Instructions to setup and run the haddock detector

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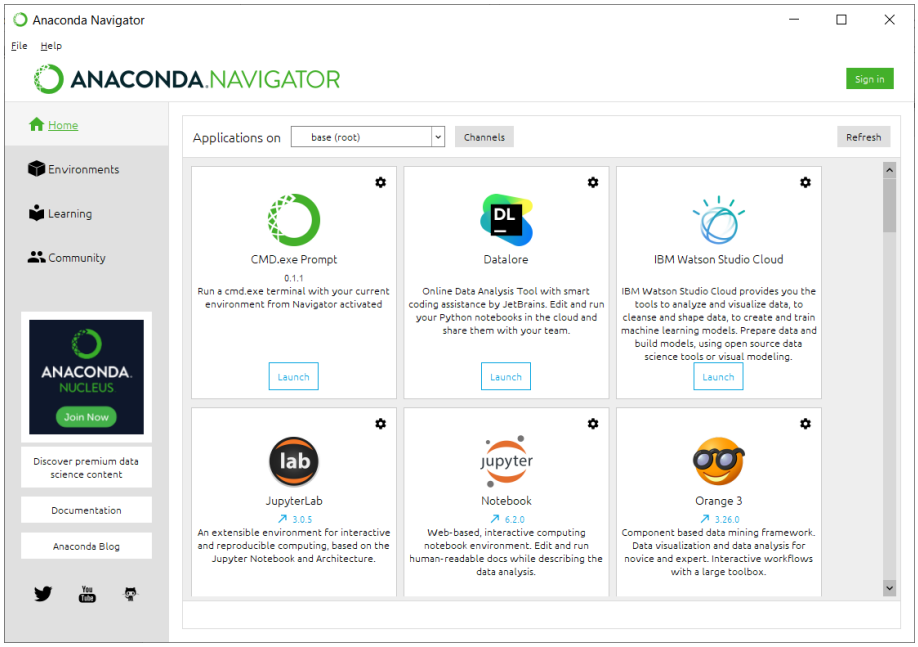
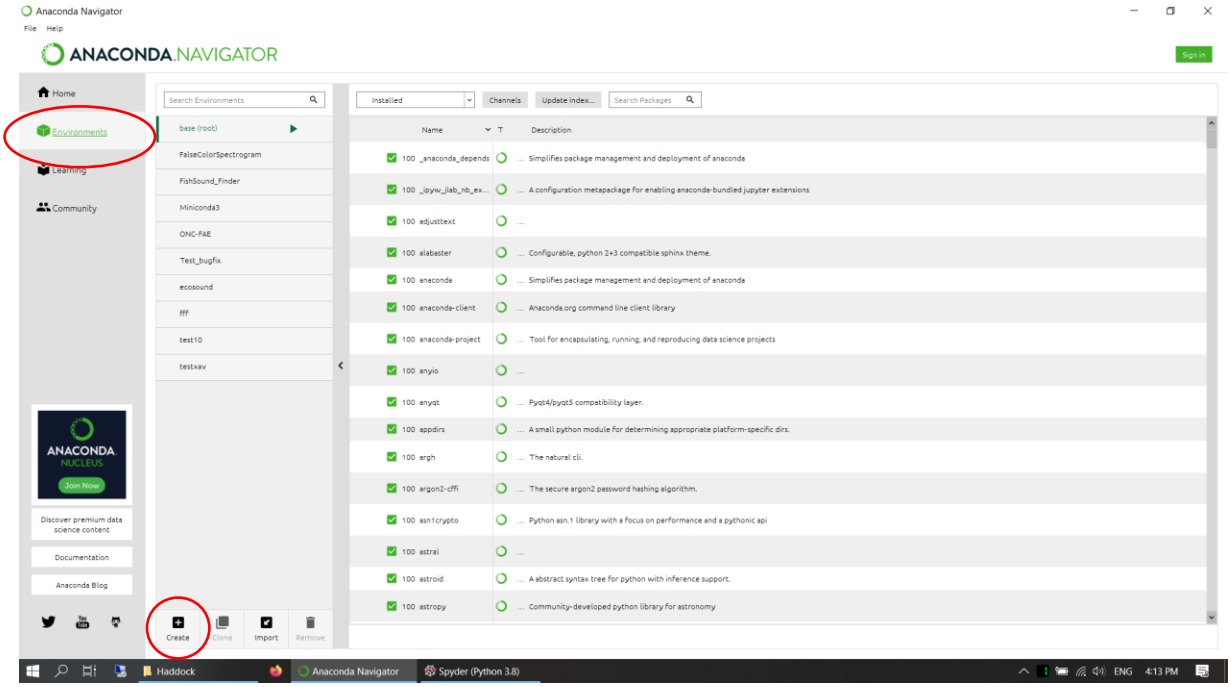
1. Download the folder “Haddock” on DropBox: https://www.dropbox.com/sh/zerx7tqh5gupq52/AACMf7WLitgowHHWV3ILJRvka?dl=0

2. Download and install Anaconda: https://www.anaconda.com/products/individual

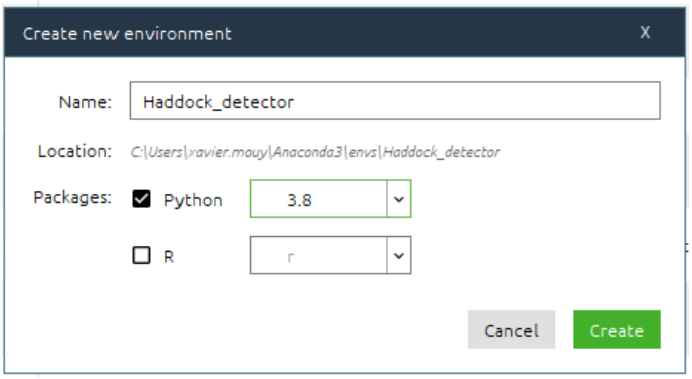
3. Launch Anaconda Navigator



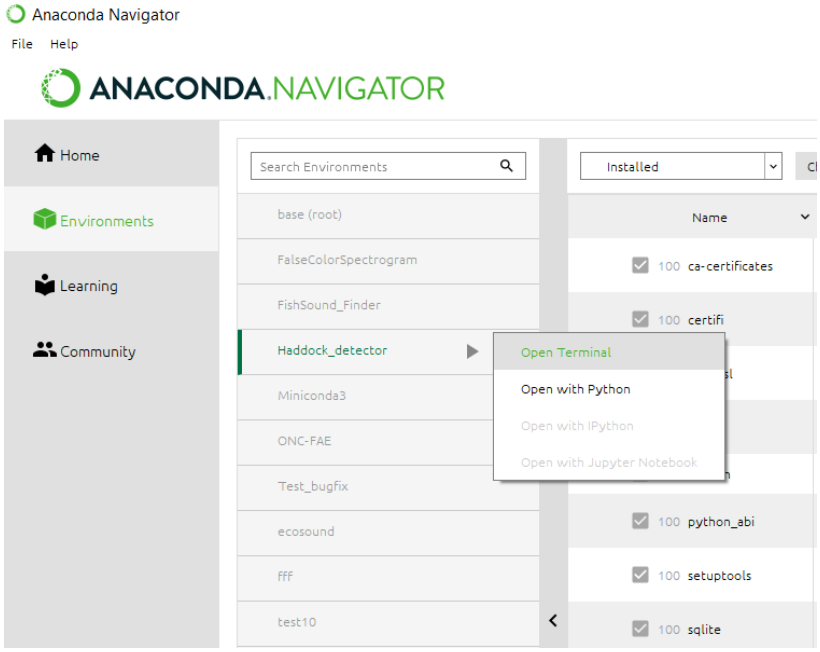
4. Click the Tab “Environments” on the left and click the “create” button at the bottom.



5. Create a new environment with Python 3.8



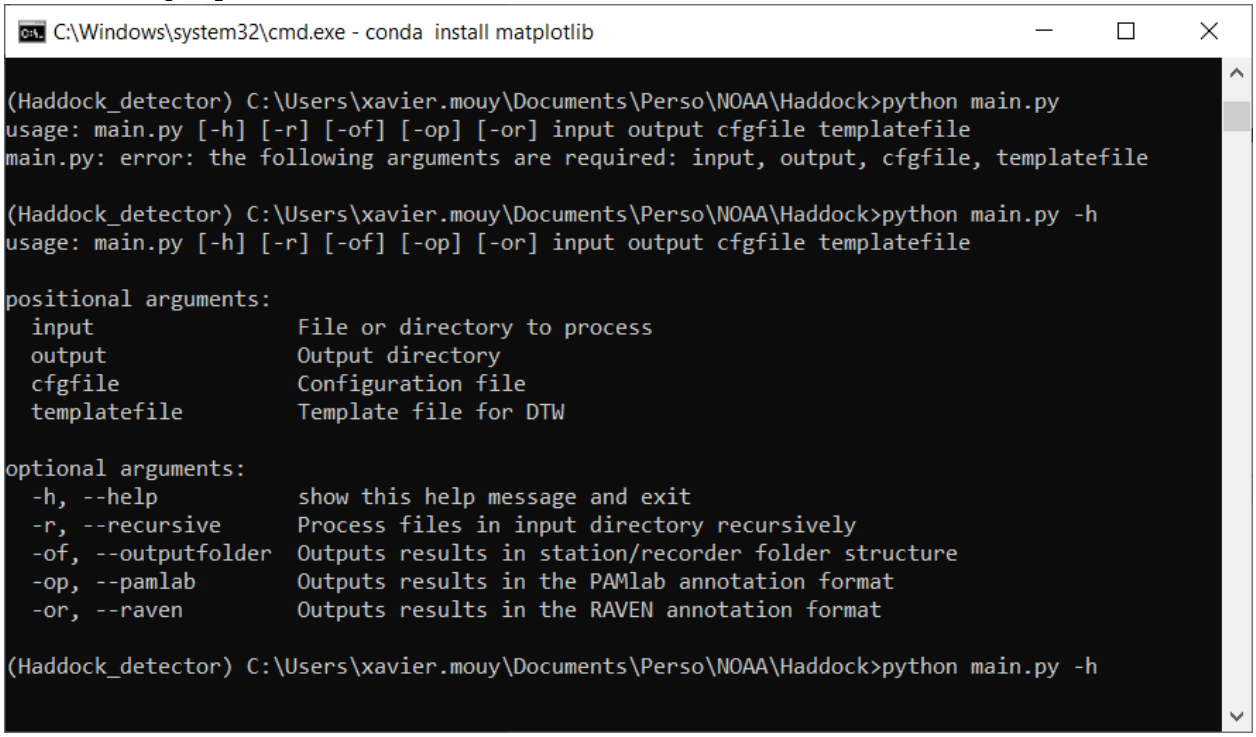
6. Once the new environment is created (it can take several minutes), click on the green triangle at the right of the new environment and select “Open Terminal”.



7. In the terminal type these command lines to install all the dependencies (one at a time):
   - pip install fastdtw
   - pip install soundfile
   - pip install matplotlib
   - pip install scipy
   - pip install pandas
   - pip install numba

8. In the terminal, change the current directory to the location of the “Haddock” folder (see step 1) using the **cd** command, eg.:
   cd C:\Users\xavier.mouy\Documents\Perso\NOAA\Haddock

9. In the terminal, type **python main.py -h**. If everything works well, it should display the instructions to run the detector:



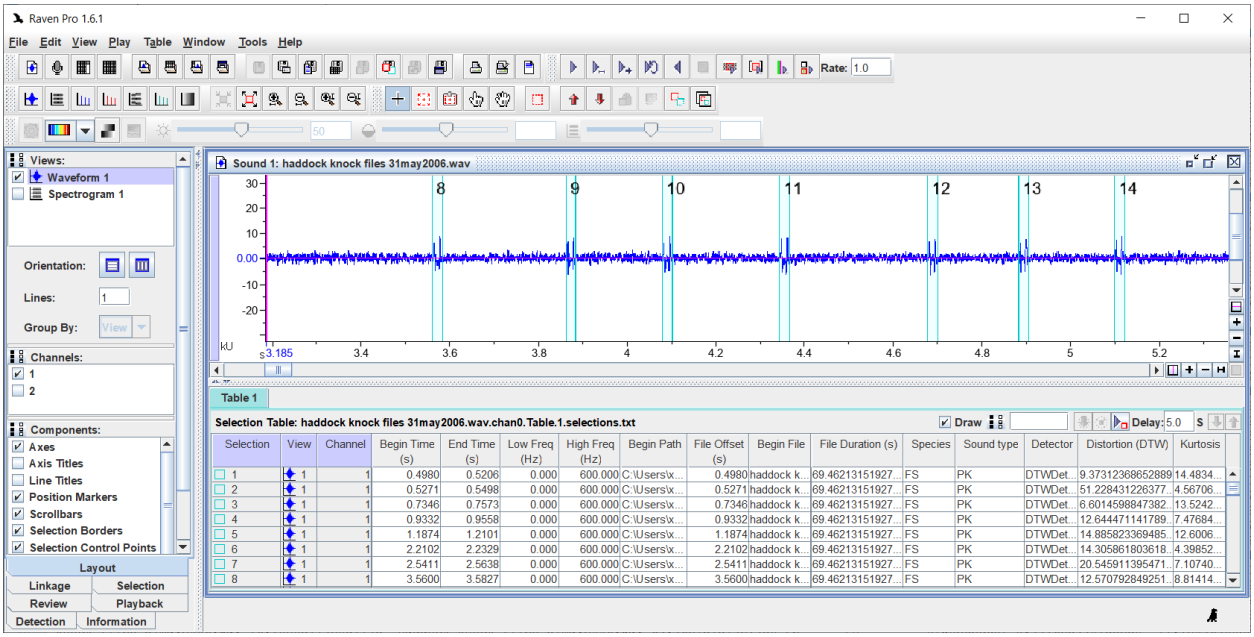
10. Run the detector by typing in the terminal **python main.py** followed by the following arguments (in that order:
    a. The input folder were the audio data are
    b. the output folder were the results will be written
    c. the path of the configuration file
    d. the path of the template file
    e. –raven

    Each argument should be between double quotes and separated by a single space. The configuration file is in the config.ini file in the config folder (see step 1). The template file is the template_2006.csvfile in the config folder (see step 1). If you need to process data that are located in several nested subfolders you can add the **–recursive** and **–outputfolder** arguments at the end. The latter will recreate the folder structure when writing the detections files.

    Example:
    python main.py "C:\Users\xavier.mouy\Documents\Perso\NOAA\Haddock\data" "C:\Users\xavier.mouy\Documents\Perso\NOAA\Haddock\results" "C:\Users\xavier.mouy\Documents\Perso\NOAA\Haddock\config\config.ini" "C:\Users\xavier.mouy\Documents\Perso\NOAA\Haddock\config\template_2006.csv" --raven

    Note that the detector can run on only one channel at the time. So, if you want to process several channels, you will need to rerun the detector for each channel. The channel to process can be changed in the config.ini file (config folder).

11. The detection results are written as txt files that can be imported in Raven as annotation tables.



If there are too many false alarms to review manually, it is possible to filter the detections using the "Distortion (DTW)" and "Kurtosis" fields. True positives are more likely to have a large kurtosis value and a small DTW distortion (typically < 20).

12. I included a short recording with haddock sounds in the data folder (see step 1).