

Record, display and read data with EDR



Revision History

Date	Version	Description
05/03/2020	1.1	Revised
15/01/2020	1.0	First version of document



Supported data formats

The EDR software can save data in two file formats:

- Raw .dat files format;
- Axon Binary File (.abf) format version 2.0.

All data files are accompanied by an Elements Data Header file (.edh) in order to be loadable by EDA.

Dat format

Binary files in .dat format consist of a continuous series of IEEE 754 single-precision binary floating-point values, with no header. The data is arranged in groups of CurrentChannelsNumber+1 values. Each group consists of CurrentChannelsNumber current samples (ordered by channel number) followed by 1 voltage sample corresponding to a given time instant. Groups are arranged in temporal order.

E.g. for a 4 channels device the values will be:

IChan1Sample1, IChan2Sample1, IChan3Sample1, IChan4Sample1, VChanSample1,
IChan1Sample2, IChan2Sample2, IChan3Sample2, IChan4Sample2, VChanSample2,
and so on.

Abf format


It's the Axon file format used by pClamp software.

Data are saved in "gap-free" acquisition mode.

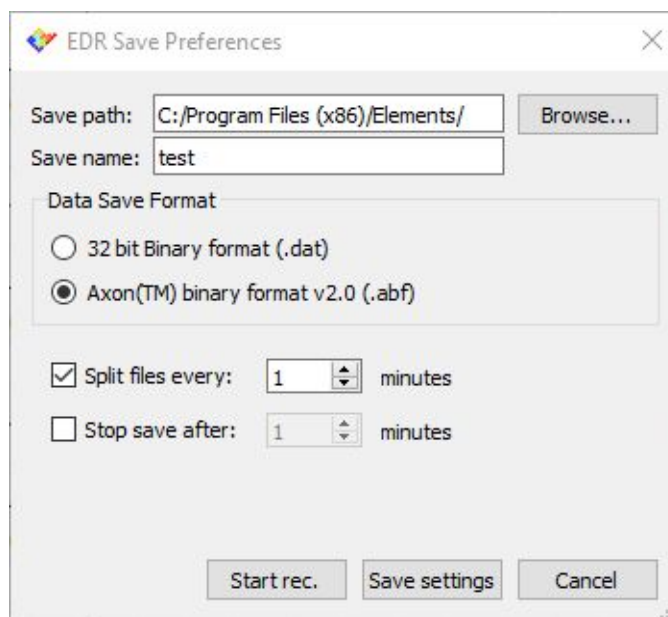


Save preferences

After connecting the device, EDR software starts to acquire and display data in real time in the main window.

To store data, users can either click the Setup save settings and start recording button  to enter into the Save Preferences menu and then click “Start rec.”, or can quickly start a recording

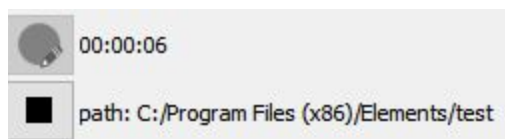
by clicking the Quick Save button .




Ctrl + 'G' keyboard shortcut can also be used to quickly start and stop data recording.

Multiple records will be saved with the set name followed by the progressive number (e.g. C:/Program Files (x86)/Elements/test_01, ...test_02, ...test_03.... and so on) .

When recording begins, a timer in the GUI starts and indicates the total recording time.



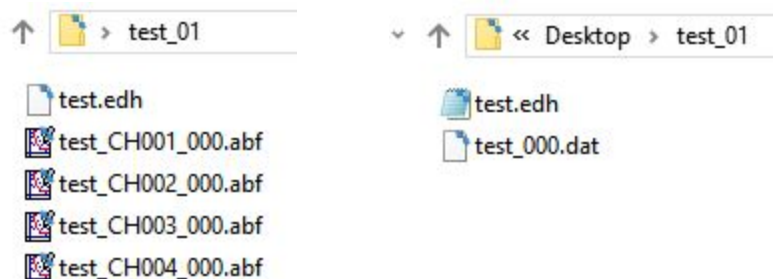
To stop recording, click on the Stop recording button .

The EDR software creates a new folder in the location chosen by the user with the same name of the recording files. In this new folder the EDR software creates some files:



- An header .edh file (which is a text file containing some acquisition setup information, such as Range, Bandwidth, etc.).
- The saved data files.

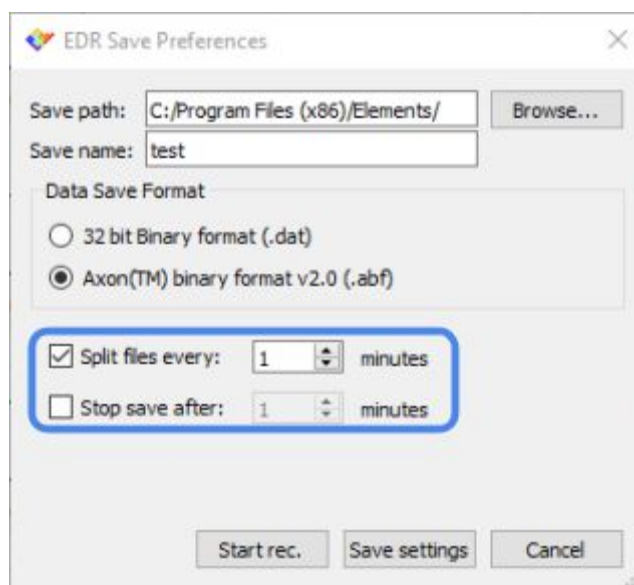
For multichannel devices, if .abf format is selected, a different .abf file will be created for every current channel, while a single file .dat file will be created if .dat format is selected.



Be careful to have enough disk space to save data and avoid recording data directly into network drive or Cloud storage service. Notice that a single channel device at the maximum sampling rate of 200kHz stores about 50MB/min using .abf format, and 100MB/min using .dat format.

Split of data files and automatic save stop

To limit the maximum file dimensions, the EDR software can splits the data files every X minutes of recording. This feature can be selected from the “Save Preferences” dialog box and can be useful during long recording, in order to obtain smaller files, easier to load in offline analysis tools.

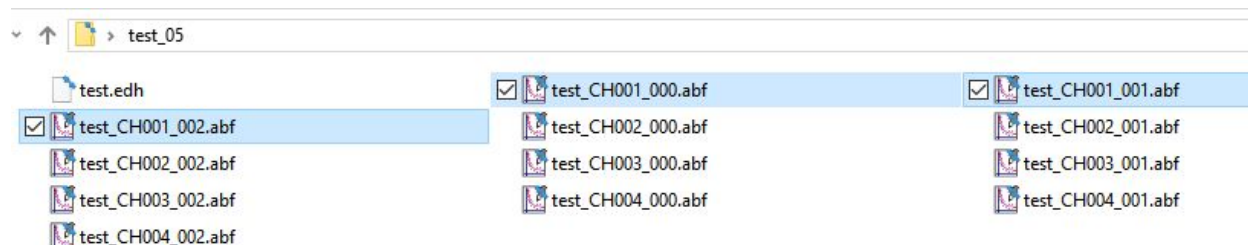




Also .abf files can be split in small chunks during data recording.

The Save Preference dialog box also offers an option to automatically stop the recording after a fixed amount of time.

The following image shows a folder of an example recording performed using an e4 (4 channels device), which lasted slightly more than 2 minutes, with files split every 1 minute:



Read Data

The raw .dat files can be handily read by [EDA](#) (Elements Data Analyzer), or by Matlab with the function elementsRead.m file, or by Python using the “elementsRead.py”. All these programs can be found in the EDR installation folder (default path: C:\Program Files (x86)\Elements).

Abf files saved byu EDR can be read by EDA as well and are compatible with all softwares that can load abf files.