

# RIP Enterprise Guide: Long live SAS Studio Flows!

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19 October 2022



**Why? Why? Why?**



# SAS EG to SAS Studio Flows – Why?

- The world is changing
- Everyone is going Web based – much better
  - Remove hassle of installing and updating client software
  - Access from browser anywhere – and not just Windows devices
- SAS Viya 4 – Next generation
  - New cloud native architecture
  - In-memory and parallel processing for speed
  - More visual and productive
  - CI/CD

The Knowledge Warehouse

**knoware** ■ ■ ■

INNOVATION IN DATA & ANALYTICS

# Don't panic!

- SAS 9 and EG around for awhile
  - SAS 9 alone
  - SAS 9 and Viya hybrid
- SAS Studio easy for EG users
- Viya 4 building parity with SAS 9

The Knowledge Warehouse

**knoware** ■ ■ ■

INNOVATION IN DATA & ANALYTICS



# SAS Studio – Unified Integrated Development Environment

SAS Enterprise Guide



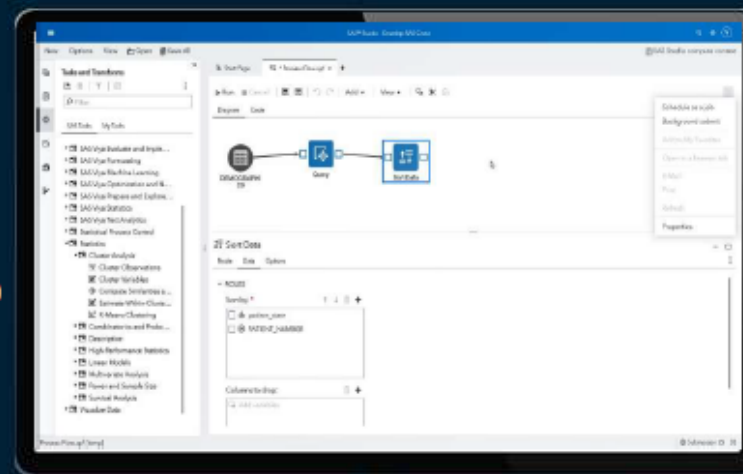
SAS Data Integration Studio



SAS Code, Servers & Libraries



SAS Studio



**Code**

Robust SAS code editor with auto-complete and syntax help

**Design**

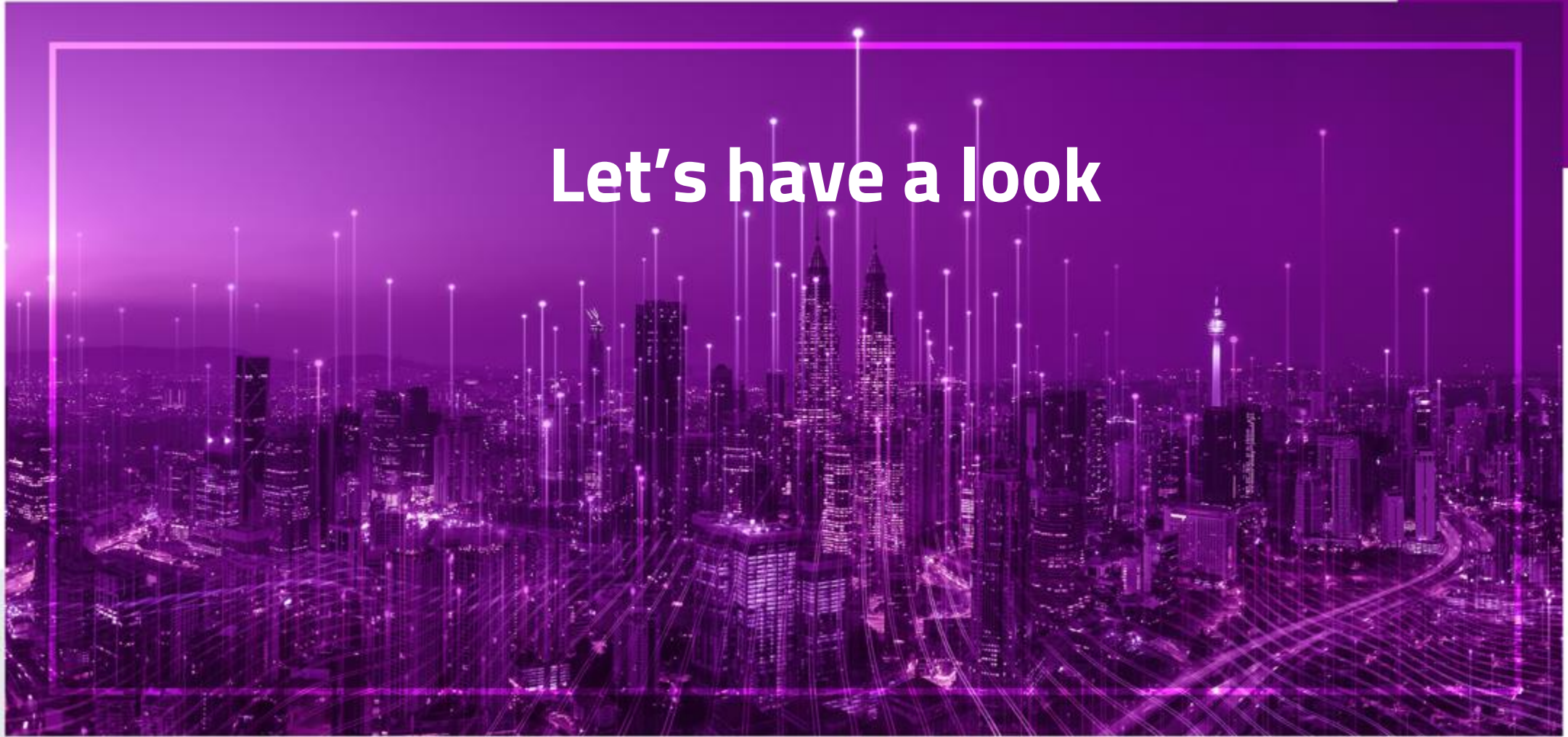
Tasks, Queries & Flows

**Collaborate**

GIT Integration, Shared Tasks & Snippets



**Let's have a look**



Open Files


Save all 0 unsaved

Start Page

Save all 0 unsaved

Start Page

Start Page x +

**GET STARTED** Program in SAS Build a flow Import data Query data**NEW** Explore new features in SAS Studio**LEARN**

Learn SAS Studio - videos, tutorials, and training

Learn SAS programming

**STAY CONNECTED**

Join the community

Request a feature

Welcome to

**SAS STUDIO**

A rich environment to develop code and design flows.

**Flows**

Simplify and model repeatable steps.

**Tasks**

Analyze data and create reports via point-and-click wizards.

**Data Access**

Import and access data seamlessly.

**Data Preparation**

Join, filter, sort, and transform data via a robust query.

**Collaboration**

Organize and share work.







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Start Page

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GET STARTED

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Build a flow

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Query data

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A rich environment to develop c

Flows

Simplify and model repeatable s

Tasks

Analyze data and create reports

Data Access



New Options View Open Save All

**Steps**

Filter steps

Custom Steps

Data (Input and Output)

Export

File

Import

Table

Develop

SAS Program

Transform Data

Branch Rows

Filter Rows

Insert Rows

Manage Columns

Query

Sort

Start Page x +

**GET STARTED**

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Analyze data and create reports via p

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Join, filter, sort, and transform data via



New Options View Open Save All

**Tasks**

Filter tasks

SAS Tasks My Tasks

- ▶ Econometrics
- ▶ Forecasting
- ▶ Optimization and Network Analysis
- ▶ Prepare Data
- ▶ SAS Viya Cloud Analytic Services
- ▶ SAS Viya Econometrics
- ▶ SAS Viya Evaluate and Implement Models
- ▶ SAS Viya Forecasting
- ▶ SAS Viya Machine Learning
- ▶ SAS Viya Optimization and Network Analysis
- ▶ SAS Viya Prepare and Explore Data
- ▶ SAS Viya Statistics
- ▶ SAS Viya Text Analytics
- ▶ Statistical Process Control
- ▶ Statistics

Start Page x +

**GET STARTED**

- Program in SAS
- Build a flow
- Import data
- Query data

**NEW** Explore new features in SAS Studio**LEARN**

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Flows

Simplify and model repeatable steps.

Tasks

Analyze data and create reports via point-and-click

Data Access

Import and access data seamlessly.

Data Preparation

Join, filter, sort, and transform data via a robust query

**Git Repositories****ADD OR  
CLONE A GIT  
REPOSITORY.**

No items are available.

[Add Repository](#)[Clone Repository](#)

You'll need to set up a Git profile before you can clone or open a Git repository. Select [Options > Manage Git Connections](#).

Start Page x +

**GET STARTED** [Program in SAS](#) [Build a flow](#) [Import data](#) [Query data](#)**NEW** [Explore new features in SAS Studio](#)**LEARN**[Learn SAS Studio - videos, tutorials, and training](#)[Learn SAS programming](#)**STAY CONNECTED**[Join the community](#)[Request a feature](#)

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[Flows](#)

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[Tasks](#)

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[Data Access](#)

Import and access data seamlessly.

[Data Preparation](#)

Join, filter, sort, and transform data via i

[Collaboration](#)

New Options View Open Save All

## Explorer

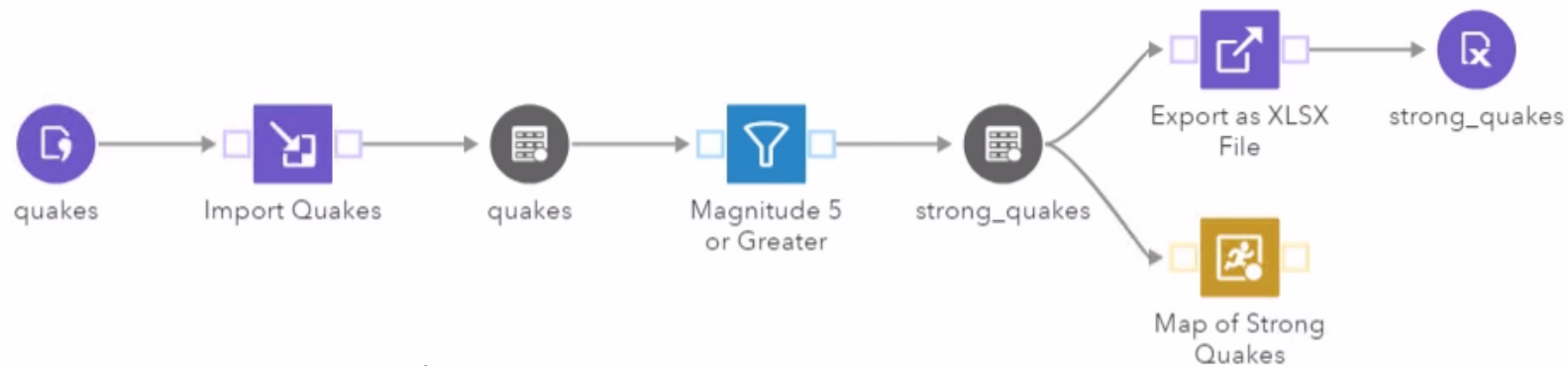


- My Favorites
- Folder Shortcuts
  - Shortcut to My Folder
- VSTU
  - solutions
    - vs01d01.flw
    - vs01p01.flw
    - vs03a03.flw
    - vs03d02.flw
    - vs03d04.flw
    - vs03d06.ctl
    - vs03p07.flw
  - VSTU\_data
- Server
- SAS Content

Start Page \*vs01d01.flw

Run Cancel Add View

Flow Generated Code Submission



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Start Page \*vs01d01.flw

Run Cancel Add View

Flow Generated Code Submission



quakes

Table Properties Published Columns Preview Data Node

quakes Table Rows: 15507 Columns: 8 of 8 Rows 1 to 200

	Latitude	Longitude	Depth	Magnitude	Class	dNearestStation	RootMeanSquareTime	Type
1	35.6879997	-121.1286697	6.25	2.8	Minor	0.02121	0.07	earthquake
2	40.878334	-123.2703323	33.57	2.6	Minor	0.2216	0.06	earthquake
3	38.0827	-94.7229	5	2.8	Minor	1.175	0.47	earthquake
4	41.8865	-119.6409	0.8915	2.6	Minor	0.493	0.1323	earthquake
5	35.3507	-96.5396	2.765	2.7	Minor	.	0.59	earthquake
6	36.7392	-97.5646	4.09	2.8	Minor	0.261	0.38	earthquake

New Options View Open Save All

## Explorer

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- Server
- SAS Content

Start Page vs01d01.flw

Run Cancel

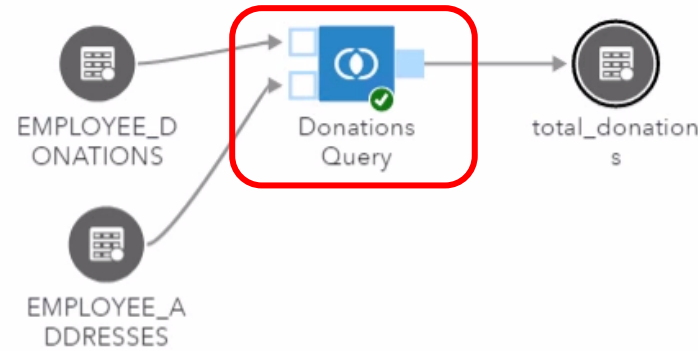
Flow Generated Code Submission

Code Log Results Output Data (2)

```
1 /*=====*/
2 * Flow:      vs01d01.flw
3 * ID:        5aab2ea3-b522-42f0-af80-8bbb2ec82b1c
4 * Created:   2021-08-19T18:32:08.803897867Z
5 * Created by: student
6 * Modified:  2021-08-19T18:32:08.803897867Z
7 * Modified by: student
8 *
9 * Output Tables:
10 *   WORK.quakes
11 *   WORK.strong_quakes
12 *   /home/student/Courses/VSTU_data/strong_quakes.xlsx
13 *
14 * Version:   DataFlows stable 2021.1.3 (20210722.1626916983546)
15 *
16 * Generated On: 2021-08-19T18:32:08.803897867Z
17 * Generated by: student
18 *=====*/
19 %studio_hide_wrapper;
20 /* Make sure the current directory is writable */
21 data _null_;
22     length rc 4;
23     %let tworkloc="%sysfunc(getoption(work))";
24     rc=dlgcdir(&tworkloc);
25 run;
```

Libraries

- Libraries
  - MAPS
  - MAPSGFK
  - MAPSSAS
  - ORION
    - ADMIN\_EMPLOYEES
    - BONUS\_SCHEDULE
    - COUNTRY\_LOOKUP
    - CUSTOMERS
    - EMPLOYEE\_ADDRESSES
    - EMPLOYEE\_DONATIONS
    - EMPLOYEES
    - EMPLOYEES\_EU
    - EMPLOYEES\_US
    - INTERNET\_ORDERS
    - MANAGER\_LOOKUP
    - NEW\_EMPLOYEES
    - OLD\_ORDERS
    - ORDERS
    - PHONE\_ORDERS
    - SALES\_EMPLOYEES
  - SASHELP
  - SASUSER
  - WORK



total\_donations

total\_donations

Table Rows: 65 | Columns: 15 of 15

Enter expression

	Country	Qtr1	Qtr2	Qtr3	Qtr4	Total_Donations	Recipients
11	US	20	20	20	20	\$80	Child Survivors
12	US	20	20	20	20	\$80	Mitlaid Interns



New Options View Open Save All

## Libraries



## Libraries

- MAPS
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  - OLD\_ORDERS
  - ORDERS
  - PHONE\_ORDERS
  - SALES\_EMPLOYEES
- SASHELP
- SASUSER
- WORK

Start Page

\* Lesson 3 Demos.flw x +

Run

Cancel



Add ▾

View ▾



Donations Query

Options

Node

## Columns

+ Calculated Column



Filter

- t1 (EMPLOYEE\_DONATIONS)
- t2 (EMPLOYEE\_ADDRESSES)
- Calculated Columns
  - Total\_Donations

Select

Join

Filter

Sort

Output Options

Expression Builder

Reset Join

## Join 1

t1(EMPLOYEE\_DONATIONS)

t2(EMPLOYEE\_ADDRESSES)

t1.Employee\_ID

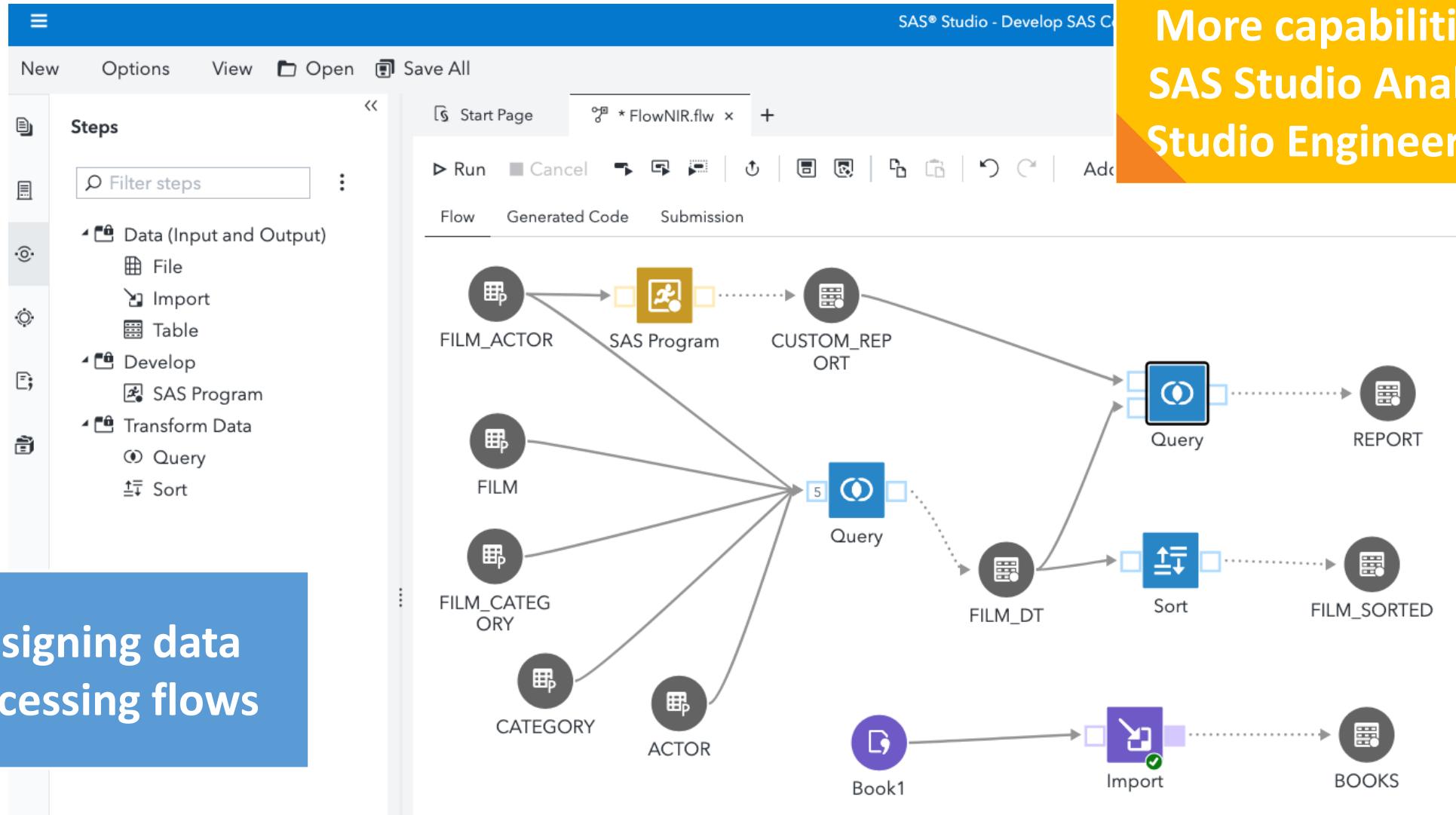
t2.Emp\_ID

# Visual Data Management Interfaces

## "Flows" in SAS Studio


More capabilities with  
SAS Studio Analyst and  
Studio Engineer license

Designing data  
processing flows



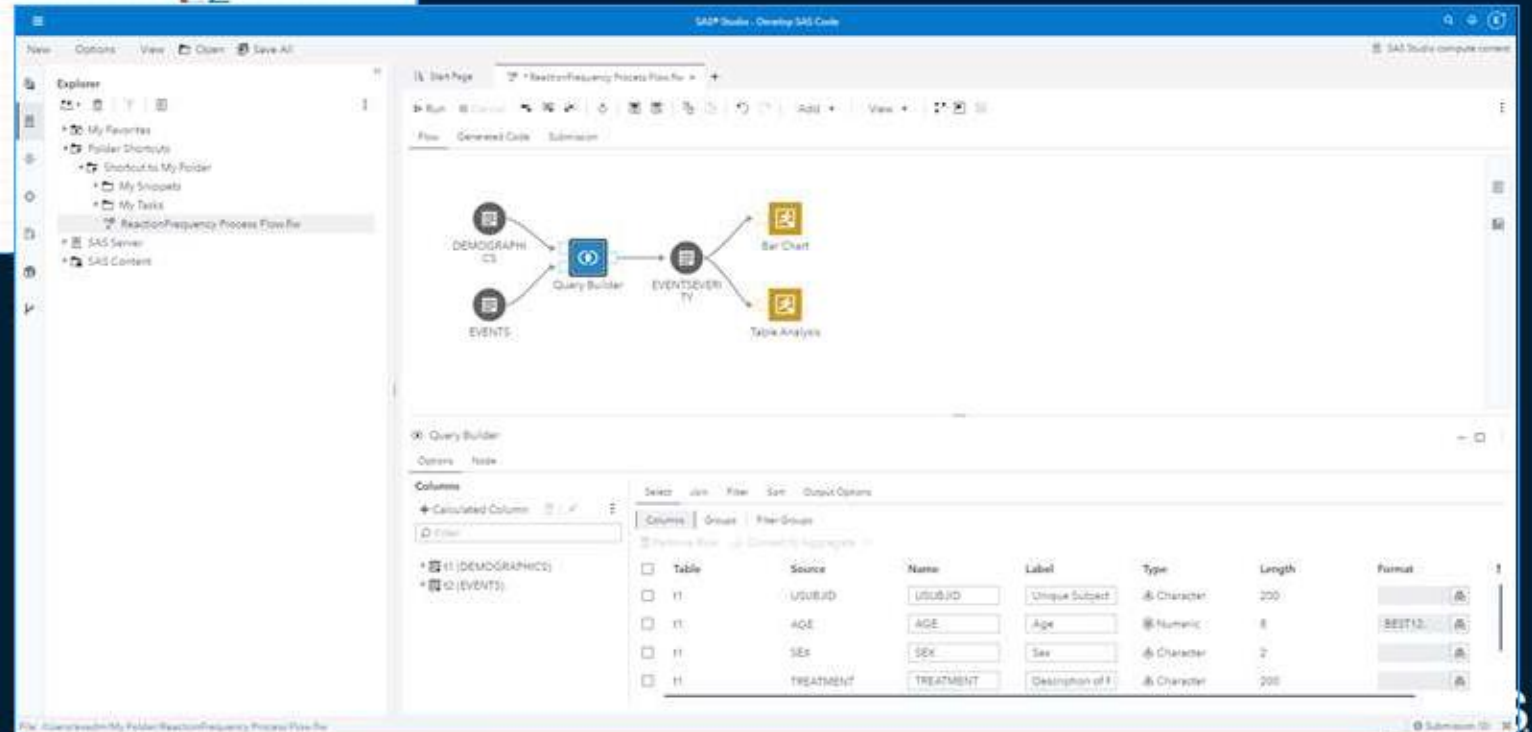
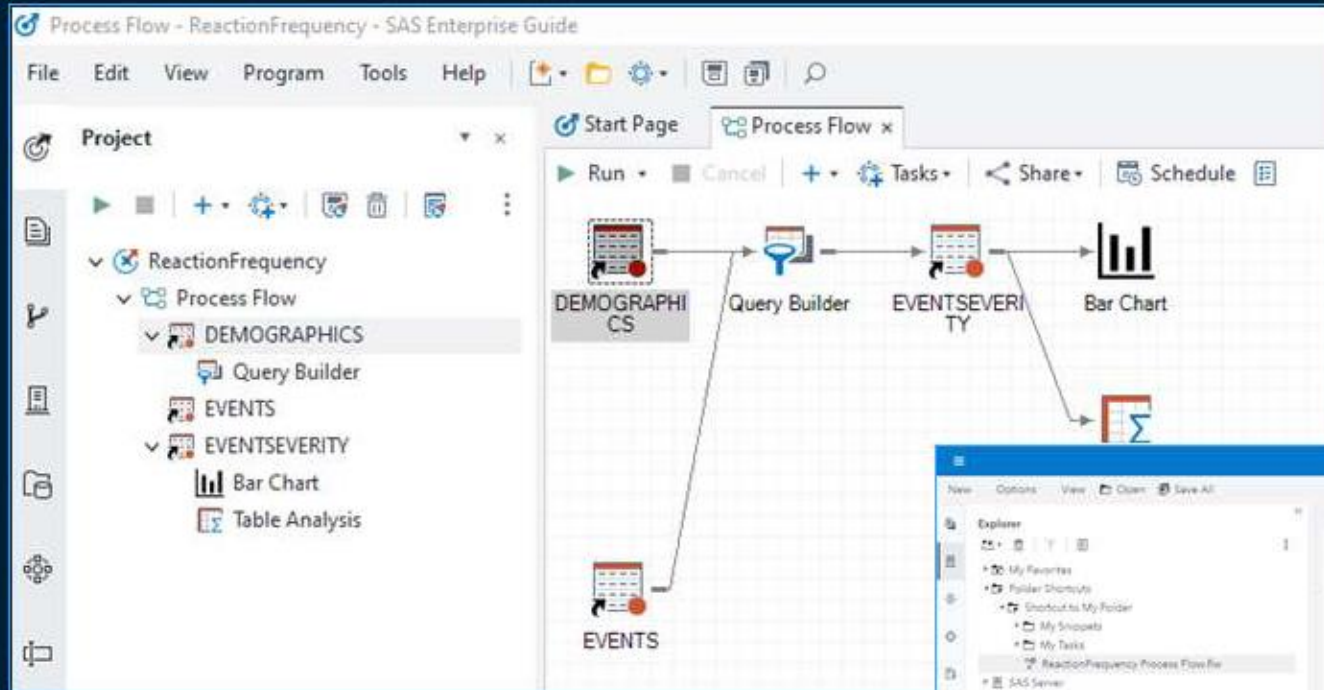
# SAS Studio Flows – good stuff

- Background submit
- Github integration
- SAS Custom Steps – for specific UI
- Integrates Data Quality and Governance capability
- Lineage
- Create flows from SAS code



# Migration of EG Projects to SAS Studio Flows

# Converting SAS Enterprise Guide Projects to SAS Studio Flows



# SAS Global Migration Framework



# What is SAS 9 Content Assessment

A collection of applications designed to help you understand various characteristics of your SAS 9.4 system and content produced from it.



## Import

Import Mapping Sets

Stop

Source

Mapping

Preview

Results

## Results

✔ Import job has completed ×

Total time to import SampleProject.egp: 0:00:09

View log

 Show column abbreviations

Object Type	✔ Completed	⚠ Warnings	✖ Errors	❗ Failed	⊕ Skipped	⌛ Stopped
⊗ SAS Enterprise Guide project (1)	1	0	0	0	0	0

Count: 1

## Import Details

Type: All

Name	State ↓	Type	Path	Message
⊗ SampleProject.egp	✔	SAS Enterprise Guide project		The resource

Count: 1

Import SAS EG  
Projects and  
DI Studio Jobs

Don't forget to  
migrate supporting  
content. (e.g.  
libraries, data, etc.)



[http://support.sas.com/software/products/sas-studio/faq/SASStudio\\_vsEG.htm](http://support.sas.com/software/products/sas-studio/faq/SASStudio_vsEG.htm)

General Feature Comparison between SAS® Studio and SAS® Enterprise Guide®	SAS® Enterprise Guide®		SAS® Studio			
	SAS® 9		3.8	SAS® Viya®		
	7.1x	8.2		5.2	2021.x	Future
<b>Programming</b>						
Standard SAS programming	✓	✓	✓	✓	✓	✓
Interactive SAS programming			✓	✓	✓	✓
DATA Step debugger	✓	✓		✓	✓	✓
Append log			✓	✓	✓	✓
Python support						✓
<b>General</b>						
Background submit			✓	✓	✓	✓
Show list of open items		✓		✓	✓	✓
Command line interface				✓	✓	✓
Console				✓	✓	✓
Git integration	✓	✓	✓	✓	✓	✓
Keyboard management	✓	✓		✓	✓	✓
Schedule	✓	✓		✓	✓	✓
SAS Viya job execution support				✓	✓	✓
Stored process support	✓	✓				
Information Map support	✓	✓				
OLAP cube support	✓	✓				
Tab layout		✓	✓	✓	✓	✓
<b>Data</b>						
Quick filter	✓	✓	✓	✓	✓	✓
Expression builder	✓	✓		✓	✓	✓
Freeze columns				✓	✓	✓
Query Builder	✓	✓	✓	✓	✓	✓
Joins	✓	✓	✓	✓	✓	✓
Calculated columns	✓	✓		✓	✓	✓
Where	✓	✓	✓	✓	✓	✓
Having	✓	✓		✓	✓	✓
FedSQL				✓	✓	✓

# References

- Great intro – Youtube tutorial (May 21)
  - SAS Tutorial | Getting Started with SAS Studio on SAS Viya
  - <https://www.youtube.com/watch?v=44xg6-sUyvU>
- E-learning course – 1 day
  - Building SAS Studio Flows in SAS Viya
  - <https://support.sas.com/edu/schedules.html?id=26197&ctry=NZ>

# References

- Is SAS Studio Replacing SAS Enterprise Guide? (May 21)
  - <https://communities.sas.com/t5/Ask-the-Expert/Is-SAS-Studio-Replacing-SAS-Enterprise-Guide-Q-amp-A-Slides-and/ta-p/783946>
- SAS Studio Flows and Steps (May 22 – later updates)
  - <https://communities.sas.com/t5/Ask-the-Expert/SAS-nbsp-Studio-Flows-and-Steps-nbsp-Q-amp-A-Slides-and-On/ta-p/800291>

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