

# Jobs in SAS Viya

Shannon J. Moore  
Sr. Systems Engineer  
Customer Success



# Stored Processes

## Review

- As part of SAS 9, the concept of a Stored Process was introduced
  - A SAS program
  - Most commonly authored in Enterprise Guide
  - Stored either in metadata or a file location
  - Registered in metadata
  - Can contain prompts
  - Can run from many interfaces including:
    - Enterprise Guide
    - SAS Add-In for Microsoft Office
    - SAS Stored Process Web App
    - Custom apps

# Stored Processes

## Review

- Stored Processes are/were very popular as they allow SAS to be easily and securely utilized by users that may not be SAS experts
- SAS Viya uses Jobs to perform this type of operations (among others)
- SAS 9 Stored Processes can be brought over to SAS Viya
  - In general, libnames, filerefs, etc. will need to be updated
  - Prompts will be converted to Task Prompt
- The particulars are different, but the concepts are the same

# SAS Studio

## Jobs

- A SAS Viya job consists of a program and its definition
- The job definition includes information such as the job name, the author, and the creation date and time
- After you have created a job definition, you have an execution URL that can be entered into a web browser and run without opening SAS Studio
- You can use jobs for web reporting, performing analytics, building web applications, and delivering content to clients such as SAS Studio

# SAS Studio

## Jobs

- SAS Studio works with jobs that contain SAS code
- These jobs can access any SAS data source or external file and create tables, files, or other data targets that are supported by SAS
- You can create an HTML form or task prompt (XML) to provide a user interface to the job
- When the user selects an option to submit the information, the data that is specified in the form or task prompt is passed to a SAS session as global macro variables, the SAS program runs, and the results are returned to the web browser
- Jobs with Forms can be thought of as a Viya replacement for prompted SAS Stored Processes

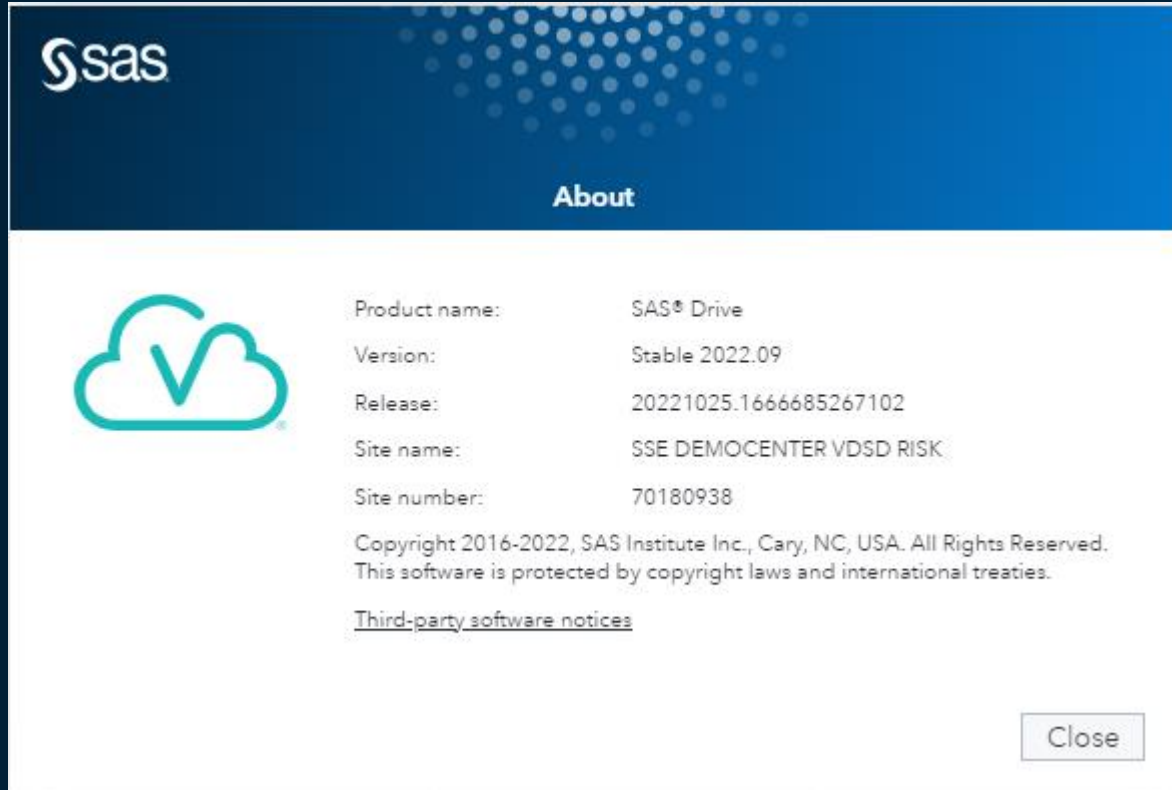
# SAS Studio


## Agenda

- Create a simple job that runs nightly
  - SAS Code
  - No input forms
- Create a prompted job that is run interactively
  - SAS Code
  - Input form
  - URL that can be run without SAS Studio
  - Run the job via the scheduler and editing the arguments that are passed
- Edit a SAS-supplied sample of a dynamically-prompted job
  - Edit the form for content
  - Edit the form for capability


# SAS Studio

Check your version



 **sas**

**About**



Product name: SAS® Drive

Version: Stable 2022.09

Release: 20221025.1666685267102

Site name: SSE DEMOCENTER VDSR RISK

Site number: 70180938

Copyright 2016-2022, SAS Institute Inc., Cary, NC, USA. All Rights Reserved.  
This software is protected by copyright laws and international treaties.

[Third-party software notices](#)

Close

# SAS Studio

## Jobs

The screenshot displays the SAS Studio interface. The top navigation bar includes 'New', 'Options', 'View', 'Open', and 'Save All'. The Explorer pane on the left shows a file tree with folders like 'My Favorites', 'Folder Shortcuts', and 'Shortcut to demo', and files such as 'BarN.sas', 'campaign\_new\_2005...', 'FlowAn.flw', 'formatprint.sas', 'outjob.html', 'PRJtoStudio.egp', 'RISK\_CREDIT.xlsx', 'risk.sas7bdat', 'rptmacr.sas', 'SampJobCode.sas', 'SASBCK.html', 'SASBCK.log', 'SASBCK.sas', 'TopN.sas', 'TopNMacIncl.sas', 'TopNMacIncl1.sas', 'transactions.sas', 'ttest.sas', 'ttestdata.sas', 'wafers.sas', and 'waterfall.sas'. The main area shows the 'Start Page' with a 'GET STARTED' section containing links for 'Program in SAS', 'Build a flow', 'Import data', and 'Query data'. A 'LEARN' section offers resources for learning SAS Studio and programming. A 'STAY CONNECTED' section provides links to the community and feature requests. The 'Submission Status' section at the bottom features a filter input, 'Cancel All', and 'Clear All' buttons, and a table with columns: Name, Type, Run Time, Submitted, Completed, and Server. The table is currently empty, displaying 'No items are available.'

Submission Status x

Filter submissions list | Cancel All | Clear All

Name	Type	Run Time	Submitted	Completed	Server
No items are available.					



# SAS Studio

## Jobs

The screenshot displays the SAS Studio interface. The Explorer pane on the left shows a project structure with folders like 'My Favorites' and 'Folder Shortcuts', and files such as 'SampJobCode.sas'. The main editor shows the following SAS code:

```
29  
30 proc sort data=finance;  
31 by Name;  
32 run;  
33  
34 data employee_info;  
35 merge company finance;  
36 by name;  
37 run;  
38  
39 ods html5 file='/home/sasdemo/demo/outjob.html';  
40  
41 proc print data=employee_info;  
42 title 'Little Theater Employee Information';  
43 title2 '(including personal and financial information)';  
44 run;  
45  
46 title;  
47 title2;  
48  
49 proc sgplot data=employee_info;  
50 hbar gender / datalabel response=salary stat=mean transparency=.3  
51 filltype=gradient;  
52 format salary dollar12.1;  
53 xaxis display=none;  
54 yaxis display=(noticks);  
55 title 'Mean Salary by Gender';  
56 footnote 'Generated using SAS (&SYSRCPL Viya 2021.1.3) by Shannon Moore on  
57 %TRIM(%QSYSFUNC(DATE()), NLDATE20..) at %TRIM(%QSYSFUNC(TIME()), NLTIMEP25..)';  
58 run;  
59  
60 ods html5 close;
```

Below the code editor is the Submission Status window, which contains a table of submission details:

Name	Type	Run Time	Submitted	Completed	Server
SampJobCode.sas	Program	7.442s	12/21/2021, 11:29:56 AM	12/21/2021, 11:30:03 AM	SAS Studio compute context

# SAS Studio

## Jobs

The screenshot displays the SAS Studio interface. The Explorer pane on the left shows a project structure with files like 'outjob.html' and 'SampJobCode.sas'. The main workspace shows the output of a SAS job, including a data table and a bar chart.

**Little Theater Employee Information**  
(including personal and financial information)

Obs	Name	Age	Gender	IdNumber	Salary
1	Benito, Gisela	32	F	228-88-9649	28000
2	Gunter, Thomas	27	M	929-75-0218	27500
3	Harbinger, Nicholas	36	M	446-93-2122	33900
4	Morrison, Michael	32	M		.
5	Phillipon, Marie-Odile	28	F	776-84-5391	29750
6	Rudelich, Herbert	39	M	029-46-9261	35000
7	Sirignano, Emily	12	F	442-21-8075	5000
8	Vincent, Martina	34	F	074-53-9892	35000

**Mean Salary by Gender**

Submission Status

Name	Type	Run Time	Submitted	Completed	Server
SampJobCode.sas	Program	7.442s	12/21/2021, 11:29:56 AM	12/21/2021, 11:30:03 AM	SAS Studio compute context

# SAS Studio

## Jobs

The screenshot displays the SAS Studio interface. On the left is the Explorer pane showing a file tree with 'outjob.html' selected. The main workspace shows a bar chart titled 'Mean Salary by Gender' with two bars: 'F' at \$24,437.5 and 'M' at \$32,133.3. Below the chart is a submission status table with one entry for 'SampJobCode.sas'.

Name	Type	Run Time	Submitted	Completed	Server
SampJobCode.sas	Program	7.442s	12/21/2021, 11:29:56 AM	12/21/2021, 11:30:03 AM	SAS Studio compute context

# SAS Studio

## Jobs

The screenshot displays the SAS Studio interface. The top menu bar includes 'New', 'Options', 'View', 'Open', and 'Save All'. The main window is titled 'SAS Studio - Develop SAS Code'. On the left, the 'Explorer' pane shows a file tree with 'SampJobCode.sas' selected. A context menu is open over this file, with 'Schedule as a job' highlighted by a blue arrow. The central editor shows SAS code for a program named 'SampJobCode.sas'. The code includes a PROC SORT step, a DATA step merging 'employee\_info' and 'finance' data, and a PROC PRINT step. A PROC PLOT step is also visible, generating a plot of 'Salary' by 'gender'. The bottom of the interface features a 'Jobs' table with the following data:

Name	Type	Run Time	Submitted	Completed	Server
SampJobCode.sas	Program	7.442s	12/21/2021, 11:29:56 AM	12/21/2021, 11:30:03 AM	SAS Studio compute context

# SAS Studio

## Jobs

The screenshot displays the SAS Studio interface. On the left is the Explorer pane showing a file tree with 'SampJobCode.sas' selected. The main window shows the code editor with the following SAS code:

```
29 proc sort data=finance;
30   by Name;
31 run;
32
33 data employee_info;
34   merge company finance;
35   by name;
36 run;
37
38 ods html5 file='/home/sasdemo/demo/out
39
40
41 proc print data=employee_info;
42   title 'Little Theater Employee Inf
43   title2 '(including personal and fi
44 run;
45
46 title;
47 title2;
48
49 proc sgplot data=employee_info;
50   hbar gender / datalabel response=S
51   filltype=gradient;
52   format Salary dollar12.1;
53   xaxis display=none;
54   yaxis display=(noticks);
55   title 'Mean Salary by Gender';
56   footnote 'Generated using SAS (&SY
57   %TRIM(%QSYSFUNC(DATE()), )
58 run;
59
60 ods html5 close;
```

A 'New Trigger' dialog box is open, showing the following configuration:

- Frequency: Daily
- Interval: 1 days
- Time: 11:50
- Time zone: (UTC-07:00) Denver
- Start date: Dec 21, 2021
- End: After number of times, 1 times

At the bottom, the Submission Status table shows the execution details for 'SampJobCode.sas':

Name	Type	Run Time	Submitted	Completed	Server
SampJobCode.sas	Program	7.442s	12/21/2021, 11:29:56 AM	12/21/2021, 11:30:03 AM	SAS Studio compute context



# SAS Studio

## Jobs

SAS® Job Execution

Scheduling

Name	Scheduled	Created	Created By
SampJobCode		Dec 21, 2021, 11:43 AM	sasdemo

### Schedule Job

Name: \*

Description:

Run as:

Triggers:

Enabled

SampJobCode.sas

[+ Add a new trigger](#)







# SAS Studio

## Jobs

The screenshot displays the SAS Studio interface. On the left is the Explorer pane showing a file tree. The main area is the Code Editor with a SAS program. A 'File Properties' dialog box is open over the code editor, showing details for a file named 'outjob.htm'. At the bottom, the Submission Status table shows the execution of 'SampJobCode.sas'.

**Code Editor Content:**

```
49  
30 proc sort data=finance;  
31 by Name;  
32 run;  
33  
34 data employee_info;  
35 merge company finance;  
36 by name;  
37 run;  
38  
39 ods html5 file='/home/sasdemo/  
40  
41 proc print data=employee_info;  
42 title 'Little Theater Empl  
43 title2 '(including persona  
44 run;  
45  
46 title;  
47 title2;  
48  
49 proc sgplot data=employee_info  
50 hbar gender / datalabel re  
51 filltype=gradient;  
52 format salary dollar12.1;  
53 xaxis display=none;  
54 yaxis display=(noticks);  
55 title 'Mean Salary by Gen  
56 footnote "Generated using  
57 %TRIM(%SYSFUNC(  
58 run;  
59  
60 ods html5 close;
```

**File Properties Dialog:**

- Name: \*  
outjob.htm
- Location: /home/sasdemo/demo/
- Type: Html
- Size: 80349 bytes
- Date modified: Dec 21, 2021, 11:50:19 AM

**Submission Status Table:**

Name	Type	Run Time	Submitted	Completed	Server
SampJobCode.sas	Program	7.442s	12/21/2021, 11:29:56 AM	12/21/2021, 11:30:03 AM	SAS Studio compute context

# SAS Studio

## Jobs

The screenshot displays the SAS Studio interface. The top menu bar includes 'New', 'Options', 'View', 'Open', and 'Save All'. The 'Jobs' menu is open, showing options like 'Definition', 'HTML form', and 'Task prompt'. The main workspace contains a 'Let's get to work!' tutorial with icons for 'Program in SAS', 'Build a flow', 'Import data', and 'Query data'. At the bottom, a 'Submission Status' window shows a table of job submissions.

Name	Type	Run Time	Submitted	Completed	Server
SampJobCode.sas	Program	7.442s	12/21/2021, 11:29:56 AM	12/21/2021, 11:30:03 AM	SAS Studio compute context

# SAS Studio

## Jobs

The screenshot displays the SAS Studio interface. The top menu bar includes 'New', 'Options', 'View', 'Open', and 'Save All'. The Explorer pane on the left shows a tree view of files and folders, with 'PromptedJob' selected. The main editor area shows a code window titled 'PromptedJob' containing the following SAS code:

```
1 proc print data=sasheIp.class;
2 run;
```

Below the code editor is the Submission Status window, which contains a table of job submissions. The table has columns for Name, Type, Run Time, Submitted, Completed, and Server. One submission is listed: 'SampJobCode.sas'.

Name	Type	Run Time	Submitted	Completed	Server
SampJobCode.sas	Program	7.442s	12/21/2021, 11:29:56 AM	12/21/2021, 11:30:03 AM	SAS Studio compute context

File: /Users/sasdemo/My Folder/PromptedJob

Recover (1) Submission (0)

# SAS Studio

## Jobs

The screenshot displays the SAS Studio interface. The top menu bar includes 'New', 'Options', 'View', 'Open', and 'Save All'. The Explorer pane on the left shows a project structure with folders like 'My Favorites', 'Folder Shortcuts', and 'SAS Videos', and files like 'Default CASLIBS.sas' and 'SampJobCode.sas'. The main editor shows a SAS code snippet:

```
1 proc print data=sashep.class;  
2 run;
```

The Properties pane on the right shows the job details:

- Name: PromptedJob
- Location: /Users/sasdemo/My Folder
- File type: Job definition
- Description: (empty text box)
- Details:
  - Created: 12/21/2021, 12:03:47 PM
  - Created by: sasdemo
  - Modified: 12/21/2021, 12:03:47 PM
  - Modified by:

The Submission Status pane at the bottom shows a table of job submissions:

Name	Type	Run Time	Submitted	Completed	Server
SampJobCode.sas	Program	7.442s	12/21/2021, 11:29:56 AM	12/21/2021, 11:30:03 AM	SAS Studio compute context

File: /Users/sasdemo/My Folder/PromptedJob

Recover (1) Submission (0)

# SAS Studio

## Jobs

The screenshot displays the SAS Studio interface. The top menu bar includes 'New', 'Options', 'View', 'Open', and 'Save All'. The Explorer panel on the left shows a file tree with folders like 'My Favorites', 'Folder Shortcuts', and 'Shortcut to My Folder', and files like 'SampJobCode.sas'. The main editor shows a SAS code window with the following code:

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

The Properties panel on the right shows the job definition details:

- Job definition
- Description:
- Details
  - Created: 12/21/2021, 12:03:47 PM
  - Created by: sasdemo
  - Modified: 12/21/2021, 12:03:47 PM
  - Modified by: sasdemo
  - Job submit: [http://pdcesx06019.exnet.sas.com:443/SAS/JobExecution?\\_program=%2FUsers%2Fsasdemo%2FMy%20Folder%2FPromptedJob](http://pdcesx06019.exnet.sas.com:443/SAS/JobExecution?_program=%2FUsers%2Fsasdemo%2FMy%20Folder%2FPromptedJob)

The Submission Status table at the bottom shows the following data:

Name	Type	Run Time	Submitted	Completed	Server
SampJobCode.sas	Program	7.442s	12/21/2021, 11:29:56 AM	12/21/2021, 11:30:03 AM	SAS Studio compute context

# SAS Studio

## Jobs

The screenshot displays the SAS Studio interface. The top menu bar includes 'New', 'Options', 'View', 'Open', and 'Save All'. The Explorer panel on the left shows a file tree with folders like 'My Favorites', 'Folder Shortcuts', and 'My Snippets'. The main Code editor contains the following SAS code:

```
1 %global title;
2 title "&title";
3
4 proc print data=sashelp.class;
5 run;
```

The Properties panel on the right shows the job definition details:

- Job definition
- Description:
- Details
  - Created: 12/21/2021, 12:03:47 PM
  - Created by: sasdemo
  - Modified: 12/21/2021, 12:03:47 PM
  - Modified by: sasdemo
  - Job submit: [http://pdcesx06019.exnet.sas.com:4443/SASJobExecution?\\_program=%2FUsers%2Fsaasdemo%2FMY%20Folder%2FPromptedJob](http://pdcesx06019.exnet.sas.com:4443/SASJobExecution?_program=%2FUsers%2Fsaasdemo%2FMY%20Folder%2FPromptedJob)

The Submission Status table at the bottom shows the following data:

Name	Type	Run Time	Submitted	Completed	Server
SampJobCode.sas	Program	7.442s	12/21/2021, 11:29:56 AM	12/21/2021, 11:30:03 AM	SAS Studio compute context

File: /Users/sasdemo/My Folder/PromptedJob

Recover (1) Submission (0)

# SAS Studio

## Jobs

The screenshot displays the SAS Studio interface. On the left is the Explorer pane showing a file tree. The central pane shows a code editor with the following SAS code:

```
1 %global title;
2 title "&title";
3
4 proc print data=sashelp.class;
5 run;
```

On the right, the Parameters panel is open, showing two parameters:

- Name: TITLE, Field type: Character, Default value: Listing of Class Data Set, Required:
- Name: \_debug, Field type: Character, Default value: log, Required:

At the bottom, the Submission Status table is visible:

Name	Type	Run Time	Submitted	Completed	Server
SampJobCode.sas	Program	7.442s	12/21/2021, 11:29:56 AM	12/21/2021, 11:30:03 AM	SAS Studio compute context



# SAS Studio

## Jobs

The screenshot displays the SAS Studio interface. The main window shows a data table titled "Listing of Class Data Set" with the following data:

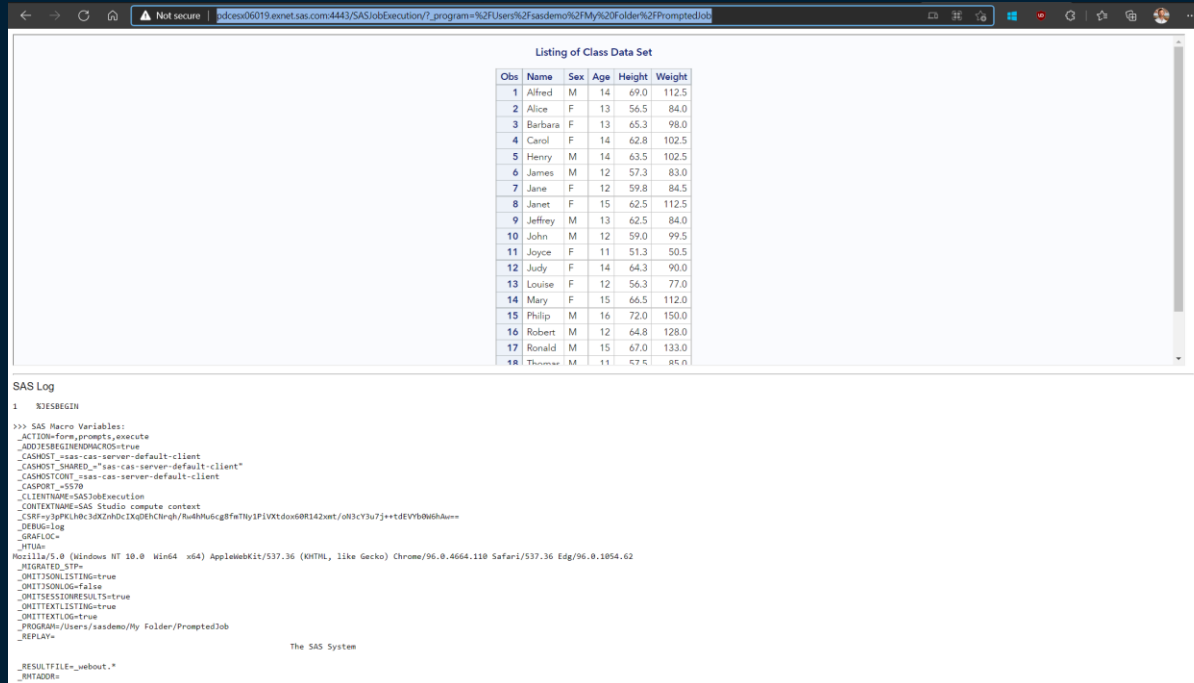
Obs	Name	Sex	Age	Height	Weight
1	Alfred	M	14	69.0	112.5
2	Alice	F	13	56.5	84.0
3	Barbara	F	13	65.3	98.0
4	Carol	F	14	62.8	102.5
5	Henry	M	14	63.5	102.5
6	James	M	12	57.3	83.0
7	Jane	F	12	59.8	84.5
8	Janet	F	15	62.5	112.5
9	Jeffrey	M	13	62.5	84.0
10	John	M	12	59.0	99.5
11	Joyce	F	11	51.3	50.5
12	Judy	F	14	64.3	90.0
13	Louise	F	12	56.3	77.0
14	Mary	F	15	66.5	112.0
15	Philip	M	16	72.0	150.0
16	Robert	M	12	64.8	128.0
17	Ronald	M	15	67.0	133.0
18	Thomas	M	11	57.5	85.0

Below the data table, the "Submission Status" window is open, showing a list of submissions:

Name	Type	Run Time	Submitted	Completed	Server
SampJobCode.sas	Program	7.442s	12/21/2021, 11:29:56 AM	12/21/2021, 11:30:03 AM	SAS Studio compute context

# SAS Studio

## Jobs



The screenshot displays the SAS Studio web interface. At the top, the browser address bar shows the URL: `https://sasc06019.exe.net/sas.com/4443/SASJobExecution/?_program=%2FUsers%2Fsasdemo%2FMy%20Folder%2FPromptedJob`. The main content area is titled "Listing of Class Data Set" and contains a table with 18 rows of data. Below the table is the "SAS Log" section, which shows the execution details of the SAS job, including macro variables and system information.

Obs	Name	Sex	Age	Height	Weight
1	Alfred	M	14	69.0	112.5
2	Alice	F	13	56.5	84.0
3	Barbara	F	13	65.3	98.0
4	Carol	F	14	62.8	102.5
5	Henry	M	14	63.5	102.5
6	James	M	12	57.3	83.0
7	Jane	F	12	59.8	84.5
8	Janet	F	15	62.5	112.5
9	Jeffrey	M	13	62.5	84.0
10	John	M	12	59.0	99.5
11	Joyce	F	11	51.3	50.5
12	Judy	F	14	64.3	90.0
13	Louise	F	12	56.3	77.0
14	Mary	F	15	66.5	112.0
15	Philip	M	16	72.0	150.0
16	Robert	M	12	64.8	128.0
17	Ronald	M	15	67.0	133.0
18	Thomas	M	11	67.5	85.0

**SAS Log**

```
1  NDESBEGIN
>>> SAS Macro Variables:
_ACTION=form_prompt,execute
_ADDRESSELEMENTPHACROS=true
_CASHOST_sas=cas-server-default-client
_CASHOST_SHARED_sas=cas-server-default-client
_CASHOSTCONT_sas=cas-server-default-client
_CASPORT_4570
_CLIENTNAME=SASJobExecution
_CONTEXTNAME=SAS Studio compute context
_CSRF=3pK1hc3dZhdCIXdDhChqh/Ru4MhucgfFn7y1P1VtDox6R142xnt/on3cy3u7j++tDEVYh0bH4==
_DEBUG=log
_DEBUGLOC=
_JTUA=
Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/96.0.4664.118 Safari/537.36 Edg/96.0.1054.62
_MIGRATED_STP=
_OMITSONLISTING=true
_OMITSONLOG=false
_OMITSESSIONRESULTS=true
_OMITTEXTLISTING=true
_OMITTEXTLOG=true
_PROGRAMS/Users/sasdemo/My Folder/PromptedJob
_REPLAY=
The SAS System
_RESULTFILE=_webout.*
_RHTADDR=
```

# SAS Studio

## Jobs

pdcesx06019.exnet.sas.com:4443/SASJobExecution/?\_program=%2FUsers%2Ffsasdemo%2FMY%20Folder%2FPromptedJob&TITLE=Changing the Title to Something Else

Change the Title

Obs	Name	Sex	Age	Height	Weight
1	Alfred	M	14	69.0	112.5
2	Alice	F	13	56.5	84.0
3	Barbara	F	13	65.3	98.0
4	Carol	F	14	62.8	102.5
5	Henry	M	14	63.5	102.5
6	James	M	12	57.3	83.0
7	Jane	F	12	59.8	84.5
8	Janet	F	15	62.5	112.5
9	Jeffrey	M	13	62.5	84.0
10	John	M	12	59.0	99.5
11	Joyce	F	11	51.3	50.5
12	Judy	F	14	64.3	90.0
13	Louise	F	12	56.3	77.0
14	Mary	F	15	66.5	112.0
15	Philip	M	16	72.0	150.0
16	Robert	M	12	64.8	128.0
17	Ronald	M	15	67.0	133.0
18	Thomas	M	11	57.5	85.0

SAS Log

```
1 %JESBEGIN

>>> SAS Macro Variables:
  _ACTION=form,prompts,execute
  _ADDJESBEGINENDMACROS=true
```

# SAS Studio

## Jobs

← → ↻ 🏠 ⚠ Not secure | pdcesx06019.exnet.sas.com:4443/SASJobExecution/?\_program=%2FUsers%2Fsdemo%2FMy%20Folder%2FPromptedJob&TITLE=Changing%20the%20Title%20to%20Something%20...

### Changing the Title to Something Else

Obs	Name	Sex	Age	Height	Weight
1	Alfred	M	14	69.0	112.5
2	Alice	F	13	56.5	84.0
3	Barbara	F	13	65.3	98.0
4	Carol	F	14	62.8	102.5
5	Henry	M	14	63.5	102.5
6	James	M	12	57.3	83.0
7	Jane	F	12	59.8	84.5
8	Janet	F	15	62.5	112.5
9	Jeffrey	M	13	62.5	84.0
10	John	M	12	59.0	99.5
11	Joyce	F	11	51.3	50.5
12	Judy	F	14	64.3	90.0
13	Louise	F	12	56.3	77.0
14	Mary	F	15	66.5	112.0
15	Philip	M	16	72.0	150.0
16	Robert	M	12	64.8	128.0
17	Ronald	M	15	67.0	133.0
18	Thomas	M	11	57.5	85.0
19	William	M	15	66.5	112.0

# SAS Studio

## Jobs

- By default, no form is associated with the job definition. You do not need to associate a form with a definition to run a job.
- In SAS Studio, you can associate two types of forms with a job definition: an HTML form and a task prompt.

### HTML Forms

- You can write HTML to create an HTML form. You can create this form in SAS Studio or it can be a separate file. The location of the HTML input form can be specified using the `_FORM` parameter. This parameter can be specified in the URL as an input parameter.
- Note that the HTML input form does not need to be in the same folder as the job or have the same name as the job.
- If the `_FORM` parameter is not specified, an HTML input form with the same name and location as the corresponding job is displayed.
- As the author of the job definition, you can specify `_FORM` as a preset job parameter. This technique is useful when you have multiple jobs that need to use the same HTML input form.

# SAS Studio

## Jobs

### Task Prompt

- You can use the common task model (CTM) in SAS Studio to define job prompts.
- For this example, we will use the CTM and use some sample code found in SAS Studio Developers Guide.

# SAS Studio

## Jobs

The screenshot displays the SAS Studio interface. On the left is the Explorer pane with a file tree. The main workspace shows a code editor with a single line of code. On the right, the 'Associate a Form' dialog is open. At the bottom, the 'Submission Status' pane shows a table of job submissions.

**Submission Status**

Name	Type	Run Time	Submitted	Completed	Server
SampJobCode.sas	Program	7.442s	12/21/2021, 11:29:56 AM	12/21/2021, 11:30:03 AM	SAS Studio compute context

File: /Users/sasdemo/My Folder/PromptedJob

Recover (1) Submission (0)

# SAS Studio

## Jobs

The screenshot displays the SAS Studio interface. The Explorer pane on the left shows a project structure with folders like 'My Favorites', 'Folder Shortcuts', and 'My Snippets'. The main editor shows an XML code snippet for a task definition. The right-hand panel, titled 'Associate a Form', offers options to associate the task with a form: 'No embedded form', 'HTML form', 'Task prompt' (which is selected), or 'Existing form'. Below the editor, the 'Submission Status' table provides details on job execution.

```
<?xml version="1.0" encoding="UTF-16"?><Task schemaVersion="7.2">
  <Registration>
    <Name>Data Source Prompt</Name>
    <Description>Example of a Data Source Prompt</Description>
    <Version>5.2</Version>
  </Registration>
  <Metadata>
    <DataSources>
      <DataSource name="DATASOURCE" where="true">
    </DataSource>
    </DataSources>
    <Options>
      <Option inputType="string" name="DATATAB">DATA</Option>
      <Option inputType="string" name="DATAGROUP">DATA</Option>
    </Options>
  </Metadata>
  <UI>
    <Container option="DATATAB">
      <Group open="true" option="DATAGROUP">
        <DataItem data="DATASOURCE"/>
      </Group>
    </Container>
  </UI>
</Task>
```

**Associate a Form**

Select a form to associate with the job definition.

- No embedded form
- HTML form
- Task prompt
- Existing form

Please enter path

Name	Type	Run Time	Submitted	Completed	Server
SampJobCode.sas	Program	7.442s	12/21/2021, 11:29:56 AM	12/21/2021, 11:30:03 AM	SAS Studio compute context



# SAS Studio

## Jobs

The screenshot displays the SAS Studio interface. On the left is the Explorer pane showing a file tree with folders like 'My Favorites', 'Folder Shortcuts', and 'My Snippets', and files like 'Default CASLIBS.sas' and 'exp.csv'. The main area is a code editor with the following SAS code:

```
1 %global datasource;
2 title "The &datasource dataset";
3
4 proc print data=&datasource;
5 run;
6 title;
```

On the right, the 'Parameters' panel is open, showing a configuration for a parameter:

- Parameter type: Character
- Default value: form\_prompts,execute
- Required:
- Name: \_contextName
- Field type: Character
- Default value: SAS Studio compute context
- Required:

At the bottom, the 'Submission Status' pane is visible, containing a table with columns: Name, Type, Run Time, Submitted, Completed, and Server. The table is currently empty, with the message 'No items are available.' displayed below it.

# SAS Studio

## Jobs

The screenshot displays the SAS Studio interface with a job configuration window open. The window title is 'SubmittedJob' and it shows a 'DATA' section with a dropdown menu set to 'SASHELP.PAIR'. Below this, there is a 'Parameters' section with two parameters:

- Parameter 1:** Character type, default value 'form,prompts,execute', required (radio button selected).
- Parameter 2:** Character type, default value 'SAS Studio compute context', required (radio button selected).

At the bottom of the window, there is a 'Submission Status' section with a table. The table has columns for Name, Type, Run Time, Submitted, Completed, and Server. The table is currently empty, displaying the message 'No items are available.'

Name	Type	Run Time	Submitted	Completed	Server
No items are available.					

File: /Users/sasdemo/My Folder/PromptedJob

Recover (1) Submission (0)

# SAS Studio

## Jobs

The screenshot displays the SAS Studio interface. On the left is the Explorer pane showing a project structure. The main workspace shows a job definition for 'The SASHELP.AIR dataset' with a 'Task prompt' selected. Below the job definition is a table of data. At the bottom, there is a 'Submission Status' pane which is currently empty.

**Explorer**

- My Favorites
- Folder Shortcuts
  - Shortcut to demo
  - Shortcut to My Folder
    - My Snippets
    - My Tasks
    - SAS Videos
      - Compare.step
      - Default CASLIBS.sas
      - exp.csv
      - Open Source Node T...
      - Plan 1
      - PromptedJob
      - SampJobCode.sas
      - sjmlload.sas
      - smallprj Process Flow...
- SAS Content

**Job Definition: The SASHELP.AIR dataset**

Code Task prompt Preview

Obs	DATE	AIR
1	JAN49	112
2	FEB49	118
3	MAR49	132
4	APR49	129
5	MAY49	121
6	JUN49	135
7	JUL49	148
8	AUG49	148
9	SEP49	136
10	OCT49	119
11	NOV49	104
12	DEC49	118
13	JAN50	115
14	FEB50	126
15	MAR50	141
16	APR50	135
17	MAY50	125
18	JUN50	149
19	JUL50	170

**Associate a Form**

Select a form to associate with the job definition.

- No embedded form
- HTML form
- Task prompt
- Existing form

Please enter path

**Submission Status**

Filter submissions list Cancel All Clear All

Name	Type	Run Time	Submitted	Completed	Server
No items are available.					

File: /Users/sasdemo/My Folder/PromptedJob Recover (1) Submission (0)

# SAS Studio

## Jobs

The screenshot displays the SAS Studio interface. The top menu bar includes 'New', 'Options', 'View', 'Open', and 'Save All'. The Explorer pane on the left shows a file tree with folders like 'My Favorites', 'Folder Shortcuts', and 'SAS Videos'. The main workspace shows a job submission for 'The SASHELP.PAIR dataset'. The job details pane on the right shows the job's creation and modification dates, and the job submit URL. The Submission Status pane at the bottom shows a table with columns for Name, Type, Run Time, Submitted, Completed, and Server, but it is currently empty.

File: /Users/sasdemo/My Folder/PromptedJob

Obs	DATE	AIR
1	JAN49	112
2	FEB49	118
3	MAR49	132
4	APR49	129
5	MAY49	121
6	JUN49	135
7	JUL49	148
8	AUG49	148
9	SEP49	136
10	OCT49	119
11	NOV49	104
12	DEC49	118
13	JAN50	115
14	FEB50	126
15	MAR50	141
16	APR50	135
17	MAY50	125
18	JUN50	149
19	JUL50	170

Submission Status

Name	Type	Run Time	Submitted	Completed	Server
No items are available.					

Job submit URL: `http://pdcesx06019.exnet.sas.com:4443/SASJobExecution/?_program=%2FUsers%2Fsasdemo%2FMY%20Folder%2FPromptedJob`

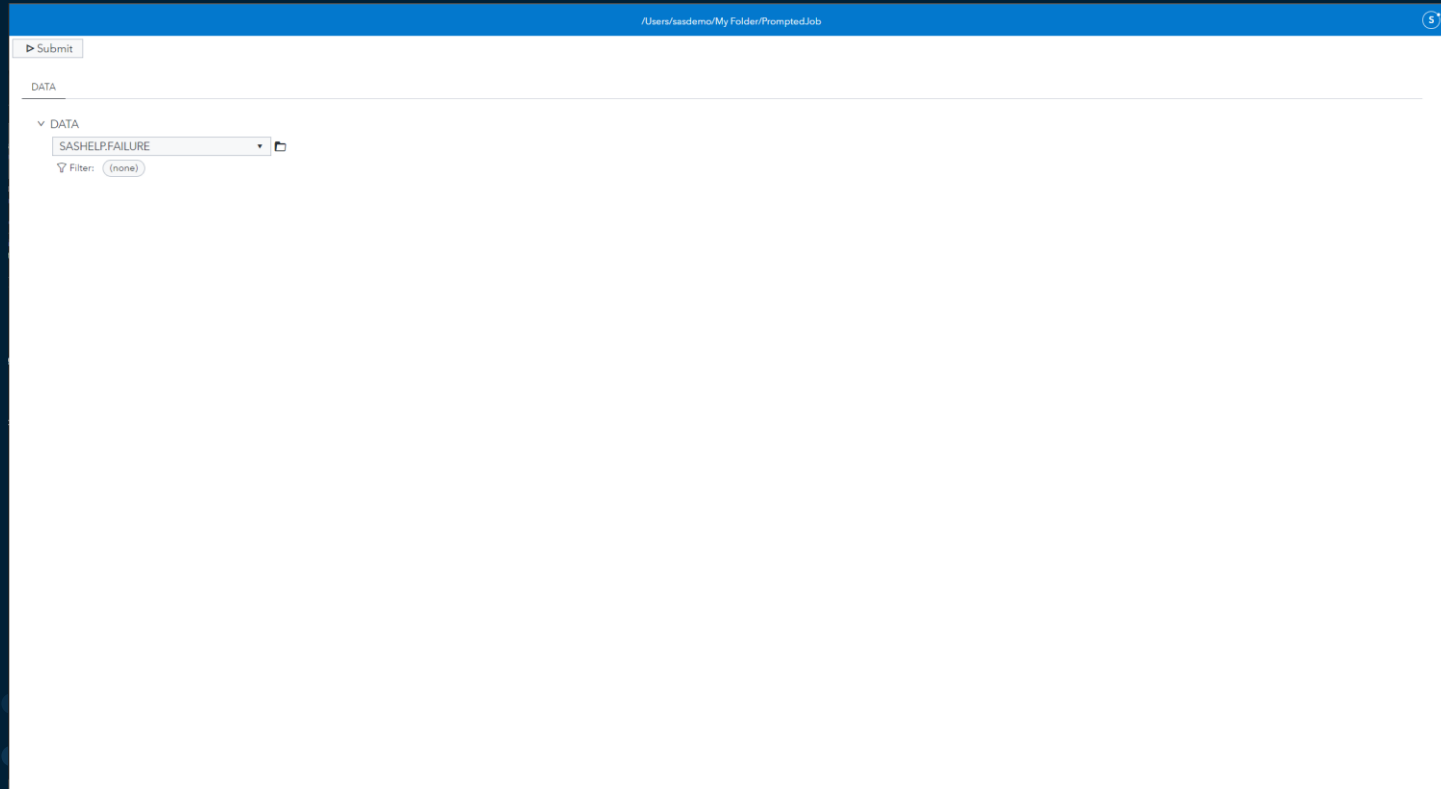
# SAS Studio

## Jobs

The screenshot displays the SAS Studio Jobs interface. At the top, there is a navigation bar with a 'Submit' button. Below this, the 'DATA' section is visible, featuring a dropdown menu labeled 'Select a data source' and a filter option set to '(none)'. The browser's address bar shows the URL: `pdcesx06019.exnet.sas.com:4443/SASJobExecution/?_program=%2FUsers%2Fsaasdemo%2FMY%20Folder%2FPromptedJob`. The page title is `/Users/saasdemo/My Folder/PromptedJob`. The interface is clean and modern, with a white background and blue accents.

# SAS Studio

## Jobs



The screenshot displays the SAS Studio Jobs interface. At the top, a blue header bar contains the path `/Users/sasdemo/My Folder/PromptedJob` and a refresh icon. Below the header, a `Submit` button is visible. The main area is titled `DATA` and shows a tree view with a folder icon and a dropdown menu containing `SASHELP.FAULTURE`. Below the dropdown, a filter is set to `(none)`.

# SAS Studio

## Jobs

The SASHELP.FAILURE dataset

Obs	Cause	Process	Count	Day
1	Contamination	Process A	15	Monday
2	Corrosion	Process A	2	Monday
3	Doping	Process A	1	Monday
4	Metallization	Process A	2	Monday
5	Miscellaneous	Process A	3	Monday
6	Oxide Defect	Process A	8	Monday
7	Silicon Defect	Process A	1	Monday
8	Contamination	Process A	16	Tuesday
9	Corrosion	Process A	3	Tuesday
10	Doping	Process A	1	Tuesday
11	Metallization	Process A	3	Tuesday
12	Miscellaneous	Process A	1	Tuesday
13	Oxide Defect	Process A	9	Tuesday
14	Silicon Defect	Process A	2	Tuesday
15	Contamination	Process A	20	Wednesday
16	Corrosion	Process A	1	Wednesday
17	Doping	Process A	1	Wednesday
18	Metallization	Process A	0	Wednesday
19	Miscellaneous	Process A	3	Wednesday
20	Oxide Defect	Process A	7	Wednesday
21	Silicon Defect	Process A	2	Wednesday
22	Contamination	Process A	12	Thursday
23	Corrosion	Process A	1	Thursday
24	Doping	Process A	1	Thursday
25	Metallization	Process A	0	Thursday
26	Miscellaneous	Process A	0	Thursday
27	Oxide Defect	Process A	10	Thursday
28	Silicon Defect	Process A	1	Thursday
29	Contamination	Process A	23	Friday
30	Corrosion	Process A	1	Friday
31	Doping	Process A	1	Friday
32	Metallization	Process A	0	Friday
33	Miscellaneous	Process A	1	Friday
34	Oxide Defect	Process A	8	Friday
35	Silicon Defect	Process A	2	Friday
36	Contamination	Process B	8	Monday
37	Corrosion	Process B	2	Monday
38	Doping	Process B	1	Monday

# SAS Studio

## Jobs

The screenshot displays the SAS Studio interface. The top navigation bar includes 'New', 'Options', 'View', 'Open', and 'Save All'. The main workspace is titled 'PromptedJob' and shows a preview of the 'SASHELP.AIR' dataset. The dataset table is as follows:

Obs	DATE	AIR
1	JAN49	112
2	FEB49	118
3	MAR49	132
4	APR49	129
5	MAY49	121
6	JUN49	135
7	JUL49	148
8	AUG49	148
9	SEP49	136
10	OCT49	119
11	NOV49	104
12	DEC49	118
13	JAN50	115
14	FEB50	126

Below the dataset preview, the 'Submission Status' tab is active, showing a table of scheduled jobs. The table is filtered by 'All' and includes the following data:

Name	Status	Scheduled	Next Run Time	Submitted	Completed	Active	Versions
SampJobCode	✓	🕒		12/21/2021, 11:50:00 AM	12/21/2021, 11:50:20 AM	🔴	🕒

The interface also features an 'Associate a Form' panel on the right, with options for 'No embedded form', 'HTML form', 'Task prompt' (selected), and 'Existing form'. A search bar for 'Filter scheduled jobs' is located above the submission status table.



# SAS Studio

## Jobs

The screenshot displays the SAS Studio interface. On the left, the Explorer pane shows a project structure with a context menu open over the 'PromptedJob' folder. The main workspace shows a job definition for 'The SASHELP.AIR dataset' with a table of 14 observations. On the right, the 'Associate a Form' panel is visible. At the bottom, the 'Scheduled Jobs' table shows a job named 'SampJobCode' with a status of 'Active' and a toggle switch.

**The SASHELP.AIR dataset**

Obs	DATE	AIR
1	JAN49	112
2	FEB49	118
3	MAR49	132
4	APR49	129
5	MAY49	121
6	JUN49	135
7	JUL49	148
8	AUG49	148
9	SEP49	136
10	OCT49	119
11	NOV49	104
12	DEC49	118
13	JAN50	115
14	FEB50	126

**Scheduled Jobs Table**

Name	Status	Scheduled	Next Run Time	Submitted	Completed	Active	Versions
SampJobCode	Active	🕒		12/21/2021, 11:50:00 AM	12/21/2021, 11:50:20 AM	🔴	🕒

# SAS Studio

## Jobs

The screenshot displays the SAS Studio interface with a 'New Trigger' dialog box open. The dialog is titled 'The SASHELP.PAIR dataset' and 'New Trigger'. It contains the following fields:

- Frequency: Daily
- Interval: 1 days
- Time: 16:20
- Time zone: (UTC-07:00) Denver
- Start date: Dec 21, 2021
- End: After number of times, 1 times

Buttons at the bottom of the dialog are 'Save', 'Reset', and 'Cancel'. In the background, the 'Associate a Form' dialog is visible with options: No embedded form, HTML form, Task prompt (selected), and Existing form. Below that, a table shows job status:

Completed	Active	Versions
12/21/2021, 11:50:20 AM	<input checked="" type="checkbox"/>	

# SAS Studio

## Jobs

The screenshot displays the SAS Studio interface. The top menu bar includes 'New', 'Options', 'View', 'Open', and 'Save All'. The Explorer pane on the left shows a project structure with folders like 'My Favorites', 'Folder Shortcuts', and 'My Snippets'. The main workspace is divided into three panes: 'Code', 'Log', and 'Submission Status'.

**Code Pane:**

```
1 %global datasource;
2 title "The &datasource dataset";
3
4 proc print data=&datasource;
5 run;
6 title;
```

**Log Pane:**

```
ERROR 22-322: Expecting a name.
SYS_COMPUTE_JOB_ID=E1CDB7EA-9144-C042-B58E-98011C5001DF
SYS_COMPUTE_SESSION_ID=73e9f870-3804-4850-9f18-56b782ecf94-ses0000
SYS_COMPUTE_SESSION_OWNER=sasdemo
SYS_JOB_URI=/jobExecution/jobs/22037f92-ede7-4969-a3cb-4bfc5d7bd255
2 %global datasource;
3 title "The &datasource dataset";
4
5 proc print data=&datasource;
6 run;
7 title;
8 %JESEND
```

**Submission Status Pane:**

Filter scheduled jobs: > Run Now

Filter by time: (none)

All

Successful

Failed

Running

Active



Name	Status	Scheduled	Next Run Time	Submitted	Completed	Active	Versions
SampJobCode	✔	🕒		12/21/2021, 11:50:00 AM	12/21/2021, 11:50:20 AM	🔴	🕒
PromptedJob	✘	🕒		12/21/2021, 4:20:00 PM	12/21/2021, 4:20:16 PM	🔴	🕒

# SAS Studio

## Jobs

SAS® Job Execution

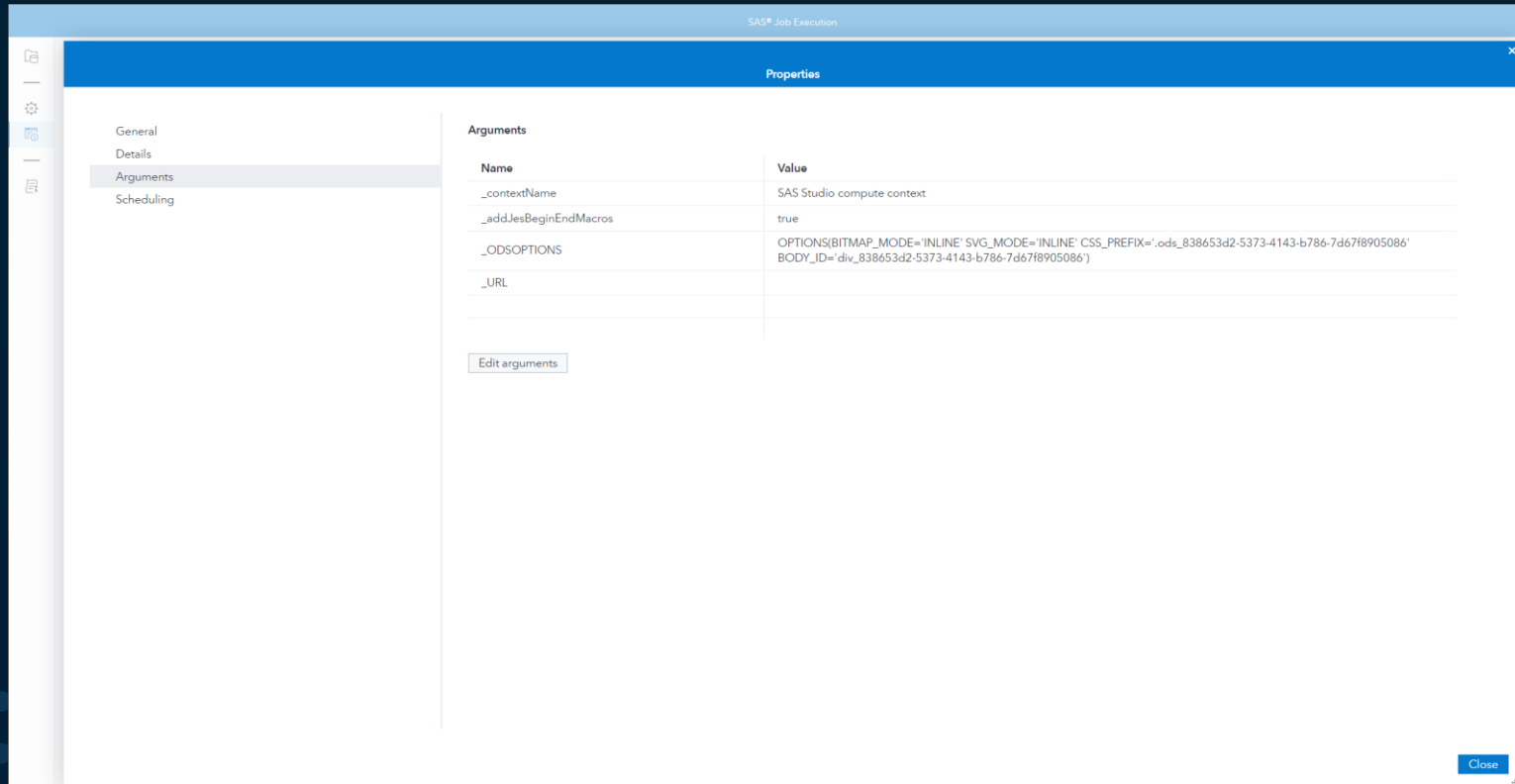
Scheduling

Name	Scheduled	Created	Created By
PromptedJob		Dec 21, 2021, 04:17 PM	sasdemo
SampJobCode		Dec 21, 2021, 11:43 AM	sasdemo

Run  
Edit schedule  
Delete  
Properties

# SAS Studio

## Jobs

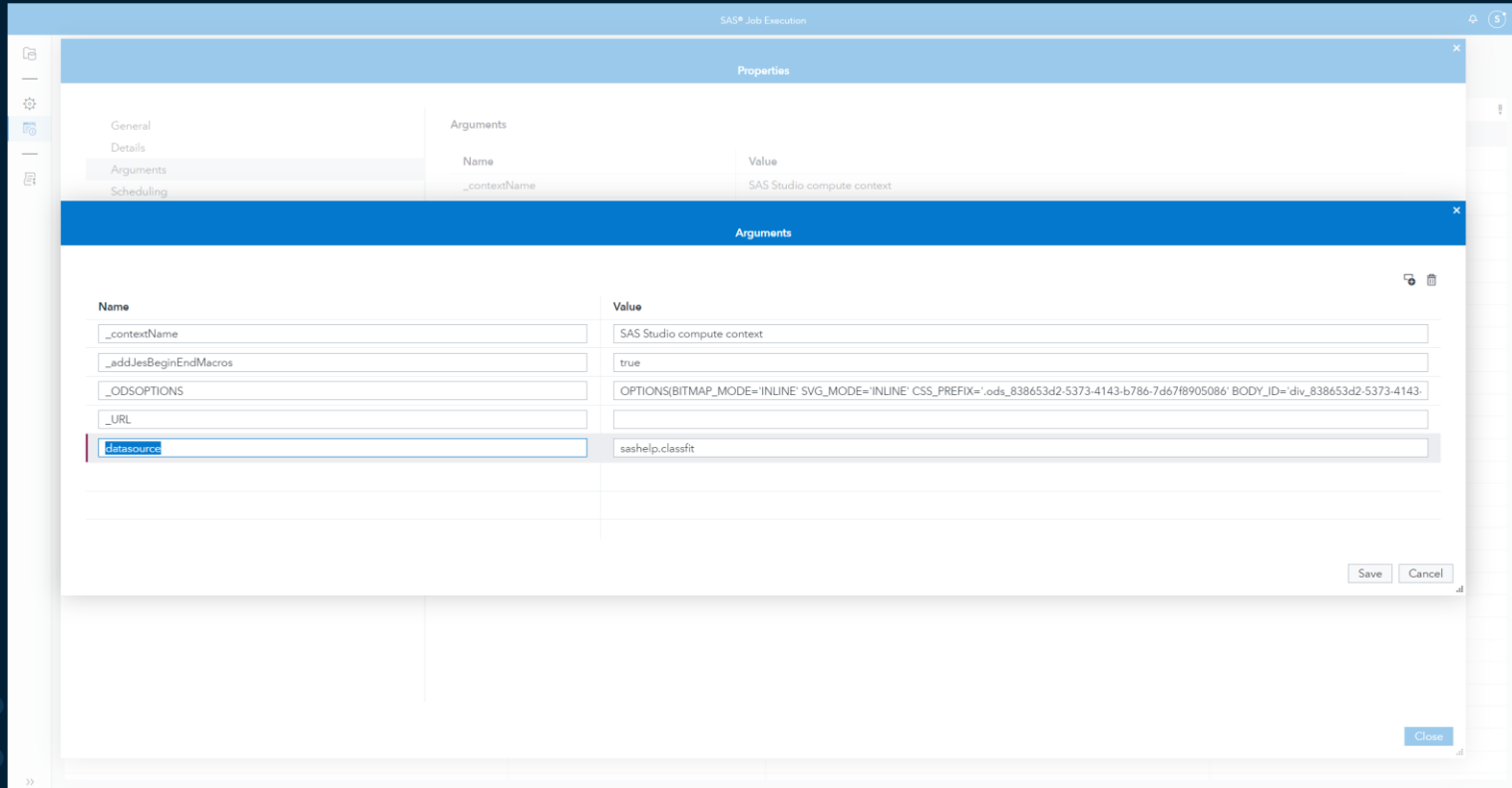


The screenshot shows the 'Properties' dialog box for a SAS Job Execution. The dialog has a blue header bar with the title 'Properties' and a close button. On the left, there is a sidebar with a tree view containing 'General', 'Details', 'Arguments', and 'Scheduling'. The 'Arguments' tab is selected. The main area displays a table of arguments with columns 'Name' and 'Value'. Below the table is an 'Edit arguments' button. In the bottom right corner, there is a 'Close' button.

Name	Value
_contextName	SAS Studio compute context
_addJesBeginEndMacros	true
_ODSOPTIONS	OPTIONS(BITMAP_MODE='INLINE' SVG_MODE='INLINE' CSS_PREFIX=',ods_838653d2-5373-4143-b786-7d67f8905086' BODY_ID='div_838653d2-5373-4143-b786-7d67f8905086')
_URL	

# SAS Studio

## Jobs



The screenshot shows the 'SAS\* Job Execution' window with the 'Properties' dialog box open. The 'Arguments' tab is selected, displaying a table of job arguments. The table has two columns: 'Name' and 'Value'. The arguments listed are:

Name	Value
._contextName	SAS Studio compute context
._addJesBeginEndMacros	true
._ODSOPTIONS	OPTIONS;BITMAP_MODE=INLINE SVG_MODE=INLINE CSS_PREFIX= .ods_838653d2-5373-4143-b786-7d67f8905086 BODY_ID=div_838653d2-5373-4143
._URL	
._datasource	sashelp.classfit

At the bottom right of the dialog box, there are 'Save' and 'Cancel' buttons. A 'Close' button is also visible in the bottom right corner of the main window.

# SAS Studio

## Jobs

The screenshot displays the SAS Studio Job Execution interface. A table lists job execution records, and a 'New Trigger' dialog box is open in the foreground.

Name	Scheduled	Created	Created By
PromptedJob		Dec 21, 2021, 04:17 PM	sasdemo
SampJobCode		Dec 21, 2021, 11:43 AM	sasdemo

Frequency:	Daily	Interval:	1	days
Time:	09:24			
Time zone:	(UTC-07:00) Denver			
Start date:	Dec 22, 2021			
End:	After number of times		1	times

Buttons: Save, Reset, Cancel





# SAS Studio

## Jobs

← → ↻ 🏠 ⚠ Not secure | pdcesx06019.exnet.sas.com:4443/SASJobExecution/?\_jobexec=/JobExecution/jobs/e071ebd5-0599-4f2c-b1fa-ea129880302f 🔍 🏠 🌐 🔄 ⚙️ 👤 ⋮


The sashelp.classfit dataset

Obs	Name	Sex	Age	Height	Weight	predict	lowermean	uppermean	lower	upper
1	Joyce	F	11	51.3	50.5	56.993	43.804	70.182	29.883	84.103
2	Louise	F	12	56.3	77.0	76.488	67.960	85.017	51.315	101.662
3	Alice	F	13	56.5	84.0	77.268	68.907	85.630	52.150	102.386
4	James	M	12	57.3	83.0	80.388	72.667	88.108	55.476	105.299
5	Thomas	M	11	57.5	85.0	81.167	73.600	88.735	56.303	106.032
6	John	M	12	59.0	99.5	87.016	80.479	93.552	62.445	111.587
7	Jane	F	12	59.8	84.5	90.135	84.040	96.231	65.678	114.592
8	Janet	F	15	62.5	112.5	100.662	95.226	106.099	76.361	124.964
9	Jeffrey	M	13	62.5	84.0	100.662	95.226	106.099	76.361	124.964
10	Carol	F	14	62.8	102.5	101.832	96.375	107.289	77.526	126.138
11	Henry	M	14	63.5	102.5	104.562	98.982	110.141	80.228	128.895
12	Judy	F	14	64.3	90.0	107.681	101.842	113.520	83.286	132.075
13	Robert	M	12	64.8	128.0	109.630	103.571	115.690	85.182	134.078
14	Barbara	F	13	65.3	98.0	111.580	105.260	117.899	87.066	136.094
15	Mary	F	15	66.5	112.0	116.259	109.182	123.335	91.539	140.978
16	William	M	15	66.5	112.0	116.259	109.182	123.335	91.539	140.978
17	Ronald	M	15	67.0	133.0	118.208	110.771	125.645	93.383	143.034
18	Alfred	M	14	69.0	112.5	126.006	116.942	135.071	100.646	151.367
19	Philip	M	16	72.0	150.0	137.703	125.861	149.545	111.223	164.184

# SAS Studio

## Conclusion

- SAS Studio is being improved frequently with monthly releases of Viya
- SAS Viya Job Execution framework can support:
  - Jobs that are analogous to batch jobs including using parameters
  - Jobs that include a prompt for interactive sessions including dynamic prompts
  - Generated URLs that can be run from the browser and that can take parameter input as part of the url string
  - Setting arguments to support scheduled jobs that have prompts
- You can use SAS Studio or the Job Execution interfaces to work with jobs
- Not shown today, but you can schedule, execute and delete jobs from Environment Manager



**Thank you for your time and for using SAS!  
Stay safe and be well!**

[sas.com](https://sas.com)



```

data company;
    input Name $ 1-25 Age 27-28 Gender $ 30;
    datalines;
Vincent, Martina          34 F
Phillipon, Marie-Odile   28 F
Gunter, Thomas           27 M
Harbinger, Nicholas      36 M
Benito, Gisela           32 F
Rudelich, Herbert        39 M
Sirignano, Emily         12 F
Morrison, Michael        32 M
;

```

```

proc sort data=company;
    by Name;
run;

```

```

data finance;
    input IdNumber $ 1-11 Name $ 13-40 Salary;
    datalines;
074-53-9892 Vincent, Martina          35000
776-84-5391 Phillipon, Marie-Odile    29750
929-75-0218 Gunter, Thomas            27500
446-93-2122 Harbinger, Nicholas       33900
228-88-9649 Benito, Gisela            28000
029-46-9261 Rudelich, Herbert         35000
442-21-8075 Sirignano, Emily          5000
;

```

```

proc sort data=finance;
    by Name;
run;

```

```

data employee_info;
    merge company finance;
    by name;
run;

```

```
ods html file='/home/sasdemo/demo/outjob.html';
```

```

proc print data=employee_info;
    title 'Little Theater Employee Information';
    title2 '(including personal and financial information)';
run;

title; title2;

```

```

proc sgplot data=employee_info;
    hbar Gender / datalabel response=Salary stat=mean
    transparency=.3 filltype=gradient;
    format Salary dollar12.1;
    xaxis display=none;
    yaxis display=(noticks);
    title 'Mean Salary by Gender';
    footnote "Generated using SAS (&SYSSCPL Viya 2021.1.3) by
    Shannon Moore on %TRIM(%QSYFUNC(DATE(), NLDATE20.)) at
    %TRIM(%QSYFUNC(TIME(), NLTIMAP25.))";
run;

```

```
ods html close;
```

```

proc sql;
    drop table company, finance, employee_info;
quit;

title; title2; footnote;

```