Instructions on how to use Harley’s Data Viewer:

- Prerequisites:
    - A linux device configured to use libxdaq & libncpa.
    - An installation of python.
    - The channelvisualiser.py program is downloaded & present in the libxdaq folder.
- How to use:
    - Make sure the array is connected to the computer.
    - Open a command prompt in the libxdaq folder.
    - Run xstream, piping the output into the python application, such as:
    - “./xstream.exe –deviceID 0xb1 –uniqueID 0xb1 OBS –enableFaucet | python3 channelvisualiser.py”
    - Xstream outputs it’s 24 channel data in the form of a .tsv file into stdout, which when forwarded into the program, is converted into close-to-real time figures
- How to operate:
    - Arrow keys up and down correspond to increase & decrease y respectively.
    - Arrow keys right and left correspond to increase & decrease x respectively.
    - Click on a figure to minimize. Minimizing an entire row or column will cause all other rows or columns to grow to fill in the gap. Click reset to undo, and restore all graphs.
    - If the frame delta is negative, a buffer is being built up over time. When it is positive, it is going through the buffer faster than new data is being added. An equilibrium is achieved around 0.
    - Pause the fig using the pause button.
- Upkeep:
    - Source code can be found at https://github.com/hhgarret/channelvisualiser/tree/main .
    - Please forward any requests or questions to Harley Garrett of the Applied Acoustics Group at the NCPA, reachable at hhgarret@go.olemiss.edu
- Additional Notes:
    - You can use awk to limit the initial channels fed from xstream. For example, if you want to read in from only channels/columns 1, 4, and 6, you can use the full command of: “./xstream.exe –deviceID 0xb1

–uniqueID 0xb1 OBS –enableFaucet | awk -v OFS='\t' '{print $1,$4,$6}' | python3 channelvisualiser.py”

- For more documentation on awk, visit: https://www.geeksforgeeks.org/awk-command-unixlinux-examples/ , but basically, you are taking the 1st, 4th, and 6th field, then printing them out using the ‘output field separator’ of a tab to mimic the output of xstream, then feeding that into the program.