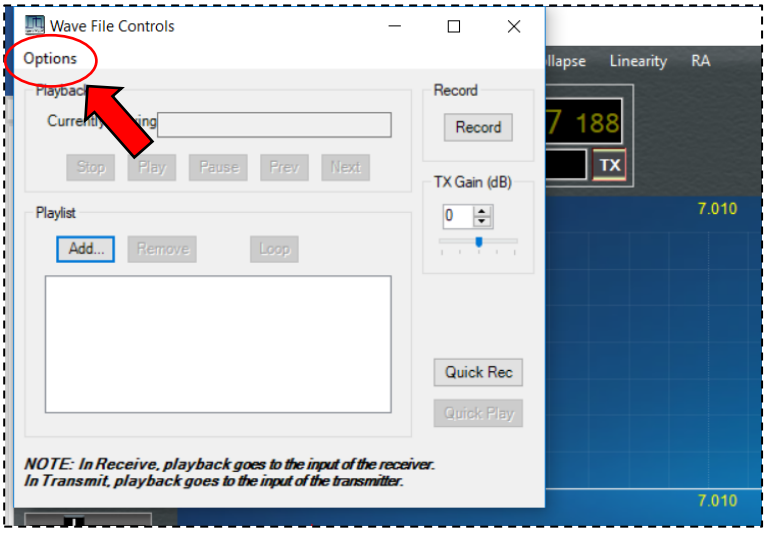
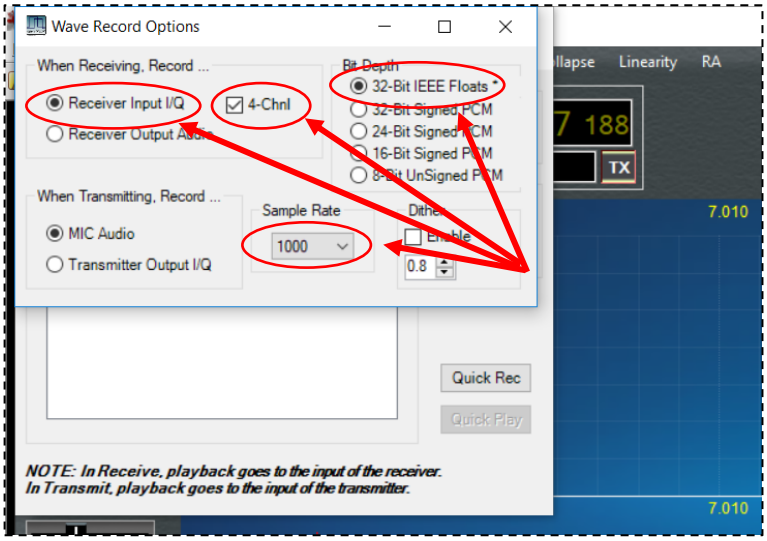
For: Chris Deacon, G4IFX
From: Ben Witvliet PE5B, MoIJQ
Data: 6 Jan. 2018
Subject: **HPSDR high resolution IQ recording**

In PowerSDR, select ‘Wave’, ‘Options’:



Then choose the settings:



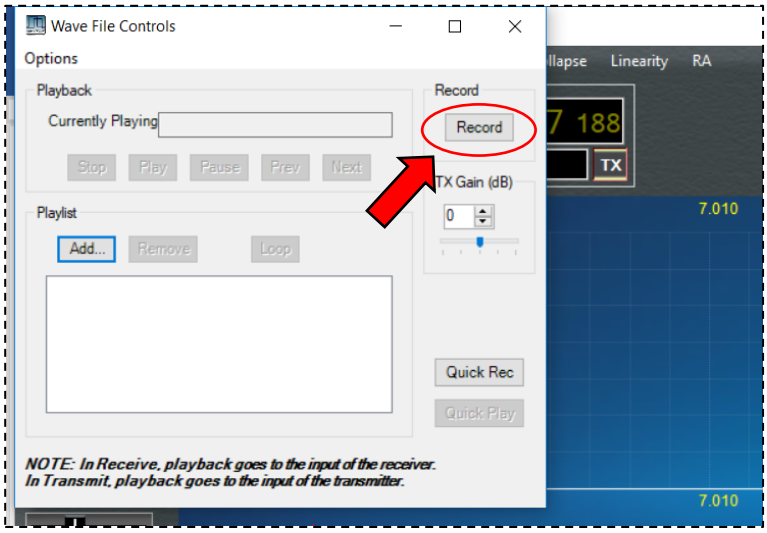
This configures the recording of antenna signals in a WAV-format that resembles a 4-channel audio file, but contains:

- antenna1 I
- antenna1 Q
- antenna2 I
- antenna2 Q.

From the IQ-values the phase and amplitude difference between the channels can be established per sample.

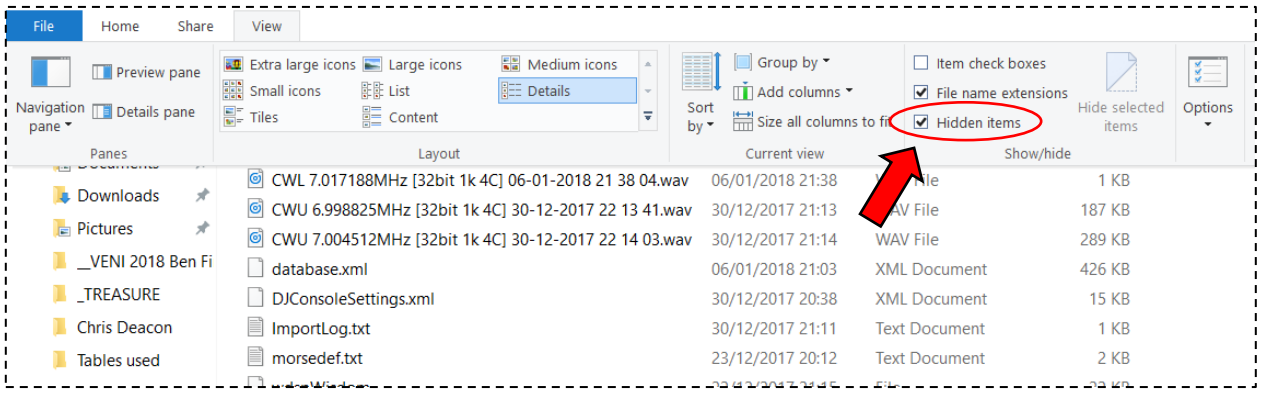
Your signal amplitude and phase variations are not expected to be faster than 1000x/second, therefore an IQ sampling rate of 1000 is more than sufficient.

Go back to the ‘Wave’ box and use the ‘Record’ button to start and stop a measurement.



The files are saved in C:\Users\Username\AppData\Roaming\FlexRadio Systems\PowerSDR mRX PS.

If you cannot see this folder, you must tell Windows to show the hidden folders.
In Windows10: open the File Explorer, select ‘View’, and then tick ‘Hidden items’:



Each file will have a unique identifier based on date/time and settings. Example:
CWU 7.004512MHz [32bit 1k 4C] 30-12-2017 22 14 03.wav

The format is compatible with audio files, but the content is not. The advantage of this format is that data can be imported in other applications using routines that where intended for audio applications.

Acknowledgement

This recording unit has been implemented in PowerSDR in 2014 by Doug W5WC. Erik PA3DES, a volunteer in my previous NVIS project team, did all the technical discussions with Doug to get it implemented.