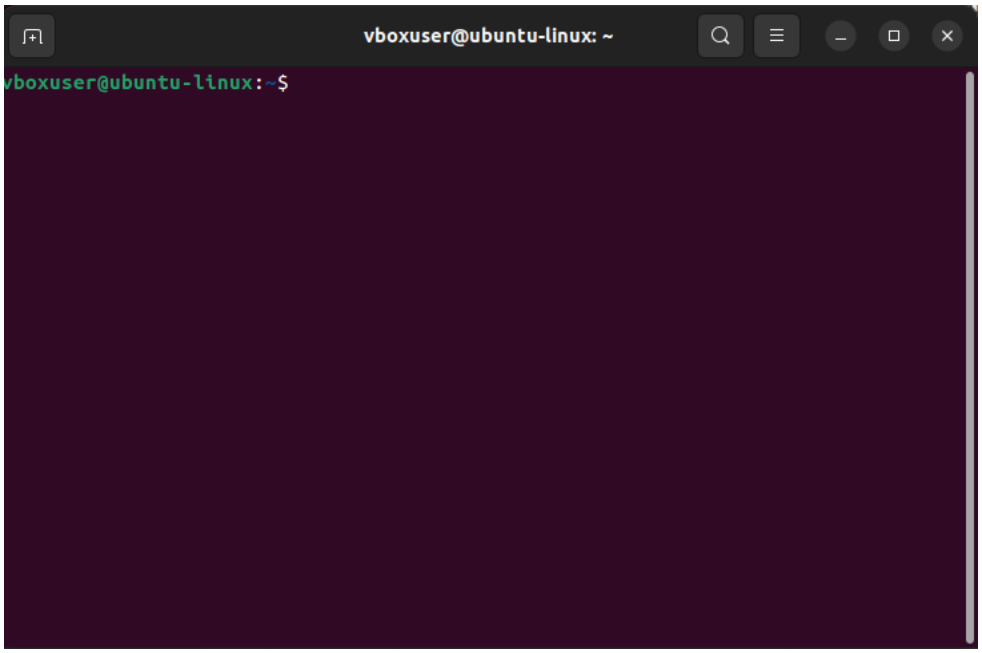
Miniconda for Ubuntu Linux Python Geospatial Installation

Miniconda Install

1. Miniconda download: https://docs.conda.io/en/latest/miniconda.html

2. Miniconda3 Linux 64-bit from the Latest Miniconda Installer Links section: https://repo.anaconda.com/miniconda/Miniconda3-latest-Linux-x86_64.sh

3. Bring up a terminal window using the shortcut, `Ctrl-Alt-T`:



4. In the terminal, change to the Downloads directory by typing:
   ```
   cd ~/Downloads
   ```

5. Run the Miniconda install script by typing:
   ```
   bash Miniconda3-latest-Linux-x86_64.sh
   ```

6. Press `ENTER` to continue.

7. Read through the license agreement and accept by typing '`yes`'

8. Press `ENTER` to confirm the location.

9. Type '`yes`' to initialize your Miniconda3 sessions by running the '`conda init`' command.

10. Close the terminal window and open a new terminal using `Ctl-Alt-T`.

11. Initialize conda by typing:

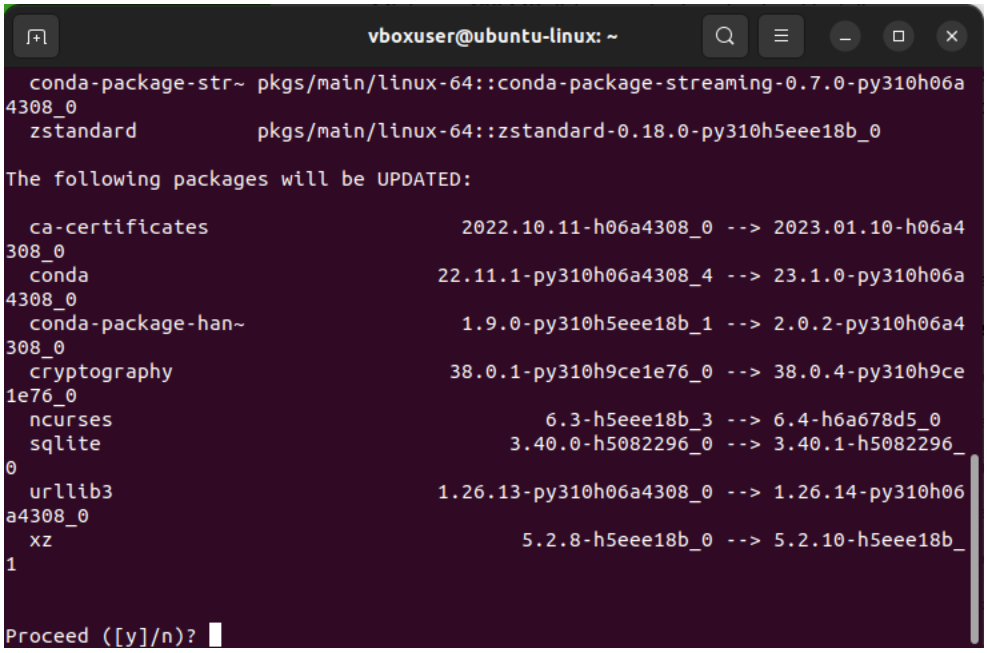
```
conda init
```

12. Notice that the terminal prompt has changed to prepended **(base)**.

Update conda

1. At the terminal prompt, type:
   ```
   conda update conda
   ```

2. The *conda update* command will identify packages for conda that need to be updated. Type '`y`' to proceed with the package updates.

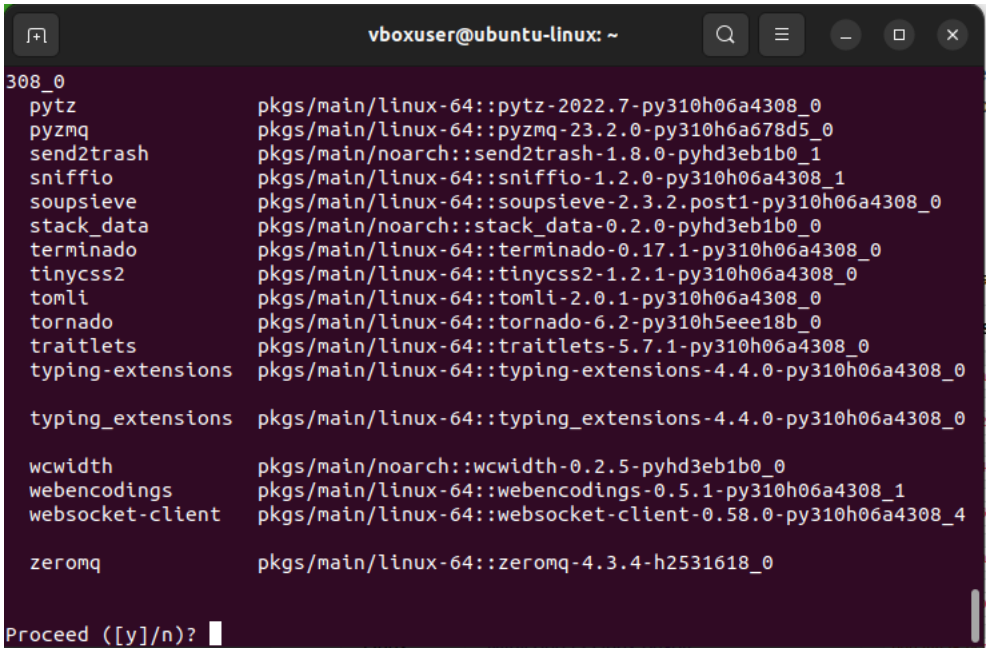


3. Type '`y`' to proceed.

Installing *JupyterLab*

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

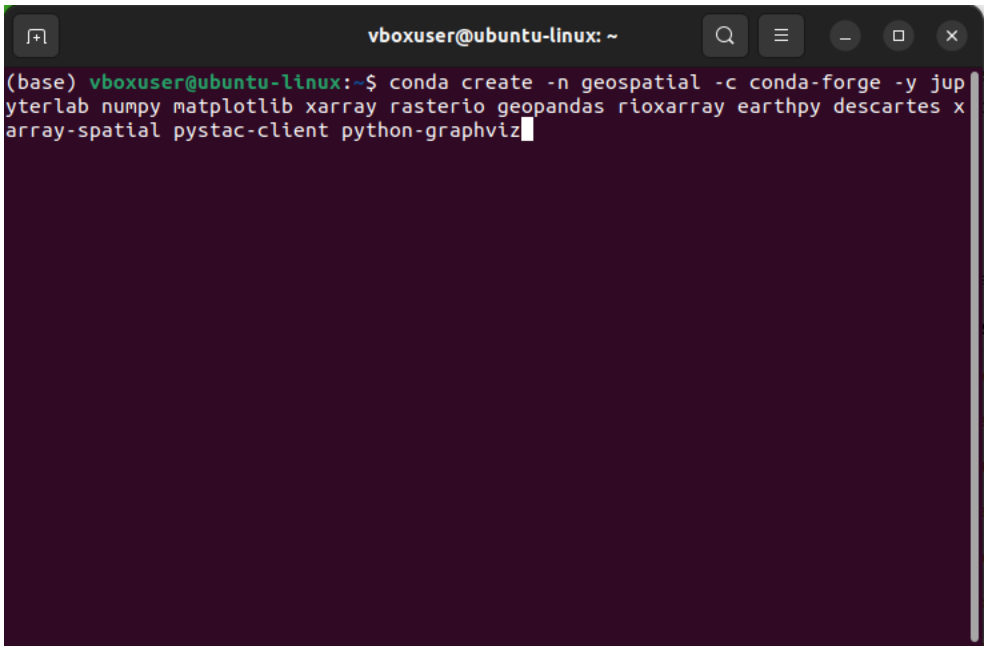
2. Type '`y`' to proceed with the *JupyterLab* installation.



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

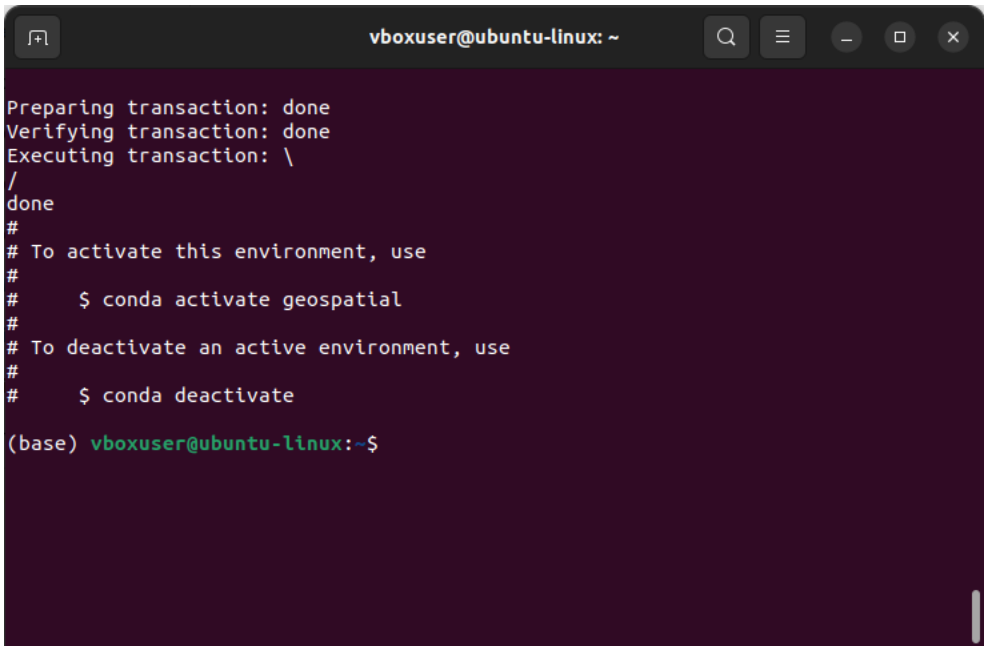
1. In the terminal prompt, type (this should be all on one line):

```
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:


vboxuser@ubuntu-linux: ~
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) vboxuser@ubuntu-linux:~$

Activating the *geospatial* environment and launching *JupyterLab*

1. In the Terminal prompt, type:
   ```
   conda activate geospatial
   ```

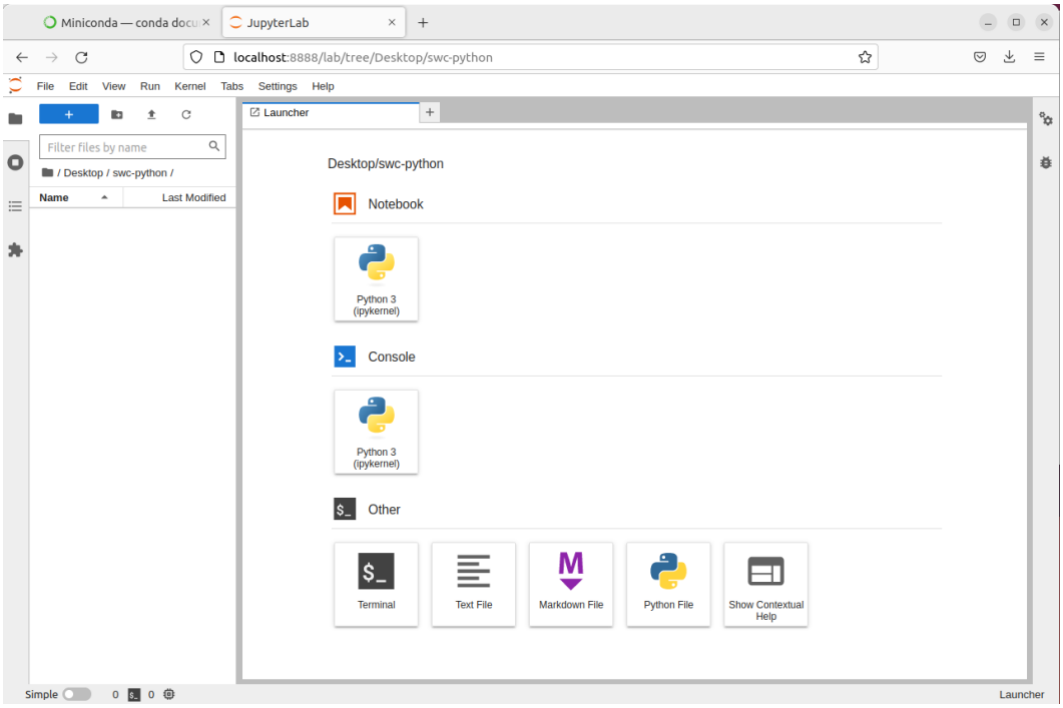
2. You will be returned to the Terminal prompt, but notice that the prompt is prepended with **`(geospatial)`**

3. Create the configuration file from the terminal by typing:
   ```
   jupyter notebook -generate-config
   ```

4. Edit the configuration file `~/.jupyter/jupyter_notebook_config.py` and set:
   ```
   c.NotebookApp.use_redirect_file = False
   ```

5. Launch *JupyterLab* from the Terminal prompt by typing:
   ```
   jupyter lab
   ```

6. This will launch *JupyterLab* in a browser window:



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

8. 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 Terminal prompt, change the directory to your Desktop by typing:
   ```
   cd ~/Desktop
   ```

2. Download `python-novice-inflammation-data.zip` and `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.

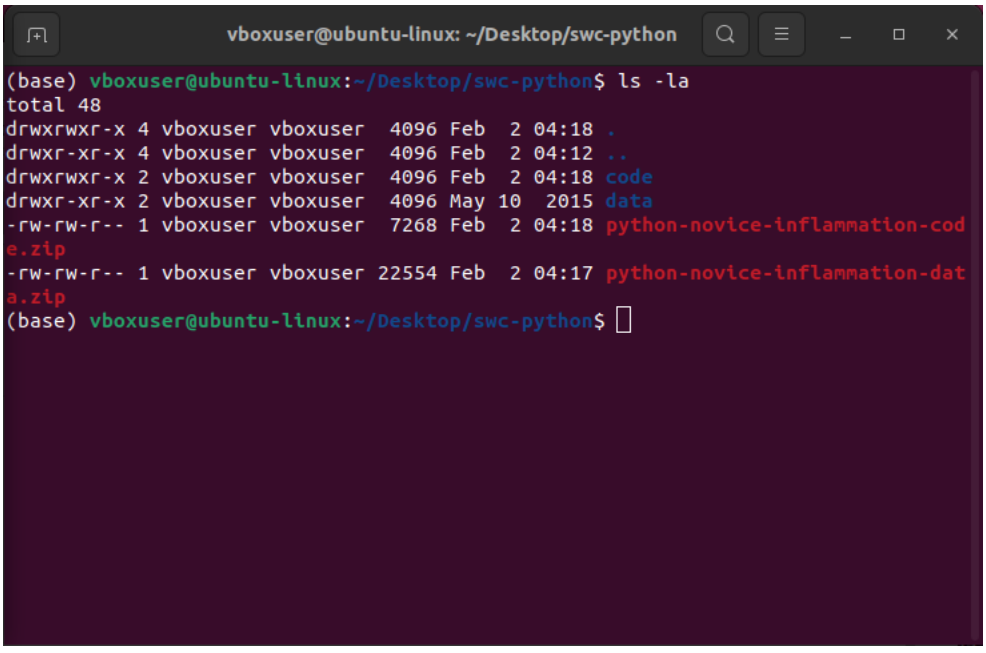
4. Move downloaded files to `swc-python`.

Unzip the files.

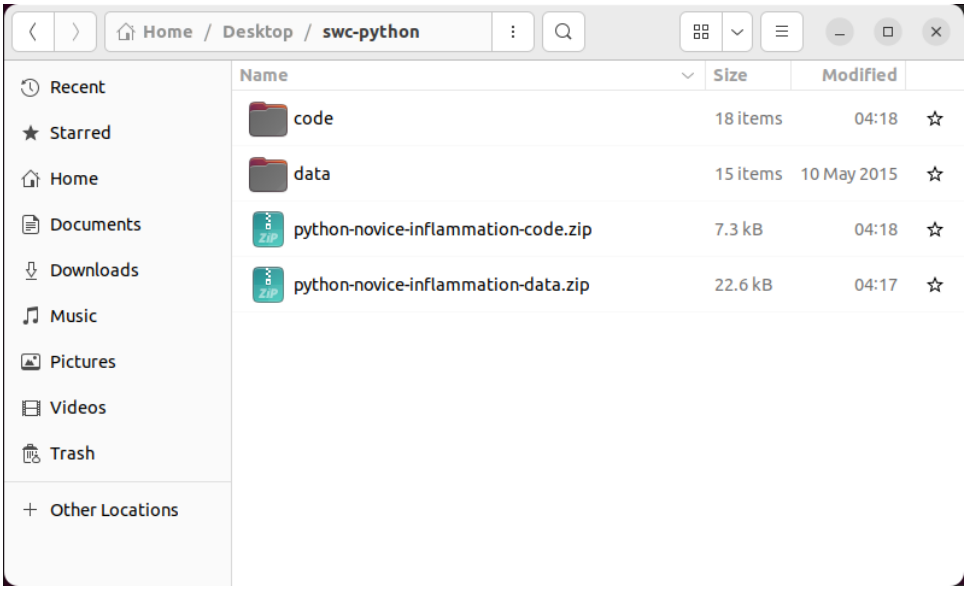
You should see two folders, `data` and `code`, in the `swc-python` directory on your Desktop.

5. In the Terminal prompt, change to the working directory by typing:
   ```
   cd swc-python
   ```

6. In the Terminal prompt. list directory to verify directory structure is correct by typing:
   ```
   ls
   ```



7. You can also verify the directory structure in an Ubuntu Files window:



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

1. Ensure that you have downloaded the Python code and data required for this lesson. Refer to the section on **Installing code and data files for the *Programming with Python* Lesson** for installation instructions.

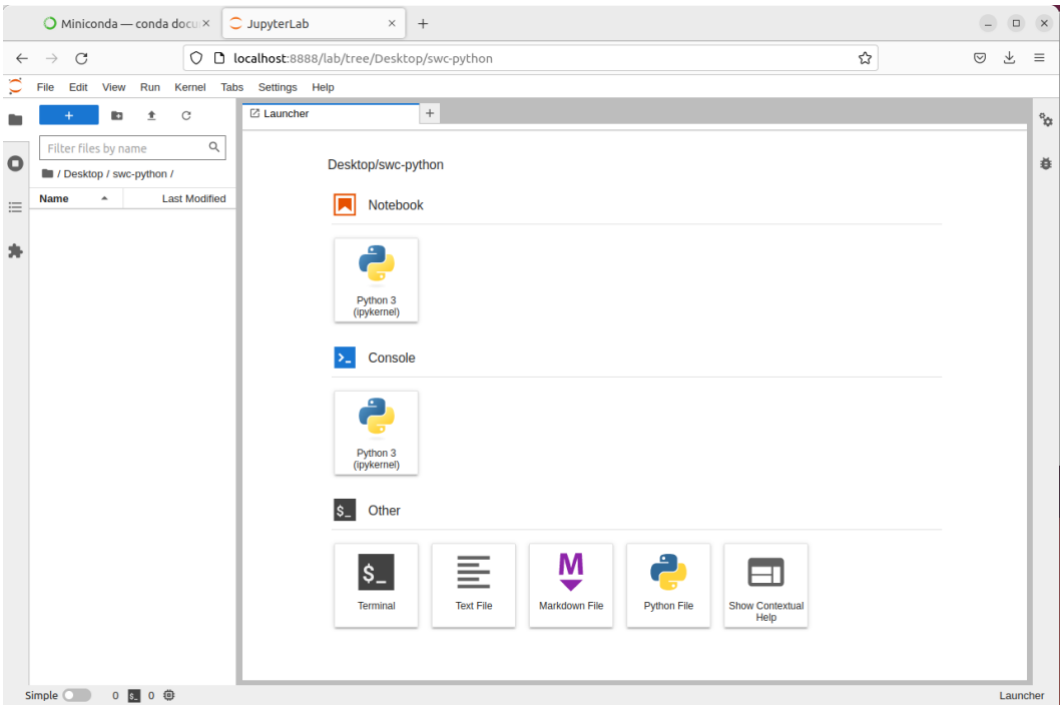
2. In the Terminal prompt, change the directory to your Desktop by typing:
```
cd ~/Desktop/swc-python
```

3. In the Terminal prompt, type:
```
conda activate geospatial
```

4. You will be returned to the Terminal prompt, but notice that the prompt is prepended with **`(geospatial)`**

5. Launch *JupyterLab* from the Terminal prompt by typing:
```
jupyter lab
```

6. This will launch *JupyterLab* in a browser window:



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

8. You are now ready to proceed with the Programming with Python or Introduction to Geospatial Raster and Vector Data with Python Software Carpentry Lessons.