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# Configure Python to SNAP

We use Anaconda3 Python environment to configure with SNAP installation.
**User Guide:**

- First install SNAP (no python path configuration is required at this time) downloaded from ESA repository. We used SNAP 64 bit version for Windows Operation system. General SNAP installation directory is `C:\Program Files\snap`
- Install Anaconda3 in `C:\Anaconda3` directory:
  https://repo.anaconda.com/archive/Anaconda3-5.2.0-Windows-x86_64.exe

  It should be 64 bit and Python3.6 supported. *Don't install Anaconda in default directory.*

**Setup development environment for SNAP**

1. Open Anaconda Command prompt with Administrator
2. Add Community package management system

```
conda config --prepend channels conda-forge
```

3. Create a new anaconda environment. We are using Python 3.6 for this example.

```
conda create -n snappy36 python=3.6
conda activate snappy36
```

where `snappy36` is the name of the environment, and the python version is 3.6. Then we activate the environment by using its name `snappy36`. This will create a new environment inside the Anaconda directory as `C:\Anaconda3\envs\snappy36`

4. Next, cd into the SNAP installation directory. Then run the following command.

```
>> cd C:\Program Files\snap\bin
>> snappy-conf C:\Anaconda3\envs\snappy36\python.exe
C:\Anaconda3\envs\snappy36\Lib
```

Here `C:\Anaconda3\envs\snappy36\python.exe` is the virtual environment python executable, and `C:\Anaconda3\envs\snappy36\Lib` is the directory where snappy will be installed.

5. Installing additional packages in the current Anaconda `snappy36` environment. It may include `numpy`, `scikit-learn` which are commonly used in model developments and image processing. (Must have opened Anaconda cmd with admin privileges)

```
>> conda activate snappy36
>> conda install numpy
>> conda install scikit-learn
```

6. Now close Anaconda command prompt.

7. Now, we are ready to do the development with snappy. To confirm that everything is working correctly,

   First open Anaconda cmd (no Admin privileges are required)

```
>> conda activate snappy36
>> cd to snappy directory
(C:\Anaconda3\envs\snappy36\Lib\snappy)
>> python
>> import snappy
```

**Resources:**

1. https://senbox.atlassian.net/wiki/spaces/SNAP/pages/19300362/How+to+use+the+SNAP+API+from+Python
2. SNAP Anaconda Installation or configure: https://thegeoict.com/blog/2019/08/21/setup-development-environment-for-snap/