



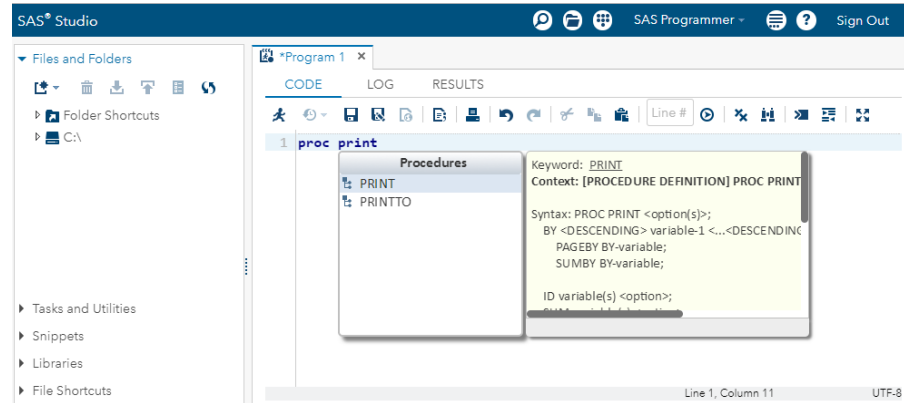
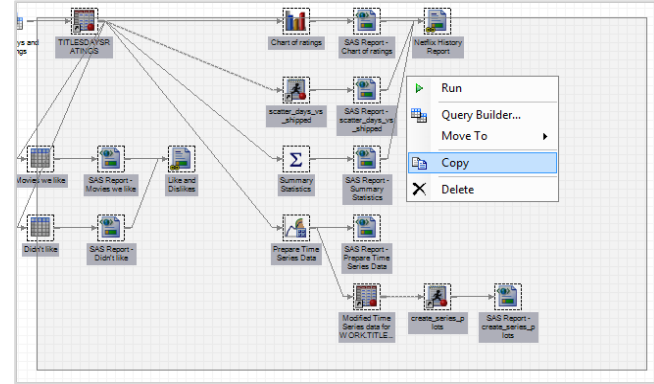
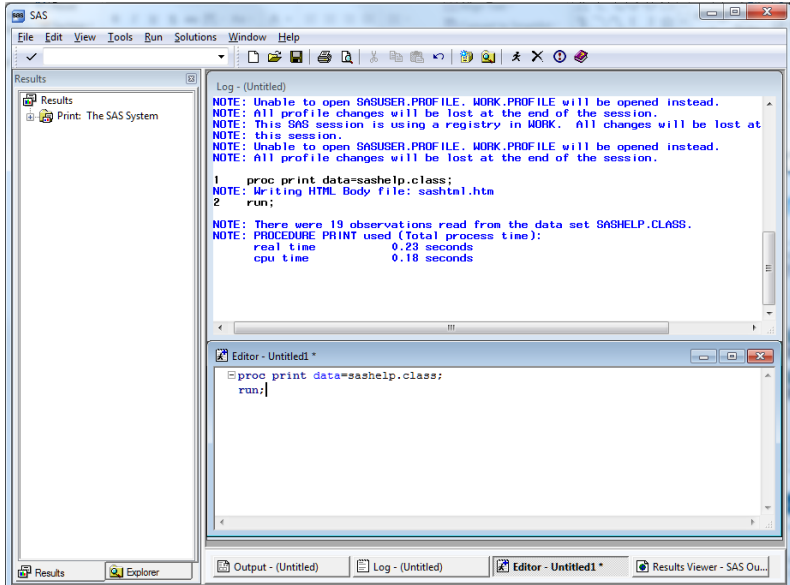
The Future of SAS Enterprise Guide and SAS Studio

Agenda

- Where we've come from
- Where we are
- Where are we going?
- What's coming in SAS Enterprise Guide
- What's coming in SAS Studio
- Roadmap

Where We've Come From

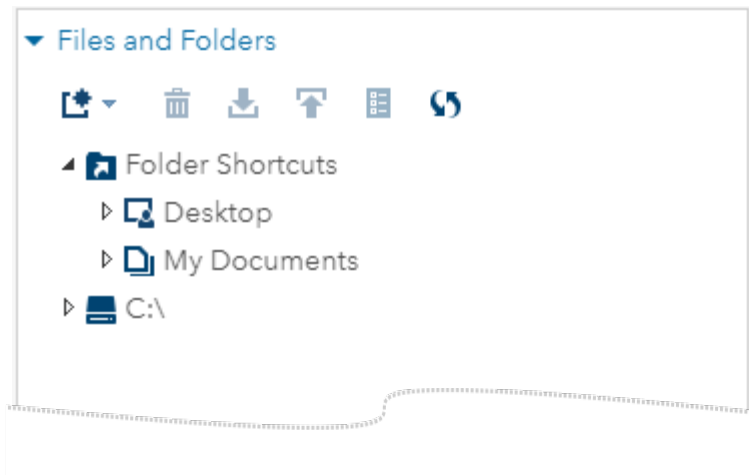
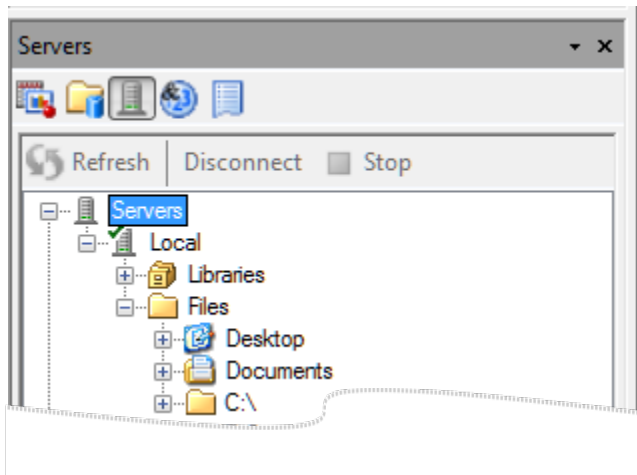
SAS Display Manager, SAS Enterprise Guide, SAS Studio



Where We Are

What's common between SAS Enterprise Guide and SAS Studio

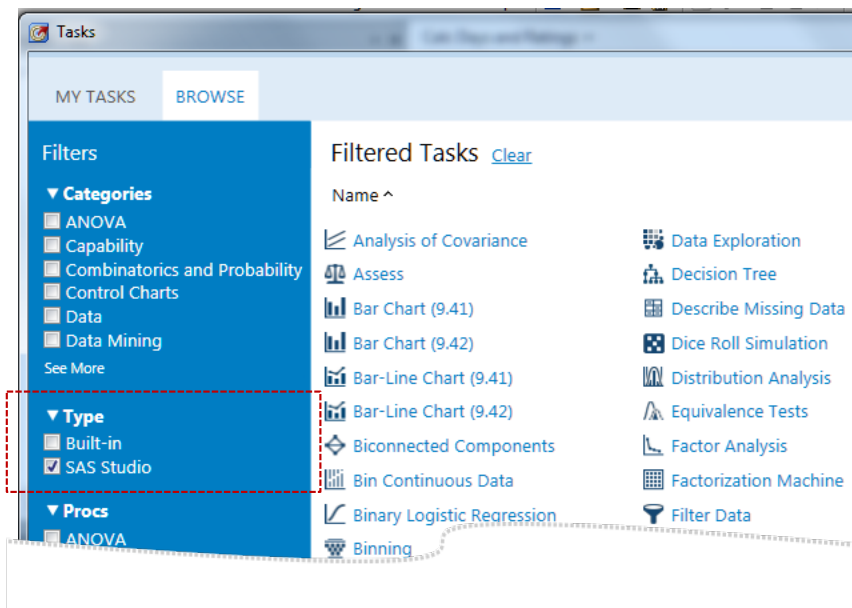
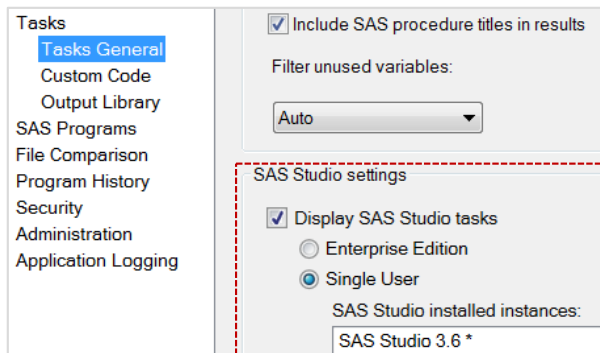
- Common file navigation



Where We Are

What's common between SAS Enterprise Guide and SAS Studio

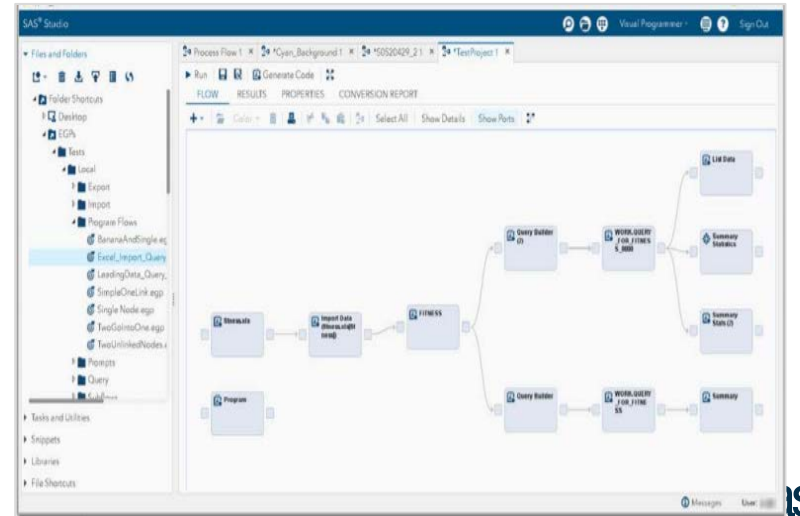
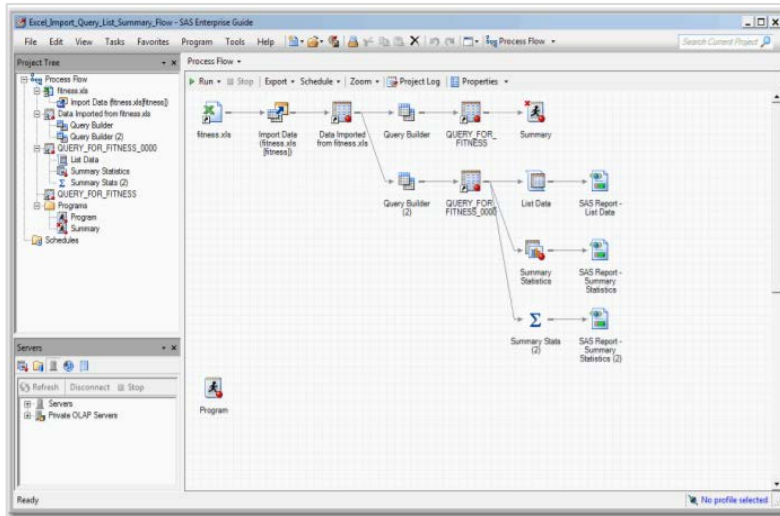
- Common file navigation
- Use SAS Studio tasks in SAS Enterprise Guide



Where We Are

What's common between SAS Enterprise Guide and SAS Studio

- Common file navigation
- Use SAS Studio tasks in SAS Enterprise Guide
- Convert EGP files to SAS Studio process flows (experimental for SAS Studio 3.6, production in 3.7)



Where Are We Going?

Interoperability between SAS Enterprise Guide and SAS Studio

Short Term:

- Bring the SAS programmer features of SAS Studio into SAS Enterprise Guide
- Bring the assistive / point-and-click features of SAS Enterprise Guide into SAS Studio
- Familiar SAS feel for both – theming and navigation

Long Term:

- Expand common assets beyond .sas files
- Execution convergence – consistent way of executing jobs

Ultimate Goal:

- Users move seamlessly between the two leveraging the strengths of each – browser and rich-client



01 Develop code in
SAS Enterprise
Guide



02 Submit code



04 Submit code



03 Pick-up code in
SAS Studio

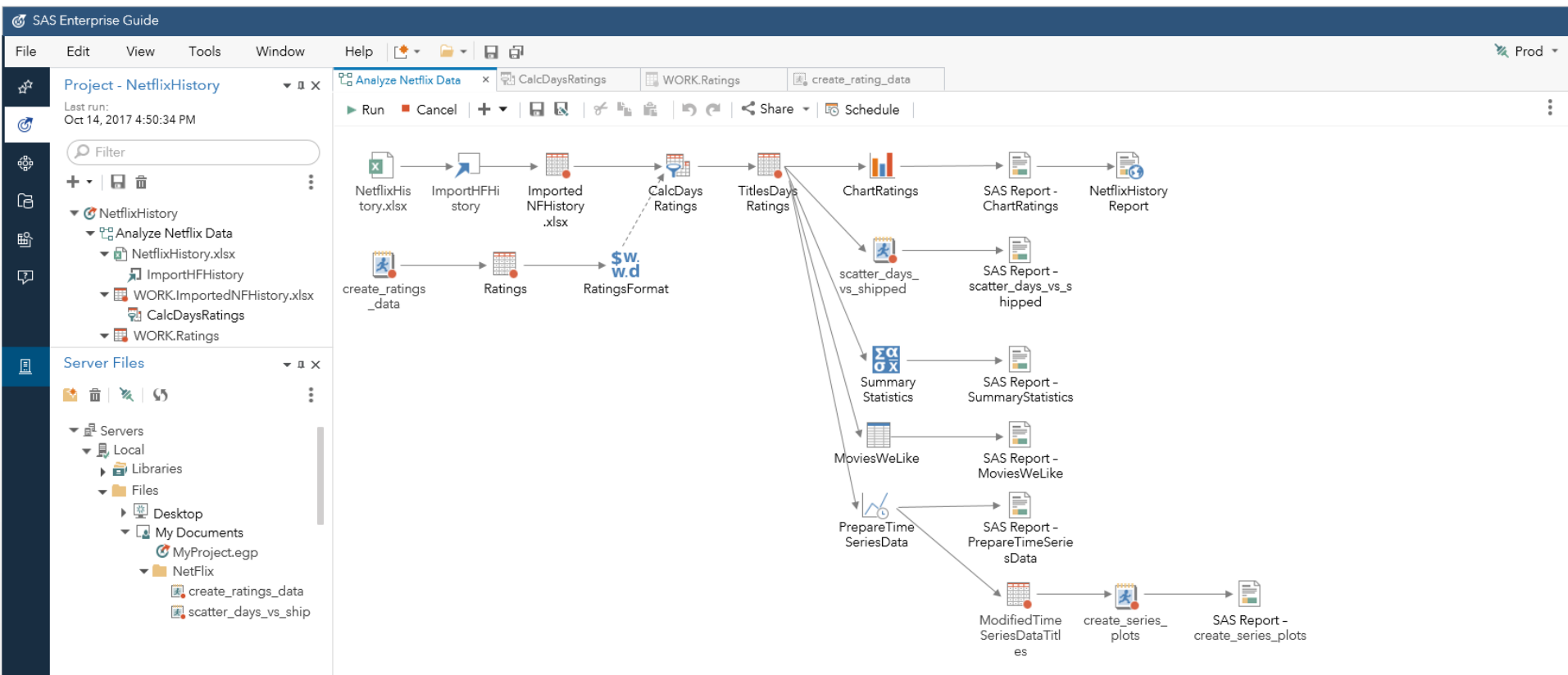


What's Coming for SAS Enterprise Guide

- Minor release (7.15) shipped with SAS 9.4M5
- Major release (8.1) planned for 2018
 - Refresh of the UI to match current SAS themes and modernize.
 - Addition of the ability to create, edit, and save SAS code without requiring a project or process flow.
 - Window docking manager (drag and float or dock with drop zone previews, tear-off views, leverage multiple monitors).

Modern Theme – SAS Family

Establish a familial resemblance across SAS's products



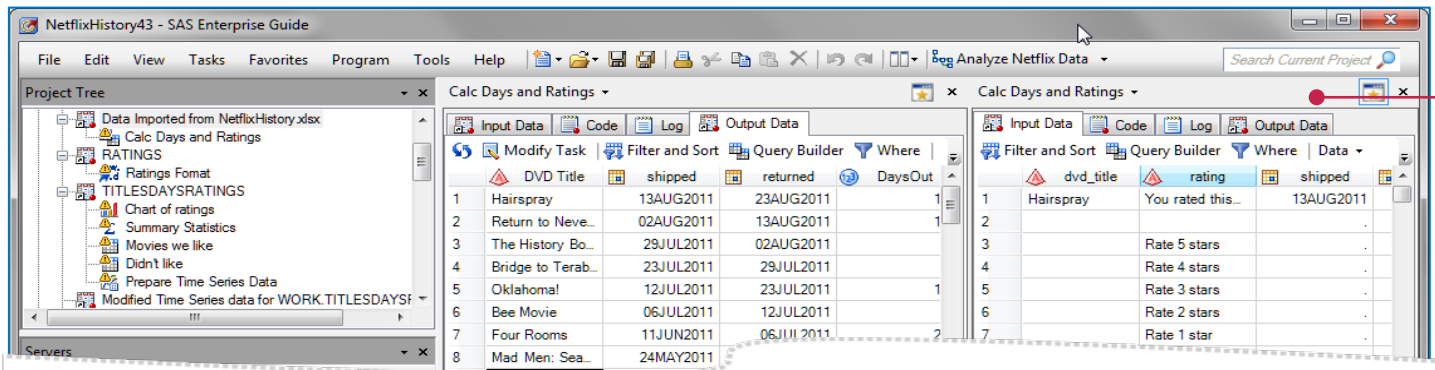
Lots of Pane Layout Flexibility – Dock, Float, Stack

The screenshot displays the SAS Enterprise Guide interface. The top menu bar includes File, Edit, View, Tools, Window, Help, and a status bar showing 'Prod'. The left sidebar contains two panes: 'Server Files' and 'Open Files'. The 'Server Files' pane shows a tree view of the file system, including Servers, Local, Libraries, Files, Desktop, My Documents, MyProject.egg, and NetFlx. The 'Open Files' pane shows a list of open files, including 'create_rating_data'. The main workspace is divided into two panes. The left pane is the 'Code' editor, showing a SAS program for creating a rating data set. The right pane is the 'Log' editor, showing the output of the program. The 'Log' editor shows the following text:

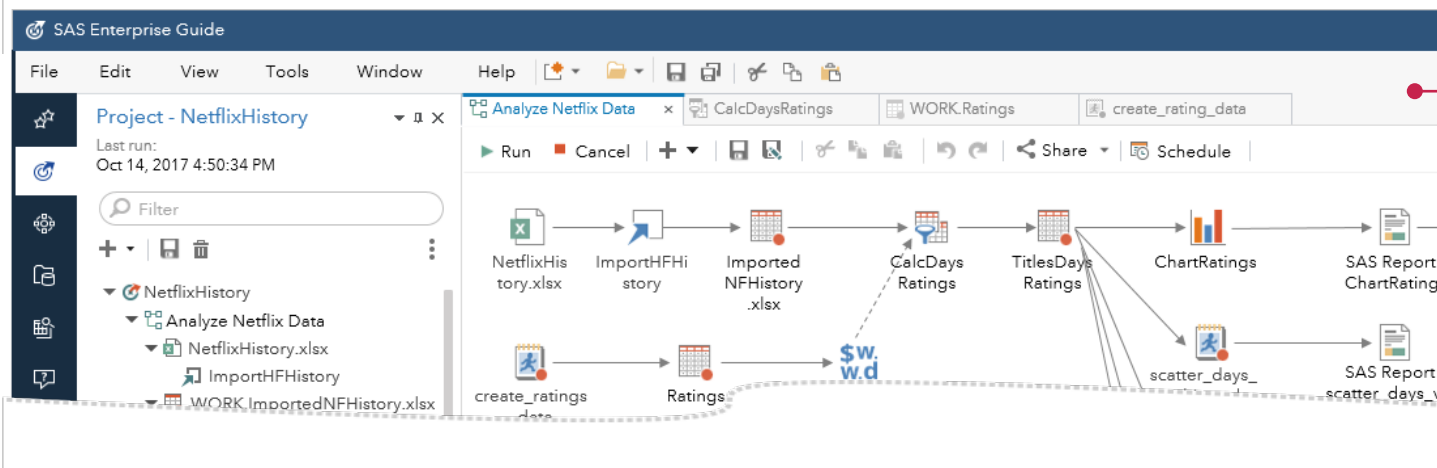
```
1 /---Bar Panel---/
2
3 title 'Mileage by Origin and Type';
4 proc sgpanel data=sashelp.cars(where=(type in ('Sedan' 'Sports')) noautolegend;
5   panelby Type / novarname columns=2 onepanel;
6   vbar origin / response=mpg_city stat=mean group=origin;
7   rowaxis grid;
8   run;
```

The right pane is titled 'Project - NetflixHistory' and shows a list of files and folders. The files include 'NetflixFHistory', 'Analyze Netflix Data', 'NetflixFHistory.xlsx', 'ImportHFHistory', 'WORK.ImportedNFHistory.xlsx', 'CalcDaysRatings', 'WORK.Ratings', 'RatingsFormat', 'WORK.TitlesDaysRatings', 'ChartRatings', 'SummaryStatistics', 'MoviesWeLike', 'DontLike', 'PrepareTimeSeriesData', 'WORK.ModifiedTimeSeriesData', 'Programs', 'create_rating_data', 'scatter_days_vs_shipped', 'Log', 'WORK.ImportedNFHistory', 'WORK.ImportedRatings', 'Analyze Netflix Instant', and 'NetflixFInstantWatch.xlsx'. The 'Log' pane also shows the last run date and time: 'Oct 14, 2017 4:50:34 PM'.

Multiple Tabs



Current: Max 2 tabs



Future: Lots and lots of tabs

Layout Major and Minor Tabs

The screenshot displays the SAS Enterprise Guide interface with two data tables open side-by-side. The left table is titled 'WORK.Ratings' and the right table is titled 'WORK.TitlesCostRatin'. Both tables have columns for 'DVD Title', 'ActualRating', and 'RatingPhrase'. The 'DVD Title' column lists movies such as 'Best in Show', 'Best of Abbott & Costello', 'Bottle Rocket', 'Charlotte's Web', 'Defying Gravity: Season 1: Disc 4', 'Dreamgirls', 'Evan Almighty', and 'Everything Is Illuminated'. The 'ActualRating' column shows ratings from 1 to 5, and the 'RatingPhrase' column shows phrases like 'Loved it'.

DVD Title	ActualRating	RatingPhrase
1 Best in Show	5	Loved it
2 Best of Abbott & Costello	5	Loved it
3 Bottle Rocket	5	Loved it
4 Charlotte's Web	5	Loved it
5 Defying Gravity: Season 1: Disc 4	5	Loved it
6 Dreamgirls	5	Loved it
7 Evan Almighty	5	Loved it
8 Everything Is Illuminated	5	Loved it

Many side-by-side layout options

The screenshot displays the SAS Enterprise Guide interface with a SAS program open in the 'Program' tab and its log in the 'Log' tab. The program code is as follows:

```
1 %let name=periodic_table;  
2 filename odsout '.';  
3  
4 %let cellwidth=1.1;  
5 %let cellheight=1.2;  
6 %let gap=.05;  
7  
8 /*  
9 This example creates a periodic table using SAS/Graph gmap & annotate,  
10 and allows the coloring of the cells in the table to be controlled by  
11 the 'color' variable, and the text to be controlled via the 'text' variable.
```

The log shows the execution of the program, including the following code:

```
1 OPTIONS NOSYNTAXCHECK;  
2 TITLE;  
3 FOOTNOTE;  
4 OPTIONS LOCALE=en_us DFLANG=LOCALE;  
5 DATA _NULL_;  
6 RUN;  
NOTE: DATA statement used (Total process time):
```

Tear 'n Float Panes and Tabs

The screenshot displays the SAS Enterprise Guide interface. The main window, titled 'Zebra', contains a code editor with a SAS program that generates a periodic table. The program uses macro variables to define cell widths and gaps, and a data step to read a dataset of element abbreviations. The output is a periodic table with elements like Hydrogen, Lithium, Sodium, Potassium, Rubidium, Caesium, Francium, Beryllium, Magnesium, Calcium, Strontium, and Barium.

Overlaid on the right is the 'Log (Zebra)' window, which shows the execution log. It includes a tab for 'Errors (4)' and a table of error messages. The table has columns for 'Description', 'Line', and 'Affected Code'. The errors are related to writing HTML, RTF, and ODS PDF output to a disk destination.

Description	Line	Affected Code
NOTE: Writing HTML(EGHTML) Body file: EGHTML	30	GPATH=\$sasworklocati
NOTE: Writing RTF Body file: EGRTF	38	NOGFOOTNOTE
WARNING: Unsupported device 'ACTIVE' for PDF(EGPDF) destination. Using device 'AC...	41	ODS PDF(ID=EGPDF) F
NOTE: Writing ODS PDF(EGPDF) output to DISK destination "EGPDF", printer "PDF".	42	ODS PDF(ID=EGPDF) F

Project Pane Enhancements

Project - NetflixHistory

Last run:
Oct 14, 2017 4:50:34 PM

Filter

NetflixHistory

- Analyze Netflix Data
 - NetflixHistory.xlsx
 - ImportHFHistory
 - WORK.ImportedNFHistory.xlsx
 - CalcDaysRatings
 - WORK.Ratings
 - RatingsFormat
 - WORK.TitlesDaysRatings
 - ChartRatings
 - SummaryStatistics
 - MoviesWeLike
 - DontLike

Last run info

Filter – as you type

Stuff to help you:

- More run options
- Status indicators
- Ability to exclude/include items on the fly

Working with a Project (or not!)

This screenshot shows the SAS Enterprise Guide interface with a project named "Project - NetflixHistory" open. The top menu bar includes File, Edit, View, Tools, Window, and Help. The left sidebar contains a navigation pane with a search filter and a tree view showing the project structure. The main workspace displays a task named "Analyze Netflix Data" with a "Run" button and a "Cancel" button. Below the task, there are two files: "NetflixHistory.xlsx" and "create_ratings_data".

SAS Enterprise Guide

File Edit View Tools Window Help

Project - NetflixHistory

Last run:
Oct 14, 2017 4:50:34 PM

Filter

NetfliHistory.xlsx

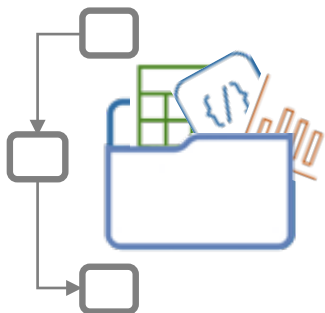
create_ratings_data

Analyze Netflix Data

Run Cancel

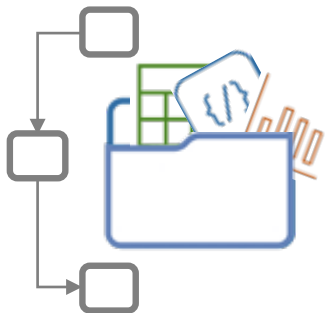
This screenshot shows the SAS Enterprise Guide interface with the "Server Files" pane open. The top menu bar includes File, Edit, View, Tools, Window, and Help. The left sidebar contains a navigation pane. The main workspace displays the "Server Files" pane, which shows a tree view of the file system. The "Open Files" pane at the bottom shows a list of files, including "create_rating_data". The code editor on the right shows the following code:

```
1 /*--Bar Panel
2
3 title 'Mileage
4 proc sgpanel
5   panelby Type
6   vbar origin /
7   rowaxis grid;
8   run;
```

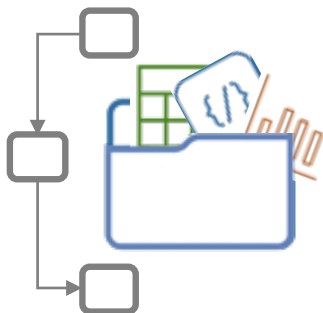
I love the way EG adds
files to projects and
process flows for me





I love the idea of a projects and process flows, but I want to add files myself





I just want to program – not
interested in projects or
process flows



☆

🔍

⛶

📁

📊

💬

📄

Project

Start page

Create a New Project

-----OR-----

Open an Existing Project

Server Files

📁 🗑️ 🌿 🔄

▼ 🖨️ Servers

▼ 🖨️ Local

- Project
- Data
- Program
- Stored process
- Process Flow
- Task

Discover what you can do with SAS Enterprise Guide 8



Learn



Learn about working without a project or process flow

Recent Files

Pinned

BA_Process

Modified: 01/12/2017 9:34AM

Today

QuerySalary

Modified: 01/12/2017 9:34AM

HistorySample

Modified: 01/12/2017 9:34AM

HistorySampleB

Modified: 01/12/2017 9:34AM

Get Started



New project
Project Explorer pr



New program
Starting coding SAS




Open a project
Have an existing p

 Project

Create a New Project






-----OR-----

Open an Existing Project




Server Files

▼ Servers

▼ Local

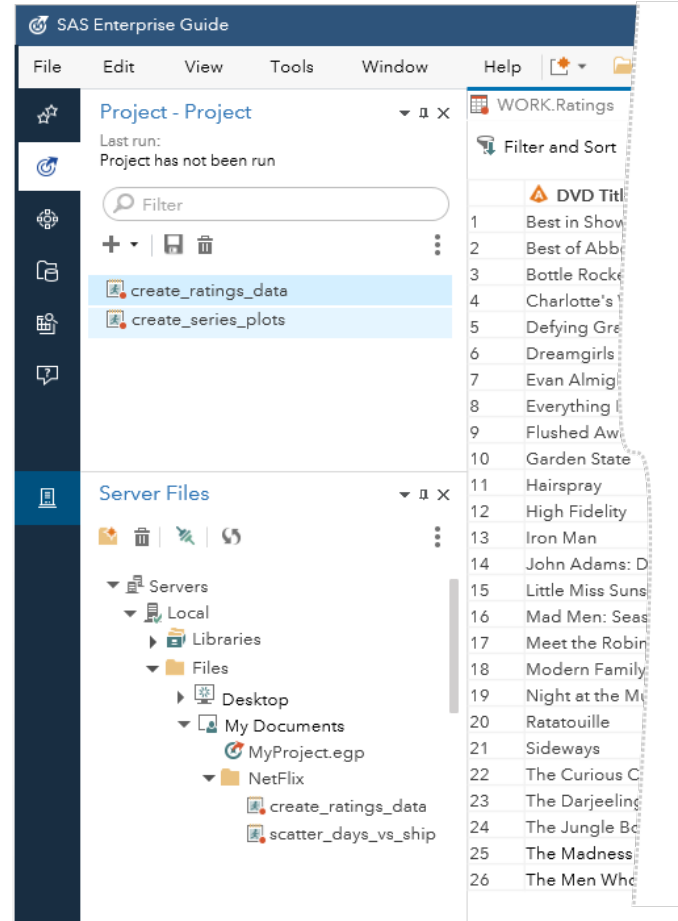
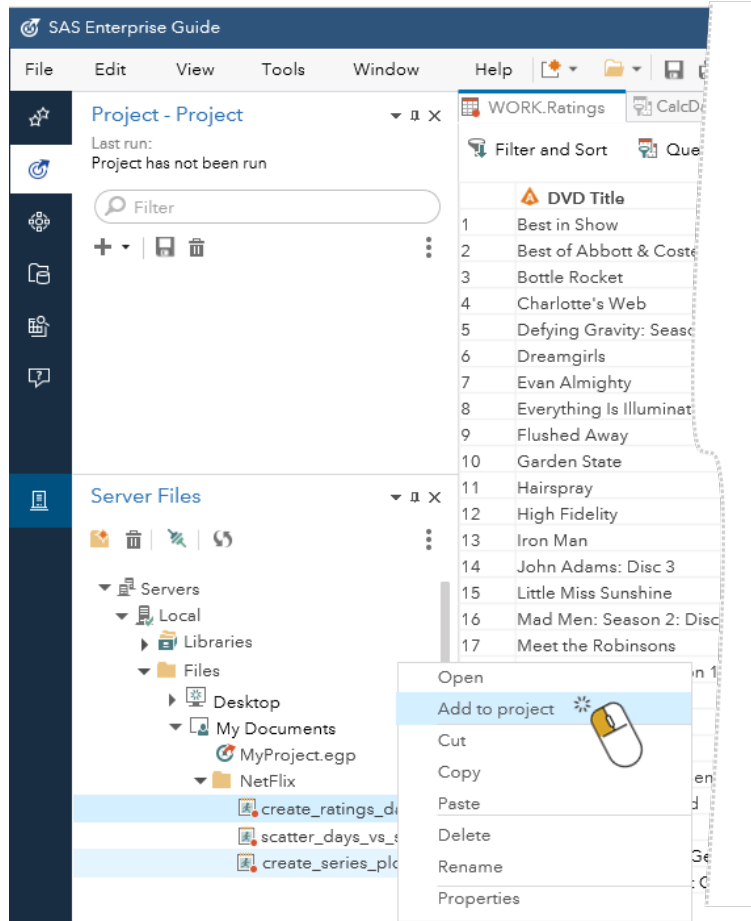
 Program

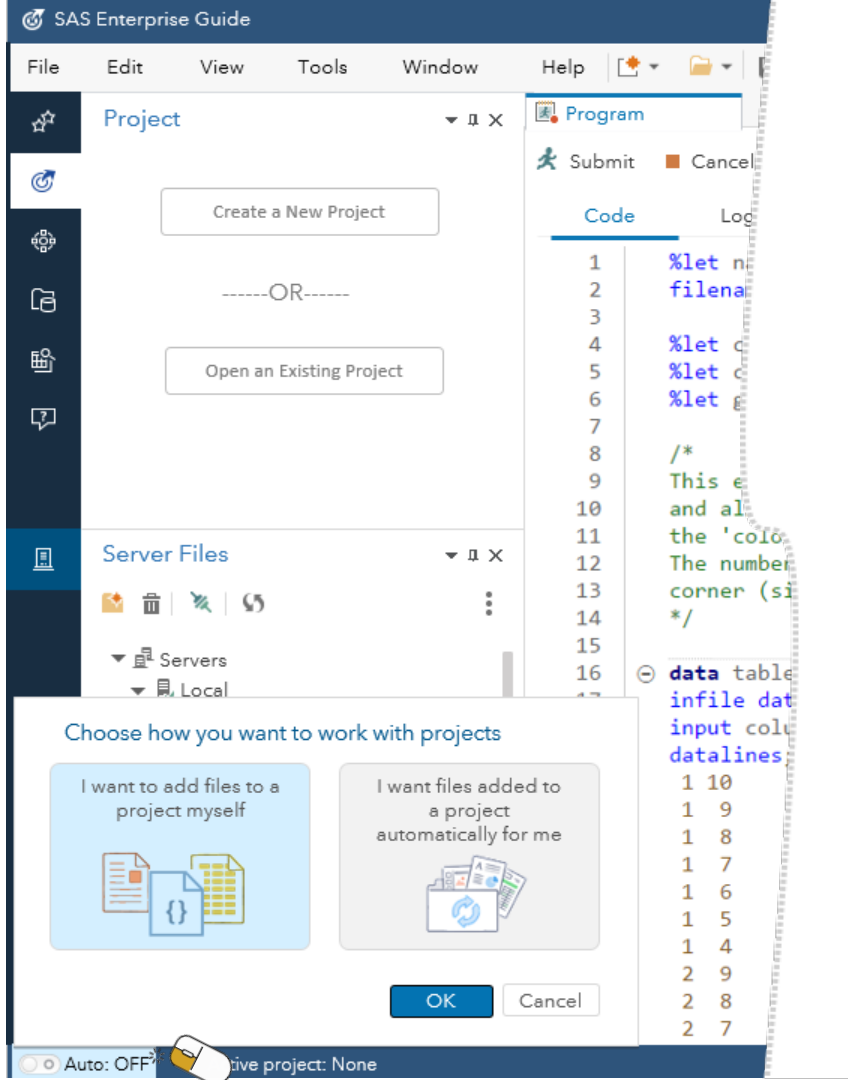
 Submit  Cancel         Share  Debug 

Code Log



Project – Add Files Yourself



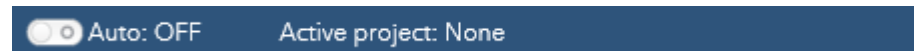


Project Mode – ON or OFF

Where would you expect to turn “using a project or not” on or off?

- Preferences?
- Accessible option in the UI?
- Other?

Would you want to see this setting in the UI? For example, in the status bar an icon indicates ON or OFF.



How often do you think you will switch between the two options?

What's Coming for SAS Studio

- Minor release (3.7) shipped with SAS 9.4M5
- Major release (5.1) planned for 2018
 - Re-write of UI and mid-tier to take advantage of new technology and SAS standards
 - Additional features requested by users including a more robust query tool, ability to organize and search assets, and so on.
 - New notebook layout

Enhancements to the Query Tool

- Calculated columns
- Having

The screenshot displays the SAS Query Tool interface. The top section shows a toolbar with 'Submit', 'Cancel', and other icons. Below the toolbar, the 'Columns' panel on the left lists variables from the 't1 (CLASS)' dataset: Name, Sex, Age, Height, and Weight. The 'Height' variable is selected. The main workspace is divided into tabs: 'Select', 'Join', 'Filter', 'Sort', and 'Output'. The 'Filter' tab is active, showing a single filter expression: 'MEAN(t1.Height) > 60'. The bottom section shows the generated SQL code in a text editor.

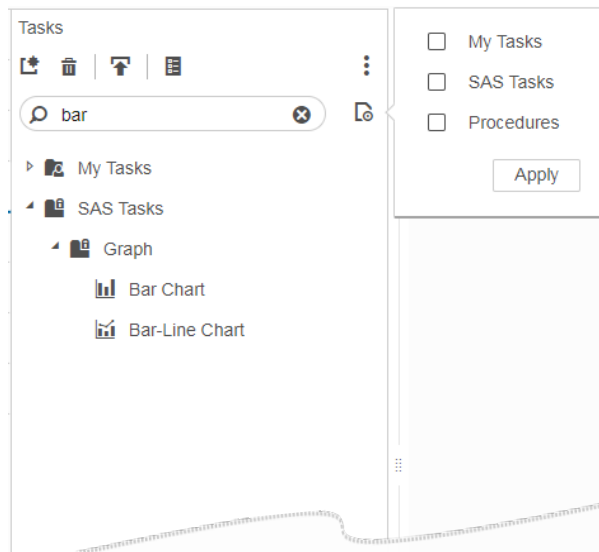
```
3 PROC SQL;  
4   CREATE TABLE WORK.QUERY AS  
5     SELECT  
6       t1.Sex,  
7       AVG(t1.Height) AS AVG_OF_Height  
8     FROM  
9       SASHELP.'CLASS' t1  
10    GROUP BY  
11      t1.Sex  
12    HAVING  
13      MEAN(t1.Height) > 60  
14  ;  
15 QUIT;  
16 RUN;
```

Read Only Ln 9 Col 23 UTF-8

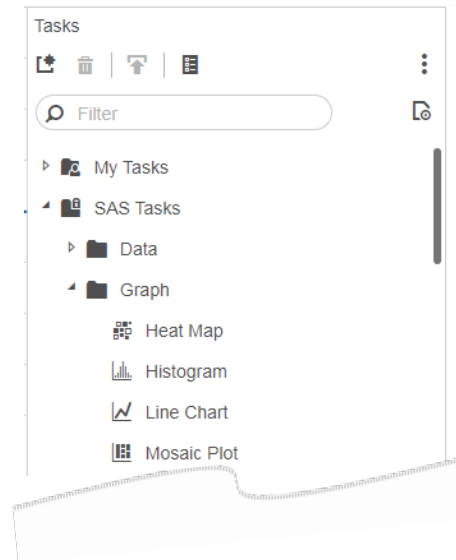
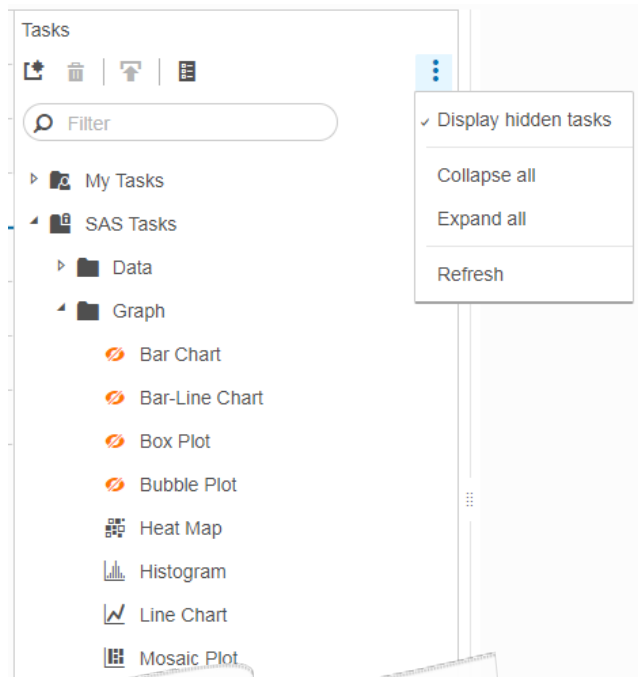
Organization

Filter and Hide/Show Tasks and Snippets

Filter



Hide & Show



Organization

View Open Tabs At-A-Glance

The screenshot displays the SAS Studio web interface. At the top, a dark blue header bar contains the 'SAS® Studio' logo on the left and a 'Sign Out' button on the right. Below the header is a navigation bar with links for 'New', 'Options', 'View', 'Open', and 'Save All'. On the left side, there is a vertical sidebar with icons for 'Open Files', 'Save all' (with a '1 unsaved' indicator), and a list of open files: '* cowboy.sas', 'Calculations.sas', and 'MessageProgram...'. The main area of the interface is divided into two panes. The top pane shows the 'Open Files' tab bar with three tabs: '* cowboy.sas' (active), 'Calculations.sas', and 'MessageProgram.sas'. Below this is a toolbar with icons for 'Submit', 'Cancel', 'Refresh', 'Save', 'Print', 'Undo', 'Redo', and 'Find'. The bottom pane is the code editor, which has tabs for 'Code' and 'Log'. The 'Code' tab is active, showing SAS code for a 3D plot of a cowboy hat. The code includes a data step to generate a grid of points and a PROC G3D step to plot them. Line 17, 'run; run; run;', is highlighted in blue. The status bar at the bottom of the code editor shows 'Ln 17 | Col 14 | UTF-8'. At the very bottom of the interface, a footer bar contains the file path 'File: C:/Users/sawals/Documents/cowboy.sas', a 'Recovery' button with a '36' indicator, a 'Submissions' button with a '0' indicator, and the SAS logo.

SAS® Studio

Sign Out

New Options View Open Save All

Open Files

Save all 1 unsaved

* cowboy.sas

Calculations.sas

MessageProgram...

* cowboy.sas

Calculations.sas

MessageProgram.sas

Submit Cancel Refresh Save Print Undo Redo Find

Code Log

```
1
2  goptions cback=black colors=(white cyan magenta gold yellow);
3
4  data hat;
5      do x=-5 to 5 by .25;
6          do y=-5 to 5 by .25;
7              z=sin(sqrt(x*x + y*y));
8              output;
9          end;
10         end;fdsafdsa
11     run;
12     title1 c=white f=swiss 'The Cowboy Hat';
13     title2 h=2 angle=90 ' ';
14
15  proc g3d data=hat;
16      plot y*x=z / ctop=yellow ctext=white;
17  run; run; run;
18
```

Ln 17 | Col 14 | UTF-8

File: C:/Users/sawals/Documents/cowboy.sas

Recovery 36 Submissions 0

SAS

Organization

Improved Search

The screenshot displays the SAS Studio interface. At the top, the title bar reads "SAS® Studio". Below it, a menu bar includes "New", "Options", "View", "Open", and "Save All". A search bar is visible with the text ".sas". A search results table is shown with columns for Name, Path, and other details. A search filter dialog is open, titled "Narrow your search by selecting from the following options". The dialog includes checkboxes for "Server Files Pane", "Tasks Pane", "Snippets Pane", "Libraries Pane", and "File References Pane". The "Server Files Pane" is selected, and a file browser shows "Files (My Documents)".

Search results table:

Name	Path
a_long_job.sas	C:/Users/sawals/Documents/a_long_
a_long_job.sas.html	C:/Users/sawals/Documents/a_long_
a_long_job.sas.log	C:/Users/sawals/Documents/a_long_
cowboy.sas	C:/Users/sawals/Documents/cowboy:
cowboy.sas~	C:/Users/sawals/Documents/cowboy:
periodic_table.sas	C:/Users/sawals/Documents/periodic_
Program 1.sas	C:/Users/sawals/Documents/Program 1.sas
Program 2.sas	C:/Users/sawals/Documents/Program 2.sas
Program 21.sas	C:/Users/sawals/Documents/Program 21.sas
Program 23.sas	C:/Users/sawals/Documents/Program 23.sas
Program 24.sas	C:/Users/sawals/Documents/Program 24.sas
Program2.sas	C:/Users/sawals/Documents/Program2.sas
TProgram.sas	C:/Users/sawals/Documents/TProgram.sas

Search Filter Dialog:

Narrow your search by selecting from the following options

- ☒ Server Files Pane
 - Files (My Documents)
 - ☐ Include subfolders
- ☐ Tasks Pane
- ☐ Snippets Pane
- ☐ Libraries Pane
 - Library/table pattern
 - ☐ Include columns
 - ☐ Include labels
- ☐ File References Pane

Managing Your Session

Control How the Log Behaves

Preference

Log

- ☒ Show generated SAS code in the SAS log
- ☒ Show custom code in the SAS log
- ☒ Generate errors, warnings and notes index
- ☒ Stream log updates while a procedure is running

With each submission:

- ☐ Automatically clear log
- ☒ Append log

Program only ▼

Program and Task

Program only

Task only

Clear log

cowboy.sas x

Submit Cancel [Icons]

Code **Log** Output Data

Errors (2) Warnings (1) Notes (16)

real time 0.00 seconds
cpu time 0.00 seconds

```
95      !      run;run;  
96  
97  
98  
99  
100     ODS HTML CLOSE;  
101     &GRAPHTERM; ;*';*";*/;RUN;QUIT;  
102     QUIT;RUN;
```

Managing Your Session

Submission Status

Submissions

All

Errors

Warnings

Pending

Clear all

Cancel all

Status	Name	Type	Container	Run Time	Submitted	Completed
	cowboy.sas	Program		2s	11/10/2017,...	11/10/2017,...
	mandelbrot...	Program		18s	11/10/2017,...	11/10/2017,...
	DebuggerPr...	Program		1s	11/10/2017,...	11/10/2017,...
	DebuggerPr...	Program			11/10/2017,...	

3 Files/DebuggerProgram.sas

Recovery

36

Submissions




1

Working with Tables

Filter in-place

SASHELP.BASEBALL X

SASHELP.BASEBALL (filtered) 20 of 24 Columns Rows: 200 Rows 1-6

 nHits>200  

	Name	Team	nAtBat	nHits	nHome	nRuns	nRBI
1	Mattingly, Don	New York	677	238	31	117	113
2	Puckett, Kirby	Minneapolis	680	223	31	119	96
3	Sax, Steve	Los Angeles	633	210	6	91	56
4	Fernandez, Tony	Toronto	687	213	10	91	65
5	Gwynn, Tony	San Diego	642	211	14	107	59
6	Boggs, Wade	Boston	580	207	8	107	71

Notebooks in SAS Studio

* Notebook.snk x

Submit Cancel Save Undo Redo Insert Up Down Copy Paste Print Run Cell Edit

Getting Started

- SAS Code in a cell
- Markdown in a cell

[3]

```
1 proc sql;
2   select *
3   from sashelp.baseball;
```

Ln 3 | Col 23

The SQL Procedure

Query Results

Player's Name	Team at the End of 1986	Times at Bat in 1986	Hits in 1986	Home Runs in 1986	Runs in 1986	RBIs in 1986	Wa
Allanson, Andy	Cleveland	293	66	1	30	29	
Ashby, Alan	Houston	315	81	7	24	38	
Davis, Alan	Seattle	479	130	18	66	72	
Dawson, Andre	Montreal	496	141	20	65	78	
Galarraga, Andres	Montreal	321	87	10	39	42	
Griffin, Alfredo	Oakland	594	169	4	74	51	
Newman, Al	Montreal	185	37	1	23	8	
Salazar, Argenis	Kansas City	298	73	0	24	24	
Thomas, Andres	Atlanta	323	81	6	26	32	
Thornton, Andre	Cleveland	401	92	17	49	66	
Trammell, Alan	Detroit	574	159	21	107	75	
Trevino, Alex	Los Angeles	202	53	4	31	26	
Van Slyke, Andy	St Louis	418	113	13	48	61	
Wiggins, Alan	Baltimore	239	60	0	30	11	
Almon, Bill	Pittsburgh	196	43	7	29	27	
Beane, Billy	Minneapolis	183	39	3	20	15	
Bell, Buddy	Cincinnati	568	158	20	89	75	
Biancalana, Buddy	Kansas City	190	46	2	24	8	

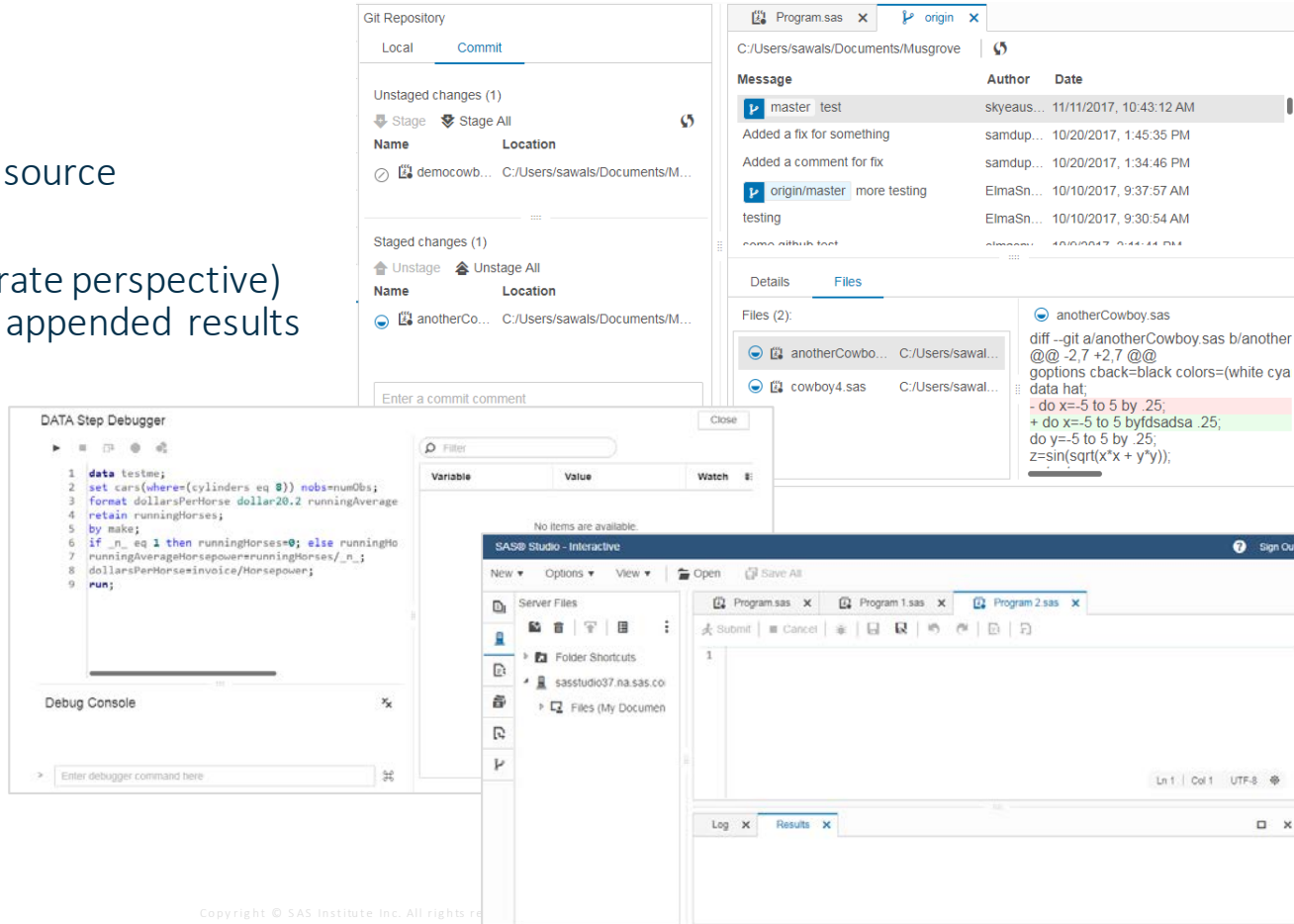
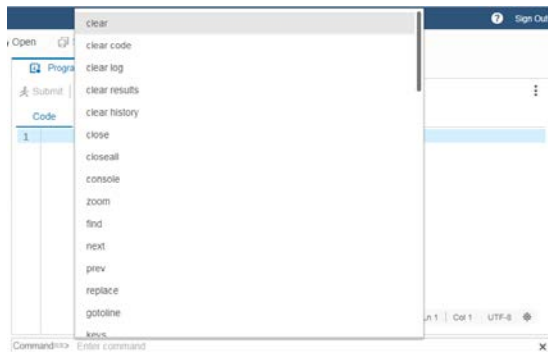
[6]

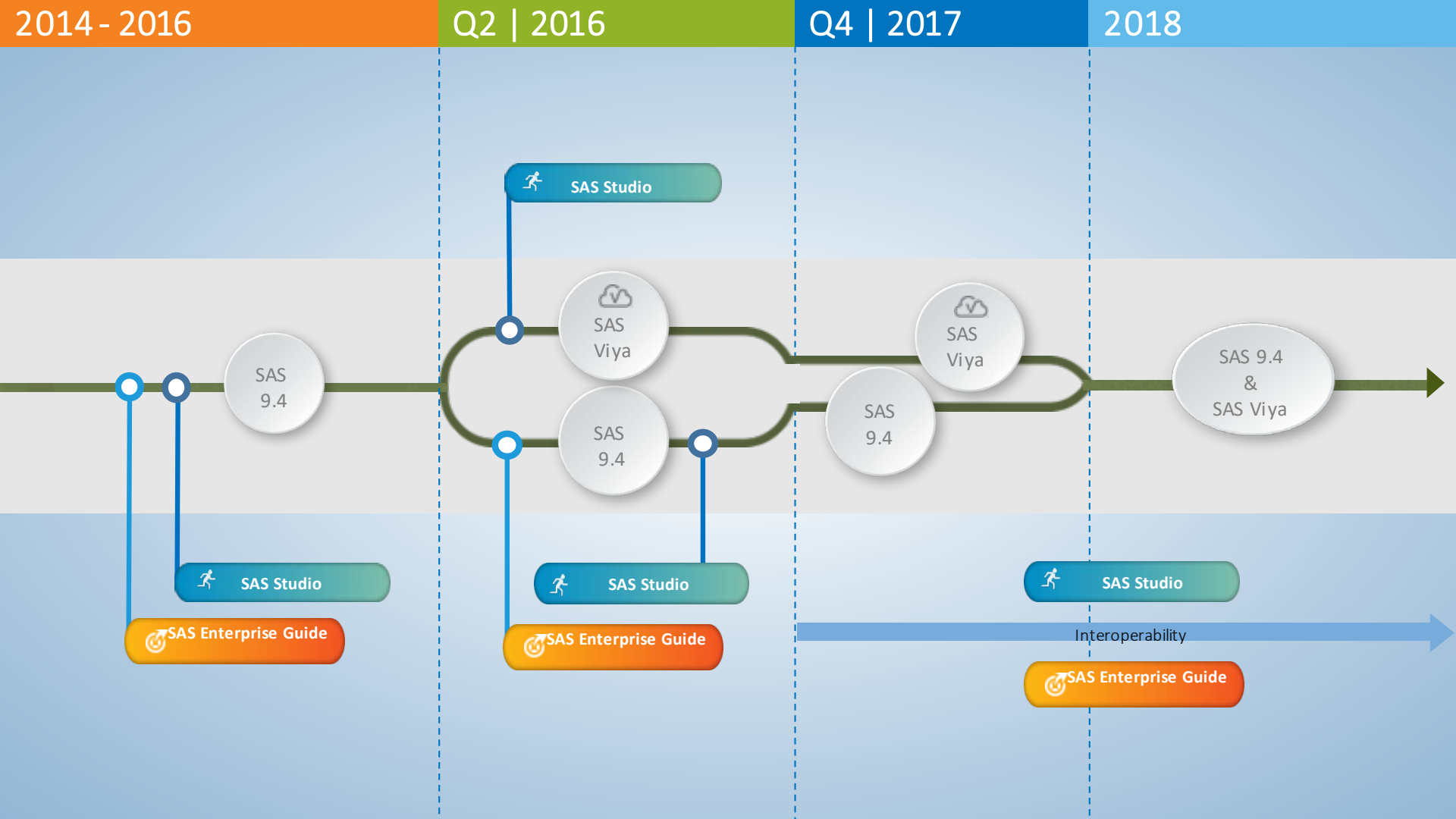
```
1 SELECT BASEBALL.nHits
2 FROM SASHELP.BASEBALL BASEBALL;
```

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More Features Planned

- DATA step debugger
- Integration with Git for source management
- Interactive mode (separate perspective) with appended log and appended results which you clear at will
- Command Interface





Be a Part of the Discussion

Connect with us on SAS Communities

- [SAS Studio community](#) – find it under SAS Programming
- [SAS Enterprise Guide community](#) – find it under Business Intelligence
- [SASware ballot ideas](#)

The screenshot shows the SAS Support Communities homepage. At the top is the SAS logo with the tagline 'THE POWER TO KNOW'. Below the logo is a navigation bar with links: Products & Solutions, Industries, Support, Learn, Partners, Connect, and About SAS. A 'Communities' button is highlighted. The main header area says 'Welcome to SAS Support Communities' and includes links for 'Register', 'Sign In', and 'Help'. A large banner image features a smiling man with the text: 'Stuck on a problem? Ask the community for help. While you're here, get a SAS tip and share what you know. This community of SAS experts is here to help you to succeed!' and a 'Join Now' button. Below the banner is a search bar with a 'Community' dropdown and a 'Search' button. To the right of the search bar is a 'Find a Community' button with a dropdown arrow. The 'Latest Activity' section has three tabs: 'Featured Posts', 'Popular Posts', and 'Unanswered Questions'. The 'Featured Posts' tab is active, showing a list of posts with their titles, locations, latest posters, view counts, and like counts. On the right side of the 'Latest Activity' section, there are three orange boxes showing 'MEMBERS 149,288', 'ONLINE 341', and 'POSTS 381,515'. Below these boxes is a 'Post a Question' button.

Post Title	Location	Latest Post by	Views	Likes
Code Like It Matters: Best Practices from Software Engineering, Applied to SAS Programming	In: SAS Communities Library	Latest Post by: paulkafer	1847	10
Fun with SAS Visual Analytics Graphics: Challenge accepted!	In: SAS Visual Analytics	Latest Post by: Rensho_sas	2111	9
Concatenate function using underlying/assigned format	In: SASware Ballot Ideas	Latest Post by: Reza	125	7
Re: SAS problem solving skill	In: General SAS Programming	Latest Post by: Reza	314	7
Enhanced RENAME syntax to handle variable lists	In: SASware Ballot Ideas	Latest Post by: Tom	224	11



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