SAS® Enterprise Guide for Managers and Executives

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ABSTRACT

SAS® Enterprise Guide is an extremely valuable tool for programmers, but it should also be leveraged by managers and executives to do data exploration, get information on the fly, and take advantage of the powerful analytics and reporting that SAS has to offer. This can all be done without learning to program. This paper will overview how the Enterprise Guide tool can improve the process of turning real time data into real time business decisions by managers.

INTRODUCTION

Enterprise Guide is an interface for SAS Software. It allows a user to code SAS programs in a "Process Flow" or use point-and-click interfaces to modify, analyze, and report data. It can increase the efficiency of your programming staff, who can leverage both the coding and the wizard interfaces. Enterprise Guide also empowers non-technical users with SAS "Guided Analytics", allowing them to manipulate data, create reports and graphs, and conduct analysis, all without having to become an expert coder. Enterprise Guide is a wonderful tool for organizing all SAS processes in a central "Project". SAS users can organize code, results, and logs in a flow-chart like system that offers overall management of entire SAS processes. Enterprise Guide is a comprehensive enterprise wide solution that truly has something for everyone.

CAPABILITIES OF ENTERPRISE GUIDE

Enterprise Guide is a great tool for the SAS novice. New users can immediately begin working with Enterprise Guide projects, tasks, and wizards with no previous SAS experience. They can perform analyses and queries and create reports that would normally require extensive knowledge of SAS. Beginners can focus on the content of analysis rather than the details of coding. Enterprise Guide is also a great tool for the SAS Expert. Experts can avoid repetitive or trivial coding by using Enterprise Guide for simple coding tasks. They can modify the automatically generated code and use it as a springboard for more complicated programs. Experienced programmers can also devote less time to searching for minor syntax errors. Enterprise Guide can access virtually any type of data (database, spreadsheets, text files), ETL and data preparation, complete simple and complex analysis, and output reports and graphs to a wide variety of formats.
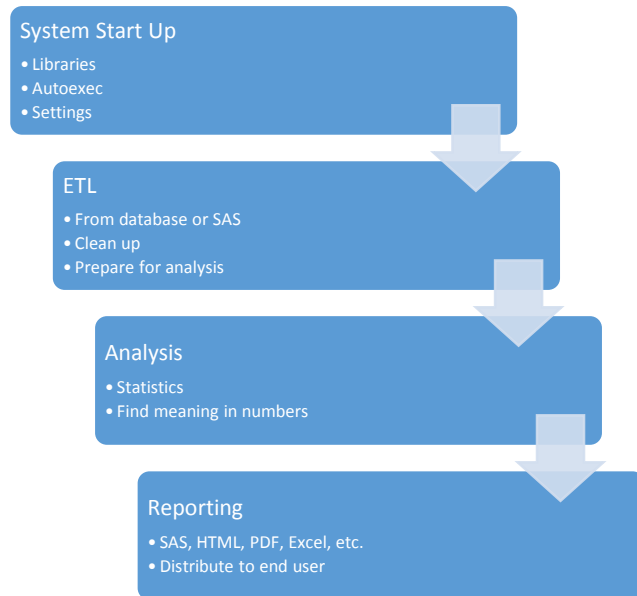

System Start Up
- Libraries
- Autoexec
- Settings

ETL
- From database or SAS
- Clean up
- Prepare for analysis

Analysis
- Statistics
- Find meaning in numbers

Reporting
- SAS, HTML, PDF, Excel, etc.
- Distribute to end user

Figure 1: A Typical SAS Enterprise Guide System

SAS "GUIDED ANALYTICS" FOR NON-PROGRAMMERS

Many SAS users do not have an IT background and/or do not have the time to learn to become expert coders. These users may need to conduct simple data manipulation, statistical analysis, and distribute reports. While SAS is an excellent tool for these job duties, analysts may struggle with how to complete tasks without extensive knowledge of SAS coding practices. Many organizations do not have IT staff that is dedicated to creating SAS queries and reports, and in these cases, managers may need to create their SAS processes alone or wait for simple queries, reports, and small modifications. With the point-and-click interfaces of Enterprise Guide, managers can complete many of these tasks on their own.
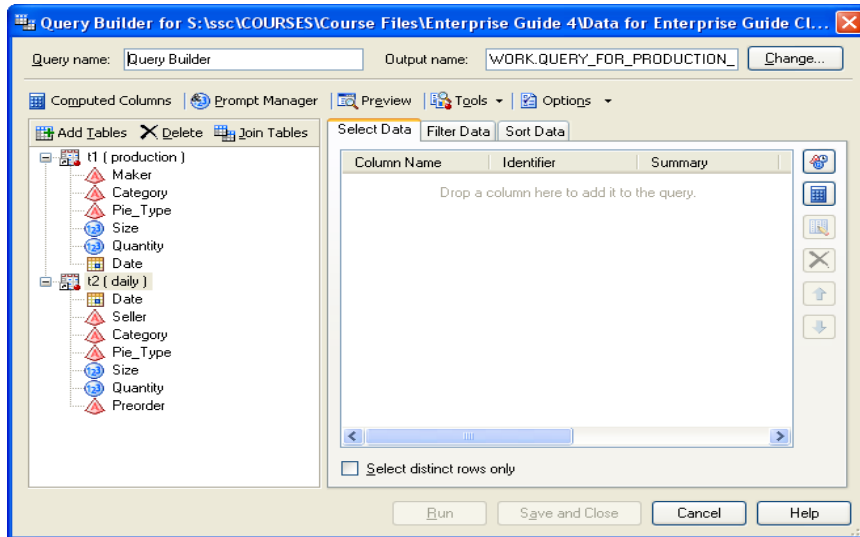

Figure 2: The Query Builder in SAS Enterprise Guide

Figure 2 shows an example of what managers can do in Enterprise Guide. Within this one point-and-click interface, a user can join tables, select variables, filter data, sort data, change the dataset they are working with, compute columns, set up prompts, dedup observations, change query options, add titles and footnotes, limit output, and more. It is all very intuitive, easy to understand and use, and makes these tasks easy for non-programmers. Behind the scenes, the Query Builder builds code that can be reused, modified, and further utilized. So, these simple tasks do not require the support of a SAS programmer in IT. A user can access a variety of data sources, including SAS, Excel®, and databases. With the appropriate privileges and SAS products (ex: SAS/ACCESS for Oracle, Integration Technologies, etc.) analysts can access virtually any data source, across platforms. This all can be done through an intuitive GUI.

PERFORM QUICK ADHOC ANALYSIS

In addition to the query builder, there are dozens of other tasks that are simple point and click interfaces that can be leveraged. Once data is brought into SAS Enterprise Guide, it is very easy to perform quick ad-hoc analysis. A user can drag and drop to create reports, summaries, and basic statistics. It is also easy to create attractive graphs with no programming necessary.

One example of a quick report of is the Summary Report task. This task allows a user to easily summarize data in a simple drag and drop report. Variables can be grouped into single categories or broken down into multiple grouping categories. It can include different statistics, such as sum, percentage, minimum, maximum, etc. It allows for a quick summary report that can easily show a user a lot of useful information. And it can all be done in a straight forward common sense format.

This is just one example of a reporting task, but there are many more (such as simple listing, frequency reports, graphing, and many more). All use a similar interface and provide the same type of self serve analytics.

Pie Price and Cost Summary Report

Cost and Price Statistics		Category																	All — The ALL Variable			
		Chocolate Pies								Fruit Pies												
		Size (in inches)								Size (in inches)												
		8				10				8				10									
		Price		Cost		Price		Cost		Price		Cost		Price		Cost				Price		Cost	
Contains Dairy	Contains Nuts	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max			Min	Max	Min	Max
		.	.	.	.	.	.	.	.	$4.99	$6.99	$2.60	$3.70	$6.99	$8.99	$3.70	$4.50			$4.99	$8.99	$2.60	$4.50
Yes	No	$6.99	$10.99	$3.20	$5.25	$8.99	$12.99	$4.75	$6.85	$7.99	$8.99	$4.20	$4.55	$9.99	$10.99	$5.10	$5.65			$6.99	$12.99	$3.20	$6.85
	Yes	$9.99	$9.99	$5.00	$5.00	$11.99	$11.99	$6.00	$6.00	.	.	.	.	.	.	.	.			$9.99	$11.99	$5.00	$6.00

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(Annotation callouts on figure: Category; The ALL Variable; Classification Variables; Analysis Variables; Statistics; Classification Variables)

Figure 3: Example of a Summary Report in SAS Enterprise Guide

RUN PROJECTS OTHERS CREATE

A SAS Enterprise Guide project is one file. This file can include many, many different data sources (and data types), queries, reports, analysis, and notes. For a complex SAS process, it can be useful to leverage the help of a SAS programmer or developer in the production of a large SAS Enterprise Guide project. Once a project is created, it can be run whenever the end user likes or scheduled to run automatically on a regular basis. So once the development is complete, the whole SAS process can be maintained by someone with a non-technical background. It is important to have a process that is well documented, in plain English terms and annotate each part of the process so that it is easier to maintain.
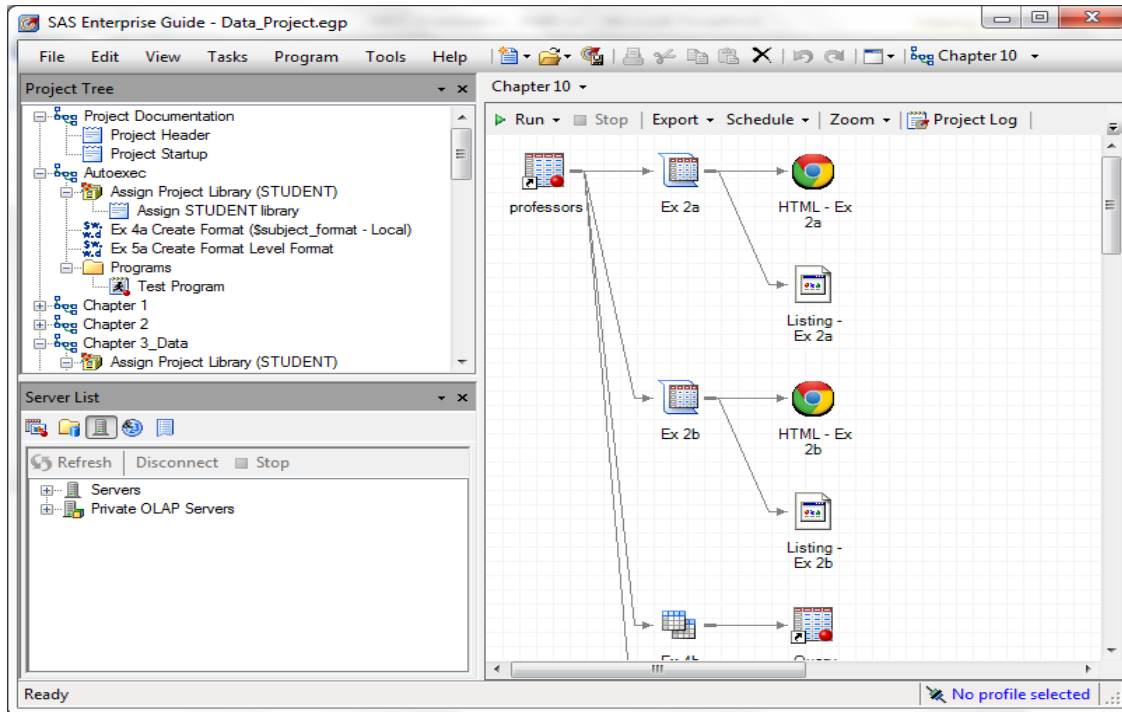

Figure 4: Example of a More Comples SAS Enterprise Guide Project

Enterprise Guide projects can also leverage the use of prompts. A prompt in SAS Enterprise Guide is basically a parameter that is needed to run a project. For example, one could develop a SAS EG project that can be run for different states or different account types. When the project is run, a "prompt" will pop up asking the user which group they would like to run the process for. This is an easy way for an end user to run a process for different groups. Prompts can be typed in or the values can be populated from static or dynamic list.
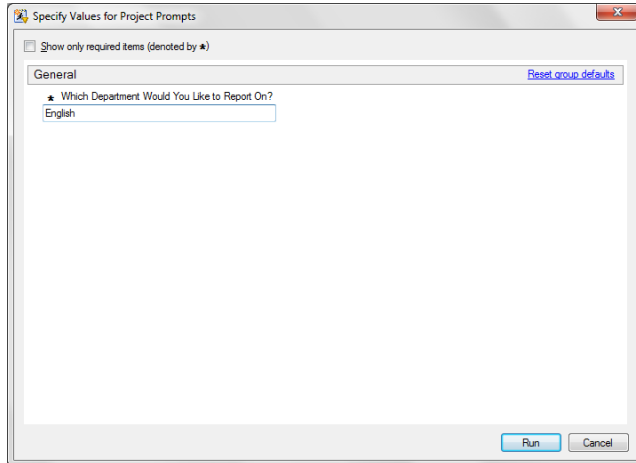

Figure 5: Example of a Prompt in SAS EG

INCREASE EFFICIENCY OF YOUR PROGRAMMING STAFF

Your team of SAS programmers can also greatly benefit from the use of SAS Enterprise Guide. One way to leverage Enterprise Guide is to use it to do the heavy lifting. Programmers can use wizards in Enterprise Guide to complete tasks such as joining many tables, creating reports, filtering and querying data. Programmers can complete many of the tasks through wizards quicker than if they were to code it from scratch. The processes also are less error prone. For example, it can be cumbersome to join several tables (Enterprise Guide can do up to 32 tables at once!). It is easy to misspell a variable name, miss a comma, or incorrectly spell a SAS key word. A programmer can join tables within a wizard in a fraction of the time. Enterprise Guide will attempt to find which variable to join the tables by or the programmer can manually tell Enterprise Guide how to join the tables. You can specify what type of join you want and other options as well.
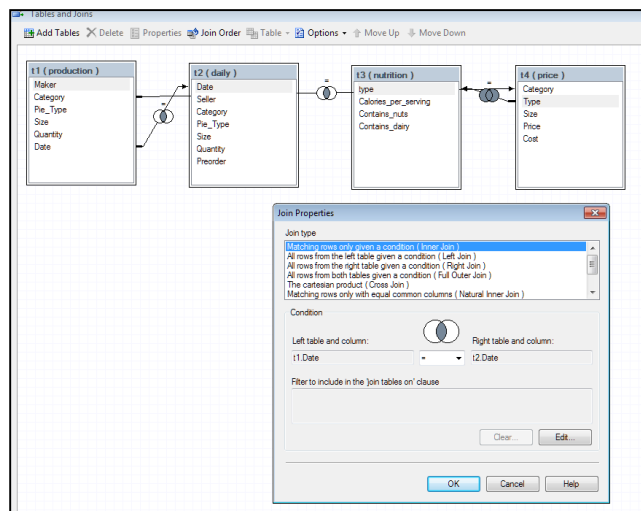

Figure 6: Joining Tables in SAS Enterprise Guide

Programmers can use the code that is generated behind the scenes, and they can also modify it. The Enterprise Guide software is filled with tools that can make a SAS programmer's life much easier and more efficient.
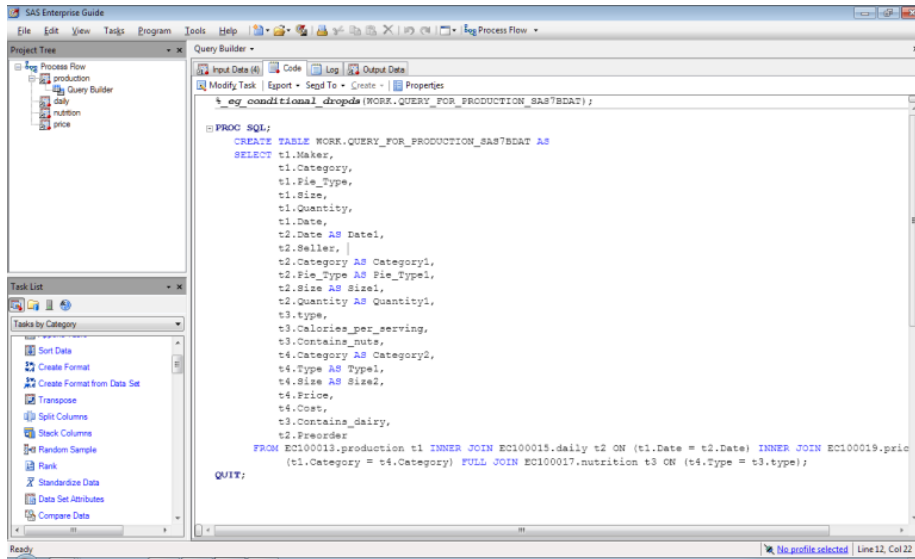
Figure 7: Code From EG Query Builder

LOGISTICS OF IMPLEMENTATION

SAS Enterprise Guide is typically packaged with most SAS installations. Many users have Enterprise Guide and aren't even aware of its existence. Depending on the complexity of an enterprise's environment, they may require IT assistance to install and support it. You may need additional products to access different data types and platforms and work on servers. Users may also require IT assistance to set up their servers, metadata servers, and define workspace. But overall it is well worth any initial setup.

CONCLUSION

Enterprise Guide is an extremely useful tool for managers who want to leverage self serve analytics or perform quick ad-hoc analysis. It can also be easy to maintain and run more complex projects if it is well setup and documented. Additionally, Enterprise Guide is a full featured ETL, analysis, and reporting tool that can improve SAS processes and the efficiency of your team to develop and maintain the processes. Any team that is not currently using this as their SAS interface should seriously consider the benefits that it can offer.

RECOMMENDED READING

The Missing Semicolon – SAS Technical Blog http://sys-seminar.com/blog/, tips on SAS Enterprise Guide and many more SAS topics

CONTACT INFORMATION

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