Installing Python & Integrating it with SAS

This guide will walk through the installation and configuration (for a Local SAS installation) of Python and demonstrates how to get started accessing SAS from Python and Jupyter Notebooks.

The connection method is IOM using COM for Windows clients connecting to a local SAS 9.4 session. This method takes advantage of the IOM access method, but does not require a Java dependency. SAS Enterprise Guide or SAS Integration Technologies Client (a free download from SAS Support) is required to install the SAS COM library on your client system.

Install Python from here:-

https://www.anaconda.com/distribution/

Make sure you choose Windows and install Jupyter notebooks. Through out the installation select the defaults.

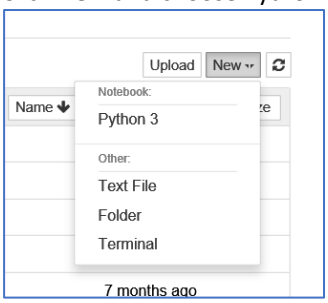
Once the installation is completed you can find Jupyter in the Anaconda3 folder.

For more information about getting started with Jupyter:

https://blog.edugrad.com/getting-started-with-installing-jupyter-notebook-for-python/

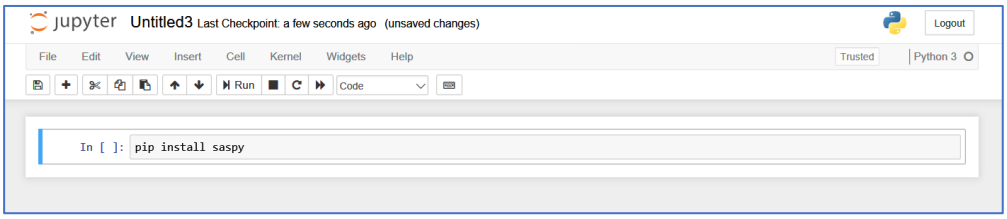
Start a new notebook.

Click **New** and choose Python 3



Install saspy.

Enter the following command.



Press shift+enter to execute it.

This may take several minutes. Wait for the success message.

Now enter the command (don't forget shift+enter)

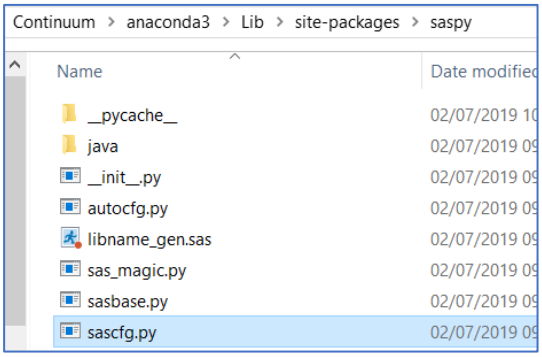
```
In [ ]: import saspy
```

There will be little visible if its successful. An error message means saspy has not been installed.

To configure saspy, edit the **sascfg.py** file. Type the following command to locate this file.

```
In [4]: saspy
Out[4]: <module 'saspy' from 'C:\\Users\\suksia\\AppData\\Local\\Continuum\\anaconda3\\lib\\site-packages\\saspy\\__init__.py'>
```

The location of the **__ini__.py** file is shown. This is the same location as **sascfg.py**, use Windows Explorer to move to that location



Right click on **sascfg.py** and copy it. Paste it in the same location and rename it to **sascfg_personal.py**. Edit this file to match the environment. A local windows SAS session is assumed with SAS Integration Technologies Client installed. For different session types, click here for more configuration and installation information.
https://sassoftware.github.io/saspy/install.html

Open **sascfg_personal.py** file in Worpad. Edit the file so it contains the text as shown to the right

```
SAS_config_names=['local']
SAS_config_options = {'lock_down': False,
                      'verbose'  : True}
SAS_output_options = {'output' : 'html5'}
local = {'provider': 'sas.iomprovider'}
```

Now type the command below to initiate a SAS session.

```
In [1]: import saspy
        sas=saspy.SASsession()

        Using SAS Config named: local
        SAS Connection established. Workspace UniqueIdentifier is 91EB29CA-7AAB-417A-8931-CE849F6C6929

        No encoding value provided. Will try to determine the correct encoding.
        Setting encoding to cp1252 based upon the SAS session encoding value of wlatin1.
```

To specify a different config file use the **cfgfile=** option.

```
In [1]: import saspy
        sas=saspy.SASsession(cfgfile='C:\Python\local.py')
```

Try the following to test the connection. The next section will demonstrate several methods and examples.

```
In [8]: cl=sas.sasdata('class','sashelp')

In [9]: cl.head()
```

Out[9]:

	Name	Sex	Age	Height	Weight
0	Alfred	M	14	69.0	112.5
1	Alice	F	13	56.5	84.0
2	Barbara	F	13	65.3	98.0
3	Carol	F	14	62.8	102.5
4	Henry	M	14	63.5	102.5

More Information about installing and configuring saspy click here:
https://sassoftware.github.io/saspy/overview.html

To run SAS code using Jupyter

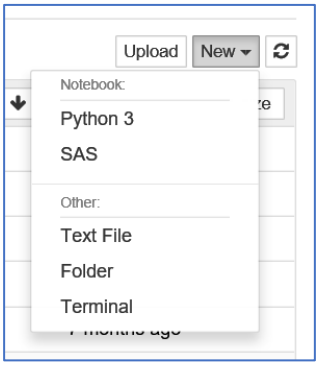
Start a new Python notebook and issue the following command.

```
In [ ]: pip install sas_kernel
```

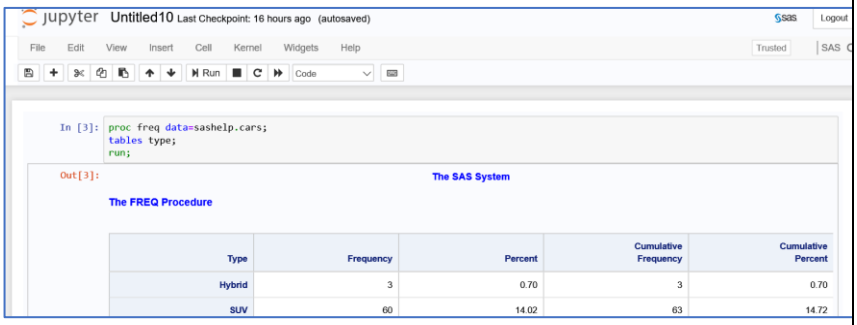
Once installation is complete, restart the Jupyter notebook application.

After Restarting Jupyter,

Click New and select SAS



Write and submit a SAS Program to check it is working correctly.



Troubleshooting Jupyter

Some users have recently experience issues with Jupyter version 6. When a new Python 3 file is created a Kernel Error occurs and nothing works. If this happens use an older version of Jupyter. To use a different version of Jupyter, first access the Anaconda Navigator.

Click on the cog in the top right hand corner of the Jupyter application.

Select the latest version of Jupyter prior to 6.