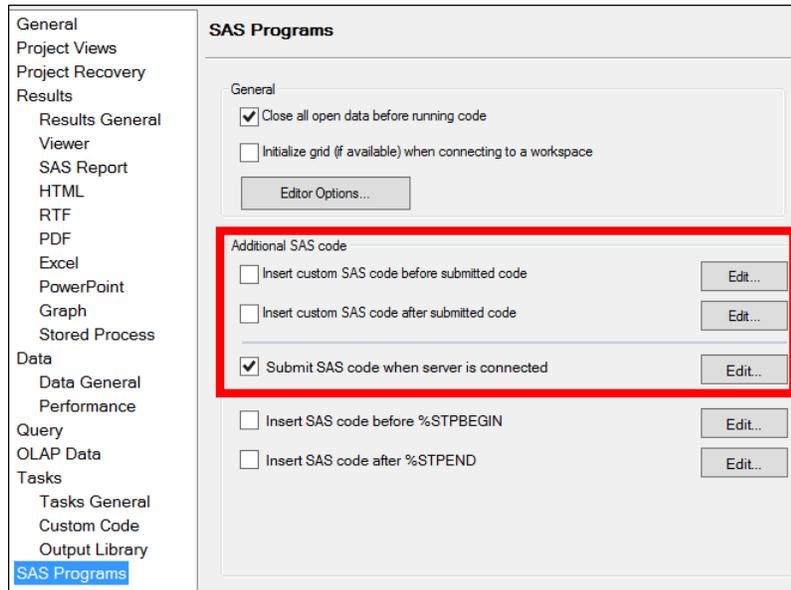


Figure 4: Automatically Run Custom Code

WORKING WITH THE PROGRAM EDITOR

You might have moved to SAS Enterprise Guide from another programming interface and prefer coding to point-and-click. The Program Editor in SAS Enterprise Guide can be customized to make your coding experience easy and familiar.

7. TURN ON LINE NUMBERS

Line numbers are not turned on by default in the Program Editor. To turn on line numbers, select Tools->Options. Open the SAS Programs panel and click Editor Options.

In SAS Enterprise Guide 8, it's even easier – just right-click in the Program Editor and select Show line numbers.

8. AUTOMATICALLY FORMAT CODE

Sometimes you are so "on a roll" with writing code that you don't want to take the time to indent your code and make it readable. SAS Enterprise Guide can help! Right-click in the Program Editor and select Format code, and your code will transform into a more readable and structured format. You can also press Ctrl+I to format the code, or in SAS Enterprise Guide 8, you can select the  icon from the task bar.

9. COPY A COLUMN

There are times when you want to copy lines of code and reuse them. But you might not want the whole line, just part of it. Rather than copying the lines and deleting the part you don't want, press Alt+left mouse to highlight the part you want, and then copy it.

```
data score;
  set contacts;
  if contact=1 and cust=1 and USER="Y"
  if contact =1 and cust=1 and ( USER="
  if contact =1 and cust=1 then score="
  if contact =1 and cust=0 then score="
  if internal=1 and cust=1 then score="
  if internal=1 and cust=0 then score="
  else score="7: Cold";
run;
```

Figure 5: Copy a Select Area

10. DRAG AND DROP DATA SET NAMES AND VARIABLES INTO A PROGRAM

SAS Enterprise Guide 8 has a new feature that minimizes room for error and increases the convenience factor. You can drag and drop a data set name from the Servers pane onto your program, and SAS Enterprise Guide will show the libname and data set name. You can also expand the data set in the Server pane and drag individual variables to your program. This drag-and-drop functionality eliminates the need to enter names and reduces the chance of spelling errors that can cause syntax errors.

Note: You can use the Ctrl key to select multiple variables and drag them to your program at the same time.

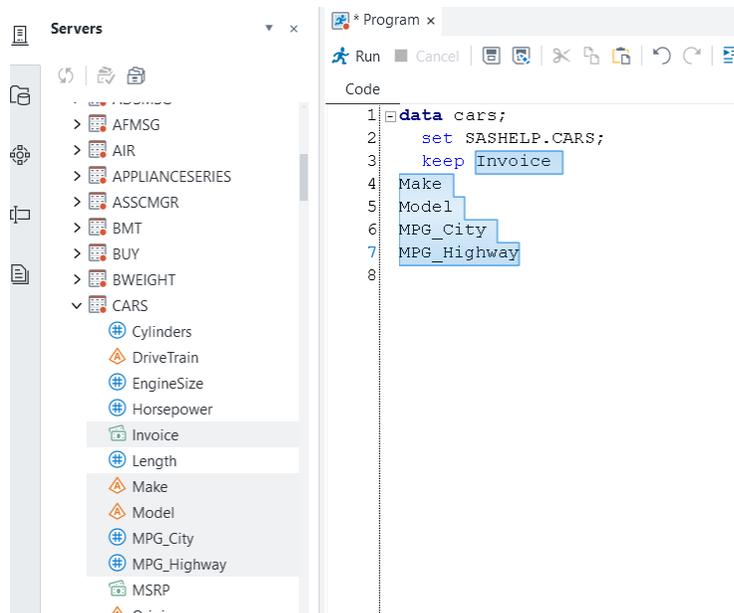


Figure 6: Drag and Drop Variable Names

11. SELECT SERVER FOR CODE EXECUTION

Sometimes you will get an error message that you swear can't be possible. For example, you might get an error saying "Library XXX does not exist". But you look at the server list and see the library is there and assigned! The cause of this error could be that you are not running the code on the server you thought you were.

To see what server the code is running on, open the program and look at the value of the Selected Server field on the toolbar or right-click in the program and look at the Run On value. **If you aren't running the code on the server you want, you can change to the correct server either on the toolbar or by right-clicking in the program and selecting Select Server.**

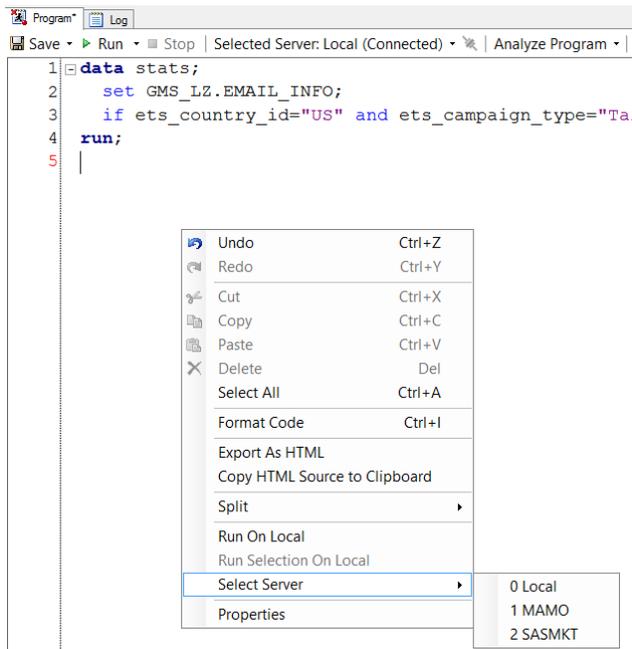


Figure 7: Select Server for Code Execution

WORKING WITH LOGS AND PROGRAM STATUS

12. PROJECT LOG

The project log is turned off by default in SAS Enterprise Guide. To turn on the project log, select Tools→ Options. (In SAS Enterprise Guide 8, select Tools->Options->Project and Process Flows.). In the General panel, select Enable project log for new project.

Now that the project log is on, it will track all the tasks and code run in the entire project and enable you to view all the logs in one place. In addition, you can use the Project Log Summary window to quickly see the specific log that has an error.

Project Log Summary				
Errors (2) Warnings (2) Notes (16)				
Description	Line	Affected Code	Log Line	Program Line
Log for "Program (2)" run at 1/11/2019 1:13:43 PM on SASMKT – Errors (0), Warnings (0), Notes (5)				
Log for "Query Builder" run at 1/11/2019 1:13:44 PM on SASMKT – Errors (0), Warnings (0), Notes (6)				
Log for "Program" run at 1/11/2019 1:13:49 PM on SASMKT – Errors (2), Warnings (2), Notes (5)				
NOTE: Writing HTML(EGHTML) Body file: EGHTML	185	GPATH=&sasworklocation	21	
ERROR: No BY statement used or no BY variables specified. A BY statement must be used with v...	193	proc sort data=cars; run;	28	4
NOTE: The SAS System stopped processing this step because of errors.	194	proc sort data=cars; run;	28	4
NOTE: PROCEDURE SORT used (Total process time):	195	proc sort data=cars; run;	28	4
ERROR 68-185: The function INPOT is unknown, or cannot be accessed.	218	char=inpot(cylinder, 8.);	32	8
NOTE: The SAS System stopped processing this step because of errors.	222	run;	33	9
WARNING: The data set WORK.CARS may be incomplete. When this step was stopped there wer...	223	run;	33	9
WARNING: Data set WORK.CARS was not replaced because this step was stopped.	224	run;	33	9
NOTE: DATA statement used (Total process time):	225	run;	33	9

Figure 8: Project Log Summary Window

13. STATUS UPDATES FOR A RUNNING PROGRAM

Oftentimes you will run code that takes a long time to run, and you have no idea where it is in terms of finishing. Halfway through? Almost done? Still running the first loop?

You can use the SYSECHO statement to display a custom status message. This message is displayed until the next status event (another SYSECHO statement, another DATA step, or a PROC) –

In SAS Enterprise Guide 7, the status message appears in the Task Status window. If you are using SAS Enterprise Guide 8, the message appears in the Submission Status window.

The screenshot shows the SAS Enterprise Guide interface. The main window displays a SAS program with the following code:

```

1 /* tracking in a loop */
2
3 %macro loop;
4 %do i=1 %to 10;
5 data _null_;
6 sysecho "In my data step - loop &i";
7 x = sleep(1);
8 run;
9 %end;
10 %mend;
11
12 %loop;
13

```

The Submission Status window at the bottom shows the following details:

Name	Completed	Status Information	Run Time	Submitted
Program 1		In my data step - loop 2		1/15/2020 12:04:21 PM

Figure 9: Using the SYSECHO Statement

14. DECLUTTERING LOGS

In the log, you might see a lot of code that you didn't write in your program – such as %LET or ODS statements – and wonder where this code came from. This code is automatically generated by SAS Enterprise Guide when you run a program or task. If you don't want this code written to the log, select Tools → Options. Under the Results heading, select Results General, and then clear the Show generated wrapper code in SAS log option. Now this verbose code is replaced by %_eg_hide_notes_and_source; in the log.

TASKS AND QUERIES

15. FINDING THE RIGHT TASK

SAS Enterprise Guide has built-in tasks that you can use to harness the power of SAS procedures in a GUI format. Now, you don't have to know the syntax for a procedure to be able to use one! However, it can be puzzling if you DO know the name of the procedure you want to use, but you don't know the name of the corresponding SAS Enterprise Guide task. One way to find this task is to use the Tasks pane.

Select the Filters option to see a list of all the available procedures. Select the procedure you want, and you will see the task or tasks that use that procedure. You can also search on the procedure name.

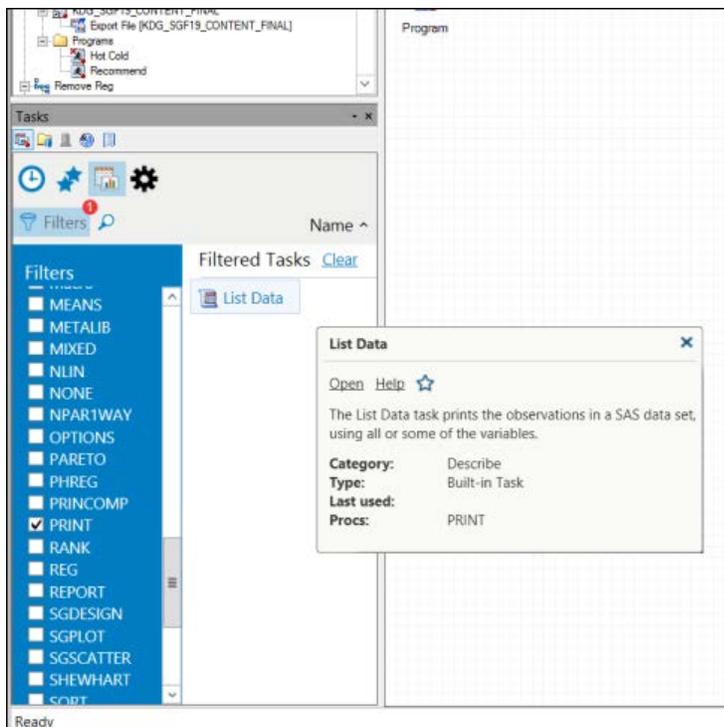


Figure 10: Tasks Pane

Here we see that PROC PRINT corresponds to the List Data task. And if you hold your pointer over the task, you will see an information window with more details. Click the star to add this task to your list of favorites for fast access in future.

16. FILTERING AND SORTING

The Sort Data task can be used to sort your data. There is also a Filter and Sort option in the data grid. What's the difference?

The Filter and Sort option enables you to select what columns you want, subset the data (for example, if you want to see only sedans with a City MPG greater than 25), and then sort the data. If you sort the data by Make, you might get rows that repeat, so the results aren't quite what you had in mind. What you REALLY wanted is a list of all the Makes that met the criteria with no duplicate records.

In that case, you want to use the Sort Data task. In this task, you have all the same options as in Filter and Sort, but you ALSO have the option to Keep only the first record for each "Sort by" group, which removes any duplicate records.

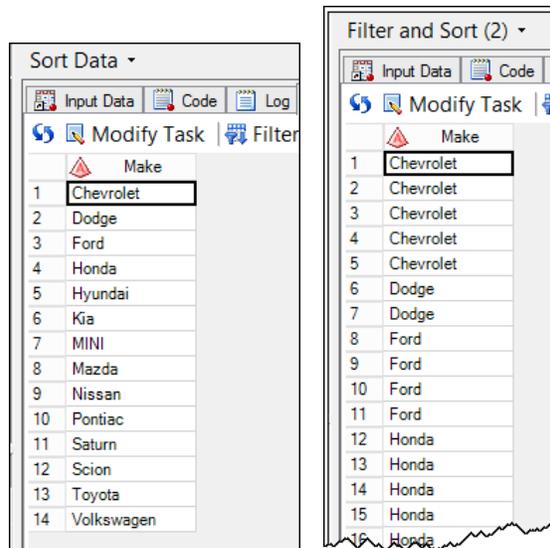


Figure 11: Sort Data Task Results Versus Filter and Sort

17. CREATING DYNAMIC QUERIES

The Query Builder is a powerful tool that generates SQL behind the scenes enabling you to join and manipulate data. You can use prompts (or macro variables) to make your queries dynamic.

You might want to query a data set by gender and calculate the average height. Instead of using the same value for gender in the filter each time, you want to select the gender when you run the query. Use the Prompt Manager to create a variable that lets you choose the value when you run the query.

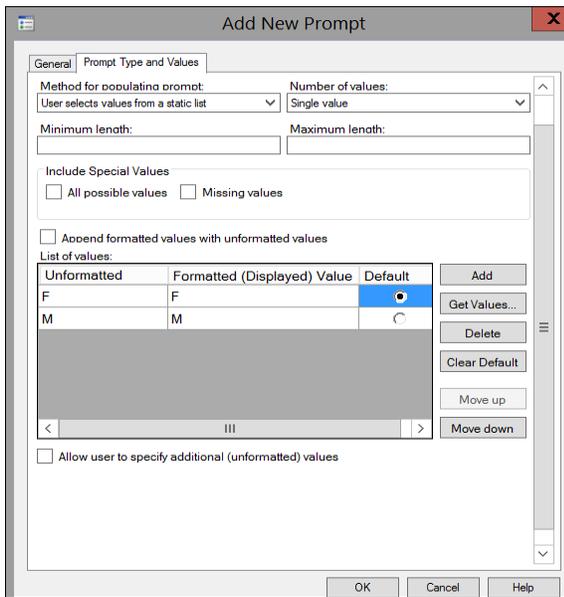


Figure 12: Creating a Prompt

You can now use this prompt in the filter of your query. When you run the query, you will be “prompted” to select the gender you want.

18. RESIZING COLUMNS IN THE DATA GRID

The results of your task or query is displayed in the data grid. But sometimes the columns are compressed and the data is truncated. You can automatically resize the column to the size of the widest value by selecting the column and double clicking in the space between it and the right adjoining column.

In SAS Enterprise Guide 8, the columns in the Data Grid are automatically sized by default! If you want to turn this feature off, select Tools → Options → Data → General and clear the Auto-size column widths option.

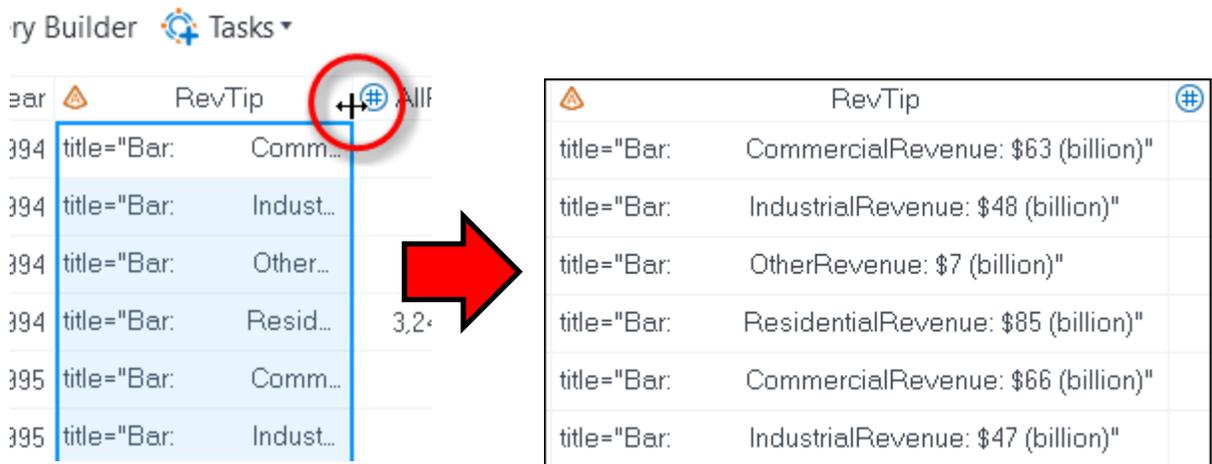


Figure 13: Resizing a Column

19. EXTRACTING CODE FROM A TASK OR QUERY

One of the best features about SAS Enterprise Guide is its GUI interface for tasks. You can create a complex graph without having to write any code. But what if you want to reuse this code, or if you want to tweak the code to customize it? You can see the code that was created by the task or query and reuse it in the Program Editor!

To see the code, right-click the task or query in the project and select Open → Open Last Submitted Code. You can then copy and paste the code into a Program Editor and run it **or make changes. It's even easier in SAS Enterprise Guide 8.** You can just right click on the task and select Extract code. SAS Enterprise Guide creates a code node with the task or query code in it.

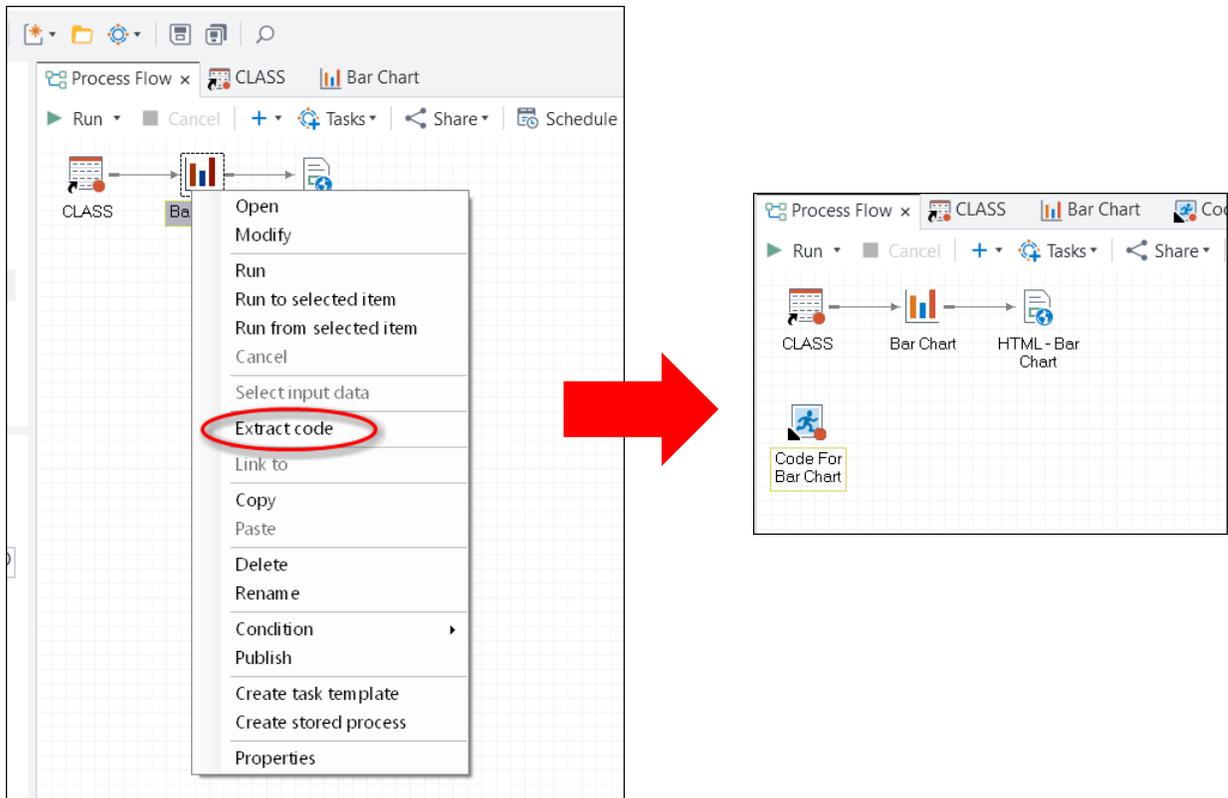


Figure 14: Extract Source Code from a Task

PROCESS FLOW AND PROJECTS

You now have dynamic queries that you'd like to reuse without having to re-create them. This is the perfect time to create a stored process!

20. CREATE A STORED PROCESS FROM A PROJECT

You can create a stored process from your project. A stored process puts all the code from the project into a neat bundle and stores it in a central location where it can be accessed by remote clients.

To create a stored process, right-click in the process flow and select Create Stored Process. The Create New Stored Process wizard walks you through creating the stored process. After you create the stored process, you can use it in other SAS applications, such as SAS Add-In for Microsoft Office, or other people who have access to the stored process can use it.

BONUS TIP!

21. PROJECT SEARCH

You might be working on a project and need change out a data set with another one. This can be a big pain if you have a large project where you used the data set multiple places. But never fear, you can use the project search to find all the places the data set could be hiding. Enter the text string that you want to search for – in our case, the data set name. A results box contains all the places where the text string was found.

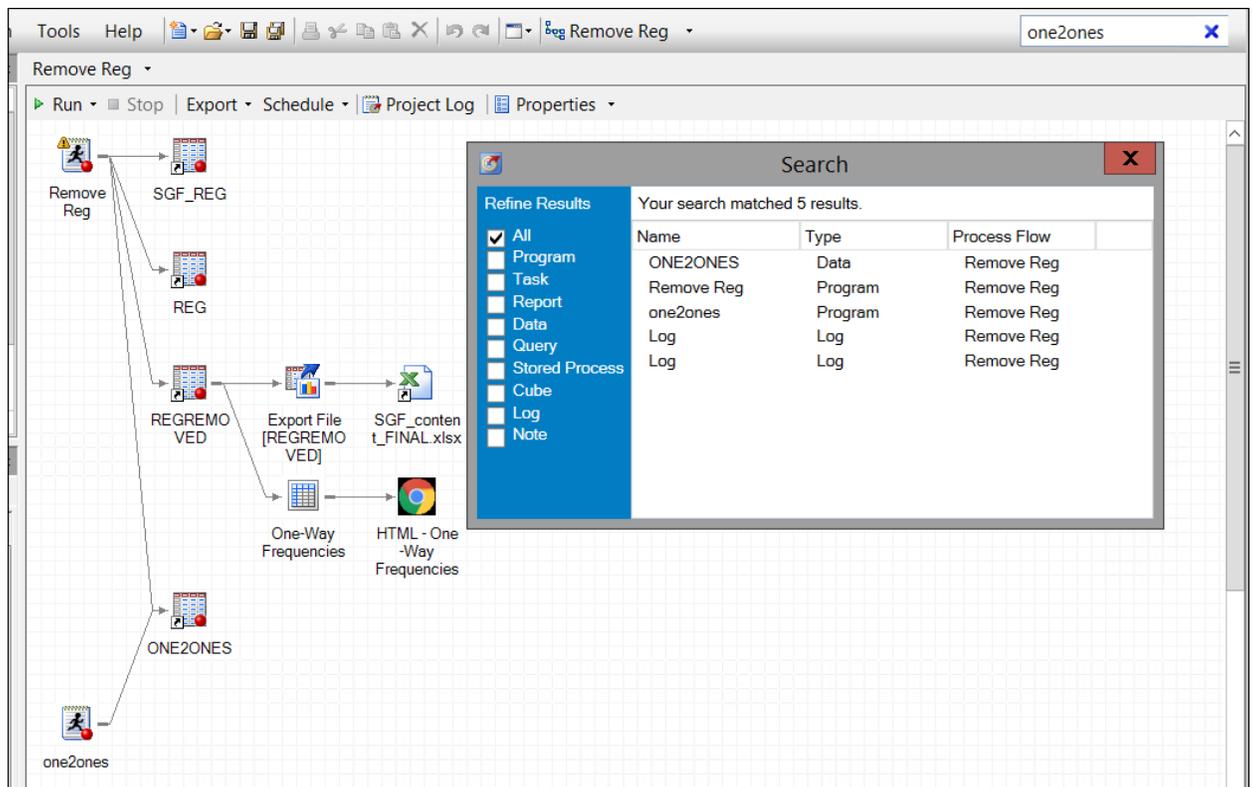


Figure 15: Project Search Results

You can search the whole project, or if you want to refine your results to just programs that contain the string, you can select Program. To open the results, double click the search result you want to view.

CONCLUSION

SAS Enterprise Guide is a powerful tool designed to make data access, analysis, and sharing easy. Whether you are a seasoned programmer or a novice, you can use SAS Enterprise Guide to harness the power of SAS. We have only scratched the surface of some of the tips you can use when working with SAS Enterprise Guide, but hopefully you found at least one new tip that you can start using next time you log on.

REFERENCES

Bailey, David, Samantha DuPont, and **Casey Smith**. 2019. "Celebrity Makeover: A Fresh and Modern Look for SAS Enterprise Guide." *Proceedings of the SAS Global Forum Users Group International Conference*. Cary, NC: SAS Institute Inc. Available

<https://www.sas.com/content/dam/SAS/support/en/sas-global-forum-proceedings/2019/3355-2019.pdf>

Peters, Amy. 2019. "Introducing SAS Enterprise Guide 8.1 – New Features."

<https://communities.sas.com/t5/SAS-Enterprise-Guide/Introducing-SAS-Enterprise-Guide-8-1/td-p/569293?attachment-id=17212>. Last modified June 26, 2019.

SAS Institute Inc. 2019. *SAS Enterprise Guide 8.2: User's Guide*. Cary, NC: SAS Institute Inc.

<http://documentation.sas.com/?docsetId=egug&docsetTarget=n1tv7wmd9zkkcen108sztlz8etst.htm&docsetVersion=8.2&locale=en>.

ACKNOWLEDGMENTS

Thank you to Casey Smith for giving me some great tips for the latest release of SAS Enterprise Guide!

RECOMMENDED READING

- *SAS® For Dummies®*
- *The Little SAS® Enterprise Guide Book*

CONTACT INFORMATION

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

Kelly Gray
SAS Institute Inc.
SAS Campus Drive
Cary, NC 27513
919-677-8000
Kelly.Gray@sas.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.

