Institute for Geographic Information Science
San Francisco State University

Contents

Using Spyder with ArcGIS Pro 2.5.2: Home Use (Your Own Computer)

Spyder is the "Scientific Python Development Environment." It is an integrated development environment (IDE) for programming written in Python, for Python, and designed by and for scientists, engineers, and data analysts: https://www.spyder-ide.org/

If you're reading this guide from SF State's Institute for Geographic Information Science, you're likely using Spyder with ArcGIS Pro. If that's the case, keep in mind that In the ArcGIS world, because we're in this transition phase between ArcMap, which uses Python 2.7, and ArcGIS Pro, Python 3.x, ESRI's solution was to use virtual environments in order to not break most of our C:\python27 installs. There is an open source package management system that helps manage virtual environments called "conda". Conda is automatically installed when you install ArcGIS Pro. Not to be confused with "Anaconda", which is a standalone scientific package management system based on conda. **So in short, we recommend that you first download/install ArcGIS Pro, which will come with the "conda" package from which you can install Spyder.**

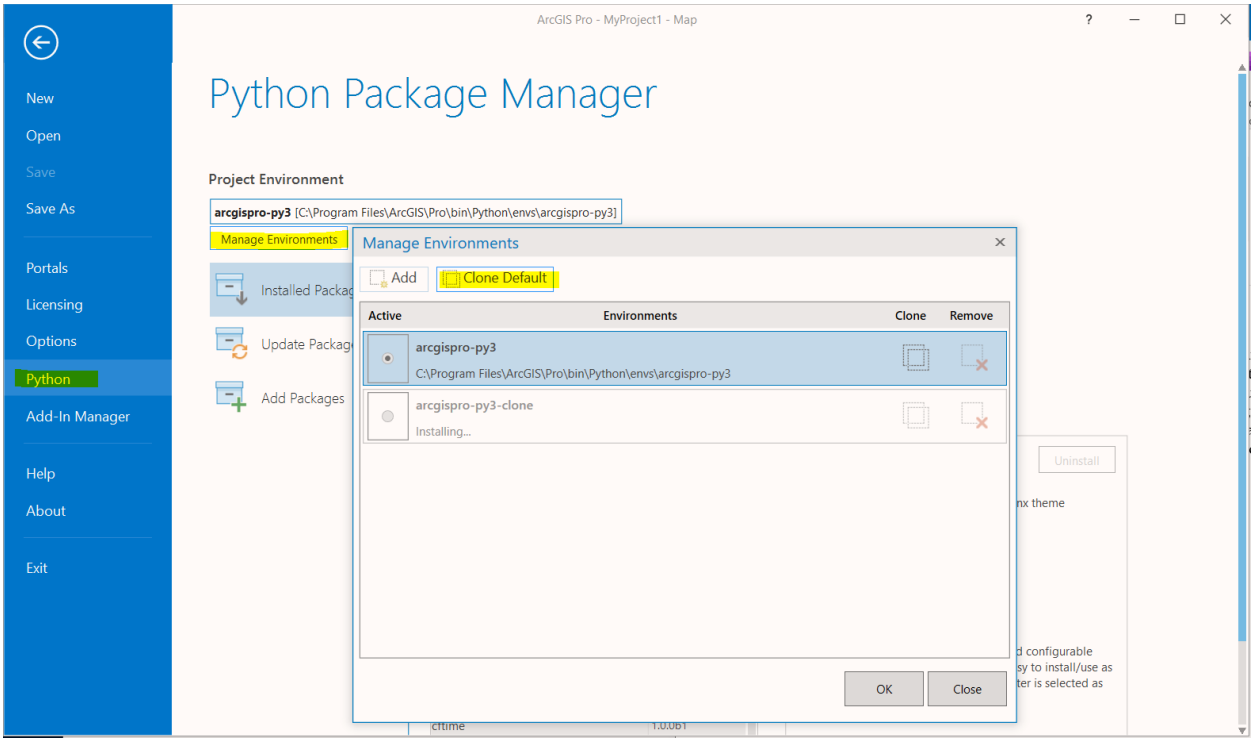
Download and Install ArcGIS Pro

1. For instructions how to download and install ArcGIS Pro, visit: http://gis.sfsu.edu/arcgis-pro
    a. Note that if you have a previous version of ArcGIS Pro already installed on your computer, you may need to follow ESRI guides that will help you clear out ArcGIS Pro from a system that cannot fully uninstall the software: https://esribelux.com/helpdeskitem/clean-uninstall-of-arcgis-pro/
    b. If you have trouble with installation of ArcGIS Pro after working through the instructions provided online, you may call ESRI technical support for help as a part of our site license agreement (note that ESRI only offers students help with installation—if you have other questions, you'll need to consult one of the university's ESRI Approved callers)

Clone the default environment in ArcGIS Pro

On a good day, this should take around 30 minutes to do right

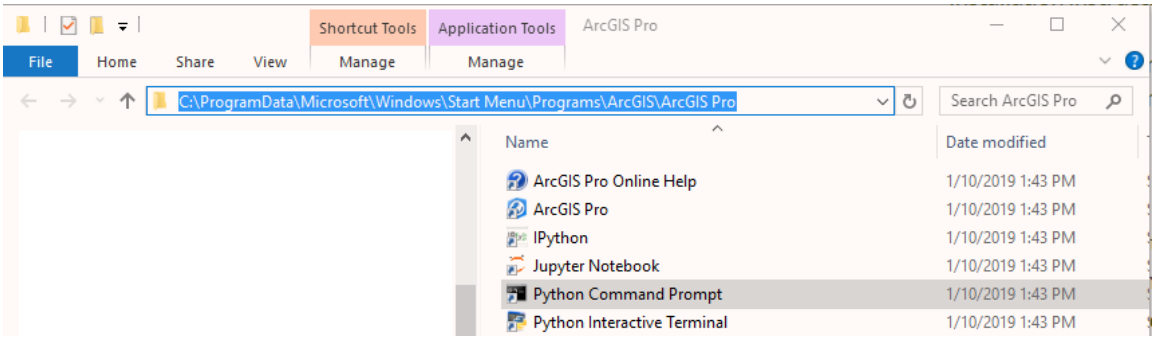
2. Once you have ArcGIS Pro installed, open ArcGIS Pro and choose Python→Manage Environments→Clone Default (this may take several minutes)
3. Check the new cloned environment bubble and choose **OK**



4. Restart ArcGIS Pro so the changes to your environment are saved (confirm that `arcgispro-py3-clone` is set in the ArcGISPro Project Environment when you reopen Pro)

5. Type **Python Command Prompt** into your Start Menu (you don't want Python Command Line, which will likely be the first option that pops up as you start typing into the Start Menu)
    a. *Note that on a home computer you may need to right-click on Python Command Prompt and Run as Administrator*

Install Spyder in the cloned ArcGIS Pro Environment



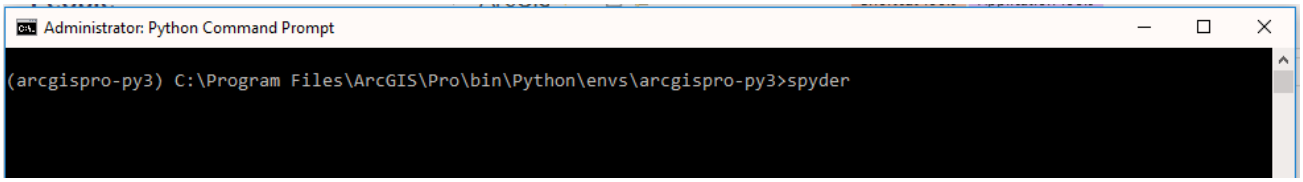
6. The Python Command Prompt window will open and should show the cloned environment (arcgispro-py3-clone) at the beginning:

7. Type **`conda install spyder`**

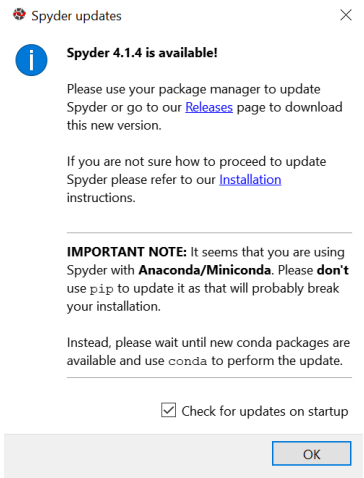
8. Type **`y`**

9. You'll see a series of packages being installed (this may take a few minutes)

10. There are several ways to launch the Spyder IDE, the two most obvious ones are:
    a. In Python Command Prompt, type **`spyder`** (pictured below)
    b. OR search for the spyder application in the Start Menu



11. You probably will see a message about a newer version of Spyder that's available, click **OK:**



12. If you see this message, it means you should update Spyder 3 to Spyder 4 using conda again by going back to the Python Command Prompt. Start by doing a dry run so you don't mess anything up. Type:

```
conda update spyder --no-pin --dry-run
```

Python Command Prompt - conda update spyder --no-pin --dry-run

```
(arcgispro-py3-clone) C:\Users\[redacted]\AppData\Local\ESRI\conda\envs\arcgispro-py3-clone>conda update spyder --no-pin --dry-run
Fetching package metadata .........
```

13. You'll see something like the following that will show you which packages will be installed fresh, which packages will be updated (and what version they'll be updated to), and which packages will be downgraded—If you are a Python guru and know that you don't want some of these things to change, then don't make this update and do some research on your own to identify which packages you do want to update. The main thing we care about is updating Spyder 3 to Spyder 4.

Python Command Prompt

```
(arcgispro-py3-clone) C:\Users\[redacted]\AppData\Local\ESRI\conda\envs\arcgispro-py3-clone>conda update spyder --no-pin --dry-run
Fetching package metadata .............
Solving package specifications: .

Package plan for installation in environment C:\Users\913692057\AppData\Local\ESRI\conda\envs\arcgispro-py3-clone:

The following NEW packages will be INSTALLED:

    argh:                  0.26.2-py36_0
    autopep8:              1.5.3-py_0
    bcrypt:                3.1.7-py36he774522_1
    diff-match-patch:      20200713-py_0
    flake8:                3.8.3-py_0
    intervaltree:          3.0.2-py_1
    libspatialindex:       1.9.3-h33f27b4_0
    paramiko:              2.7.1-py_0
    pathtools:             0.1.2-py_1
    pexpect:               4.8.0-py36_0
    pydocstyle:            5.0.2-py_0
    pynacl:                1.4.0-py36h62dcd97_0
    python-jsonrpc-server: 0.3.4-py_1
    python-language-server: 0.34.1-py36_0
    pyyaml:                3.12-py36h1d1928f_1
    qdarkstyle:            2.8.1-py_0
    rtree:                 0.9.4-py36h21ff451_1
    sortedcontainers:      2.2.2-py_0
    ujson:                 1.35-py36hfa6e2cd_0
    watchdog:              0.10.3-py36_0
    yaml:                  0.1.6-vc14_0        esri [vc14]
    yapf:                  0.30.0-py_0

The following packages will be UPDATED:

    jedi:                  0.16.0-py36_0       esri --> 0.17.1-py36_0
    jupyter_client:        5.3.1-py36_0        esri --> 6.1.2-py36_0  esri
    spyder:                3.3.6-py36_0             --> 4.1.4-py36_0
    spyder-kernels:        0.5.2-py36_0             --> 1.9.2-py36_0
```

14. Remove just the `--dry-run` and go ahead with the update when you're ready—make sure you keep the `--no-pin` because this will allow you to update even though the current download of Pro doesn't

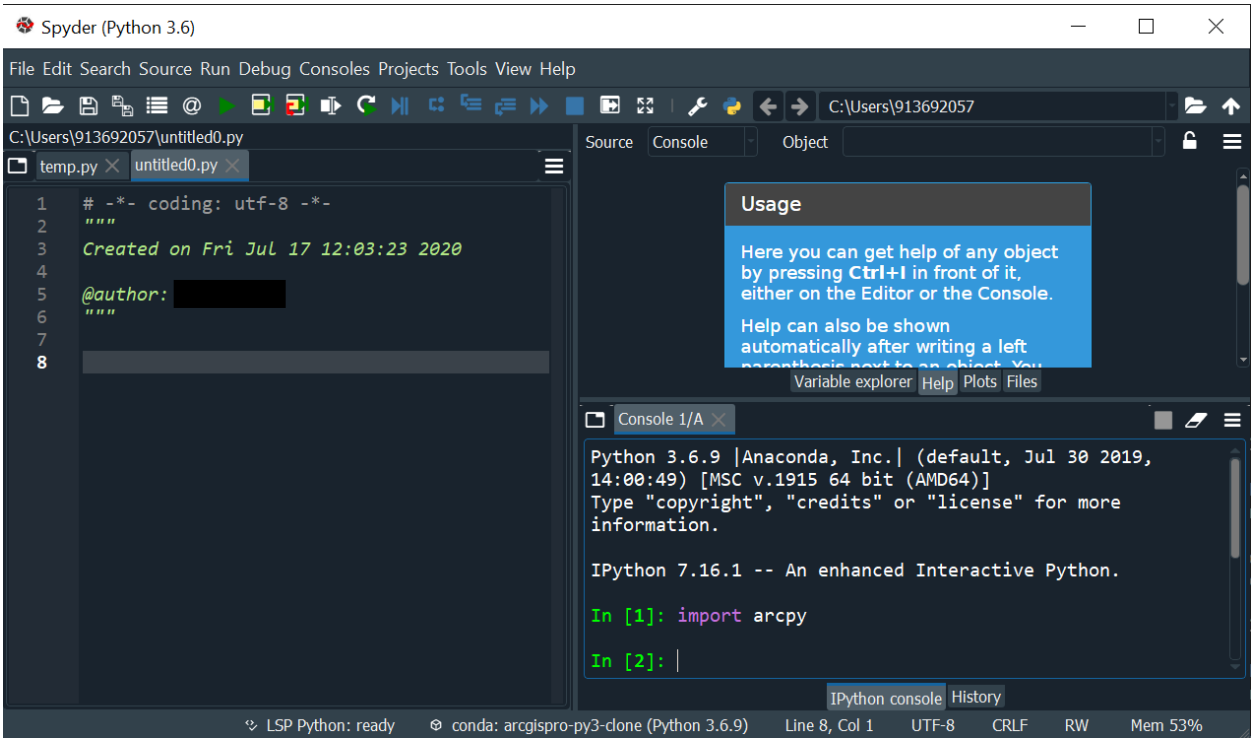
```
(arcgispro-py3-clone) C:\Users\[redacted]\AppData\Local\ESRI\conda\envs\arcgispro-py3-clone>conda update spyder --no-pin
```

15. When prompted to Proceed, type **y**

```
Solving package specifications: .

Package plan for installation in environment C:\Users\[redacted]\AppData\Local\ESRI\conda\envs\arcgispro-py3-clone:

The following NEW packages will be INSTALLED:

    argh:                   0.26.2-py36_0
    autopep8:               1.4.4-py_0
    bcrypt:                 3.1.7-py36he774522_0
    diff-match-patch:       20181111-py_0
    flake8:                 3.8.2-py_0
    intervaltree:           3.0.2-py_0
    libspatialindex:        1.9.3-h33f27b4_0
    paramiko:               2.7.1-py_0
    pathtools:              0.1.2-py_1
    pexpect:                4.8.0-py36_0
    pydocstyle:             4.0.1-py_0
    pynacl:                 1.3.0-py36h62dcd97_0
    python-jsonrpc-server:  0.3.4-py_0
    python-language-server: 0.31.9-py36_0
    pyyaml:                 3.12-py36h1d1928f_1
    qdarkstyle:             2.8.1-py_0
    rtree:                  0.9.4-py36h21ff451_1
    sortedcontainers:       2.1.0-py36_0
    ujson:                  1.35-py36hfa6e2cd_0
    watchdog:               0.10.2-py36_0
    yaml:                   0.1.6-vc14_0        esri [vc14]
    yapf:                   0.28.0-py_0

The following packages will be UPDATED:

    jupyter_client:         5.3.1-py36_0        esri --> 6.1.2-py36_0  esri
    spyder:                 3.3.6-py36_0             --> 4.1.3-py36_0
    spyder-kernels:         0.5.2-py36_0             --> 1.9.1-py36_0

The following packages will be DOWNGRADED:

    jedi:                   0.16.0-py36_0       esri --> 0.15.2-py36_0
    parso:                  0.7.0-py_0               --> 0.5.2-py_0

Proceed ([y]/n)? y
```

16. Launch the Spyder IDE

17. In the console of the Spyder IDE, type `import arcpy` after `In [1]` to verify that Spyder is working in your cloned environment. You should see `In [2]` appear.

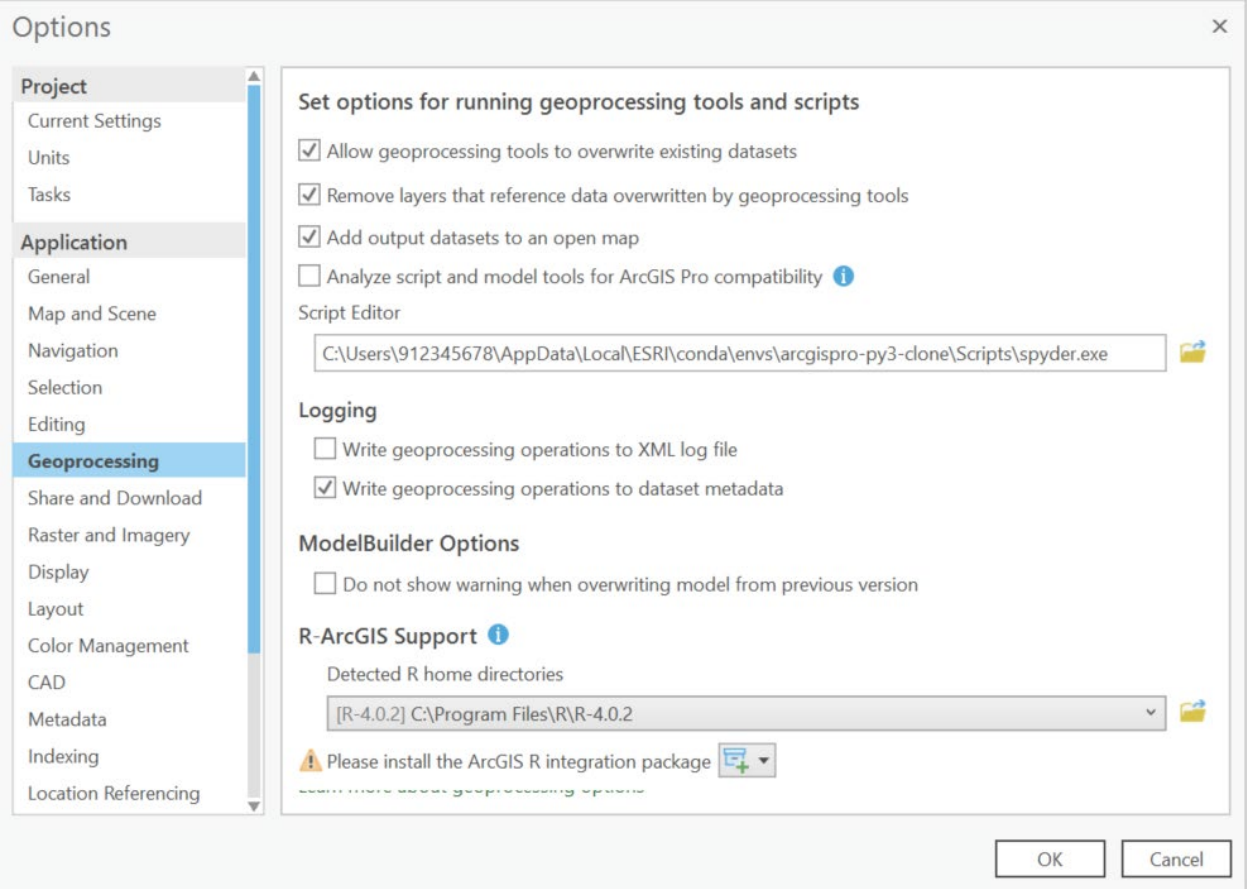


18. Close and reopen ArcGIS Pro
19. Go to Settings→Python→Installed Packages should show that you have Spyder 4.1.4 installed now (and Spyder kernels 1.9.2)

Set Spyder as the default script editor in ArcGIS Pro

20. Once you have installed Spyder in the cloned ArcGIS Pro environment, you'll want to make Spyder the default script editor in Pro. Open Pro and go to the Project tab→Options→Geoprocessing
21. Enter the path to the **spyder.exe application** (if you don't remember where it was installed, check where the clone was installed in ArcGIS Pro→Settings→Manage Environments→

22. What you enter for your script editor should look something like the following screenshot except you won't have the 9-digit ID part for a home computer



23. Choose **OK** and Restart ArcGIS Pro
24. Open a Script tool to verify that this launches Spyder so you know you're all good to go!

More Spyder resources

Pristine arcgispro-py3

https://community.esri.com/docs/DOC-12021-python-at-arcgispro-22

Python Package Manager and Working with Python environments

https://pro.arcgis.com/en/pro-app/arcpy/get-started/what-is-conda.htm

More about virtual environments:

https://realpython.com/python-virtual-environments-a-primer/

Updating Spyder for ArcGIS Pro 2.5.2: more about –no-pin d—dry-run

https://community.esri.com/blogs/dan_patterson/2020/02/09/clone-arcgis-pro-25

Pinning Conda

http://damianavila.github.io/blog/posts/how-to-pin-conda.html