Windows

CLOx Preprocessing is a Python-based command line program designed to convert audio files to be used with CLOx. The program takes a wav file of arbitrary length, converts it to mono (if necessary), downsamples it to 16 kHz. If the file is larger than 10 MB, it breaks it into shorter files using silence detection to prevent interruptions of speech events. The output files append the start time in milliseconds as required by CLOx.

Installation

CLOx Preprocessing requires Python 3 as well as numpy and scipy installed on the system. It has been tested on Windows 10, 8.1, and 8, using Python 3.5.4, numpy 1.15.1, and scipy 1.1.0; other versions of Windows, Python, numpy, or scipy are not supported, but may function properly. It is also recommended that the system have at least 4 Gbs of RAM.

If the above conditions are already met, simply use the script as in the how-to section.

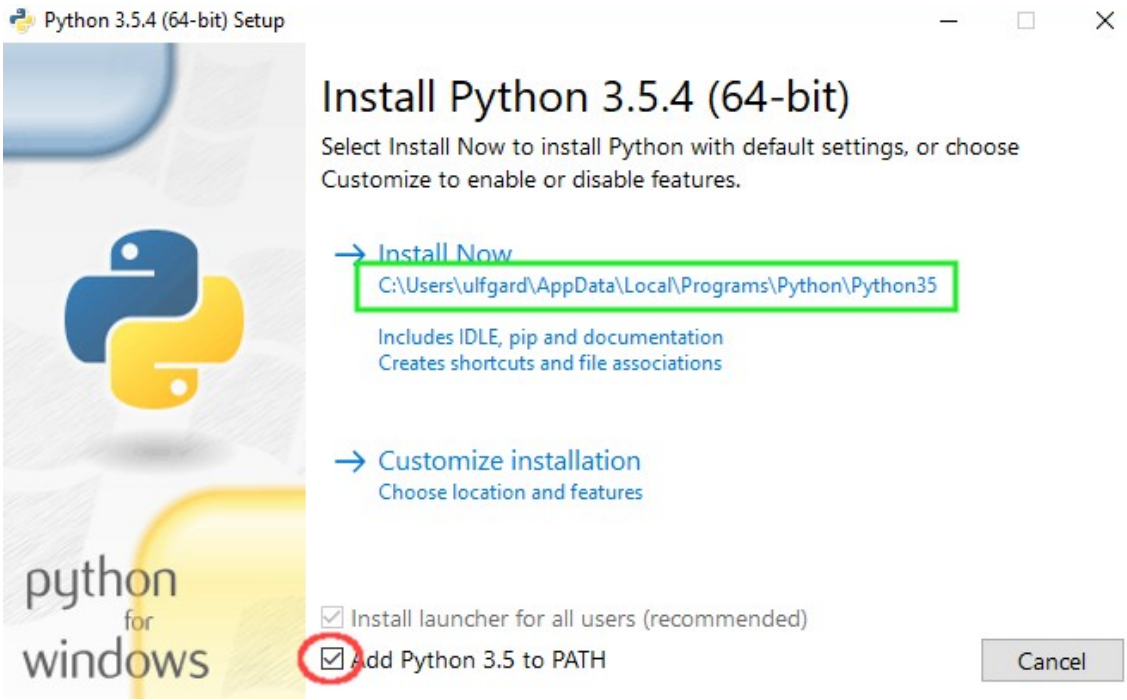
In order to use the installation script, the sole prerequisite is administrator access so that Python and the required packages can be installed. Follow the steps below.

1. Open the zip file. For this guide, it is assumed that CLOx Preprocessing will be located in the Documents folder.

   a) Unzip the file.

   b) Move the CLOx-preprocessing folder to the Documents folder.

2. Install Python 3.5.4.



a) If there is another version of Python on your system, write down the path in the Install Now selection box (outlined in green in the figure above); this is the path used in step 5 below. It should look like this (replace your_account_name with the user name of the account on your system):

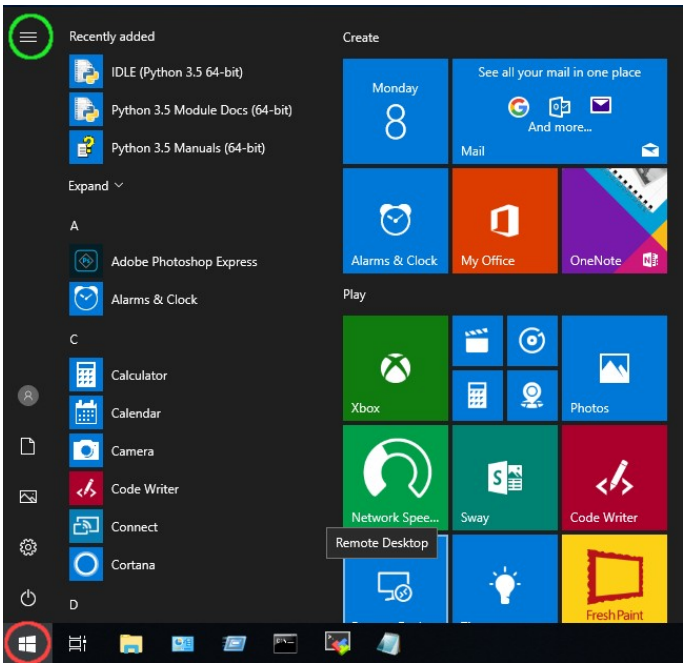
```
C:\Users\<your_account_name>\AppData\Local\Programs\Python\Python35
```

b) If there is no other version of Python on the system, it is recommended that you check the Select the Add Python 3.5 to Path box (circled in red in the figure above).

3. Open a command prompt.

a) Windows 10:

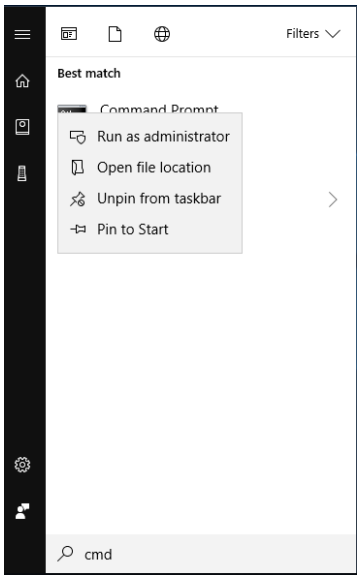
i. Select the Start button (the red circle in the figure below).



ii. Click the select button (the green circle in the figure above).

iii. Type **`cmd`**.

iv. Right click on Command Prompt, select Run as Administrator (see the figure below).

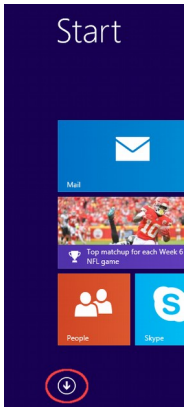


v. Select Yes when prompted.

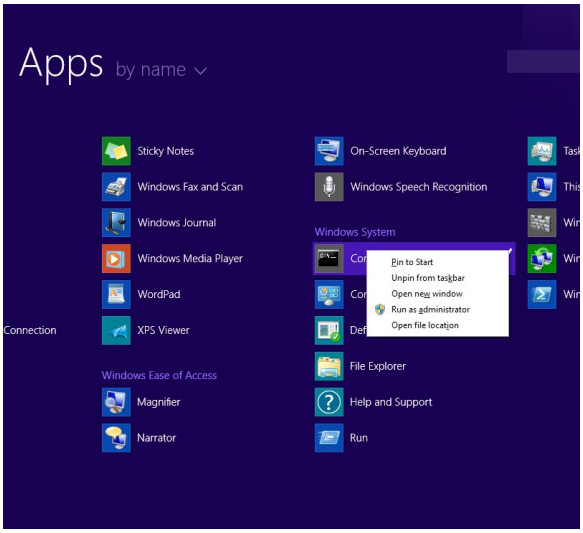
b) Windows 8 & 8.1:

i. Go to the apps screen by clicking the windows icon at the bottom left of the desktop (see figure below).

ii. Swipe up on a touch screen, or click on the windows icon at the bottom of the screen with a mouse (see figure below).



iii. Swipe or scroll to the right and locate the Windows System heading (see figure below).

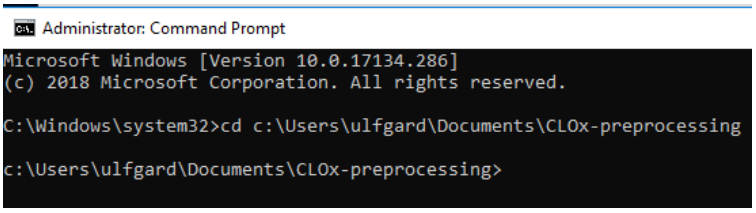


iv. Under Windows System, right click Run as Administrator (see figure above).

v. Select Yes when prompted.

4. Change your current directory from **`c:\Windows\system32`** to CLOx-preprocessing (see the figure below). If the recommended settings are in place, enter the following command (replace your_account_name with the user name of the account on your system):

```
cd c:\Users\<your_account_name>\CLOx-preprocessing
```



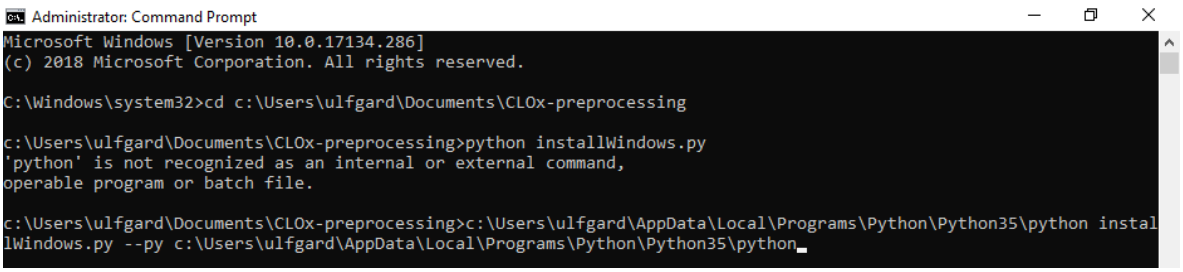
5. Run the installation script.

a) If you checked the Select the Add Python 3.5 to Path box, use the following command:

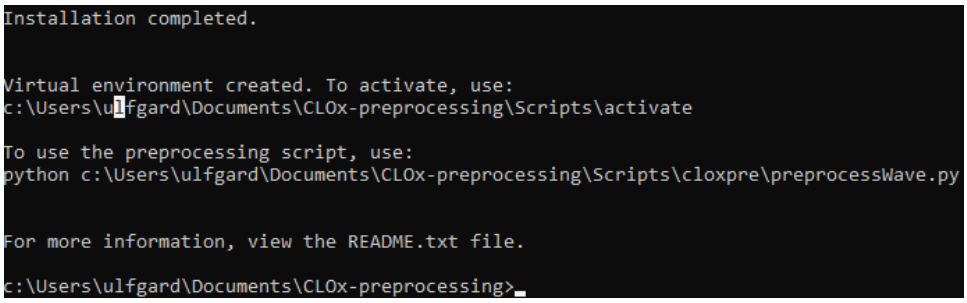
```
python installWindows.py
```

b) If you did not check the box, use the path from step 2(a) above for the following command (all on one line):

```
C:\Users\<your_account_name>\AppData\Local\Programs\Python\Python35\python
installWindows.py --py C:\Users\<your_account_name>\AppData\Local\Programs
\Python35\python
```



6. CLOx Preprocessing should be ready to run. The README.txt file provides a quick, cut-and paste how-to guide. For more information, see below.



Using CLOx Preprocessing

Use of the program requires no special privileges. It makes use of command line arguments through a command prompt window. The following guide explains how to use the program.

1. Open a command prompt window. This is done as above, except the “Run as administrator” option is not selected.

   a) Windows 10:

      i. Select the Start button.

      ii. Click Command Prompt from the list.

      iii. Type **`cmd`**.

      iv. Click on Command Prompt.

   b) Windows 8 & 8.1:

      i. Go to the apps screen (the windows icon at the bottom right of the desktop).

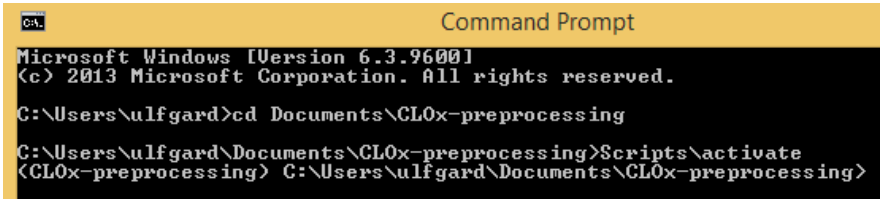
      ii. Swipe up on a touch screen, or click on the windows icon at the bottom of the screen with a mouse.

      iii. Swipe or scroll to the right and locate the Windows System heading.

iv. Click on Command Prompt.

2. Change directory. Change the directory in order to reduce the length of commands. The recommended directory is **`Documents\CLOx-preprocessing`**. Use the following command (see figure below):

```
cd Documents\CLOx-preprocessing
```



3. Activate the virtual environment.

   a) If the recommended installation configuration was used, enter (see figure above):

   ```
   Scripts\activate
   ```

   b) The README.txt file, generated during the installation, contains the full command to activate the virtual environment if it is different than the above.

   c) To deactivate the virtual environment, enter deactivate or close the Command Prompt.

4. Run the script. For the purposes of this guide, the test file is located in **`Documents\datafiles`**, and the directory for output files is **`Documents\outputfiles`**.

   a) If the recommended installation configuration was used, the command is (all on one line):

   ```
   python Scripts\cloxPre\preprocessWave.py <filename>
   ```

      i. The <filename> must be the full path to the file to be preprocessed. E.g., **`c:\Users\<your_account_name>\Documents\datafiles\<filename>`** (this must be a wave file), hence full command would be (all on one line):

```
python Scripts\cloxPre\preprocessWave.py c:\Users\<your_account_name>\Documents\datafiles\<filename>.wav
```

```
(CLOx-preprocessing) C:\Users\ulfgard\Documents\CLOx-preprocessing>python Scripts\cloxPre\preprocessWave.py C:\User
s\ulfgard\Documents\datafiles\TestFile.wav
fileName: C:\Users\ulfgard\Documents\datafiles\TestFile.wav
sampleRate: 16000
pThresh: 0.2
noiseThresh: 10
outputDir: None
Operating System:  Windows
Wave file already mono; downsampling.
type converted: <class 'bytes'>
Down-sample to 16000 and mono conversion complete.
Median Amp: 210.0
Threshold Amp: 42
nFrames: 124272501
C:\Users\ulfgard\Documents\datafiles\TestFile_m_16000
fOut0: C:\Users\ulfgard\Documents\datafiles\TestFile_m_16000

Processing 1 of a maximum of 26 segments.

Processing 2 of a maximum of 26 segments.
```

ii. By default, all output files will be written to the same directory as the input file. To change this, use the output directory flag, described under Flags 2 below.

5. Exit the virtual environment. To exit the virtual environment, simply enter: **`deactivate`**.

Flags

The following flags modify the script's behavior. They are appended to the command used in step 3.

1. The help flag: **`-h`** or **`–help`**
   This flag displays the help message which briefly explains all of the available flags.

2. The output directory flag: **`-o`** or **`–output_dir`**
   This flag specifies a different directory for the output files. Like <filename> in step 4 above, it must be the full path to the folder. For example:

   ```
   Scripts\cloxPre\preprocessWave.py c:\Users\<your_user_name>\Documents\datafiles\
   <filename> -o c:\Users\<your_user_name>\Documents\outputfiles
   ```

3. The no cleanup flag: **`--no_cleanup`**
   This flag prevents the script from deleting the intermediary mono and the downsampled files generated by the script.

4. The noise threshold and starting point flags: **`-p`** or **`–per`**; -n or **`–noise-thresh`**
   These flags increase the silence threshold. They are set to be deprecated in the next version.

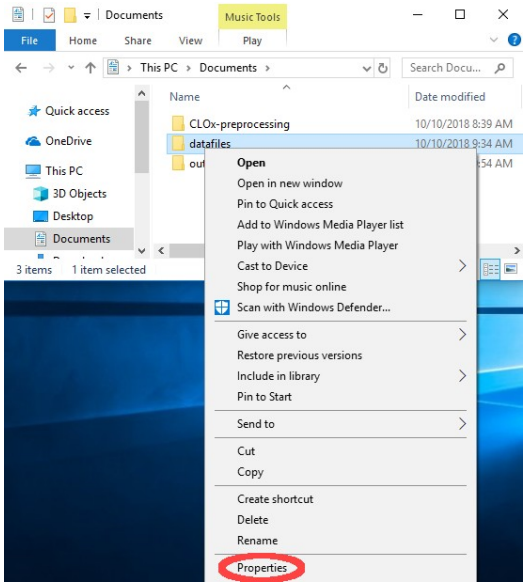
Known issues

Access Denied (Windows 10)
This is a known Windows error that occurs in many applications. If this error appears, change the permissions of the folder so that the user has access.

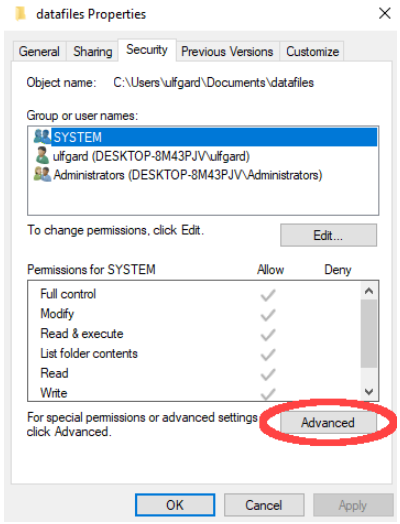
1. Open an Explorer Window.

2. Find the folder containing your data files.

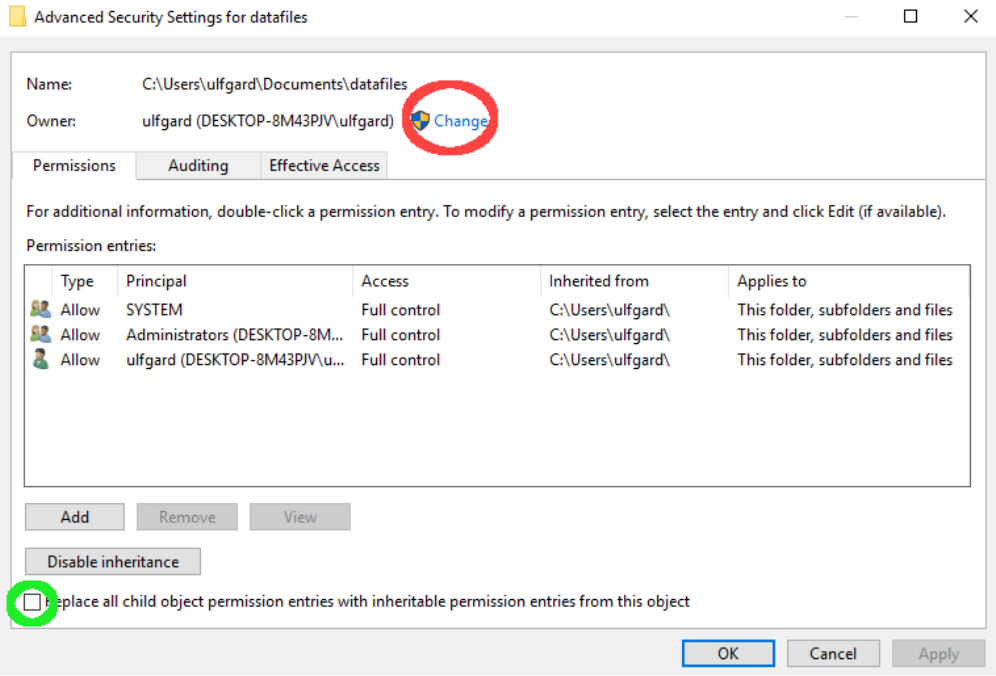
3. Right click on that folder and select properties (see figure below).



4. Select the Security Tab and click Advanced (see figure below).



5. Check that you are the the owner of the folder (highlighted in red in the figure below).
    1. If not, click change.
    2. Enter your username.
    3. Click OK to accept



6. If the problem persists, go back into the Advanced Security tab as above.
   1. Check the box next to Replace all child… (highlighted in green in the figure above).
   2. Click OK to accept