How to Save LabVIEW Data to Igor Text File Format

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The problem of saving data with LabVIEW

The easiest method to save data in LabVIEW is to use their built-in data logging (`Operate →Log at Completion` and `Operate →Data Logging → Log`). This logs to a binary data file whatever is shown on the front panel. This is convenient because not only do your graphs and other data get saved, but all of your settings and controls as well. However, there is a flip side to this convenience. The log file is an unreadable binary file that requires an a priori knowledge of what was on the front panel to begin with. If you lose the logging VI, you will have a nearly zero chance of recovering your data. A second problem (that has seemed to occur more frequently as the LabVIEW version number increases (8, 8.5, etc.)) is the log file becomes corrupted somehow and is then unretrievable by the logging VI. This seams to occur when you read a log file interactively in the block diagram and then try to read the file on the front panel. While not a total disaster (since your data is still accessible from the block diagram) it is inconvenient.

Solution: use a text-based format

My solution to these data logging issues is to store my data in an Igor Text File (ITX). This is nothing more than a simple text file that is readable by humans in their favorite text editor (Notepad, Notepad++, Emacs, etc.) with some additional commands to make the file convenient to use with Igor. The beauty of this system is ease of use with a data analysis program (Igor) and the fact that the data is stored in a recoverable format. Furthermore, we can insert some scripts into the file to have Igor automatically make a plot, format the plot, or even do some analysis.

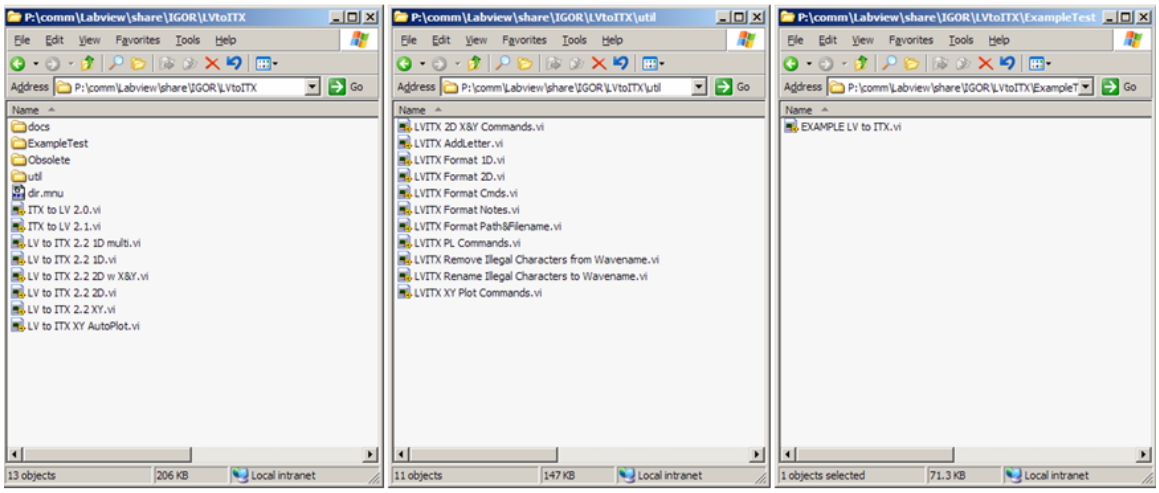
The important features of the ITX format are shown below.

```
IGOR                                                    the itx file always starts with "IGOR"

X// Date:  11/21/2008 9:21 AM                          X// tells Igor to ignore this line
X// sample F, T=10K                                    this could be some comments about your experiment

WAVES/D/N=(5) 'x_SampleF.0KRx'                          Some info about the wave
                                                        (5) - number of elements
                                                        'x_SampleF.0KRx' - the name of the wave
BEGIN                                                   start of wave
-198.487800E-12
-195.372600E-12
-192.168900E-12
-188.894400E-12
-185.726100E-12
END                                                     end of wave

X Display 'y_SampleF.0KRx' vs 'x_SampleF.0KRx'          X tells Igor to do something
                                                        in this case it means "make a plot of 'y_...' vs 'x_...'
```

Sounds great! How do I get started?

I written a suite of VIs that cover all the data-saving events I can think of. For example: 1D array, multiple 1D arrays, 2D array, XY graphs. In addition, I have written two "quick use" VIs. One saves multiple XY graphs and automatically generates graphs in Igor. The other saves a 2D array and a 1D array to represent each of the axes. This also automatically generates a plot in Igor. I can emphasize enough how useful it is to have these graphics generated automatically when you open the itx file. If nothing else, it is nice to see immediately what data set you're looking at.

Now, where can we find these files? what are all of these files? and how do I use them? You'll find the VI in `P:\comm\Labview\share\IGOR\LVtoITX\`. The top-level files are located in this directory. The two "super-top-level" VIs are also located this directory and are called, respectively, `LV to ITX XY AutoPlot.vi` and `LV to ITX 2D AutoPlot.vi`.



Watch this incredibly interesting video: `P:\comm\Labview\share\IGOR\LVtoITX\docs\how2 LabVIEW data Igor Text File ITX.avi`.