WOLF STAR

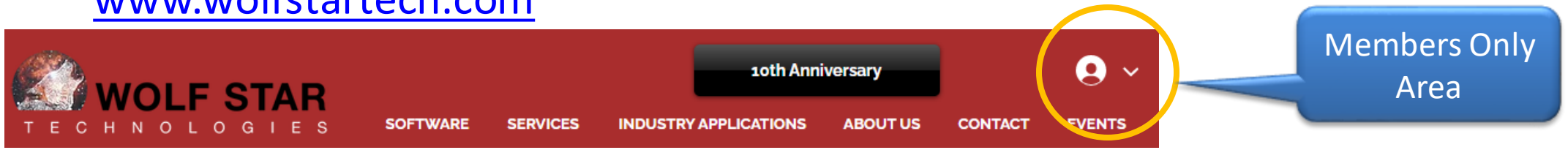
TECHNOLOGIES

True-Load Enhancements
2022-02-07

Tim Hunter

Enhancements Overview

- Great updates in this release!!!
- Remember to try True-LDE – LDE to be included with license renewals on a free Promotional basis.
  - Video demonstrations of True-LDE in the Members Only area on www.wolfstartech.com



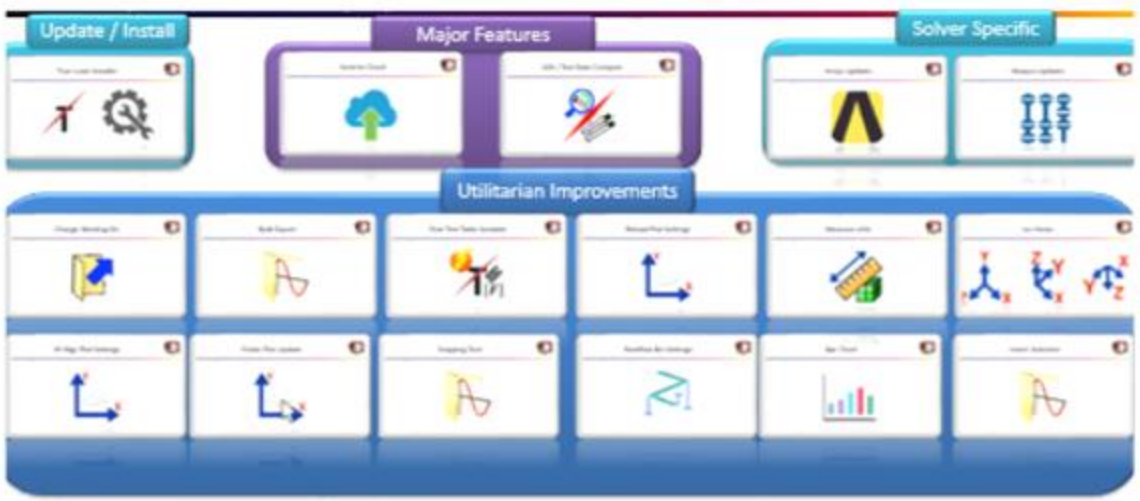
- Most of the enhancements discussed in this document are updates in performance and usability
- Some new features have been added.
- 48 Enhancements, 4 Bug Fixes

Overview – Major Enhancements

- Send to Cloud → One click upload to Ceetron Cloud
- GOI / Test Data compare – Interactive tool for comparing GOIs to test data
- Rainflow counting – user defined bins
- Bulk Export of TFU files
- Change Working directory
- Choice of ISO Views
- Measure Centroid of Element
- Lots of plotting improvements

Enhancements - Overview

Details



Bug Fixes

WOLF STAR TECHNOLOGIES

True-Load Enhancements
2022-02-07

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Details

Update / Install

True-Load Installer

Major Features

Send to Cloud

GOI / Test Data Compare

Solver Specific

Ansys Updates

Abaqus Updates

Utilitarian Improvements

Change Working Dir

Bulk Export

Post-Test Table Sortable

Reload Plot Settings

Measure Utils

Iso Views

XY Mgr Plot Settings

Probe Plot Update

Snipping Tool

Rainflow Bin Settings

Bar Chart

Invert Selection

Bug Fixes

Bugs

Release Level	Module	Type	Description
2/7/2022	POST	Bug	Fix typo -- "Corollary"
2/7/2022	Post	Bug	GOIs fail when using mapped channels
2/7/2022	POST	Bug	Wrong vector used for GOI Strain calculations
2/7/2022	TFU	Bug	2nd Derivative disabled for Linear Approximation

Typo – this has been there since day 1.

This bug was caught by a user.

Enhancements - Overview

Enhancements – True-Load Environment

Release Level	Module	Type	Description
2/7/2022	ALL	Enhancement	Change working dir handling throughout code
2/7/2022	ALL	Enhancement	Enable Send to Cloud
2/7/2022	ALL	Enhancement	Save / Reload Plot Widget settings
2/7/2022	ALL	Enhancement	2D Bar Charts for Plot Widget
2/7/2022	ALL	Enhancement	Plot Probe to update Curve Combo
2/7/2022	ALL	Enhancement	Add to Measure Utils, Measure Centroid of Element
2/7/2022	ALL	Enhancement	Gauge Xform Wizard
2/7/2022	ALL	Enhancement	Add "ffmpeg.exe -vcodec h264" to output for MP4 creation -- fixes codecs for displaying in Web Pages.
2/7/2022	ALL	Enhancement	Add Army Iso view (Z down)
2/7/2022	ALL	Enhancement	Make Iso views stackable icons
2/7/2022	ALL	Enhancement	Axis digits on plots
2/7/2022	ALL	Enhancement	Set initial spin center to centroid of model when FEA DB is opened.
2/7/2022	ALL	Enhancement	Modify Ceetron readers to get tensor data from element centroids if element nodal data is not present
2/7/2022	ALL	Enhancement	Add Plot Options to XY Manager

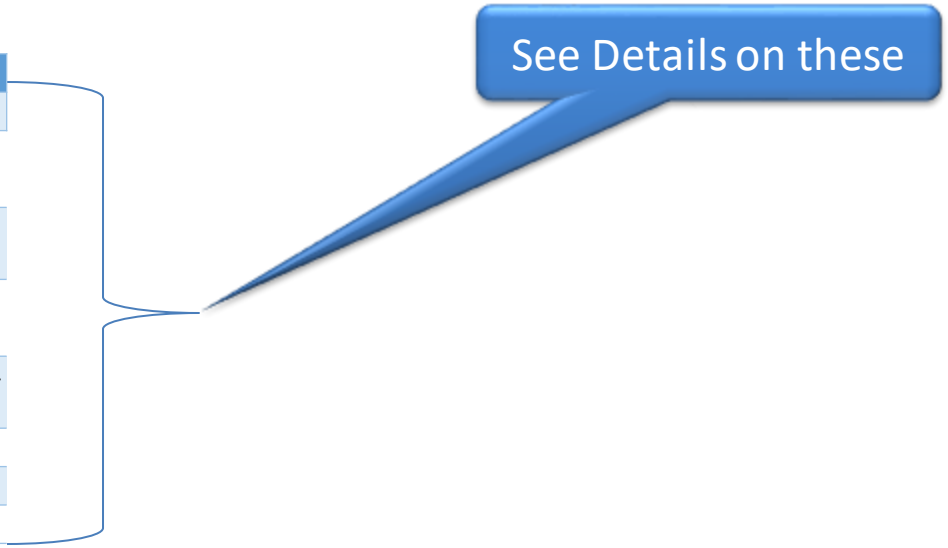
Release Level	Module	Type	Description
2/7/2022	DOC	Enhancement	Arrange tfuTools DOC to look like TFU Manager GUI
2/7/2022	DOC	Enhancement	Add tfuTools DOC to Help Widget

Release Level	Module	Type	Description
2/7/2022	DTY	Enhancement	Make sure DTY is named and saved before proceeding

Great new features

Enhancements – TFU Mgr

Release Level	Module	Type	Description
2/7/2022	TFU	Enhancement	2D Bar Charts for TFU Manager
2/7/2022	TFU	Enhancement	2D Bar Chart - Multiple Data sets
2/7/2022	TFU	Enhancement	RainFlow -- User Specifed bins, plot sorted range pairs
2/7/2022	TFU	Enhancement	Update Rainflow GUI to spec bins
2/7/2022	TFU	Enhancement	On the snipping tool have option to keep or cut clip -- need to have option to compress time
2/7/2022	TFU	Enhancement	Invert Selection
2/7/2022	TFU	Enhancement	Bulk Import print text based progress …
2/7/2022	TFU	Enhancement	Bulk Export Utility …

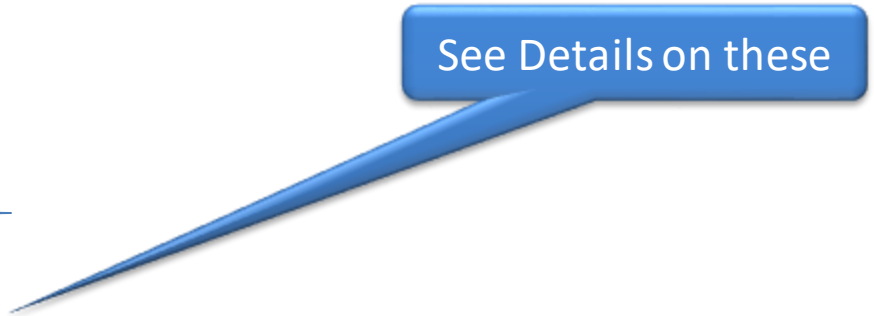


Enhancements - Pre

Release Level	Module	Type	Description
2/7/2022	PRE	Enhancement	Add user defined STL Export
2/7/2022	PRE	Enhancement	When switching to VTFx update moving load table
2/7/2022	PRE	Enhancement	Add delete gauge capability to Sort / Reorder Cabling
2/7/2022	PRE	Enhancement	Populate Sort / Reorder gauges w/ gauge names
2/7/2022	PRE	Enhancement	Fiber Cabling -- continuous gauge placement - get gauge ordering correct and deal with no anchors
2/7/2022	PRE	Enhancement	Make QlineEdits wider in Tweak and Swap
2/7/2022	PRE	Enhancement	For ODB files make populate all steps skip "Base State" steps
2/7/2022	PRE	Enhancement	After Import gauges enable Load Sensitivity to strain variation button

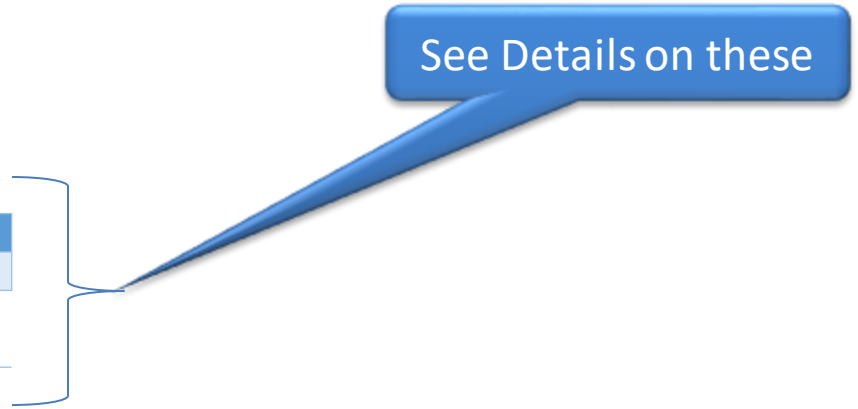
Enhancements - Post

Release Level	Module	Type	Description
2/7/2022	POST	Enhancement	Make Post-Test Plots in MicroStrain
2/7/2022	POST	Enhancement	Post-Test plot labels are clipped
2/7/2022	POST	Enhancement	Put GOI strains in SimMes files
2/7/2022	POST	Enhancement	Sortable tables in Post-Test Report http://www.bu.edu/tech/services/cccs/websites/www/wordpress/how-to/sortable-searchable-tables/
2/7/2022	POST	Enhancement	GOI Strain plots in microStrain not Strain
2/7/2022	POST	Enhancement	Plot GOIs in microStrain -- not strain
2/7/2022	POST	Enhancement	Strain data preview plot needs to appear on T-L Monitor and not Primary Monitor



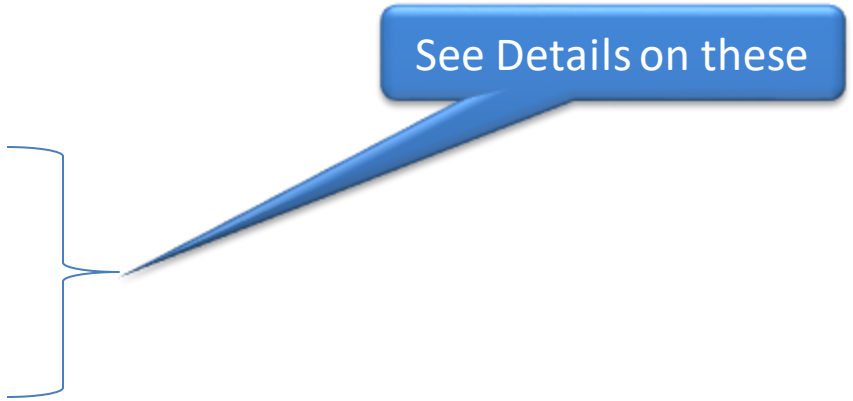
Enhancements - QSE

Release Level	Module	Type	Description
2/7/2022	QSE	Enhancement	GOI / Test Data Comparison GUI
2/7/2022	QSE	Enhancement	Fix stretchiness of QSE File LE



Enhancements - LDE

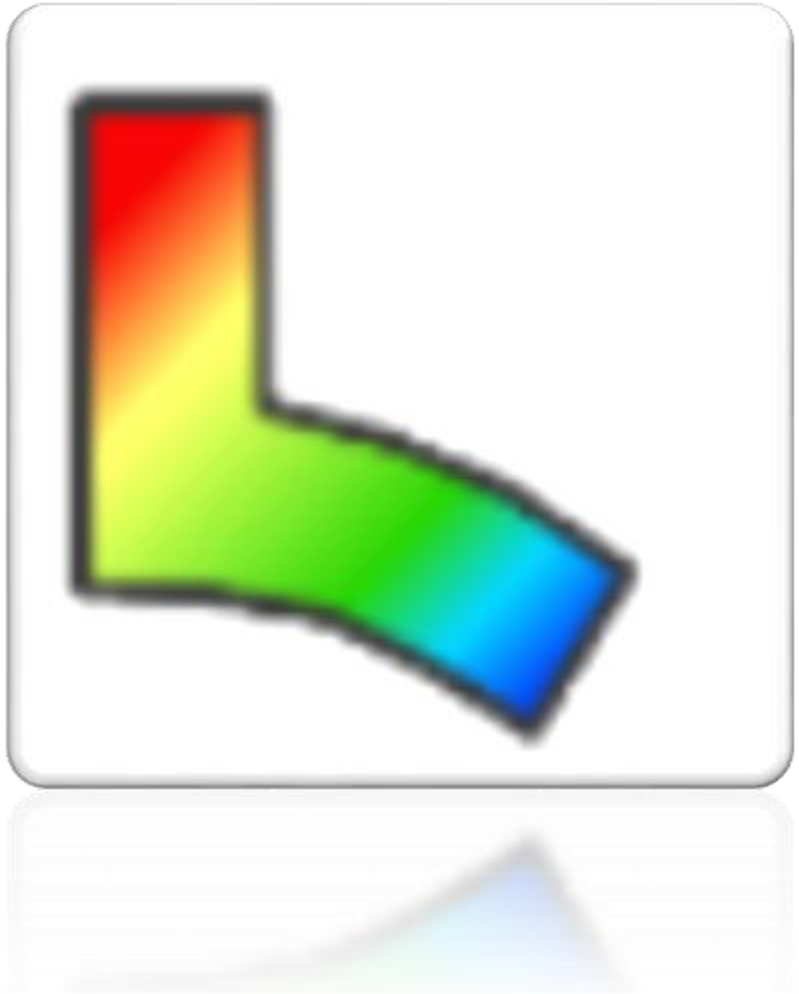
elease Level	Module	Type	Description
2/7/2022	LDE	Enhancement	Fix output prompt Safe Design Export
2/7/2022	LDE	Enhancement	Include Pre-Load in FE-Safe out
2/7/2022	LDE	Enhancement	Include Pre-Load in ODS



True-Load Installer

Placeholder for future updates

Results Manager



Ansys Updates

Ansys 2022

Ansys 2022 will be released in March / April build.

Ceetron is working on updates.

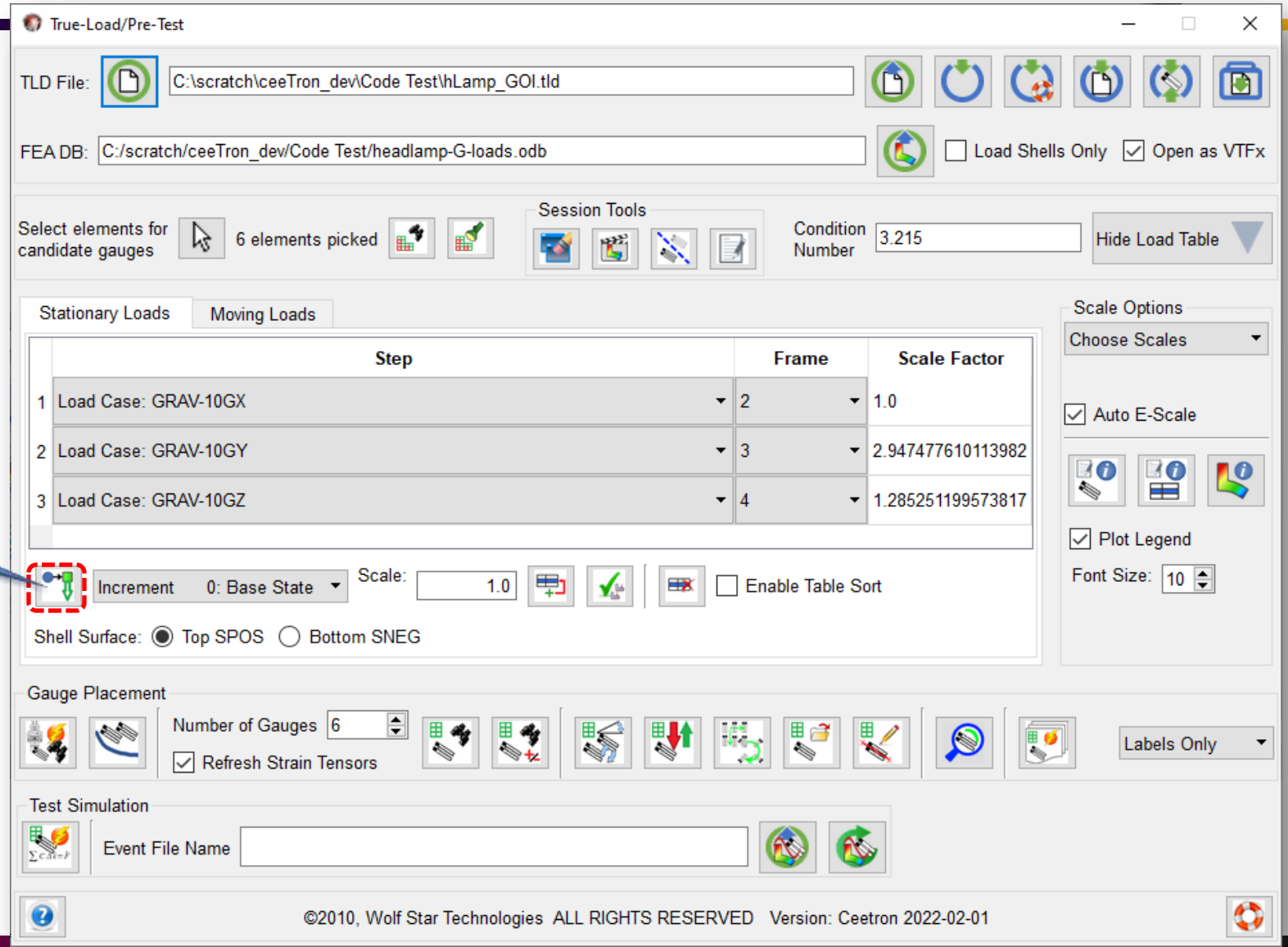
Abaqus Updates

Load All Steps

For ODB files

Load All steps will skip any Base States. If you have a multi-step run, only frames that are not Base States will be loaded.

Previously, this only skipped the first Base State



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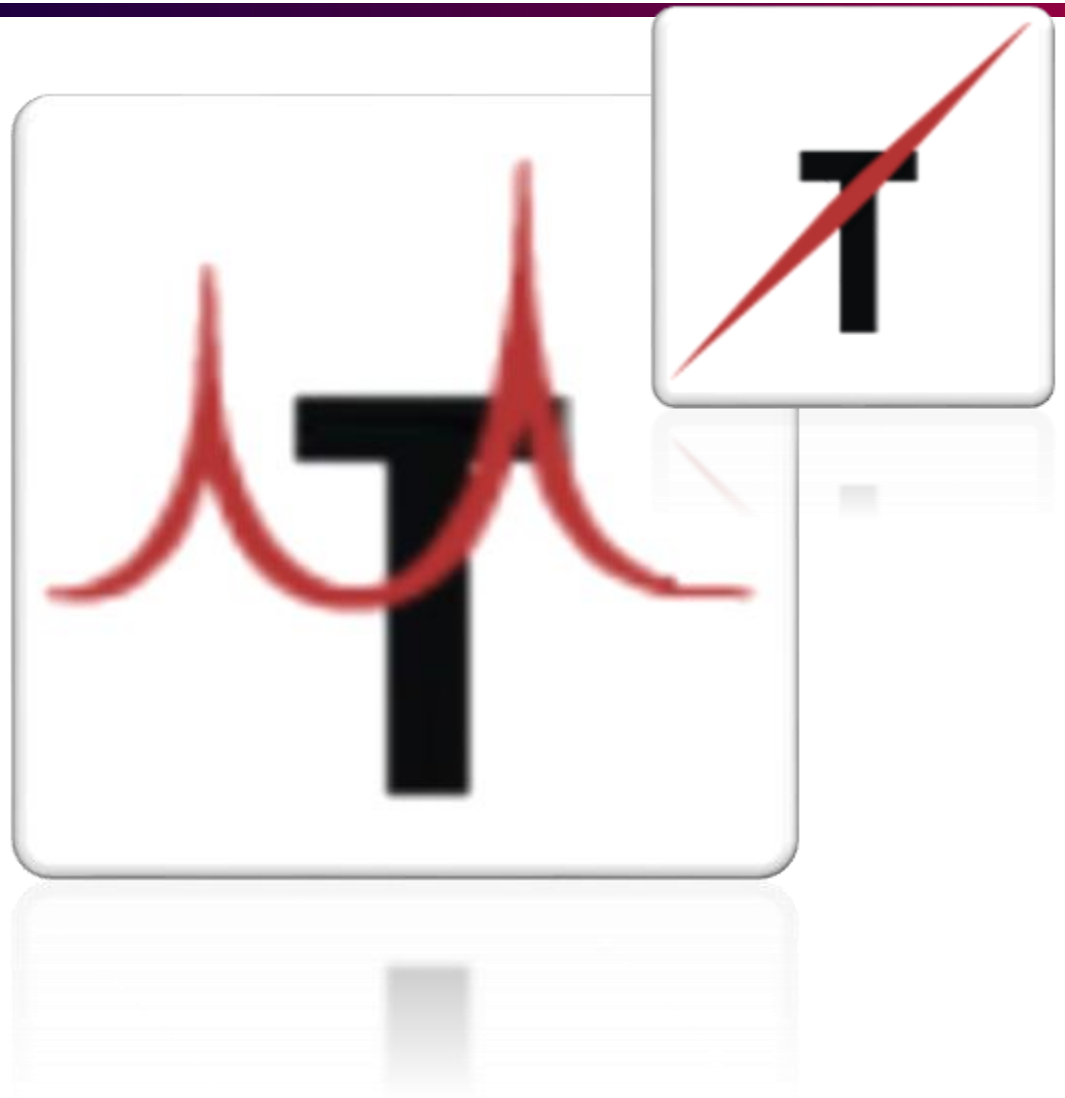
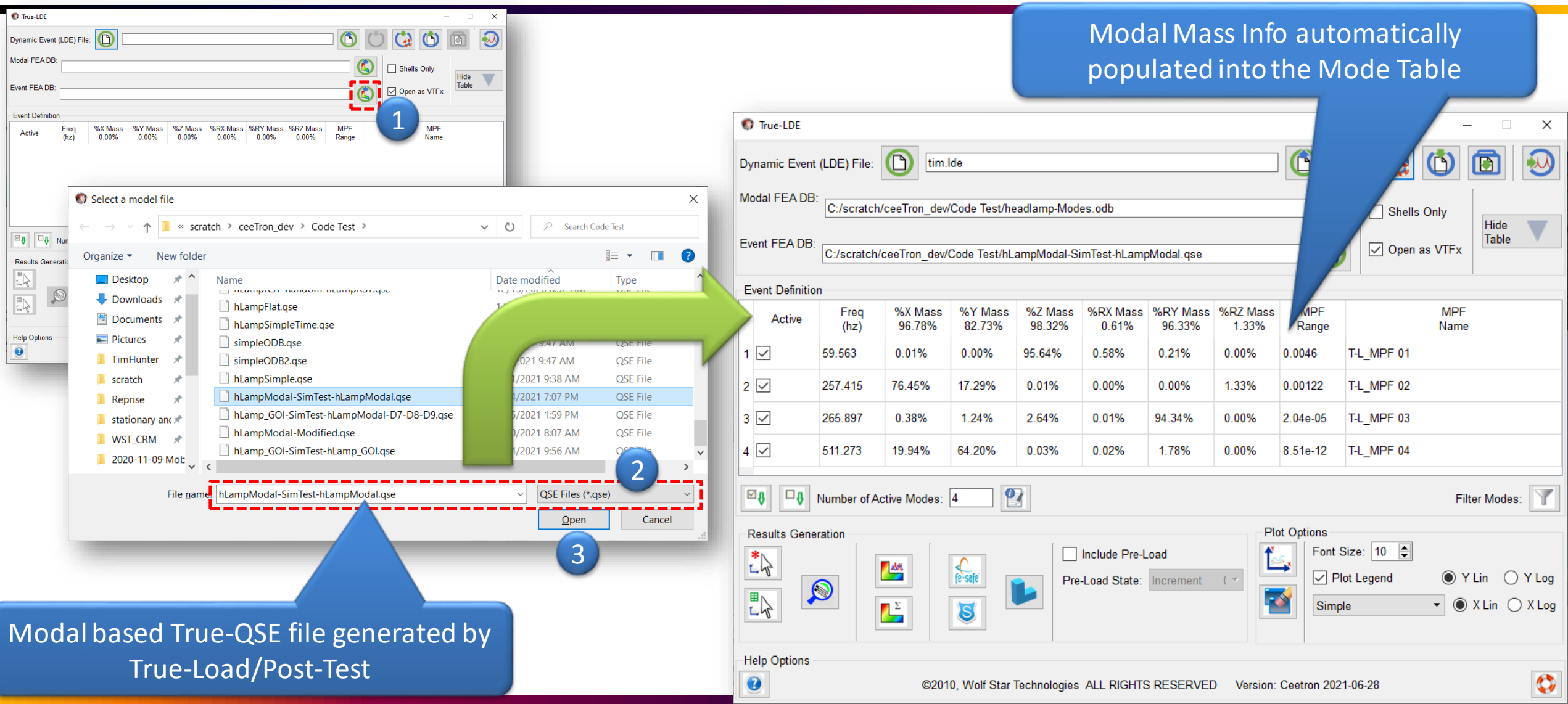
True-LDE



True-QSE support for True-LDE

- This request came from a user:
  - They use modally based True-Load solutions
  - They want to use their True-Load results in True-LDE
    - To fully understand the modal mass implications, etc.
  - They would like to use the True-QSE file and the corresponding loading functions (e.g. MPFs) in True-LDE
  - See next slide.

True-QSE support for True-LDE



Post-Test Table Sortable

Post-Test Table Sortable

Click headers to sort ascending / descending

Gauge	Measured Strain Range MicroStrain	%RMS Error	Slope (m)	Intercept (b) MicroStrain	Corollary (r^2)
G1: 0 Ele #49917	813.691	2.494%	0.997	-21.719	0.9999
G2: 0 Ele #48116	820.706	6.658%	0.955	28.950	0.9999
G3: 0 Ele #54003	747.123	4.663%	1.025	-22.812	0.9999
G4: 0 Ele #46268	344.241	8.460%	1.091	-10.371	0.9978
G5: 0 Ele #44535	658.784	19.410%	0.928	-122.466	0.9579
G6: 0 Ele #44242	617.352	5.520%	1.019	35.399	0.9966
G7: 0 Ele #55007	677.889	5.130%	0.929	-31.609	0.9956
G8: 0 Ele #50041	267.714	12.892%	1.052	-30.660	0.9966
G9: 0 Ele #64941	578.871	12.035%	0.950	-62.749	0.9884
G10: 0 Ele #63374	498.666	14.386%	0.910	-52.046	0.9794
G11: 0 Ele #44349	383.602	5.116%	0.982	-17.170	0.9976
G12: 0 Ele #61869	937.911	1.764%	1.027	-0.315	0.9999
G13: 0 Ele #63350	666.281	1.655%	0.998	-10.142	0.9998
G14: 0 Ele #47084	536.703	4.009%	0.969	-10.420	1.0000
G15: 0 Ele #22320	36.027	80.998%	-0.626	14.313	-0.7964
G16: 0 Ele #23320	12.480	24.409%	1.073	-2.869	0.9033
G17: 0 Ele #37845	415.389	19.319%	0.803	29.619	0.9971
G18: 0 Ele #38210	150.403	38.154%	0.721	45.182	0.6960
G19: 0 Ele #8622	347.453	16.918%	1.160	-32.324	0.9985
G20: 0 Ele #11413	170.772	10.307%	0.896	-13.700	0.9830
	Average:	10.494%	0.967	-16.631	0.9769

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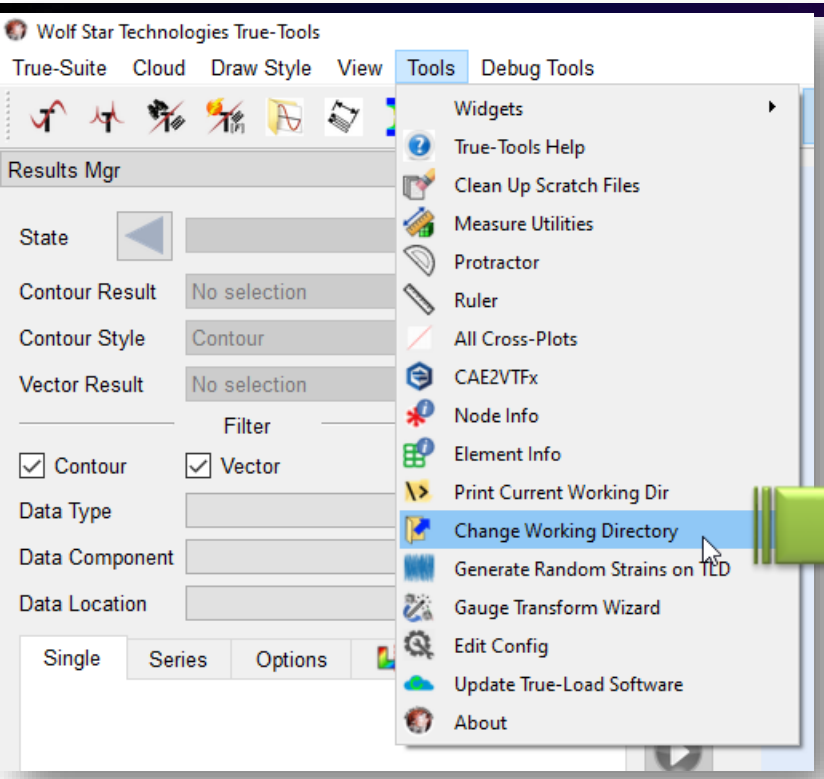
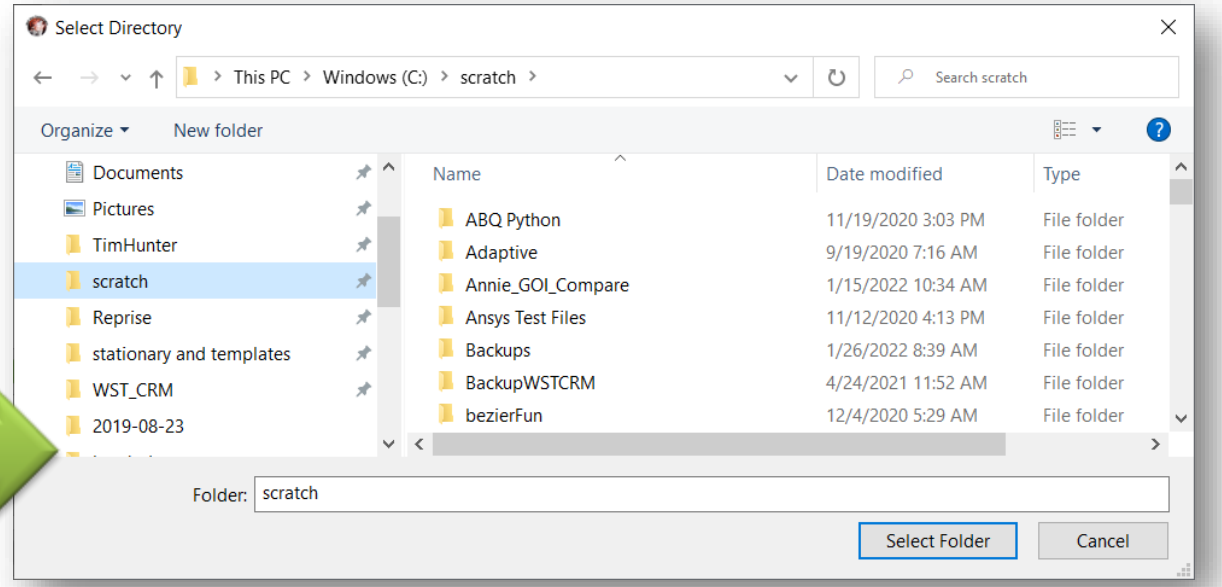
Pre-Test GUI Changes

Change Working Dir

It just works

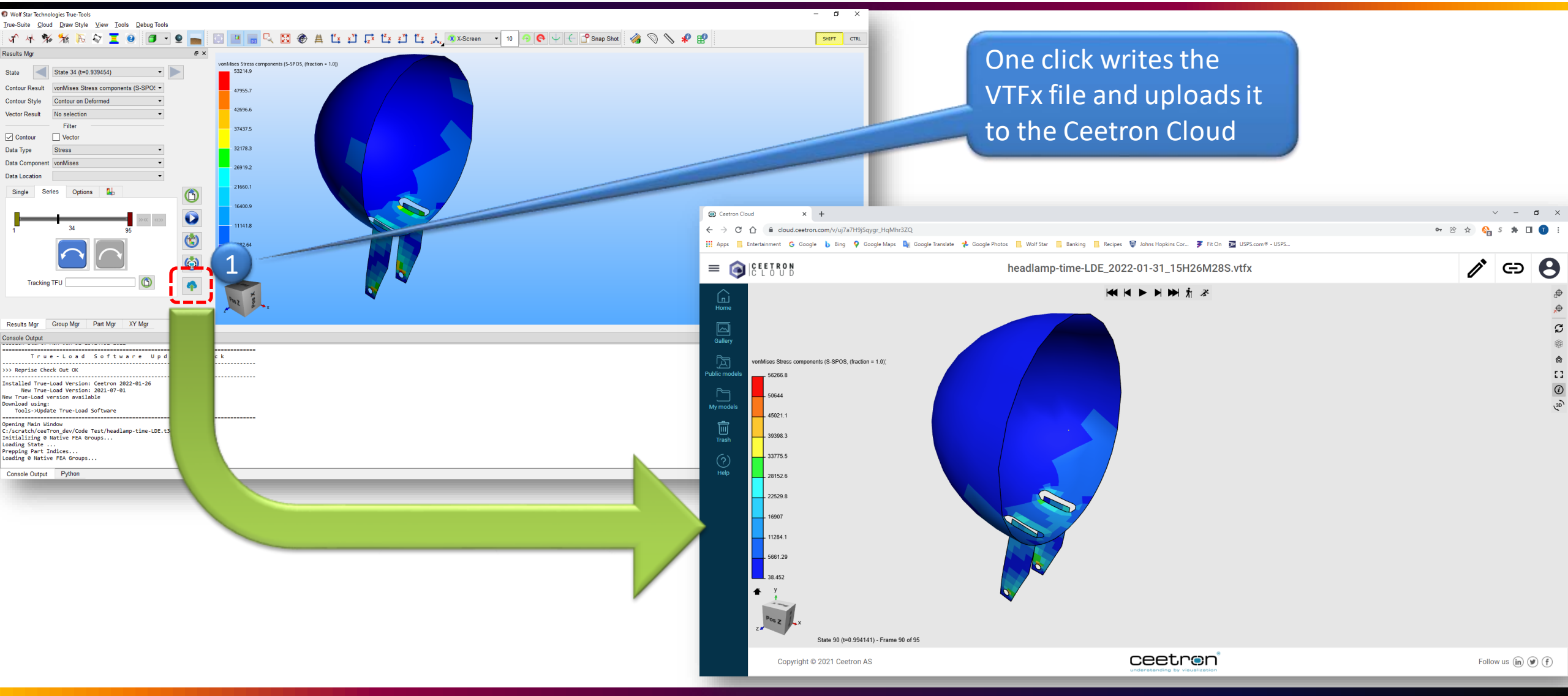




Note – File Open / Save dialog boxes will remember last directory accessed. This does not override the working directory.

Send to Cloud

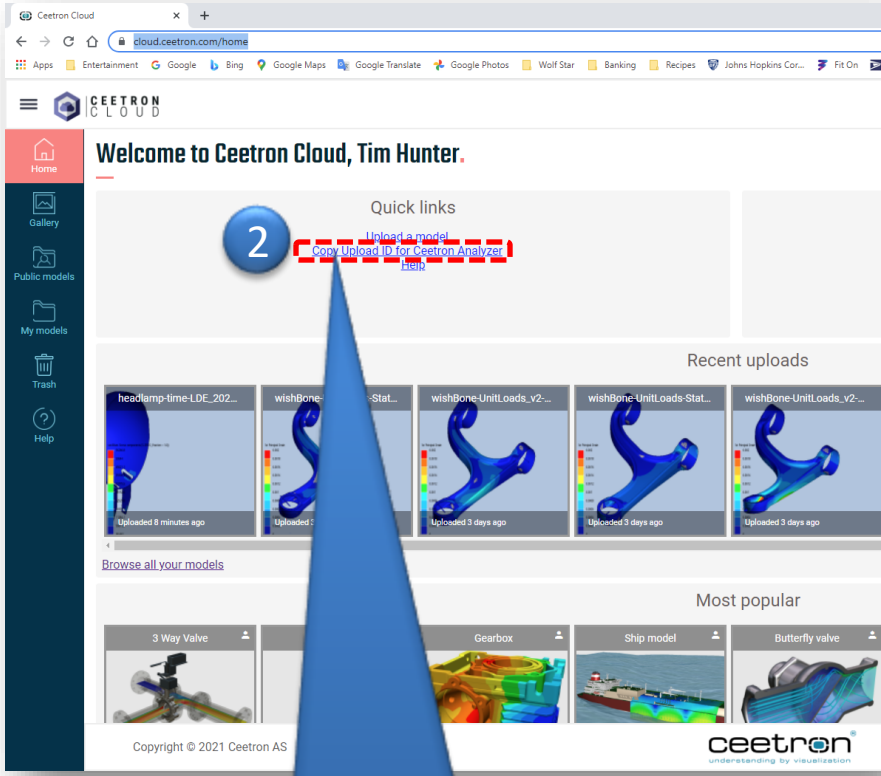
Send to Cloud

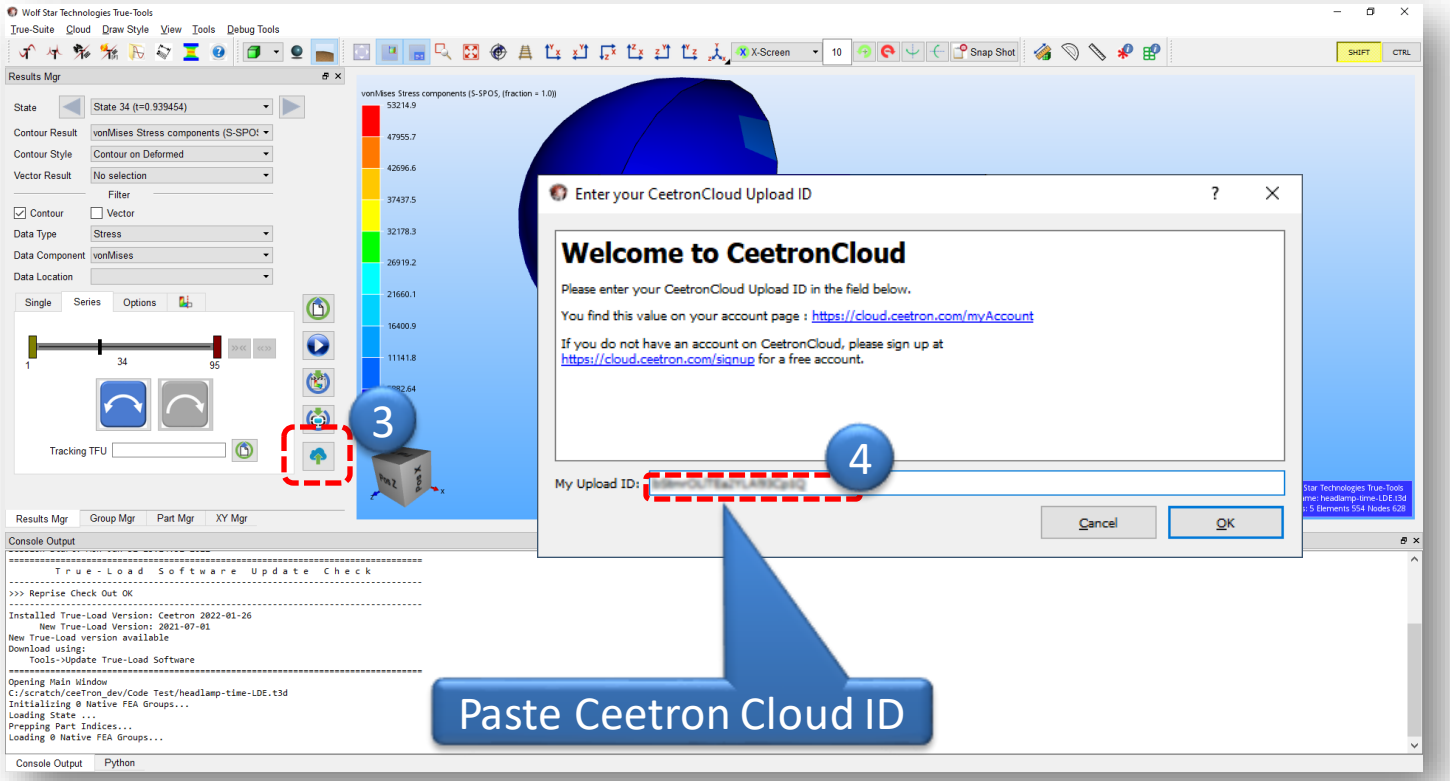


1. Need to have Ceetron Cloud account (free)
2. Need to get the Ceetron Cloud ID

First time issues

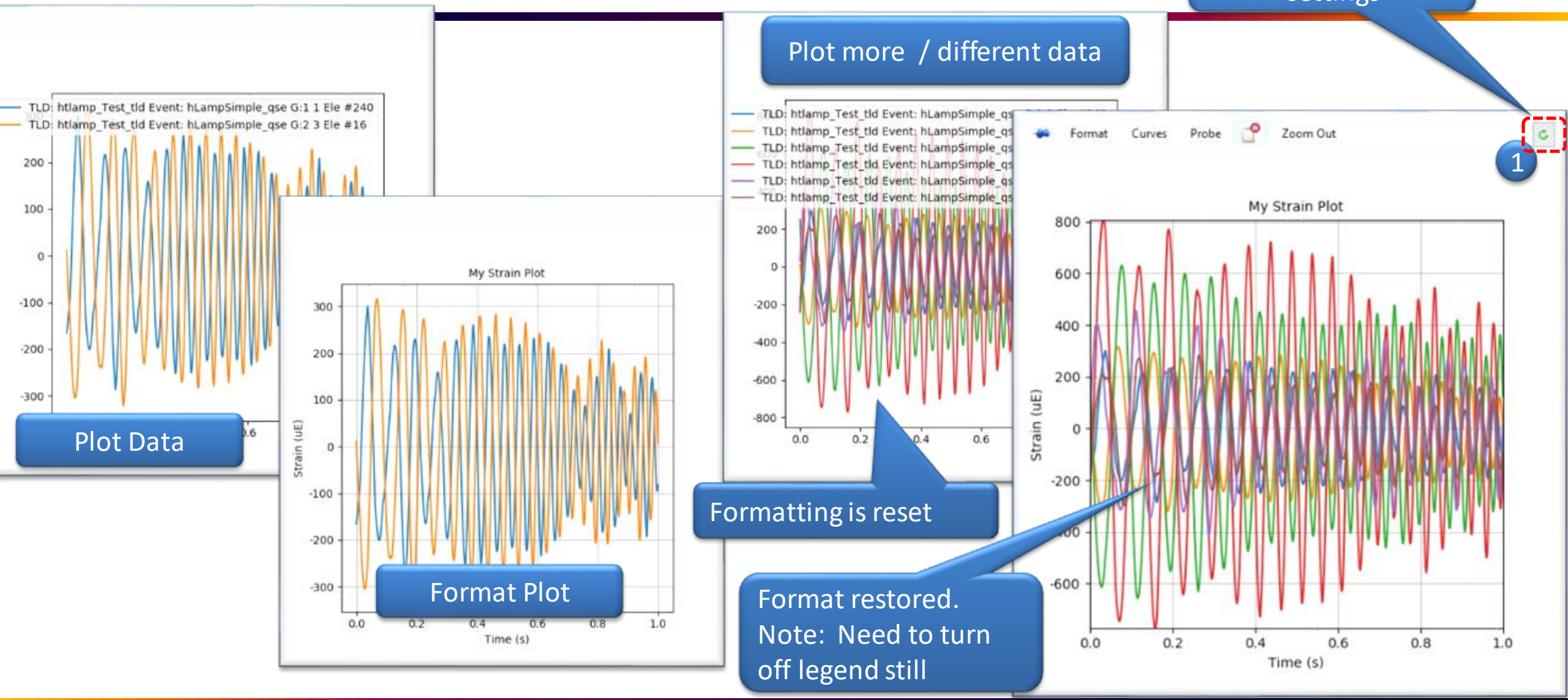
1 https://cloud.ceetron.com/home





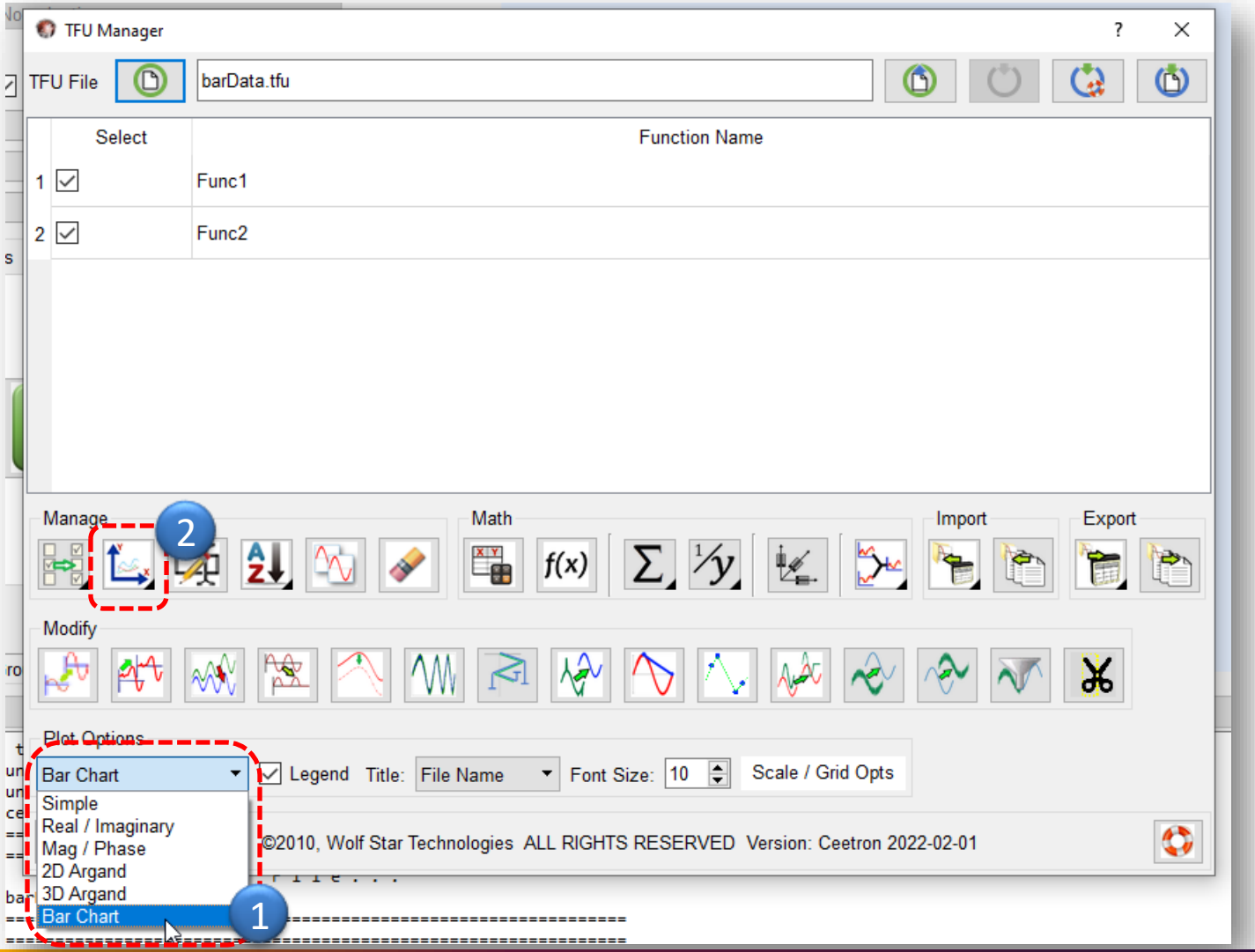
Reload Plot Settings

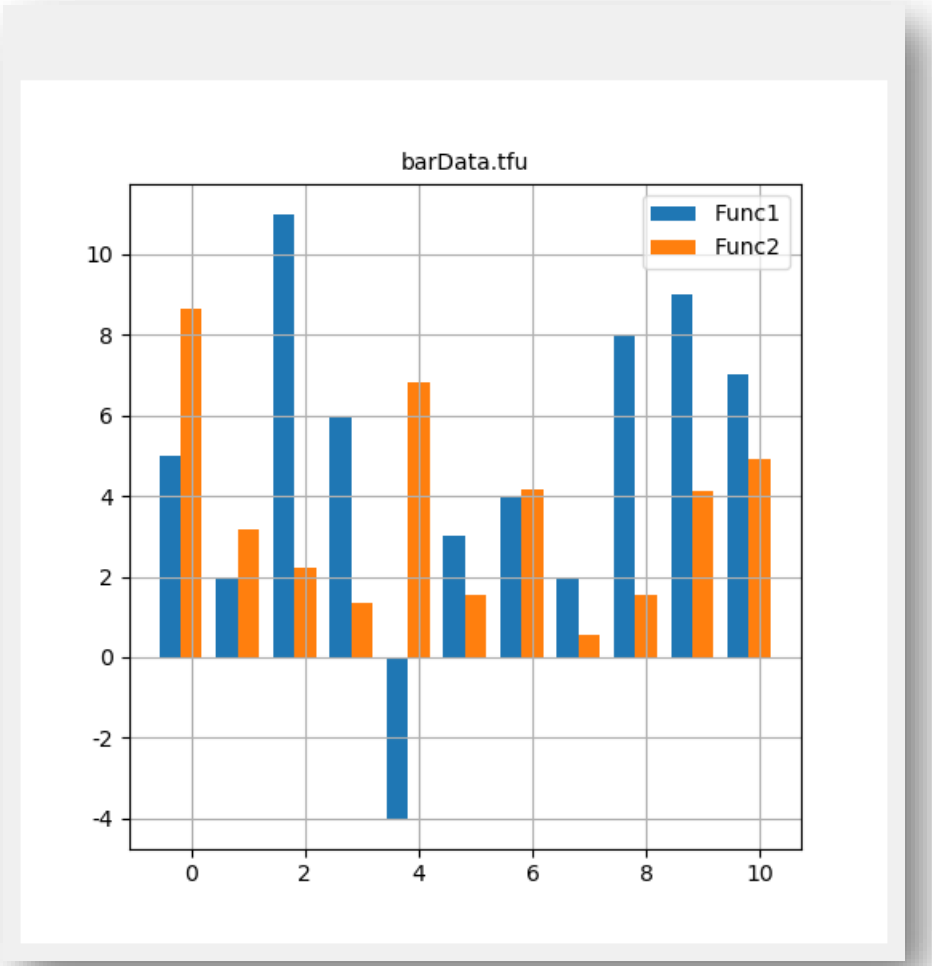
Reload Plot Settings



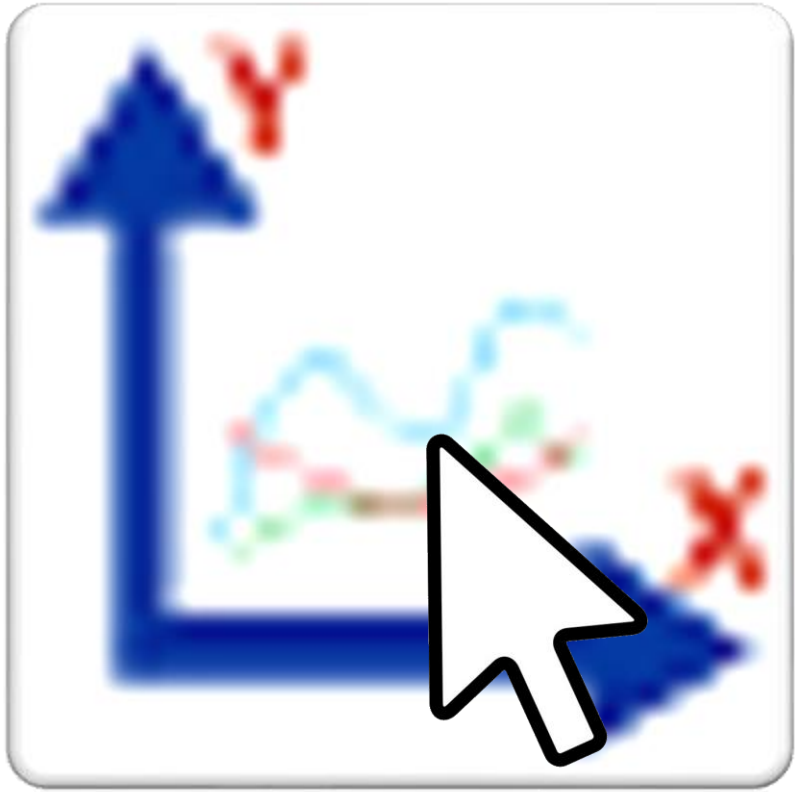
Bar Chart

Bar Charts - Simple

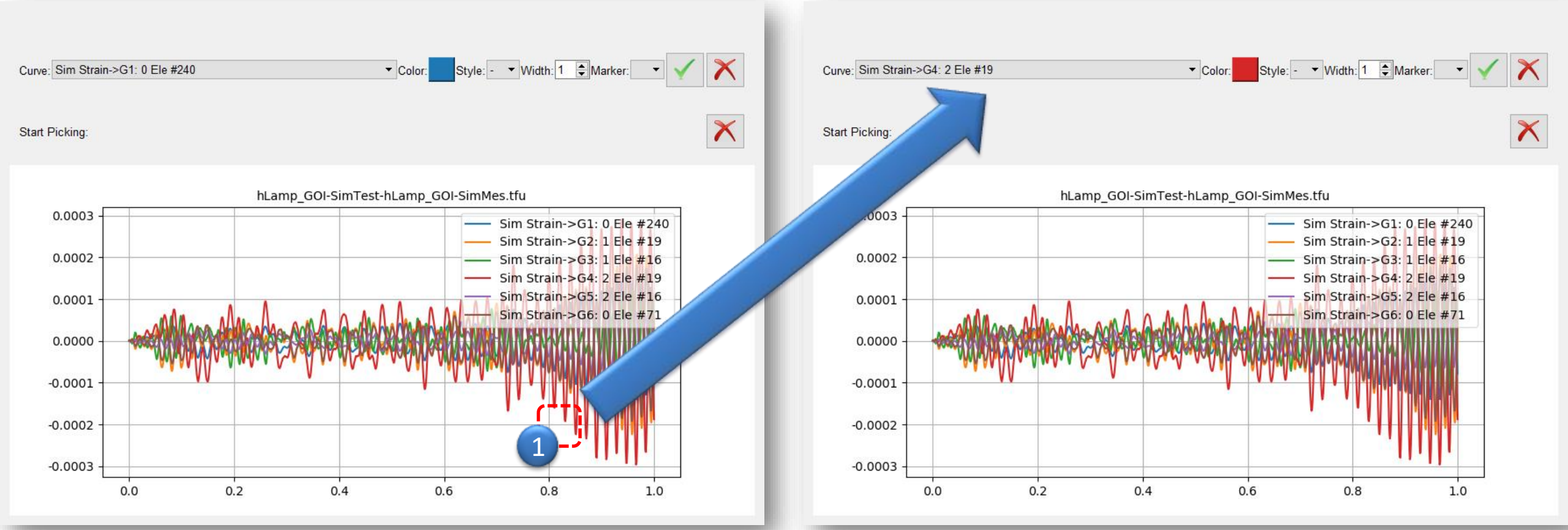




Probe Plot Update

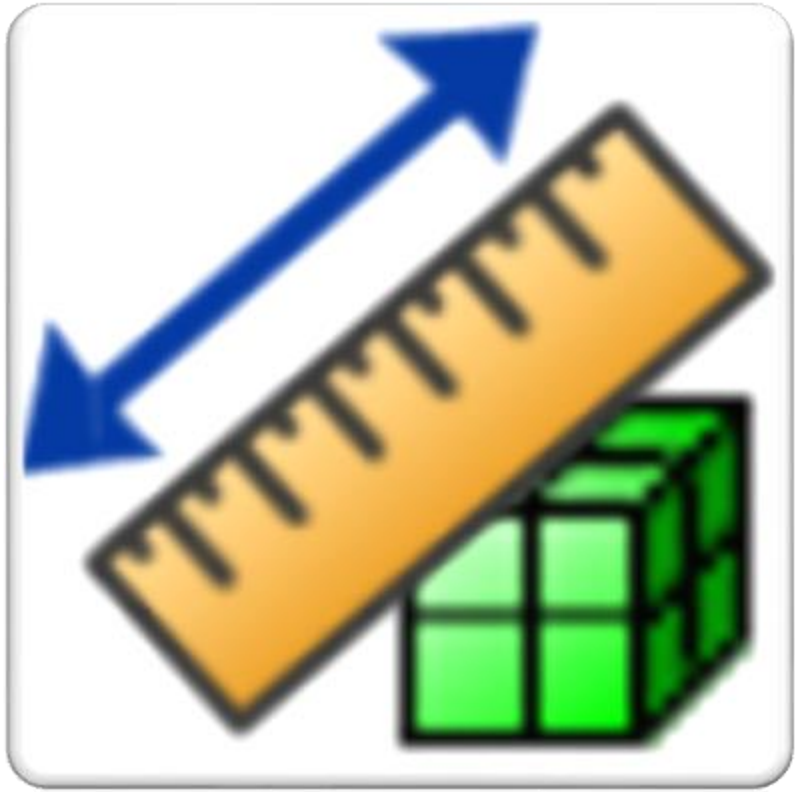


Probing a curve makes it the current curve for formatting

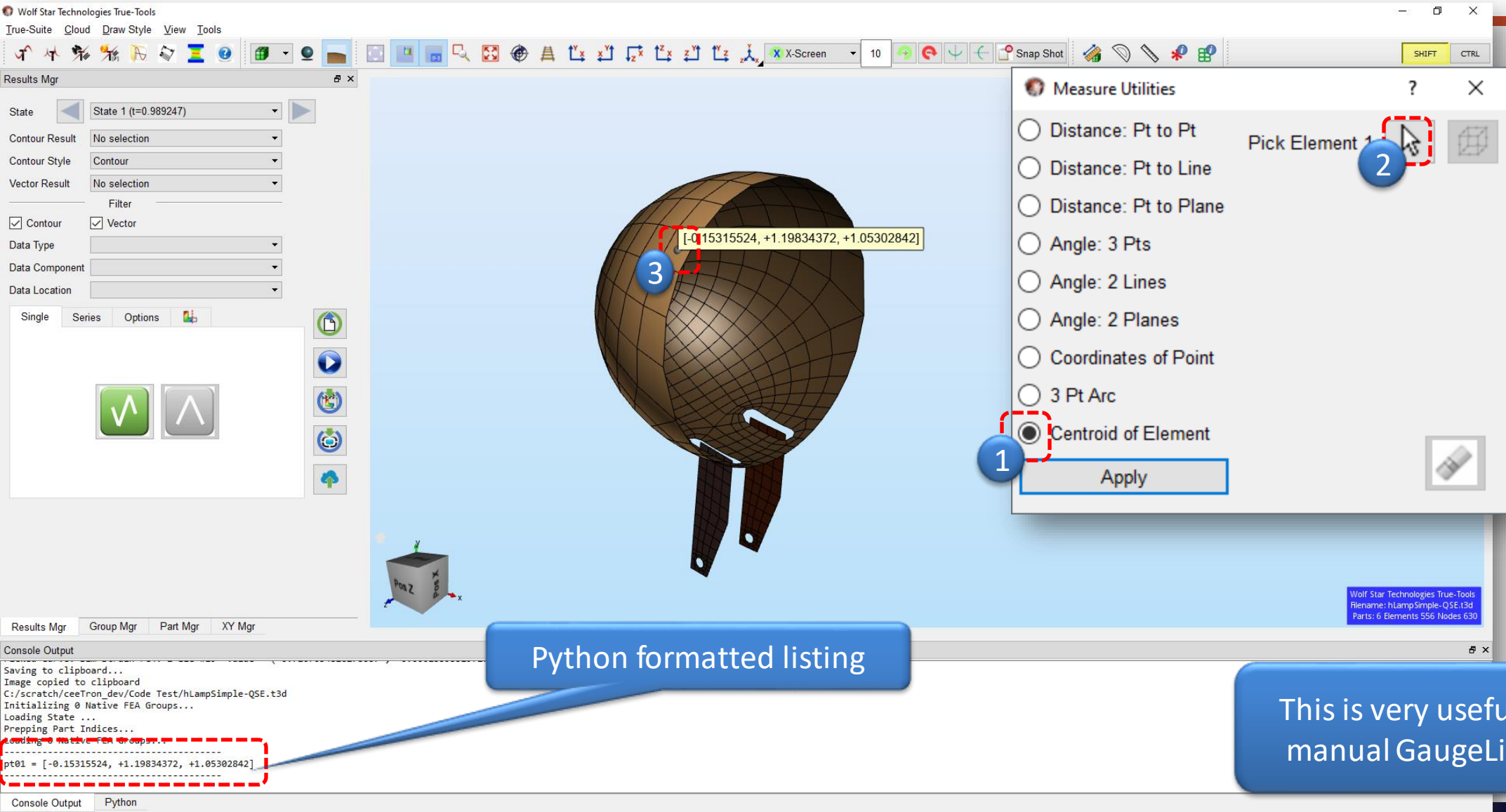


This makes updating curve plot characteristics easier.

Measure Utils



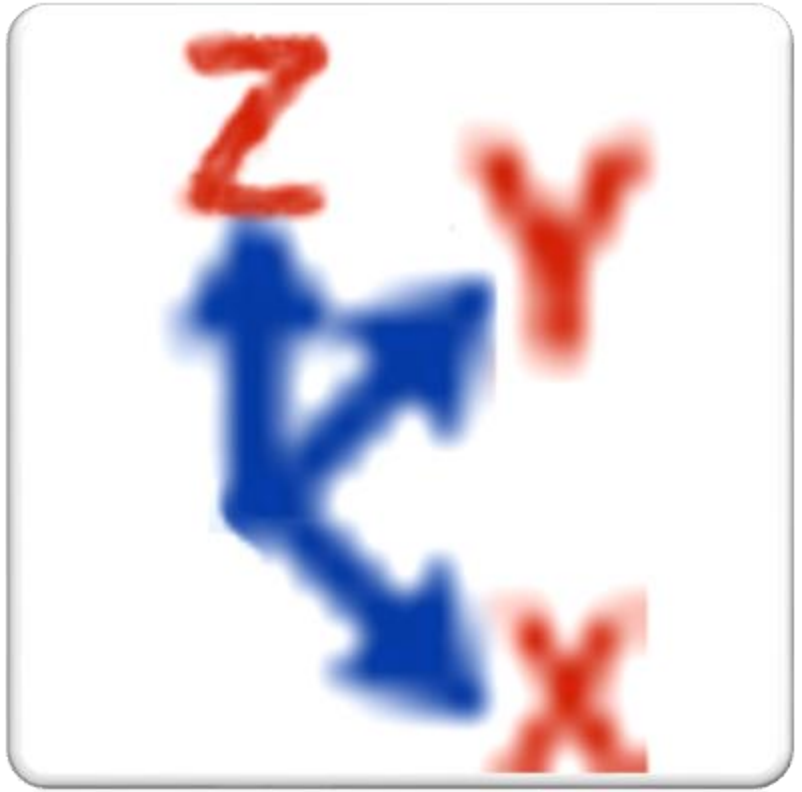
Centroid of Element

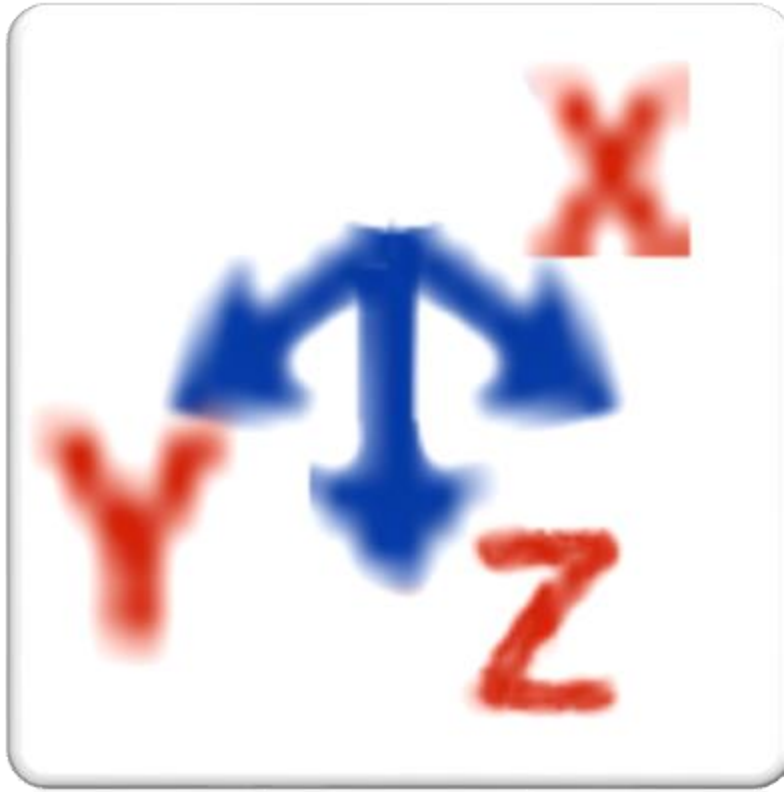


Python formatted listing

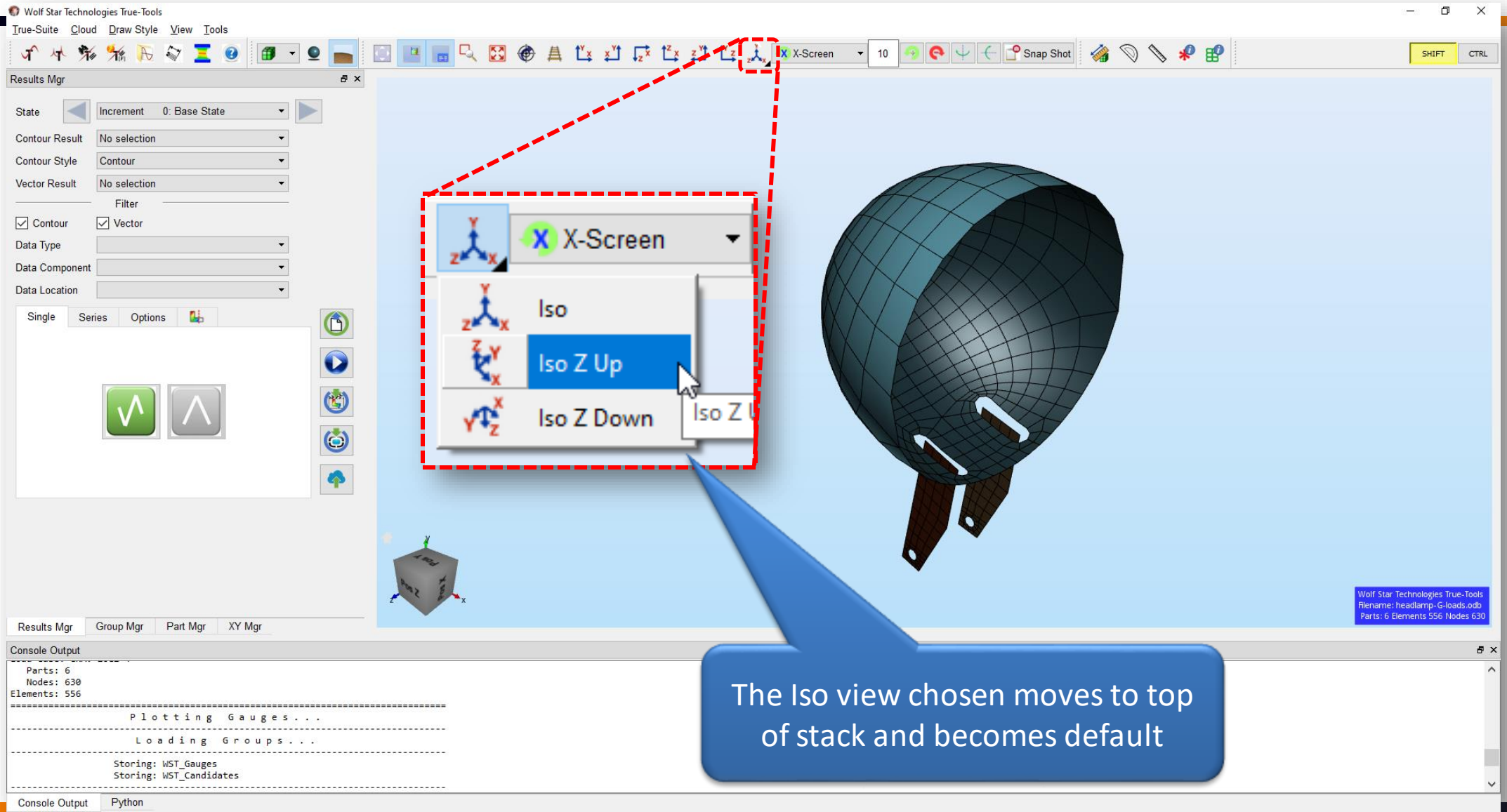
This is very useful for making manual GaugeLines.csv files

Iso Views



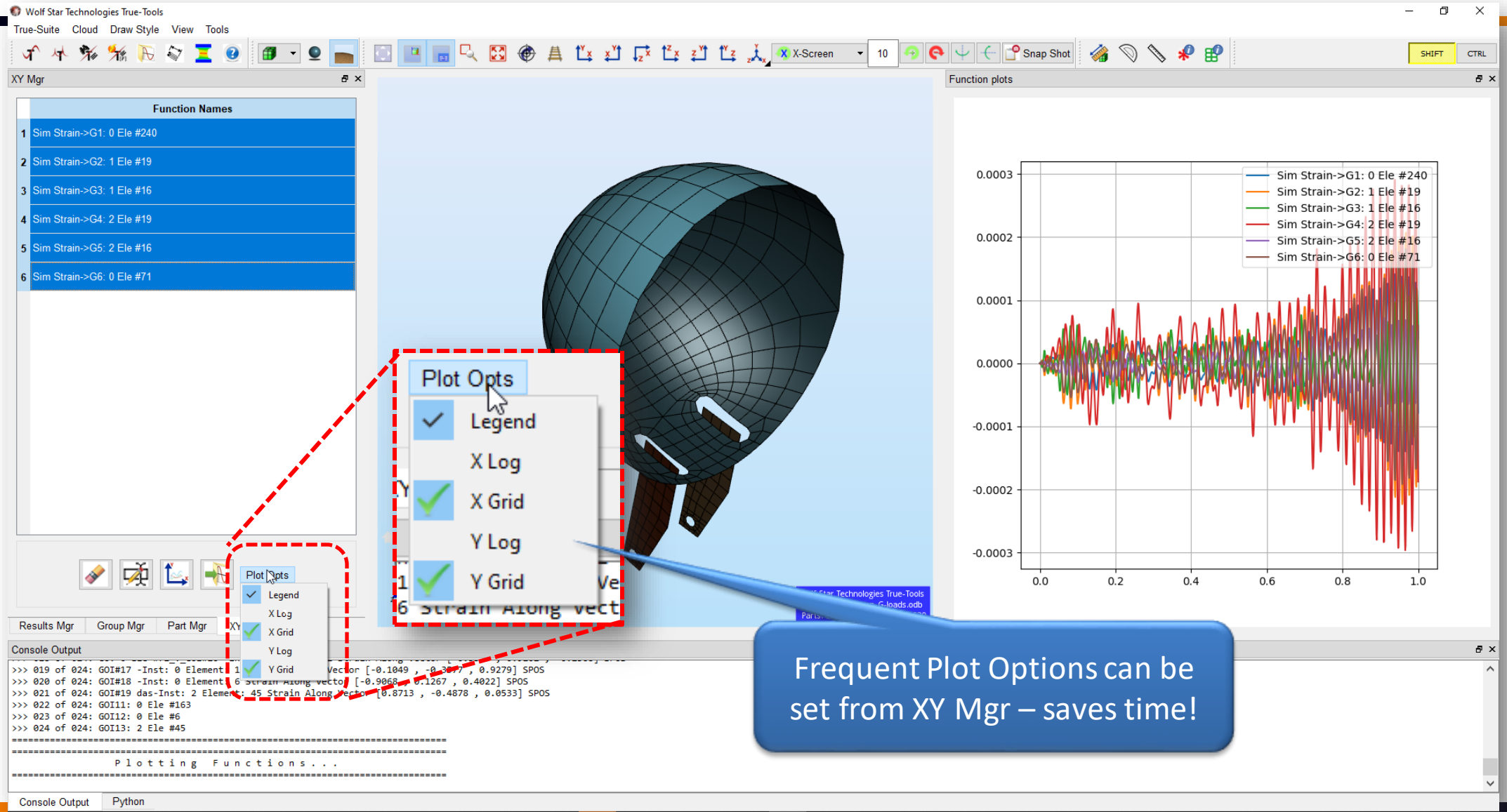


Iso Views in Icon Stack



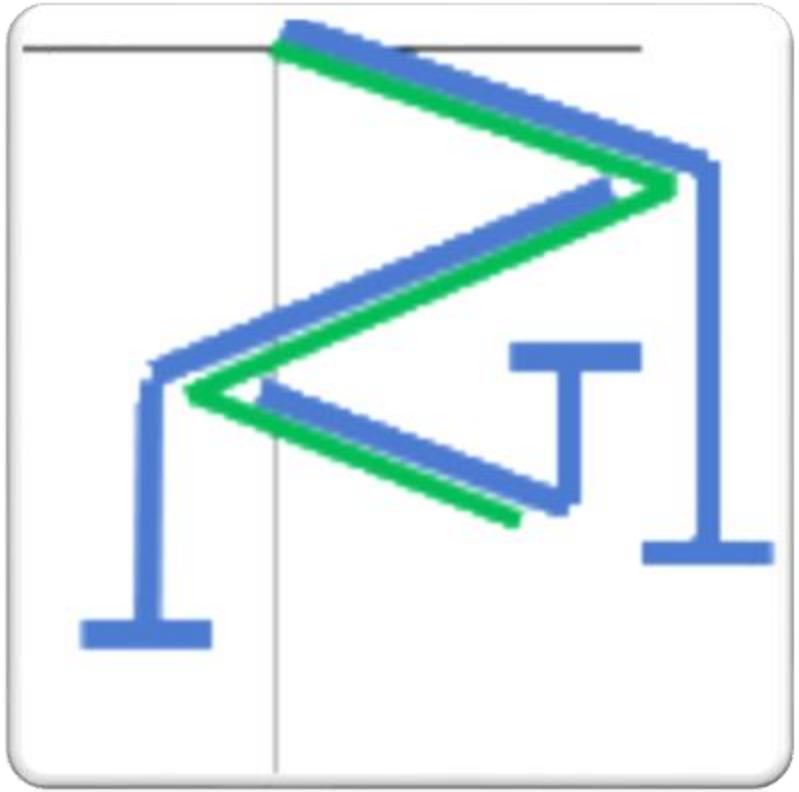
XY Mgr Plot Settings

XY Mgr Plot Settings

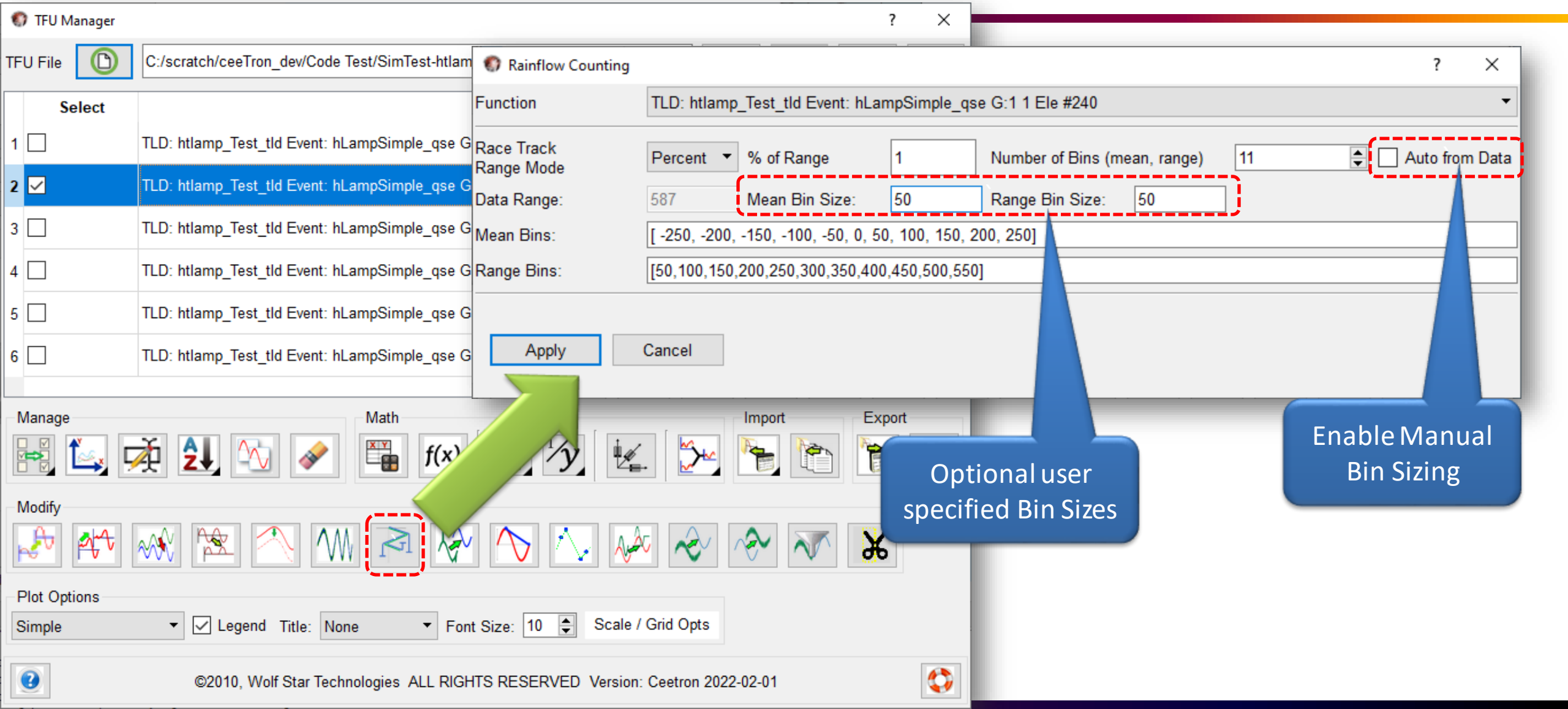


Frequent Plot Options can be set from XY Mgr – saves time!

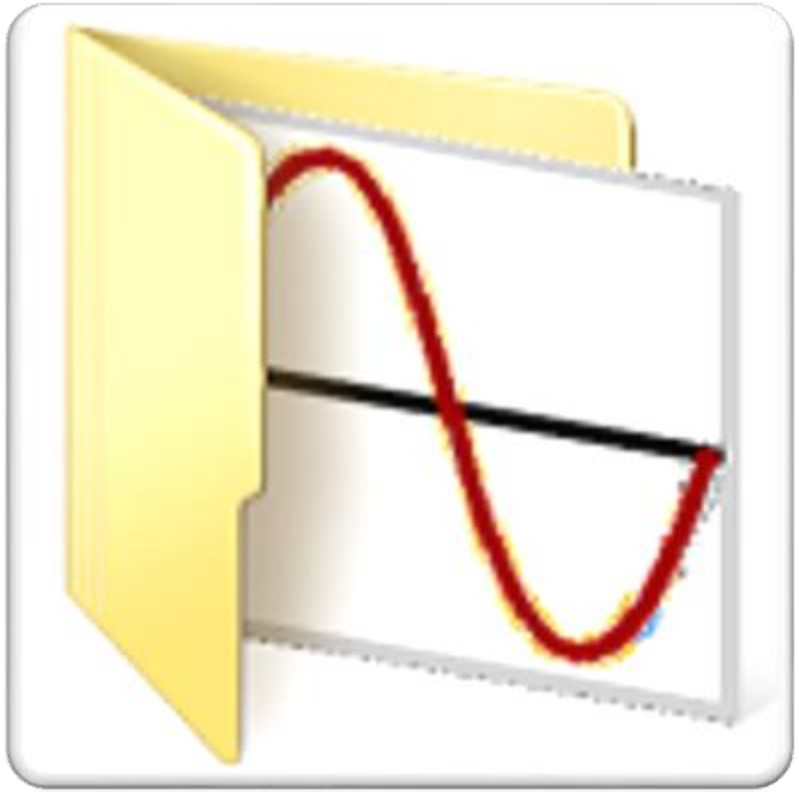
Rainflow Bin Settings

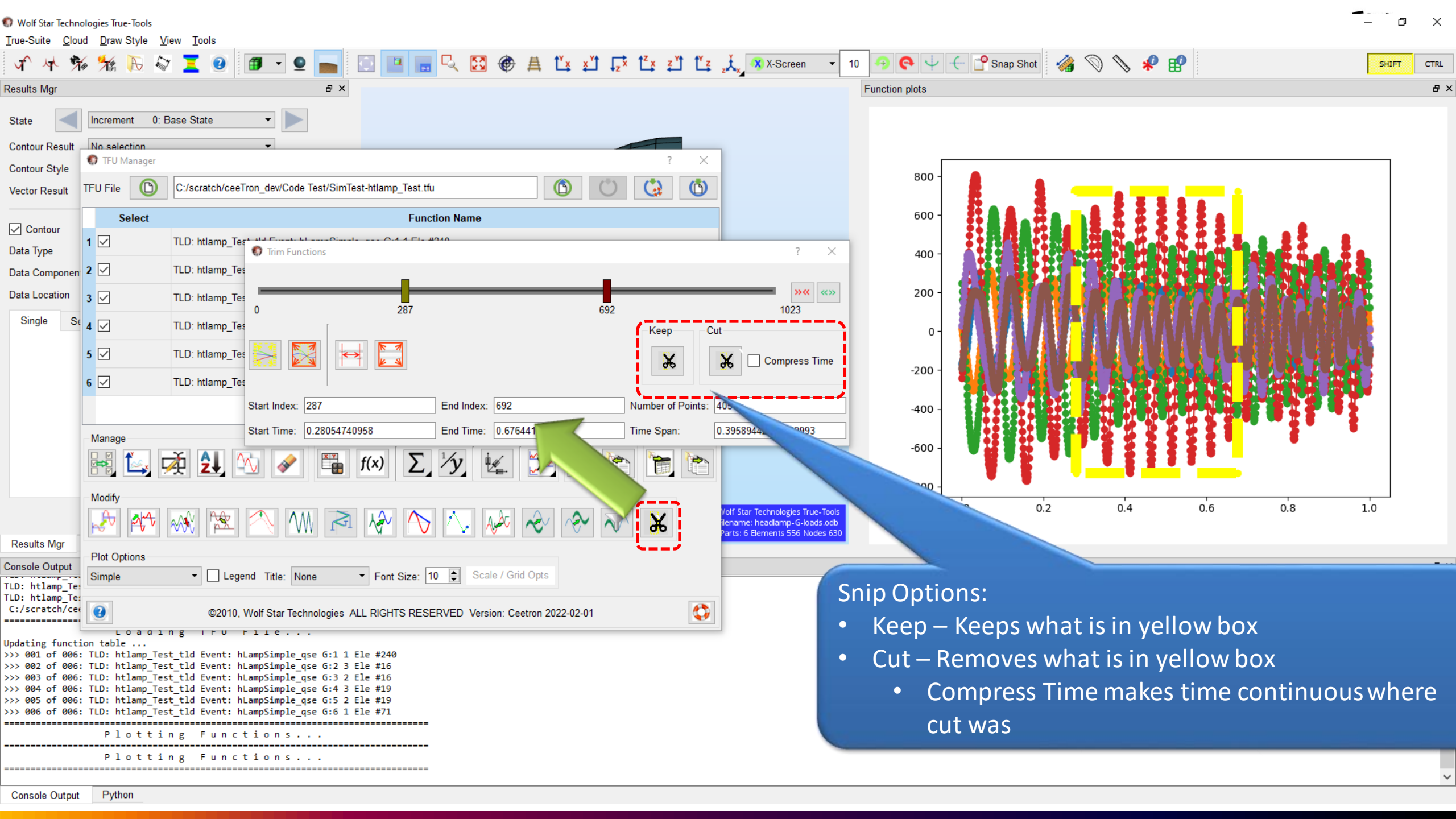


Rainflow Bin Sizing

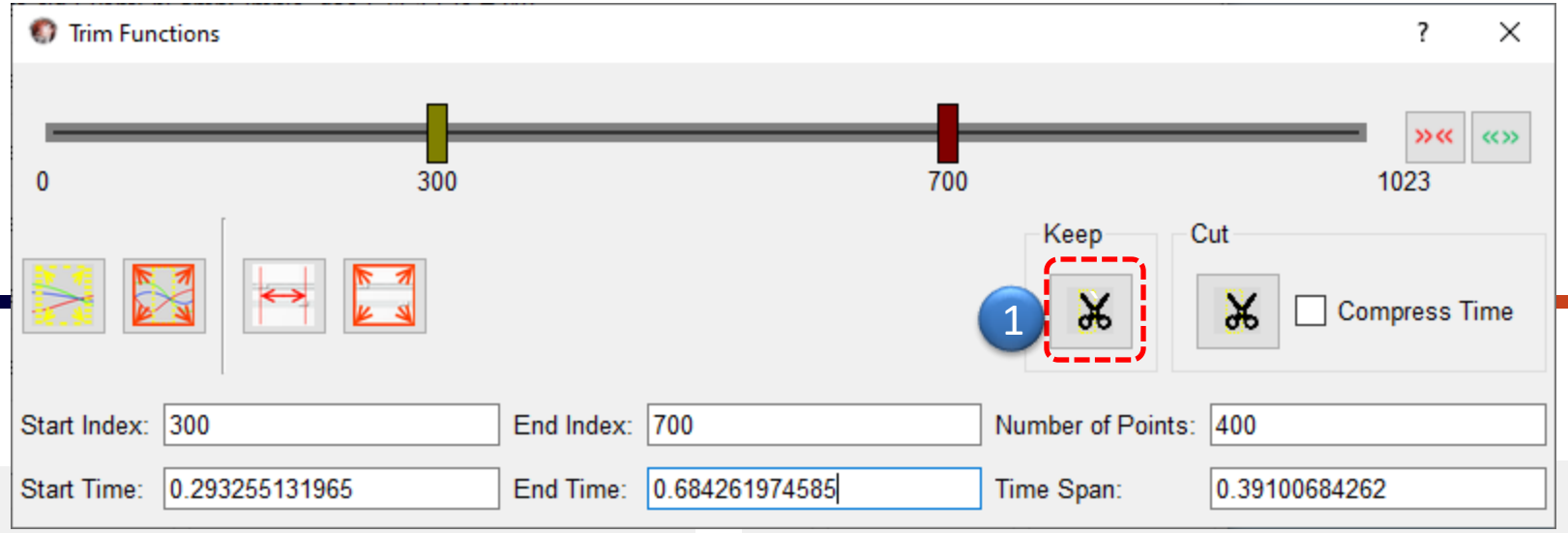


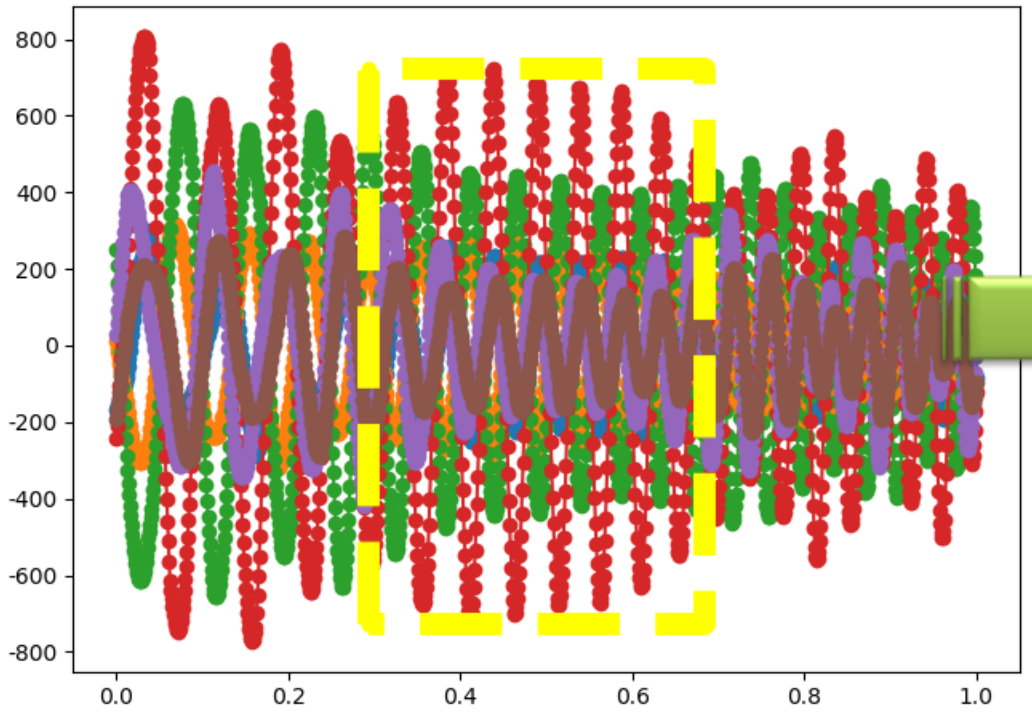
Snipping Tool

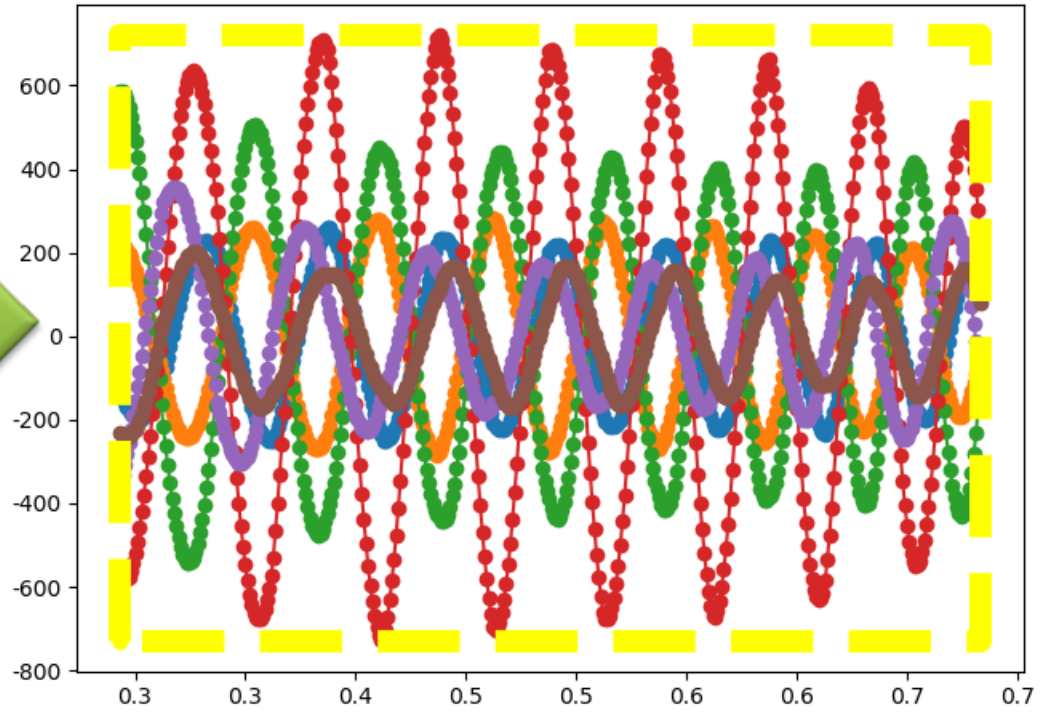



Wolf Star Technologies True-Tools
True-Suite Cloud Draw Style View Tools
Results Mgr
Function plots
TFU Manager
TFU File
C:/scratch/ceeTron_dev/Code Test/SimTest-htlamp_Test.tfu
Select
Function Name
Trim Functions
0
287
692
1023
Keep
Cut
Compress Time
Start Index: 287
End Index: 692
Number of Points:
Start Time: 0.28054740958
End Time:
Time Span:
Manage
Modify
Plot Options
Simple
Legend
Title: None
Font Size: 10
Scale / Grid Opts
©2010, Wolf Star Technologies ALL RIGHTS RESERVED Version: Ceetron 2022-02-01
Console Output
Updating function table ...
>>> 001 of 006: TLD: htlamp_Test_tld Event: hLampSimple_qse G:1 1 Ele #240
>>> 002 of 006: TLD: htlamp_Test_tld Event: hLampSimple_qse G:2 3 Ele #16
>>> 003 of 006: TLD: htlamp_Test_tld Event: hLampSimple_qse G:3 2 Ele #16
>>> 004 of 006: TLD: htlamp_Test_tld Event: hLampSimple_qse G:4 3 Ele #19
>>> 005 of 006: TLD: htlamp_Test_tld Event: hLampSimple_qse G:5 2 Ele #19
>>> 006 of 006: TLD: htlamp_Test_tld Event: hLampSimple_qse G:6 1 Ele #71
Plotting Functions...
Plotting Functions...
Console Output
Python
Snip Options:
Keep – Keeps what is in yellow box
Cut – Removes what is in yellow box
Compress Time makes time continuous where cut was

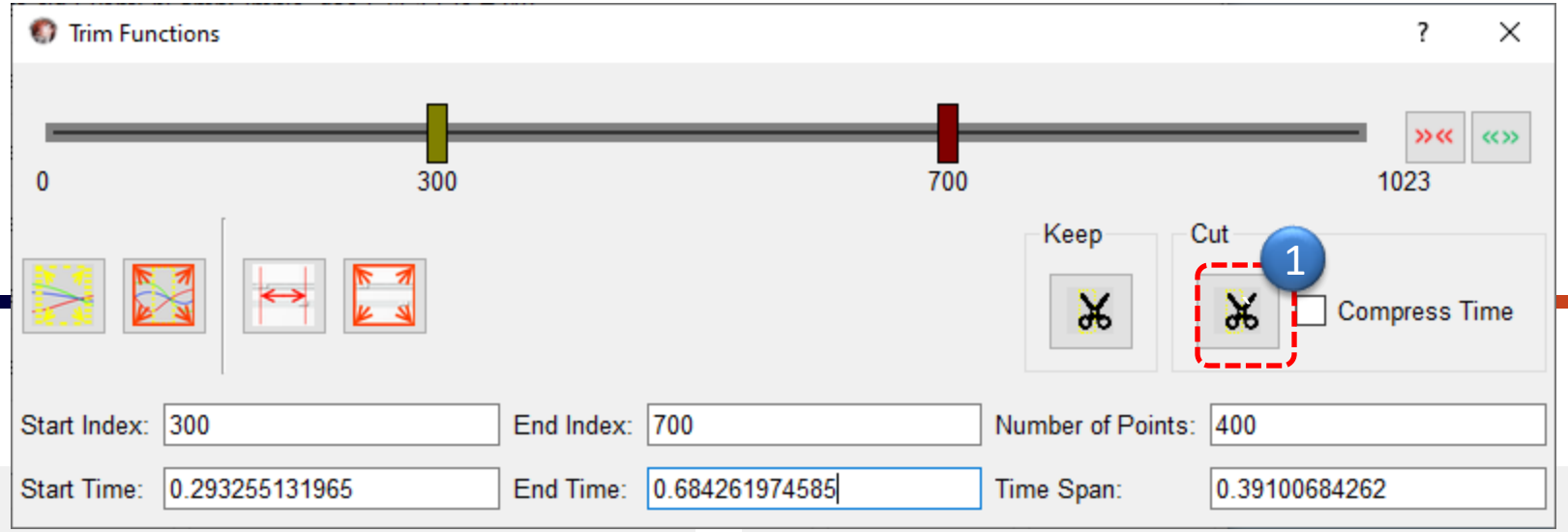
Keep

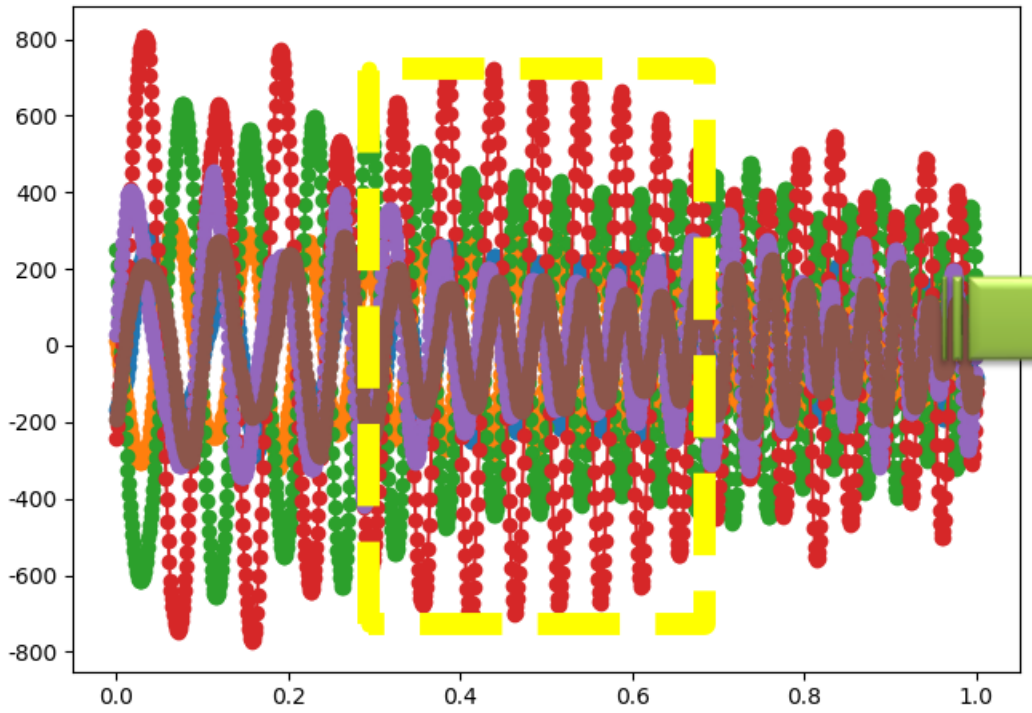

Trim Functions
0
300
700
1023
Keep
Cut
1
Compress Time
Start Index: 300
End Index: 700
Number of Points: 400
Start Time: 0.293255131965
End Time: 0.684261974585
Time Span: 0.39100684262

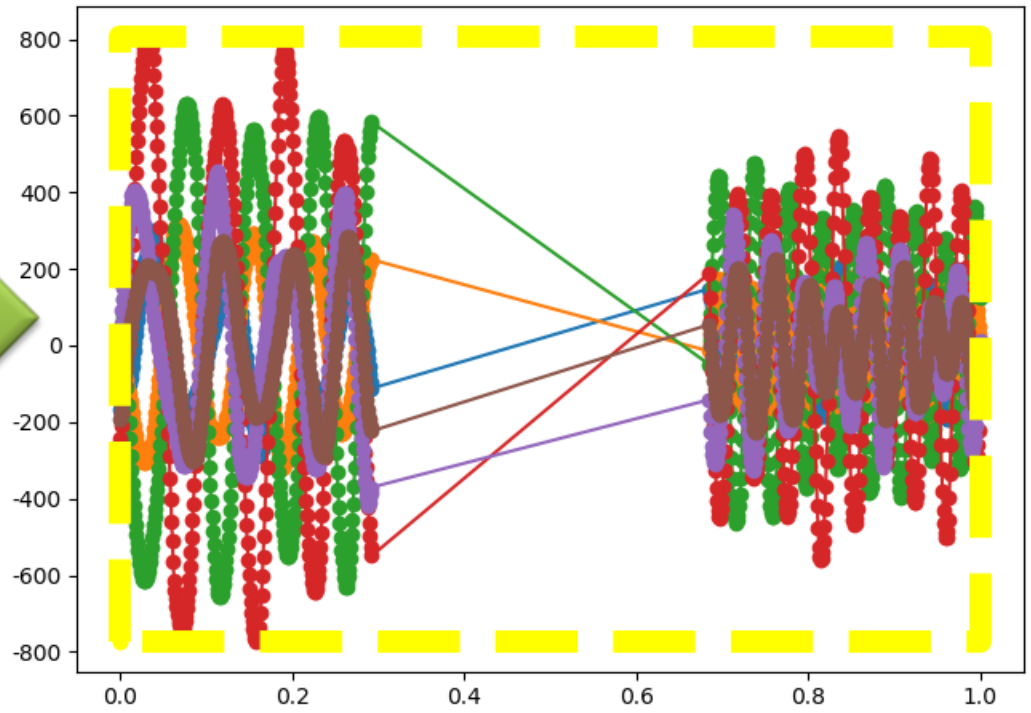

800
600
400
200
0
-200
-400
-600
-800
0.0
0.2
0.4
0.6
0.8
1.0


600
400
200
0
-200
-400
-600
-800
0.3
0.3
0.4
0.5
0.5
0.6
0.6
0.7
0.7

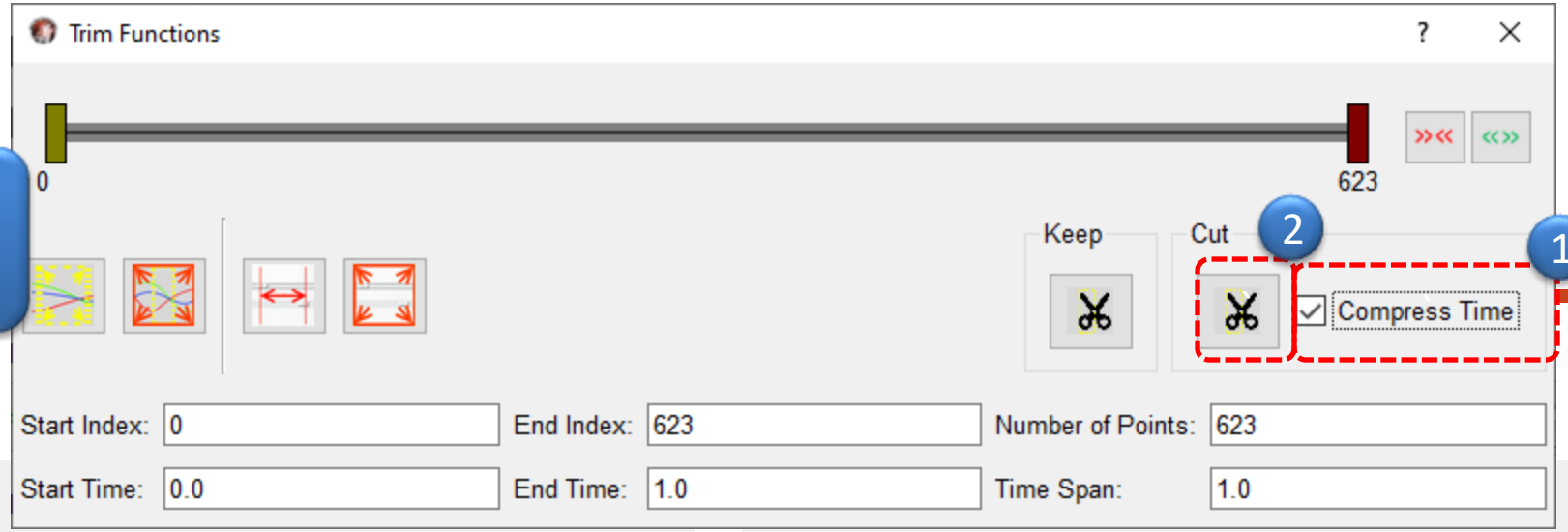
Cut

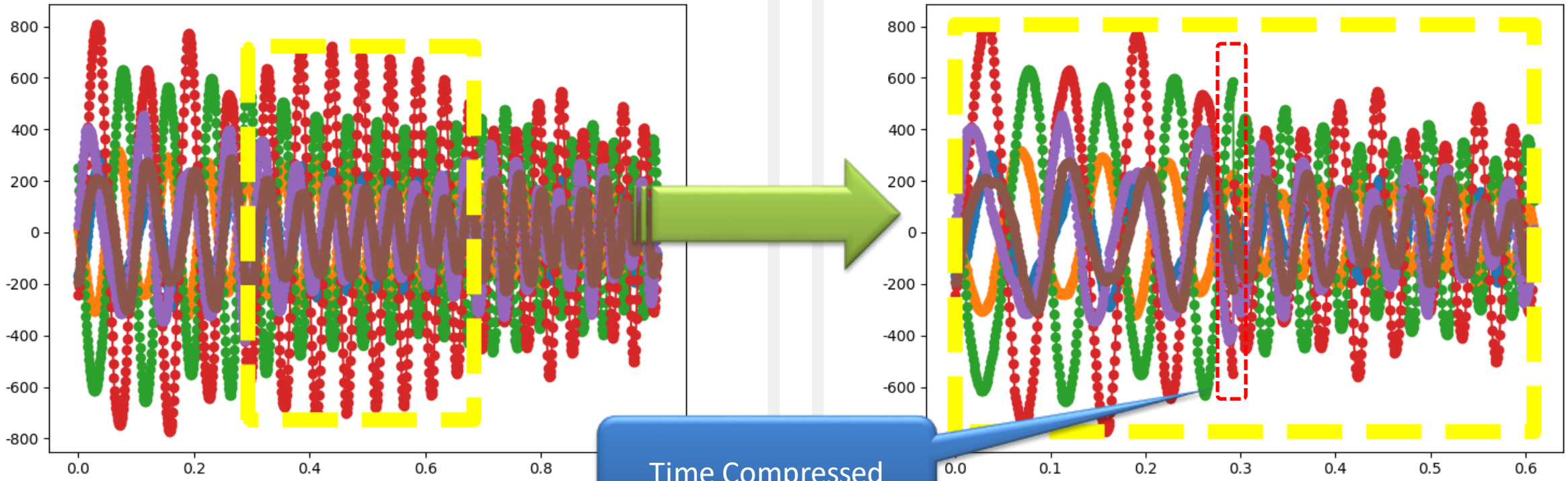

Trim Functions
0
300
700
1023
Keep
Cut
1
Compress Time
Start Index: 300
End Index: 700
Number of Points: 400
Start Time: 0.293255131965
End Time: 0.684261974585
Time Span: 0.39100684262


800
600
400
200
0
-200
-400
-600
-800
0.0
0.2
0.4
0.6
0.8
1.0


800
600
400
200
0
-200
-400
-600
-800
0.0
0.2
0.4
0.6
0.8
1.0

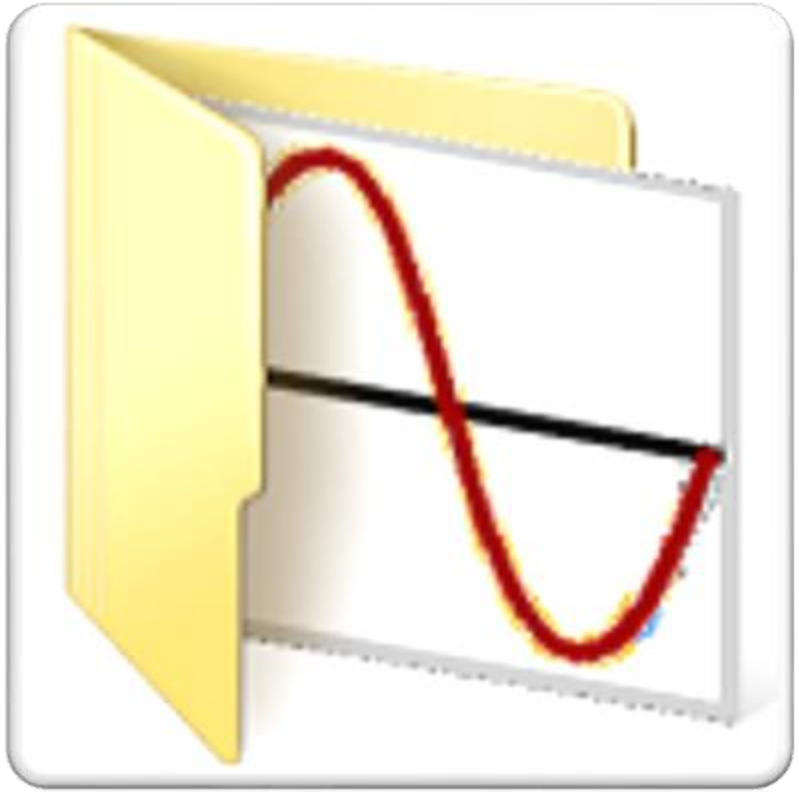
Cut
Compress Time



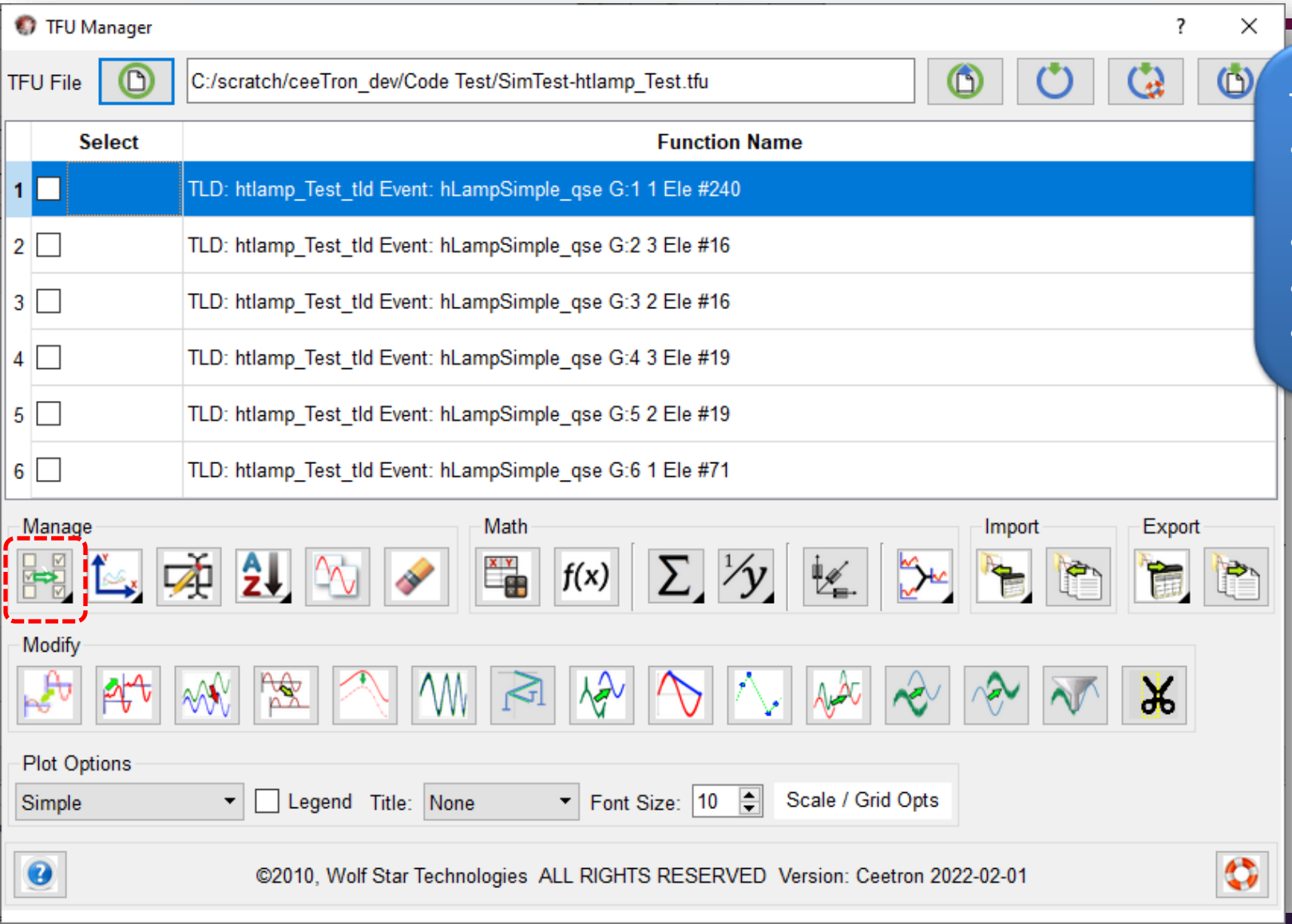


Time Compressed

Invert Selection

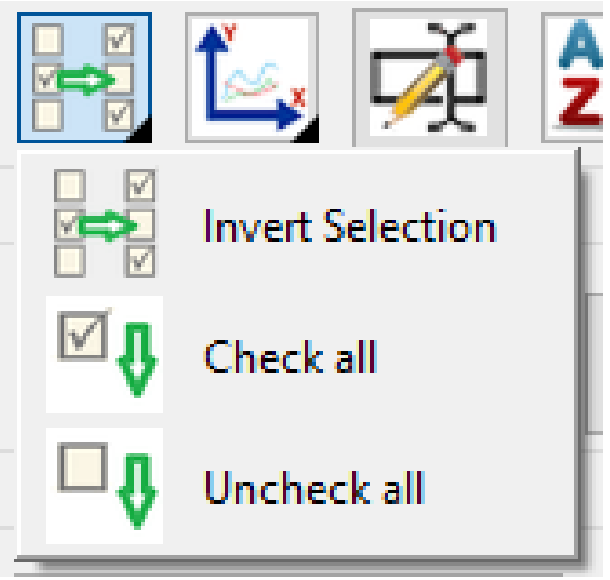


Default Auto Select is Invert Selection

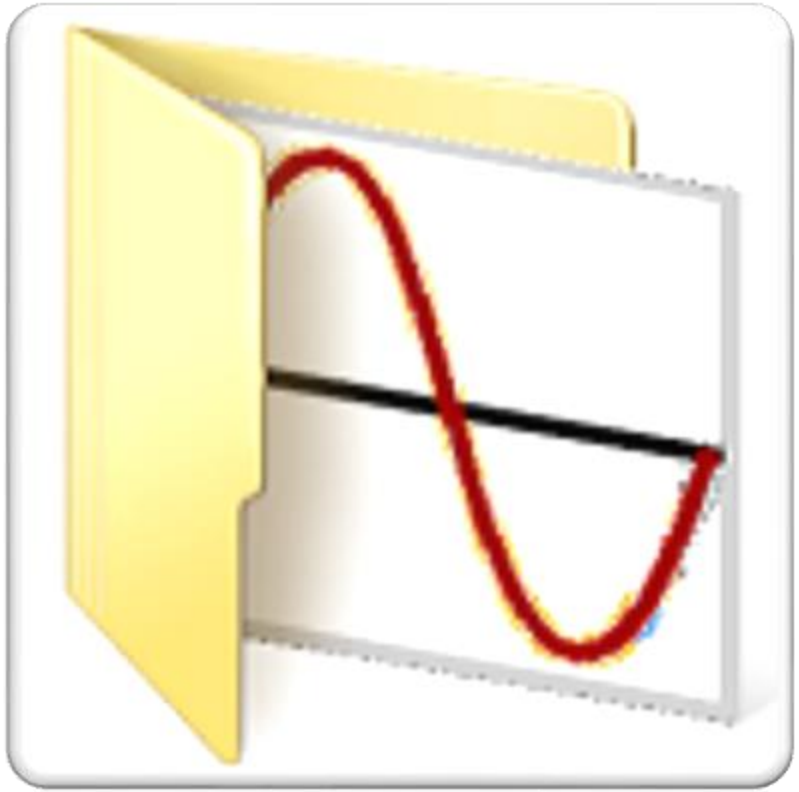


The Default selection mode is Invert Selection.

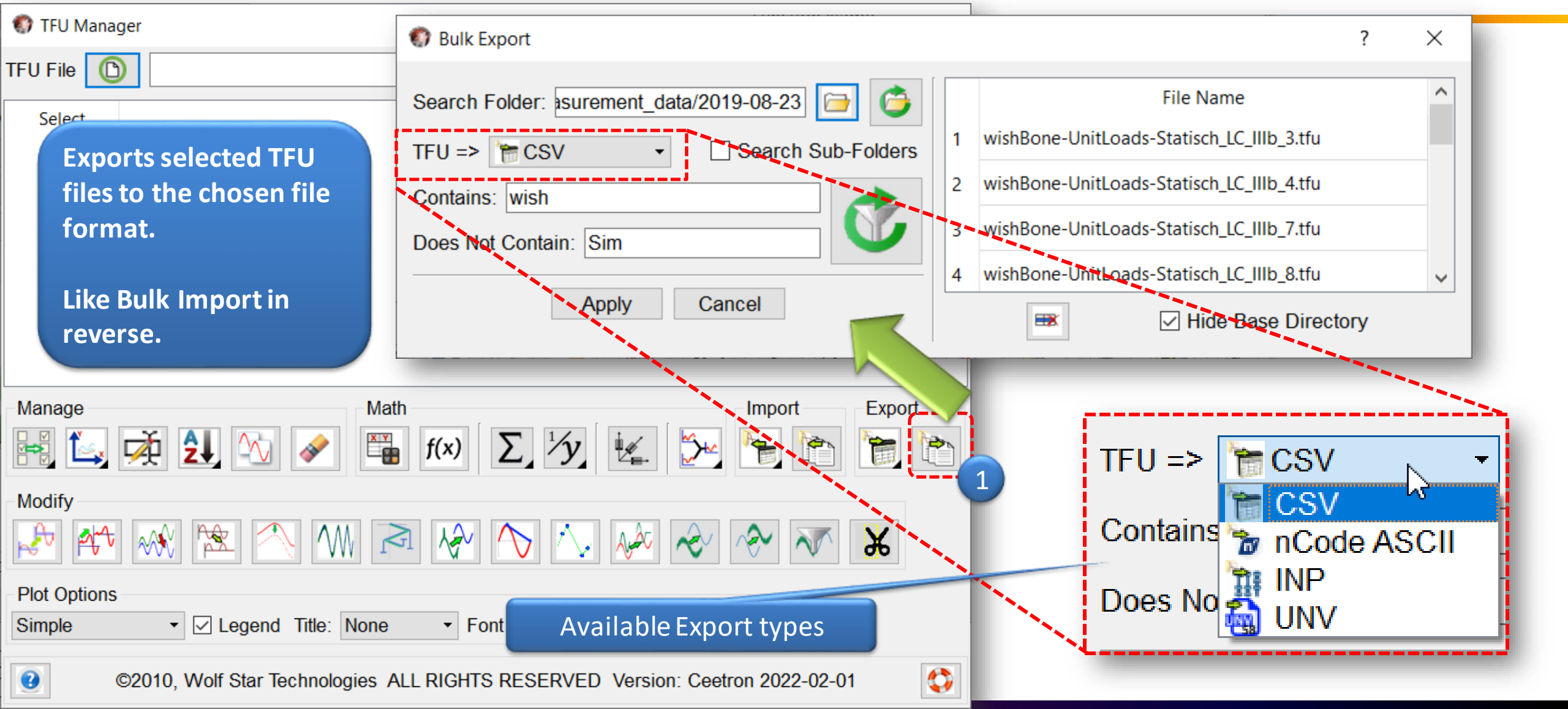
- Invert Selection, inverts the checked boxes for the functions.
- If none are selected, invert will select all.
- If all are selected, invert will select none.
- Previous selection modes are still available



Bulk Export



Bulk Export


TFU Manager
TFU File
Select
Exports selected TFU files to the chosen file format.
Like Bulk Import in reverse.
Bulk Export
Search Folder: asurement_data/2019-08-23
TFU => CSV
Search Sub-Folders
Contains: wish
Does Not Contain: Sim
Apply
Cancel
File Name
1 wishBone-UnitLoads-Statisch_LC_IIIb_3.tfu
2 wishBone-UnitLoads-Statisch_LC_IIIb_4.tfu
3 wishBone-UnitLoads-Statisch_LC_IIIb_7.tfu
4 wishBone-UnitLoads-Statisch_LC_IIIb_8.tfu
Hide Base Directory
Manage
Math
Import
Export
Modify
Plot Options
Simple
Legend
Title:
None
Font
1
TFU => CSV
Contains
Does No
CSV
nCode ASCII
INP
UNV
Available Export types
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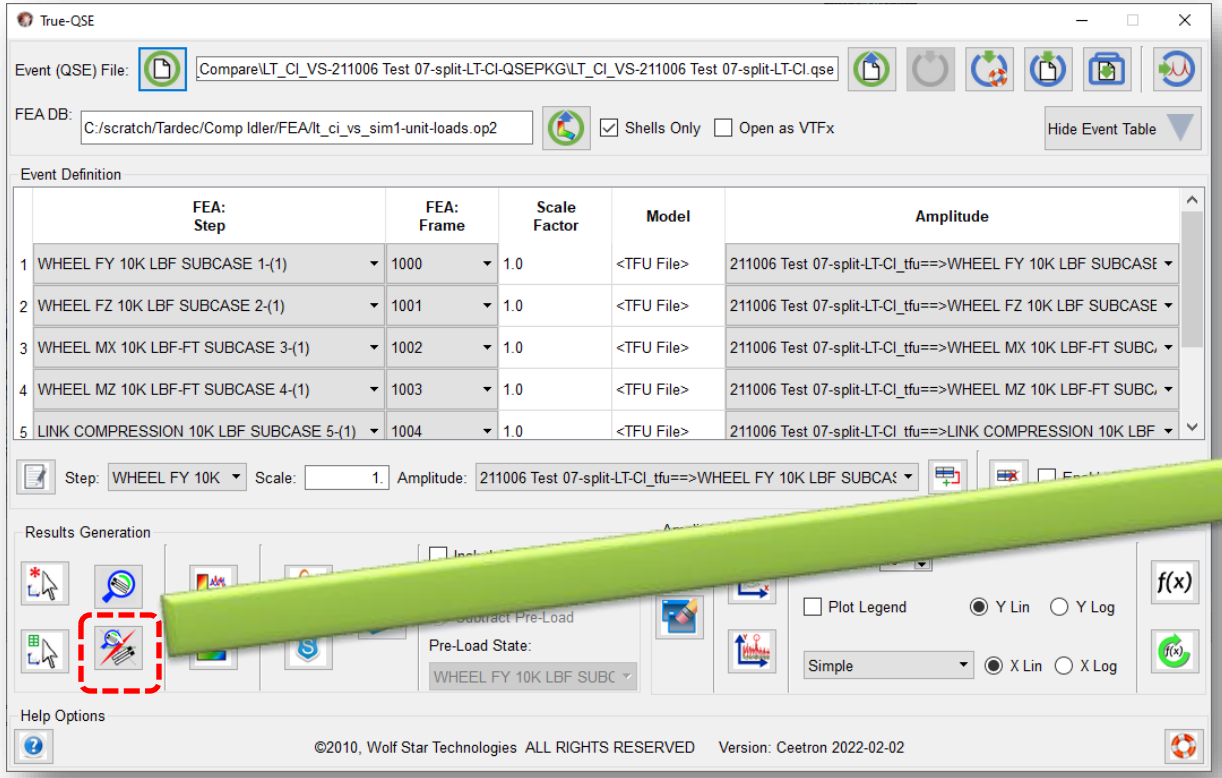
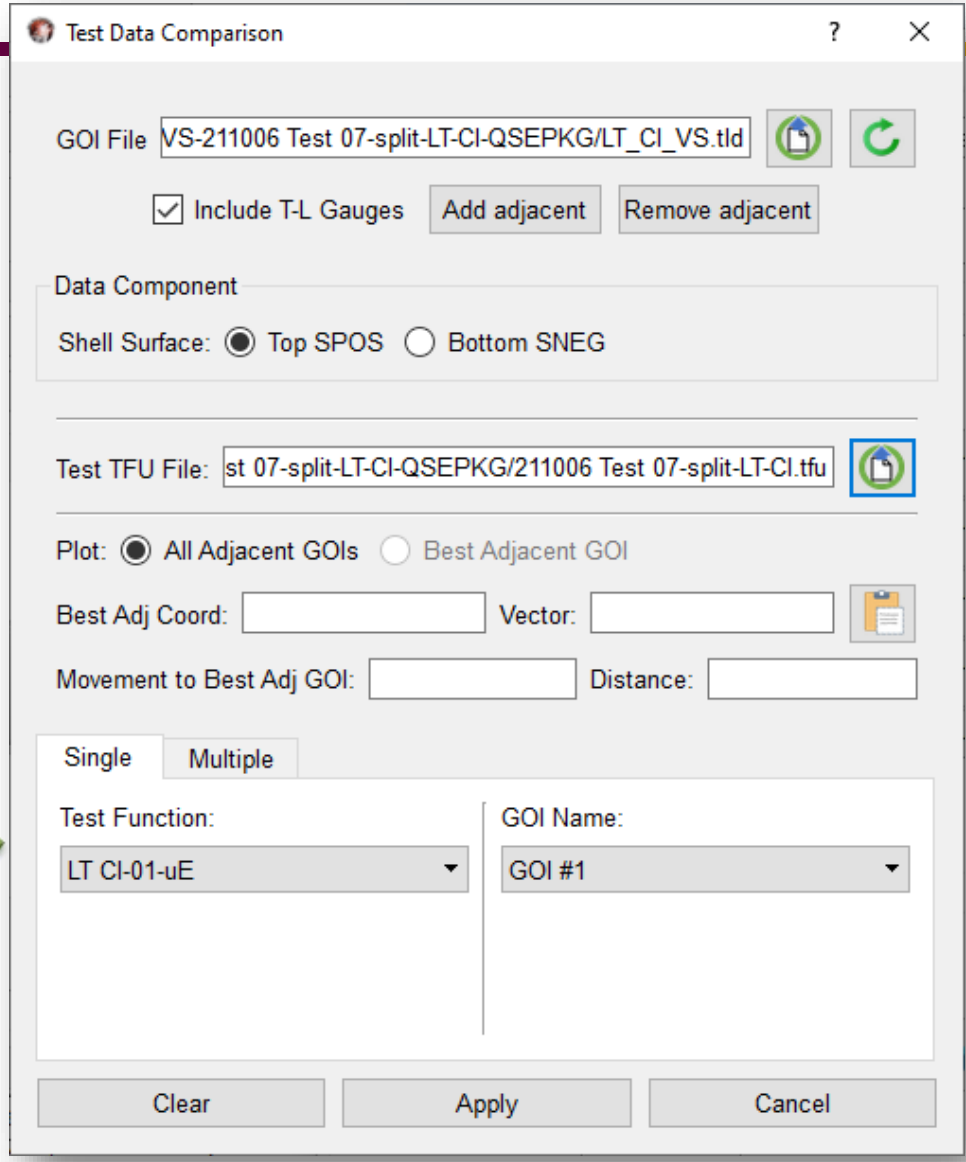
GOI / Test Data Compare

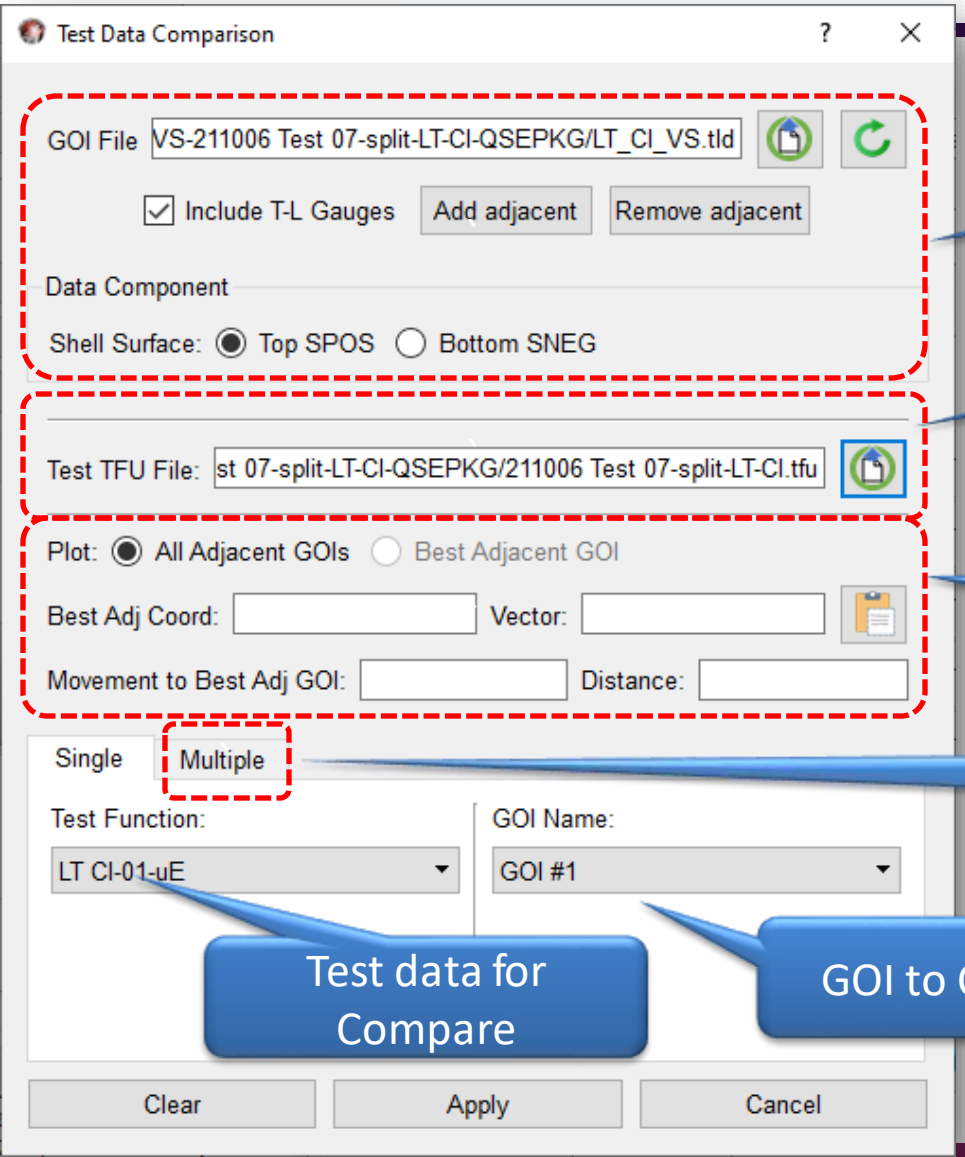
GOI / Test Data Compare

GOI / Test Data Compare is a fantastic new utility for comparing GOI strain response to measured test data. The next few slides will give an overview of the features





GOI / Test Data Compare



Load in GOIs the using normal files (TLDs, CSVs). If you are using a TLD you can optionally use the T-L Gauges.

Load test data in using a TFU file.

Options / Output data

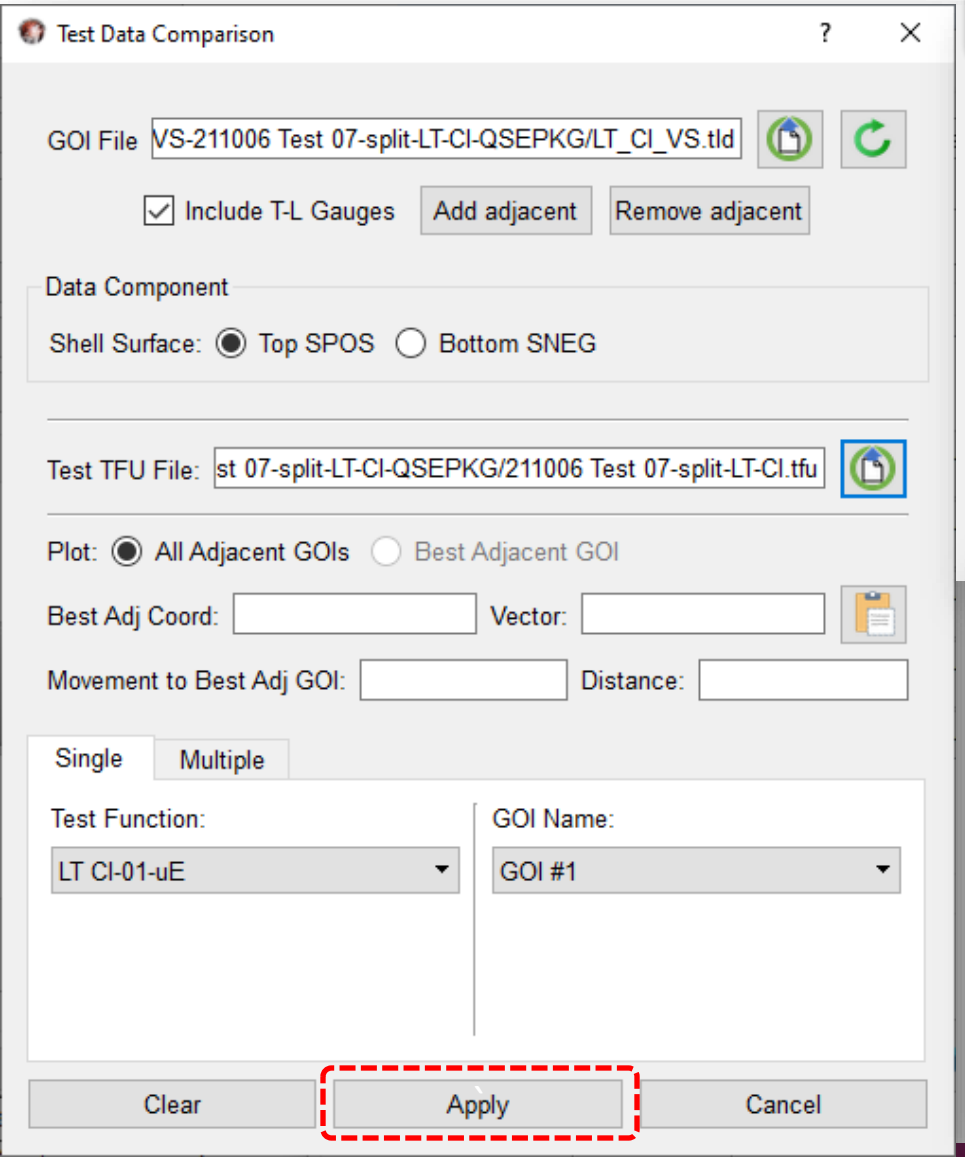
- If using Adjacent GOIs, you can plot just the best GOI.
- The best GOI coordinates and vector are stored as well as the movement from the original GOI and distance

Capability to process on multiple GOIs and multiple test channels. More on this later

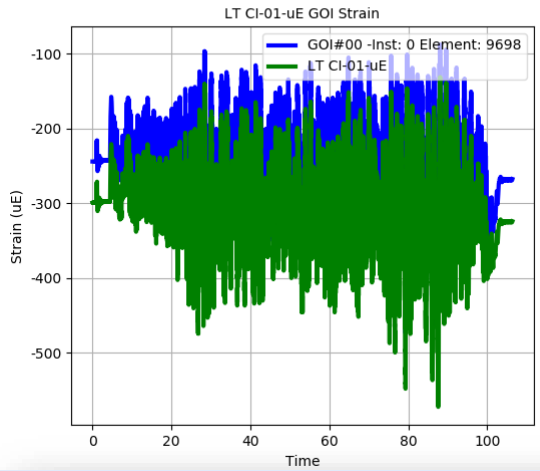
Test data for Compare

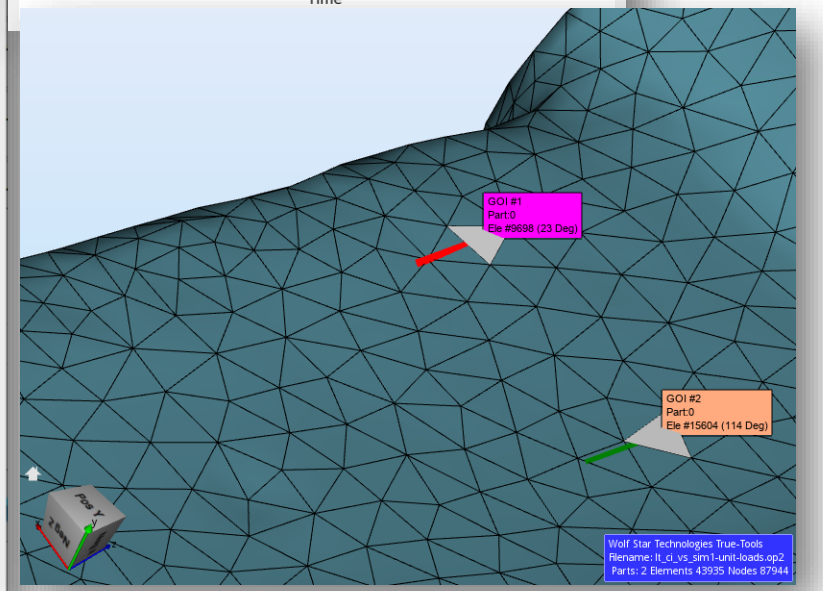
GOI to Compare

GOI / Test Data Compare

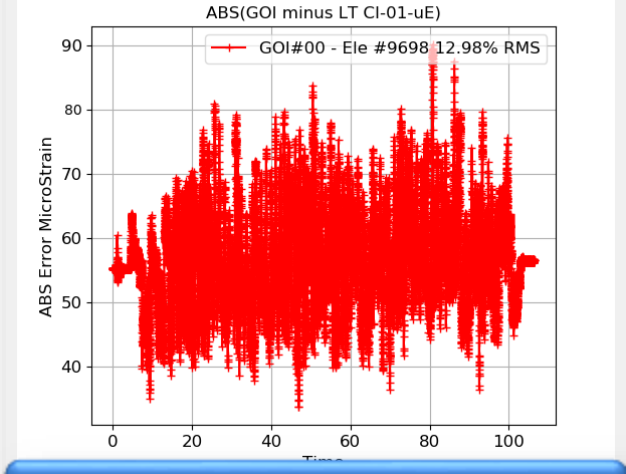


Time History: GOI , Test Strain

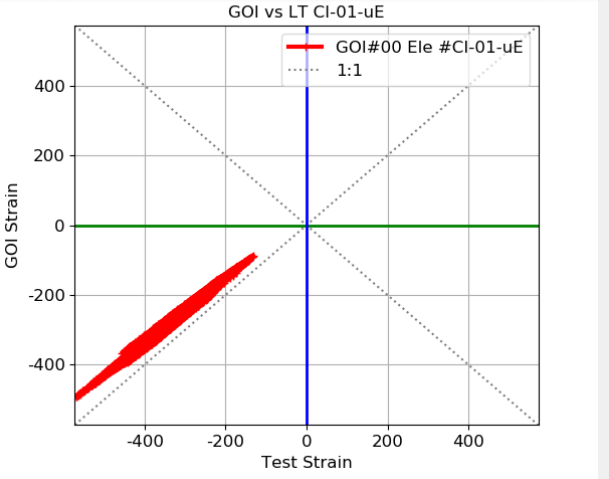




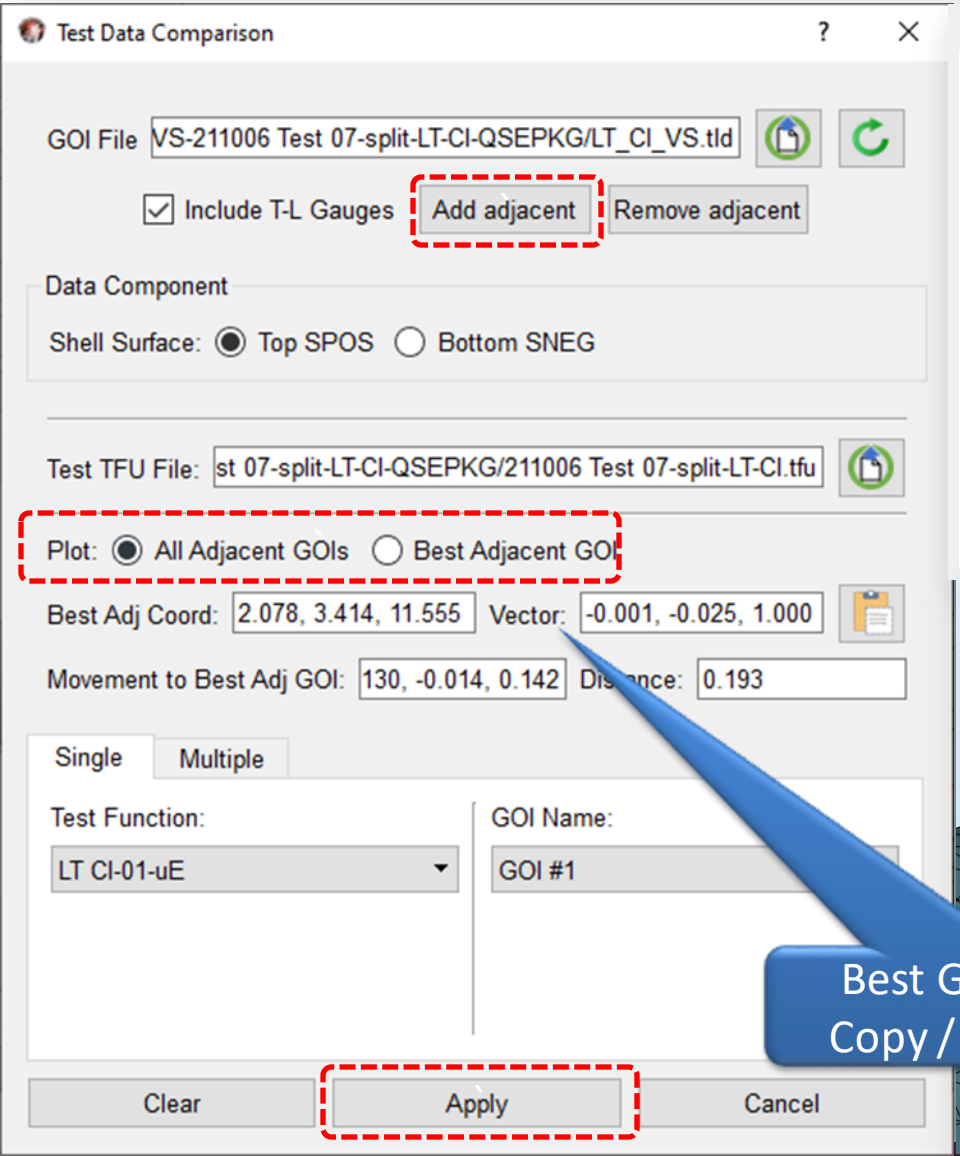
Abs(error): GOI - Test Strain



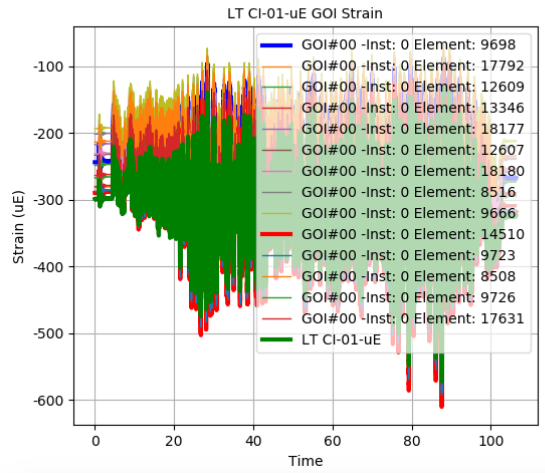
Cross Plot



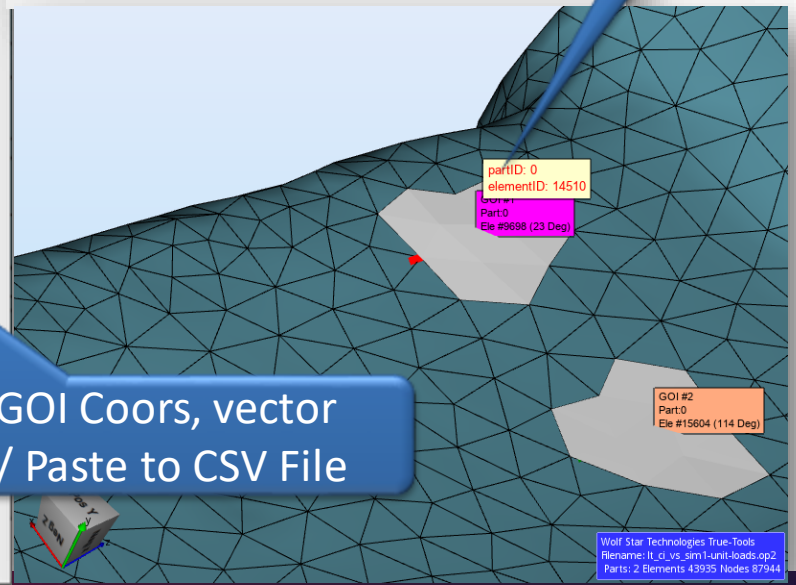
GOI / Test Data Compare



Time History: GOI , Test Strain

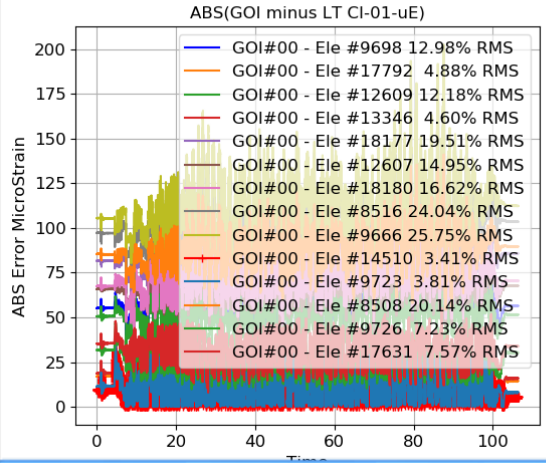


Best GOI

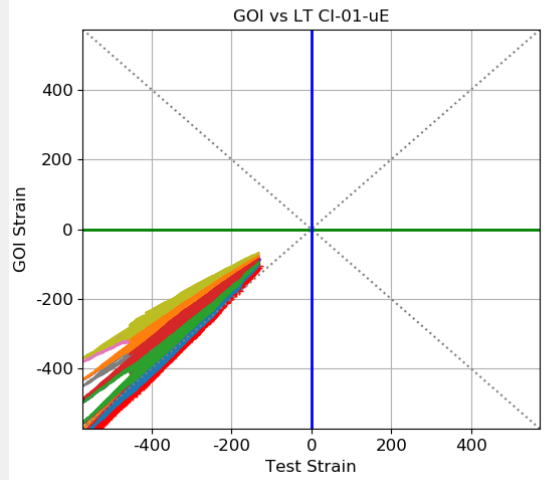


Best GOI Coors, vector
Copy / Paste to CSV File

Abs(error): GOI - Test Strain



Cross Plot



GOI / Test Data Compare

Test Data Comparison

GOI File: VS-211006 Test 07-split-LT-CI-QSEPKG/LT_CI_VS.tld

Include T-L Gauges | Add adjacent | Remove adjacent

Data Component

Shell Surface: Top SPOS | Bottom SNEG

Test TFU File: st 07-split-LT-CI-QSEPKG/211006 Test 07-split-LT-CI.tfu

Plot: All Adjacent GOIs | Best Adjacent GOI

Best Adj Coord: 2.078, 3.414, 11.555 Vector: -0.001, -0.025, 1.000

Movement to Best Adj GOI: 130, -0.014, 0.142 Distance: 0.193

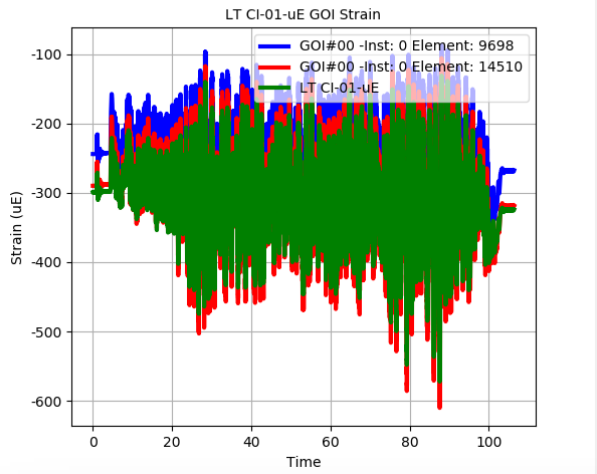
Single | Multiple

Test Function: LT CI-01-uE

GOI Name: GOI #1

Clear | Apply | Cancel

Time History: GOI , Test Strain

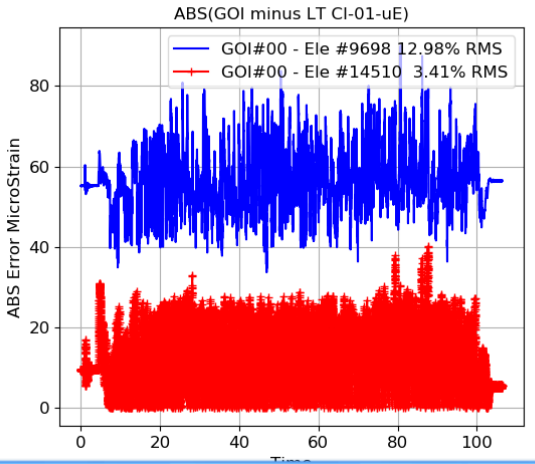


-- Blue Original GOI

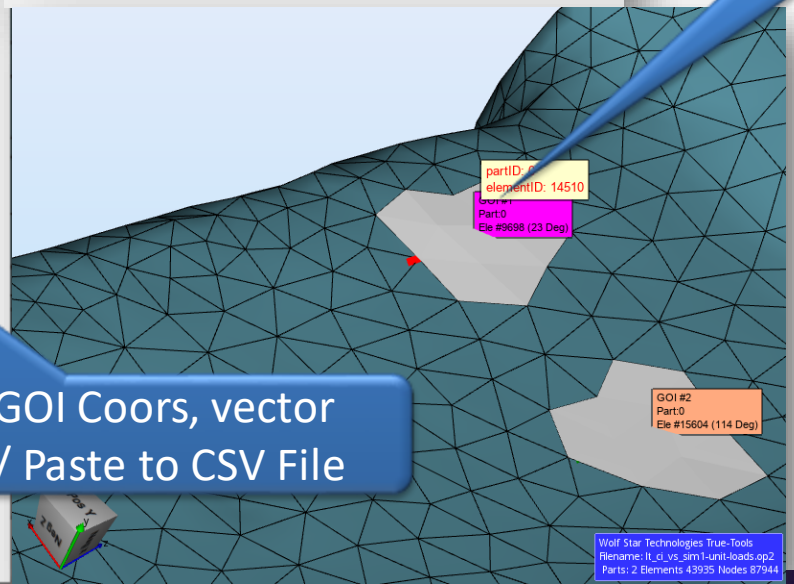
-- Red Best GOI

-- Green Test Data

Abs(error): GOI - Test Strain

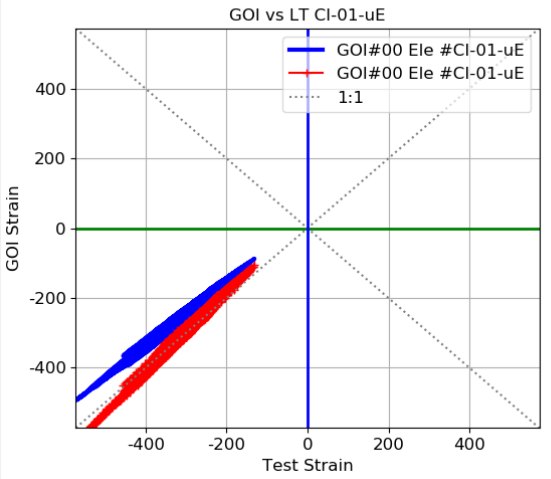


Best GOI



Best GOI Coors, vector
Copy / Paste to CSV File

Cross Plot



GOI / Test Data Compare