I’ve had a difficult time getting all of the Sentinel SAR software to work together in Windows on my 2019 Dell laptop. Here are some notes and known issues:

SNAP – This is the program for opening and manipulating the Sentinel SAR data. The program can be run in a graphical user interface or through a python extension called snappy (AKA snap-python)

* Do not confuse this with the other python package called snappy – don’t call pip install snappy – it will install a different program. Snappy must be set up as shown on the SNAP documentation **except** *$ cd <snappy-dir>/snappy $ <python-exe> setup.py install* must be run before you try to run the test files. I can’t get it to work the other way.
* **Snappy documentation states that it is only compatible with python 2.7, 3.3, and 3.4.** This is stated in the documentation for SNAP-python. In the ESA STEP forum, one person has stated that they were able to get this to run with python 3.6 – I briefly tried this but with no luck. Comments in the STEP forum indicate that Snappy for python 3.7 will be released eventually (comments are about a year old).

pyroSAR – This is a third party python package for manipulating the SAR data in python. It has some functions above and beyond snappy

GDAL – this is a third party package for working with geographic data

I installed various versions of python by using the Anaconda repository of previous releases. I uninstalled and re-installed different versions of python until something worked. This may not be the most efficient way to do so but it worked for me.

<https://repo.anaconda.com/archive/>

I tried setting up virtual environments in python using conda. **Conda in Anaconda 2019 only supports virtual environments in Python 2.7 and 3.5+.**

**Attempted builds**

**Python 3.7** – GDAL and pyroSAR were successfully added to python. Snappy would not configure – the error looked much like figure 1 (EXAMPLE, NOT MY CODE). The log file called in the last line of the error message says this:

*INFO: Installing from Java module 'C:\Users\Admin\AppData\Roaming\SNAP\modules\org-esa-snap-snap-python.jar'*

*INFO: Installing jpy...*

*ERROR: Traceback (most recent call last):*

*File ".\snappyutil.py", line 280, in \_main*

*force=args.force)*

*File ".\snappyutil.py", line 154, in \_configure\_snappy*

*" $ cd jpy"*

*AttributeError: 'list' object has no attribute 'join'*

I searched this error and wasn’t able to correct it. Jpy is java-python bridge - I installed JDK and JRE and set up the environment variables for JDK\_HOME and JRE\_HOME and reset the computer and still had the same error.

**Python 3.6** – same errors as 3.7

**Python 3.5.1** – snappy and pyroSAR can be installed but GDAL doesn’t recognize it as a compatible version through simple installation. GDAL was manually installed through the whl from the Gohlke website below. There was an issue with numpy, so I downloaded a numpy whl file from the Gohlke

*PermissionError: [Errno 13] Permission denied: 'C:\\Anaconda3\\Lib\\site-packages\\numpy\\linalg\\lapack\_lite.cp35-win\_amd64.pyd'*

**Python 3.4** – This version of python is no longer supported as of 2019. pyroSAR and GDAL won’t download with this setup – required python 3.5 or later. The whl file downloaded from the website wasn’t recognized as a compatible version even though it was for python 3.4.

(pip install pyroSAR and GDAL from Christoph Gohlke whl file)

<https://www.lfd.uci.edu/~gohlke/pythonlibs/#gdal>

**Python 3.3** – This version of python is no longer supported as of 2019. I couldn’t find a version of Anaconda with python 3.3

**Python 2.7** – This version of python is no longer supported as of Jan 2020. pyroSAR downloads with warnings. GDAL does not download with the command *conda install -c conda-forge gdal*. This command was used for other versions of python. Can we use a different GDAL install method?

Other errors – prompt-toolkit 2.x.x causes jupyter notebook to crash. Revert to old version by

*pip install prompt-toolkit==1.0.18* or other version

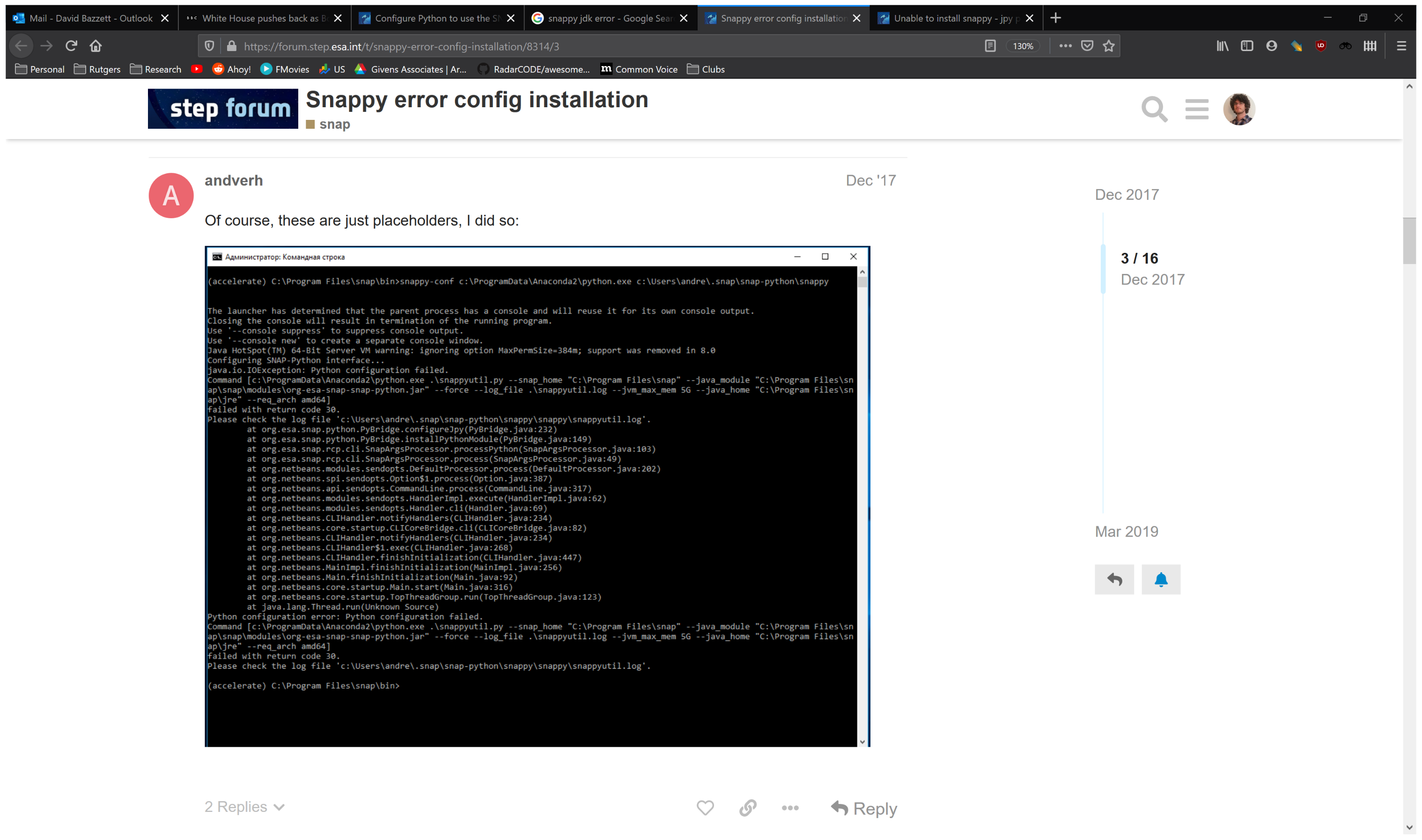
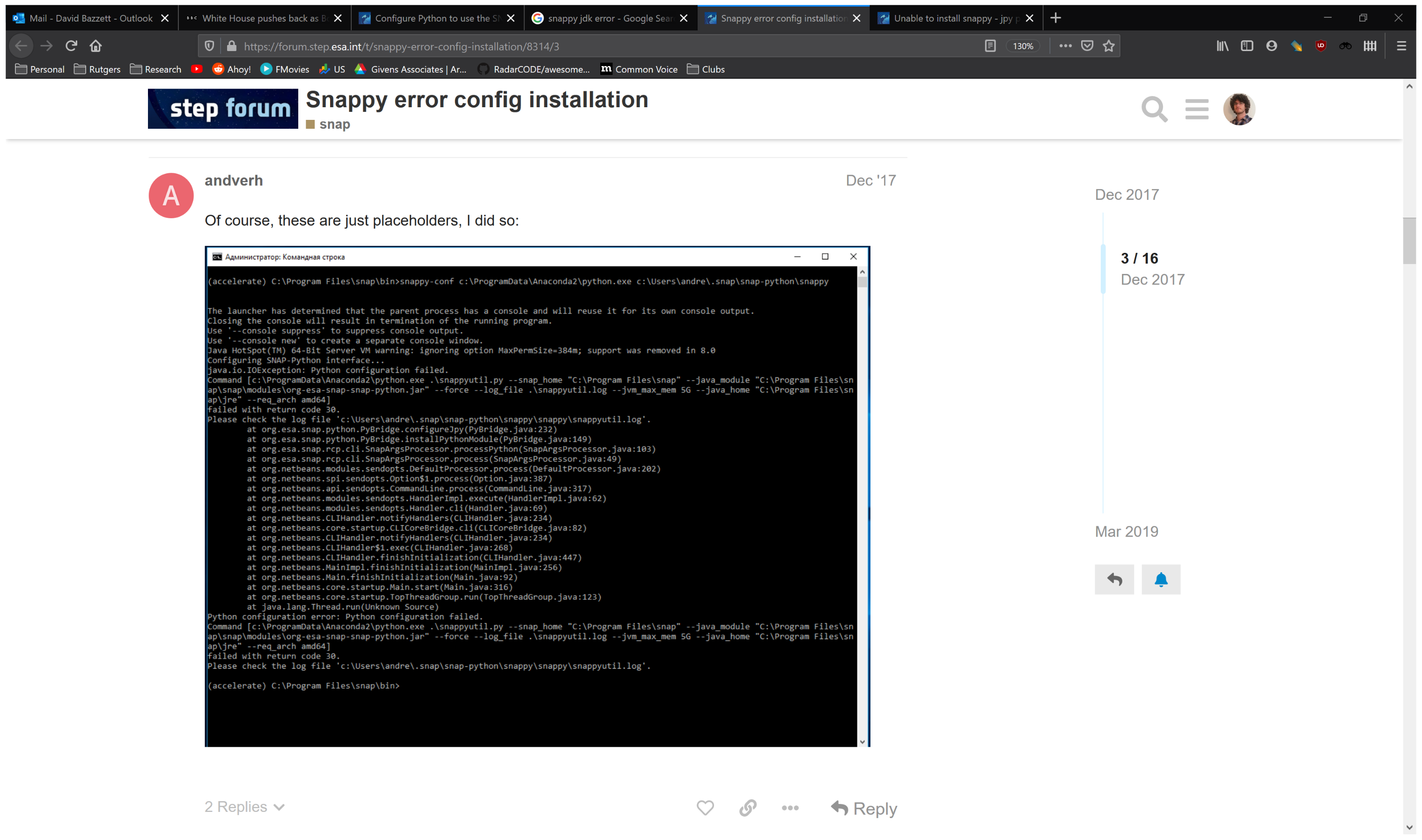


Figure : Example error when configuring snappy for python 3.6 and 3.7