

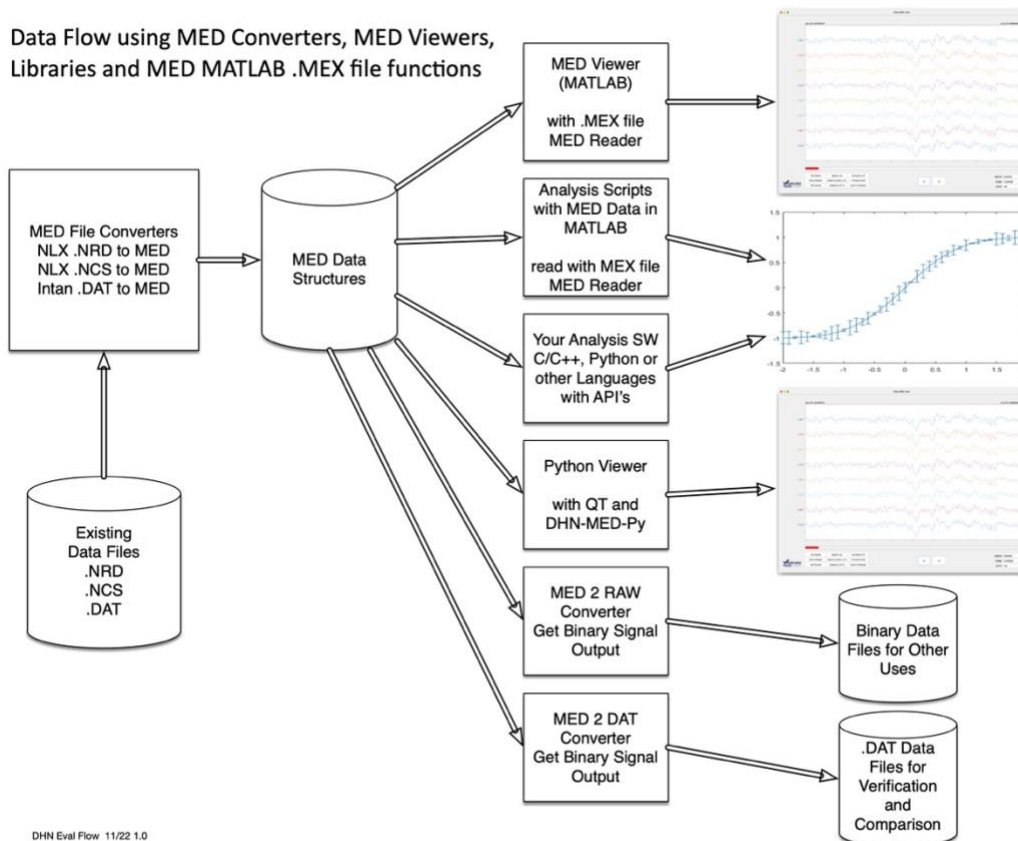
How to Test and Evaluate MED with Existing Data

Overview

Changing your data storage format to **MED** is a simple process with **MED's** five data converters:

- Neuralynx NRD to MED
- Neuralynx CSC to MED
- Open Ephys DAT to MED
- MED to RAW - to get binary data from MED
- MED to DAT - for comparison and verification

MED Converters have a GUI for selecting files and processing options.





The **MED Reader Package** contains the **MED Viewer** and MATLAB tools (.MEX file) for reading data into MATLAB, and a Python **MED Viewer** and Python Library. After viewing with either **MED Viewer**, you can use either the MATLAB or Python reader to evaluate **MED** structures, MATLAB tools and the code changes you will need to make to your analysis software.

- A C/C++ API library is provided for C/C++ and other language support
- The Python Library DHN-MED-Py is provided for Python language support

Process Overview

1. Download and install the appropriate **Data Converter** for your file type and operating system (Win10, Mac OSX, or Linux) from DarkHorseNeuro.com.
 - a. You will sign up for a Trial License when you run the converter for the first time.
2. Convert an existing data file/set to **MED** Structures.
3. For MATLAB users:
 - a. Download and install the **read_MED** MATLAB software suite and install.
 - b. View **MED** waveform and event data with **MED Viewer** (launch from MATLAB).
 - c. Use the **MATLAB reader** (MEX File) to read **MED** data into memory, run scripts, inspect data, and call MED functions.
4. For Python users:
 - a. Download and install the PyQt6 package.
 - b. Download and install the NumPy package.
 - c. Download and install the MATPlotLib.
 - d. Download and install DHN-MED-Py package from PyPi.org.
 - e. Install MED library using "pip install dhn_med_py".
 - f. Call the script "view_med.py" to view and scroll through your data.
5. If you started with a .DAT file, you can use the MED2DAT converter to make a new .DAT file for comparison to the original, and see the differences of the filters and lossy compression. Generally you will see very little difference, typically +/- 0.5 μ volt.
6. If you are using the .DAT format, run the before and after .DAT files through a program like KiloSort and you should notice very little difference in the two KiloSort output results.

MED Features and Benefits

- Data compression typically results in sizes of 2% to 10% of raw data file sizes depending on the input raw data and options selected for conversion if Lossy options are used
- Two levels of configurable encryption: Patient Information and Experiment Data
- Small data set size and encryption make sharing with collaborators practical
- Faster data analysis by reading less data from slow disk storage (even on “fast servers”)
- Direct access to time-indexed records – no need to read sequentially through files
- Organized in long-term “Sessions” and duration-based “Segments”



- Published format and Open Source access to low level code to prevent a closed protected format
- Library and executable versions for Linux, Mac OSX, and Windows

See DarkHorseNeuro.com for details

MED meets your “Big Data” challenges: spiraling file server costs; analysis solutions; and protected data sharing for collaborations.

The **MED** data storage format was developed and used by Matt Stead MD PhD over the past 20 years through three versions of MEF and now **MED**. MEF/MED was originally designed to store the 100’s of Terabytes generated by Neuralynx’s high resolution, full bandwidth, and high channel count ATLAS recording system for clinical intracranial EEG recording. It is typical to collect 50 Terabytes of data from a single patient!

Contact Sales@DarkHorseNeuro.com for information, quotes, and purchasing MED for your lab.

Neuralynx is an authorized distributor of MED software and products its for Digital Lynx SX.