



Enerplot

Offline Plotting and Analysis Tool

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mhi.ca

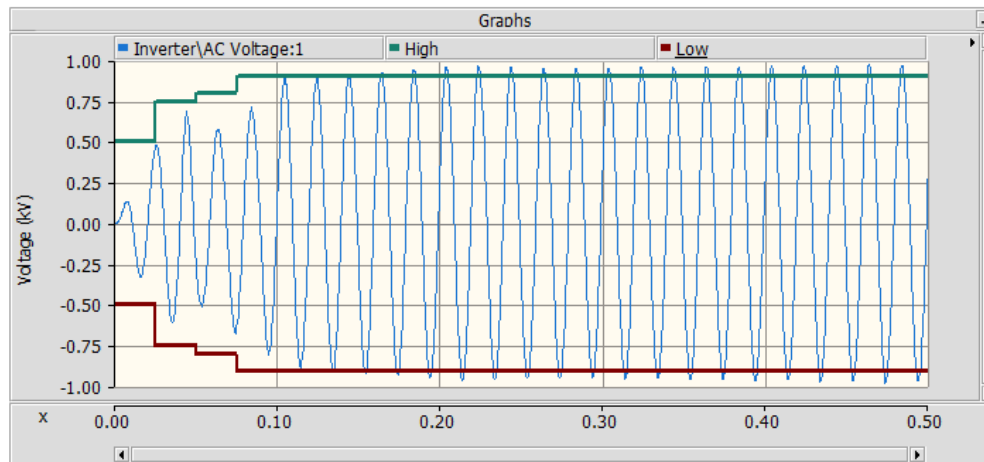


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What is Enerplot?

A software tool for displaying and analysing simulated and measured data, in an offline environment.





Supported Files

- File types:
 - PSCAD
 - EMTDC Output (*.inf, *.infx, *.out)
 - PSCAD Harmonic Frequency Scanner Output File
 - COMTRADE (*.cfg) – 1991, 1999 both ASCII and Binary
 - PSS/E (*.out, *.asc)
 - RSCAD (*.out)
 - Comma Separated Values (*.csv) – Formatted and Unformatted
 - Text Files (*.txt) – Formatted and Unformatted
- All file types, once loaded into Enerplot, can be converted to Comma Separated Value or COMTRADE formats.



Terminology

- Record:
 - A singular array of data points that represents either a single curve, or multiple related curves.
 - Records become curves when plotted in graphs.
- Dataset:
 - A collection of records in a single set. Normally defined by a single, or collection of files.
- Sheet:
 - A single page (or canvas), on which graphs with curves may be placed.
- Book:
 - A collection of sheets. A book is stored as a single file (*.epbx).



Terminology

- Script:
 - A python script file.
- Workspace:
 - A collection of books. A workspace is stored as a single file (*.epwx). It contains links to all books, datasets and scripts contained within it.
 - Book files (*.epbx), datasets and scripts are still stored as separate files.
 - Loading a workspace will bring in all books, datasets and scripts associated with it.



Major Features

- Automation with Python
 - Completely embedded environment.
 - Record actions to create new script files from scratch.
- Record Wizard
 - Generate new records, based on existing ones.
 - Includes a math parser, which may be used to generate records based on mathematical functions.
- Data Manipulation
 - Shift, scale, and/or manually adjust record data.
- Quick (Lazy) Loading
 - Load huge data files in seconds.



Major Features

- Cloning/Templates
 - Clone (or template) books and sheets quickly and efficiently.
- Data Referencing:
 - Easily switch the dataset or datasets, to which a book is referenced.
 - Delink and relink the display of records from specific datasets.



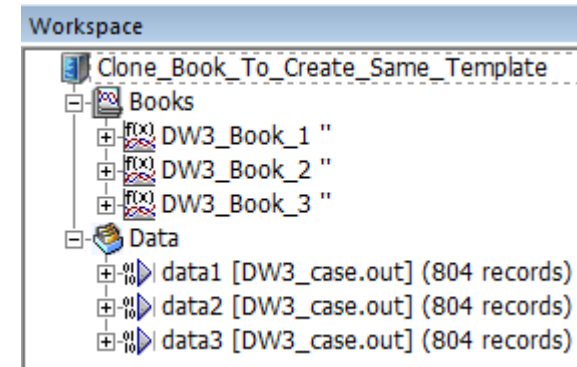
Current Status

- In Beta development stage (not released).
- Embedded automation environment using python remains in prototype (alpha) stage, but will soon be ready for use in the Beta.
- Official product release is estimated to be early 2019.
- A temporary license certificate is available upon request, for those who would like to participate in the beta program. Contact: support@pscad.com.



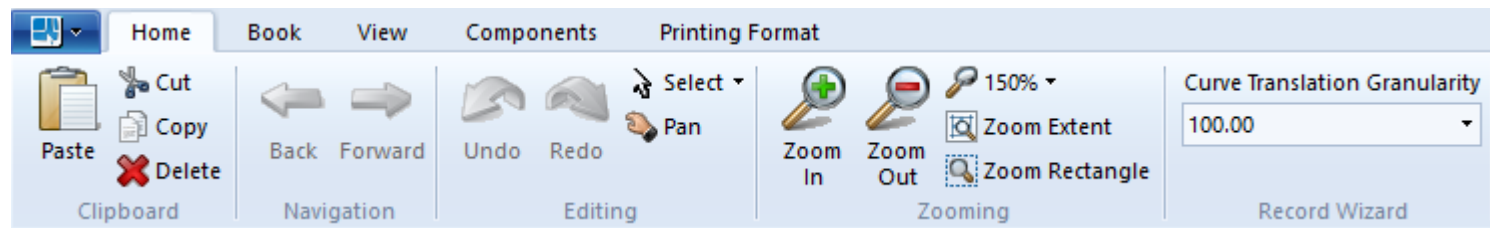
General Environment Overview

- Workspace Pane
 - Books
 - Sheets
 - Datasets and records
- Canvas Pane
- Data Reference Pane
- Data View Pane
- Ribbon Control Bar



Data Reference - 'DW3_Book_3'

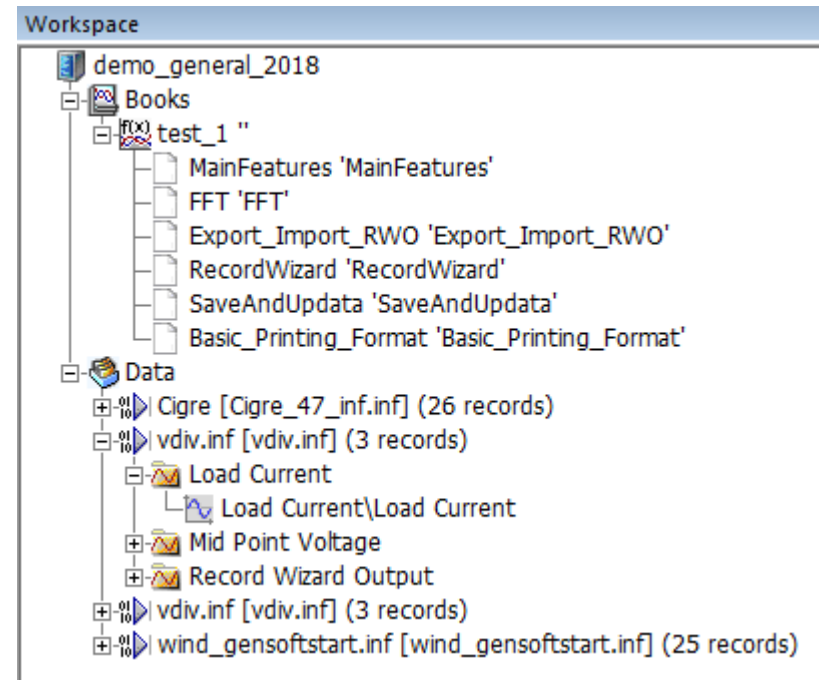
	Link	Name	Path
	<input type="checkbox"/>	data1[DW3_case.out]	C:\Users\
	<input type="checkbox"/>	data2[DW3_case.out]	C:\Users\
	<input checked="" type="checkbox"/>	data3[DW3_case.out]	C:\Users\





Workspace Pane

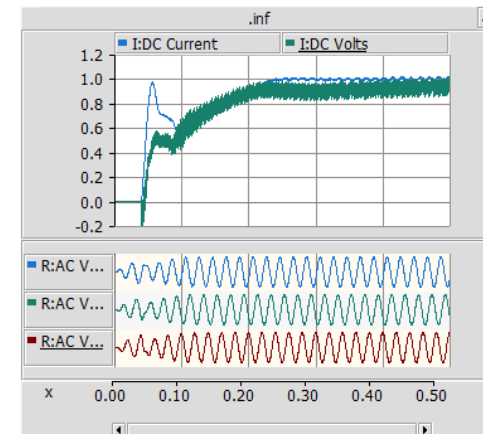
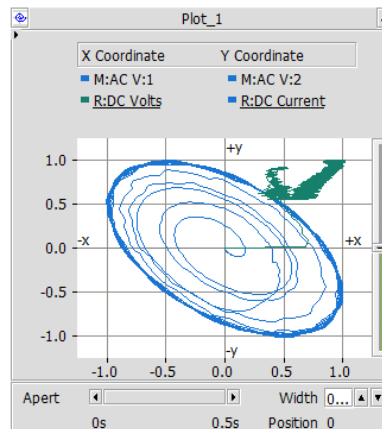
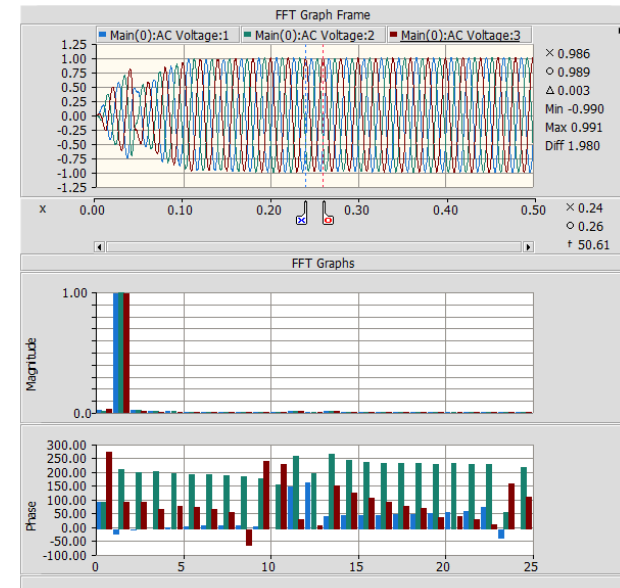
- Creating
 - Books
 - Sheets
- Datasets and Records
 - Loading
 - Pasting from Clipboard
 - Saving
 - Record Groups





Graphing and Canvas Tools

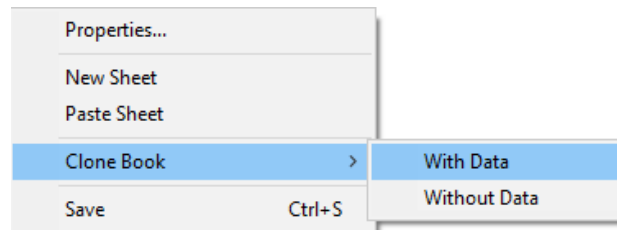
- All graphs are currently time-based.
- Tools include:
 - Overlay graph
 - Poly graph
 - XY Plot
 - FFT Frame
- Sticky notes and divider objects.





Cloning Books and Sheets (Templating)

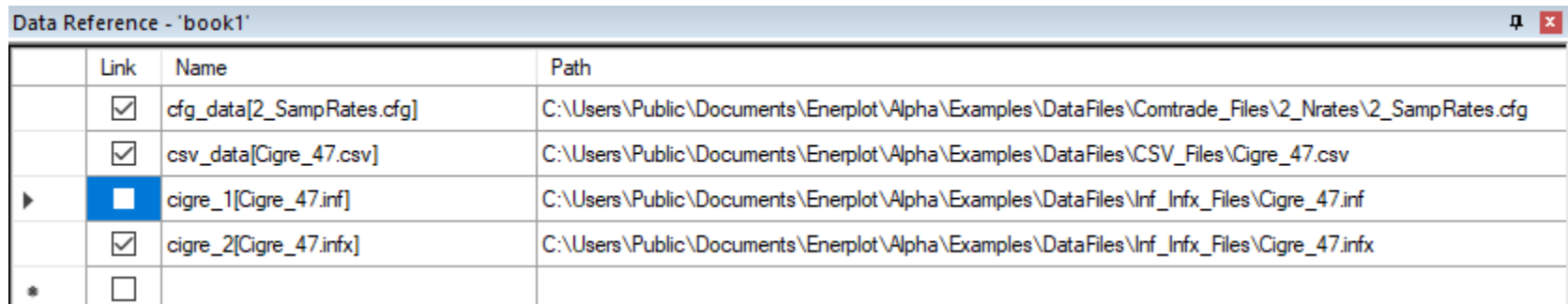
- Books and sheets may be cloned quickly within the workspace.
- A single book or sheet can thereby act as a template, to help create identical books and sheets easily.
- Convenient when displaying records from multiple datasets that are identical or similar in structure, but whose data is different.





Data Referencing (Linking)

- Multiple datasets and multiple books can exist in a single workspace.
- Records from a dataset, displayed in a book, create a reference link.
- The Data Reference pane can be used to manage these links.
 - The Link checkbox is used to quickly link or delink the display of any records corresponding to that dataset.
- Relink records data in a book to another dataset.

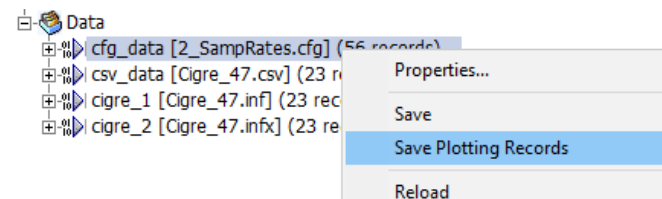
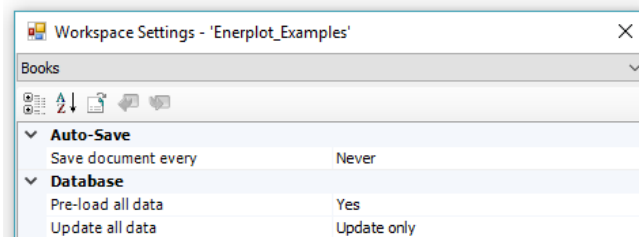


	Link	Name	Path
	<input checked="" type="checkbox"/>	cfg_data[2_SampRates.cfg]	C:\Users\Public\Documents\Enerplot\Alpha\Examples\DataFiles\Comtrade_Files\2_Nrates\2_SampRates.cfg
	<input checked="" type="checkbox"/>	csv_data[Cigre_47.csv]	C:\Users\Public\Documents\Enerplot\Alpha\Examples\DataFiles\CSV_Files\Cigre_47.csv
▶	<input type="checkbox"/>	cigre_1[Cigre_47.inf]	C:\Users\Public\Documents\Enerplot\Alpha\Examples\DataFiles\Inf_Infx_Files\Cigre_47.inf
	<input checked="" type="checkbox"/>	cigre_2[Cigre_47.infx]	C:\Users\Public\Documents\Enerplot\Alpha\Examples\DataFiles\Inf_Infx_Files\Cigre_47.infx
*	<input type="checkbox"/>		



Quick (Lazy) Data Loading/Saving

- A very large data file can take many seconds (or even minutes) to load in its entirety.
- Enerplot provides the option to 'quick load' a dataset.
 - Only the dataset structure (i.e. record names and other organizational information) is loaded.
 - The actual data remains unloaded until needed.
- Record data is loaded only when that record is selected for display in a graph.
- Datasets may be saved to a new file, including only the records currently displayed in graphs.





Data Manipulation

- Record data may be modified in a handful of different ways:
 - Directly scale the y-axis or offset (translate) the x and y-axis.
 - Directly smooth record data with a quick and easy, real-pole smoothing function.
 - Shift (translate) data manually using Shift + \leftarrow \uparrow \rightarrow \downarrow .
- Data View pane*: Data for a single record, or all record data pertaining to a single graph, can be viewed and modified dynamically.

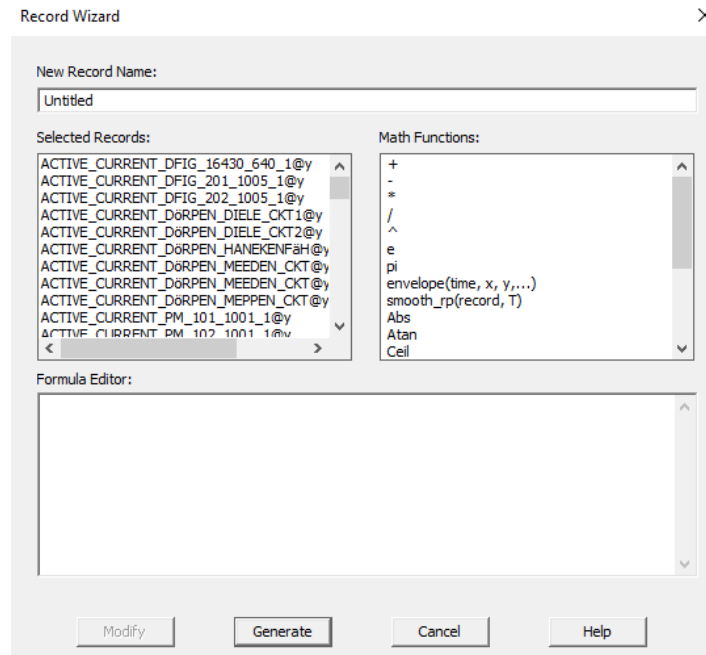
Data View - 'book1' (.csv [739371170])

x	Rectifier\DC Volts(1353028410)	Rectifier\DC Current(1004329875)
0.261000	0.931812864864505	0.788591548592855
0.261250	0.931847521862315	0.789106203616845
0.261500	0.930958577077132	0.789615848318068
0.261750	0.929080947601404	0.790110362591776
0.262000	0.9280417266772352	0.790602726506130



The Record Wizard

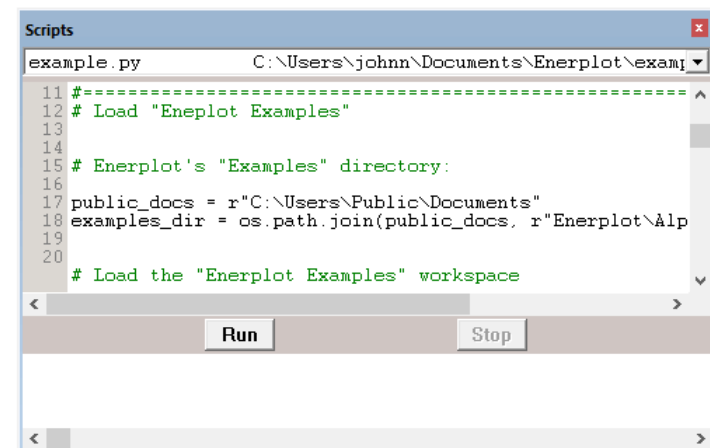
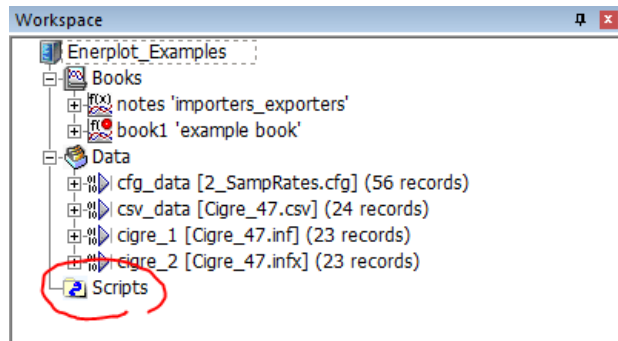
- Create a new record, based on existing record(s).
- Create a new record using the embedded math parser functions.





Automation with Python

- Completely embedded environment, complete with a Script pane.
- Enerplot is installed complete with all automation-related support files (Python libraries).
- Python script files (*.py) may be added to the workspace for easy access at all times.
- Python scripts may be generated automatically by recording user actions (macros).



Enerplot

Question and Answer Session



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