



VIRTUAL
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#SASGF

How Many Shades of Guide: SAS Enterprise Guide to 8.3 and SAS Studio to 3.81 with SAS 9.4

Part 1 - SAS Enterprise Guide

Philip R Holland

Holland Numerics Limited



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Philip R Holland, Holland Numerics Limited

Philip R Holland has over 30 years experience of working with SAS software.

In 1992 he formed his own consultancy company, Holland Numerics Limited. Since then he has provided SAS technical consultancy and training in the financial, retail and pharmaceutical sectors in the UK, Belgium, Holland, Germany and the USA.

Since 1995 he has presented papers on a wide range of SAS-related topics at SAS user conferences and seminars in the UK, Europe and North America, and has published 4 SAS-related books and 8 SAS-related courses.



Agenda

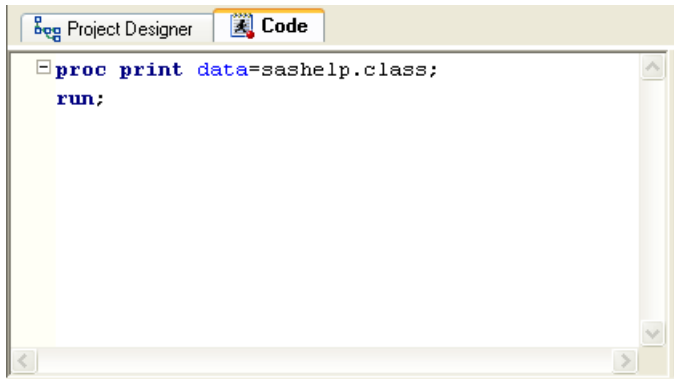
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Introduction to SAS Enterprise Guide

- Enterprise Guide projects can be saved in files, but are not compatible with previous versions, so a previous version of Enterprise Guide can not open a project file saved by a later version.
- Older SEG (*.seg) project files could only be opened up to Enterprise Guide version 4.1, but EGP (*.egp) project files can be opened by later version, and will be converted to that Enterprise Guide version's file format, thereby preventing them from being reopened by previous version.

Introduction to SAS Enterprise Guide

- Enterprise Guide created SEG project files in versions 1 and 2, which could still be opened by later versions up to version 4.1.
- The Code Window used the same Windows object as interactive SAS for Windows, and continued to do so up to version 4.1, so the editing experience was familiar for SAS users.



The screenshot shows a window titled "Project Designer" with a sub-tab labeled "Code". The code window contains the following SAS program:

```
proc print data=sashelp.class;  
run;
```



Version 1: In the beginning

- Enterprise Guide was originally marketed as a replacement for SAS/ASSIST.
- Microsoft Agents Merlin and Peedy used to recommend what features should be used.
- Version 1.0 created views of SAS data sets when subsetting with the Query Window. For small data sets this was very quick, but for large data sets it was extremely slow, and views of views were even slower!
- In version 1.2, querying was changed to create subsets in SAS data sets, which improved performance significantly.



Version 2: User-written tasks

- Before version 2.0 Enterprise Guide users were limited to the tasks supplied in the SAS installation, so it was a big step forward when Custom Tasks could be written by users using Microsoft Visual Basic and C++ 6.0. These could be installed using an Add-In Manager inside Enterprise Guide, or by copying the *.dll files into specific installation or user profile folders.
- Version 2.0 was supplied with SAS version 8.2, but version 2.05 was bundled with SAS version 9.0 and version 2.1 was bundled with SAS version 9.1.3.

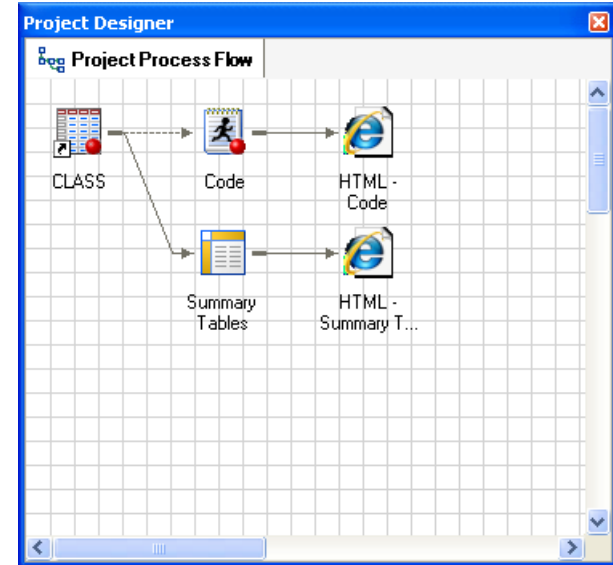
Version 3: Conversion to .Net

- Still using SAS version 9.1.3, Enterprise Guide version 3.0 was redeveloped to use Microsoft .Net, and introduced EGP project files. Custom Tasks could now be written using Microsoft Visual Basic .Net and C# .Net.
- In Enterprise Guide any program node or nodes can be converted into a Stored Process, which can be run on a Stored Process Server via a web page. Enterprise Guide can also generate a VBS file that is scheduled as a Windows Scheduled Task to run a whole EGP project file. The VBS script can also be run manually to run the project when required.



Version 4: Linking items together

- In previous versions of Enterprise Guide the selected items in the Project Designer window (later renamed to the Process Flow window) could only be run from top-left to bottom-right, but Enterprise Guide version 4.1 introduced linking of items to form a flow diagram, which could be run as a whole, or from a selected item.



Version 4: Linking items together

- Custom Tasks still utilized Microsoft .Net: Visual Basic and C#, but also any other language that uses the .Net API, which was introduced in Enterprise Guide version 4.1.
- The Simple Data Viewer Custom Task runs as a floating window, and takes a snapshot of the select SAS data, so multiple copies of the same data can be compared.

sashelp.class - Simple Data Viewer (for HNL)

Use formats? Data set [SELECT * FROM ?]: sashelp.class
 (optional) Data set options [(?):]
 (optional) Data set filter [WHERE ?]:

Load!

	Obs	Name	Sex	Age	Height	Weight
▶	11	Joyce	F	11	51.3	50.5
	13	Louise	F	12	56.3	77
	6	James	M	12	57.3	83
	2	Alice	F	13	56.5	84
	9	Jeffrey	M	13	62.5	84
	7	Jane	F	12	59.8	84.5
	18	Thomas	M	11	57.5	85
	12	Judy	F	14	64.3	90
	3	Barbara	F	13	65.3	98
	10	John	M	12	59	99.5
	4	Carol	F	14	62.8	102.5
	5	Henry	M	14	63.5	102.5

19 records and 6 variables.
 SELECT MONOTONIC() as _Obs_, * FROM sashelp.class



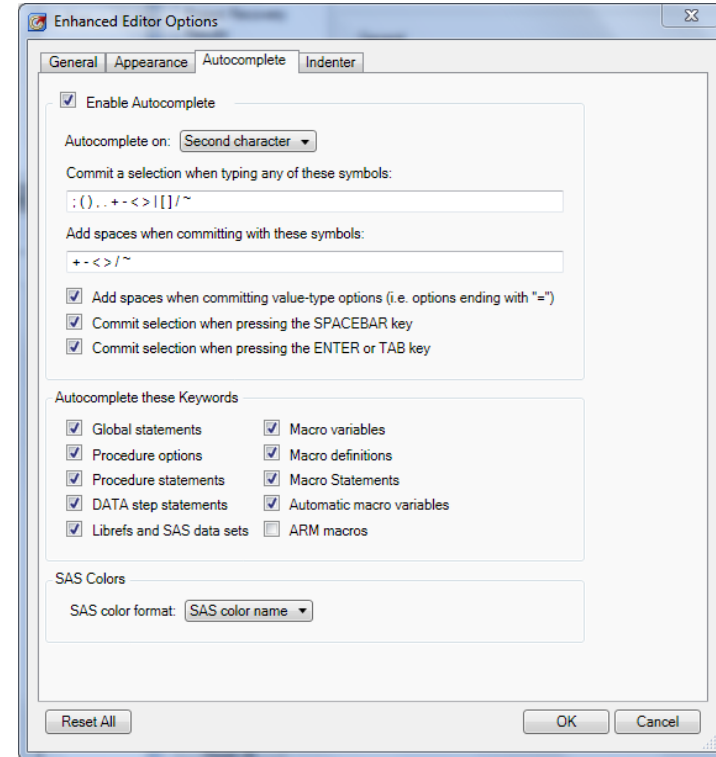
Version 4.2+: Escape from interactive SAS

- A bigger advance came with version 4.2, as it started using its own code editor, as the interactive SAS Enhanced Editor development had been frozen.
- Another smaller advance, but still useful for larger process flows, was the introduction of Conditional Processing, allowing nodes to be run only when specific conditions are met, for example, macro variables had specific values or specific data sets existed.



Version 4.2+: Escape from interactive SAS

- Enterprise Guide version 4.3 added Code Window options with SAS syntax help pop-up windows and code-complete.
- Version 4.3 also extended access to include SAS versions 9.2 and 9.3 local and remote servers, and added a Code Analyzer to the Code Window menu to create process flow of program using PROC SCAPROC.



Version 5: 64-bit and Data Explorer

- A 64-bit version of Enterprise Guide became available in version 5.1. Both 32-bit and 64-bit releases could access SAS versions 9.2, 9.3 and 9.4 local and remote servers, and included a Data Explorer tool, which did not automatically add the SAS data set to the project. This tool was updated in version 6.1 so SAS data sets could be optionally added to the project.
- From Enterprise Guide version 1 there had been Import and Export wizards to convert non-SAS file formats to and from SAS data sets, without the need to license SAS/ACCESS[®], by using Microsoft Data Access Components installed with Enterprise Guide in Windows. In version 5.1 the Export wizard could export SAS data sets as XLSX files.



Version 6: Log Summary

- Any program is run in Enterprise Guide has the SAS Log and output files automatically saved in the EGP project files. In version 6.1 a Log Summary tool was introduced to analyze the program logs.
- Sadly there was no control over when the log analysis is done. By default the last SAS Log that was open when the project was saved, was reanalyzed when the project was reopened.
- This proved to be its Achilles heel, as closing a project with a very large log open would reanalyze that Log on reopening that project, which effectively locked out the project until completed. The only way to avoid this happening was to deliberately open a program with a small Log file before saving the project.



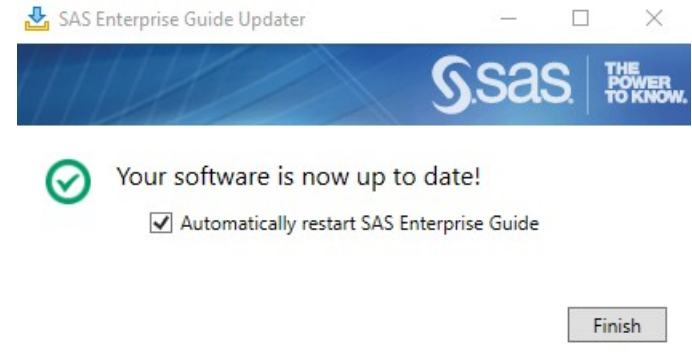
Version 7: Updater and controllable Log Summary

- Enterprise Guide version 7.1 included an updated Log Summary tool with a check box to switch it off when running programs that generated large Logs.
- The other useful feature, but which only worked with programs stored inside a project, was an interface to Git repositories for retaining program development history, so a version of a program could be saved in Git, and then compared with later versions to see where changes had been made.
- However, my favourite new feature was the ability to integrate external file comparison tools, like WinMerge, to compare SAS programs.



Version 7: Updater and controllable Log Summary

- Version 7.11 added the SAS Enterprise Guide Updater, so that Enterprise Guide can be updated by users without requiring the manual downloading of update files.
- For all of the corporate maintenance teams, who are now very concerned about this: **there is also a configuration switch to disable this feature!**



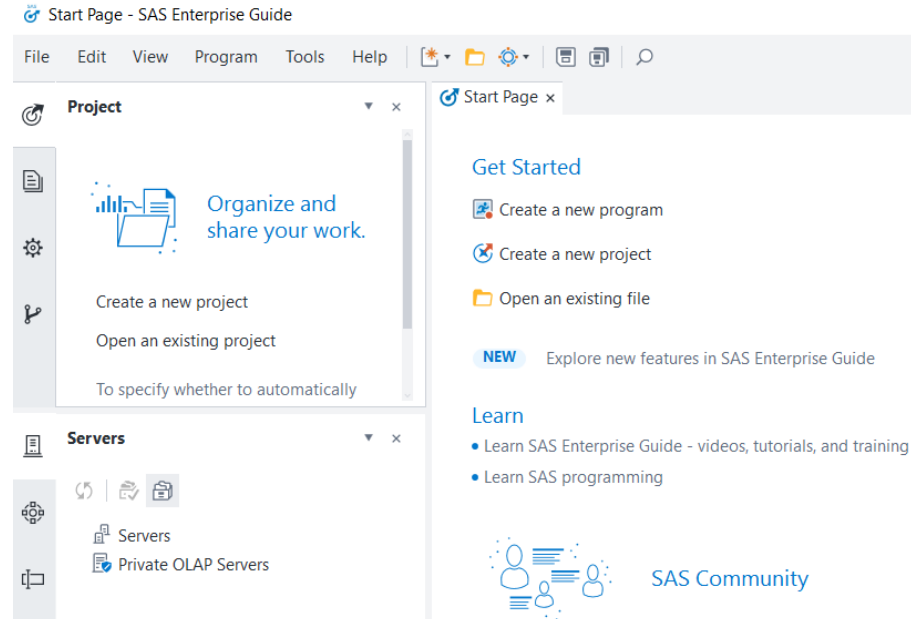
Version 7: Updater and controllable Log Summary

- SAS Studio Tasks can be shared with Enterprise Guide from version 7.1 from a Single-User Edition of SAS Studio installed on the same PC.
- The ability to share SAS Studio Tasks from a remote Enterprise Edition of SAS Studio was added in Enterprise Guide version 7.11.
- Still in version 7, but even later than version 7.11, version 7.13 added an interface to the SAS Data Step debugger, with windows similar to those seen in interactive SAS.



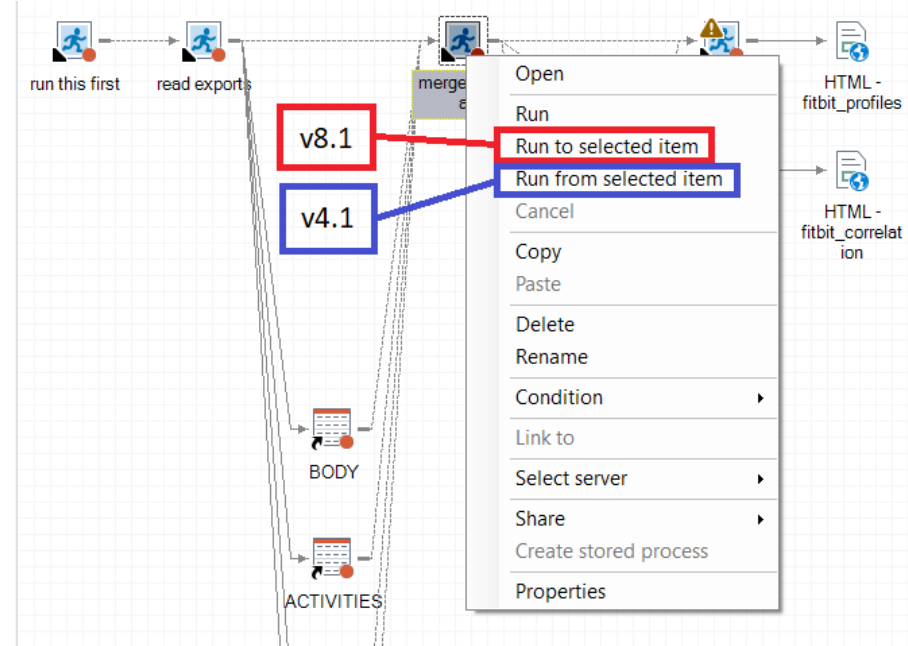
Version 8: Welcome to the Start Page

- Enterprise Guide version 8.1 changed the initial view when it was opened by adding a Start Page (similar to Microsoft Visual Studio and other IDEs (Integrated Development Environments) to direct users to recent projects.



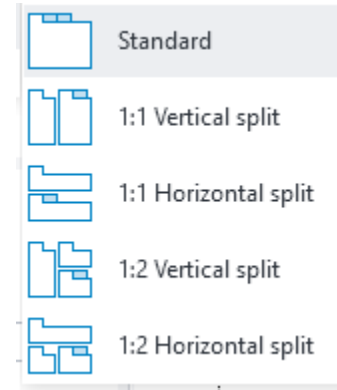
Version 8: Welcome to the Start Page

- The Code Editor can now change selected text to lower-case with [Ctrl-Shift-L] or to upper-case with [Ctrl-Shift-U].
- Table and column names can be dragged from the server window and dropped into programs.
- In version 4.1 linked branches of items can be run from a selected item, but in version 8.1 items up to a selected item can be run instead.



Version 8: Welcome to the Start Page

- There are also improvements made to how a user can arrange the individual windows within Enterprise Guide, and the examples in the drop-down list help users to choose their preferred screen layout.
- Enterprise Guide version 8.2 now allows windows to float (like my Custom Task SAS data set viewer written in Visual Basic .Net) or be docked, and added an optional dark theme.
- Finally, for now, Enterprise Guide version 8.3 appears to only be a maintenance release.



Summary

- Those readers used to developing programs in IDEs, such as Microsoft Visual Studio, Eclipse, R-Studio, or Android Studio, would probably not consider Enterprise Guide (now 21 years old) to be a proper IDE yet. Features are appearing that approximate to functionality in the other IDEs.
- Having used Enterprise Guide since its introduction, I no longer use interactive SAS very often, and find their editing features to be far superior to those I used in interactive SAS.
- I am left wondering why the SAS marketing department decided to position Enterprise Guide primarily as a programming environment for non-programmers!



Thank you!

Contact information

Philip R Holland, SAS Consultant
Holland Numerics Limited
94 Green Drift, Royston, Herts SG8 5BT, UK
tel: +44-7714-279085
email: phil@hollandnumerics.org.uk
web: blog.hollandnumerics.org.uk



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