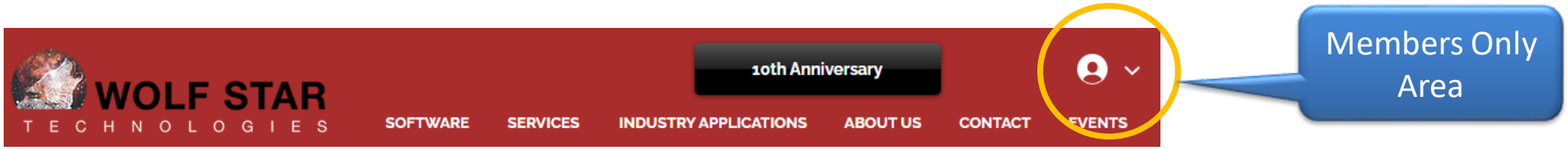
WOLF STAR
TECHNOLOGIES

True-Load Enhancements
2023-10-22

Tim Hunter

Enhancements Overview

- Great updates in this release!!!
- Most of the enhancements discussed in this document are updates in performance and usability
- Some new features have been added.
- 51 Enhancements, 5 Bug Fixes



Overview – Major Enhancements

- TFU – Subtract Functions
- Recent Files – Save lots file browsing
- Hybrid Loading – No gauges needed!
- Time to Cycle / Angle mapping
- Units in TFU Fatigue
- Speed up of GOI / Test Data Compare
- Scratch Files relocated
- 3D STL of realistic strain gauges
- Purge intermediate files for Hybrid and Contact Control

Enhancements - Overview

Details

Bug Fixes

WOLF STAR TECHNOLOGIES

True-Load Enhancements
2023-10-22

Tim Hunter

Details

Update / Install

- Installer and GUI-Less Install
- Reprise RLM Update

Major Features

- Recent Files
- Hybrid Loading – No Gauges Needed

Solver Specific

- Abaqus Plugins
- Ansys Plugin

Utilitarian Improvements

- Time to Ang / Cycles
- Dimension Plane
- Reload Dim Params
- Post-Test Report Readability
- TFU Fatigue Units
- Compare GOI Speed
- Reorganize Tools Menu
- Scratch Files
- Square Axis Plotting
- Measure Element to Element
- Subtract Functions
- STL Gauges
- Post- Purge Intermediate Files
- FEA Browse

Bug Fixes

Bugs

Module	Type	Description
TFU	Bug	When double clicking TFU file from OS, checking plot file name in TFU Mgr prints nothing for the title.
QSE	Bug	Relative paths and ODS
PRE	Bug	RoboGauge -- cogDict key not initialized in the TLD dictionary.
TFU	Bug	Change file open dialog to only allow *.TFU -- previously * was available too.
POST	Bug	Disable "Relative Path" in QSE files during Post-Test runs. Paths get confused in QSE after Post.

Enhancements - Overview

Enhancements – True-Load Environment

Highlighted Records Documented on Details page

Module	Type	Description	Release Doc
ALL	**Enhancement**	**Enable Square axis scaling**	**X**
ALL	**Enhancement**	**Meaure Utils: Measure Element to Element**	**X**
ALL	Enhancement	New TFU Tools Icon	
ALL	**Enhancement**	**Re-structure WST_scratch files**	**X**
ALL	**Enhancement**	**Add Square Axis plotting to Plot Widget**	**X**
ALL	**Enhancement**	**Tools Menu --> Show Scratch dir**	**X**
ALL	**Enhancement**	**Update the installer for WST_scratch**	**X**
ALL	**Enhancement**	**Add recent files options (menu, auto-completion)**	**X**
ALL	**Enhancement**	**Re-organize Tools Menu**	**X**
ALL	**Enhancement**	**Install via config file**	**TBD**
ALL	**Enhancement**	**Upgrade Reprise licensing version 15.1**	**TBD**

Enhancements – TFU Mgr

Highlighted Records Documented on Details page

Module	Type	Description	Release Doc
TFU	Enhancement	Map time data to Cycle / Angle data	TBD
TFU	Enhancement	Subtract Functions	X
TFU	Enhancement	Subtract two TFU Files	X
TFU	Enhancement	Add units to TFU Fatigue Material Definition	TBD

Enhancements – Gauge Dimensioning

Highlighted Records Documented on Details page

Module	Type	Description	Release Doc
DIM	**Enhancement**	**Fix drawing plane issue -- Make draw plane the plane of the element**	**TBD**
DIM	**Enhancement**	**Store Dimension settings in user home dir and auto load**	**X**
DIM	Enhancement	Make Dimension lines / text always visible - no hidden line processing	

Enhancements - Pre

Highlighted Records Documented on Details page

Module	Type	Description	Release Doc
PRE	**Enhancement**	**When browsing for FEA DB, set type to current FEA DB type**	**X**
PRE	Enhancement	Draw Gauge Lines - 3D STL - Export One STL per Gauge checked off by default	
PRE	**Enhancement**	**STL files for Strain Gauge Representations**	**X**
PRE	**Enhancement**	**Reformat print out of eMat, eScales and pScales -- faster printing**	**TBD**
PRE	Enhancement	Minor GUI Changes	

Enhancements - Post

Highlighted Records Documented on Details page

Module	Type	Description	Release Doc
Post	**Enhancement**	**On Hybrid Loading and Contact control have a switch to purge auxiliary files**	**X**
POST	**Enhancement**	**Update Hybrid loading to use QSE to generate strains -- eliminate need for gauges on hybrid load cases**	**TBD**
POST	Enhancement	Update Batch Mode to support the WST_scratch file structure	
POST	**Enhancement**	**Reformat report header**	**TBD**

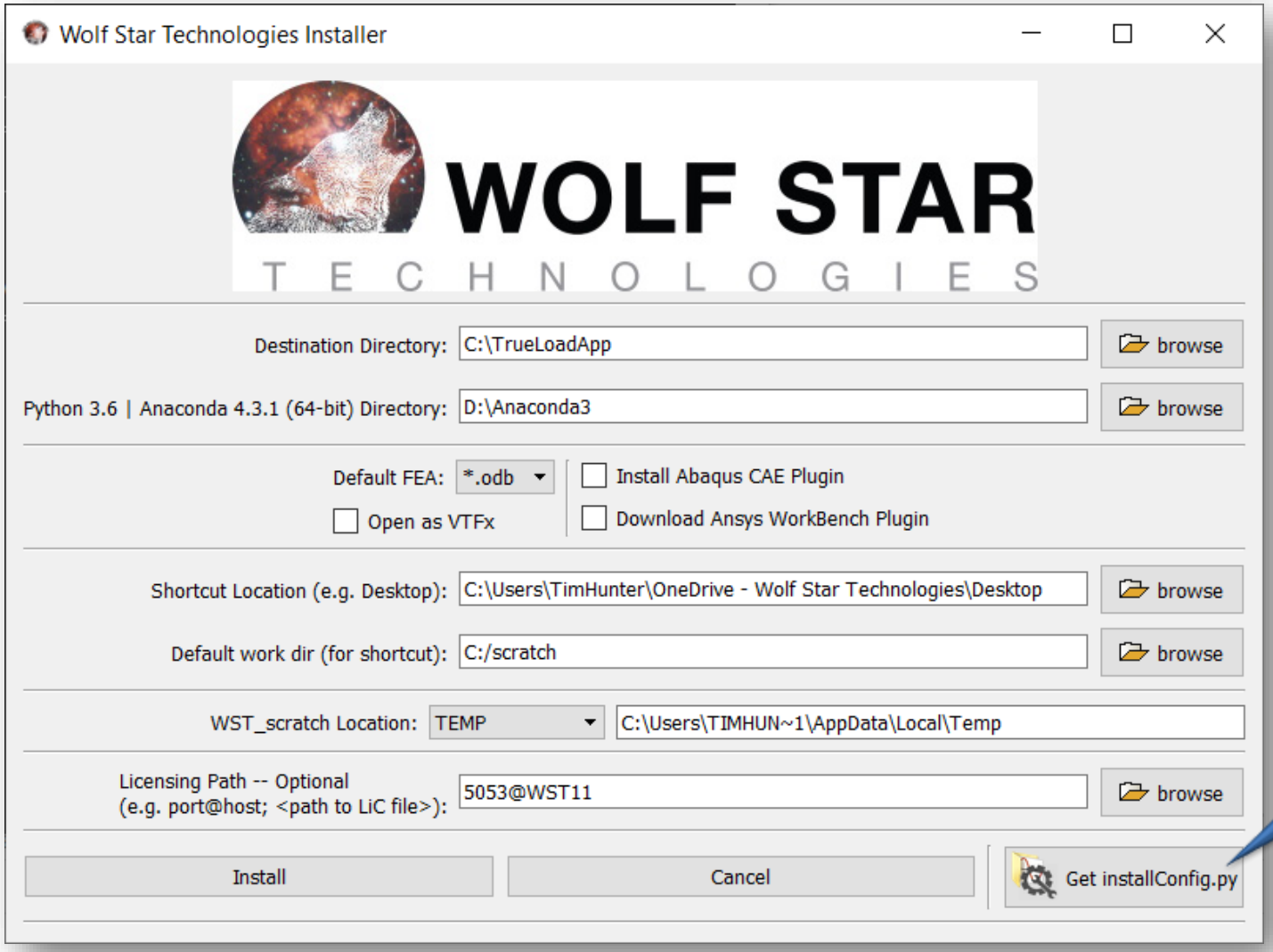
Enhancements - QSE

Highlighted Records Documented on Details page

Module	Type	Description	Release Doc
QSE	**Enhancement**	**When browsing for FEA DB, set type to current FEA DB type**	**X**
QSE	Enhancement	T3D Outbox full width with SaveAS button	
QSE	**Enhancement**	**Huge speed increase in Compare GOI -- Reduce plot density for adjacent elements**	**TBD**

Installer and GUI-Less Install

Installer GUI Update

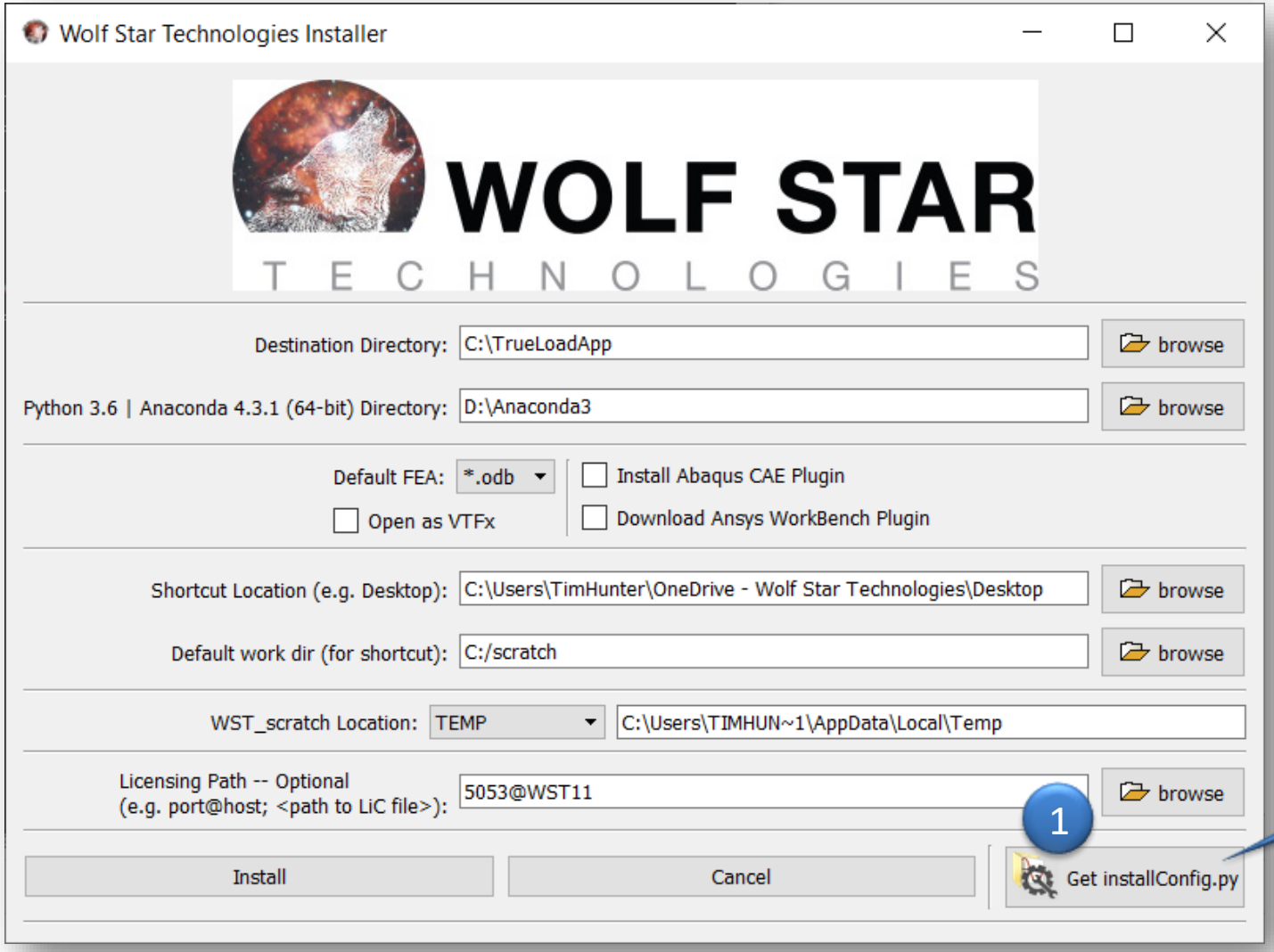


New button – Only for Admins

This downloads "installConfig.py" to enable GUI-less (command line) install of True-Load

Everything else works the same as before

GUI-Less (command line) install



1) Get the installConfig.py file

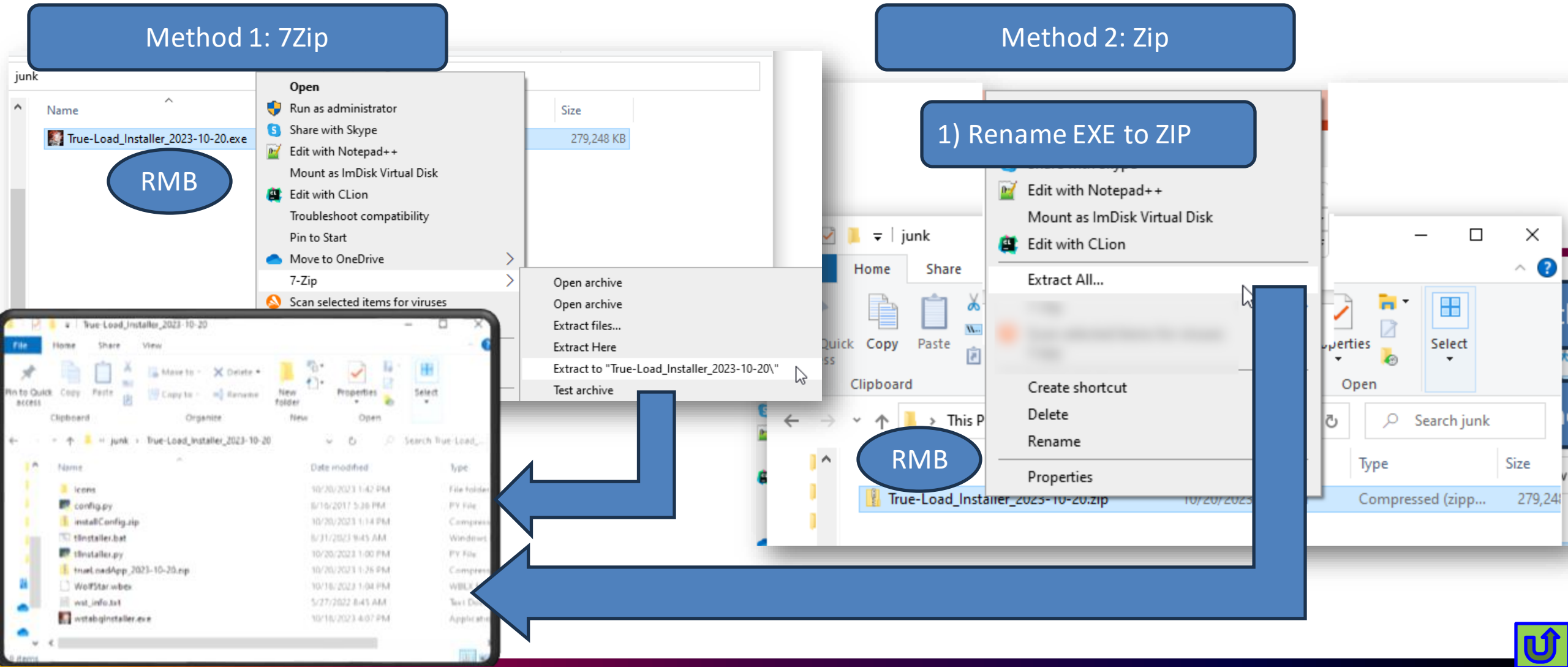
You will browse for a folder to store this file in.

installConfig.py

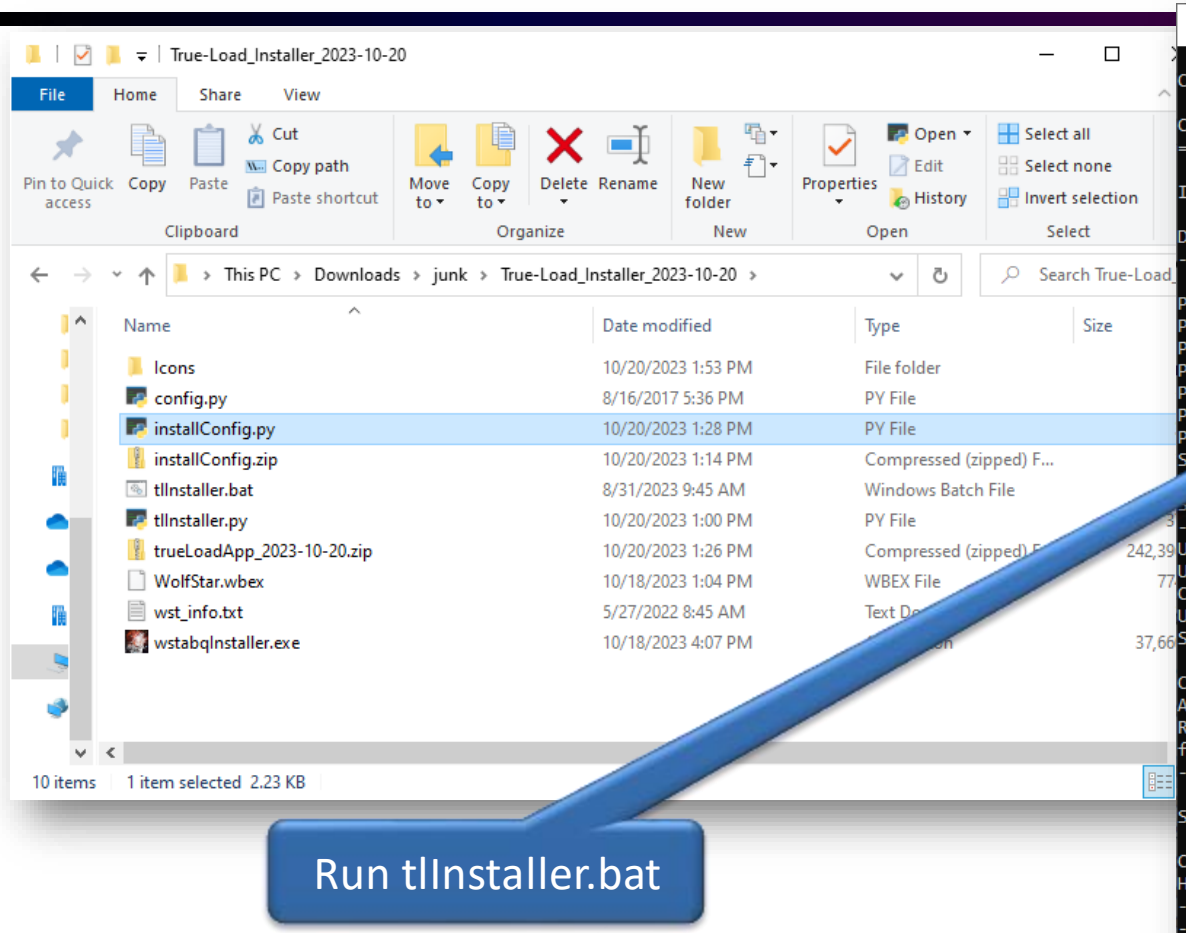
```
# installConfig.py
#
# Configuration file for automating / prepopulating installation parameters
#
# This is python, all paths should be preceded by "r" (r=raw text string)
#=============================================================================
# Python Imports
# -----------------------------------------------------------------------------
import os
from win32com.client import Dispatch
shell = Dispatch('WScript.Shell')
# -----------------------------------------------------------------------------
# Helper variables
# -----------------------------------------------------------------------------
winDeskTop = shell.SpecialFolders("Desktop")      # Path to Windows Desktop
winTemp    = os.environ['TEMP']                   # Path to Windows Temp directory
homeDrive  = os.environ['HOMEDRIVE']              # User Home Drive
homePath   = os.environ['HOMEPATH']               # User Home Directory
homeDir    = os.path.join(homeDrive, homePath)    # User Home Directory (full path)
#=============================================================================
#                               User variables
# -----------------------------------------------------------------------------
unAttendedInstallFlag = True                # --> True = No GUI, False = GUI
destDir               = r'C:\trueLoadApp'   # --> True-Load Application Destination
defFEA                = '*.odb'             # --> Default FEA ['*.odb', '*.rst', '*.op2', '*.h3d', '*.neu']
openAsVTFxFlag        = False               # --> Converts FEA to VTFx; True=On, False=Off
shortCutDir           = winDeskTop          # --> Location for True-Load shortcut
shortCutWorkDir       = winTemp             # --> Working directory for True-Load Shortcut
scratchDir            = 'TEMP'              # --> WST_scratch location ['HOME', 'TEMP', <path>]
licenseVar            = 'WOLFSTAR_LICENSE'  # --> value for WOLFSTAR_LICENSE  *** DO NOT CHANGE ***
licensePath           = '5053@WST11'        # --> Location of license server or file [port@host, <path to LIC file>]
# *** Optionally ***
pythonDir             = None                # --> Location of Python [None, <path>]
postInstallScript     = r"C:\scratch\helloWorld.bat"  # Path to script to be run post install [None, <path>]
```

Edit the installConfig.py to suite your environment.

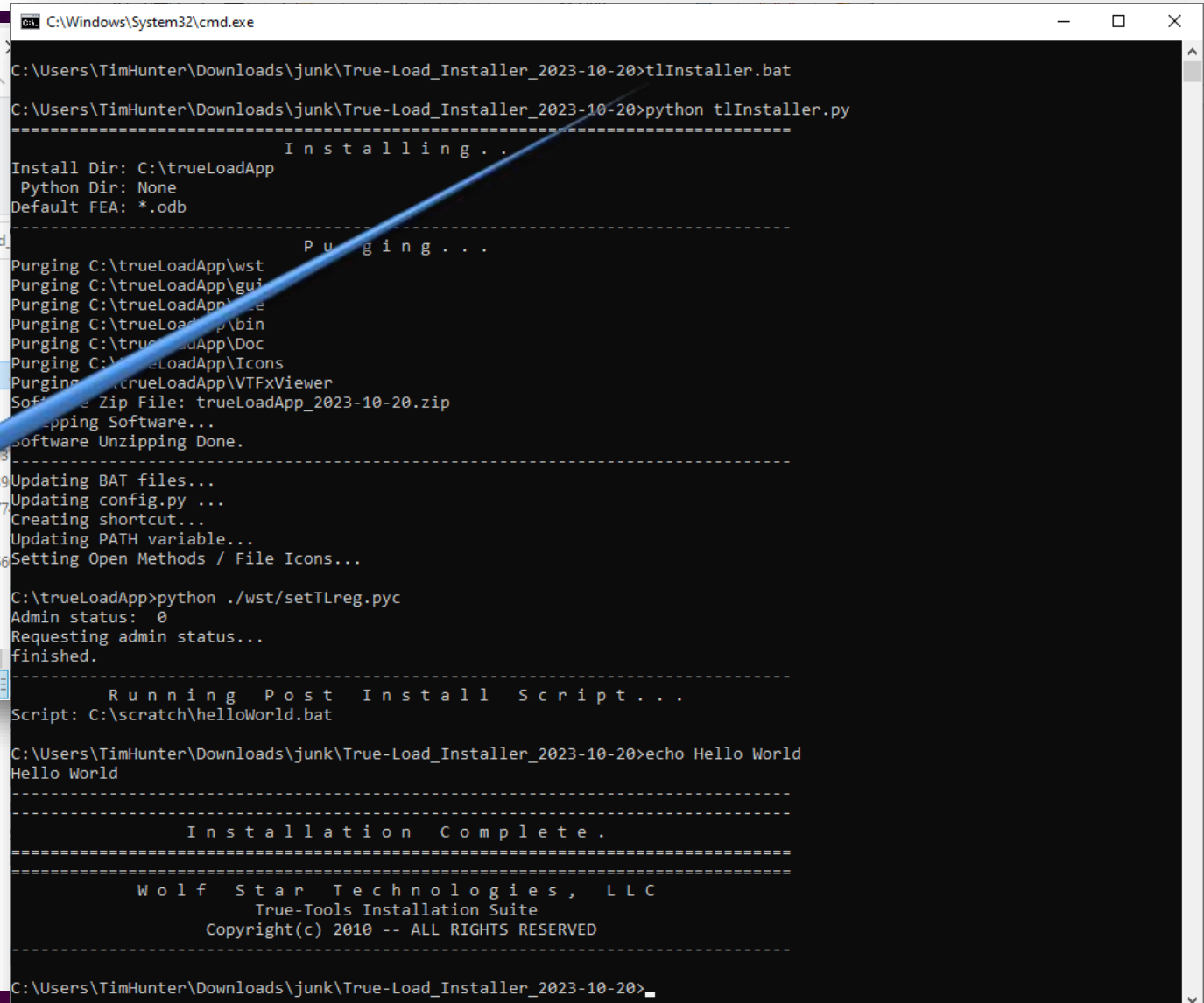
Unzip the installer



Copy installConfig.py to installer folder



Run tlInstaller.bat



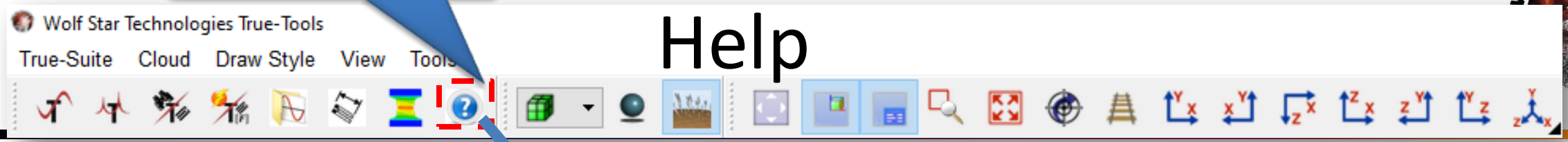
Reprise RLM Update

Reprise RLM Update

- True-Load license management system is now running on the latest version of Reprise RLM Software.
- This should eliminate any security concerns.
- It will not affect any current license installs.

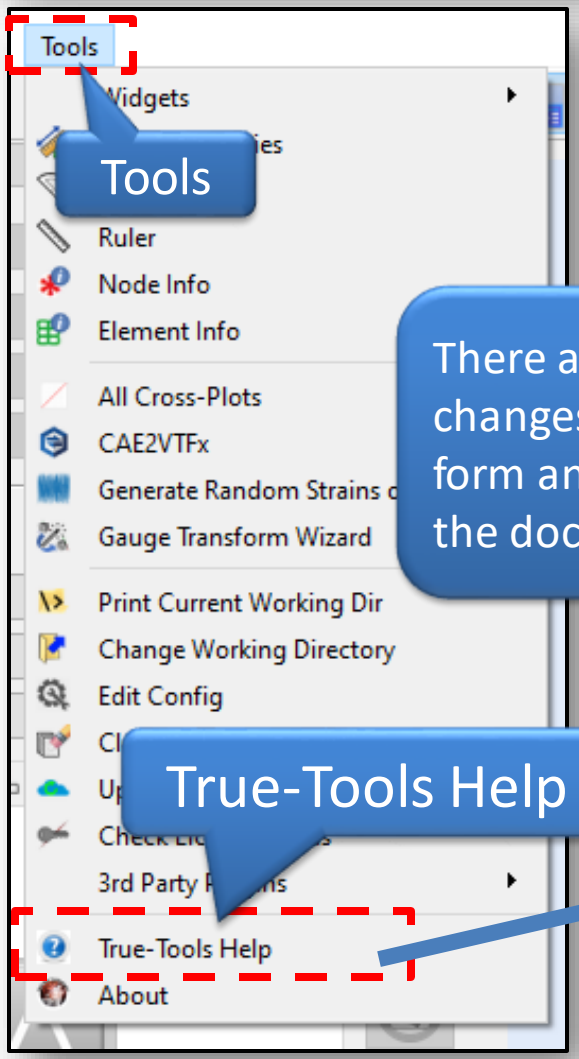
Help

Help



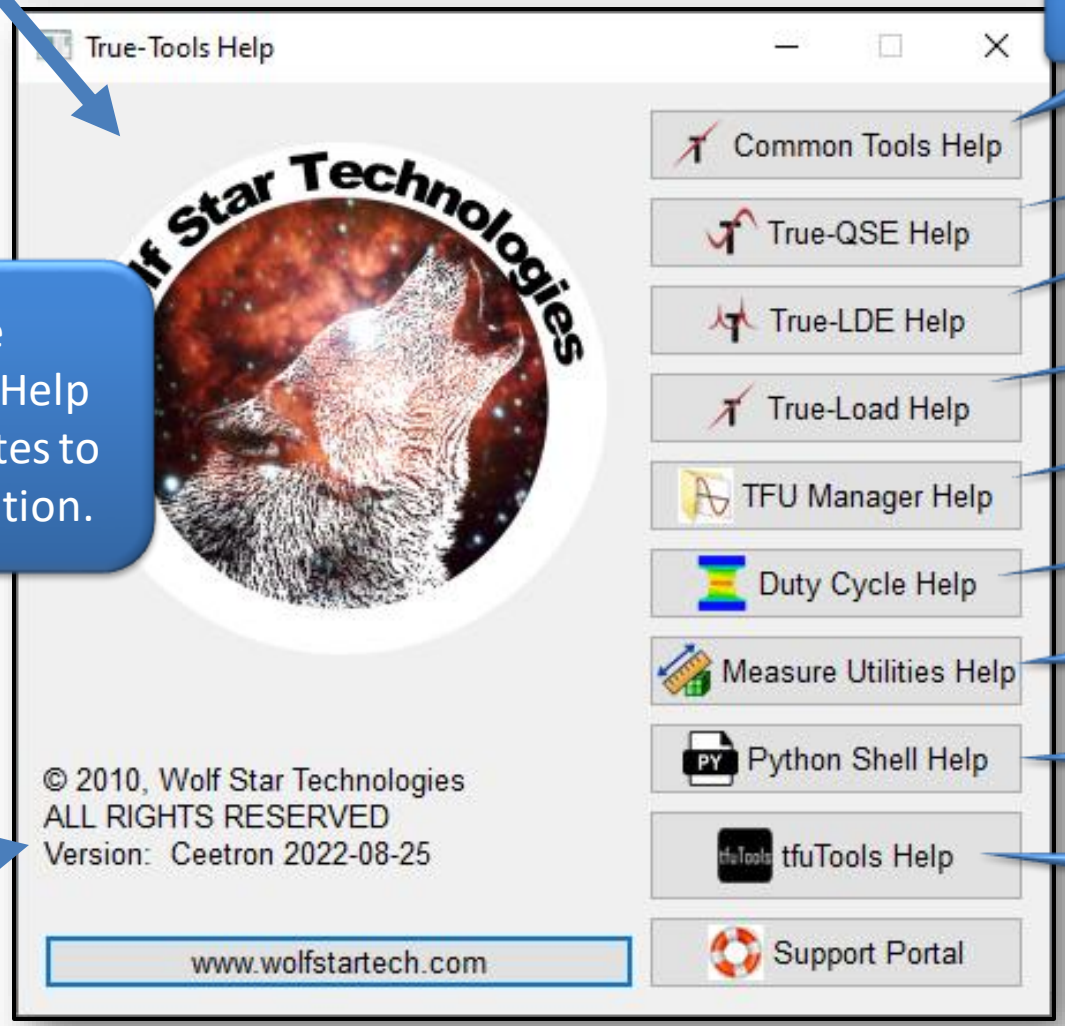
True-Tools Help

Tools



There are some changes to the Help form and updates to the documentation.

True-Tools Help



Common Tools

True-QSE

True-LDE

True-Load

TFU Manager

Duty Cycle

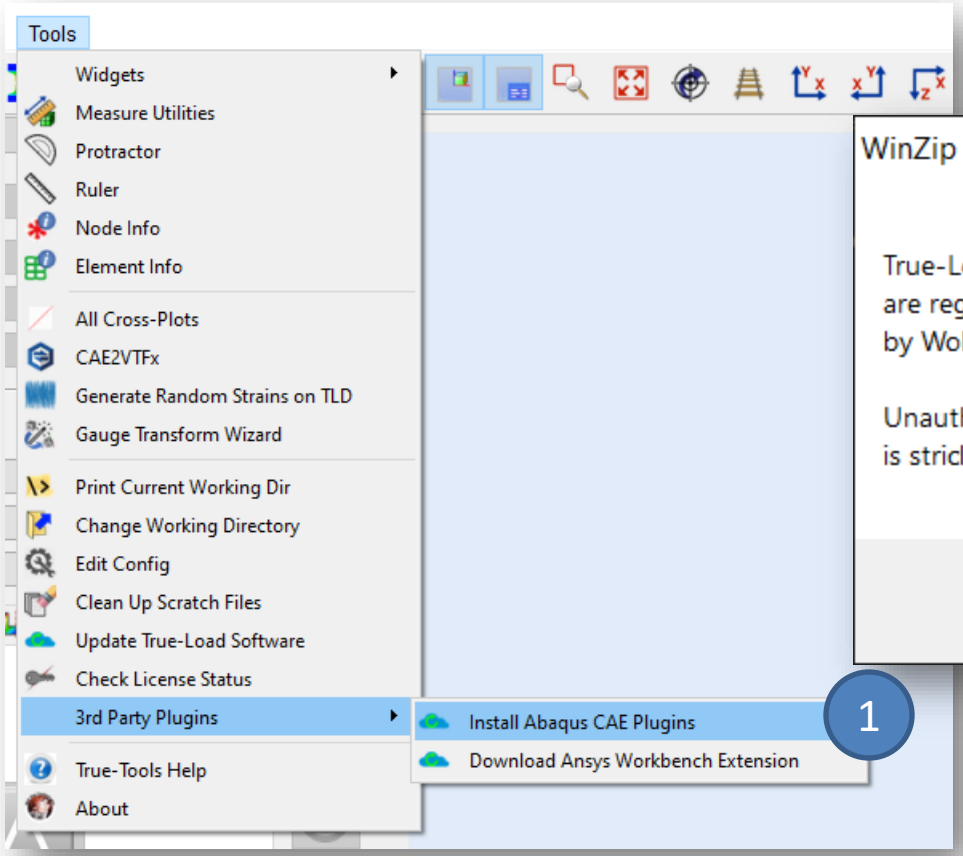
Measure Utilities

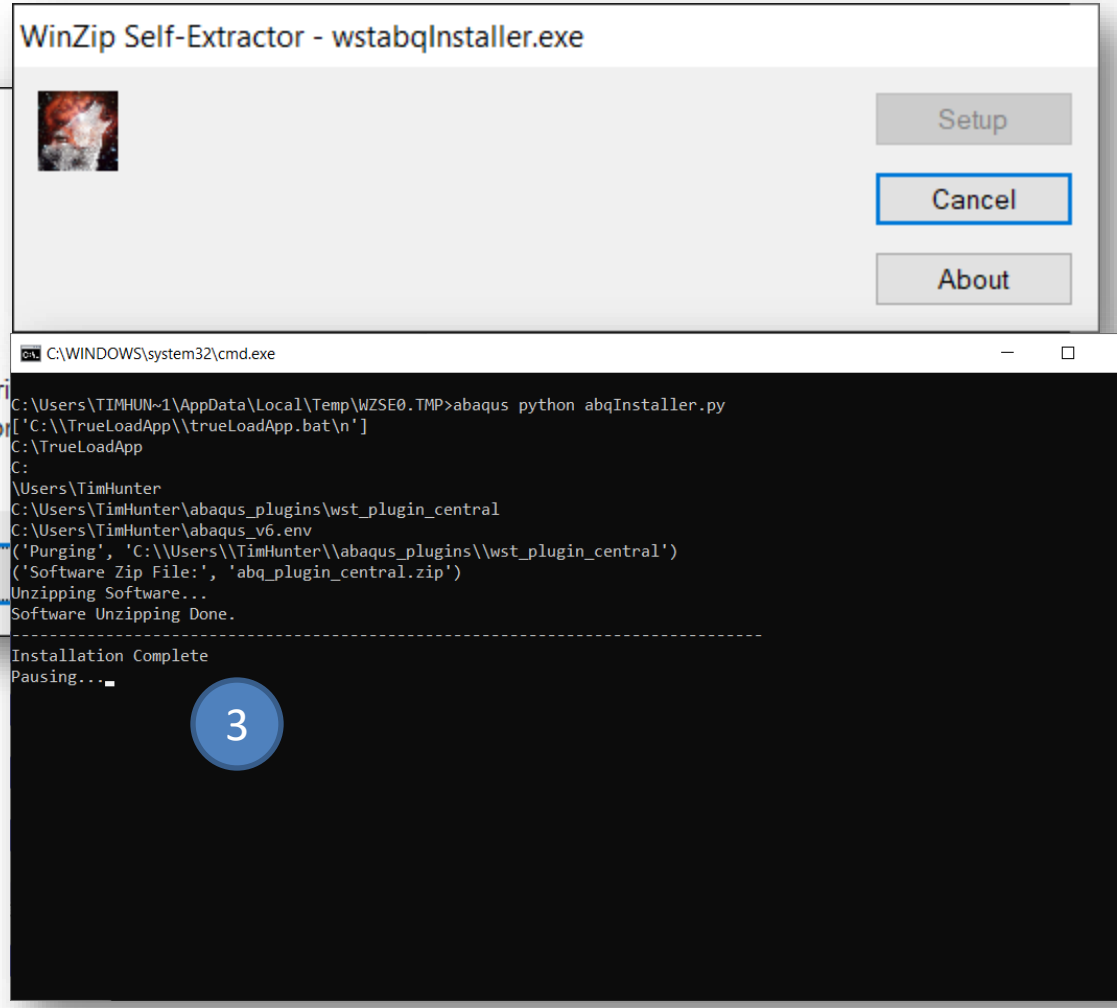
Python Shell

tfuTools

Abaqus Plugins

Abaqus Plugins



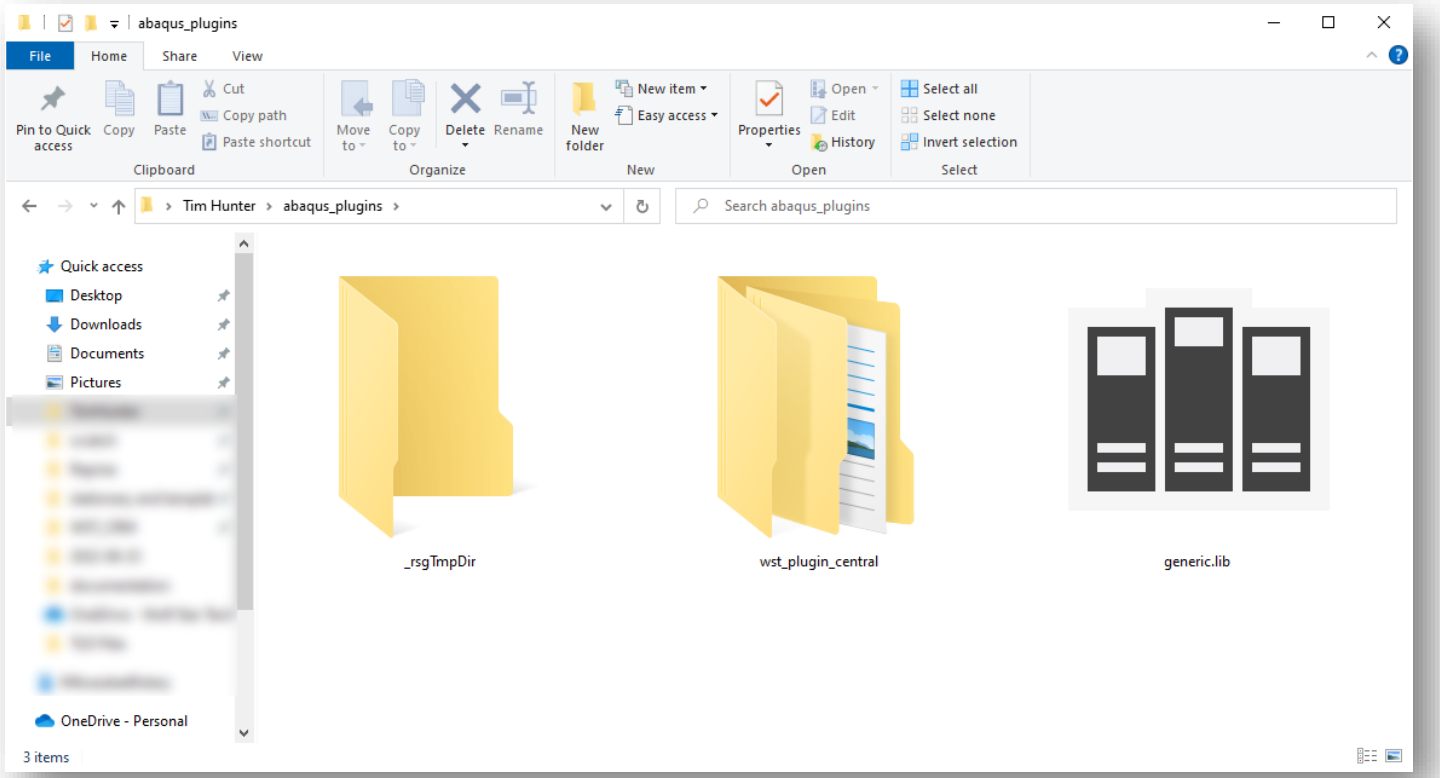


Abaqus Plugins

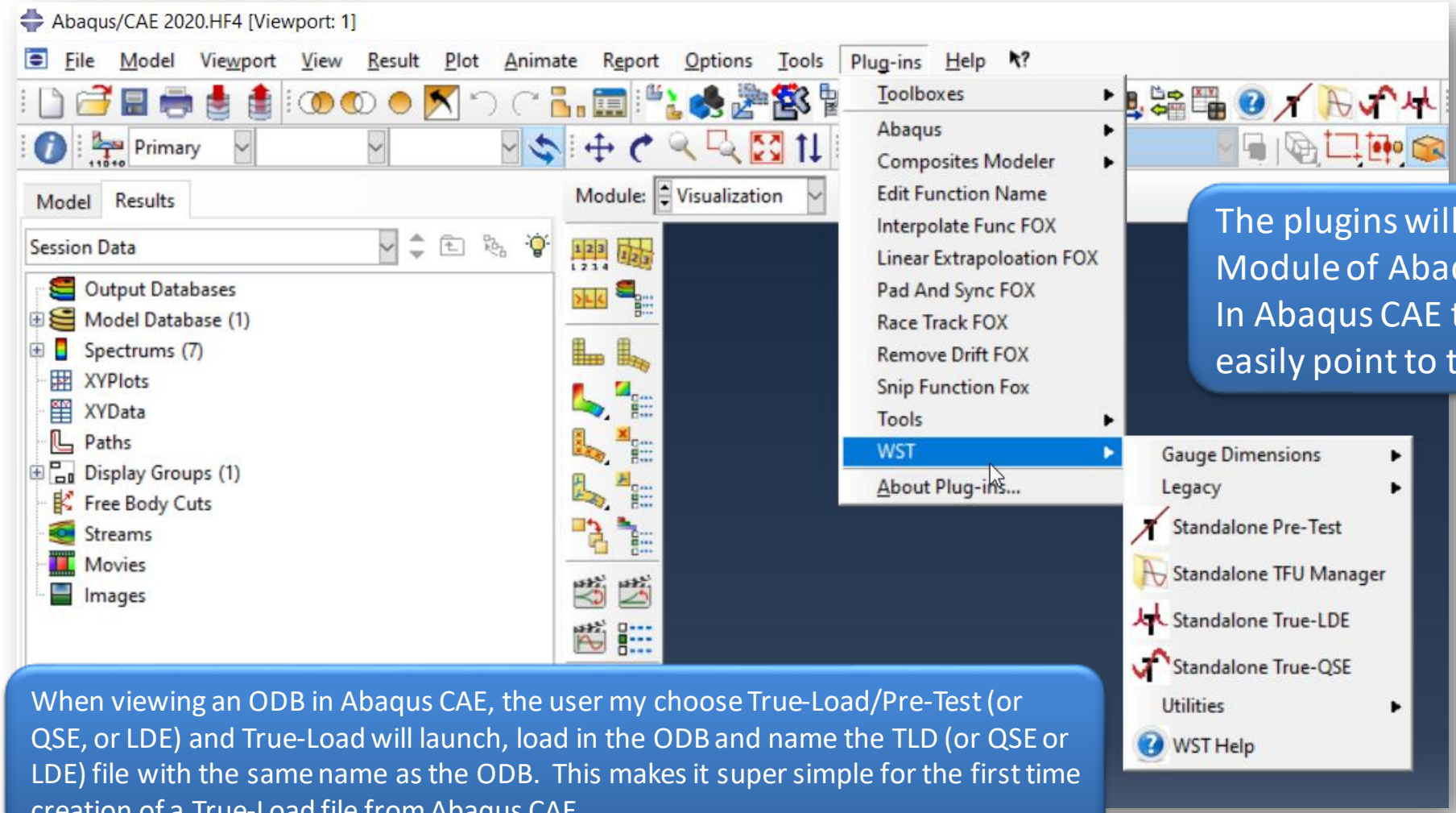
Plugin installer creates `<HomeDir>/abaqus_plugins`.

This is a standard folder that Abaqus/CAE looks in for plugins.

The WST plugins are in a subfolder called `wst_plugin_central`.



Abaqus Plugins

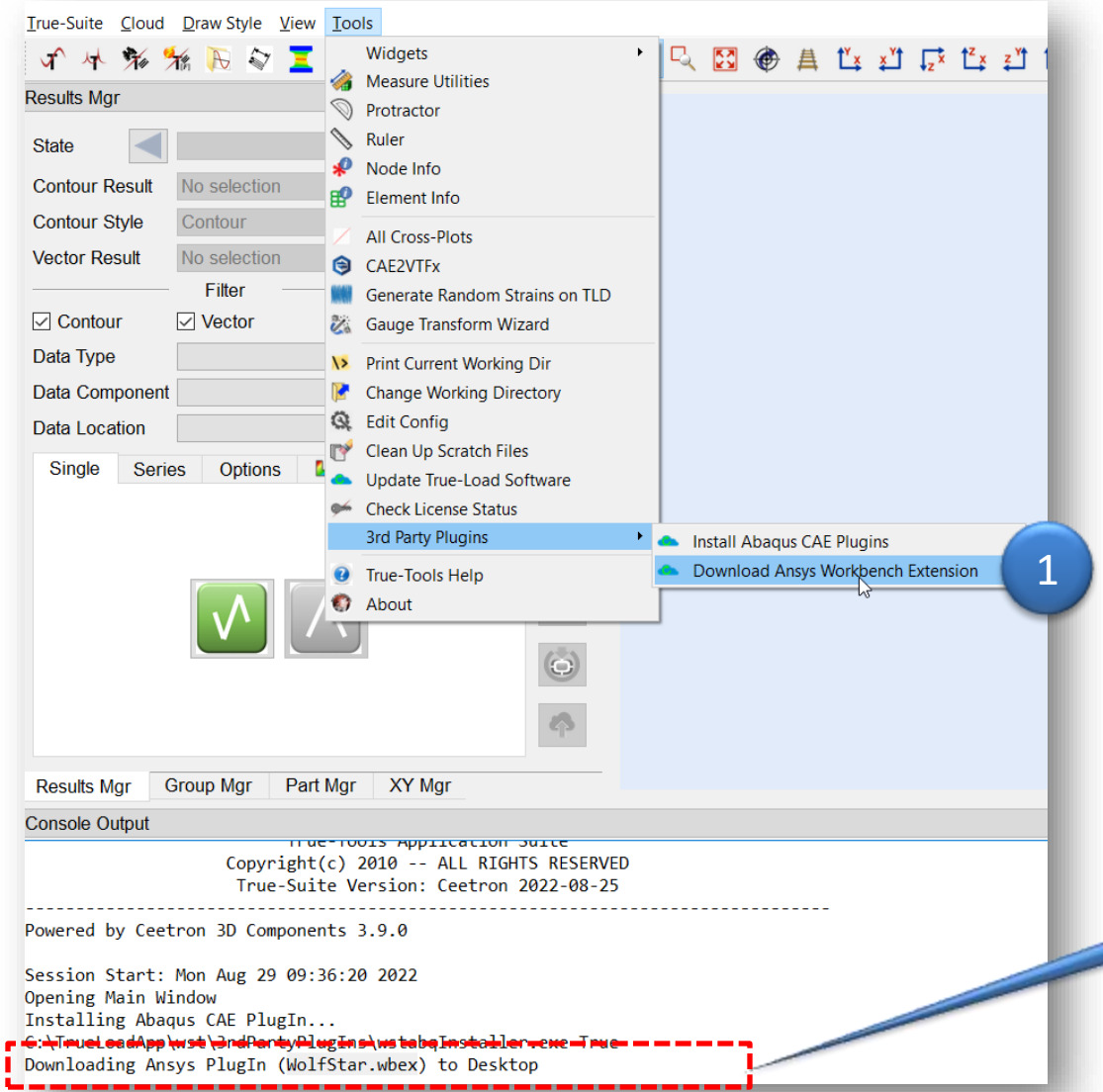


The plugins will appear in the Visualization Module of Abaqus CAE in the plugins menu. In Abaqus CAE the user may create toolbars to easily point to the plugins.

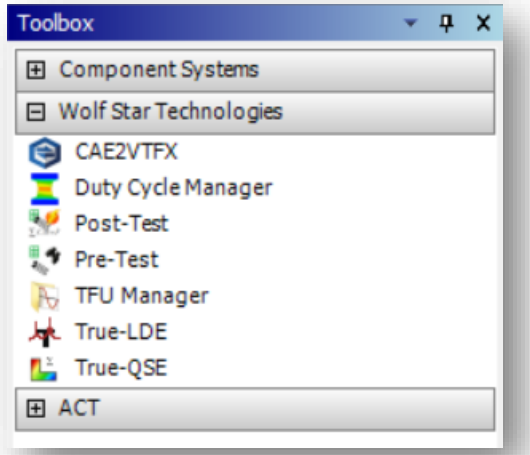
When viewing an ODB in Abaqus CAE, the user my choose True-Load/Pre-Test (or QSE, or LDE) and True-Load will launch, load in the ODB and name the TLD (or QSE or LDE) file with the same name as the ODB. This makes it super simple for the first time creation of a True-Load file from Abaqus CAE.

Ansys Plugin

Ansys Plugin



WBEX file installed in Ansys Workbench



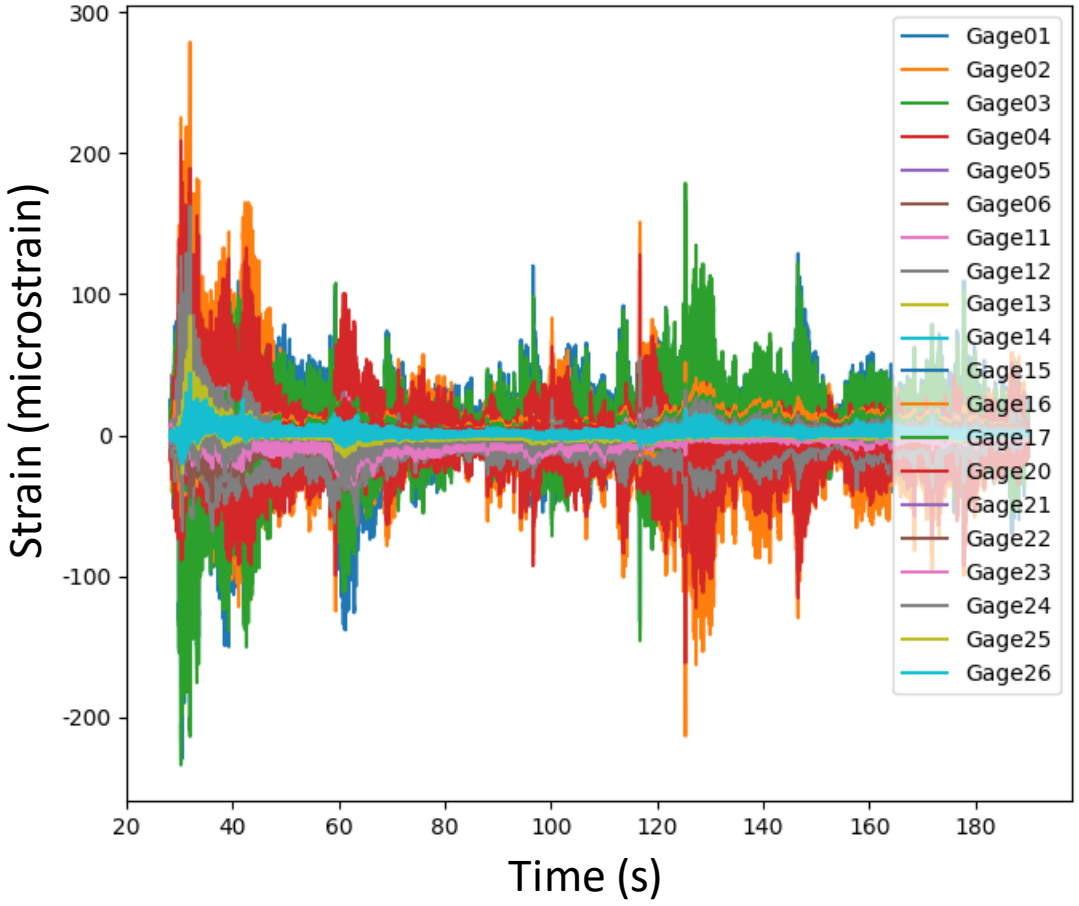
WBEX extension downloaded to Desktop

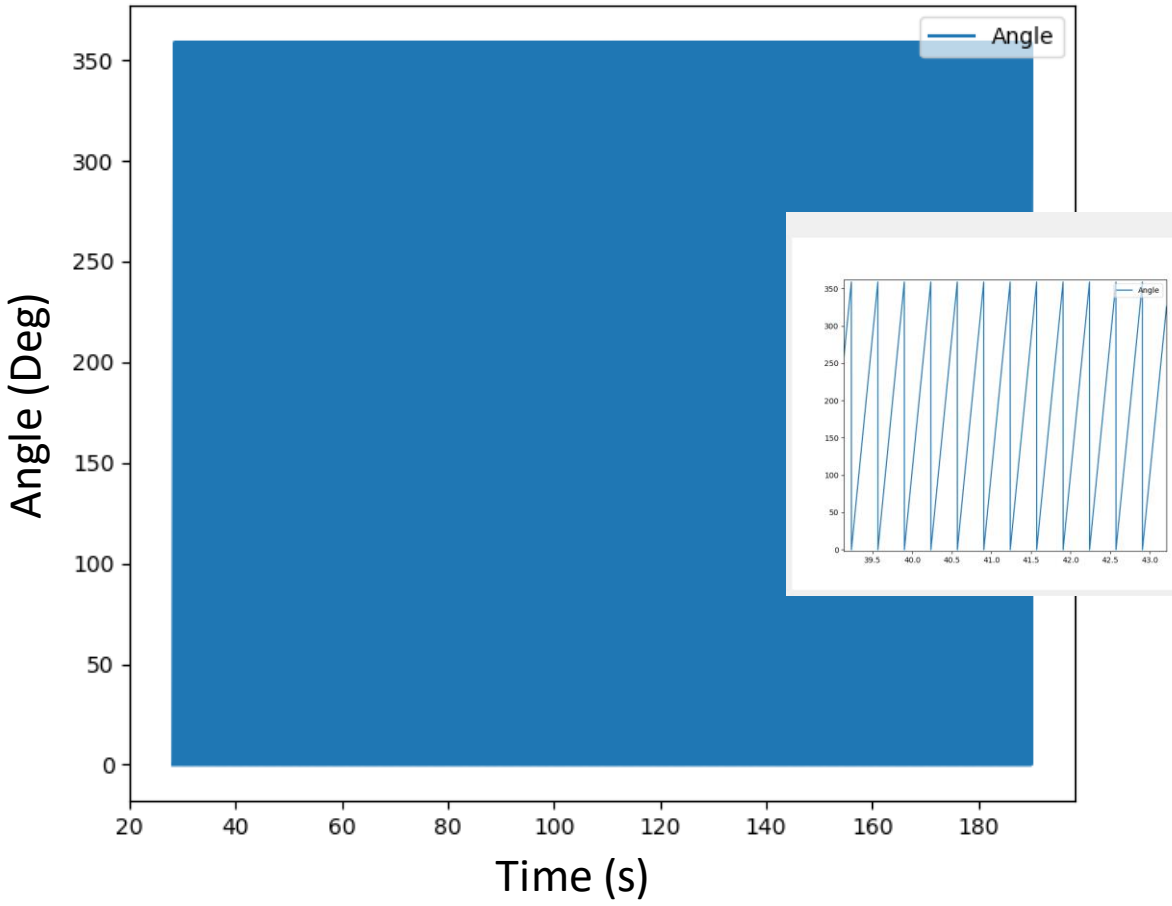
Time to Ang / Cycles

Time to Ang / Cycles

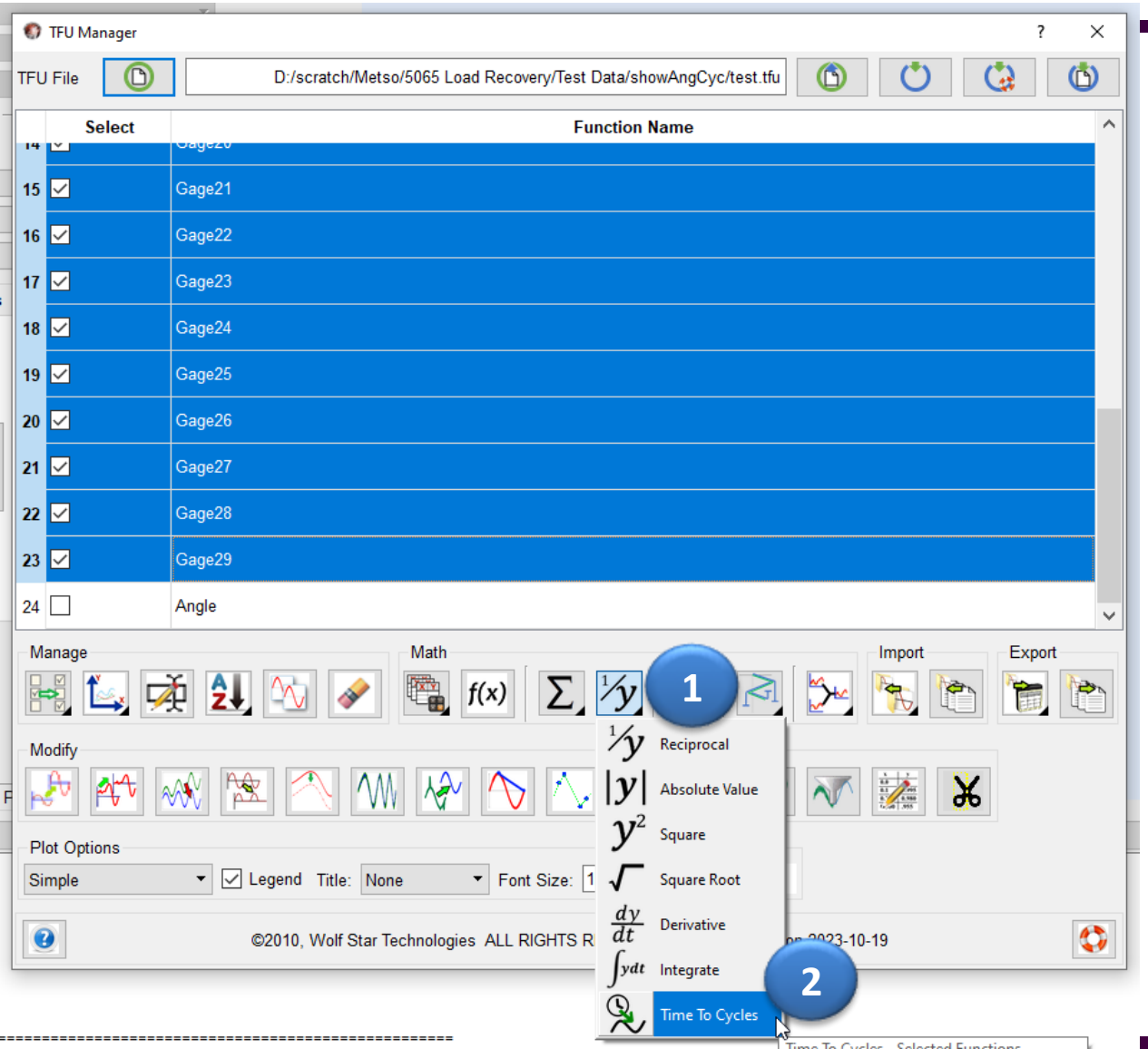
- Time to Ang / Cycles will map time domain data to angles or cycles.
- This is especially useful if your structure is a rotating component (e.g.):
  - Engine
  - Conical Crusher
  - Generator
  - Wheel
- The user needs to provide an angle channel sampled at the same sampling rate as the data.
- The angle data needs to vary from a low value to a high value (e.g. 0 to 360, 0 to 720, etc.)

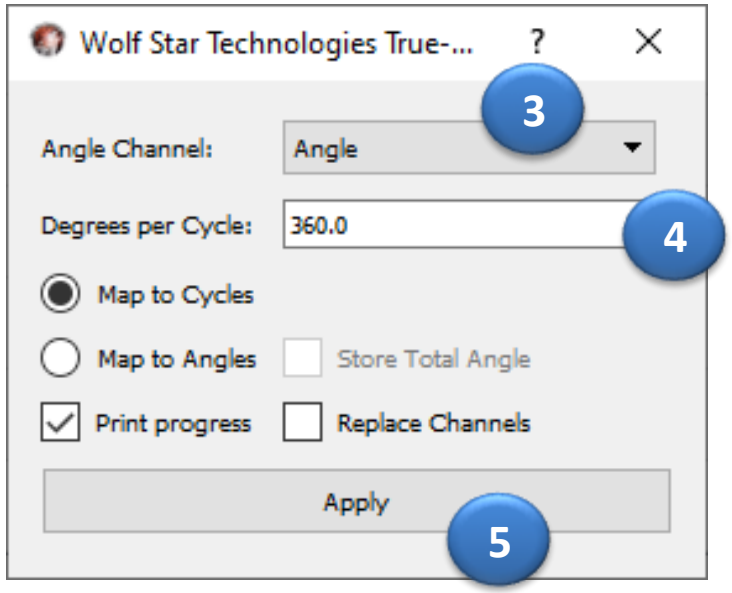
Example data



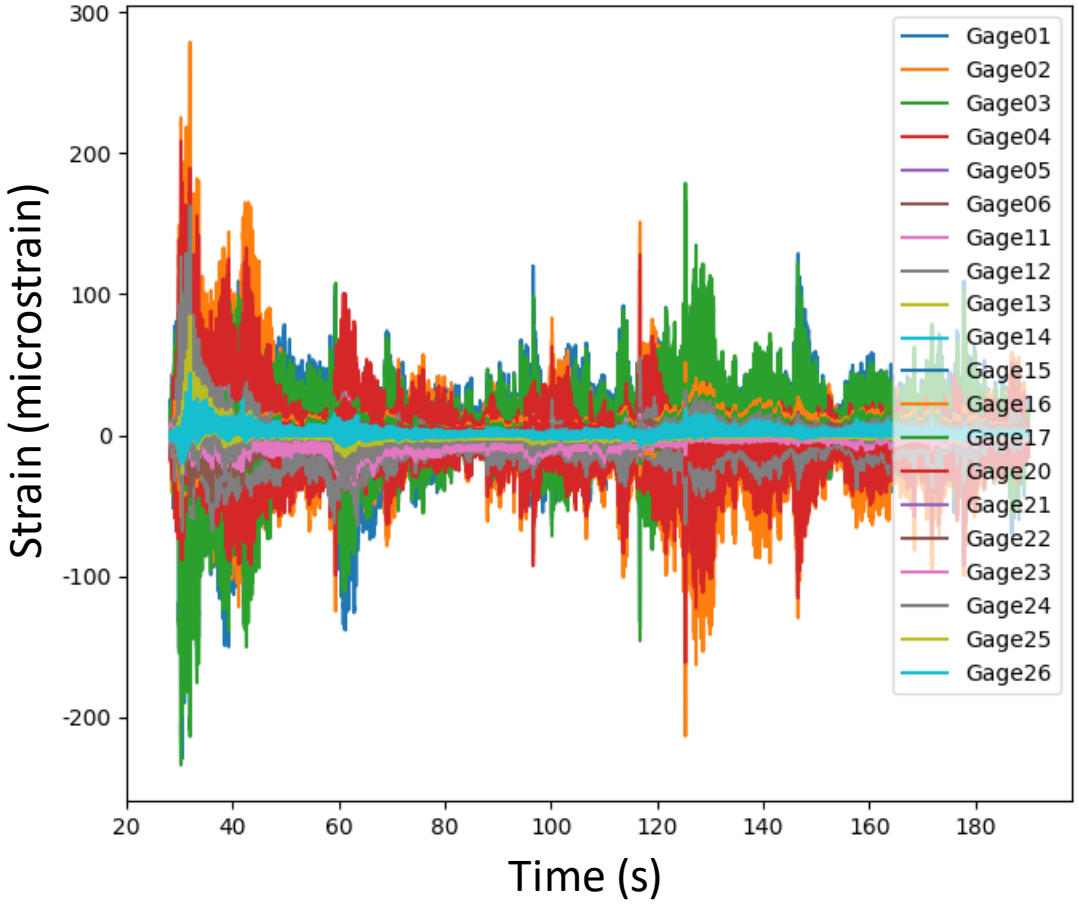


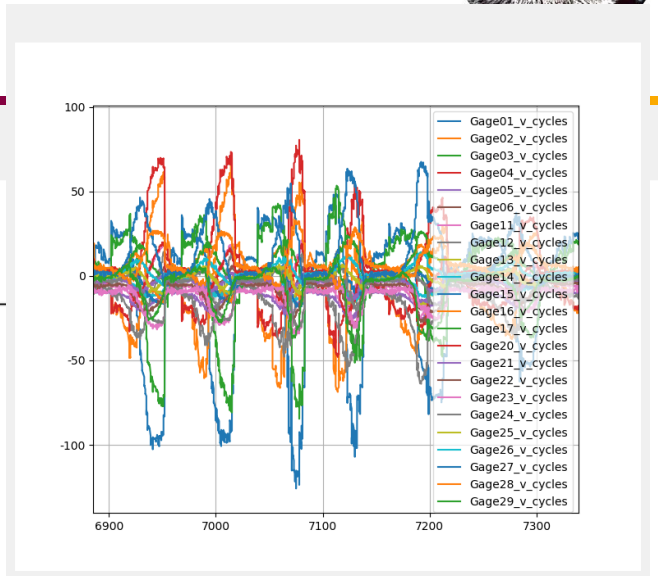
Map Time to Cycles

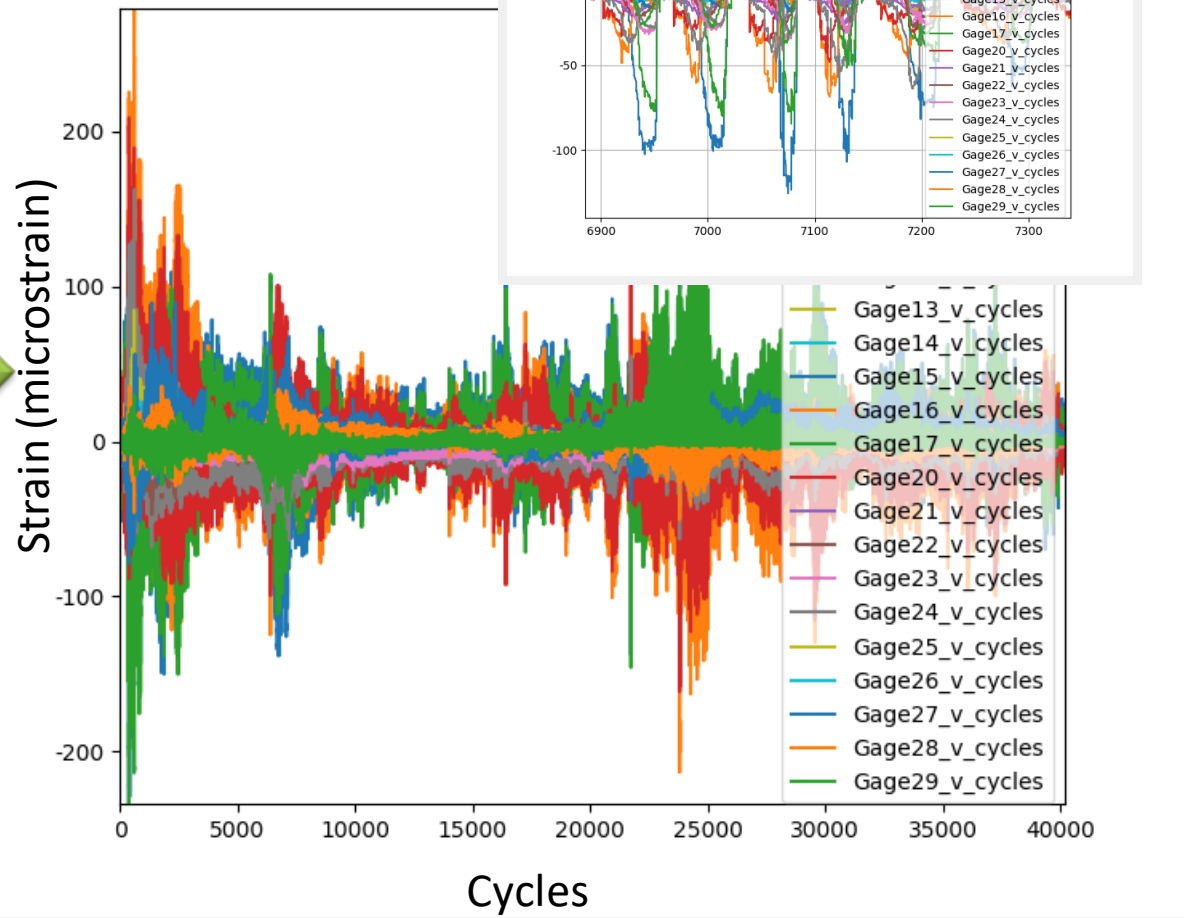




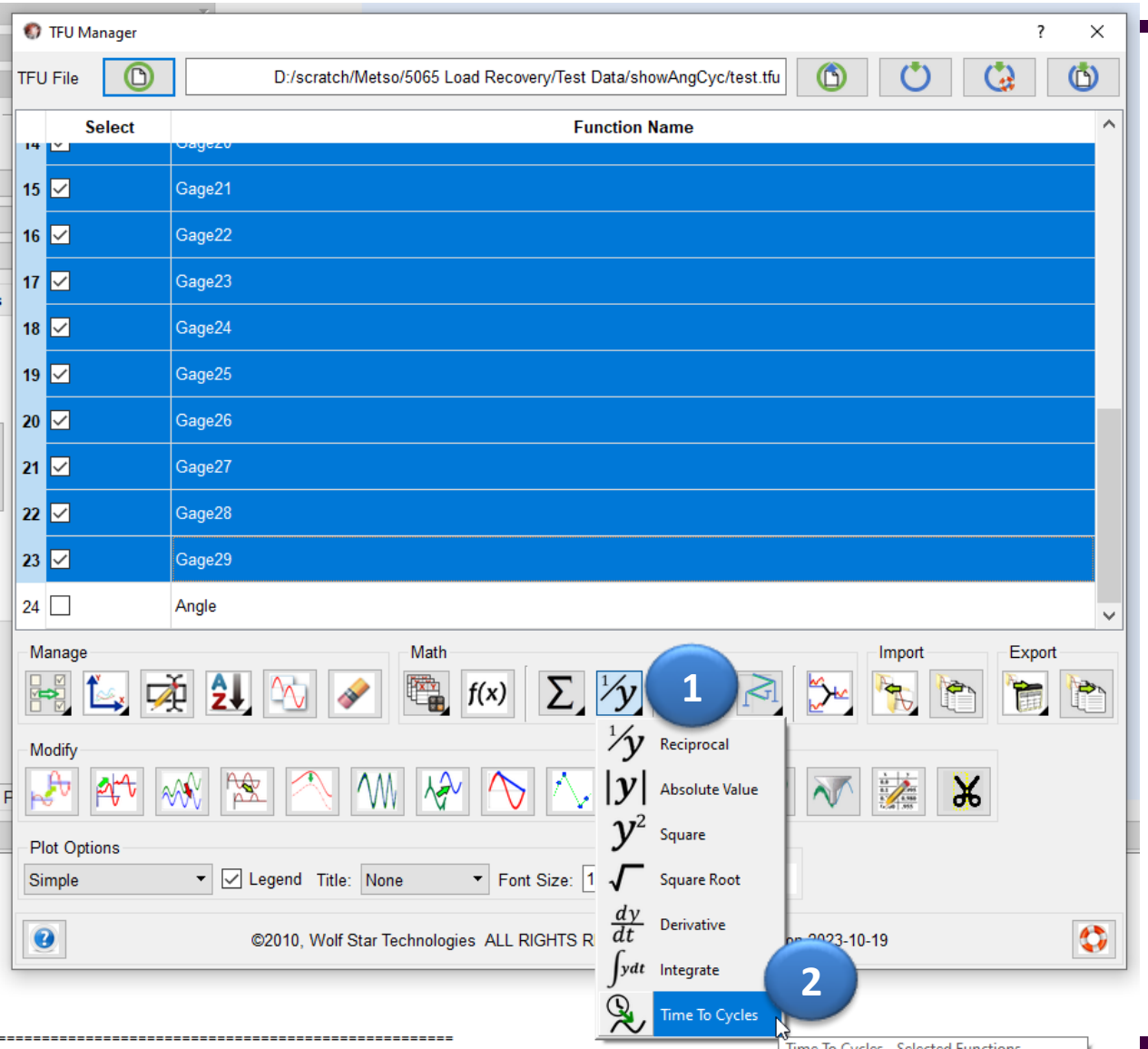
Map to Cycles

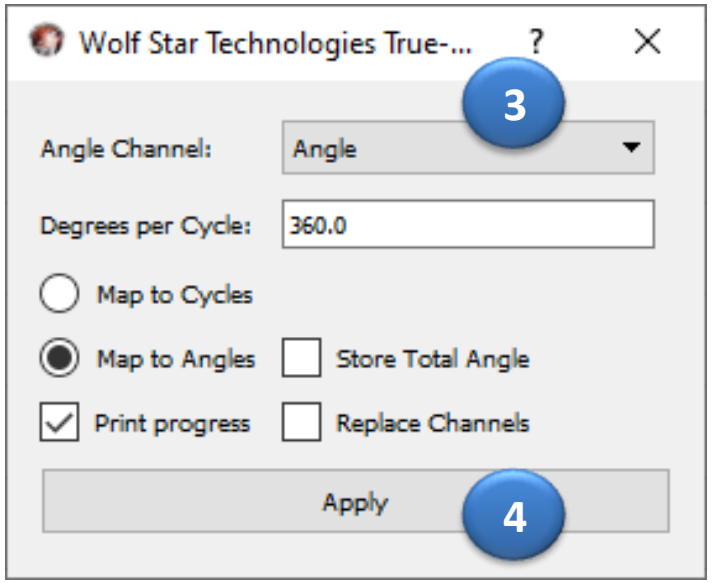




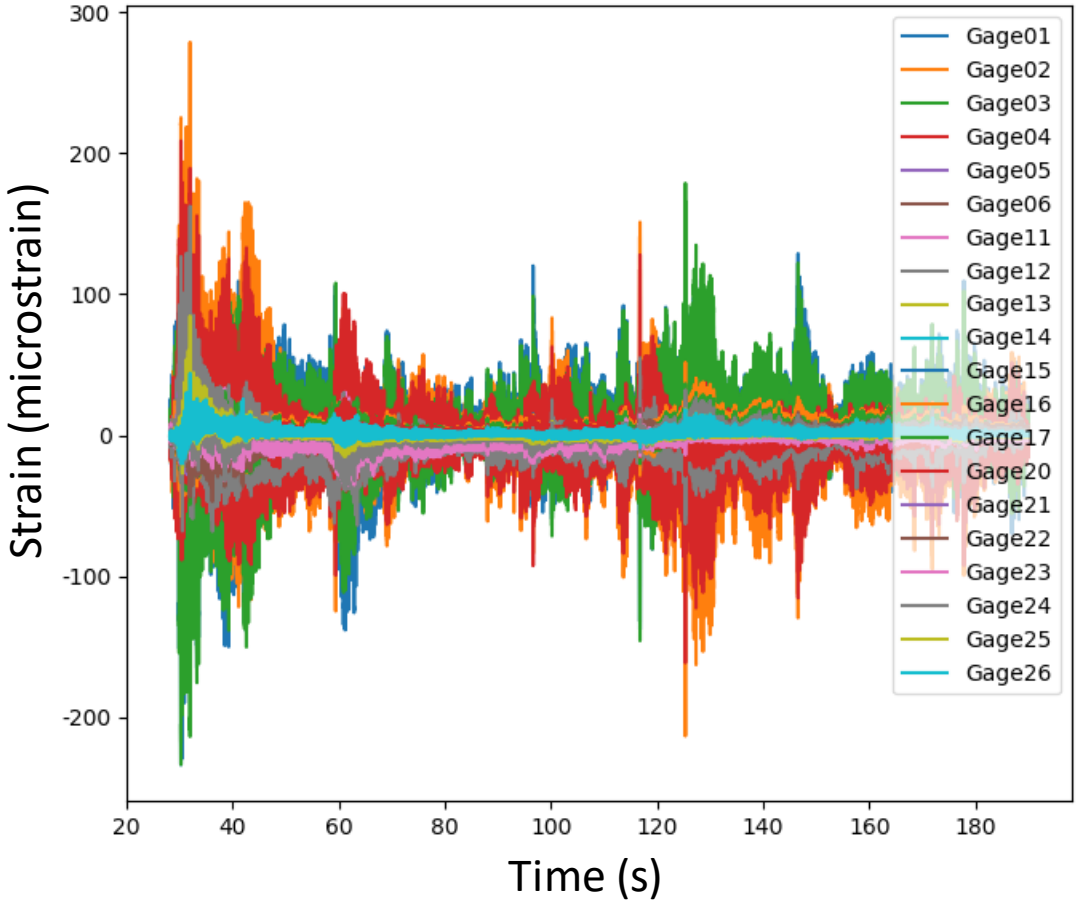


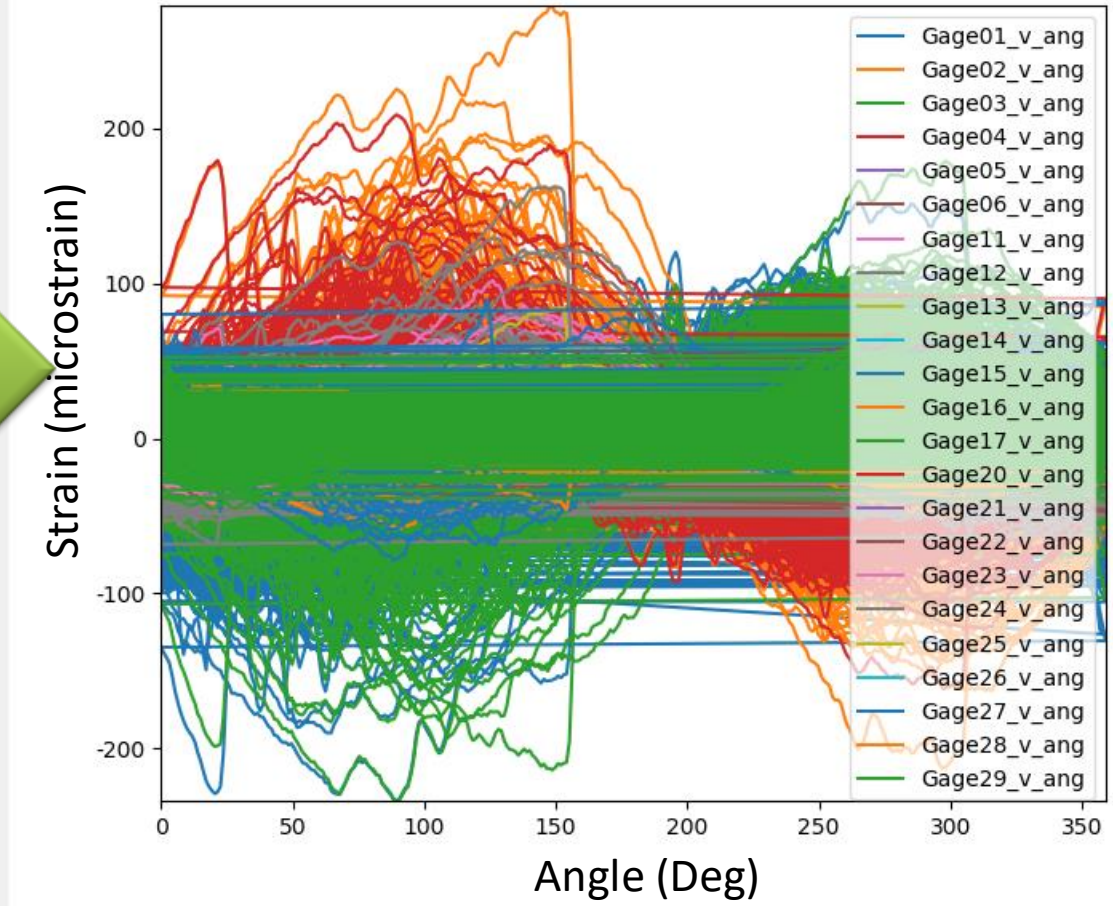
Map to Angles



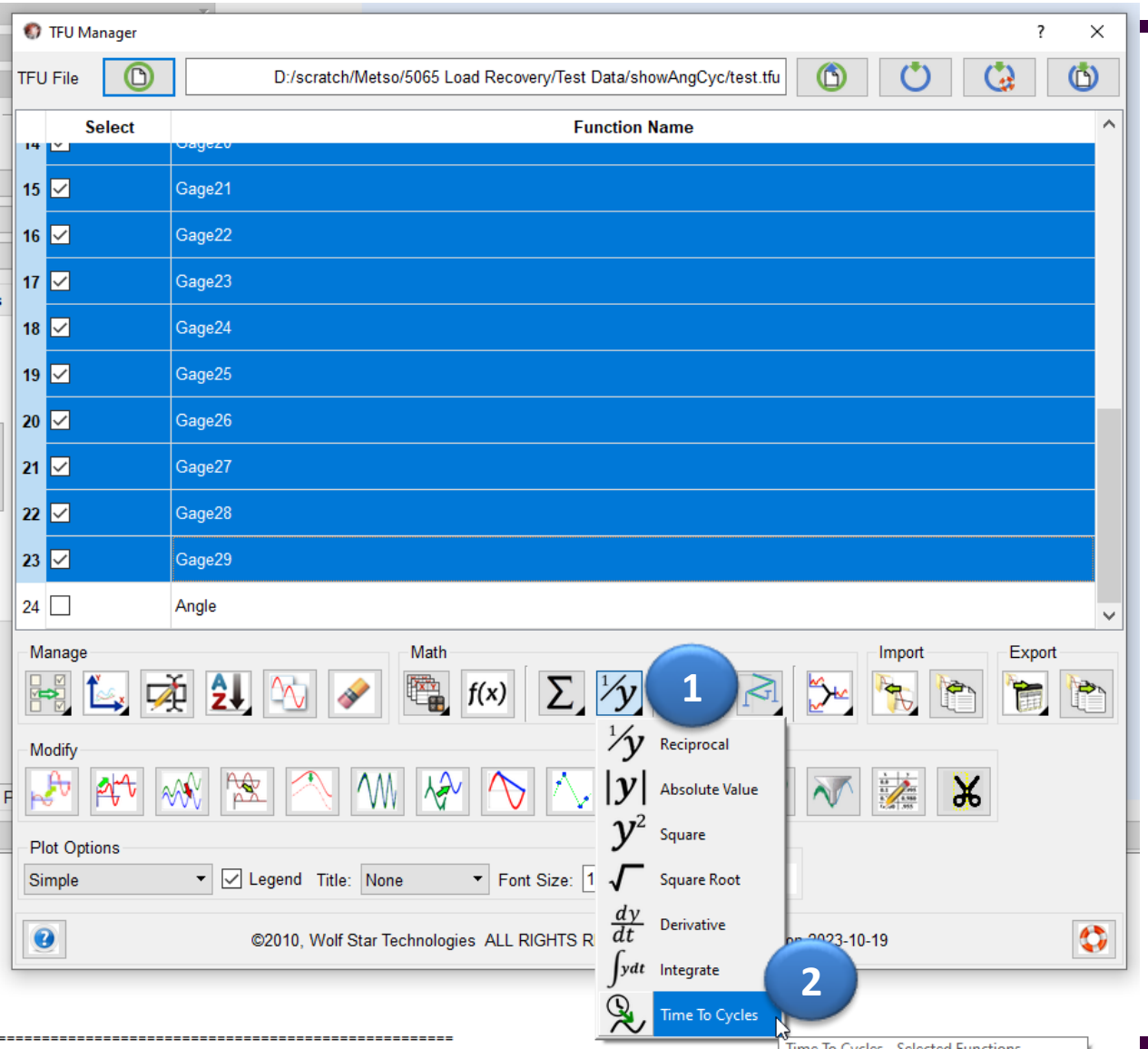


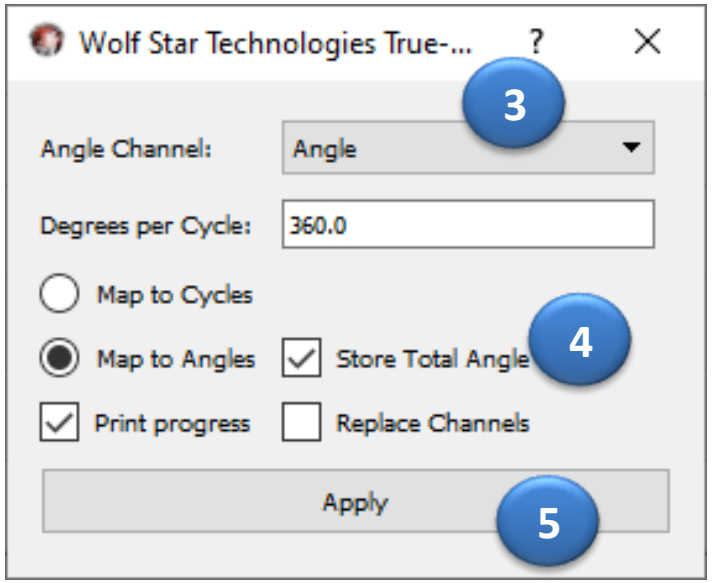
Map to Angles



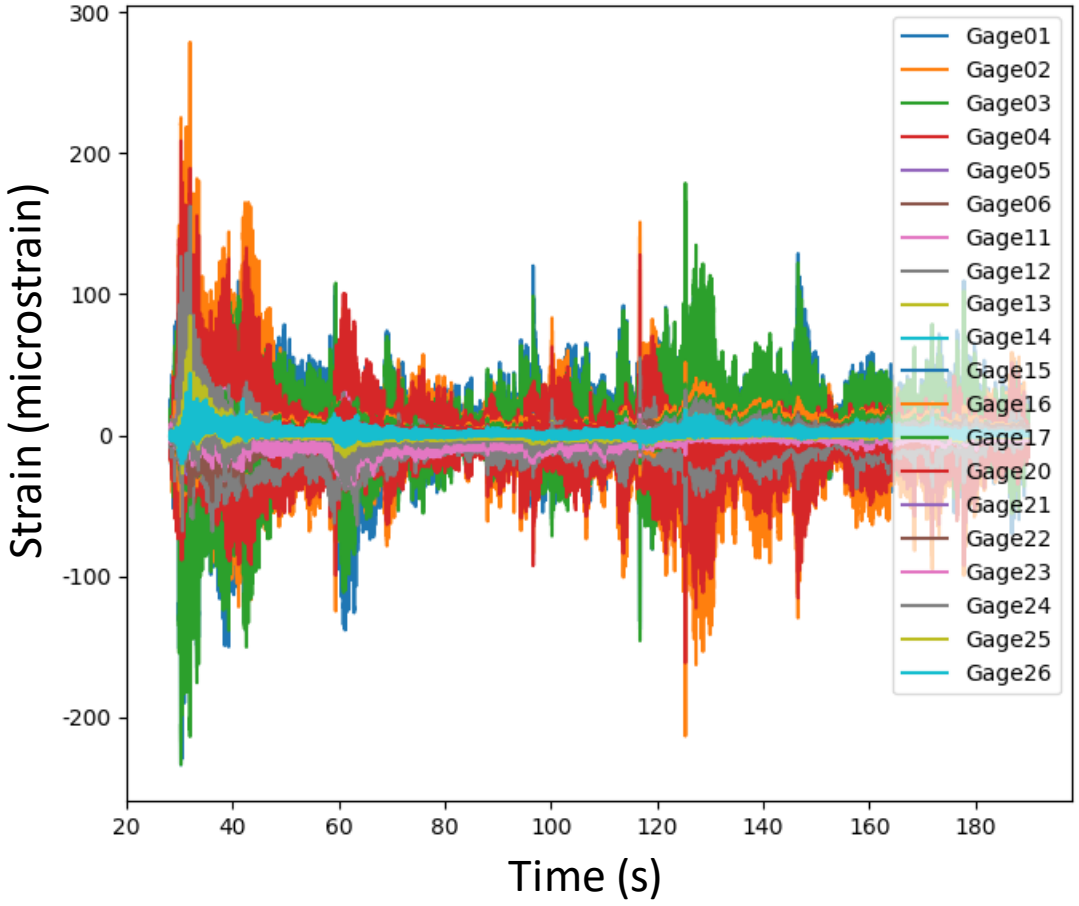


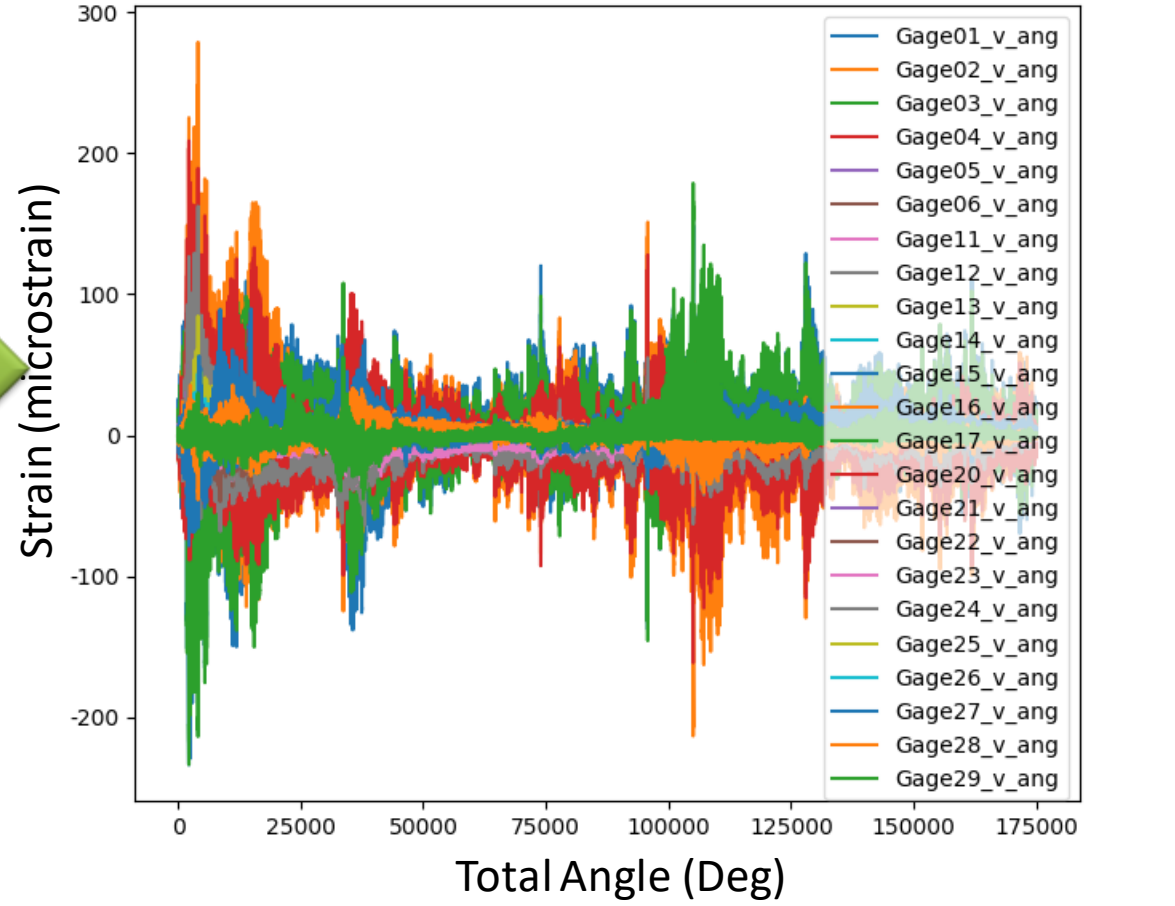
Map to Total Angle





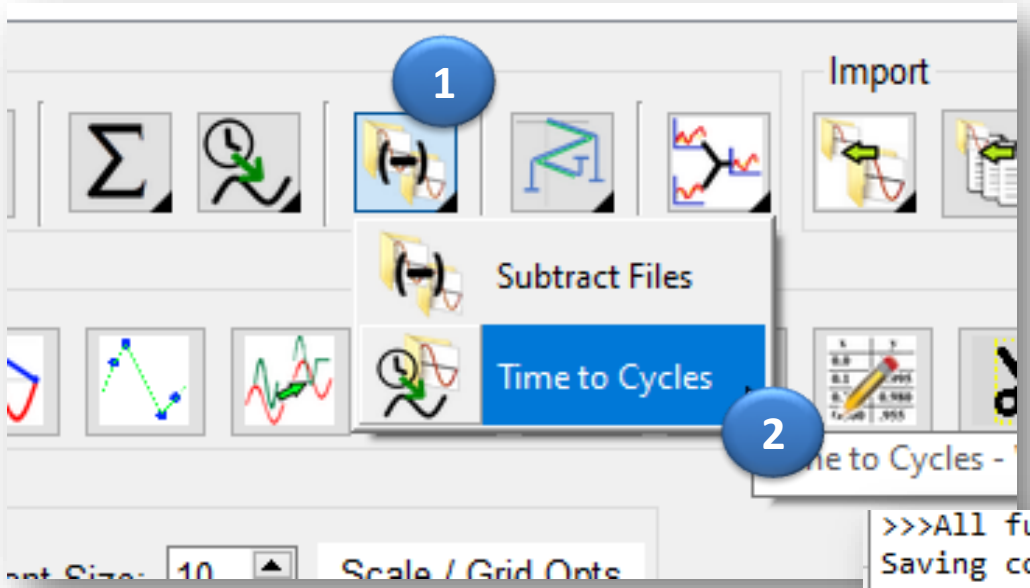
Map to Total Angle

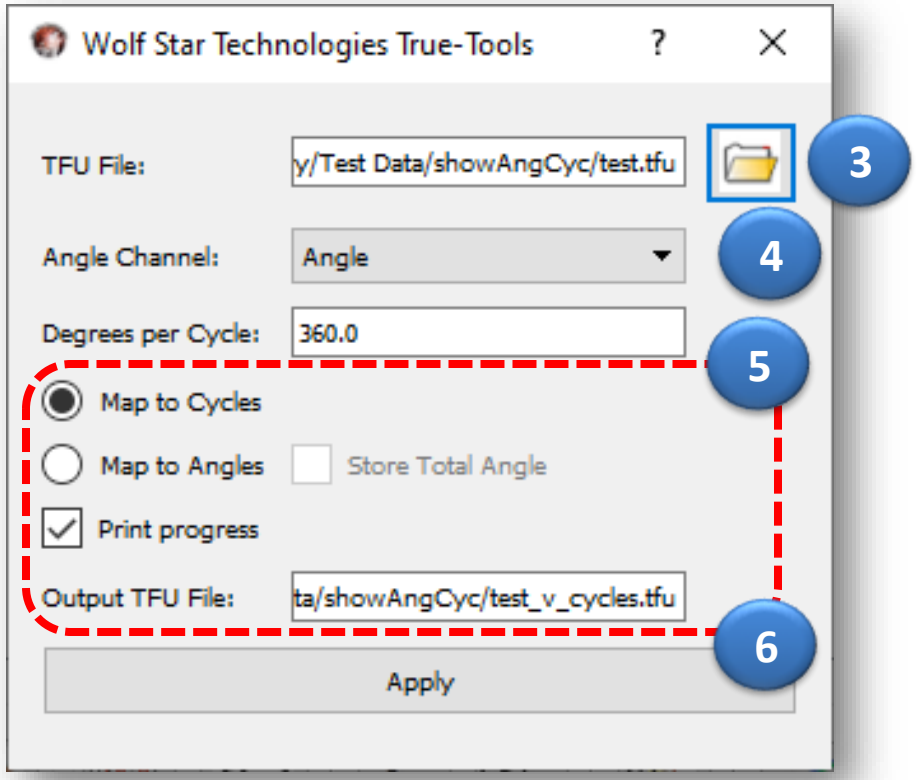




Map to Angle / Cycle → TFU File

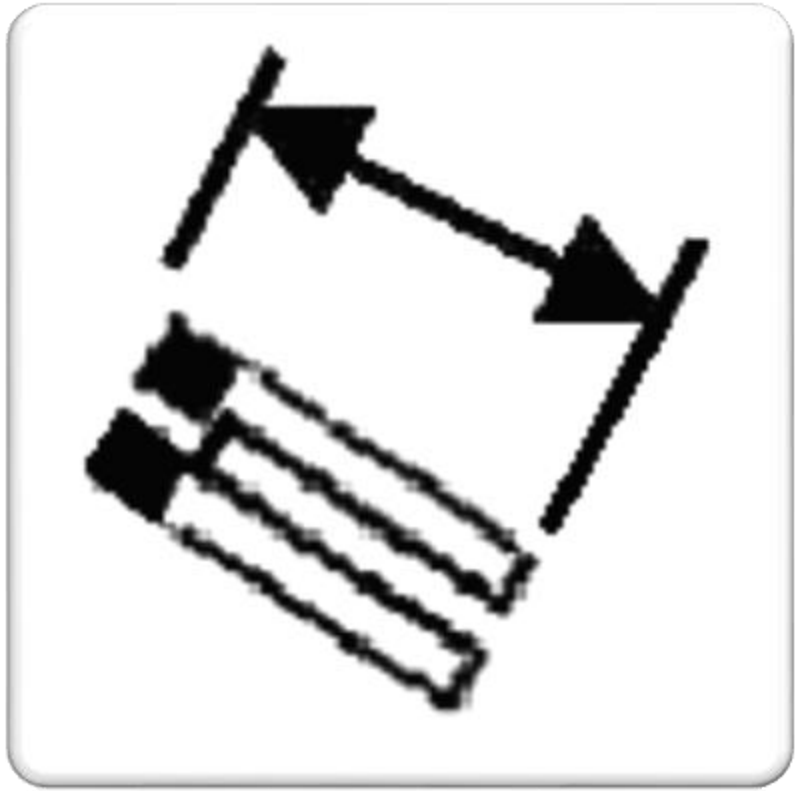
Perform operation on a TFU file instead of loading it in session.



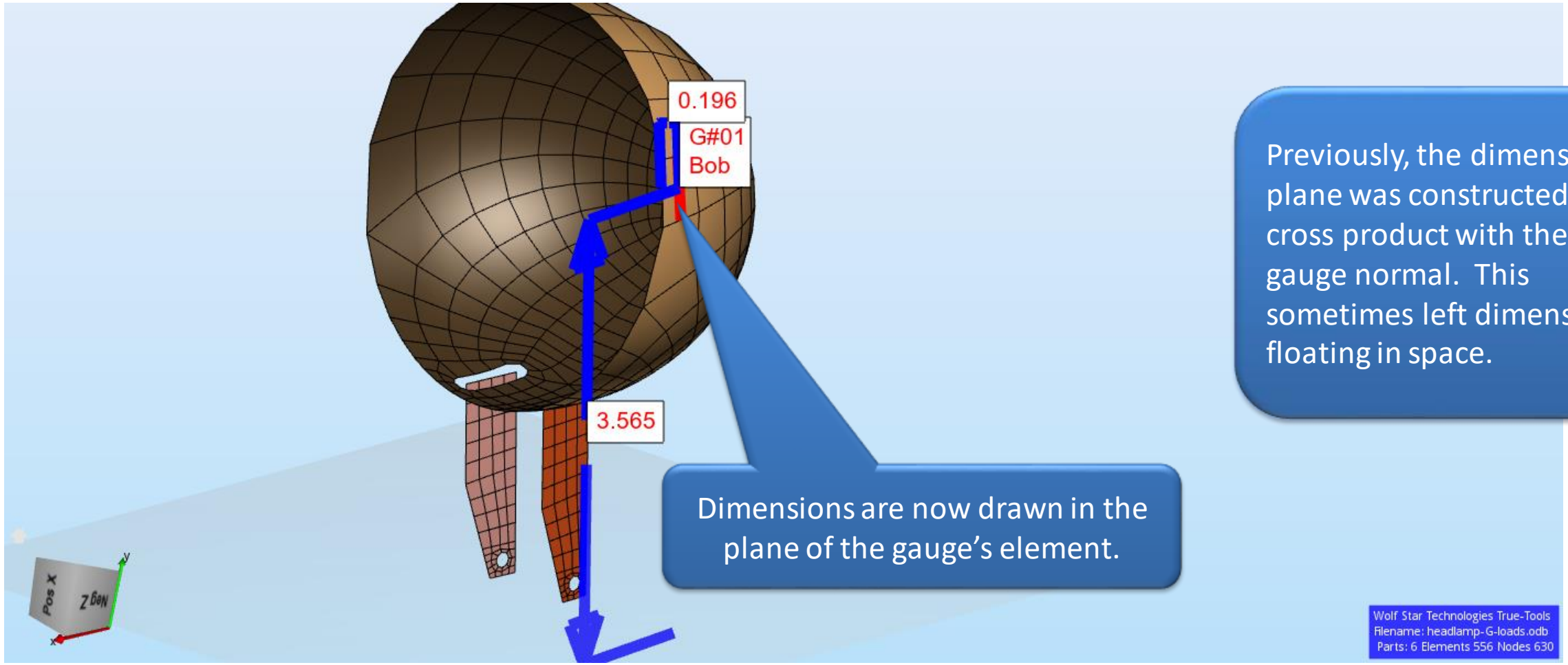



```
>>>All functions converted.
Saving converted functions to file...
Converted functions written to:
D:/scratch/Metso/5065 Load Recovery/Test Data/showAngCyc/test_v_cycles.tfu.
================================================================================
```

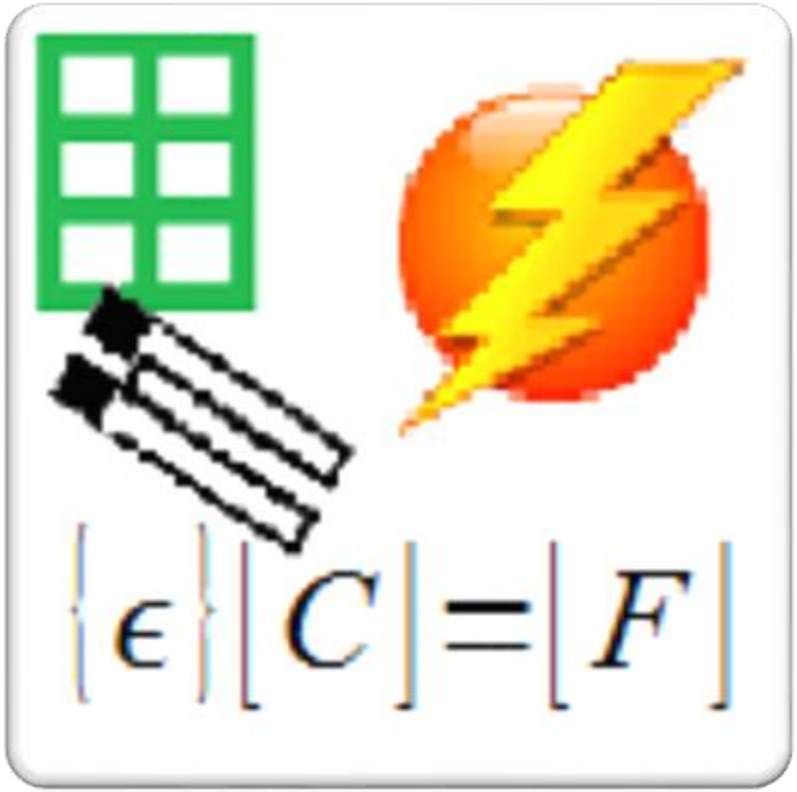
Dimension Plane

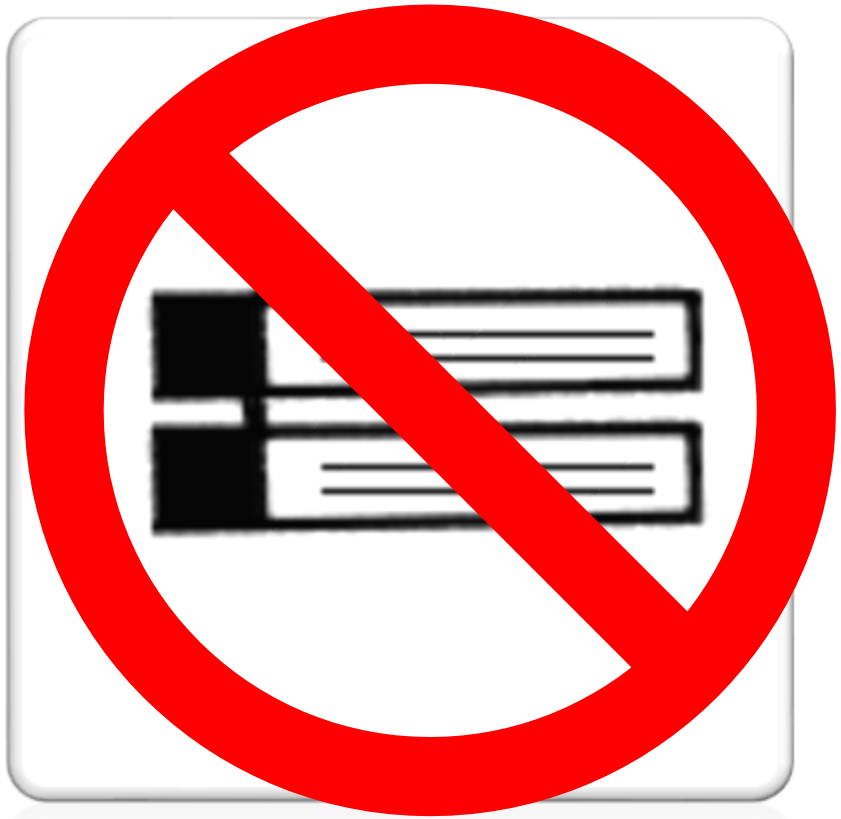


Gauge / Dimension Plane



Hybrid Loading – No Gauges Needed

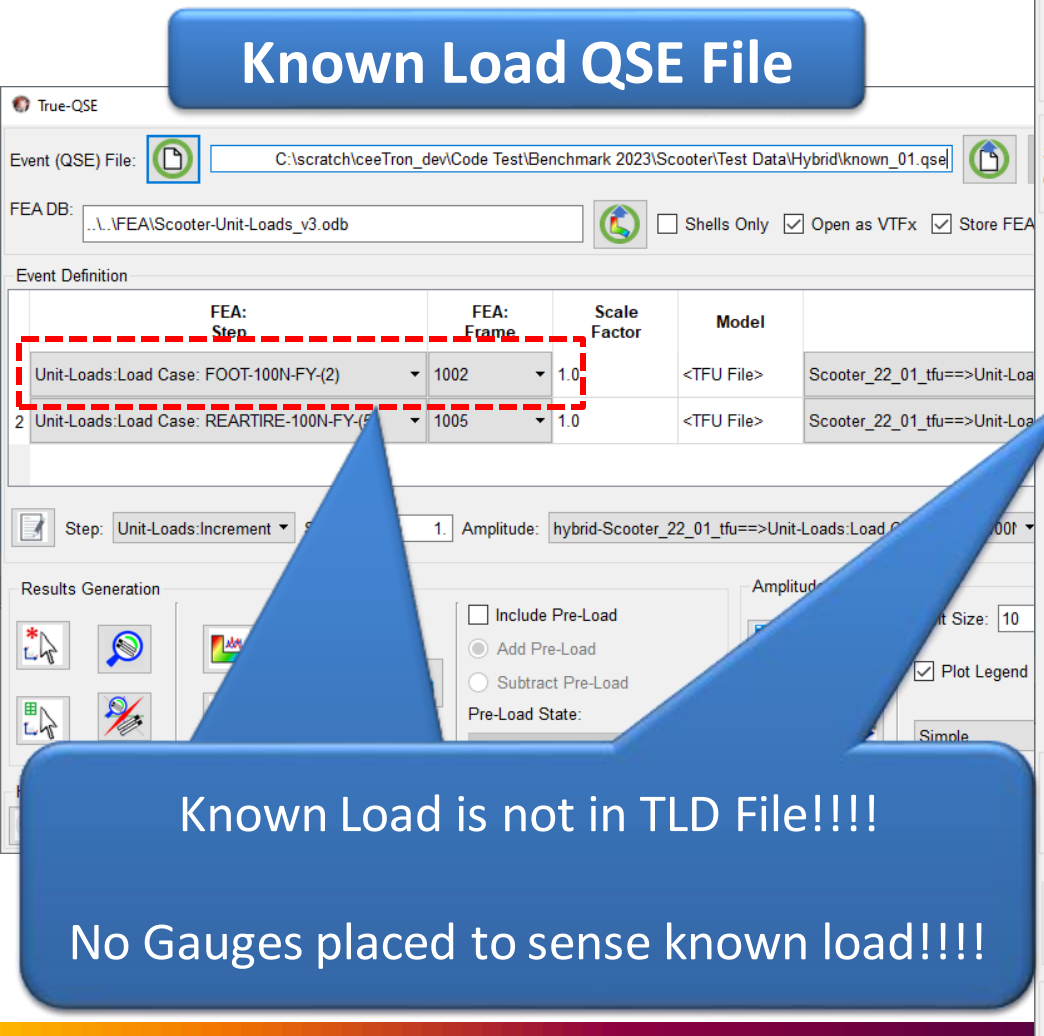


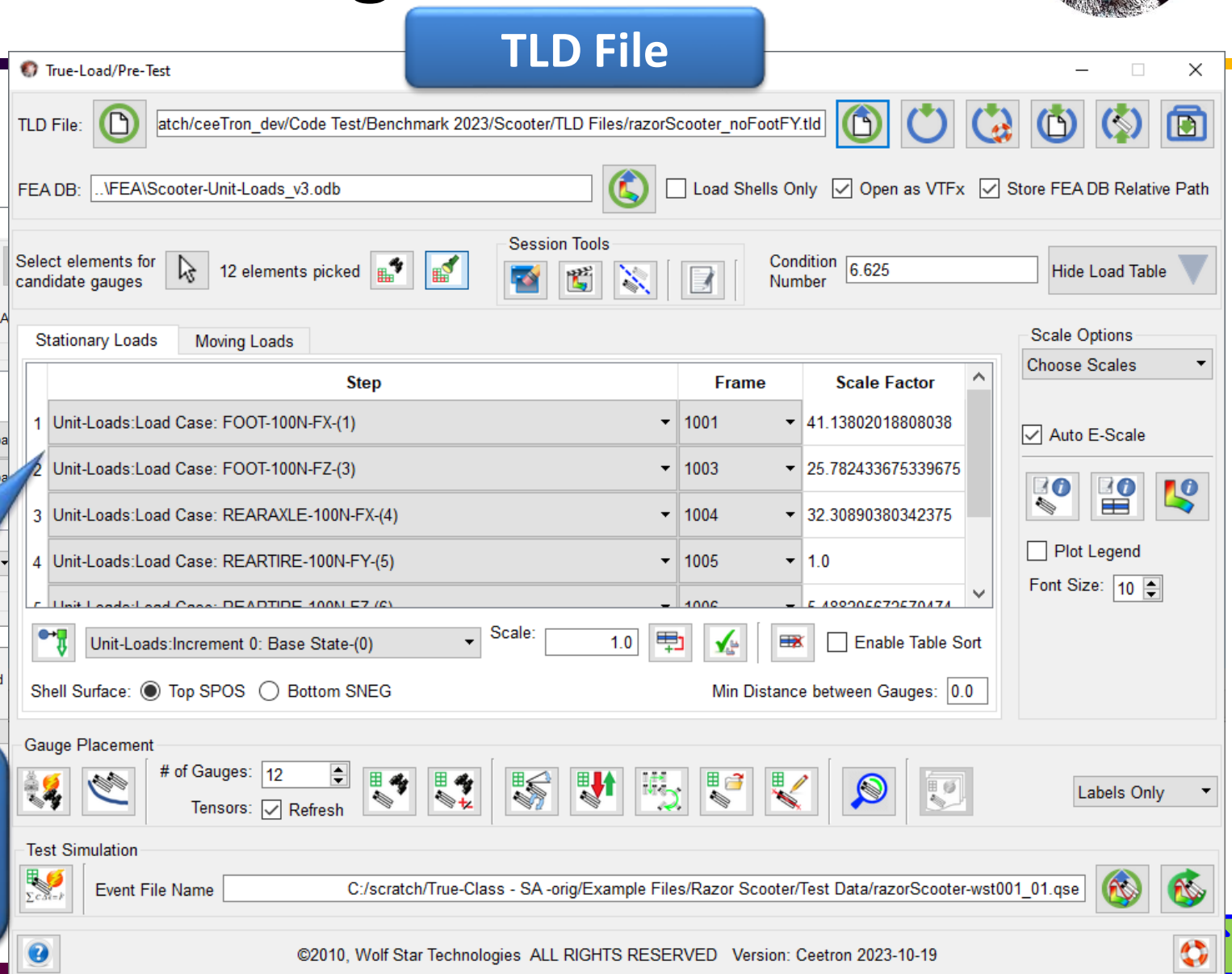


Hybrid Loading – No Gauges Needed!

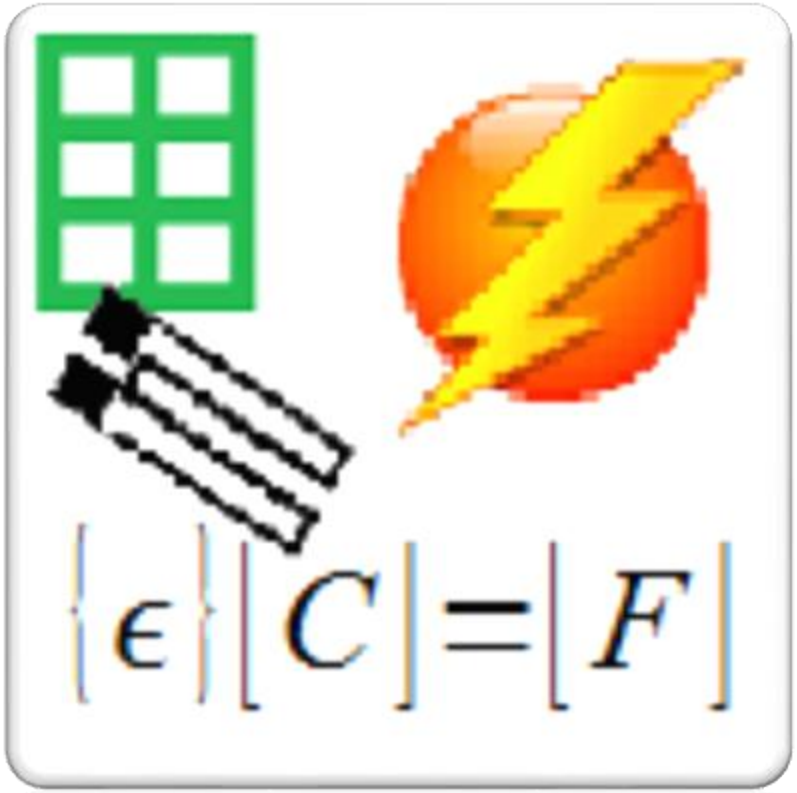
- Previously, if you were doing Hybrid Loading, you would need to place gauges that could back calculate the load – even though you were measuring the load with another transducer.
- Now you do not need to include the Hybrid Load in your TLD file or lay the extra gauges for the Hybrid Load.
- You do still need to model the unit load for the measured load in your FEA model as a solved load case.

Hybrid Loading



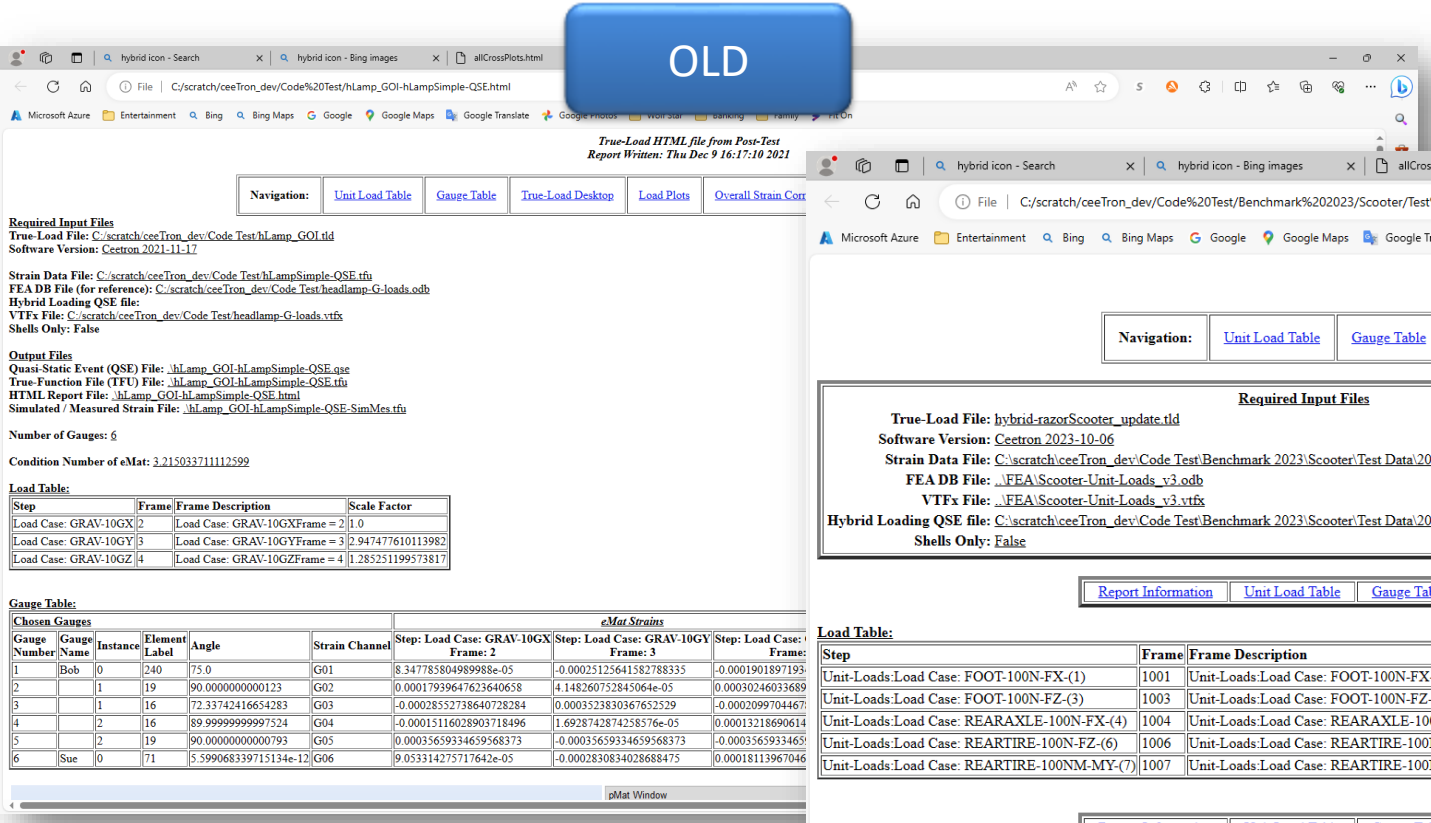


Post-Test Report Readability



Post-Test Report Readability

OLD



True-Load HTML file from Post-Test
Report Written: Thu Dec 9 16:17:10 2021

Navigation: Unit Load Table | Gauge Table | True-Load Desktop | Load Plots | Overall Strain Corr

Required Input Files
True-Load File: C:/scratch/ceeTron_dev/Code Test/hLamp_GOI.tld
Software Version: Ceetron 2021-11-17

Strain Data File: C:/scratch/ceeTron_dev/Code Test/hLampSimple-QSE.tfu
FEA DB File (for reference): C:/scratch/ceeTron_dev/Code Test/headlamp-G-loads.odb
Hybrid Loading QSE file:
VTFx File: C:/scratch/ceeTron_dev/Code Test/headlamp-G-loads.vtfx
Shells Only: False

Output Files
Quasi-Static Event (QSE) File: .\hLamp_GOI-hLampSimple-QSE.qse
True-Function File (TFU) File: .\hLamp_GOI-hLampSimple-QSE.tfu
HTML Report File: .\hLamp_GOI-hLampSimple-QSE.html
Simulated / Measured Strain File: .\hLamp_GOI-hLampSimple-QSE-SimMes.tfu

Number of Gauges: 6

Condition Number of eMat: 3.215033711112599

Load Table:

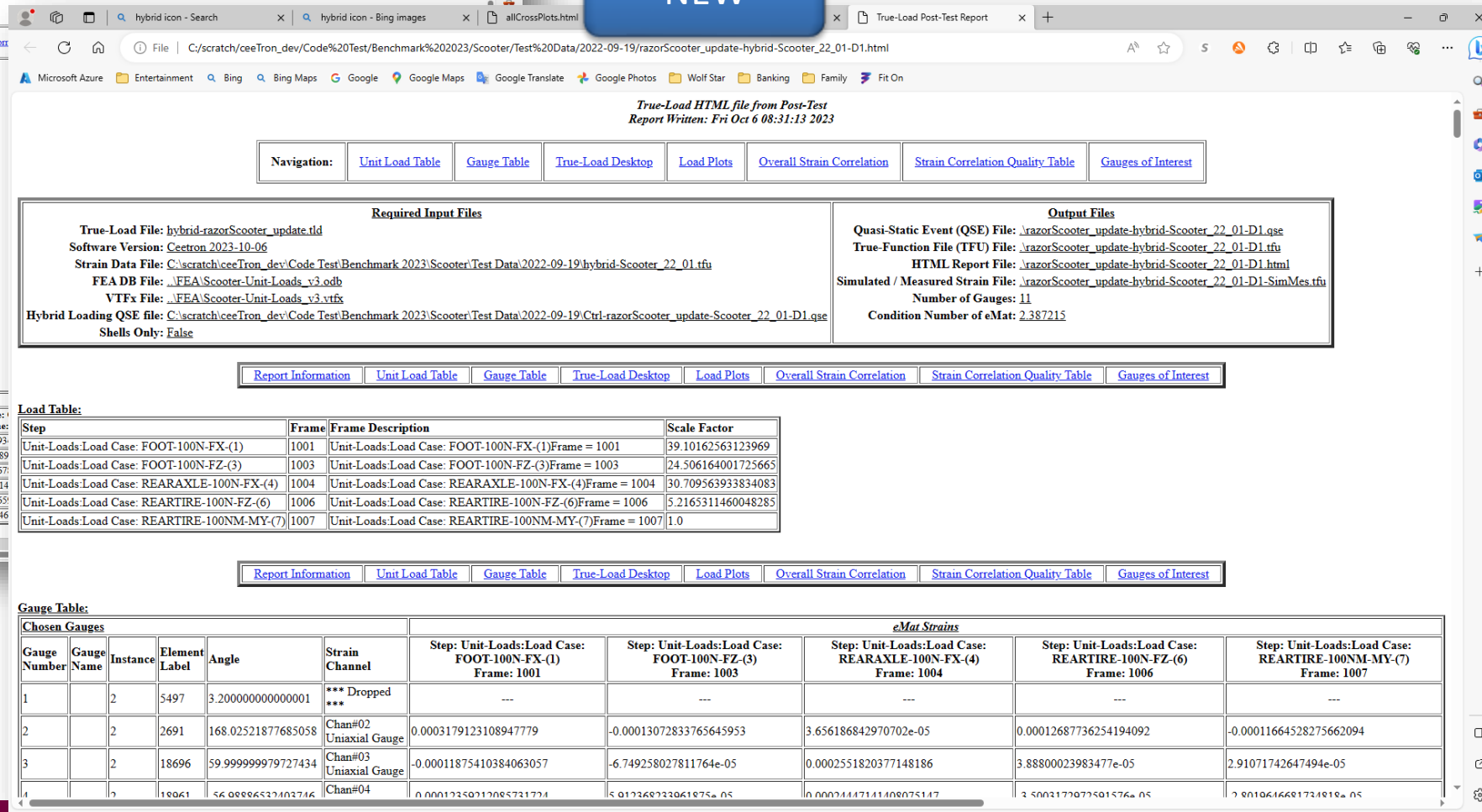
Step	Frame	Frame Description	Scale Factor
Load Case: GRAV-10GX	2	Load Case: GRAV-10GXFrame = 2	1.0
Load Case: GRAV-10GY	3	Load Case: GRAV-10GYFrame = 3	2.947477610113982
Load Case: GRAV-10GZ	4	Load Case: GRAV-10GZFrame = 4	1.285251199573817

Gauge Table:

Chosen Gauges						eMat Strains		
Gauge Number	Gauge Name	Instance	Element Label	Angle	Strain Channel	Step: Load Case: GRAV-10GX Frame: 2	Step: Load Case: GRAV-10GY Frame: 3	Step: Load Case: Frame:
1	Bob	0	240	75.0	G01	8.347785804989988e-05	-0.0002512564158278833 5	-0.000190189719
2		1	19	90.0000000000123	G02	0.0001793964762364065 8	4.148260752845064e-05	0.000302460336 89
3		1	16	72.33742416654283	G03	-0.0002855273864072828 4	0.0003523830367652529	-0.000209970446 7
4		2	16	89.99999999997524	G04	-0.0001511602890371849 6	1.6928742874258576e-05	0.000132186906 14
5		2	19	90.00000000000793	G05	0.0003565933465956837 3	-0.0003565933465956837 3	-0.000356593346 5
6	Sue	0	71	5.599068339715134e-12	G06	9.053314275717642e-05	-0.0002830834028688475	0.000181139670 46

pMat Window

NEW



True-Load HTML file from Post-Test
Report Written: Fri Oct 6 08:31:13 2023

Navigation: Unit Load Table | Gauge Table | True-Load Desktop | Load Plots | Overall Strain Correlation | Strain Correlation Quality Table | Gauges of Interest

Required Input Files
True-Load File: hybrid-razorScooter_update.tld
Software Version: Ceetron 2023-10-06
Strain Data File: C:\scratch\ceeTron_dev\Code Test\Benchmark 2023\Scooter\Test Data\2022-09-19\hybrid-Scooter_22_01.tfu
FEA DB File: ..\FEA\Scooter-Unit-Loads_v3.odb
VTFx File: ..\FEA\Scooter-Unit-Loads_v3.vtfx
Hybrid Loading QSE file: C:\scratch\ceeTron_dev\Code Test\Benchmark 2023\Scooter\Test Data\2022-09-19\Ctrl-razorScooter_update-Scooter_22_01-D1.qse
Shells Only: False

Output Files
Quasi-Static Event (QSE) File: .\razorScooter_update-hybrid-Scooter_22_01-D1.qse
True-Function File (TFU) File: .\razorScooter_update-hybrid-Scooter_22_01-D1.tfu
HTML Report File: .\razorScooter_update-hybrid-Scooter_22_01-D1.html
Simulated / Measured Strain File: .\razorScooter_update-hybrid-Scooter_22_01-D1-SimMes.tfu
Number of Gauges: 11
Condition Number of eMat: 2.387215

Report Information | Unit Load Table | Gauge Table | True-Load Desktop | Load Plots | Overall Strain Correlation | Strain Correlation Quality Table | Gauges of Interest

Load Table:

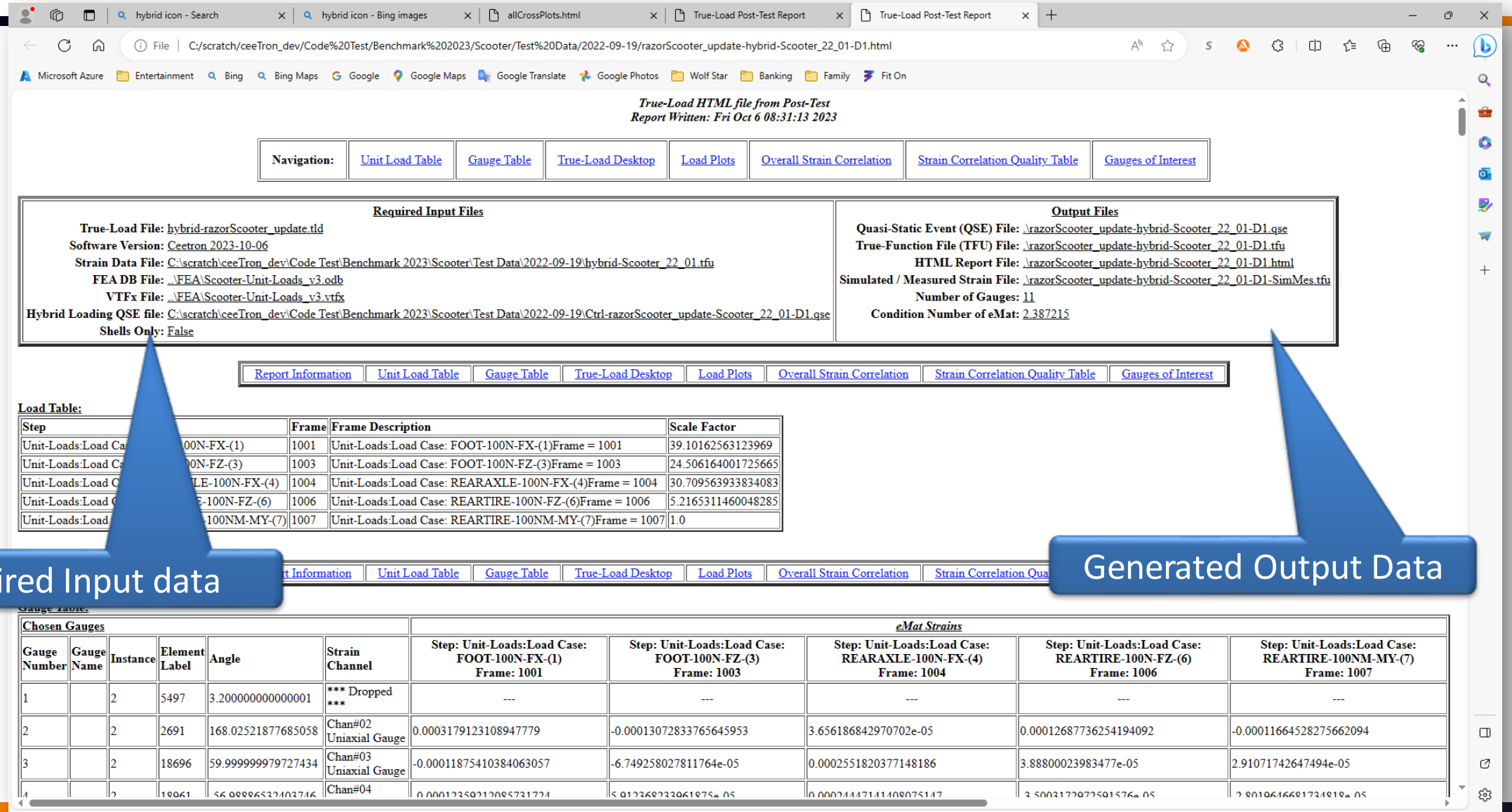
Step	Frame	Frame Description	Scale Factor
Unit-Loads:Load Case: FOOT-100N-FX-(1)	1001	Unit-Loads:Load Case: FOOT-100N-FX-(1)Frame = 1001	39.10162563123969
Unit-Loads:Load Case: FOOT-100N-FZ-(3)	1003	Unit-Loads:Load Case: FOOT-100N-FZ-(3)Frame = 1003	24.506164001725665
Unit-Loads:Load Case: REARAXLE-100N-FX-(4)	1004	Unit-Loads:Load Case: REARAXLE-100N-FX-(4)Frame = 1004	30.709563933834083
Unit-Loads:Load Case: REARTIRE-100N-FZ-(6)	1006	Unit-Loads:Load Case: REARTIRE-100N-FZ-(6)Frame = 1006	5.2165311460048285
Unit-Loads:Load Case: REARTIRE-100NM-MY-(7)	1007	Unit-Loads:Load Case: REARTIRE-100NM-MY-(7)Frame = 1007	1.0

Report Information | Unit Load Table | Gauge Table | True-Load Desktop | Load Plots | Overall Strain Correlation | Strain Correlation Quality Table | Gauges of Interest

Gauge Table:

Chosen Gauges						eMat Strains				
Gauge Number	Gauge Name	Instance	Element Label	Angle	Strain Channel	Step: Unit-Loads:Load Case: FOOT-100N-FX-(1) Frame: 1001	Step: Unit-Loads:Load Case: FOOT-100N-FZ-(3) Frame: 1003	Step: Unit-Loads:Load Case: REARAXLE-100N-FX-(4) Frame: 1004	Step: Unit-Loads:Load Case: REARTIRE-100N-FZ-(6) Frame: 1006	Step: Unit-Loads:Load Case: REARTIRE-100NM-MY-(7) Frame: 1007
1		2	5497	3.200000000000001	*** Dropped ***	---	---	---	---	---
2		2	2691	168.02521877685058	Chan#02 Uniaxial Gauge	0.0003179123108947779	-0.0001307283376564595 3	3.656186842970702e-05	0.0001268736254194092	-0.0001166452827566209 4
3		2	18696	59.999999979727434	Chan#03 Uniaxial Gauge	-0.0001187541038406305 7	-6.749258027811764e-05	0.0002551820377148186	3.88800023983477e-05	2.91071742647494e-05
4		2	18961	56.98886532403746	Chan#04	0.0001235921208573172 4	5.912368233961875e-05	0.0002444714140807514 7	3.500317297259157 6e-05	2.801964681734818e-05

Post-Test Report Readability



True-Load HTML file from Post-Test
Report Written: Fri Oct 6 08:31:13 2023

Navigation: Unit Load Table | Gauge Table | True-Load Desktop | Load Plots | Overall Strain Correlation | Strain Correlation Quality Table | Gauges of Interest

Required Input Files

True-Load File: hybrid-razorScooter_update.tld
Software Version: Ceetron 2023-10-06
Strain Data File: C:\scratch\ceeTron_dev\Code Test\Benchmark 2023\Scooter\Test Data\2022-09-19\hybrid-Scooter_22_01.tfu
FEA DB File: ..\FEA\Scooter-Unit-Loads_v3.odb
VTFx File: ..\FEA\Scooter-Unit-Loads_v3.vtfx
Hybrid Loading QSE file: C:\scratch\ceeTron_dev\Code Test\Benchmark 2023\Scooter\Test Data\2022-09-19\Ctrl-razorScooter_update-Scooter_22_01-D1.qse
Shells Only: False

Output Files

Quasi-Static Event (QSE) File: .\razorScooter_update-hybrid-Scooter_22_01-D1.qse
True-Function File (TFU) File: .\razorScooter_update-hybrid-Scooter_22_01-D1.tfu
HTML Report File: .\razorScooter_update-hybrid-Scooter_22_01-D1.html
Simulated / Measured Strain File: .\razorScooter_update-hybrid-Scooter_22_01-D1-SimMes.tfu
Number of Gauges: 11
Condition Number of eMat: 2.387215

Report Information | Unit Load Table | Gauge Table | True-Load Desktop | Load Plots | Overall Strain Correlation | Strain Correlation Quality Table | Gauges of Interest

Load Table:

Step		Frame	Frame Description	Scale Factor
Unit-Loads:Load Ca	00N-FX-(1)	1001	Unit-Loads:Load Case: FOOT-100N-FX-(1)Frame = 1001	39.10162563123969
Unit-Loads:Load Ca	0N-FZ-(3)	1003	Unit-Loads:Load Case: FOOT-100N-FZ-(3)Frame = 1003	24.506164001725665
Unit-Loads:Load C	LE-100N-FX-(4)	1004	Unit-Loads:Load Case: REARAXLE-100N-FX-(4)Frame = 1004	30.709563933834083
Unit-Loads:Load C	-100N-FZ-(6)	1006	Unit-Loads:Load Case: REARTIRE-100N-FZ-(6)Frame = 1006	5.2165311460048285
Unit-Loads:Load	-100NM-MY-(7)	1007	Unit-Loads:Load Case: REARTIRE-100NM-MY-(7)Frame = 1007	1.0

Required Input data

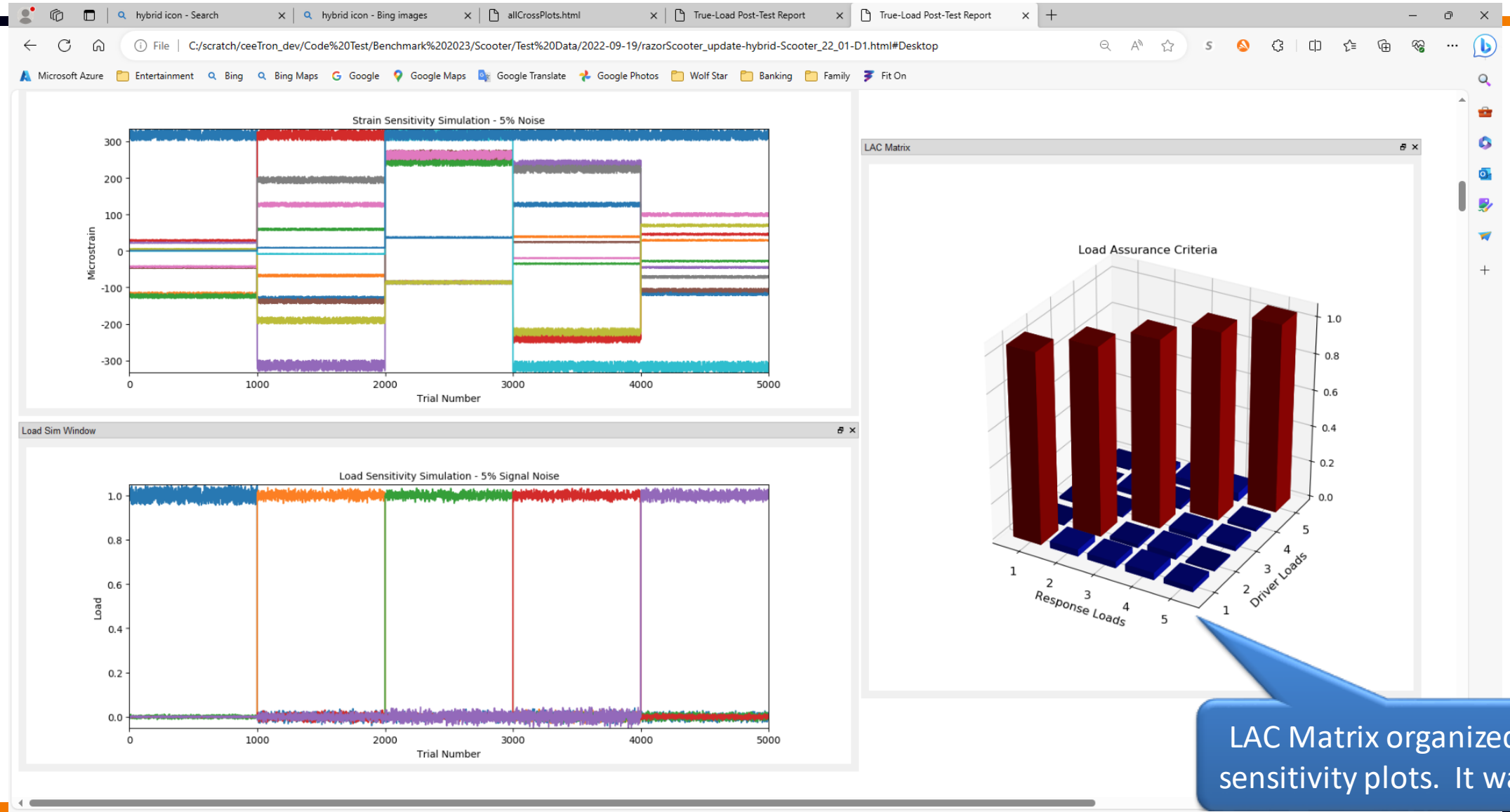
Generated Output Data

rt Information | Unit Load Table | Gauge Table | True-Load Desktop | Load Plots | Overall Strain Correlation | Strain Correlation Qua

Gauge Table:

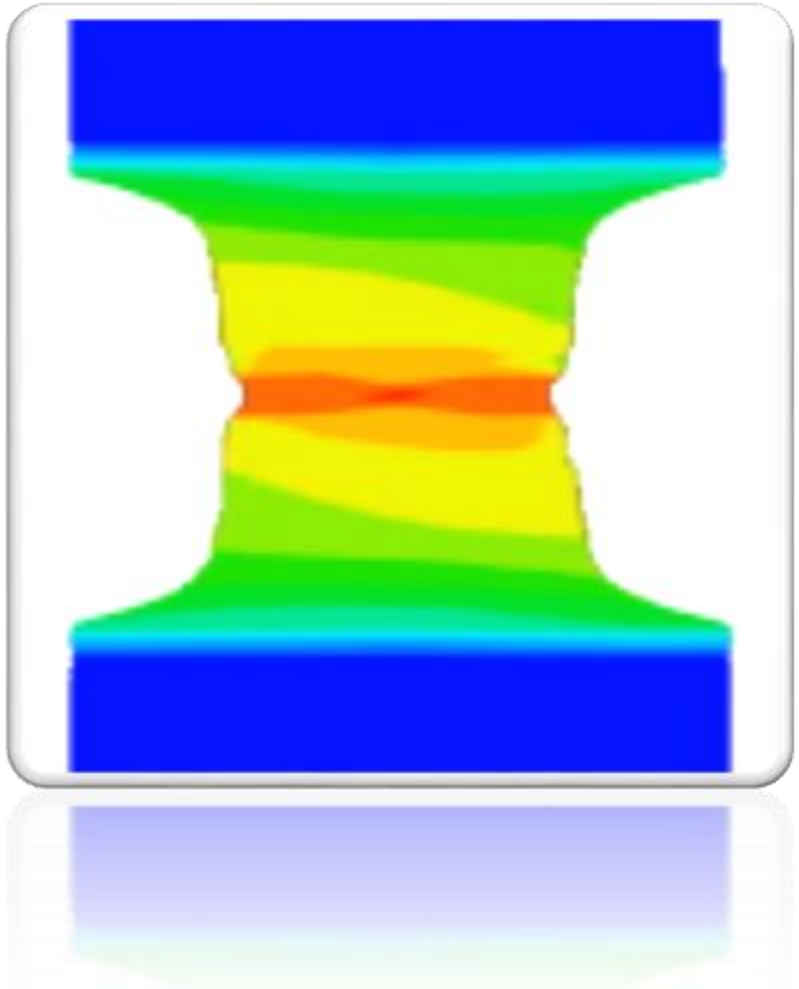
Chosen Gauges						*eMat Strains*				
Gauge Number	Gauge Name	Instance	Element Label	Angle	Strain Channel	Step: Unit-Loads:Load Case: FOOT-100N-FX-(1) Frame: 1001	Step: Unit-Loads:Load Case: FOOT-100N-FZ-(3) Frame: 1003	Step: Unit-Loads:Load Case: REARAXLE-100N-FX-(4) Frame: 1004	Step: Unit-Loads:Load Case: REARTIRE-100N-FZ-(6) Frame: 1006	Step: Unit-Loads:Load Case: REARTIRE-100NM-MY-(7) Frame: 1007
1		2	5497	3.200000000000001	*** Dropped ***	---	---	---	---	---
2		2	2691	168.02521877685058	Chan#02 Uniaxial Gauge	0.0003179123108947779	-0.00013072833765645953	3.656186842970702e-05	0.00012687736254194092	-0.00011664528275662094
3		2	18696	59.999999979727434	Chan#03 Uniaxial Gauge	-0.00011875410384063057	-6.749258027811764e-05	0.0002551820377148186	3.88800023983477e-05	2.91071742647494e-05
4		2	18961	56.98886532403746	Chan#04	0.00012359212085731724	5.912368233961875e-05	0.00024447141408075147	3.5003172972591576e-05	2.8019646681734818e-05

Post-Test Report Readability

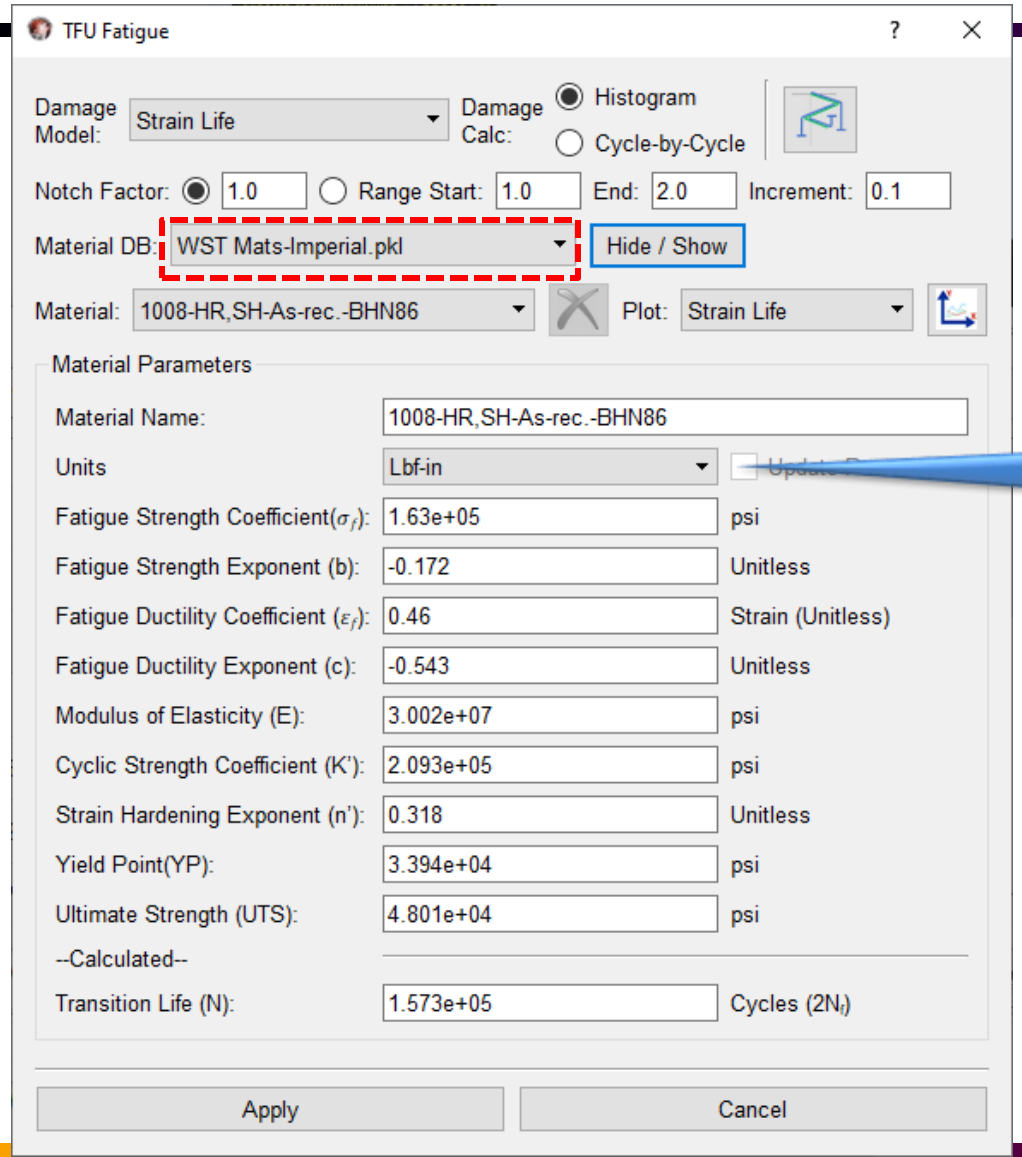


LAC Matrix organized next to sensitivity plots. It was below.

TFU Fatigue Units

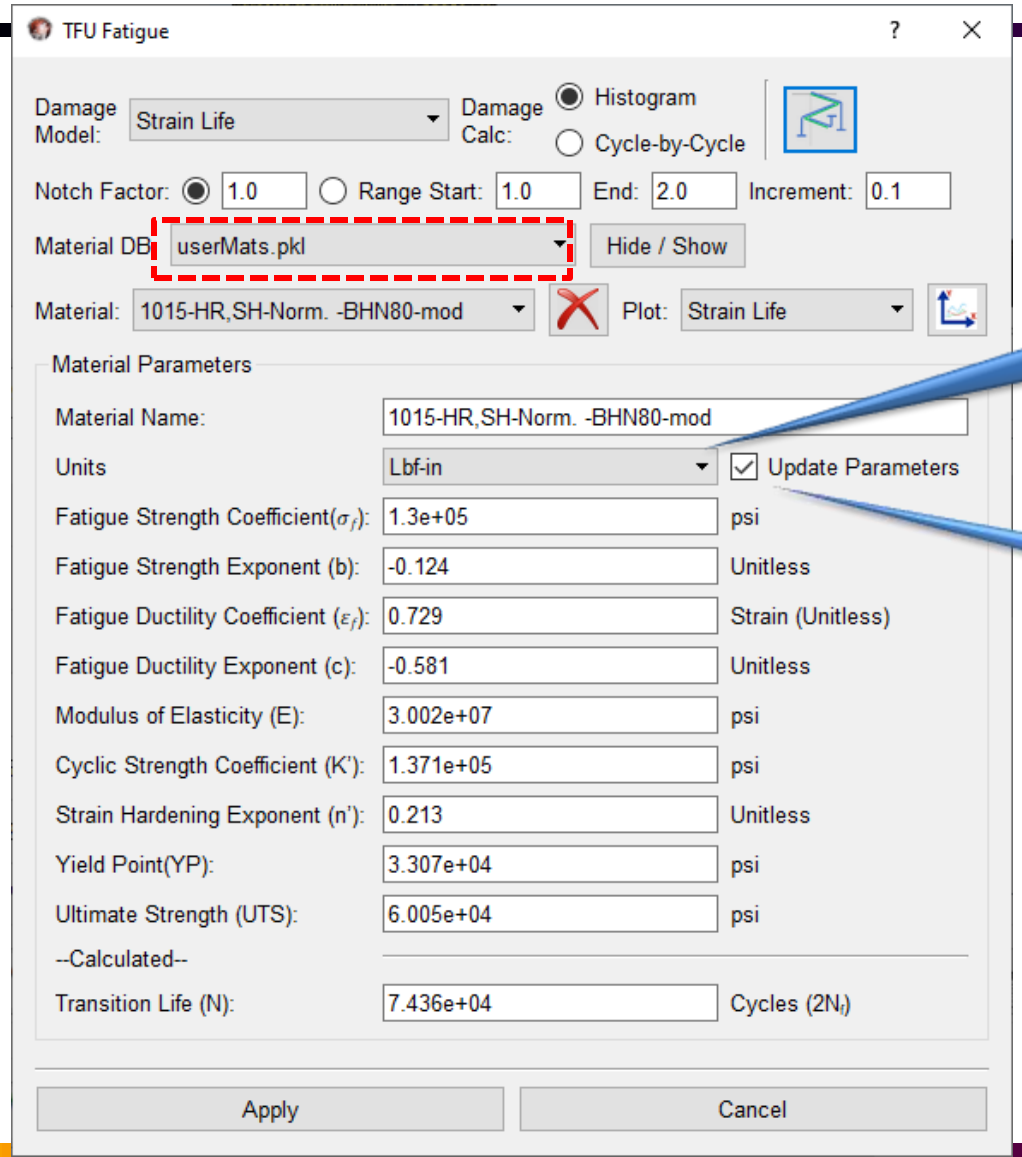


TFU Fatigue Units



If using standard materials, switching units will switch standard databases.

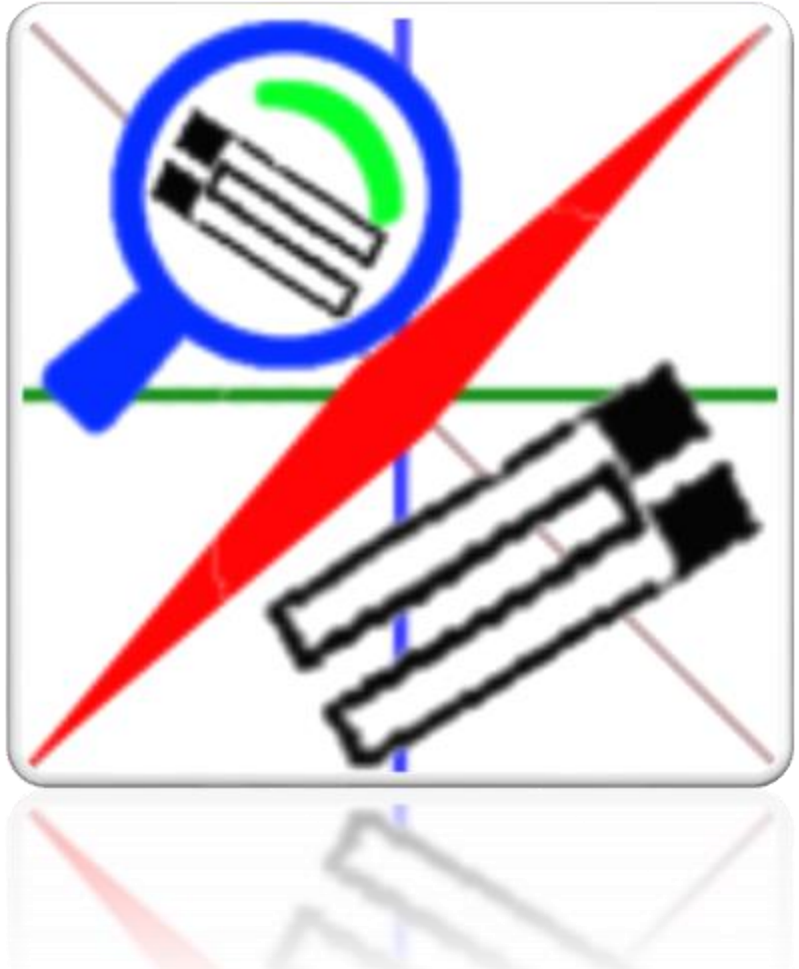
TFU Fatigue Units



If using user materials, switching units changes the unit base for the material.

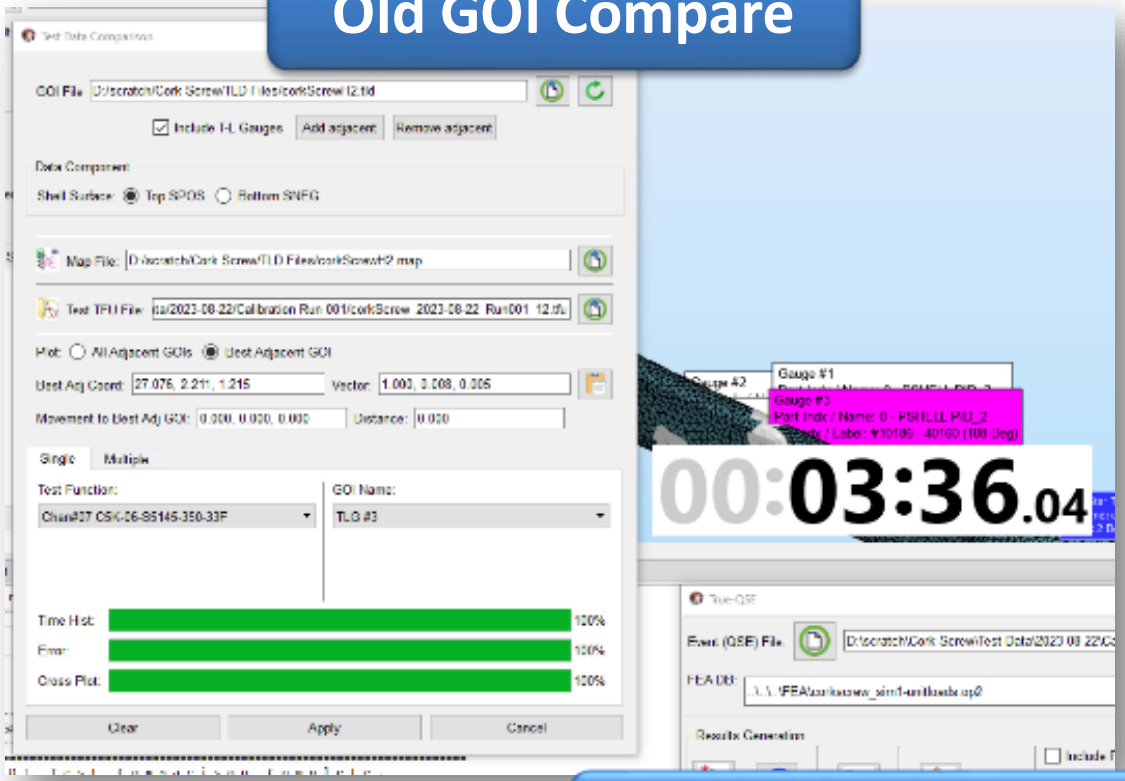
If Update Parameters is checked, then the parameters with units will have their values updated to the new Unit System

Compare GOI Speed

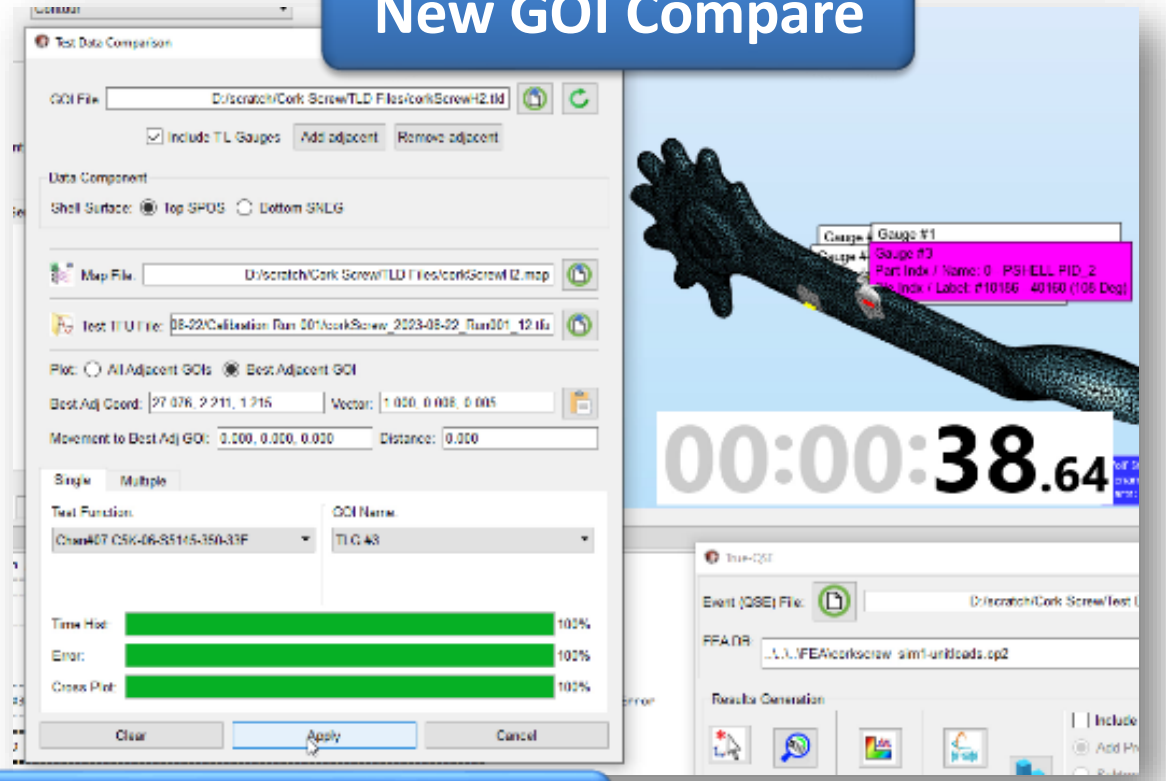


Huge Speed Increase!

Old GOI Compare



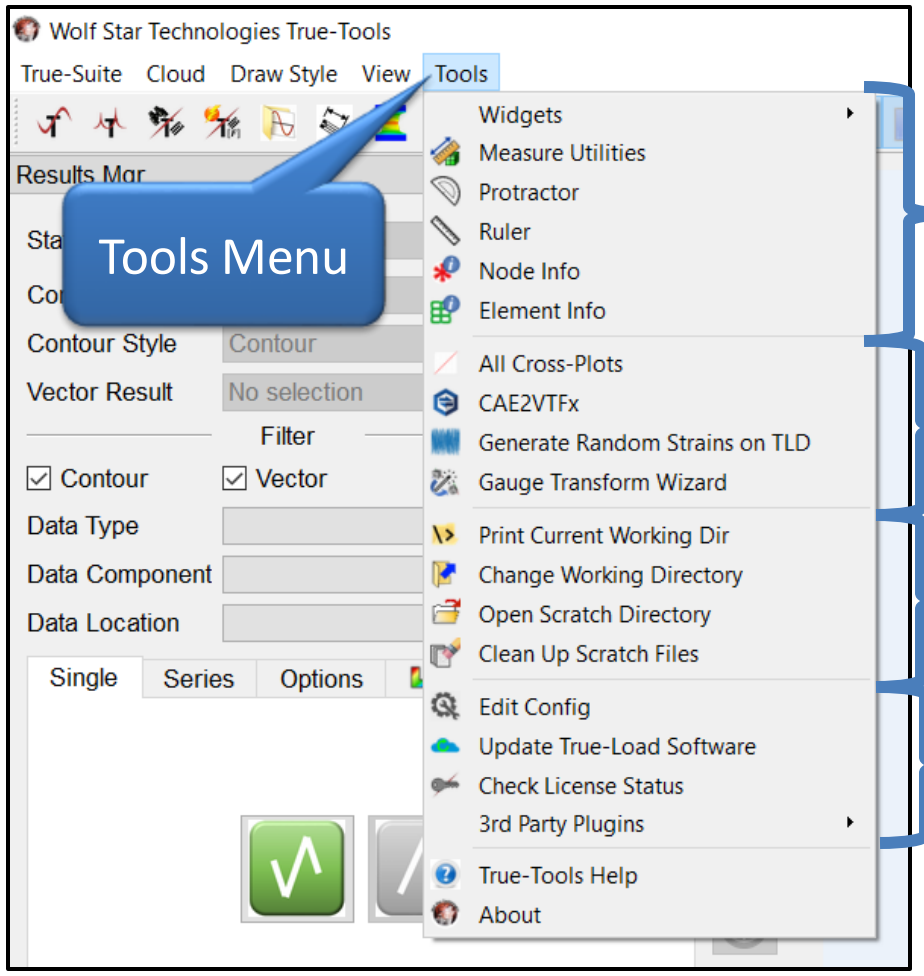
New GOI Compare



5.6 times faster for this example

Reorganize Tools Menu

Reorganize Tools Menu



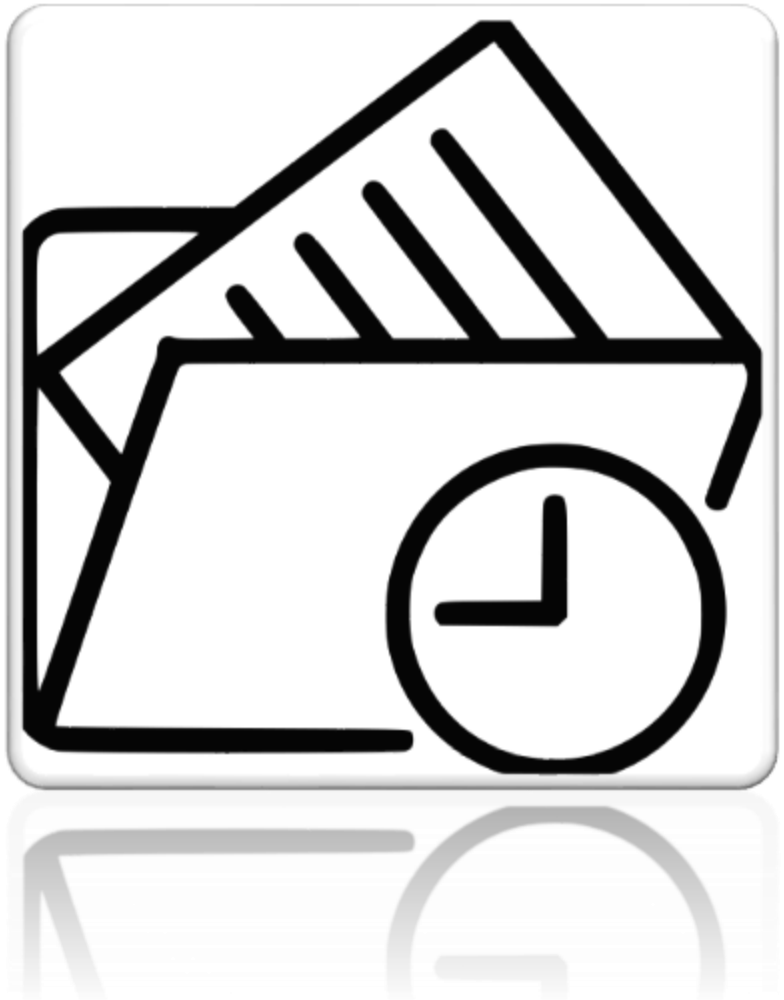
Model Measurement and Probe Tools

True-Load Tools

Directory / File Management Tools

Application Software Tools

Scratch Files

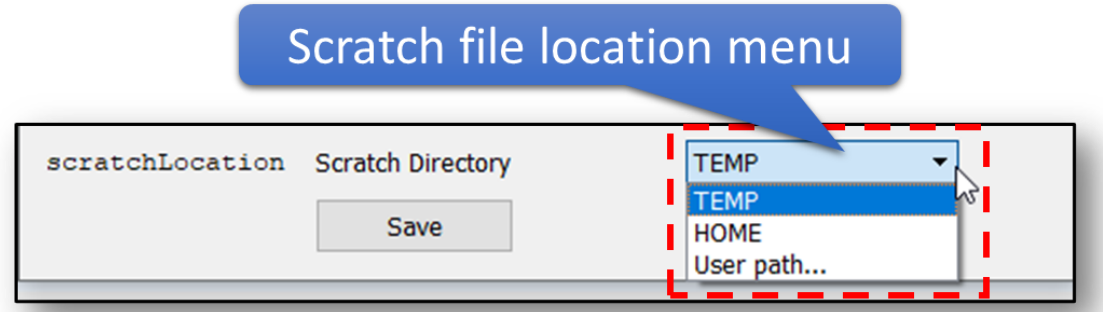


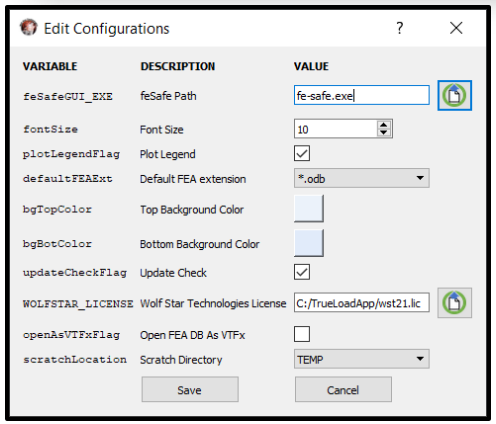
Scratch Files Restructured

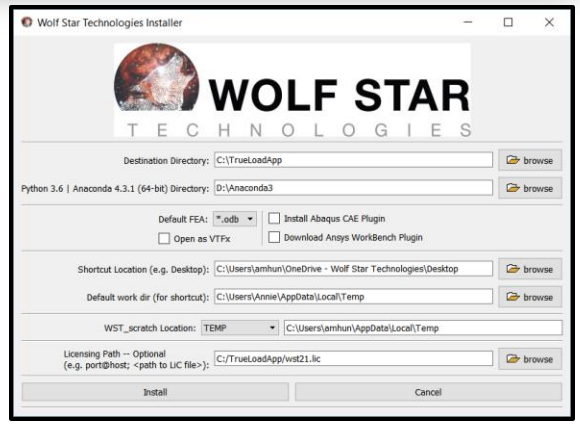
Scratch files are now less intrusive.

They are kept out of the working directory by default and deleted after two days.

Scratch files are now stored in the system **TEMP** folder by default. The True-Load scratch folder can be changed in the installer, in the edit configurations form (Tools menu), or in the configuration file (config.py) directly.







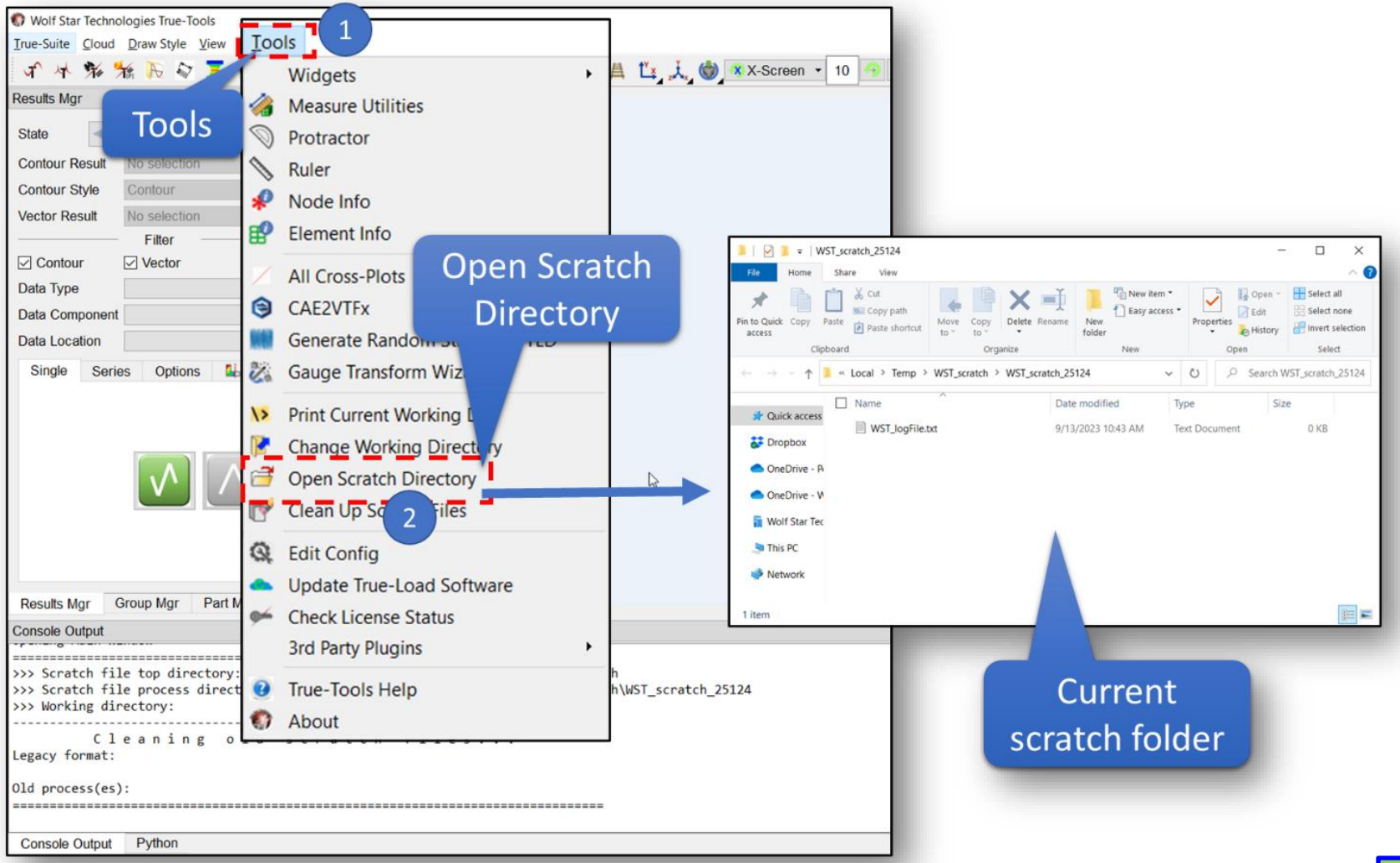
In the chosen scratch location, there is a top-level folder called “WST_scratch”. A folder for each True-Load session is created in “WST_scratch”. Files shared between sessions are in the top-level “WST_scratch” folder.

Show Scratch Directory

The current scratch file folder can be viewed with the

Open Scratch Directory

option in the Tools Menu.

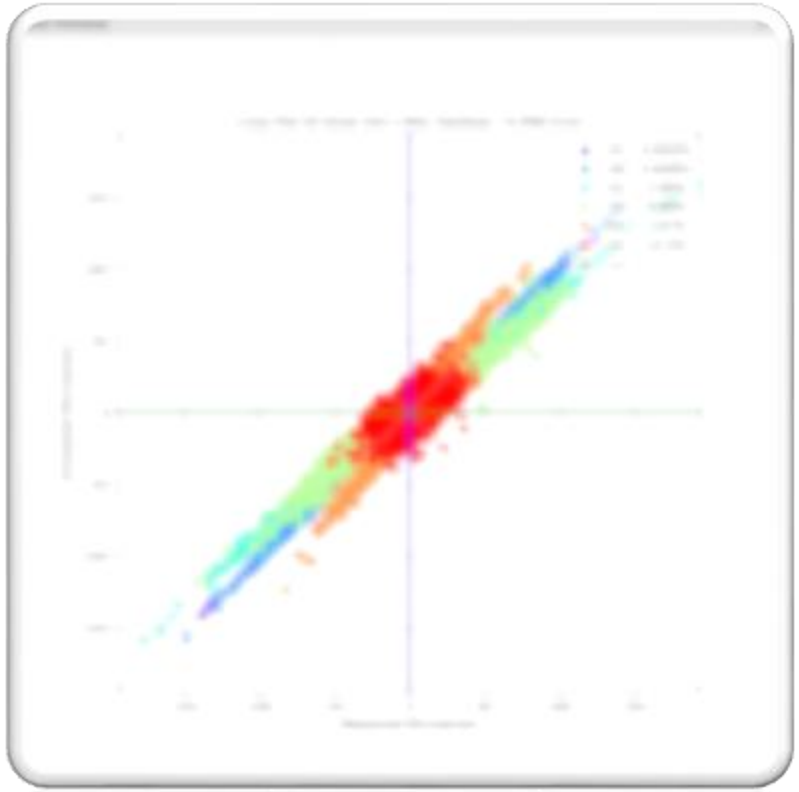


Scratch Files Restructured

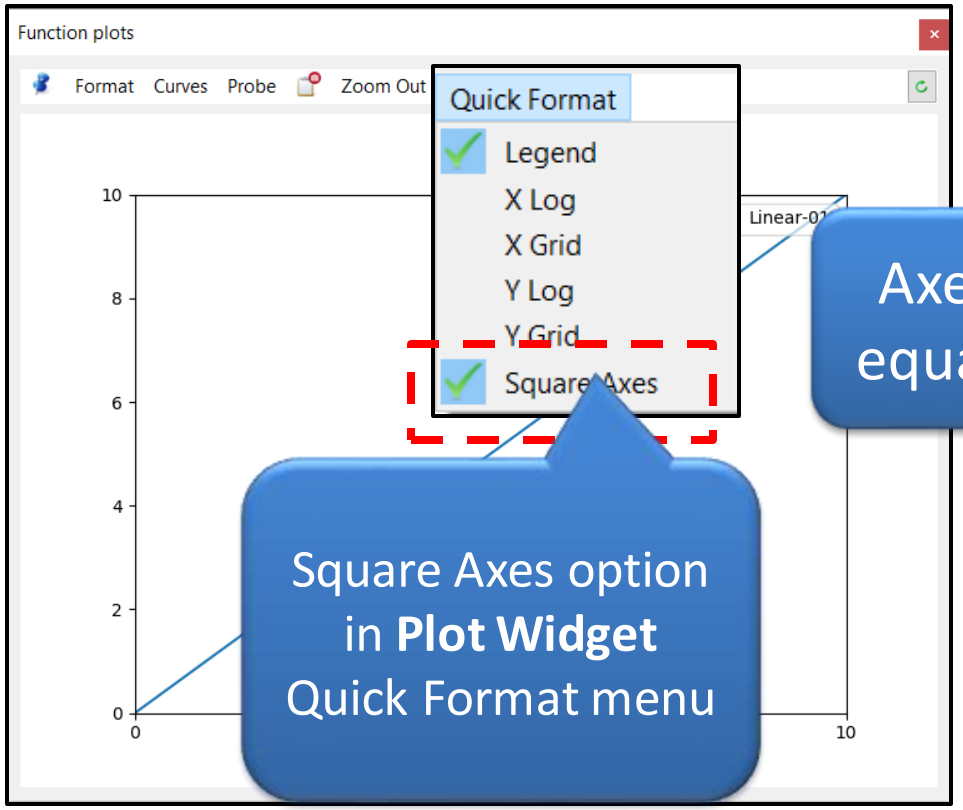
- Work folders containing WST_* files will be purged of these files (moved to trash).
- The Scratch folders in the system WST_scratch directory will be purged (moved to trash) if they are older than 2 days old.
- This makes the work directory look much cleaner.
- This aligns with the way most other software work.

- Huge advantage with this method:
  - Multiple sessions of True-Load can be run from the same directory.
  - Previously, session of True-Load in the same directly could clobber WST_* scratch files.
- To view the log file:
  1. Choose Tools->Open Scratch Directory
  2. Open the WST_logFile.txt

Square Axis Plotting



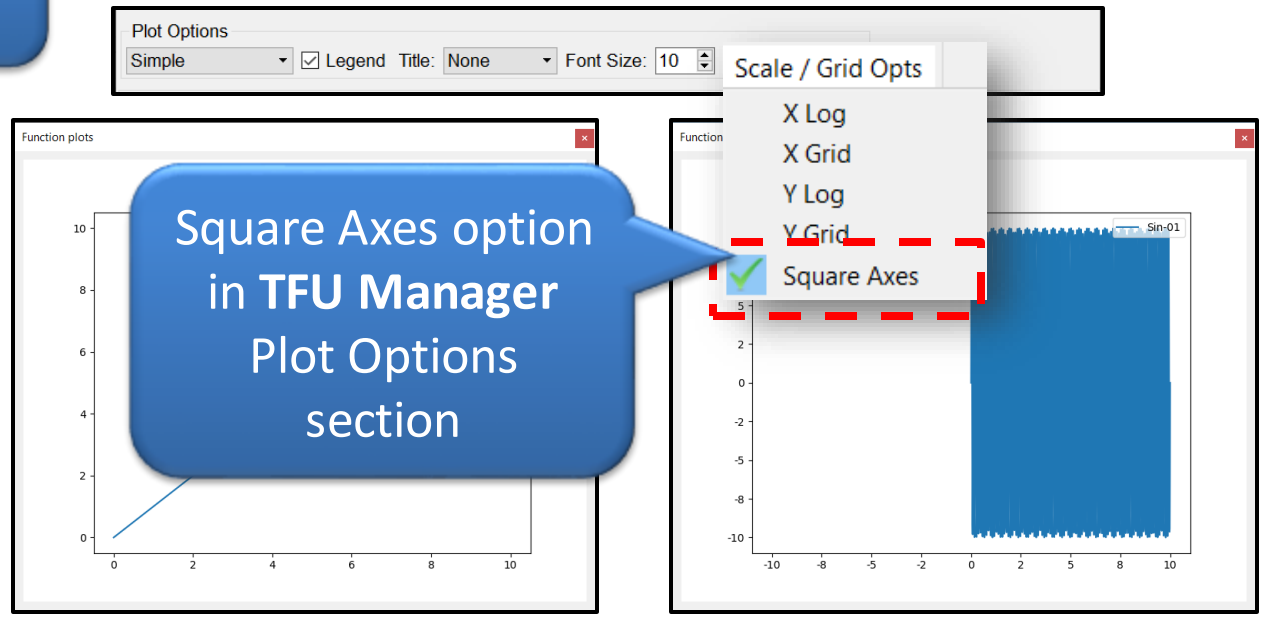
Square Axis Plotting



Axes have equal limits

Square Axes option in **Plot Widget** Quick Format menu

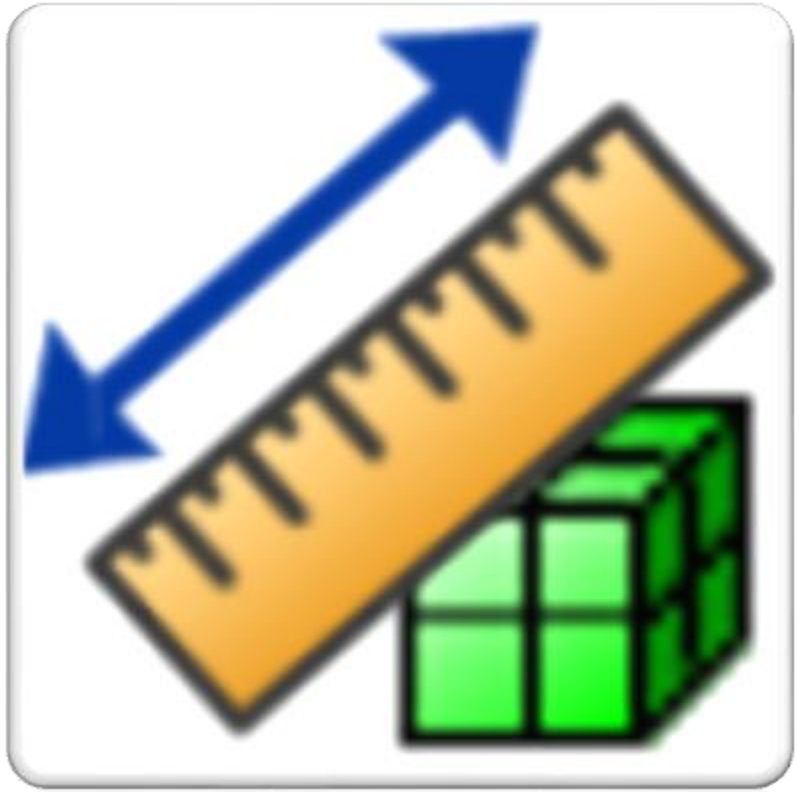
The Square Axes option gives the x and y axes equal limits. Equal axes are persistent even when the axis limits are changed with the format menu or the drag and drop resize.



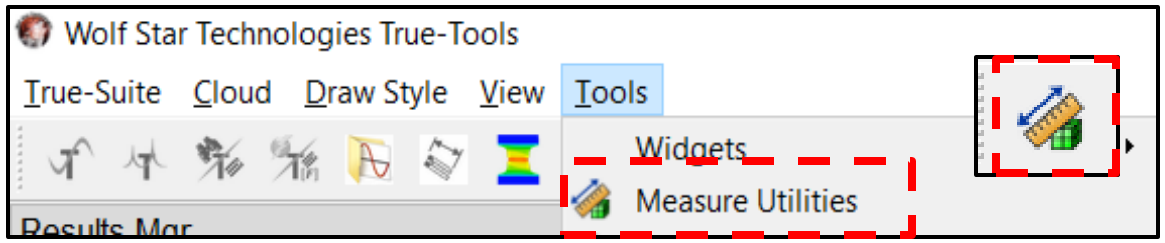
Square Axes option in **TFU Manager** Plot Options section

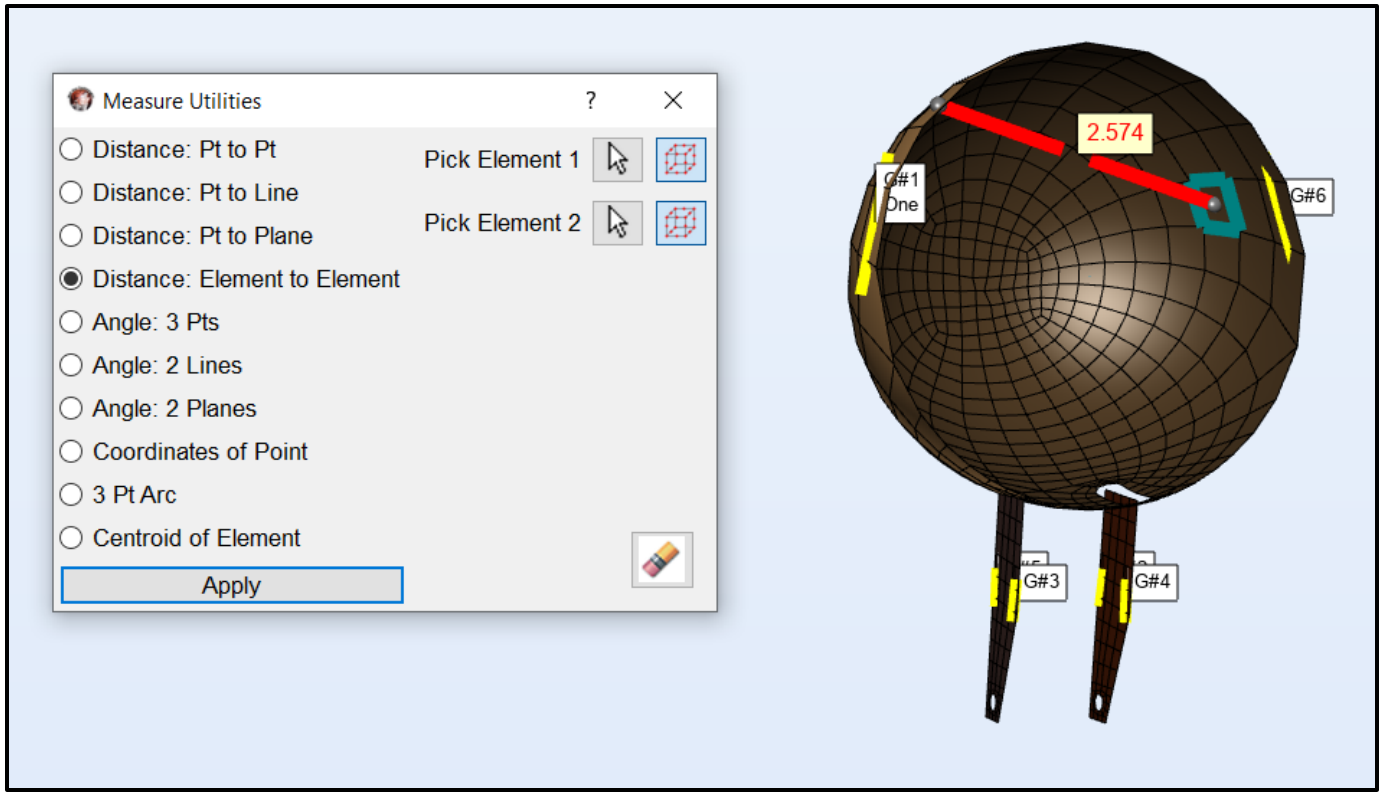
The square axes option is also exposed to the Python scripting environment through the Plot.squareAxes attribute. Plot.squareAxes is a Boolean setting the axes equal when True.

Measure Element to Element



Measure Element to Element





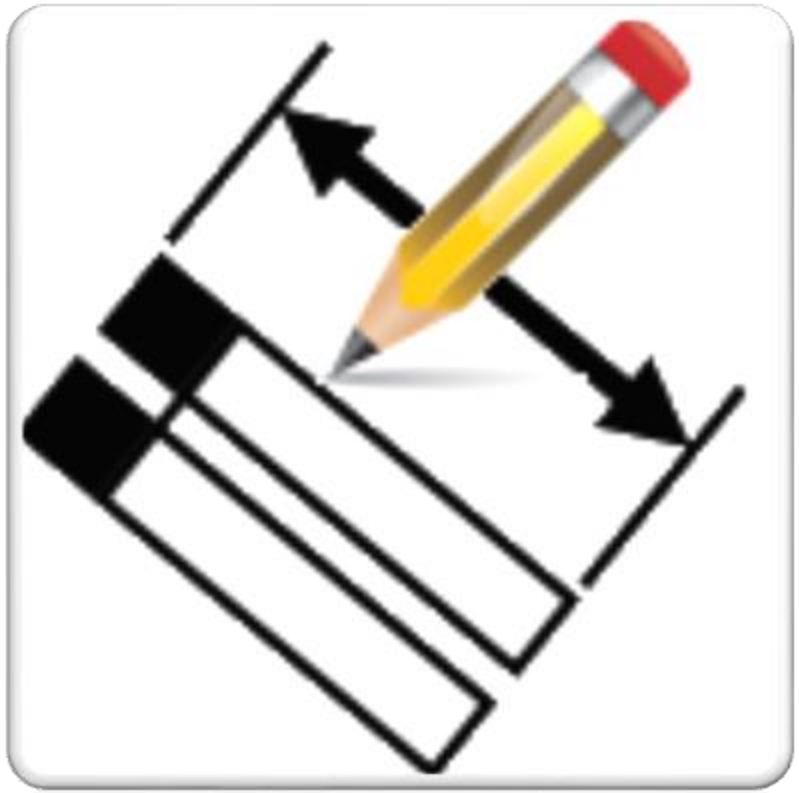
Element to element measuring is available in Measure Utilities.

The element selected will be outlined and the centroid of the element displayed. The centroid of each element is used for calculations.

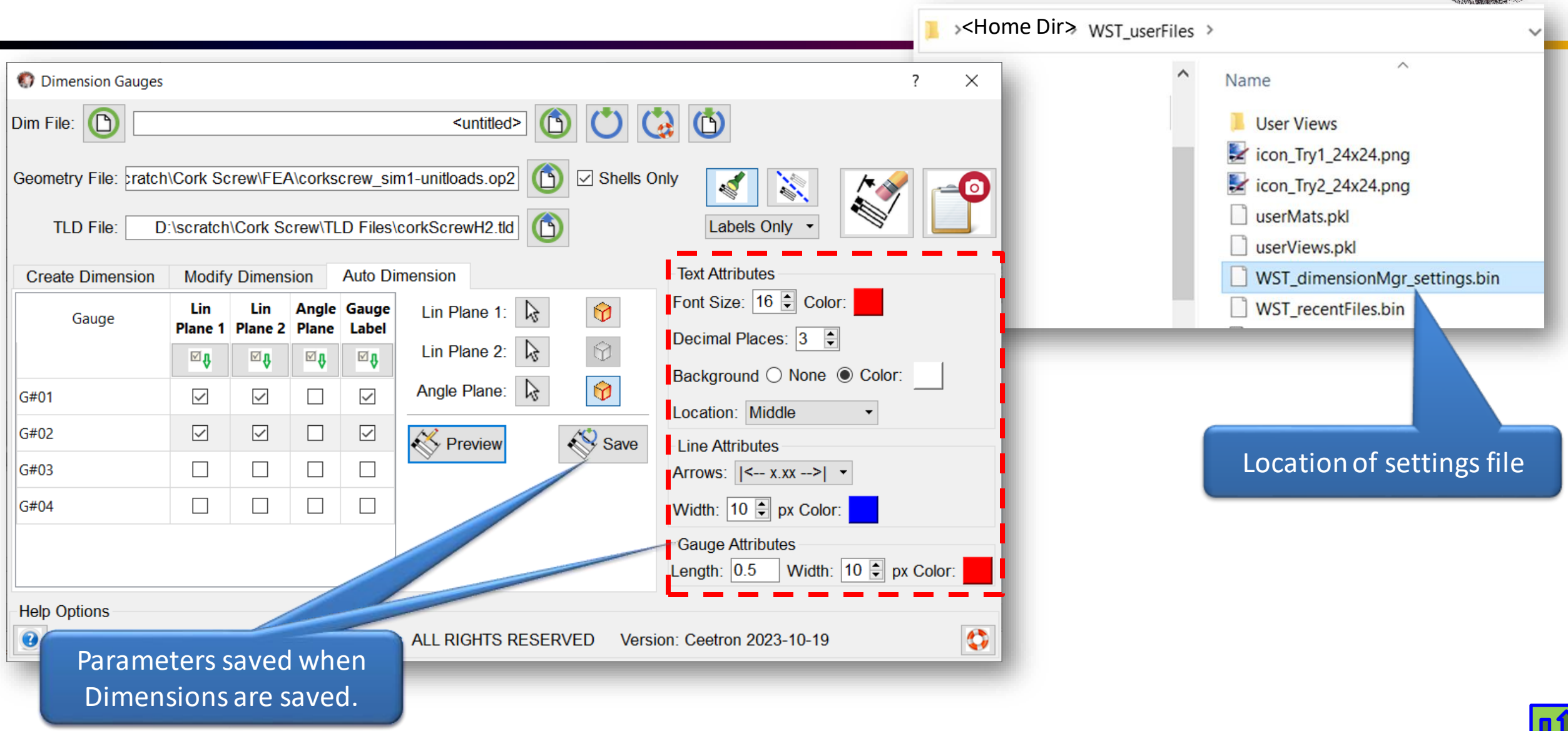
Console Output

```
==========================================================
----------------------------------------
pt01 = [-0.15315524, +1.19834372, +1.05302842]
pt02 = [-0.87112546, +0.54718163, -1.33124644]
d01  = 2.5737637614719246
midPt01  = [-0.51214035, +0.87276268, -0.13910901]
vec01 = [-0.71797022, -0.65116210, -2.38427486]
dx01 = -0.717970222234726
dy01 = -0.6511620953679085
dz01 = -2.3842748552560806
----------------------------------------
```

Reload Dim Params

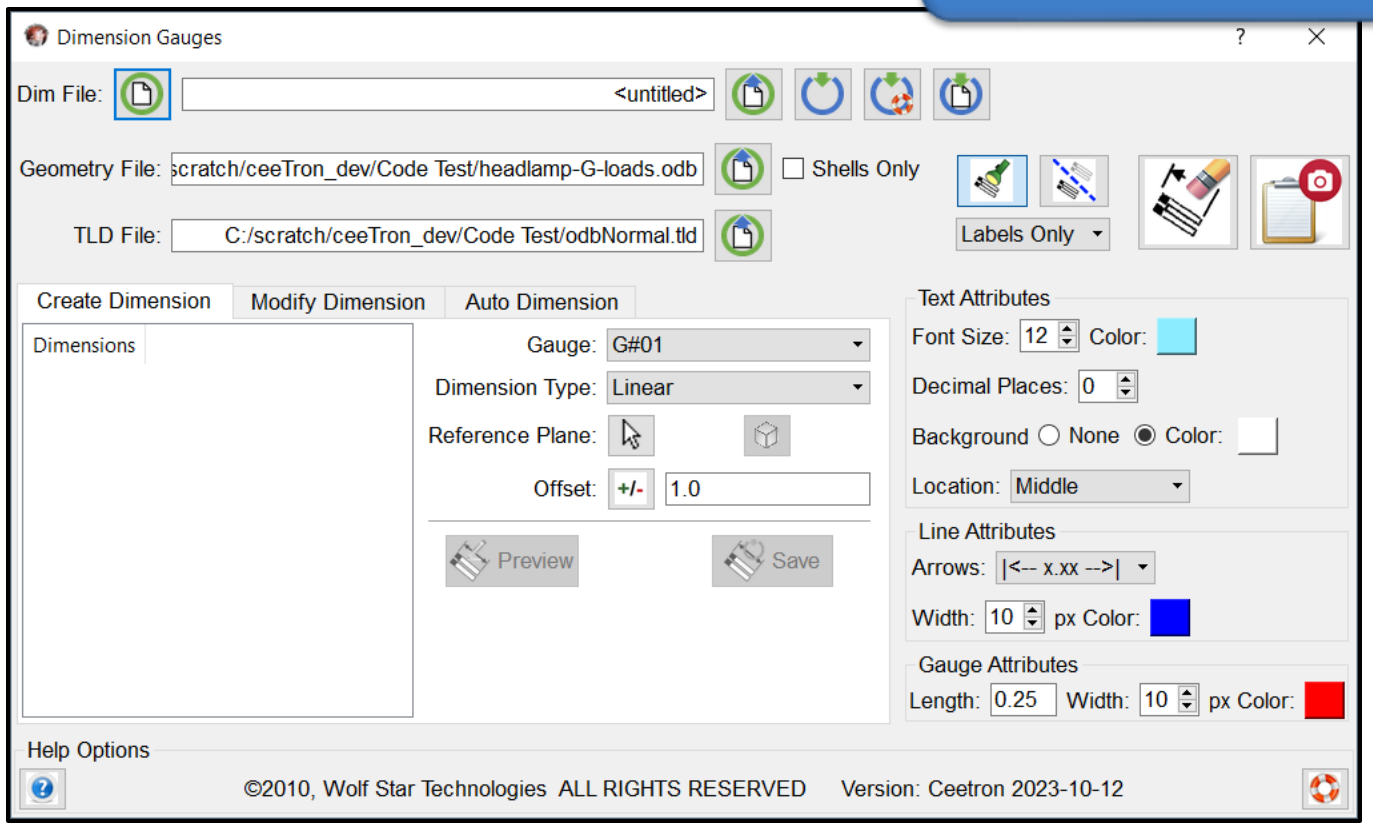


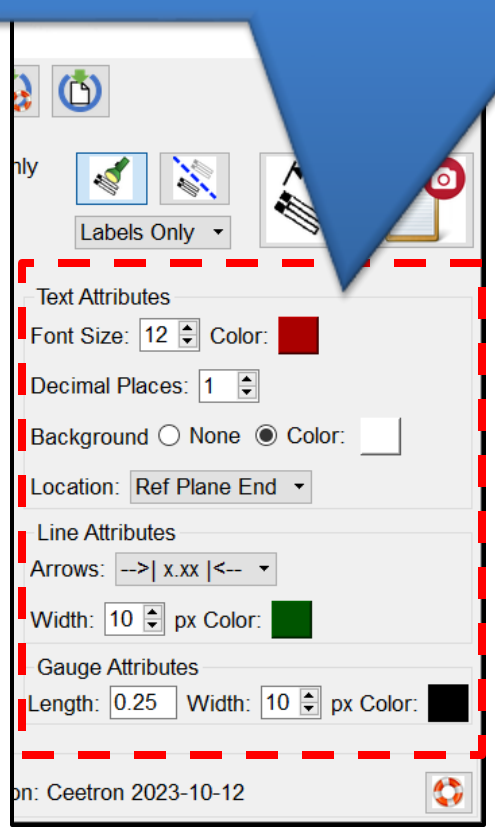
Auto Saving Parameters

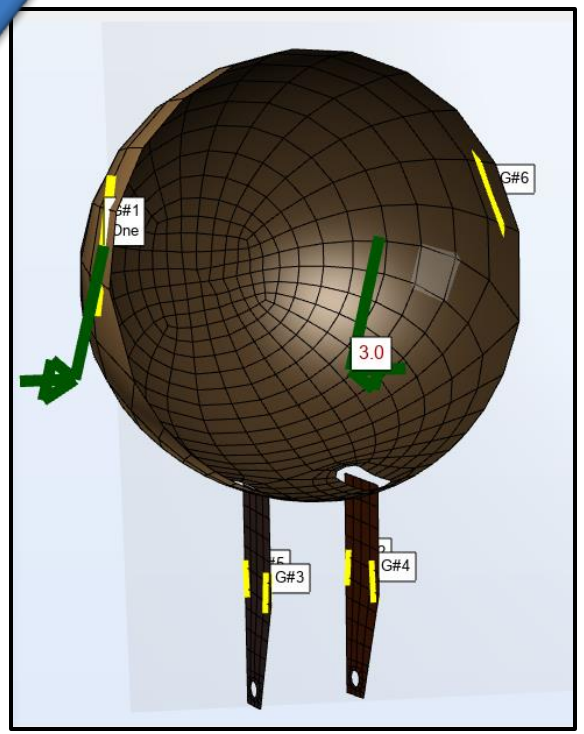


Reload Dimension Attributes

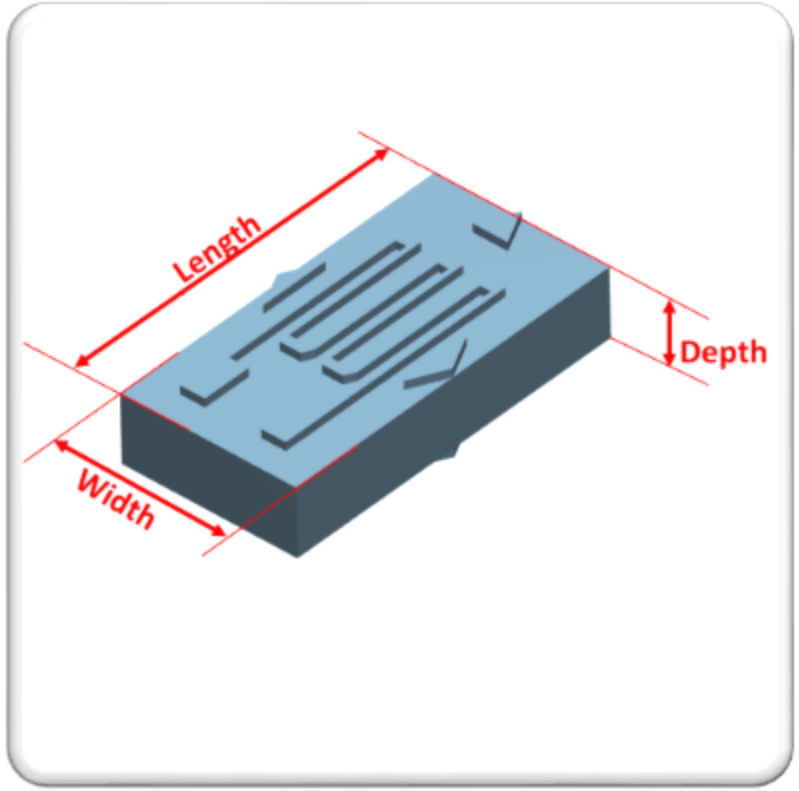
Previously saved attributes are reloaded



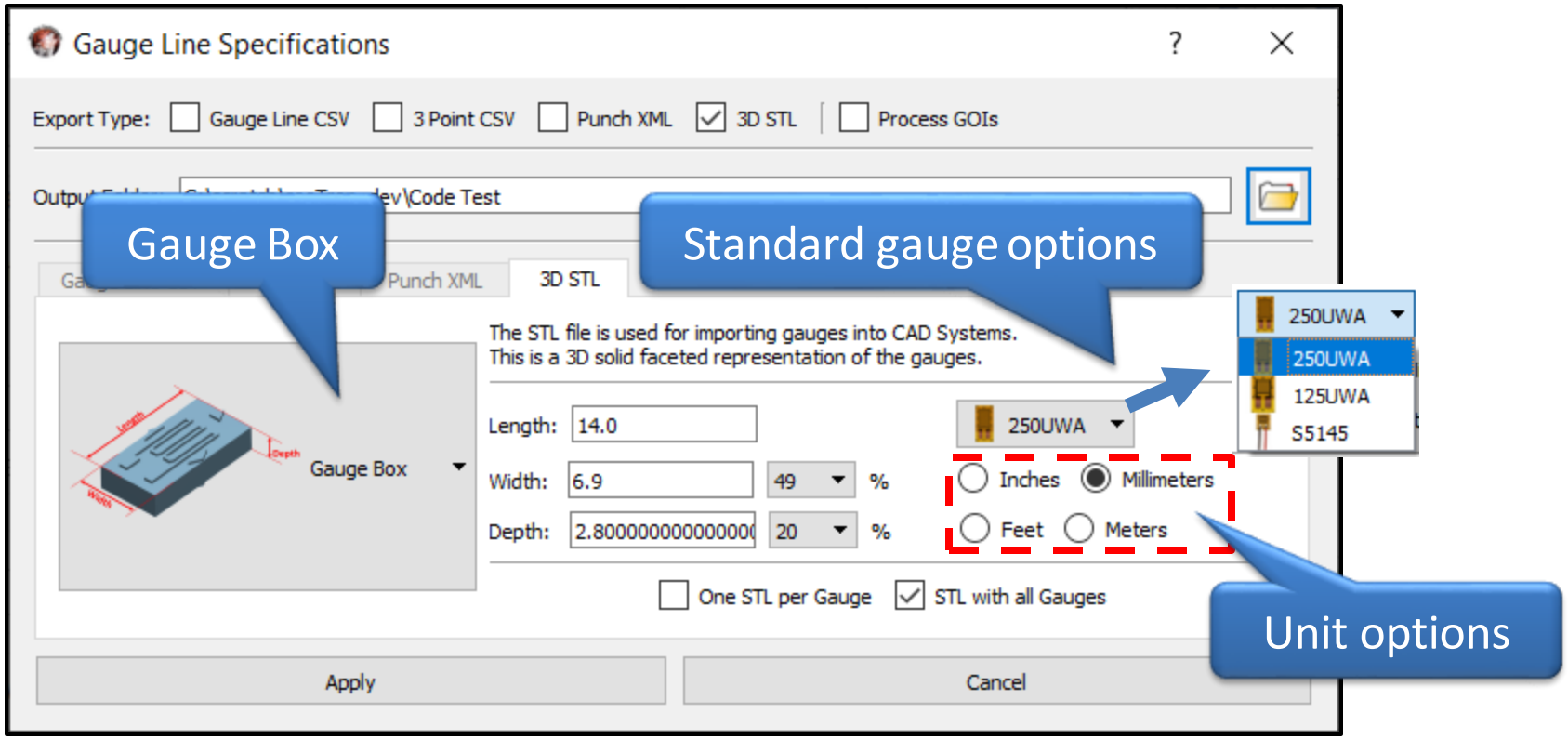




STL Gauges



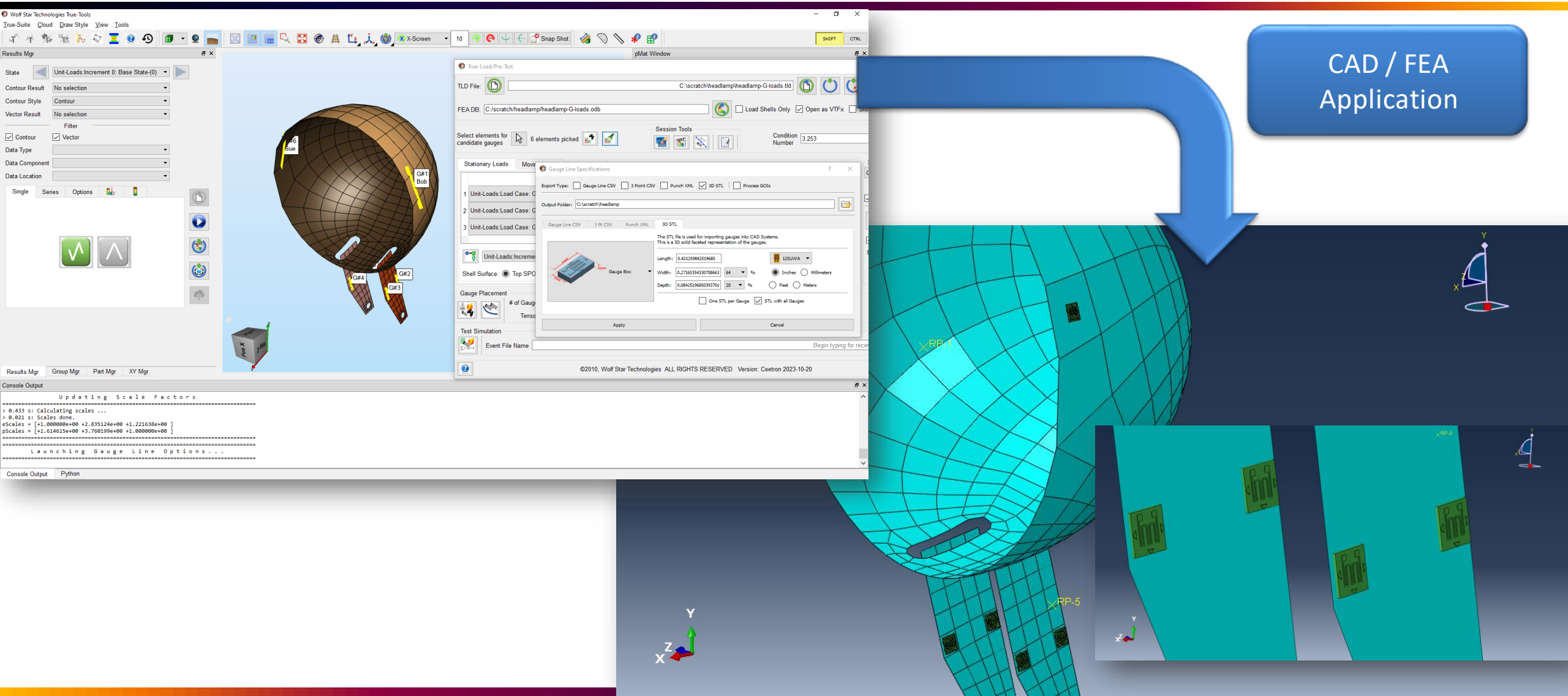
Strain Gauge STL Export



Standard gauge shapes with units are available in the “Gauge Box” option. The Gauge Box STL export offers strain gauge shapes and units to choose from.

Gauge specifications from https://micro-measurements.com/pca/

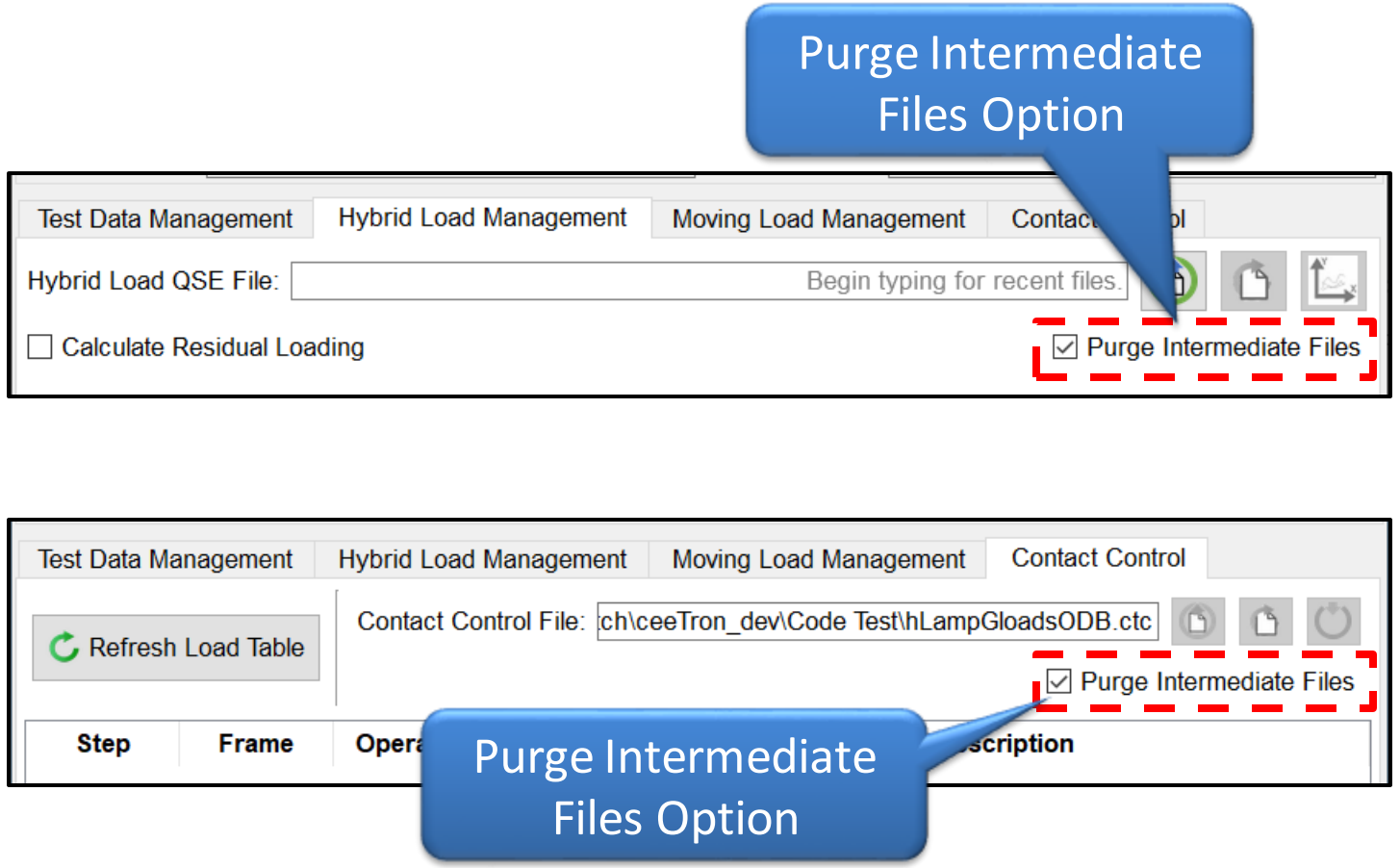
Visualize Gauges on Part



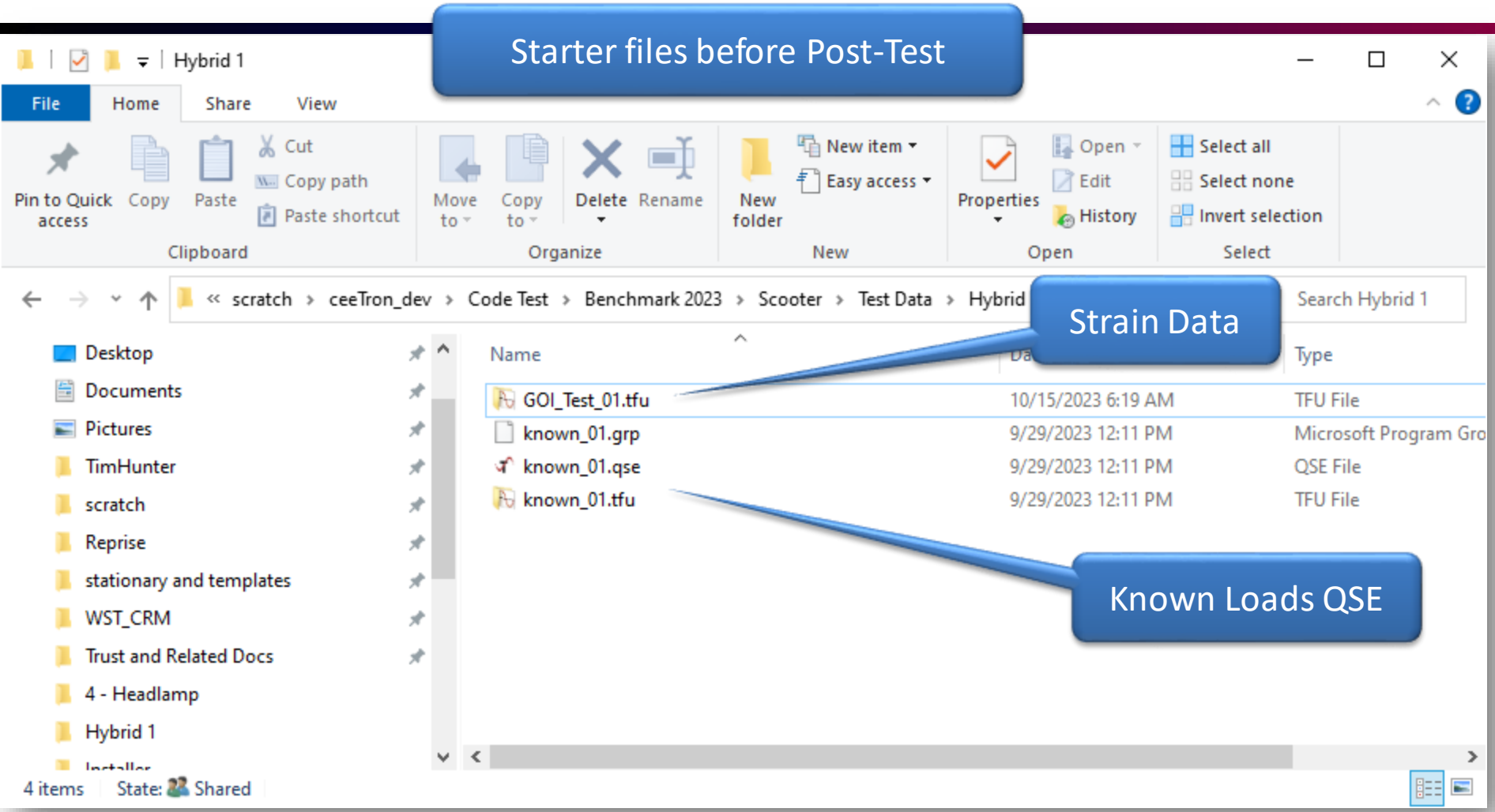
Post- Purge Intermediate Files

Purge Intermediate Files
Hybrid and Contact Control

The Hybrid Loading and Contact Control processes create intermediate files. The "Purge Intermediate Files" checkbox in each tab moves all auxiliary files to the system trash, leaving only the result files.

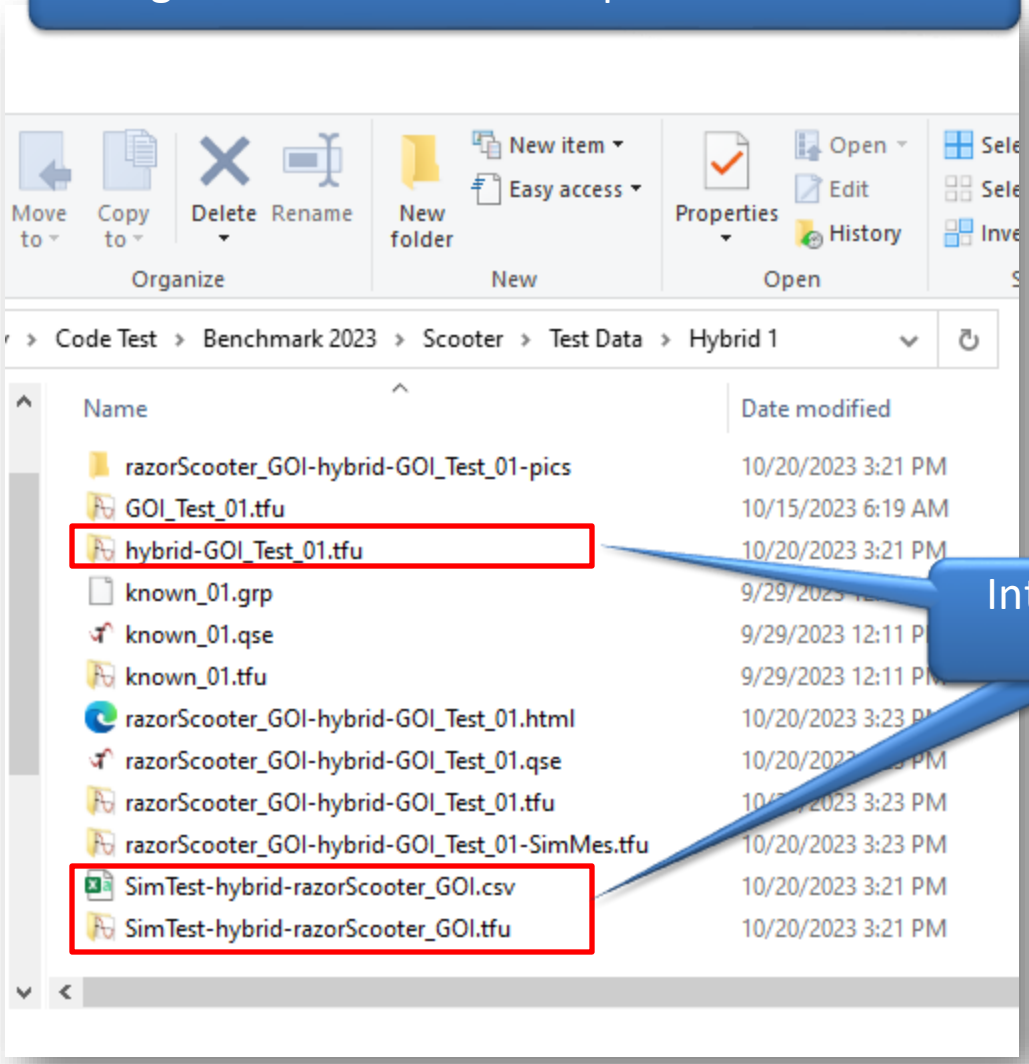


Hybrid Example



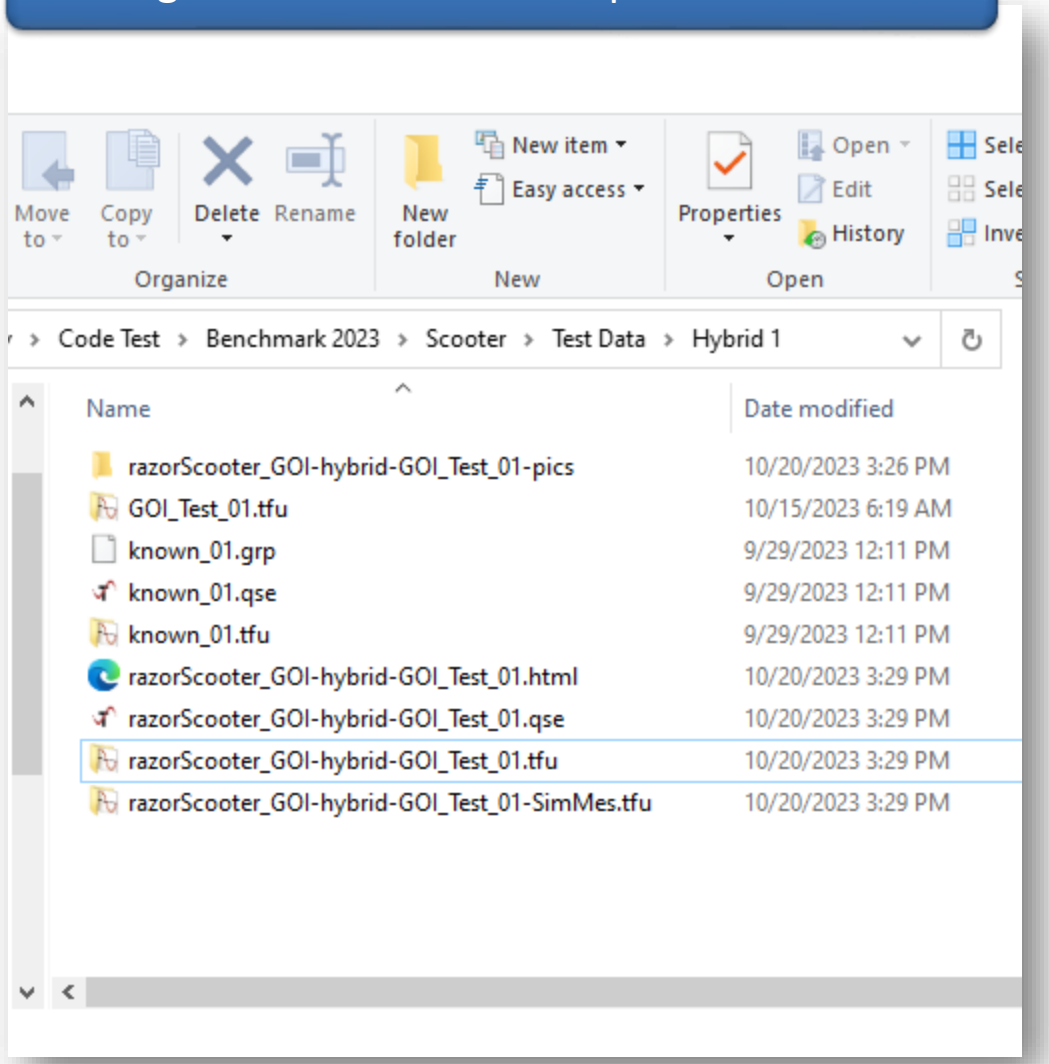
Hybrid Example

Purge Intermediate Files Option - UnChecked



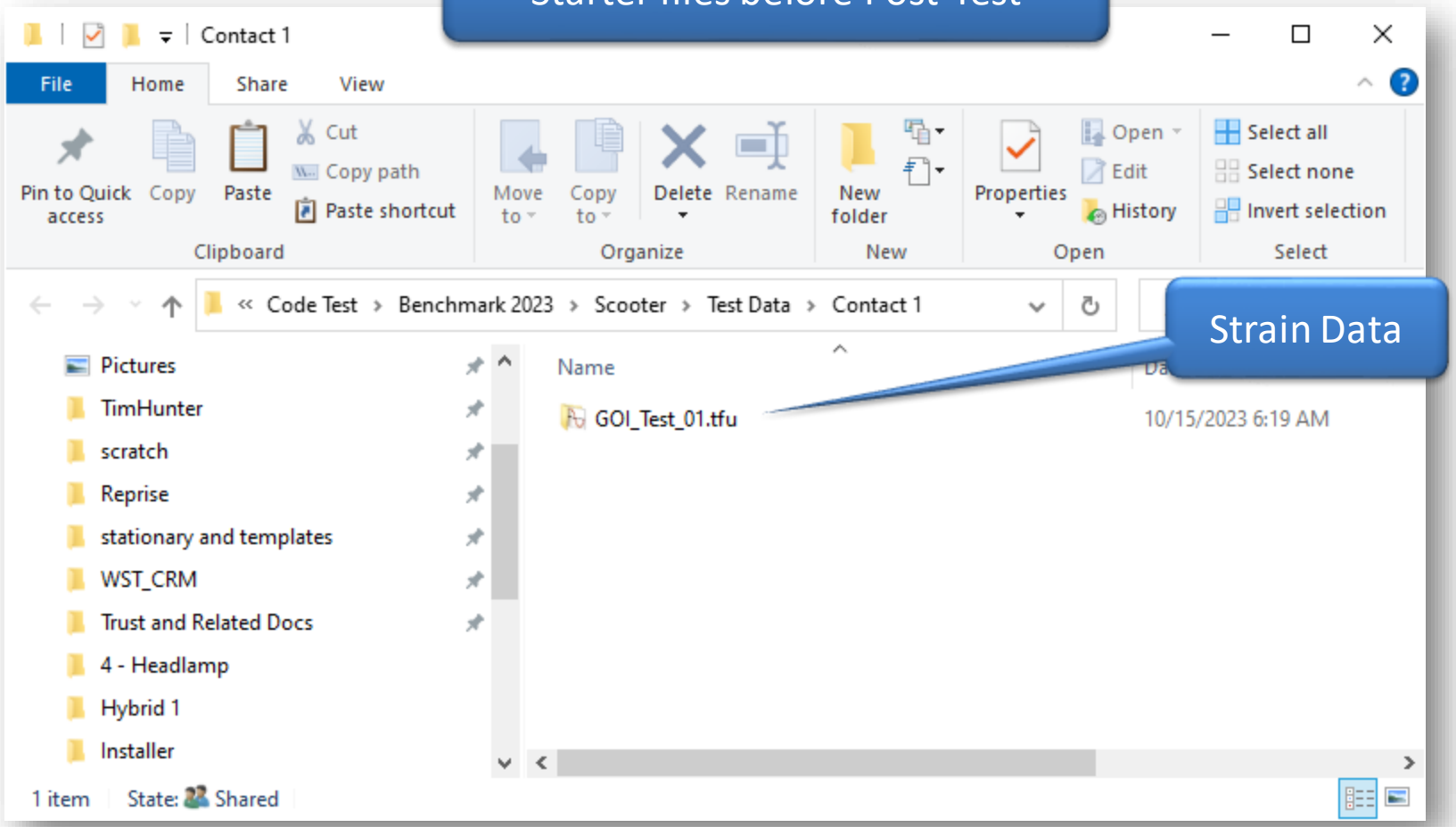
Intermediate Files

Purge Intermediate Files Option - Checked

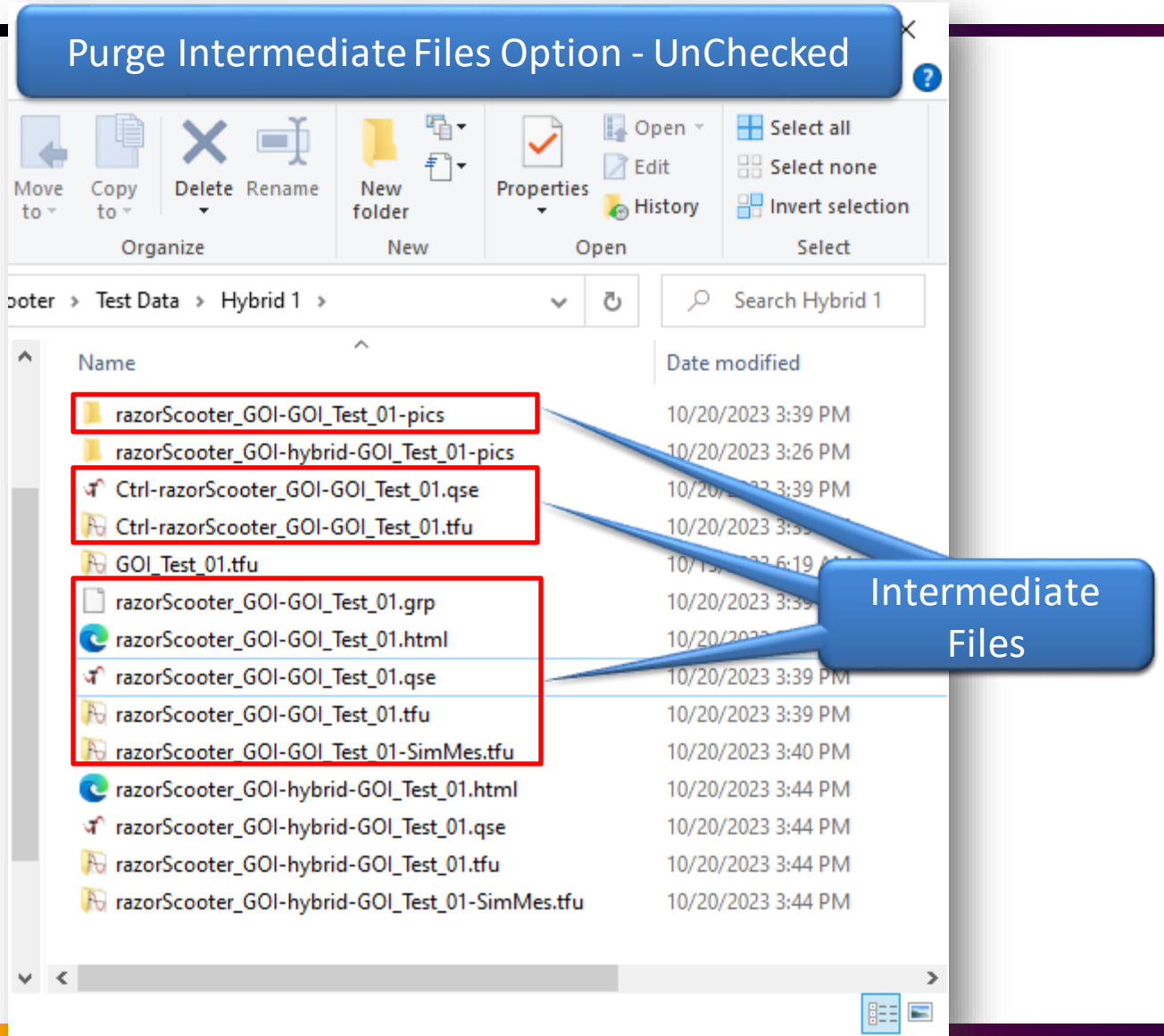


Contact Control Example

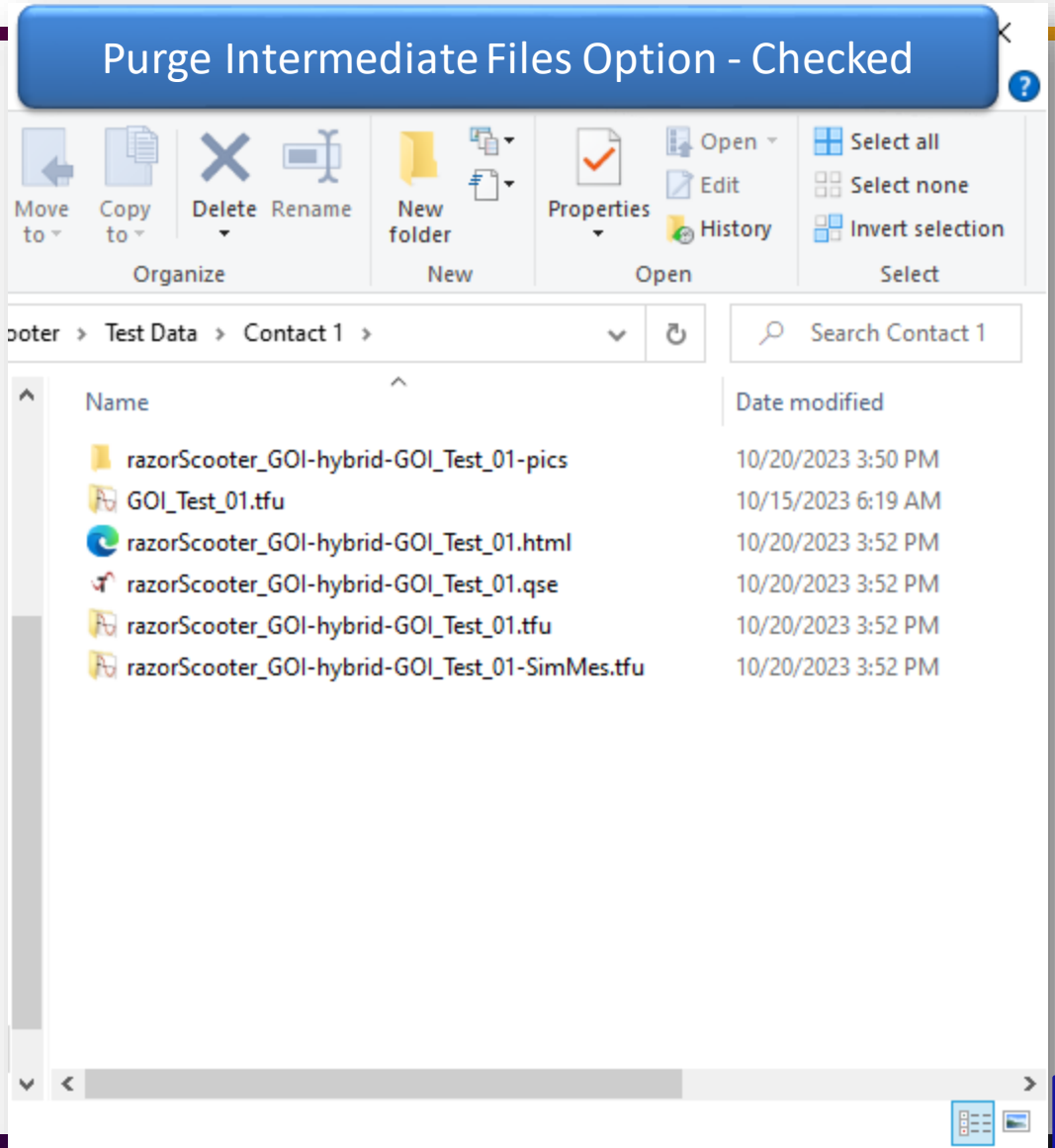
Starter files before Post-Test



Contact Control Example



Intermediate Files

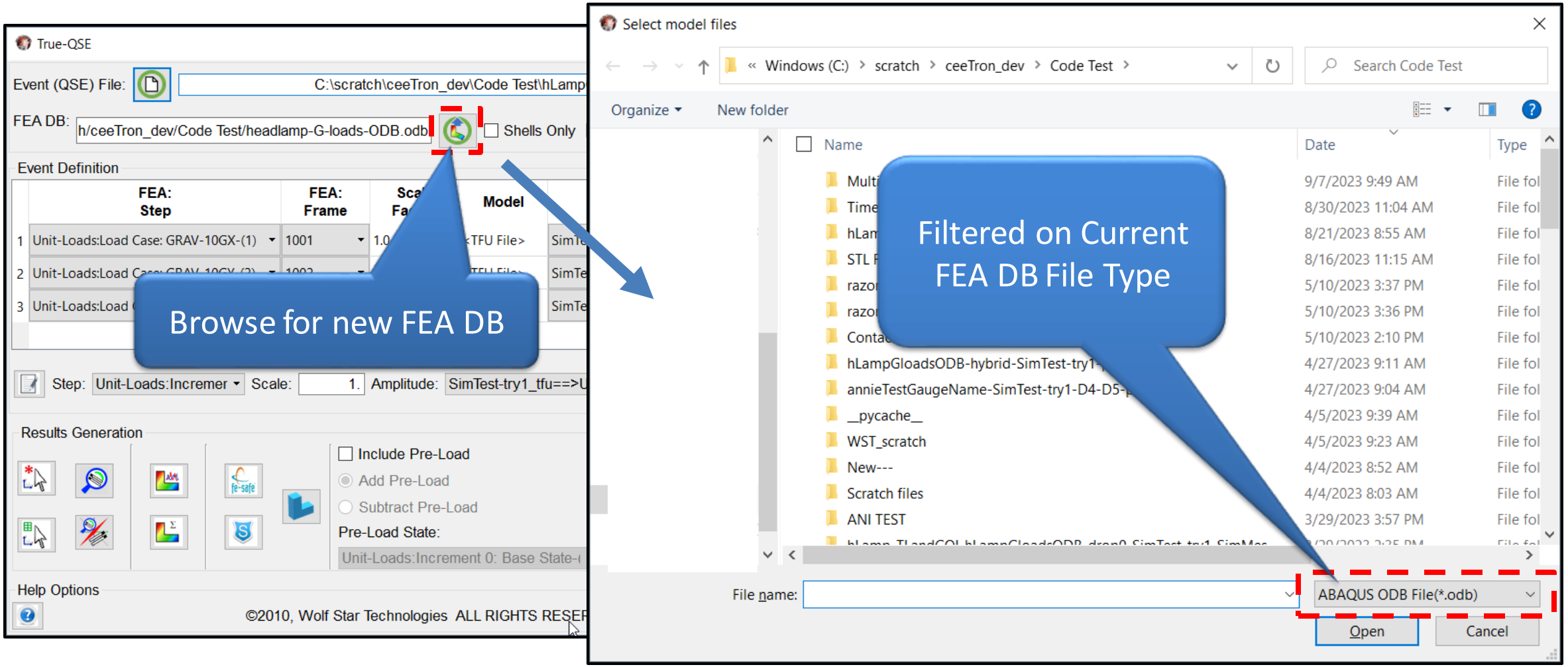


Purge Intermediate Files Benefits

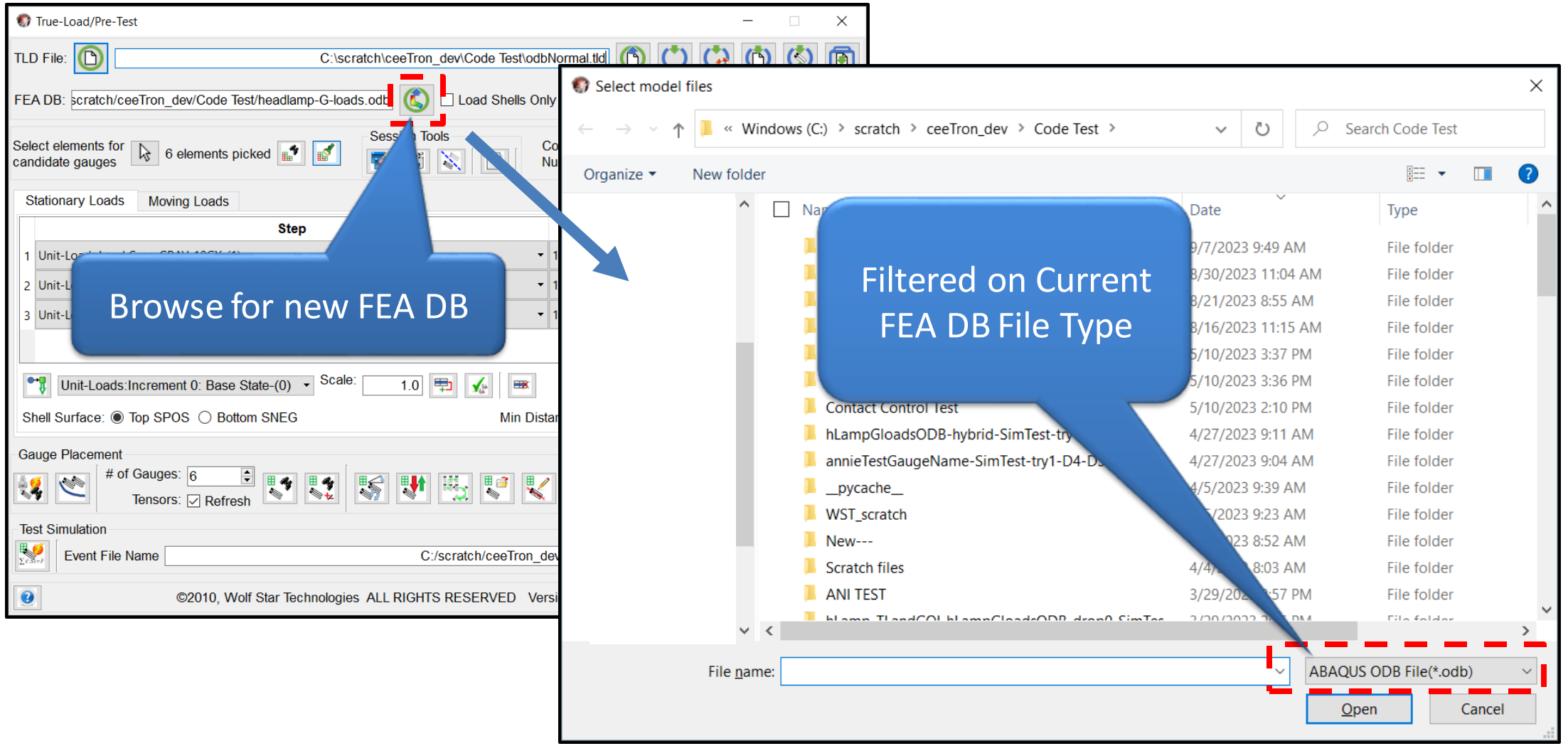
- Saves disk space from unneeded files
- Greatly reduces confusion in interpreting results. I have had customers use the wrong files after Contact Control, because they didn’t understand which file was the “Answer”.

FEA Browse

QSE: Browse for DB

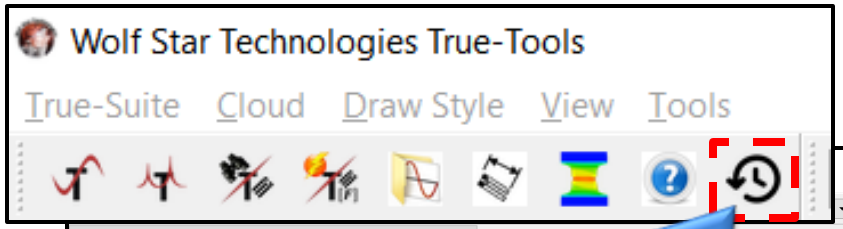


Pre: Browse for DB



Recent Files

Recent Files

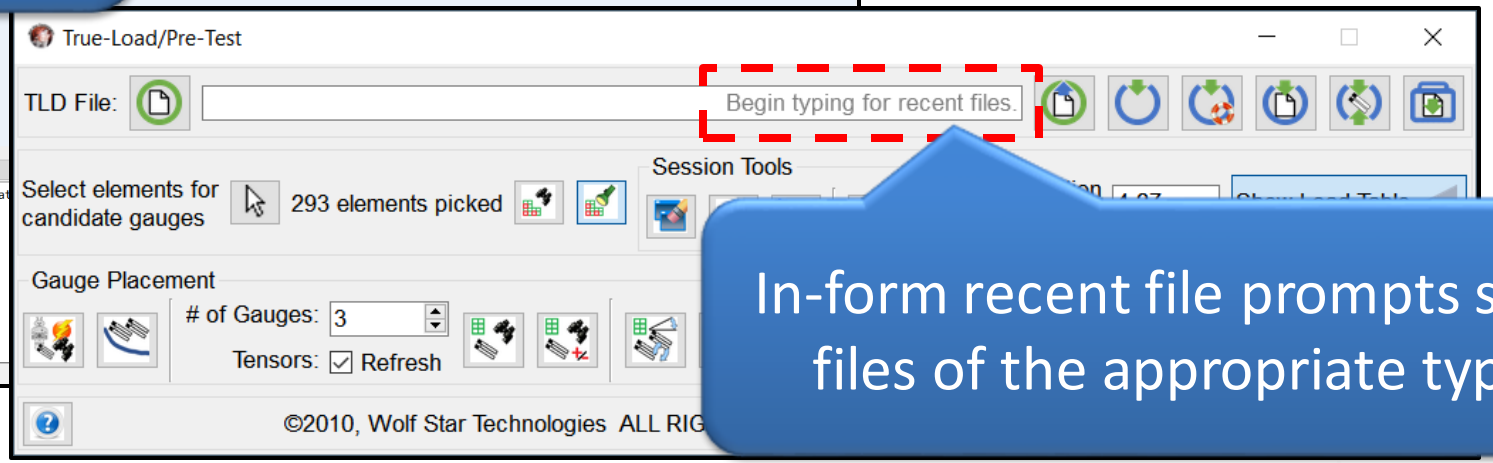


All recent files are available with the clock button in the tool bar.

Recently used files are available for quick loading throughout the True-Load environment (persistent across sessions).

Recent files are available anywhere there is a recent file prompt (“Begin typing for recent files.”) or a clock icon.

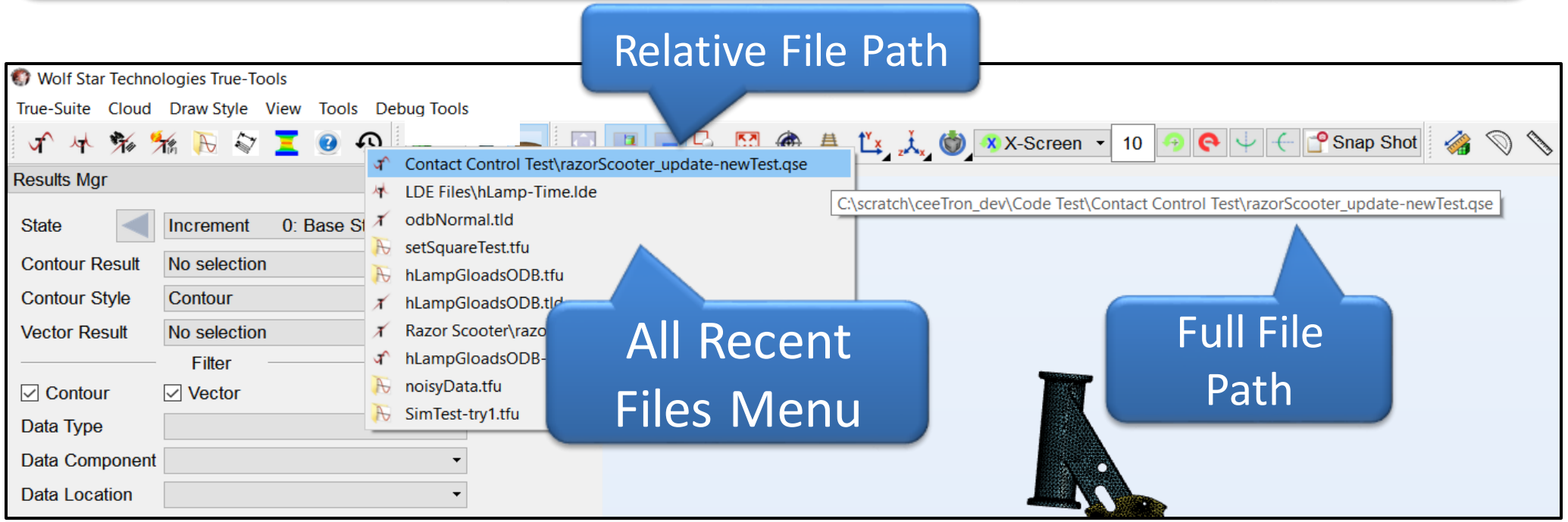
The 10 most recent files for each category are displayed.



In-form recent file prompts show files of the appropriate type.

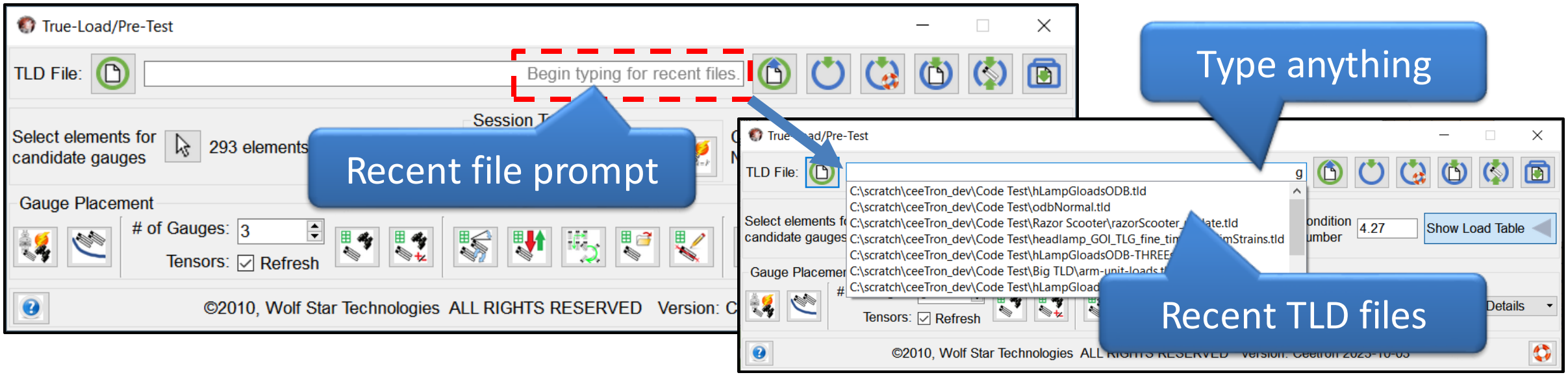
Recent Files

Recent files menus with the clock icon show paths relative to the working directory. Hovering shows the full file path.

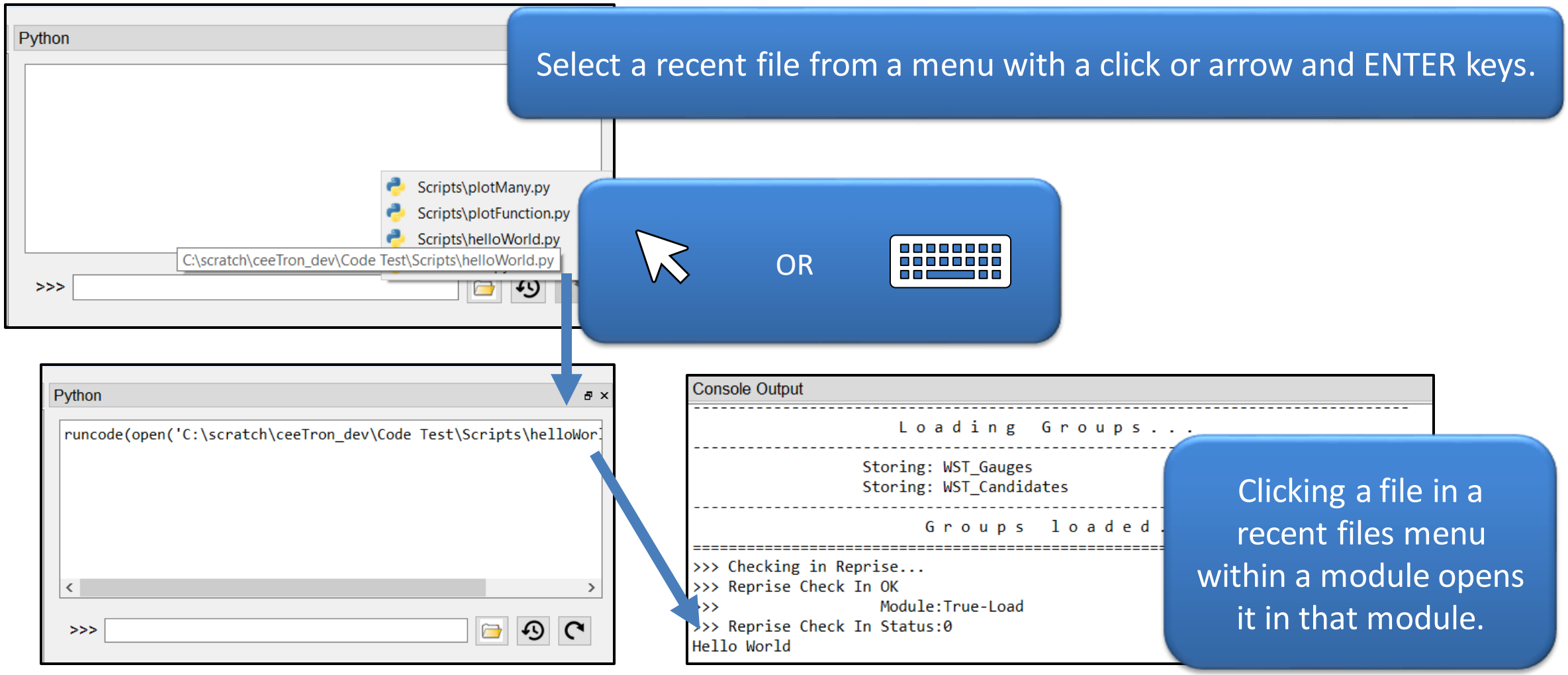


Recent Files

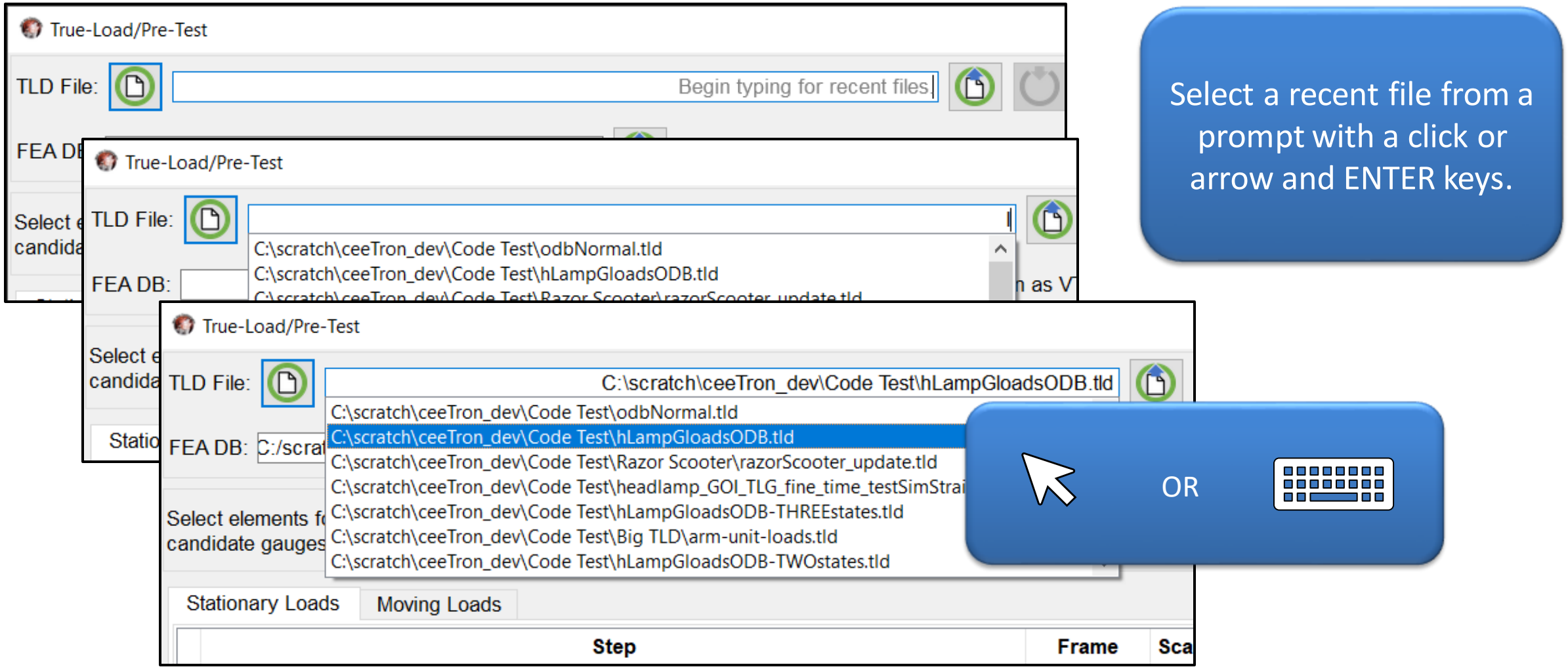
In-field prompts show full paths to recent files when anything is typed in the field.



Recent Files – Python Scripts

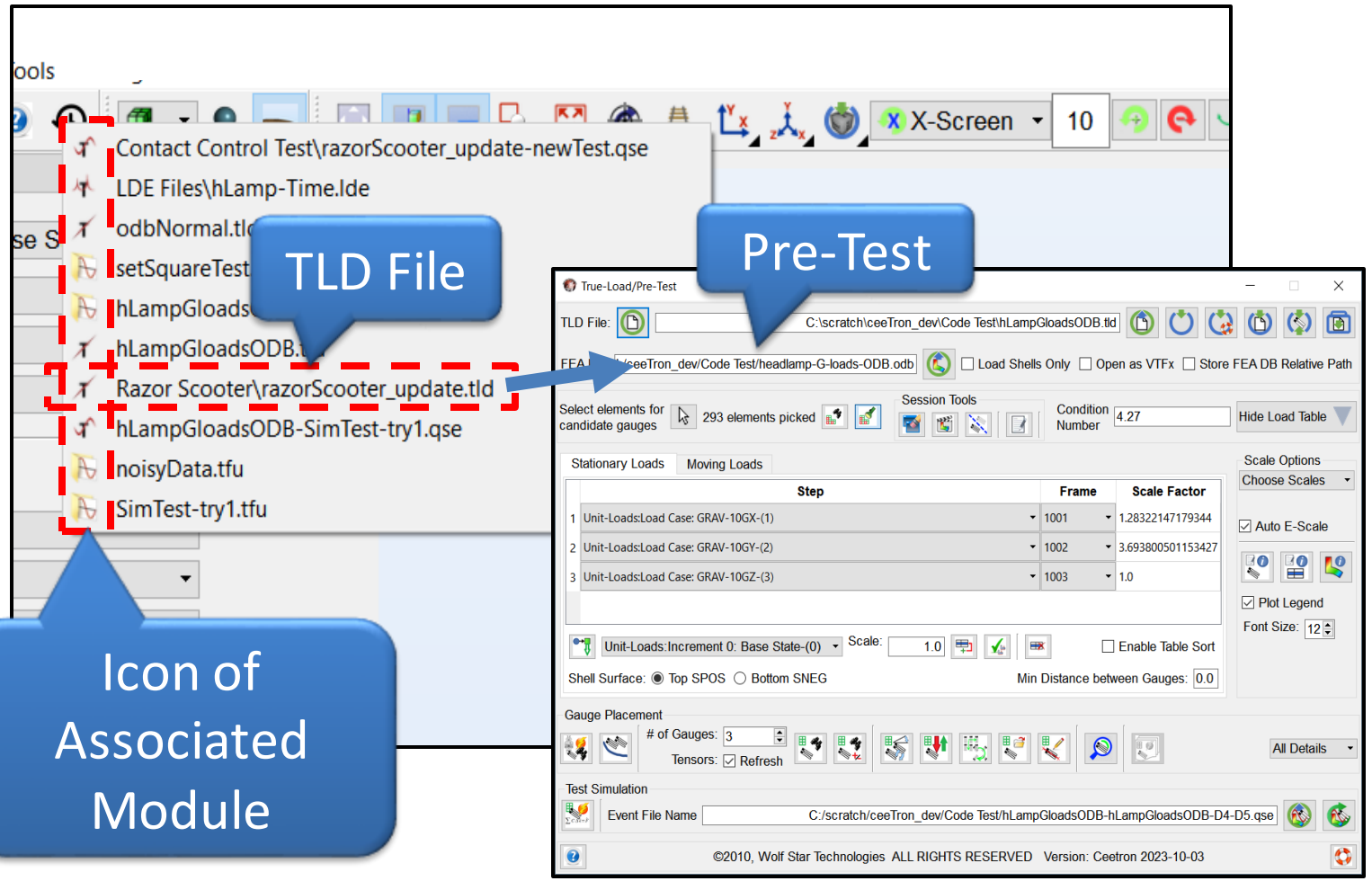


Recent Files



Select a recent file from a prompt with a click or arrow and ENTER keys.

Recent Files From True-Load Desktop



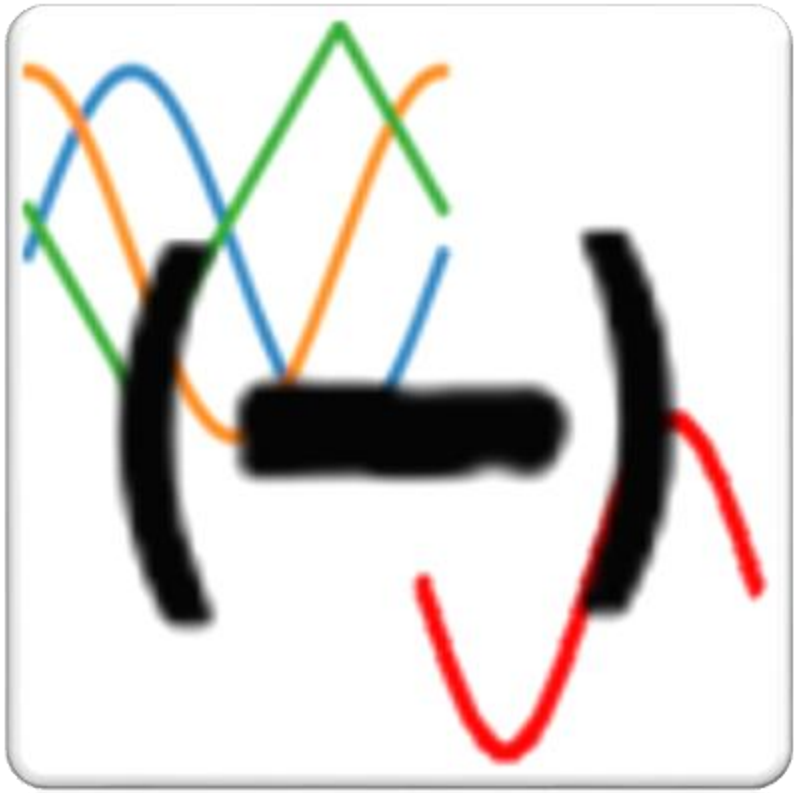
Selecting a file in the All Recent Files menu opens that file in its associated module.

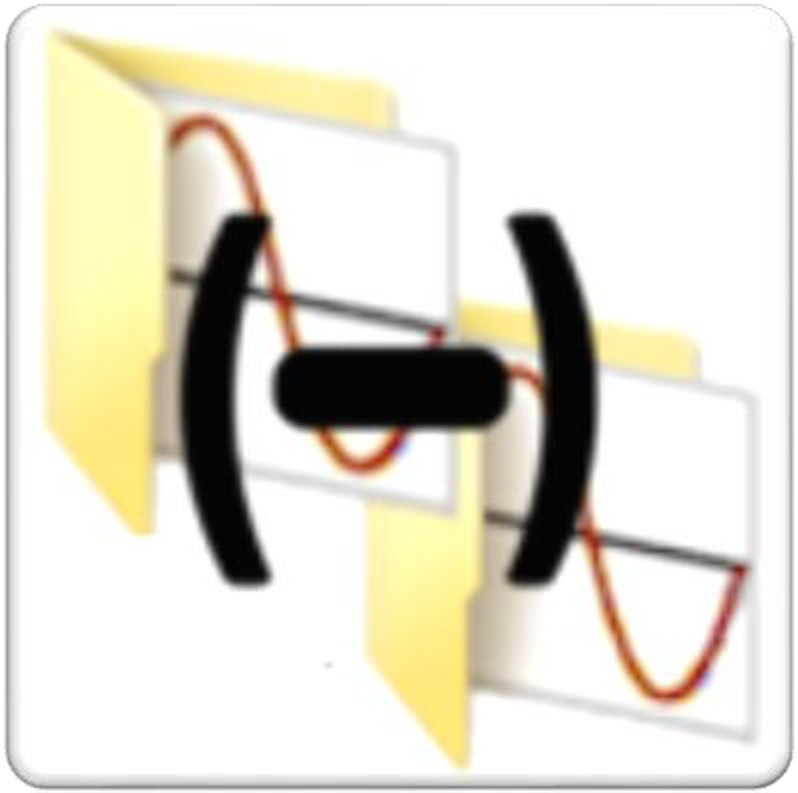
If a file type is used in multiple modules, the most common module is chosen. For example, TLD files are opened in True-Load/Pre-Test even though they are also used in True-Load/Post-Test.

Recent Files

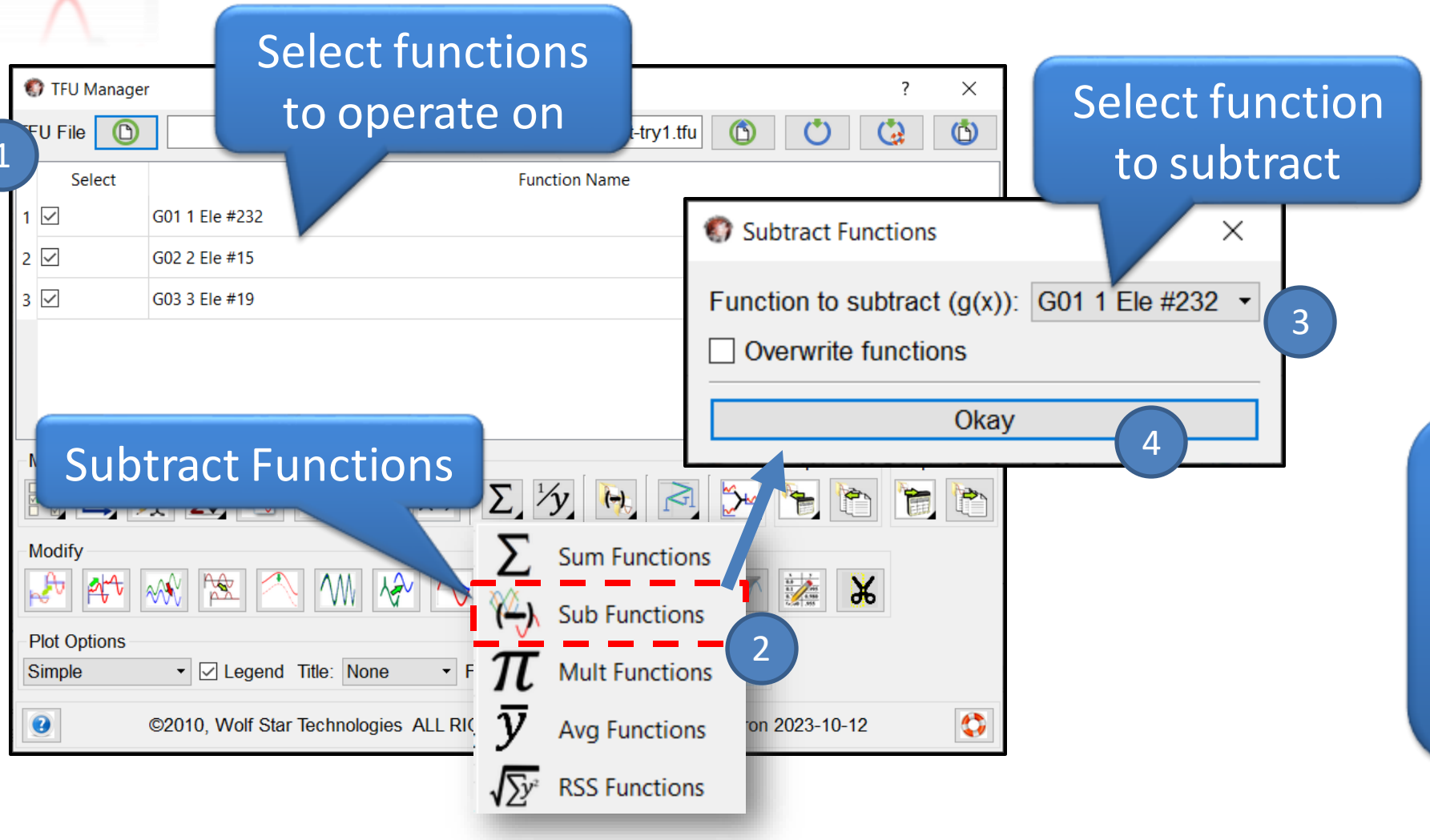
- Recent files save a lot of time:
  - Folders don’t have to be navigated so much
  - If TLD files and Test Data are kept in separate folders, then Post-Test is easier to use with less navigating.
  - This a big speed increase for such common thing that we use.

Subtract Functions



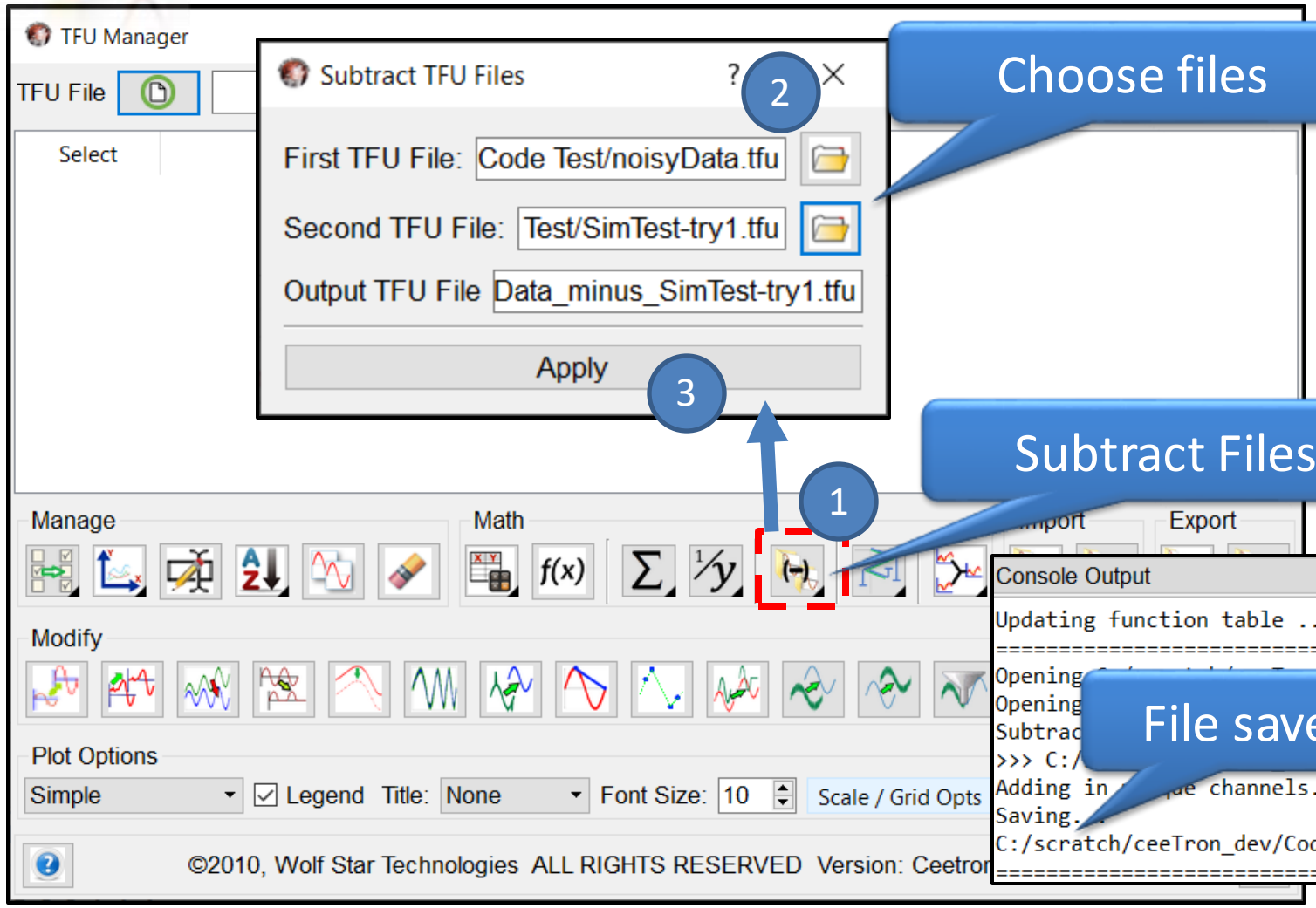


Subtract Functions



Subtract one function from selected functions with the Subtract Functions tool.

Subtract TFU Files



Subtract all functions in one file from all functions in another with the Subtract Files tool.