



Using SAS[®] Enterprise Guide 8.2 with SAS[®] Viya[®]

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Or perhaps we shouldn't?



AGENDA

- SAS[®] Enterprise Guide or SAS[®] Studio – which one should I choose?
- Setting up SAS[®] Enterprise Guide 8.2 to work with Viya
- What's New in SAS[®] Studio 5.3
- Questions – unmute your mic or write in the chat

SAS Enterprise Guide and SAS Studio

Which one should I choose?

SAS Studio

The screenshot shows the SAS Studio interface. The code editor contains the following SAS code:

```
1 proc sort data=sashelp.cars out=cars;
2 by make;
3 run;
4 data testme;
5 set cars(where=(cylinders eq 8)) nobs=nu
6 format dollarsPerHorse dollar20.2 runnin
7 retain runningHorses;
8 by make;
9 if _n_ eq 1 then run Ln 18 Col 19 UTF-8
10
```

The Results pane displays a table with the following data:

Obs	Make	Model
1	Audi	A6 4.2 Quattro 4dr
2	Audi	A8 L Quattro 4dr
3	Audi	S4 Quattro 4dr
4	Audi	RS 6 4dr
5	Audi	S4 Avant Quattro

The Submission Status pane shows two successful submissions:

Status	Name	Type	Run Time	Submitted	Completed
✓	Program.sas	Program	2.697s	12/4/2018, 3:25...	12/4/2018, 3:26...
✓	Program.sas	Program	3.977s	12/4/2018, 3:29...	12/4/2018, 3:29...

SAS Enterprise Guide

The screenshot shows the SAS Enterprise Guide interface. The code editor contains the following SAS code:

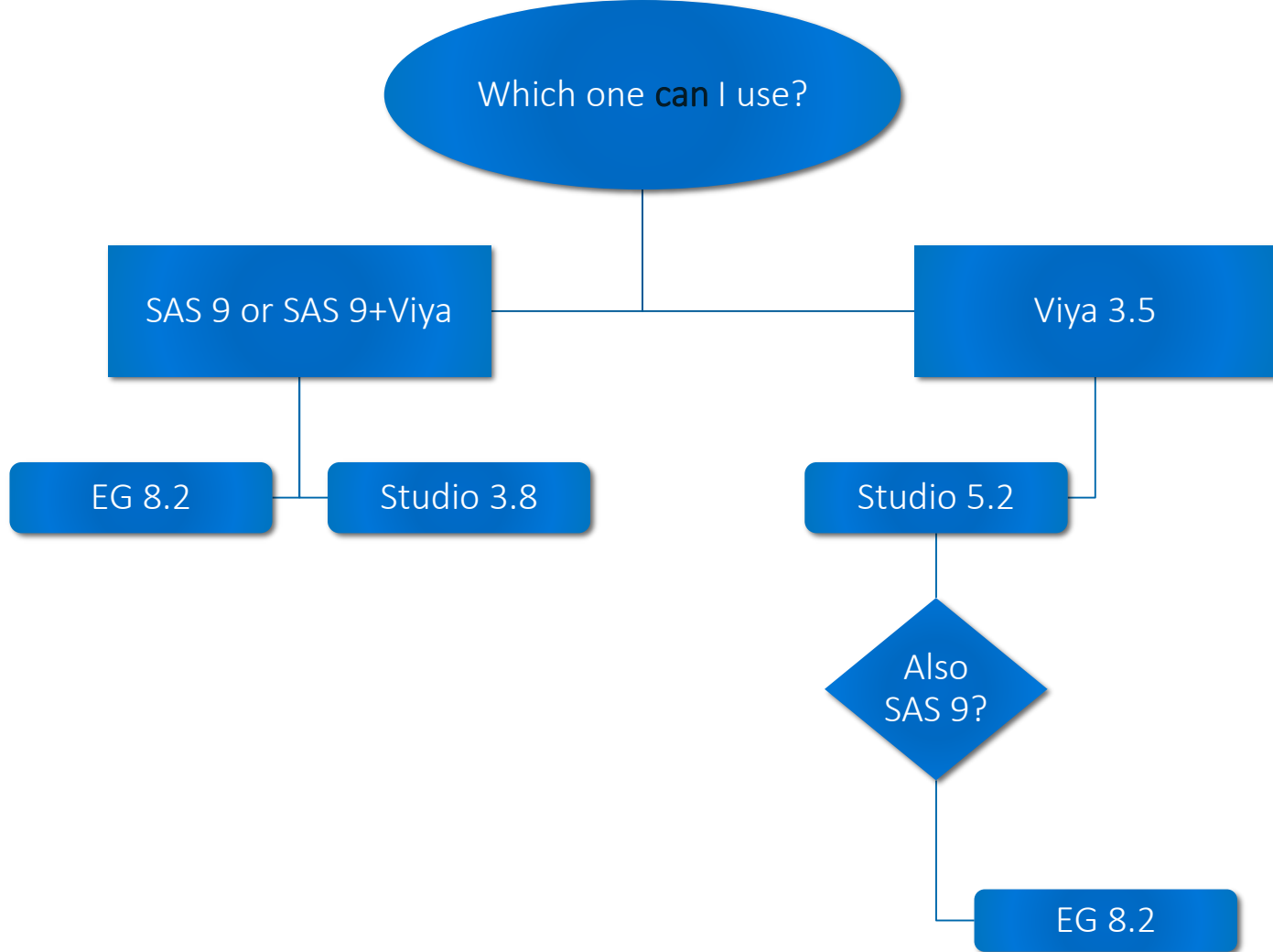
```
1 proc sort data=sashelp.cars out=cars;
2 by make;
3 run;
4 data testme;
5 set cars(where=(cylinders eq 8)) no
6 format dollarsPerHorse dollar20.2 r
7 retain runningHorses;
8 by make;
9 if _n_ eq 1 then runningHorses=0; e
10 runningAverageHorsepower=runningHor
```

The Results pane displays a table with the following data:

Obs	Make	Model	Type	Orig
1	Audi	A6 4.2 Quattro 4dr	Sedan	Euro;
2	Audi	A8 L Quattro 4dr	Sedan	Euro;
3	Audi	S4 Quattro 4dr	Sedan	Euro;
4	Audi	RS 6 4dr	Sports	Euro;
5	Audi	S4 Avant Quattro	Wagon	Euro;

The Submission Status pane shows two successful submissions:

Name	Run Time	Submitted	Completed
Program	2.111s	12/4/2018 3:27:13 PM	12/4/2018 3:27:15 PM
Program	2.070s	12/4/2018 3:30:05 PM	12/4/2018 3:30:07 PM



Which one **can** I use?

SAS 9

Viya 4.0

EG 8.2

Studio 3.8

Studio 5.3



What's New in SAS[®] Enterprise Guide 8.2

What's New in SAS® Enterprise Guide 8.2

- **Ability to connect directly to workspace servers**
- New Git integration user interface
- Ability to access and run tasks from SAS Studio 5.2
- Ability to manage keyboard shortcuts

<https://support.sas.com/software/products/enterprise-guide/faq/whatsnew.htm>



Setup needed to talk to Viya

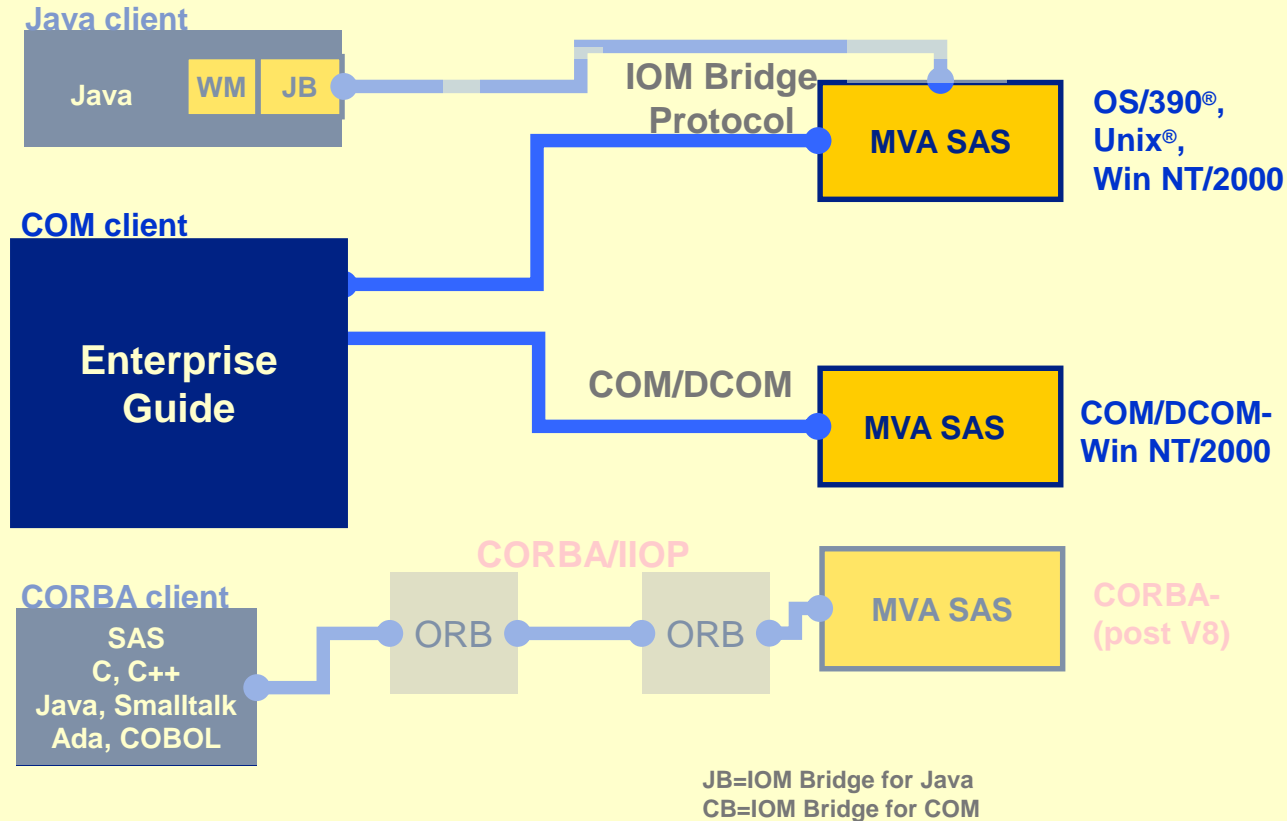


Setting up a server SAS8-style

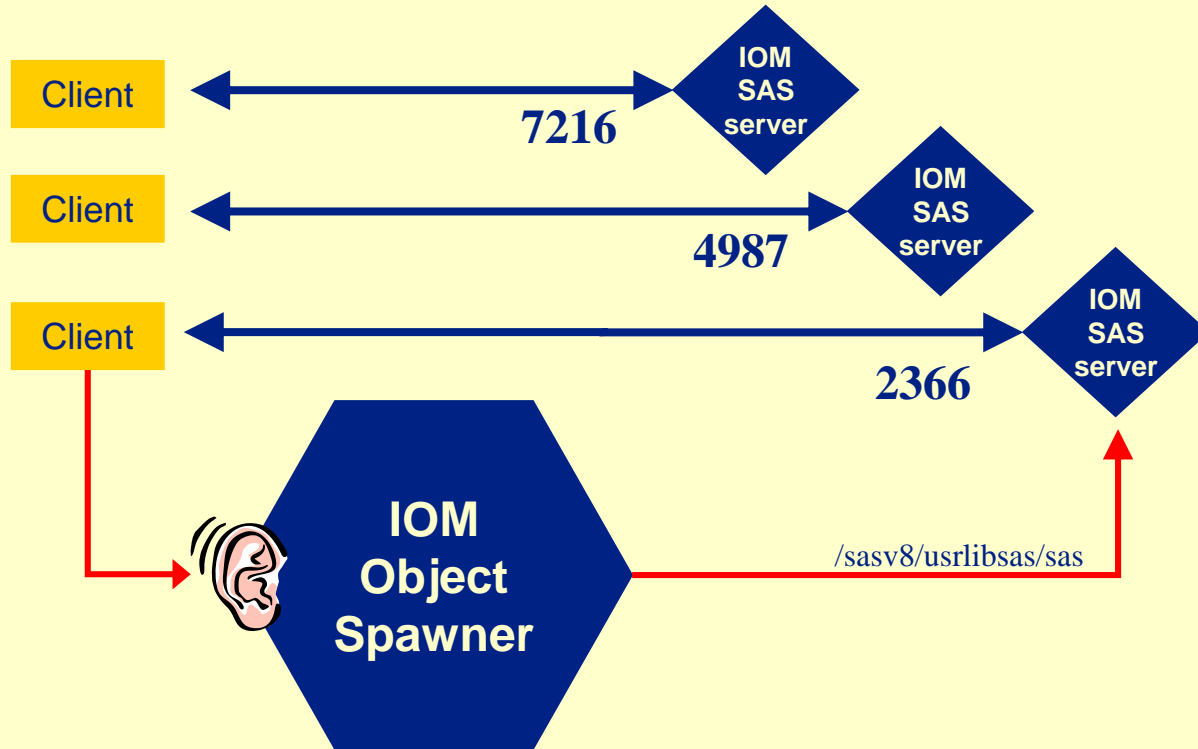
Old school...

Integration Technologies

Connectivity



Object Spawner





Viya and micro services

Source-based Engines

In-Stream



In-Hadoop



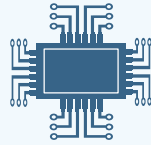
In-Database



Parallel & Serial, Pub / Sub,
Web Services, MQs

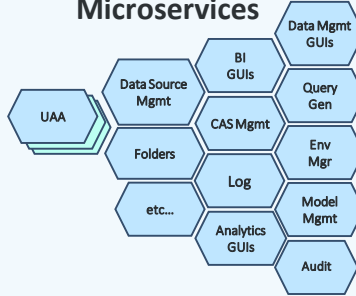
SAS® Viya™

In-Memory Runtime Engine



CAS / MAS

Microservices



Solutions

- Customer Intelligence
- Analytics
- Risk Management
- Business Visualization
- Fraud and Security Intelligence
- Data Management

APIs

- REST API
- python™
- Java
- R
- Lua

Platform





Let's get on with it. Setting things up...

Setup needed to talk to Viya

1. Copy certificate (vault-ca.crt) from linux server and divide it into 2 new files
2. Import certificates from linux server on your PC
3. Add the linux server in EG Connections

Setup needed to talk to Viya

Documentation to guide you

- How to find the cert and what to do with it

<https://go.documentation.sas.com/?cdcid=calcdc&cdcVersion=3.5&docsetId=calcryptmotion&docsetTarget=n1xdqv1sezyrahn17erzcunxwix9.htm&locale=en#p11x7tc5wa1oein1jcnkjg0zf6ve>

- Add Your Certificates to the Windows CA Store

<https://go.documentation.sas.com/?activeCdc=pgmsascdc&cdcid=egcdc&cdcVersion=8.2&docsetId=secref&docsetTarget=n12036intelplatform00install.htm&locale=en>

Copy vault-ca.crt to your PC

`/opt/sas/viya/config/etc/SASSecurityCertificateFramework/cacerts`

The screenshot shows a WinSCP window titled 'cacerts - swedrt@sweden.emea.sas.com - WinSCP'. The window displays a file explorer interface for a remote directory. The left pane shows the local file system path 'C:\Users\swedrt\Downloads\ORGOLD\' with a list of files including various .sas7bdat and .sas7bndx files. The right pane shows the remote directory path '/opt/sas/viya/config/etc/SASSecurityCertificateFramework/cacerts/' with a table of files. The file 'vault-ca.crt' is highlighted in blue.

Name	Size	Changed	Rights	Owner
..		2019-11-07 02:15:45	rwxr-xr-x	sas
httpproxy-deployTarget-ca.crt	3 KB	2019-11-28 16:37:17	rw-r--r--	sas
trustedcerts.jks	165 KB	2019-11-28 16:37:20	rw-r--r--	sas
trustedcerts.p12	177 KB	2019-11-28 16:37:20	rw-r--r--	sas
trustedcerts.pem	262 KB	2019-11-28 16:37:20	rw-r--r--	sas
vault-ca.crt	4 KB	2019-11-28 16:35:34	rw-r--r--	sas
vault-deployTarget-ca.crt	4 KB	2019-11-28 16:36:56	rw-r--r--	sas

0 B of 18,4 MB in 0 of 9 0 B of 611 KB in 0 of 6 SFTP-3 0:01:33

Divide vault-ca.crt into 2 files

/opt/sas/viya/config/etc/SASSecurityCertificateFramework/cacerts

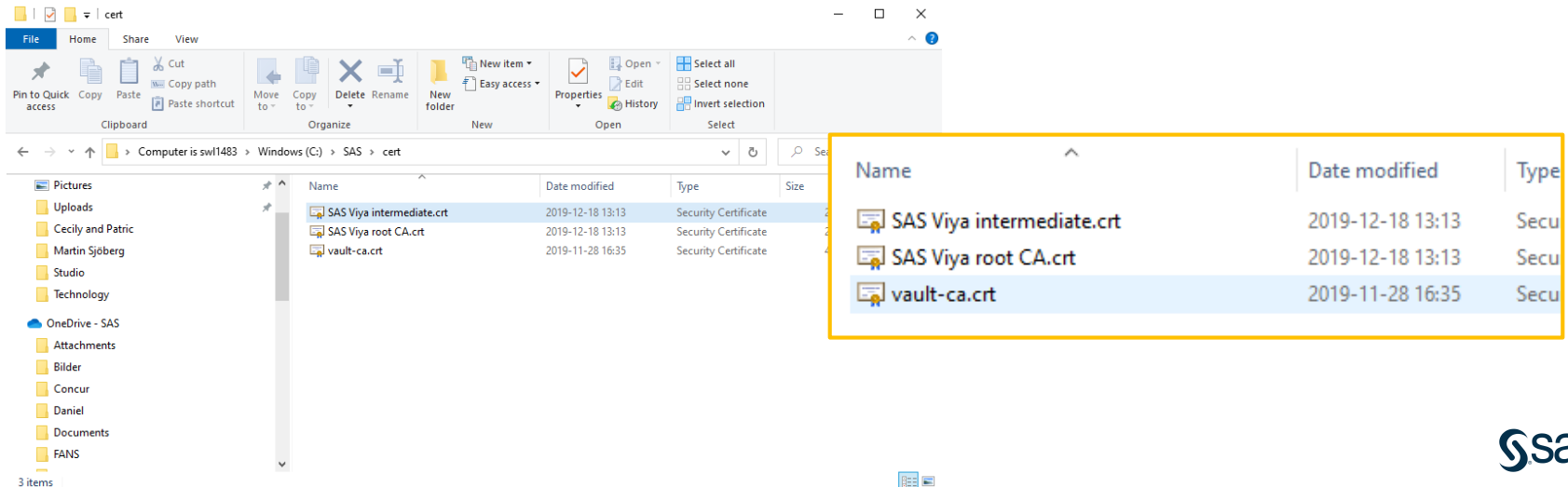
```
C:\SAS\cert\vault-ca.crt - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
change.log logging.config SEGuide.exe.config EGOOptions.xml EG app log 15May20 child error.txt new 1 vault-ca.crt
1 -----BEGIN CERTIFICATE-----
2 MIIFJzCCAw+gAwIBAgIUmbvKrmQ9Fglsey+DyggGm02hbAwDQYJKoZIhvcNAQEL
3 BQAwGzEZMBcGA1UEAxMQQU0FTIFZJWUEgUm9vdCBDQTAeFw0xOTEwMjE1MDNA
4 Fw0yOTExMjUxNTM1MzJhMmBxGTAXBGNTBAMTEFNBUyBWSV1BIEFvbj3QgQ0EwggIi
5 MA0GCSqGSIb3DQEBAQUAA4ICDwAwggIKAoICAQCyFzKFX/OfPK5DTEgymYrKhhYt
6 5RH3Z6A2uxgbvC5eTux8HoUwX18MviNe86j09jGg6FPeYI5bbxRdLT37MUguXzU
7 d37bavTCpgHyY4e94MuU8ObmM11LEdf0l18Rhe1W84gg3afMNI+XGFZq7Ytvg
8 R89ZC0hQJ31JR0khIbVmVvPw9Dmk4wPw6113ZIVw/1S4GTfDfaHy1Hzzvg1qAA70
9 4ySaMa7xQD2pB4iLTPa9pqiEmChqRGfVxwVS/GsVG+ZAFzqo+dulKw/z4hrYF7
10 afSvRwRjUu/LOWD0MvsvyXlby/THQj30Df3wXGsoXeK4Lxe79DI8aL8A0nfgD+Po
11 lpIBPLMb5bknfw2vOp1dVgBJkf7wriRmD11yZiZ0WZfauCGbDUtjNgCoo15ZiarN
12 k17etyT8tjMd5JhdX2oIG7DY/nff/79s0QyFT8z/xgG3bSvuglFvgJEnybtFRPPO
13 GK7py2njtoFFqjYAm0JoirBFWjIkEgcweNpB3tp7TN90ALpvh72/3y/ia2Dg0v
14 xRMO1e3g+M1BsL5P0JzaFwJdZWC9rCfGkVesVlBkS11bT7Jd5KVAbhGblbrtOSk8
15 m71Wcv5a6Ry/vkp79mCARL64iFXNwX5eTkL2vxaQkp31MNYEcyS4mJQI4veIZR4
16 vo5aF8DIgah2gRBeQIDAQABo2MwYTAOBgNVHQ8BAf8EBAMCAQYwDwYDVR0TAQH/
17 BAUwAwEB/zAdBgNVHQ4EFgQUAjeF/wdhFnevAR1UWmJaDtNGip4wHDYVR0jBBgw
18 FoAUAjeF/wdhFnevAR1UWmJaDtNGip4wDQYJKoZIhvcNAQELBQADggIBAkoB+fNY
19 eErLT1U7EVO90CYLdmfEHHORIMHA+OmZNAOT/GS2eL+51LCB1qjVtfo1GGN2Noj
20 10G12COWZQL6w4tkMzJU77RJO3pQZOWMVOaTdom9+fqc5ilmcIac902xx23YClb
21 JDEtyRp++DnMynCUXHSX4Y6LjxGLhdh1i7eo4PAUT1YkiRqqGK5q/vDXV0h0+XPk
22 GOA291MRk5P0jraaetTB4i6+g/cqRGEXCHVluGtn2Bz43yijJpafPk8W+F3WgW
23 FmCbiZrNhq8utbu/1+HbkSbUwImpnZ91HGAOJOPzhhBdZ/WEBar94Tcr1j5oDK
24 RZfWFI8txXdx5L89TzF6eS808djlxa/nNs9M1UDJ++qqM3c7yuhGFWDFWfCy+i
25 F7Mq9k5VtOWOTddMhHWNqQxN8G7rObSdsV9RikncI6v3Tdt7t4YPTjVKK+LeJ0e
26 y0/1ppV59d/p/YGUWqPsc7MPJ1aJPNawcPFsumYU12A55RiLkONEv14y8xHGBz
27 h8gvnUd6HHNsLweZLdrwFAEQTPkT11C8bIPcIsR774IA4aRp9Icf7kPTkOyUrpN
28 JW4NJAj/AN2G3tEc9DWBDE5zt0y2QBcOBIXuFBEM/iPKT44ra8wmBvqg3ee9E/zY
29 7i9b6p5U2j1dezn7FzhSxHvITAp6s2dDyloT
30 -----END CERTIFICATE-----
31 -----BEGIN CERTIFICATE-----
32 MIIEcCCAmCgAwIBAgIUZUI0yqzqjN2SW4kgtNRc47+g/EwDQYJKoZIhvcNAQEL
33 BQAwGzEZMBcGA1UEAxMQQU0FTIFZJWUEgUm9vdCBDQTAeFw0xOTEwMjE1MDNA
34 Fw0yOTExMjUxNTM1MzJhMmBxGTAXBGNTBAMTEFNBUyBWSV1BIEFvbj3QgQ0Ew
35 ZSB0QTCASiWdQYJKoZIhvcNAQEBBQADggEPADCCAQoCggEBALRSEgXWcz51C9i3
```

Divide vault-ca.crt into 2 files

`/opt/sas/viya/config/etc/SASSecurityCertificateFramework/cacerts`

From the doc...

Save these two files on your Windows machine and then add your certificates to the Windows CA store. You need to import the **root** certificate first and then the **intermediate** certificate. See [Import CA Certificates into the Windows Trusted Root Certificate Authorities Store](#).

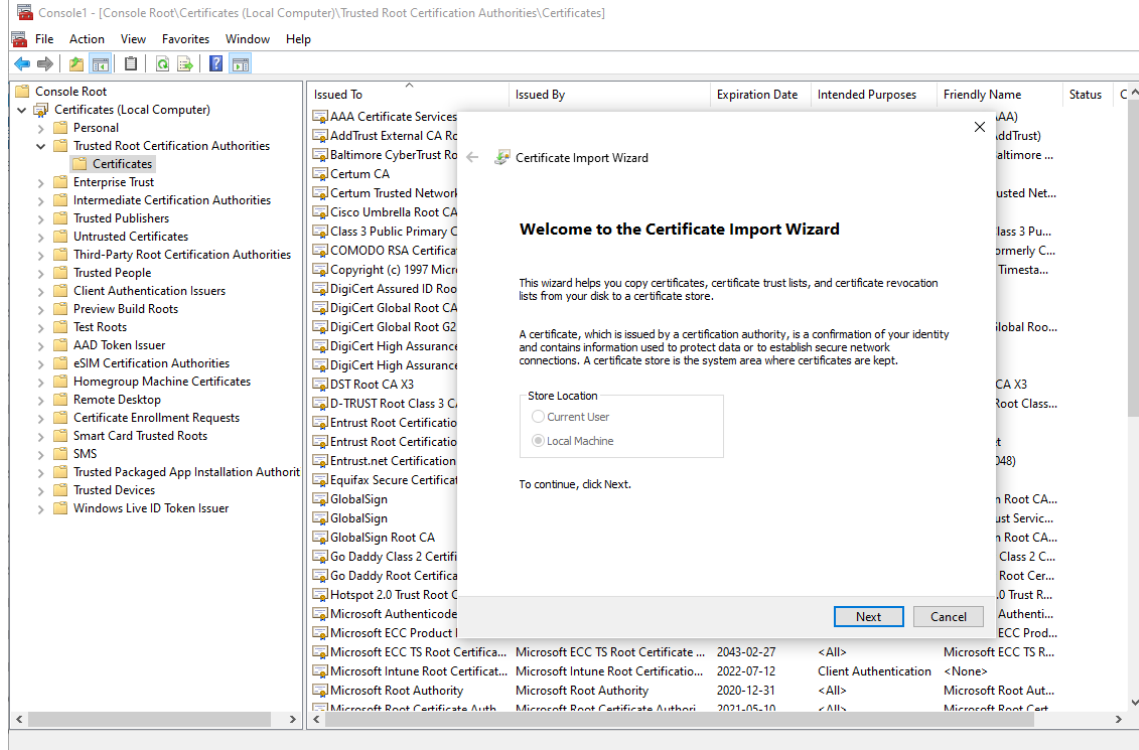


Import certificates with Windows MMC

Follow steps in link from previous slide

Import in this order

1. Root
2. Intermediate



Setup needed to talk to Viya

Add new Work Space Server in connections dialog

Add SAS Workspace Server

Name:
sweden.swe.sas.com

Description:

Server

Machine: sweden.swe.sas.com Port: 8591

Set proxy list

Use Integrated Windows Authentication

Advanced...

Save sign-in credentials

User: Password:

File navigation

SAS user root
 System root
 Path

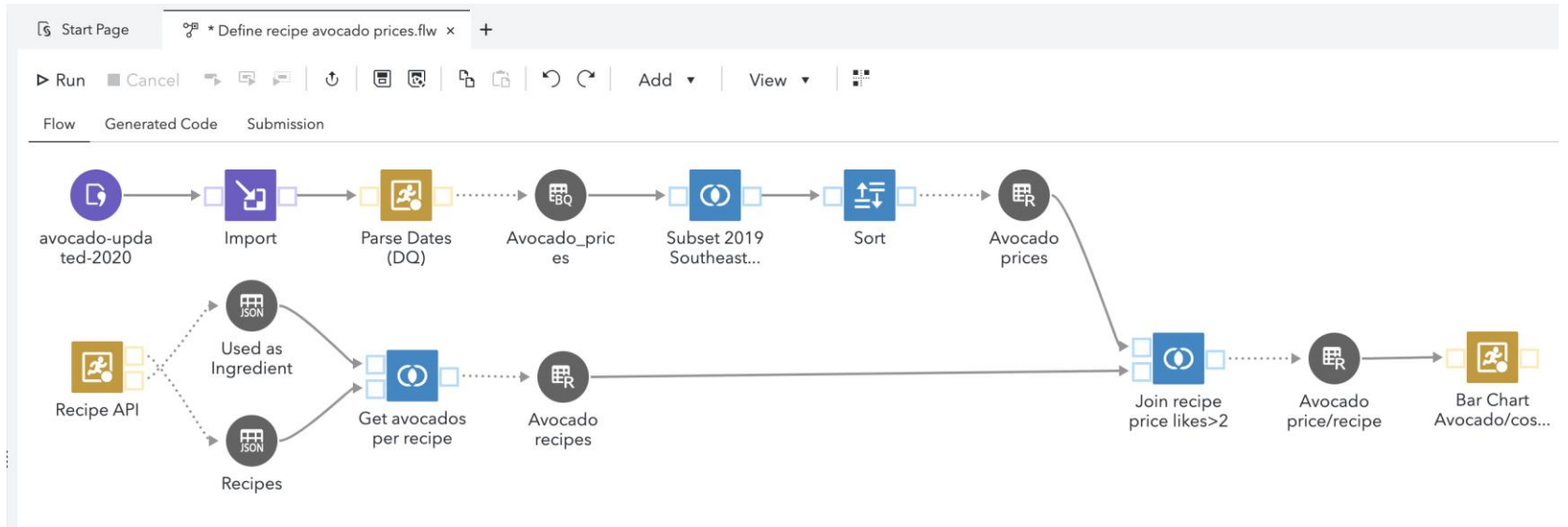
Save Cancel



demo



Flows in next release of SAS Studio



SAS Studio - Develop SAS Code

Steps

- Data (Input and Output)
 - File
 - Import
 - Table
- Develop
 - SAS Program
 - Transform Data
 - Query
 - Sort

Flow: 0. start cas, 1. get state capitals, 2. create possible pair..., 3. copy to CAS, 4. run optimization, 5. merge lat and long, 6. close the tour, 7. join final geo data, 8. sort and promote

Query

Columns

Table	Source	Name	Label	Type	Length	Format
<input type="checkbox"/>	t1	Country	Country	Character	13	\$13.
<input type="checkbox"/>	t1	Region	Region	Character	31	\$31.
<input type="checkbox"/>	t1	Happiness_Rank	Happiness_Ran	Numeric	8	BEST12.
<input type="checkbox"/>	t1	Happiness_Score	Happiness_Sco	Numeric	8	BEST12.

File: /tmp/Flow.flow

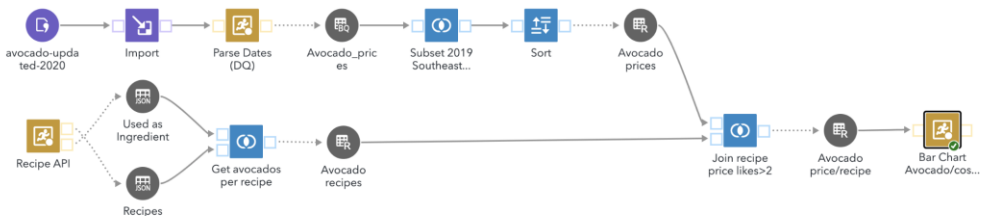
Submission (0)

New Options View Open Save All SAS Studio compute context

Start Page * Define recipe avocado prices.flw +

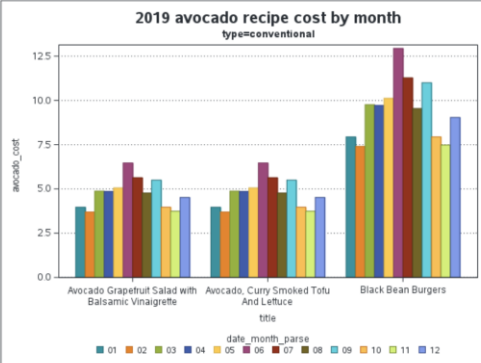
Run Cancel [Icons] Add View

Flow Generated Code



Submission

Code Log Results



Recipe Title	01	02	03	04	05	06	07	08	09	10	11	12
Avocado Grapethut Salad with Balsamic Vinaigrette	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5
Avocado, Curry Smoked Tofu And Lettuce	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5
Black Bean Burgers	8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5

Start Page * Define recipe avocado prices.flw x +

Run Cancel [Icons] Add View [Icons]

Flow Generated Code Submission

avocado-updated-2020 Import Parse Dates (DQ) Avocado_prices Subset 2019 Southeast... Sort Avocado prices

Recipe API Used as Ingredient Recipes Get avocados per recipe Avocado recipes

Join recipe price likes>2 Avocado price/recipe Bar Chart Avocado/cos...

Get avocados per recipe

Options Node

Columns

+ Calculated Column [Icons]

Filter

t1 (Used as Ingredient)
t2 (Recipes)

Select Join Filter Sort Output Options

Columns Groups Filter Groups

Remove Row Convert to Aggregate

	Table	Source	Name	Label	Type	Length	Format	Info
<input type="checkbox"/>	t2	id	id		Numeric	8		
<input type="checkbox"/>	t2	title	title		Character	50		

Tasks

Filter tasks

SAS Tasks : My Tasks

- Prepare Data
 - Examine Data
 - Transform Data
 - Combine Tables
 - Filter Data
 - Partition Data
 - Rank Data
 - Recode Ranges
 - Recode Values
 - Select Random Sample
 - Sort Data
 - Stack/Split Columns
 - Standardize Data
 - Transform Data
 - Transpose 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
- Statistics
- Visualize Data

Start Page Flow.flow x SAS Program.sas * Select Random Sample.ctl +

Run Cancel Add View

Oct 30, 2020 12:32 PM

Flow Generated Code Submission

```

    graph LR
      CARS((CARS)) --> Query[Query]
      GEO((GEO)) --> Query
      Query --> Table1[Table]
      Table1 --> Random[Random 10%]
      Random --> Table2[Table]
  
```

On the flow canvas, select a node to view its details.

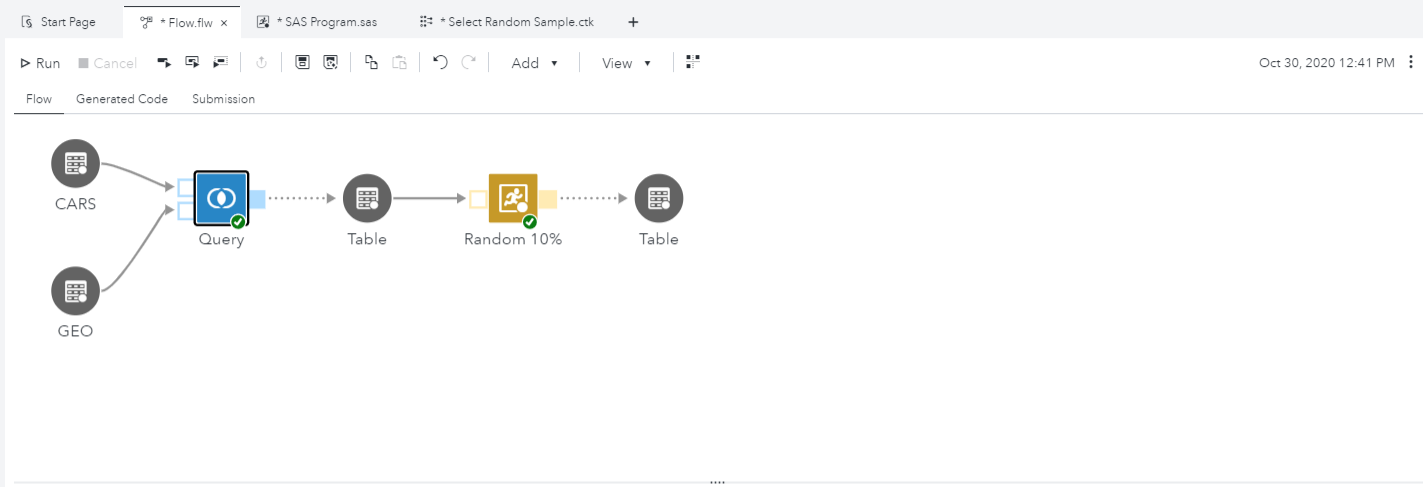
Recover (1) Submission (0)

Tasks

Filter tasks

SAS Tasks : My Tasks

- Prepare Data
 - Examine Data
 - Transform Data
 - Combine Tables
 - Filter Data
 - Partition Data
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- 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
- Statistics
- Visualize Data



Query

Options Node

Columns

+ Calculated Column Filter

Select Join Filter Sort Output Options

Columns Groups Filter Groups

Remove Row Convert to Aggregate

<input type="checkbox"/>	Table	Source	Name	Label	Type	Length	Format
<input type="checkbox"/>	t1	Origin	Origin		Character	6	
<input type="checkbox"/>	t1	MPG_City	MPG_City	MPG (City)	Numeric	8	
<input type="checkbox"/>	t1	MPG_Highway	MPG_Highway	MPG (Highway)	Numeric	8	
<input type="checkbox"/>	t2	Origin_LAT	Origin_LAT		Numeric	8	
<input type="checkbox"/>	t2	Origin_LONG	Origin_LONG		Numeric	8	

Tasks

Filter tasks

SAS Tasks : My Tasks

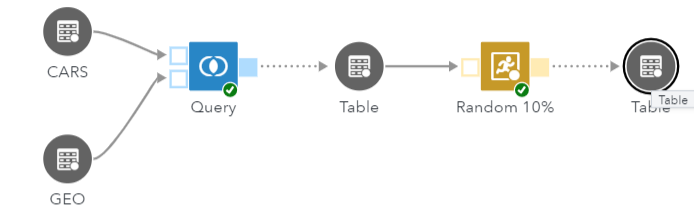
- Prepare Data
 - Examine Data
- Transform Data
 - Combine Tables
 - Filter Data
 - Partition Data
 - Rank Data
 - Recode Ranges
 - Recode Values
 - Select Random Sample
 - Sort Data
 - Stack/Split Columns
 - Standardize Data
 - Transform Data
 - Transpose Data
- SAS Viya Cloud Analytic Services
- SAS 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
- Statistics
- Visualize Data

Start Page * Flow.flw * * SAS Program.sas * Select Random Sample.ctl +

Run Cancel ↻ ↺ ↻ ↻ ↻ ↻ ↻ ↻ ↻ ↻ Add View

Oct 30, 2020 12:41 PM

Flow Generated Code Submission



Table

Table Properties Published Columns Preview Data Node

WORK.CARS_random_10pct

Columns: 5 of 5 | Total rows: 10 | Rows 1 to 10

Enter expression

	Origin	MPG_City	MPG_Highway	Origin_LAT	Origin_LONG
1	USA	20	29	1	1
2	USA	18	28	1	1
3	USA	21	28	1	1
4	USA	20	26	1	1
5	Asia	18	26	1	1
6	Asia	15	20	1	1
7	Asia	24	32	1	1
8	USA	17	23	1	1
9	Asia	23	28	1	1
..



Thank You!

sas.com