

Miniconda for Windows Python Geospatial Installation

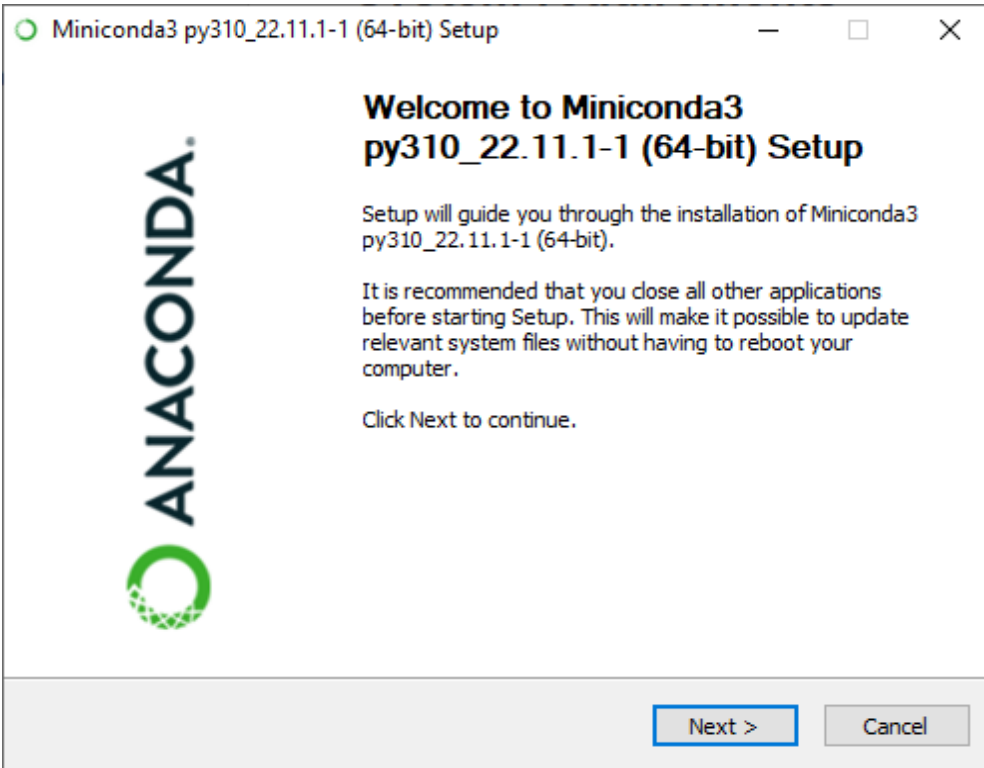
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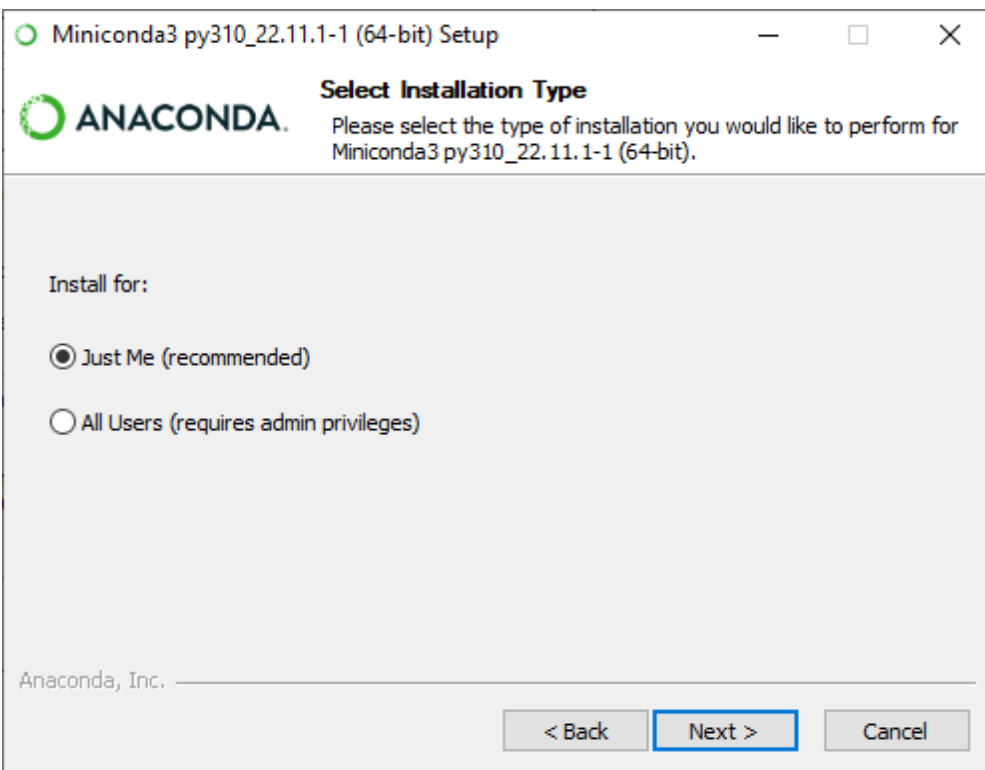
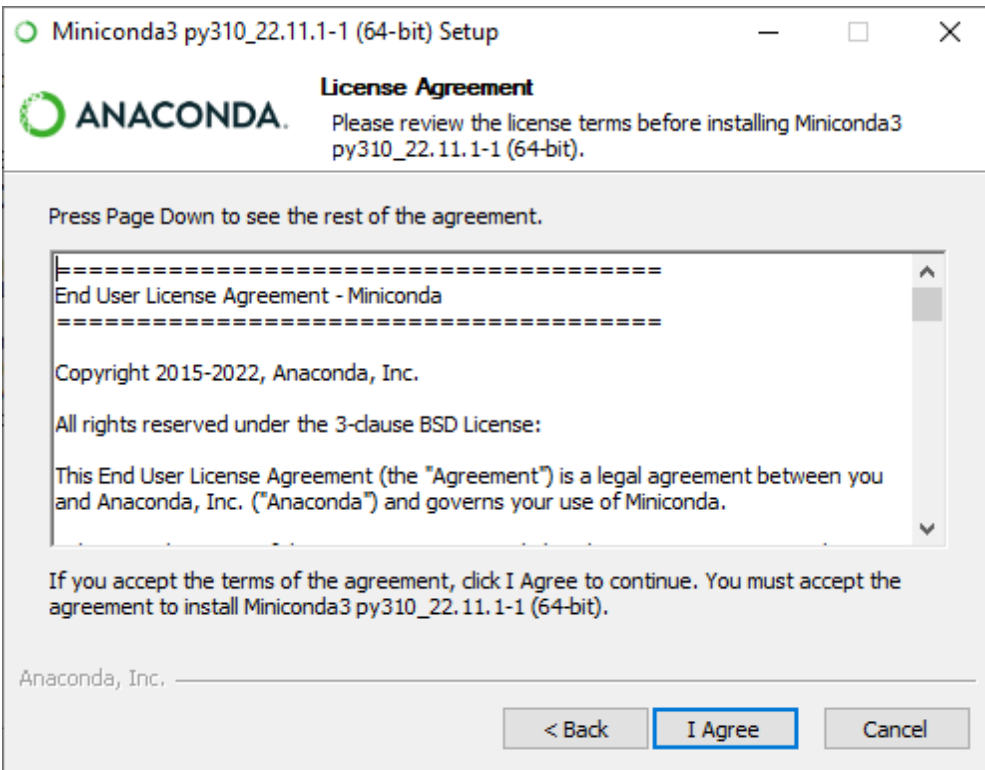
Note:

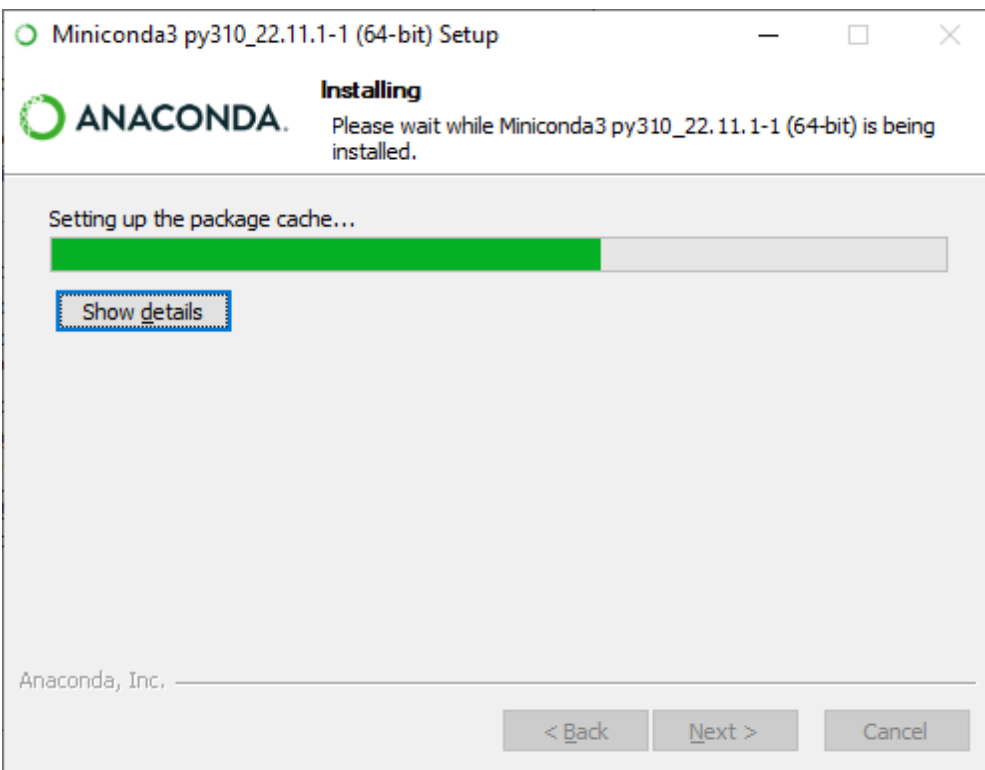
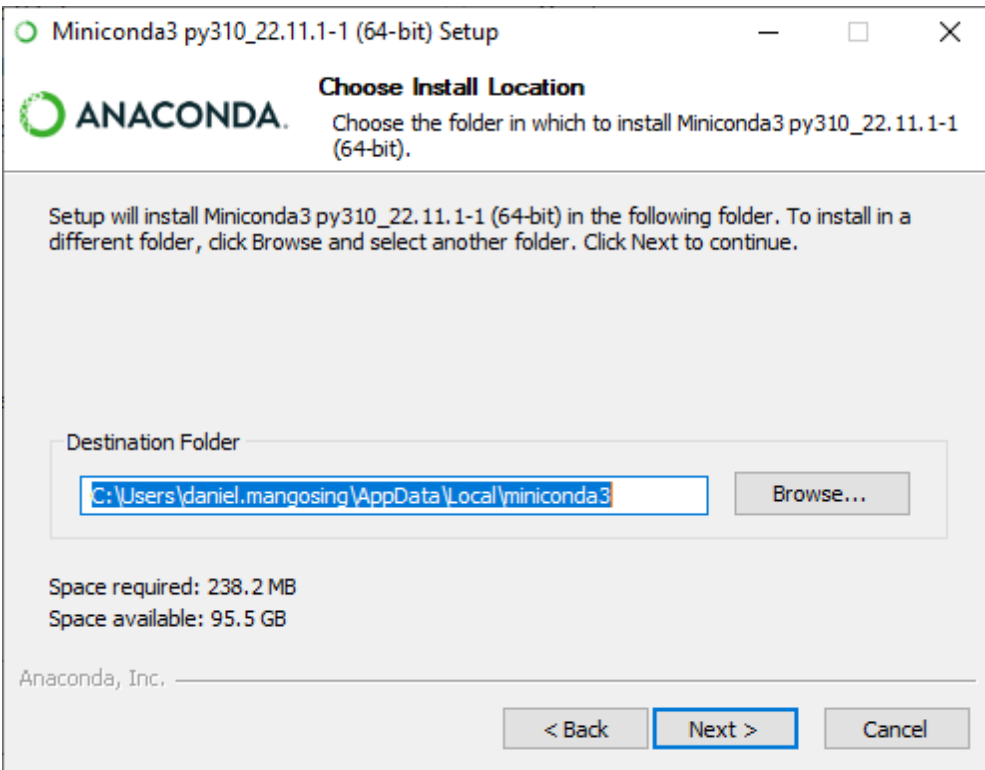
If you are using a DEVELOP virtual machine (VM), Miniconda is pre-installed. If this is the first time using Miniconda, you will need to continue the installation at the start of the **Update conda** section of these instructions.

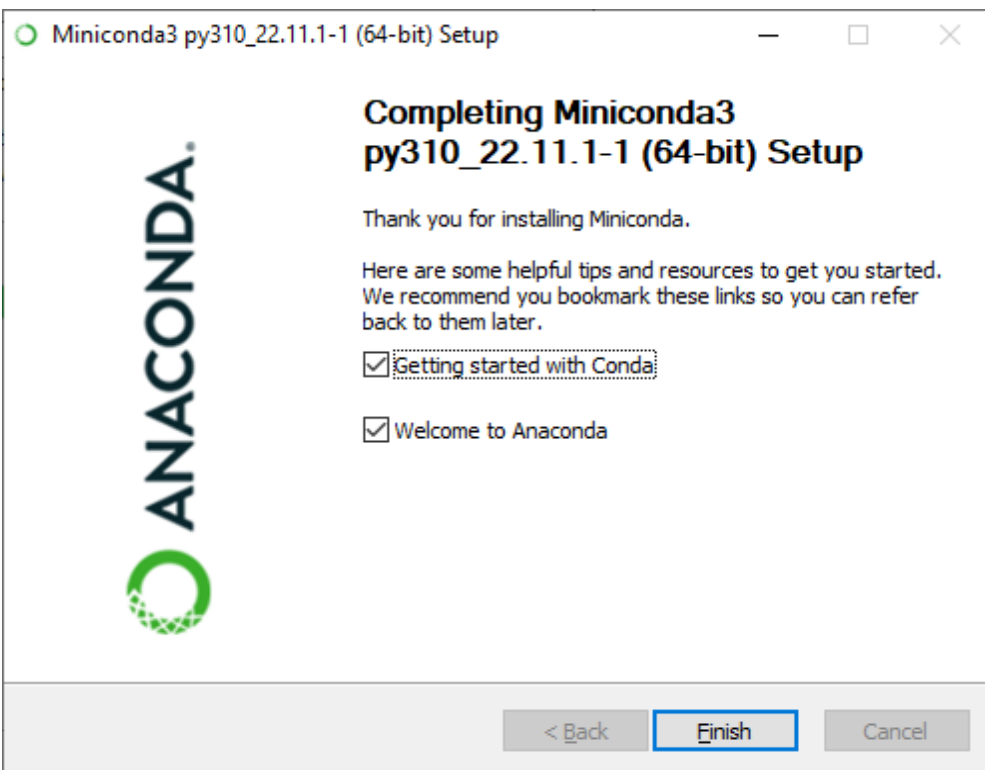
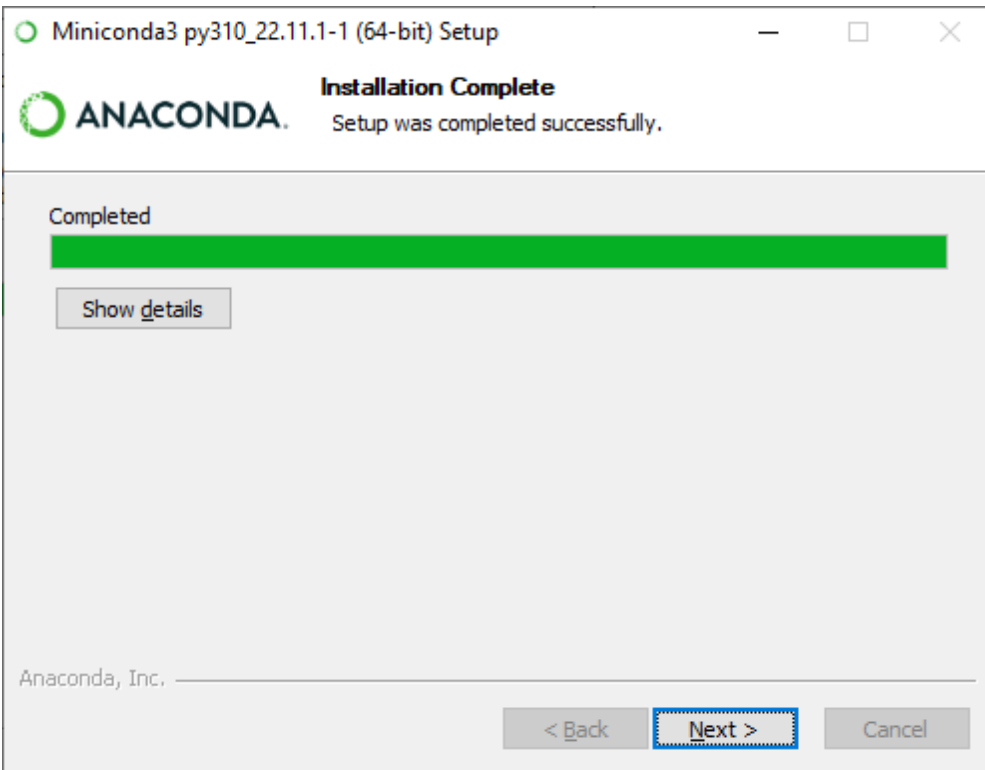
Miniconda Install

1. Miniconda download: <https://docs.conda.io/en/latest/miniconda.html>
2. Miniconda3 Windows 64-bit:
https://repo.anaconda.com/miniconda/Miniconda3-latest-Windows-x86_64.exe



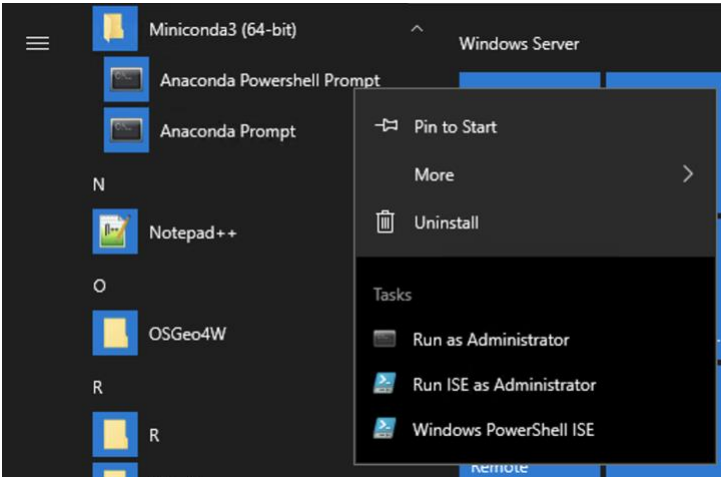






Update conda

1. Press the Windows Start menu, right-click on *Anaconda PowerShell Prompt*, and select *Run as Administrator*:



2. In the PowerShell prompt, type:
`conda update conda`
3. The `conda update` command will identify packages for conda that need to be updated. Type 'y' to proceed with the package updates.

```

Anaconda Powershell Prompt

The following packages will be downloaded:

package | build
-----|-----
colorama-0.4.6 | py310haa95532_0 | 32 KB
conda-package-handling-2.0.2 | py310haa95532_0 | 286 KB
conda-package-streaming-0.7.0 | py310haa95532_0 | 27 KB
cryptography-38.0.4 | py310h21b164f_0 | 1.0 MB
sqlite-3.40.1 | h2bbff1b_0 | 889 KB
urllib3-1.26.14 | py310haa95532_0 | 195 KB
zstandard-0.18.0 | py310h2bbff1b_0 | 310 KB
-----|-----
Total: | 2.7 MB

The following NEW packages will be INSTALLED:

conda-package-str~ pkgs/main/win-64::conda-package-streaming-0.7.0-py310haa95532_0
zstandard pkgs/main/win-64::zstandard-0.18.0-py310h2bbff1b_0

The following packages will be UPDATED:

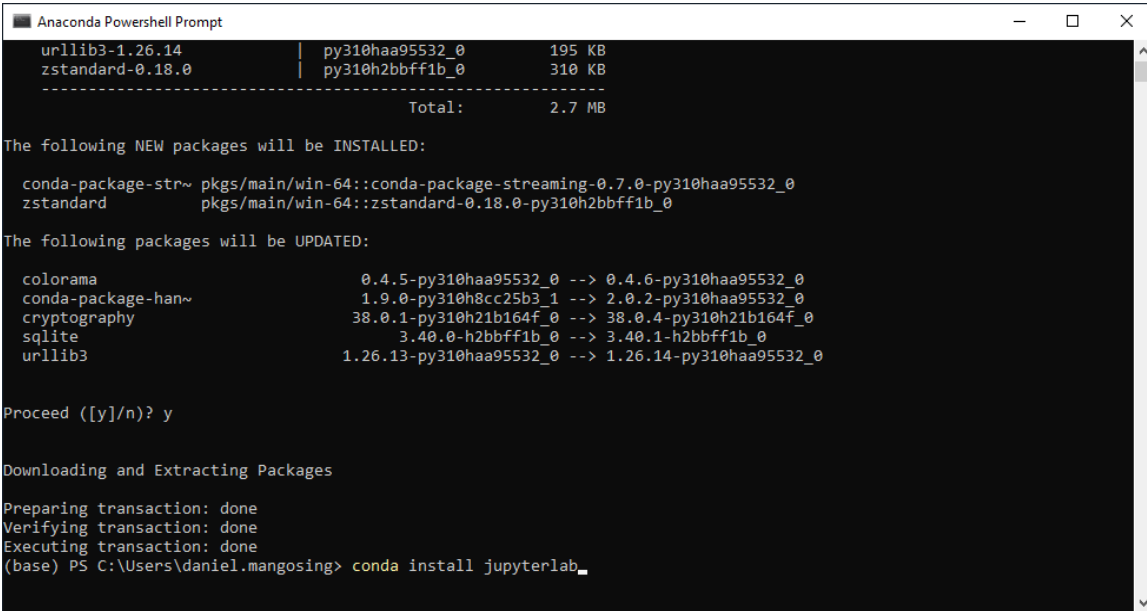
colorama 0.4.5-py310haa95532_0 --> 0.4.6-py310haa95532_0
conda-package-han~ 1.9.0-py310h8cc25b3_1 --> 2.0.2-py310haa95532_0
cryptography 38.0.1-py310h21b164f_0 --> 38.0.4-py310h21b164f_0
sqlite 3.40.0-h2bbff1b_0 --> 3.40.1-h2bbff1b_0
urllib3 1.26.13-py310haa95532_0 --> 1.26.14-py310haa95532_0

Proceed ([y/n])?

```

Installing *JupyterLab*

1. In the PowerShell prompt, type:
`conda install jupyterlab`



```
Anaconda Powershell Prompt

urllib3-1.26.14      | py310haa95532_0      195 KB
zstandard-0.18.0    | py310h2bbff1b_0      310 KB
-----
Total:              2.7 MB

The following NEW packages will be INSTALLED:

conda-package-str~ pkgs/main/win-64::conda-package-streaming-0.7.0-py310haa95532_0
zstandard          pkgs/main/win-64::zstandard-0.18.0-py310h2bbff1b_0

The following packages will be UPDATED:

colorama           0.4.5-py310haa95532_0 --> 0.4.6-py310haa95532_0
conda-package-han~ 1.9.0-py310h8cc25b3_1 --> 2.0.2-py310haa95532_0
cryptography       38.0.1-py310h21b164f_0 --> 38.0.4-py310h21b164f_0
sqlite             3.40.0-h2bbff1b_0 --> 3.40.1-h2bbff1b_0
urllib3            1.26.13-py310haa95532_0 --> 1.26.14-py310haa95532_0

Proceed ([y]/n)? y

Downloading and Extracting Packages

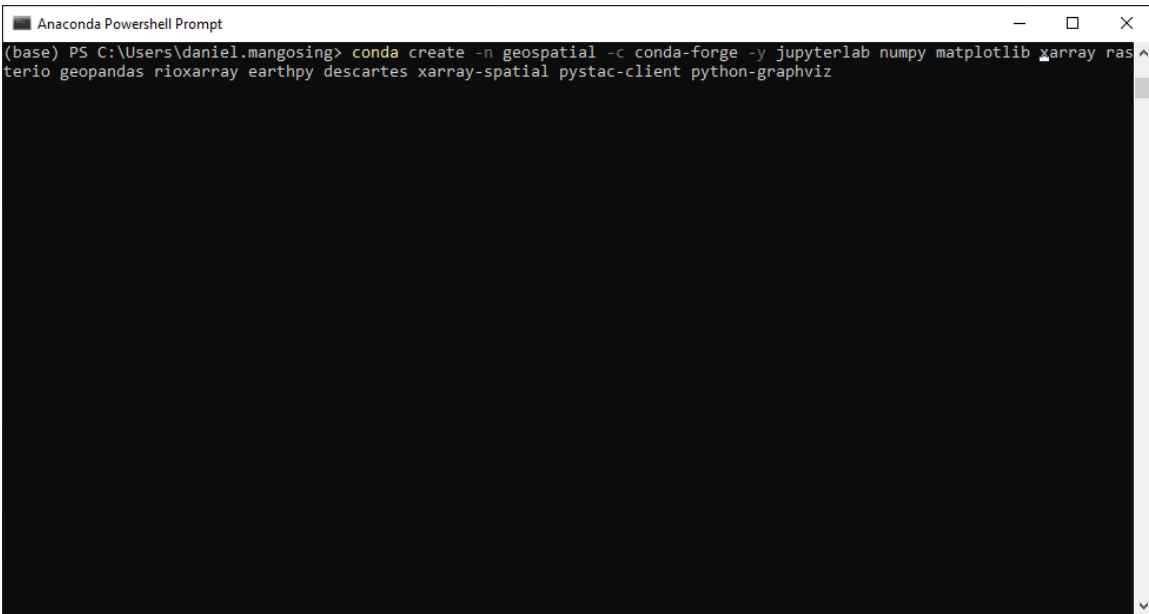
Preparing transaction: done
Verifying transaction: done
Executing transaction: done
(base) PS C:\Users\daniel.mangosing> conda install jupyterlab_
```

2. Type 'y' to proceed with the *JupyterLab* installation.

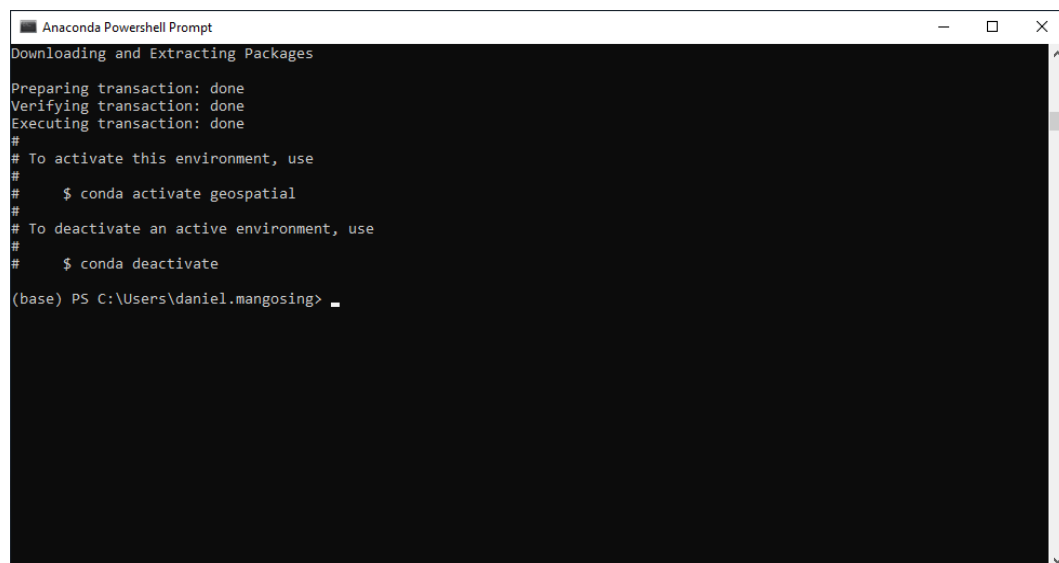
Create the conda *geospatial* environment (installing packages required for the *Introduction to Geospatial Raster and Vector Data with Python* Lesson)

1. In the PowerShell prompt, type (this should be all on one line):

```
conda create -n geospatial -c conda-forge -y jupyterlab numpy matplotlib xarray rasterio geopandas rioxarray earthpy descartes xarray-spatial pystac-client python-graphviz
```



2. The conda will evaluate the current environment and determine which packages need to be installed. *This may take more than a few minutes.*
3. After installation, you will be presented with instructions on how to activate and deactivate the *geospatial* environment:



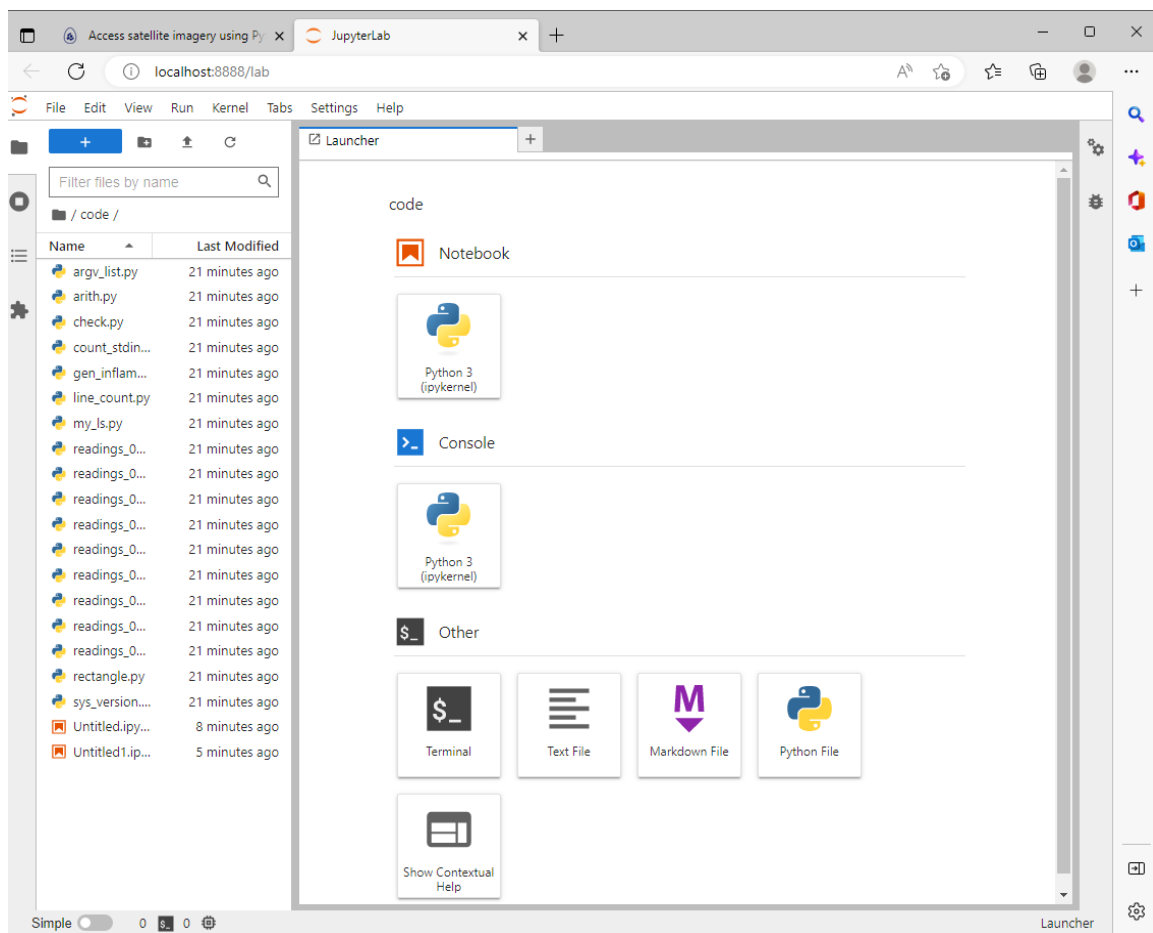
```

Anaconda Powershell Prompt
Downloading and Extracting Packages
Preparing transaction: done
Verifying transaction: done
Executing transaction: done
#
# To activate this environment, use
#
#     $ conda activate geospatial
#
# To deactivate an active environment, use
#
#     $ conda deactivate
(base) PS C:\Users\daniel.mangosing>

```

Activating the conda *geospatial* environment and launching *JupyterLab*

1. In the PowerShell prompt, type:
`conda activate geospatial`
2. You will be returned to the PowerShell prompt, but notice that the prompt is prepended with **(geospatial)**
3. Launch *JupyterLab* from the PowerShell prompt by typing:
`jupyter lab`
4. This will launch *JupyterLab* in a browser window:



5. Click on the Python 3 icon under the *Notebook* section to start an interactive *Jupyter Notebook* session.

You are now ready to proceed with the [Programming with Python](#) or [Introduction to Geospatial Raster and Vector Data with Python](#) Software Carpentry Lessons.

Installing code and data files for the *Programming with Python* Lesson

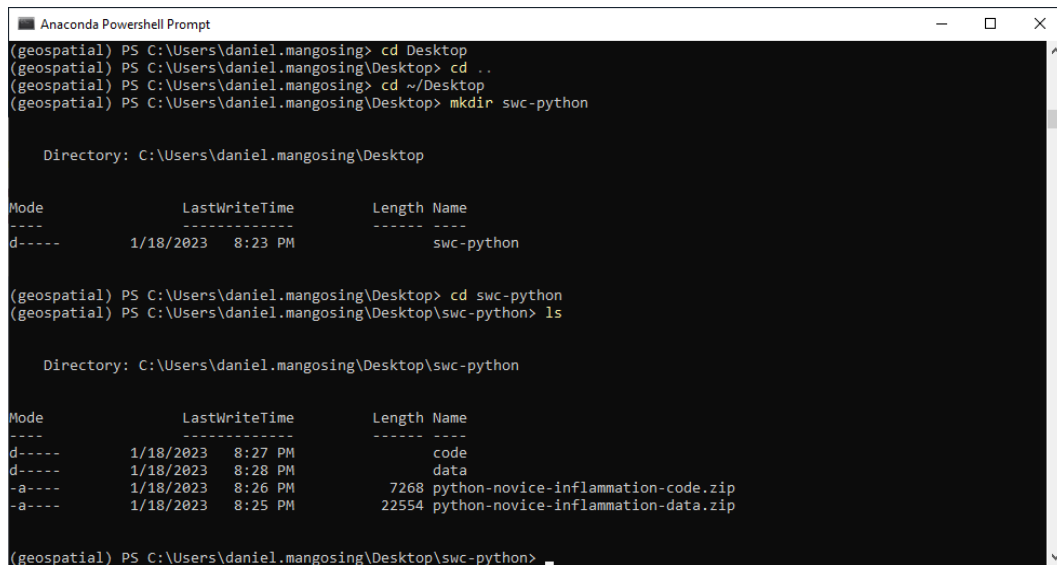
1. In the PowerShell prompt, change the directory to your Desktop by typing:
`cd ~/Desktop`
2. Download the files: [python-novice-inflammation-data.zip](https://swcarpentry.github.io/python-novice-inflammation/data/python-novice-inflammation-data.zip) and [python-novice-inflammation-code.zip](https://swcarpentry.github.io/python-novice-inflammation/code/python-novice-inflammation-code.zip):

<https://swcarpentry.github.io/python-novice-inflammation/data/python-novice-inflammation-data.zip>
<https://swcarpentry.github.io/python-novice-inflammation/code/python-novice-inflammation-code.zip>

3. Create a folder called `swc-python` on your Desktop.
4. Move downloaded files to `swc-python`.
5. Unzip the files.

You should see two folders, `data` and `code`, in the `swc-python` directory on your Desktop.

6. In the PowerShell prompt, change to the working directory by typing:
`cd swc-python`
7. In the PowerShell prompt, list directory to verify that the directory structure is correct by typing:
`ls`



```

Anaconda Powershell Prompt
(geospatial) PS C:\Users\daniel.mangosing> cd Desktop
(geospatial) PS C:\Users\daniel.mangosing\Desktop> cd ..
(geospatial) PS C:\Users\daniel.mangosing> cd ~/Desktop
(geospatial) PS C:\Users\daniel.mangosing\Desktop> mkdir swc-python

Directory: C:\Users\daniel.mangosing\Desktop

Mode                LastWriteTime         Length Name
----                -
d-----          1/18/2023   8:23 PM             swc-python

(geospatial) PS C:\Users\daniel.mangosing\Desktop> cd swc-python
(geospatial) PS C:\Users\daniel.mangosing\Desktop\swc-python> ls

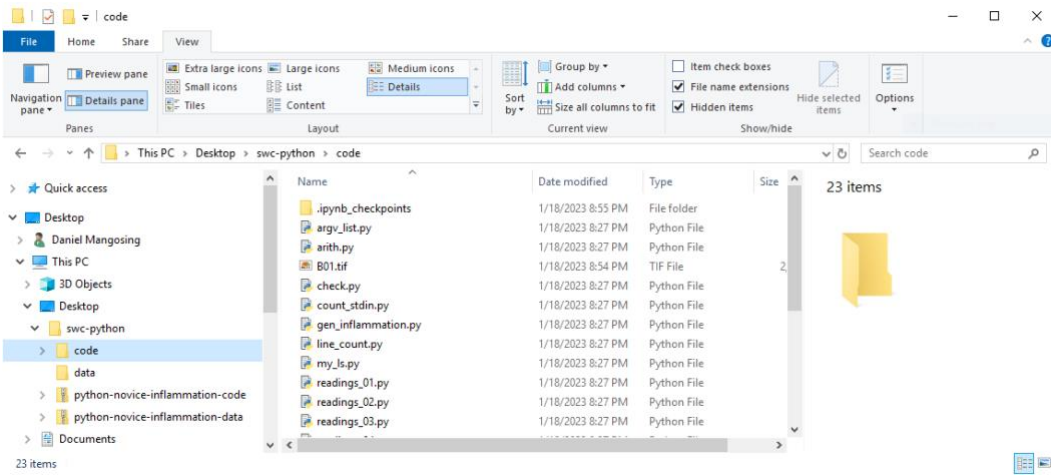
Directory: C:\Users\daniel.mangosing\Desktop\swc-python

Mode                LastWriteTime         Length Name
----                -
d-----          1/18/2023   8:27 PM             code
d-----          1/18/2023   8:28 PM             data
-a-----          1/18/2023   8:26 PM           7268 python-novice-inflammation-code.zip
-a-----          1/18/2023   8:25 PM          22554 python-novice-inflammation-data.zip

(geospatial) PS C:\Users\daniel.mangosing\Desktop\swc-python>

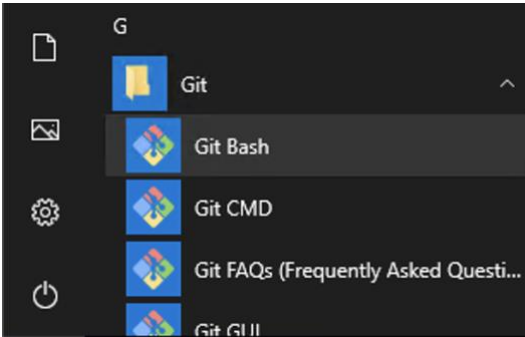
```

8. You can also verify the directory structure in the Windows Explorer window:



Installing data files for the *Introduction to Geospatial Raster and Vector Data with Python* Lesson

1. Open the Git Bash application from the Windows Start menu:



2. In the Git Bash prompt, change the directory to your Desktop by typing:
`cd ~/Desktop`
3. Create a folder called `geospatial-python` on your Desktop by typing:
`mkdir geospatial-python`
4. In the Git Bash prompt, change to the `geospatial-python` directory by typing:
`cd geospatial-python`
5. Create a folder within `geospatial-python` called `data` by typing:
`mkdir data`
6. In the Git Bash prompt, change to the `data` directory by typing:
`cd data`
7. Download the files for the lesson by typing (this should be all on one line):

```
curl -L --progress-bar -output  
brpgewaspercelen_definitief_2020_small.gpkg  
https://figshare.com/ndownloader/files/37729413 --output  
brogmwvolledigeset.zip https://figshare.com/ndownloader/files/37729416 --  
output status_vaarweg.zip https://figshare.com/ndownloader/files/37729419
```

8. Change back from the `geospatial-python` folder to the `geospatial-python` by typing:
`cd ..`
9. In the Git Bash prompt, list directory to verify that the directory structure is correct by typing:
`ls -l *`

```

MINGW64: c:/Users/daniel.mangosing/Desktop/geospatial-python
Daniel.mangosing@i-0bc80d7aa03678586 MINGW64 ~/Desktop
$ cd ~/Desktop

Daniel.mangosing@i-0bc80d7aa03678586 MINGW64 ~/Desktop
$ mkdir geospatial-python

Daniel.mangosing@i-0bc80d7aa03678586 MINGW64 ~/Desktop
$ cd geospatial-python

Daniel.mangosing@i-0bc80d7aa03678586 MINGW64 ~/Desktop/geospatial-python
$ mkdir data

Daniel.mangosing@i-0bc80d7aa03678586 MINGW64 ~/Desktop/geospatial-python
$ cd data

Daniel.mangosing@i-0bc80d7aa03678586 MINGW64 ~/Desktop/geospatial-python/data
$ curl -L --progress-bar --output brpgewaspercelen_definitief_2020_small.gpkg "https://figshare.com/ndownloader/files/37729413" --output brogmwvloedigeset.zip "https://figshare.com/ndownloader/files/37729416" --output status_vaarweg.zip "https://figshare.com/ndownloader/files/37729419"
##### 100.0%
##### 100.0%
##### 100.0%

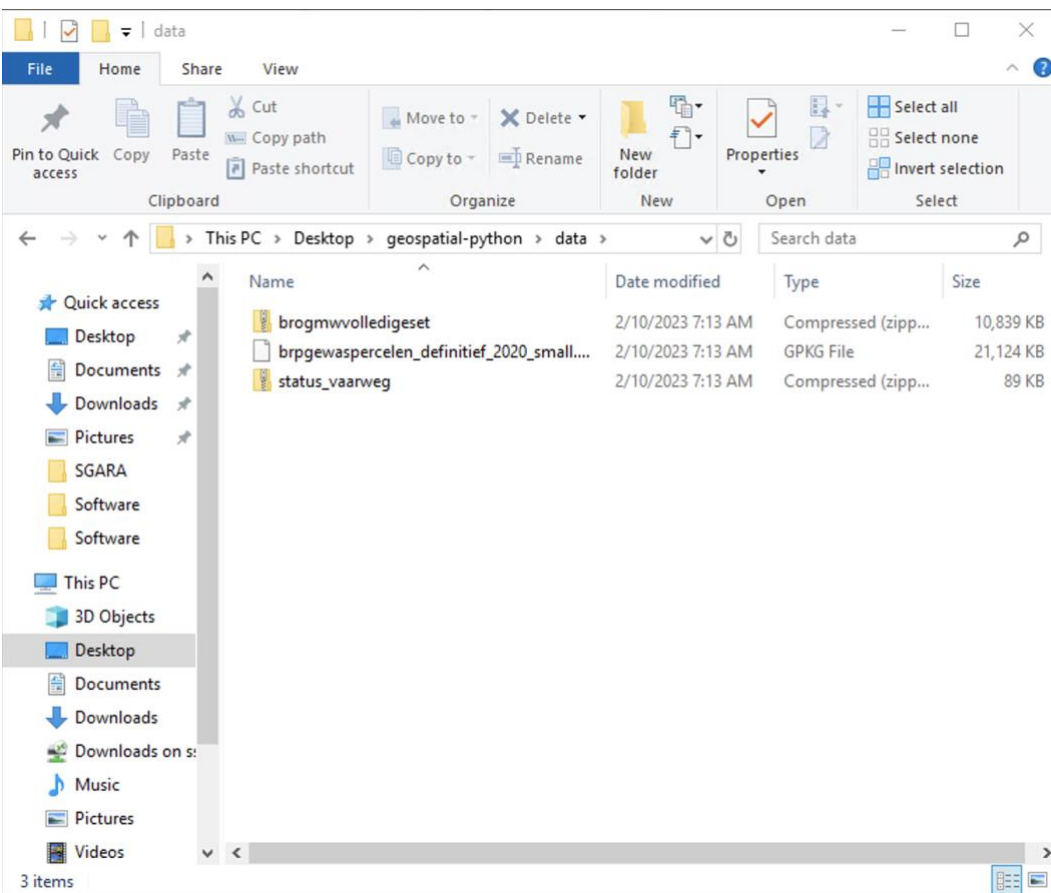
Daniel.mangosing@i-0bc80d7aa03678586 MINGW64 ~/Desktop/geospatial-python/data
$ cd ..

Daniel.mangosing@i-0bc80d7aa03678586 MINGW64 ~/Desktop/geospatial-python
$ ls -l *
total 32056
-rw-r--r-- 1 daniel.mangosing 1049089 11098875 Feb 10 07:54 brogmwvloedigeset.zip
-rw-r--r-- 1 daniel.mangosing 1049089 21630976 Feb 10 07:54 brpgewaspercelen_definitief_2020_small.gpkg
-rw-r--r-- 1 daniel.mangosing 1049089 90592 Feb 10 07:54 status_vaarweg.zip

Daniel.mangosing@i-0bc80d7aa03678586 MINGW64 ~/Desktop/geospatial-python
$ |

```

10. You can also verify the directory structure in the Windows Explorer window:



Launching the *Programming with Python* or *Introduction to Geospatial Raster and Vector Data with Python* Software Carpentry lessons

Ensure that you have downloaded the Python code and data required for each lesson.

Programming with Python

1. Refer to the section on Installing code and data files for the *Programming with Python* Lesson for installation instructions.
2. In the PowerShell prompt, change the directory to your Desktop by typing:
`cd ~/Desktop/swc-python`

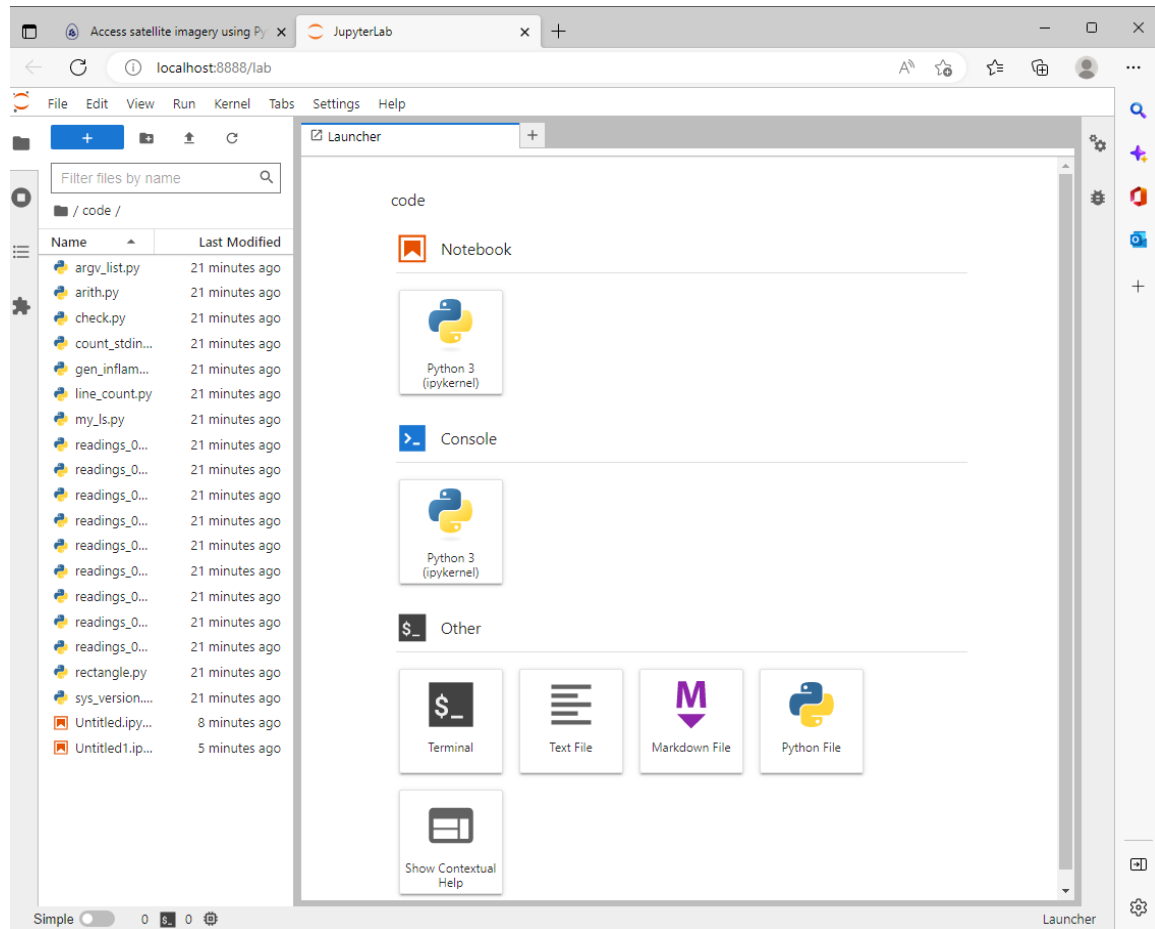
Go to Step 3.

Introduction to Geospatial Raster and Vector Data with Python

1. Refer to the section on Installing data files for the *Introduction to Geospatial Raster and Vector Data with Python* Lesson for installation instructions.
2. In the PowerShell prompt, change the directory to your Desktop by typing:
`cd ~/Desktop/geospatial-python`

Go to Step 3.

3. In the PowerShell prompt, type:
`conda activate geospatial`
4. You will be returned to the PowerShell prompt, but notice that the prompt is prepended with **(geospatial)**
5. Launch *JupyterLab* from the PowerShell prompt by typing:
`jupyter lab`
6. This will launch *JupyterLab* in a browser window:



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