

PyPL2

PyPL2 is a Python package for reading Plexon PL2 files. PyPL2 is compatible with Python 2 (2.7+), and Windows operating systems.

Full documentation of the classes and methods in PyPL2 are in the source code comments.

Installation

PyPL2's folder and file structure looks like this (folders in bold):

PyPL2

- pypl2_example.py
- PyPL2 Guide.pdf
- bin**
 - PL2FileReader.dll
 - PL2FileReader64.dll
- pypl2**
 - __init__.py
 - pypl2api.py
 - pypl2lib.py
- sampledata**
 - 4chDemoPL2.pl2

The easiest way to use PyPL2 is to place the bin (containing PL2FileReader.dll and PL2FileReader64.dll), and pypl2 folders (containing __init__.py, pypl2api.py, and pypl2lib.py) into the same location as the Python programs you will be writing that will use the modules in the package.

Sample Program

In addition to the core wrapper components, PyPL2 comes with a usage example called pypl2_example.py. You can either pass a file name as a command line argument, or run it with no argument which will cause a file chooser dialog box to pop up.

pypl2_example.py demonstrates usage of the high-level functions in pypl2/pypl2api.py. The functions in pypl2api.py in turn demonstrate how to use the wrapper functions contained in pypl2lib.py.

All of the source code is commented with input/output argument information, and brief usage examples.

For questions contact support@plexon.com

Technical Details

PyPL2 uses the Python ctypes module to access functions in PL2FileReader.dll, which was released to give users access to .pl2 files (and is also used with the PL2 C++ SDK).

pypl2lib.py contains classes representing the structures defined in PL2FileStructures.h, and a class that contains methods for calling functions in PL2FileReader.dll via the ctypes module. The arguments and return values of all the class methods are fully documented in pypl2lib.py.

pypl2api.py contains user-friendly functions that utilize the classes in pypl2lib.py. These functions also serve as examples of how to use the ctypes module's data classes to interact with the classes and functions in pypl2lib.py, with full source code documentation and usage examples.

pypl2_example.py in the top-level PyPL2 folder is a sample of what real-world usage may look like. It includes an example of how to access data, and print out some of the information retrieved. Pypl2_examply.py is meant to be used with the included sample PL2 file sampledata/4chDemoPL2.pl2, but any PL2 file can be opened. If not data file is passed at the command line, a file open dialog box (using Tkinter) will pop up.

Data returned from the pl2_ad, pl2_spikes, and pl2_events in pypl2api.py are in a named tuple object (part of the collections module). It's a general (but not enforced) rule that Python tuples are for heterogeneous data, and Python lists are for homogenous data, but tuples were chosen because the named tuple object (part of the Python collections module) is very handy. Named tuples mimic the dot-notation addressing of C structures and Python class variables, which improves readability.

Readability was prioritized over cleverness. Python is notorious for enabling clever one-liners that perform a great deal of work in very few characters, but are not human readable unless you're in on the trick. To that end, some of the inner workings of functions in pypl2api.py are more verbose than necessary.

Further Reading

<http://learnpythonthehardway.org/book/>

<https://docs.python.org/2/library/ctypes.html>

<https://docs.python.org/2/library/collections.html#collections.namedtuple>