

WOLF STAR

T E C H N O L O G I E S

True-Load Enhancements 2026-03-15



Tim Hunter

Wolf Star Technologies



www.wolfstartech.com



Anaconda Warning



Anaconda Terms of Service (TOS) are changing!

Starting July 15, 2025 companies over 200 employees will need to purchase licenses of Anaconda. Because of this, Wolf Star is moving away from Anaconda to Native Python.

Python 13 is required. Wolf Star will provide the necessary open source modules via a script.





Enhancements Overview

- Highlights:
 - Equivalent Static Modes
 - Speed increase: “Parallel Tensors”
 - HyperLife Interface Button
 - Gauge Angle Optimization
 - Display standard gauges option
- **33 Enhancements, 8 Bug Fixes**
- Help Options: Members Area and Documentation



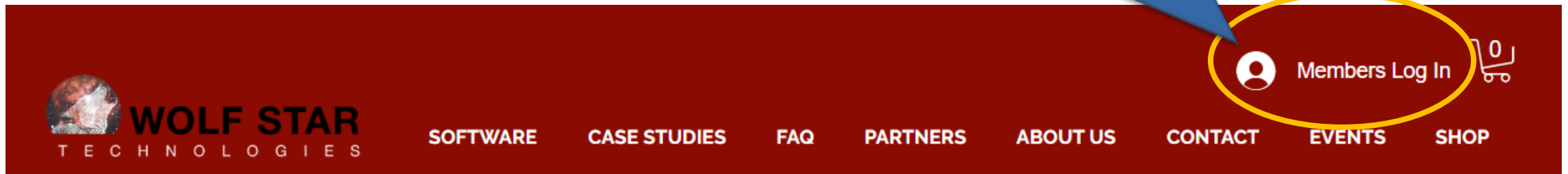
Help Options





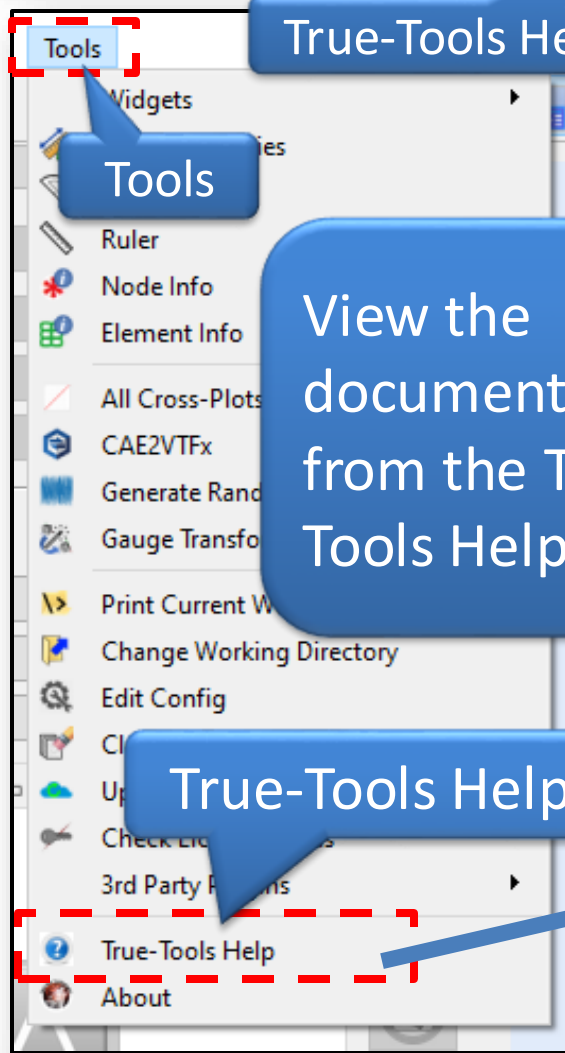
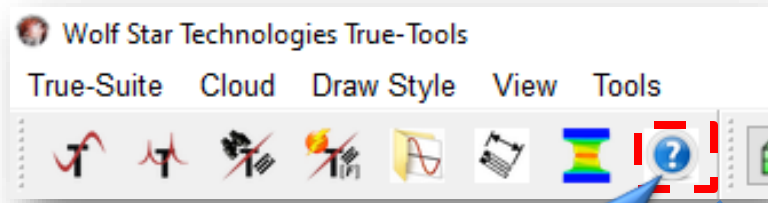
Help Options

Register for the Members Area to view video tutorials
at <https://www.wolfstartech.com/>





Help Options



True-Tools Help

View the documentation from the True-Tools Help form.

True-Tools Help



Common Tools

True-QSE

True-LDE

True-Load

TFU Manager

Duty Cycle

Measure Utilities

Python Shell

tfuTools



Enhancements - Overview



Bug Fixes



Details



Update / Install

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FEA Codes

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Utilitarian Improvements

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True-Load Enhancements
2026-03-15



Tim Hunter



Details

Update / Install

FEA Codes

Anaconda / Python Installer and GUI-less Installer

Reprise RLM Update

SimCenter

FEMAP

Abaqus

Utilitarian Improvements

Parallel Tensors

Equivalent Static Modes

HyperLife Export

Standard Gauge Display

Gauge Angle Optimization

Get Host ID

ODS Load Old Limits

Hoops Envision

GOI Labels

Post-Test - Drop Gauges

Color Bar Height

Import Gauges from 3 Pt CSV

Pattern Gauges: Drag Select

Bulk Stats Channel Filtering

Post-Test Report: Map File Name

Bug Fixes





Bugs

Module	Type	Description
PRE	Bug	Fix issue of GOI not working once GOIs are deleted
PRE	Bug	Fix issue with STL Gauge Box dimensions changing when depth is changed
ALL	Bug	Tag Max / Min label on graphics area prints in a column
POST	BUG	TLD names with a space using GOIs would cause an error when trying to access the HTML file names which have no space.
QSE	Bug	GOIs don't load from TLD
QSE	Bug	FFT Domain Responses not working
PRE	Bug	Switch to / from VTFx mode not working on some models
PRE	Bug	Parallel Tensor infinite loop when initializing...



Enhancements - Overview





Enhancements – True-Load Environment

Module	Type	Description
ALL	Enhancement	In update FEA DB Utility also add option for relative / absolute path
ALL	Enhancement	Ensure the Colorbar takes full height / width of window
ALL	Enhancement	Create an Error Trap for when the user does not have HOMEDRIVE HOMEPath created correctly and create a WST_folder in the Scratch directory -- fixed with more robust HomePath routine
ALL	Enhancement	Fix dock widget size for results mgr
ALL	Enhancement	Utility to get HostID
ALL	Enhancement	Replace all instances of HOMEDIR, HOMEPath with getReliableUserHomeDir()
ALL	Enhancement	Add Static Equivalent Modes utility GUI
ALL	Enhancement	Add Static Equivalent Modes utility functionality
ALL	Enhancement	Update ABQ Plug In Utilities to work with new python issues
ALL	Enhancement	Change references from Ceetron to Hoops Envision

Highlighted Records

Documented on
Details page





Enhancements – TFU Mgr

Highlighted Records Documented on Details page

Module	Type	Description
TFU	Enhancement	Add feature to Bulk Stats to process channels only containing text "XXX" and not containing "YYY"
TFU	Enhancement	Bulk Stats -- Add Plot Min / Max values
TFU	Enhancement	Make Title Default to File Name
TFU	Enhancement	Add option for legend placement, etc.





Enhancements - Pre

Module	Type	Description
PRE	Enhancement	Tweak & Swap - Angle Optimization
PRE	Enhancement	Make Gauge STL pointers be Outies
PRE	Enhancement	Add option to draw gauges boxes instead of lines
PRE	Enhancement	Brute-Force parallel tensors
PRE	Enhancement	Make sure report out folder in the TLD dir
PRE	Enhancement	Sort / Re-order needs to turn Lightning bolt on when gauges move up / down or sorted.
PRE	Enhancement	Mirror / Pattern -- Click / Drag to select / deselect
PRE	Enhancement	Gauge Box to be the default STL style in Write Gauge Lines
PRE	Enhancement	Link Write Gauge Lines form to the Gauge Label Combo
PRE	Enhancement	Add ability to use 3PT CSV files for gauge import
PRE	Enhancement	Add switch to turn parallel gather tensors on / off
PRE	Enhancement	Print eMat = nicer

Highlighted Records

Documented on
Details page





Enhancements - Post

Highlighted Records Documented on Details page

Module	Type	Description
POST	Enhancement	Add MAP file to header info of Input Files
POST	Enhancement	show dropped gauges on strain load





Enhancements - QSE

Highlighted Records Documented on Details page

Module	Type	Description
QSE	Enhancement	HyperLife interface button
QSE	Enhancement	ODS load old time points -- have a cancel button
QSE	Enhancement	Draw GOIs with gauge labels only





Enhancements – 3rd Party

Highlighted Records Documented on Details page

Module	Type	Description
ALL	Enhancement	Update ABQ Plug In Utilities to work with new python issues



Anaconda / Python Installer and GUI-Less Installer





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FROM 2023-10-22 VERSION DOC ...



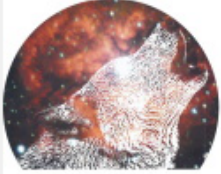
Installer and GUI-Less Install





Installer GUI Update

Wolf Star Technologies Installer

 **WOLF STAR**
T E C H N O L O G I E S

Destination Directory:

Python 3.6 | Anaconda 4.3.1 (64-bit) Directory:

Default FEA: Install Abaqus CAE Plugin
 Open as VTFx Download Ansys WorkBench Plugin

Shortcut Location (e.g. Desktop):

Default work dir (for shortcut):

WST_scratch Location:

Licensing Path -- Optional
(e.g. port@host; <path to LIC file>):

New button – Only for Admins

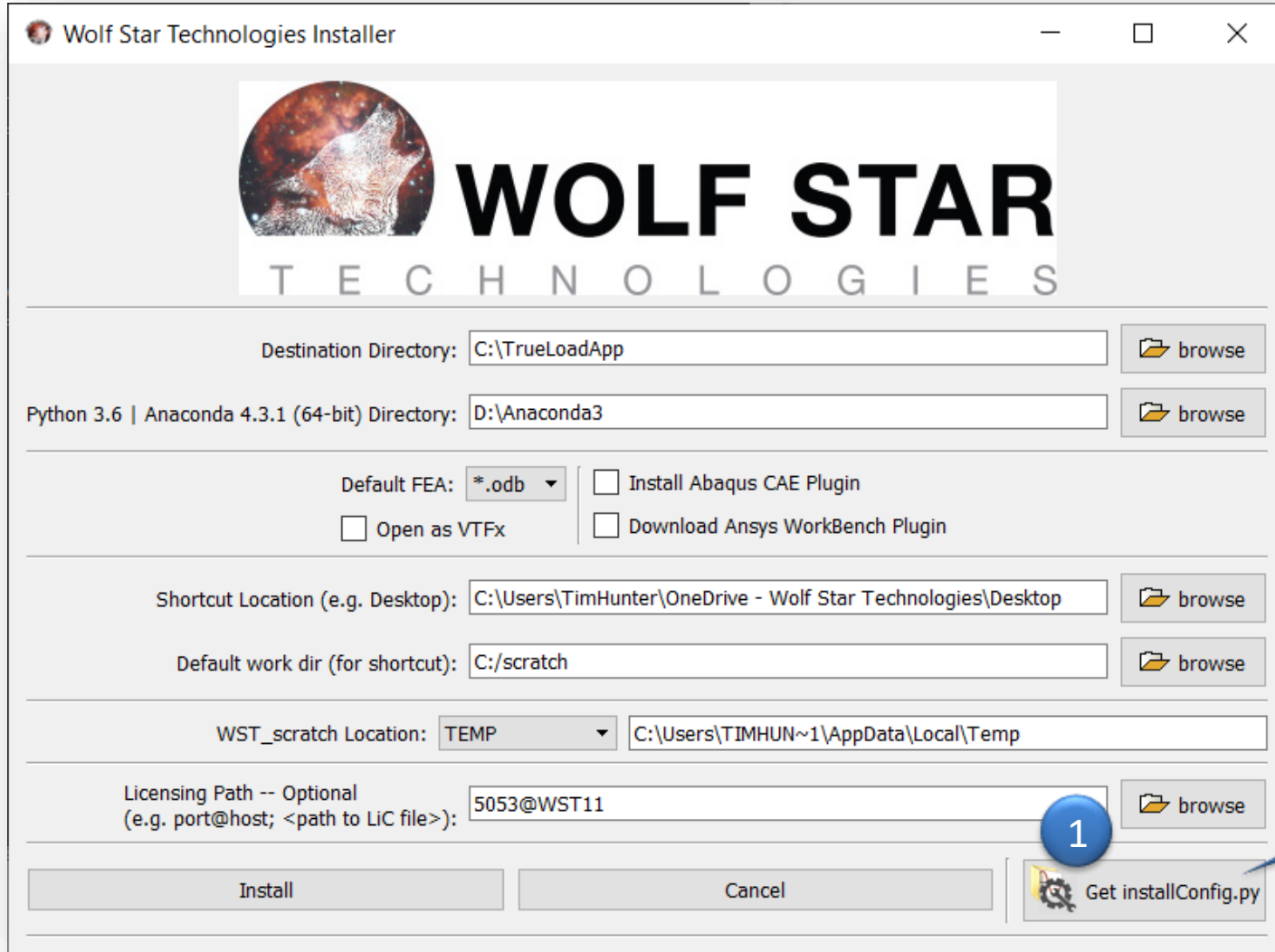
This downloads “installConfig.py” to enable GUI-less (command line) install of True-Load

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

Method 1: 7Zip

Method 2: Zip

1) Rename EXE to ZIP

RMB

RMB

The image shows a sequence of steps to unzip an installer:

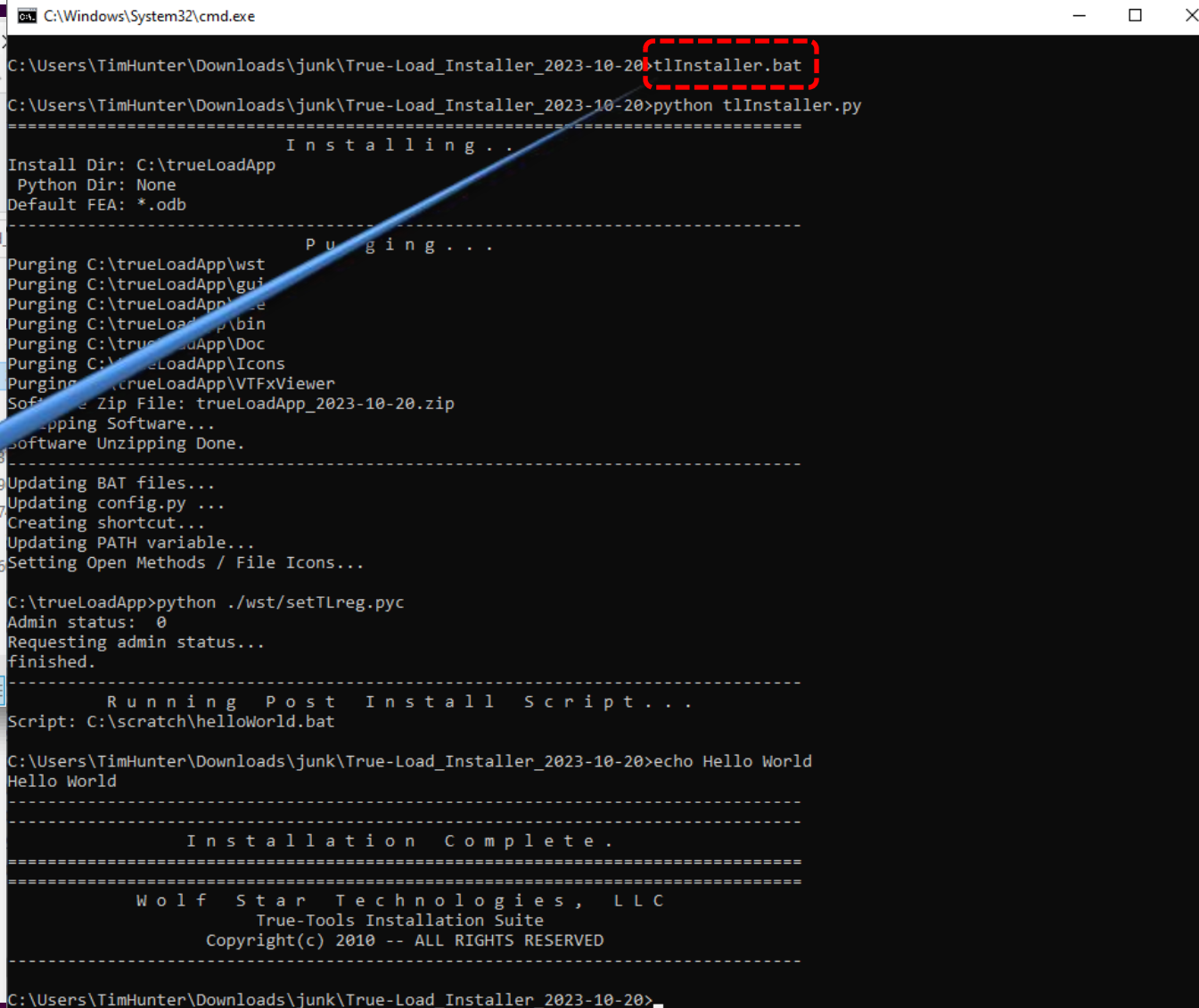
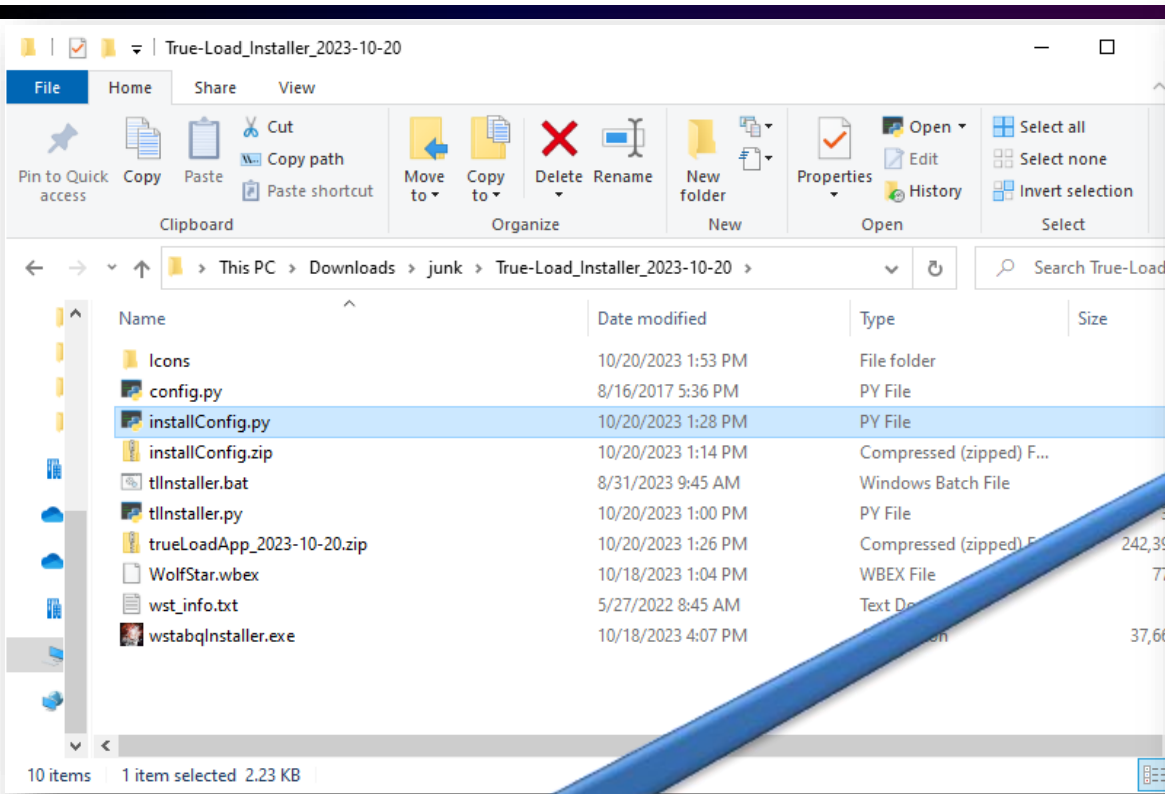
- Right-click (RMB) on the file `True-Load_Installer_2023-10-20.exe` in the `junk` folder.
- Open the context menu and select `7-Zip`.
- In the 7-Zip sub-menu, select `Extract to "True-Load_Installer_2023-10-20\"`.
- The file is renamed to `True-Load_Installer_2023-10-20.zip`.
- Right-click (RMB) on the renamed file.
- Select `Extract All...` from the context menu.

The final screenshot shows the extracted files in the `True-Load_Installer_2023-10-20` folder, including `icons`, `config.py`, `installConfig.zip`, `tInstaller.bat`, `tInstaller.py`, `trueLoadApp_2023-10-20.zip`, `WolfStar.wbx`, `wst_info.txt`, and `wstabqInstaller.exe`.





Copy installConfig.py to installer folder



Run t1Installer.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.



Ansys Plugin



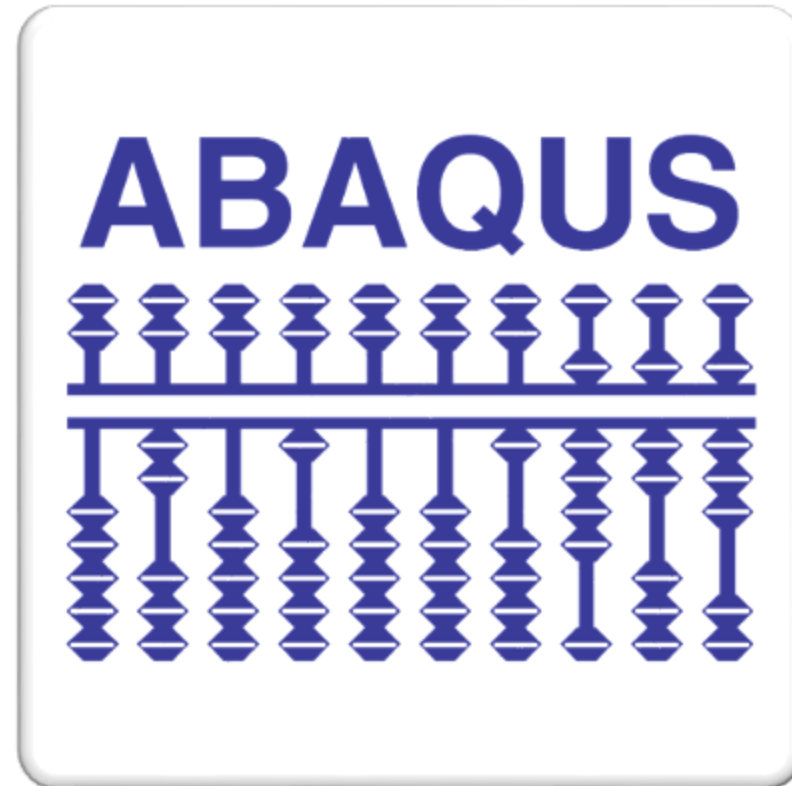


Ansys 2024

Supports Ansys 2024 and
Earlier versions



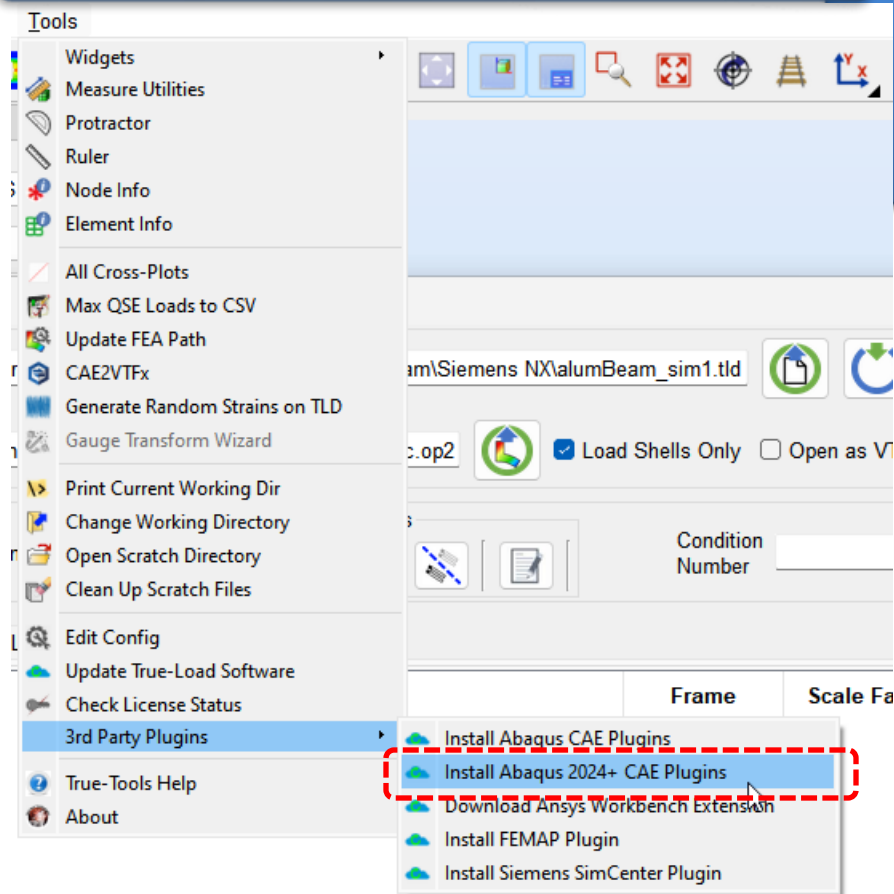
Abaqus





Abaqus 2024

True-Load



Supports Python 3 in Abaqus

Tools → 3rd Party Plugins → Install Abaqus 2024+ CAE Plugins
installs the plugins into Abaqus CAE

Includes all of the great Abaqus CAE utilities

Additional updates have
been made to work in the
Python 3 environment





FEMAP



FEMAP

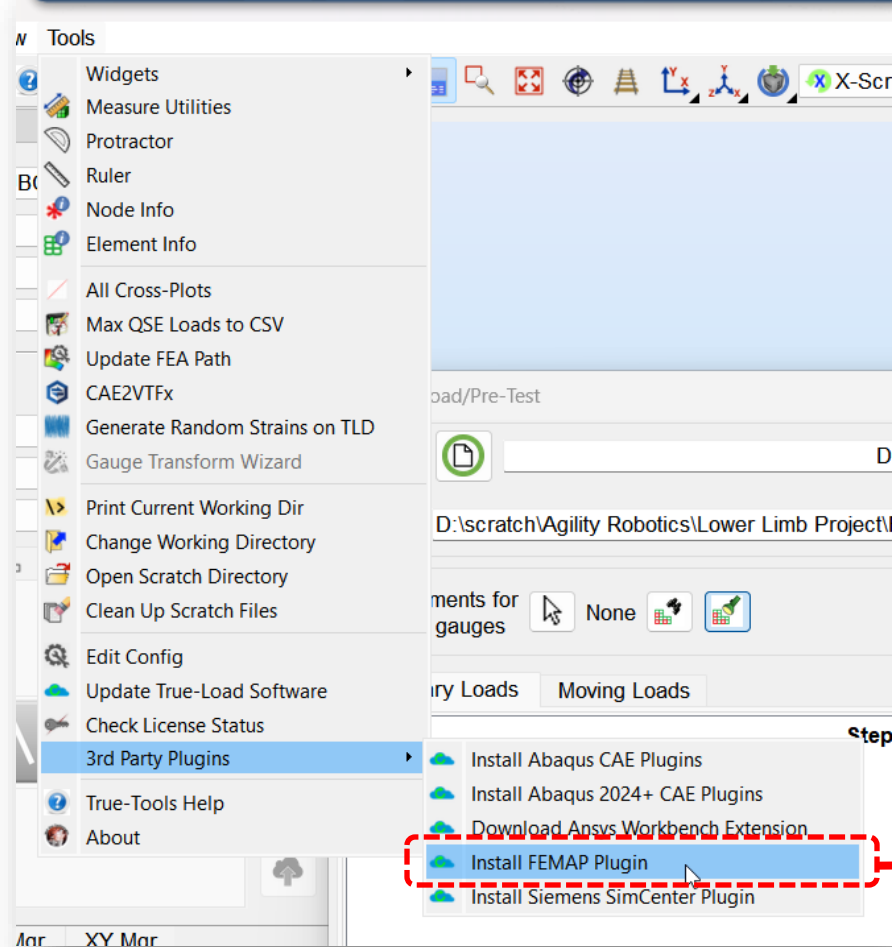
FEMAP



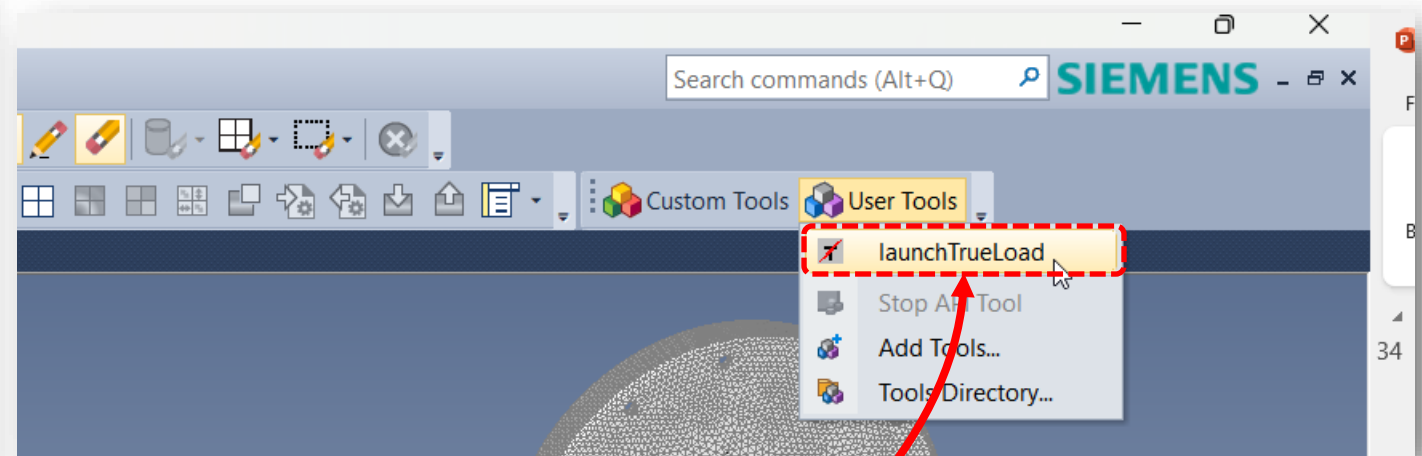


Install FEMAP Plugin

True-Load



FEMAP



Tools → 3rd Party Plugins → Install FEMAP Plugin
installs the plugin into FEMAP





Launch True-Load from FEMAP

The screenshot displays the FEMAP software interface. The 'User Tools' dropdown menu is open, with 'launchTrueLoad' highlighted. A red arrow points from this menu item to the 'True-Load/Pre-Test' dialog box. The dialog box shows the following configuration:

- TLD File: D:\scratch\Agility Robotics\Lower Limb Project\FEA\thigh_v2.tld
- FEA DB: \scratch\Agility Robotics\Lower Limb Project\FEA\thigh_v2-0002.op2
- Options: Load Shells Only, Open as VTFx, Store FEA DB Relative Path
- Stationary Loads and Moving Loads table:

Step	Frame	Scale Factor

Additional options in the dialog include 'Auto E-Scale', 'Plot Legend', and 'Font Size: 10'. The console output at the bottom shows the following text:

```
©2010, Wolf Star Technologies ALL RIGHTS RESERVED Version: Cae tron 2025-02-14
KNEE-1KH-FX:SUBCASE 1(1)
KNEE-1KH-FY:SUBCASE 2(1) 1001
KNEE-1KH-FZ:SUBCASE 3(1) 1002
KNEE-1KH-HX:SUBCASE 4(1) 1003
KNEE-1KH-HY:SUBCASE 5(1) 1004
KNEE-1KH-HZ:SUBCASE 6(1) 1005
Parts: 2
Nodes: 284816
Elements: 142458
```



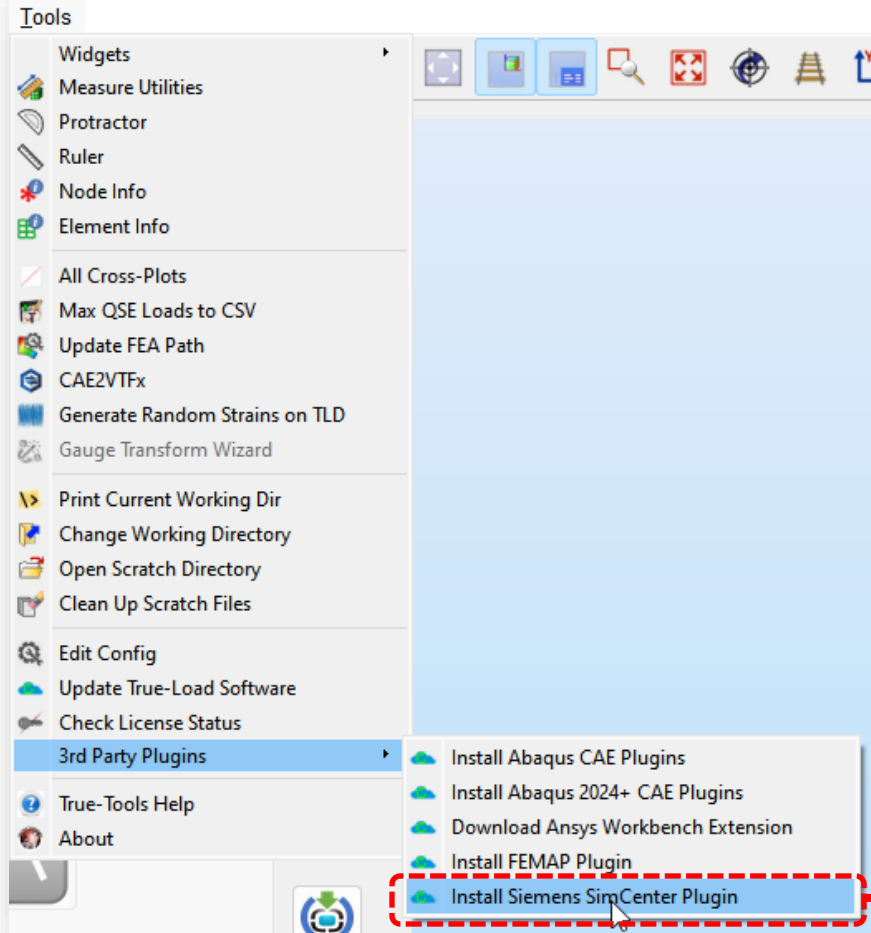
SimCenter



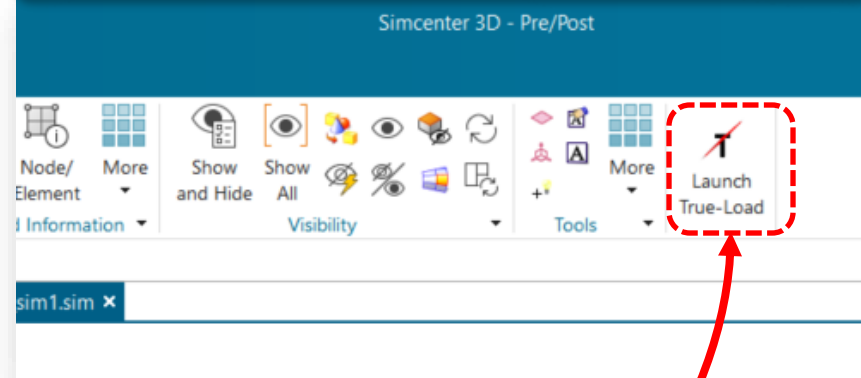


Install SimCenter Plugin

True-Load



SimCenter

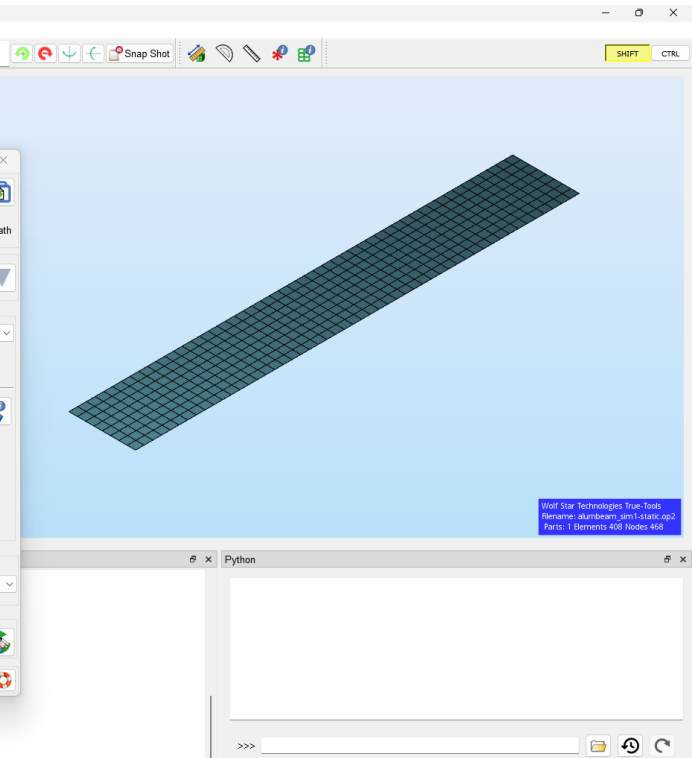
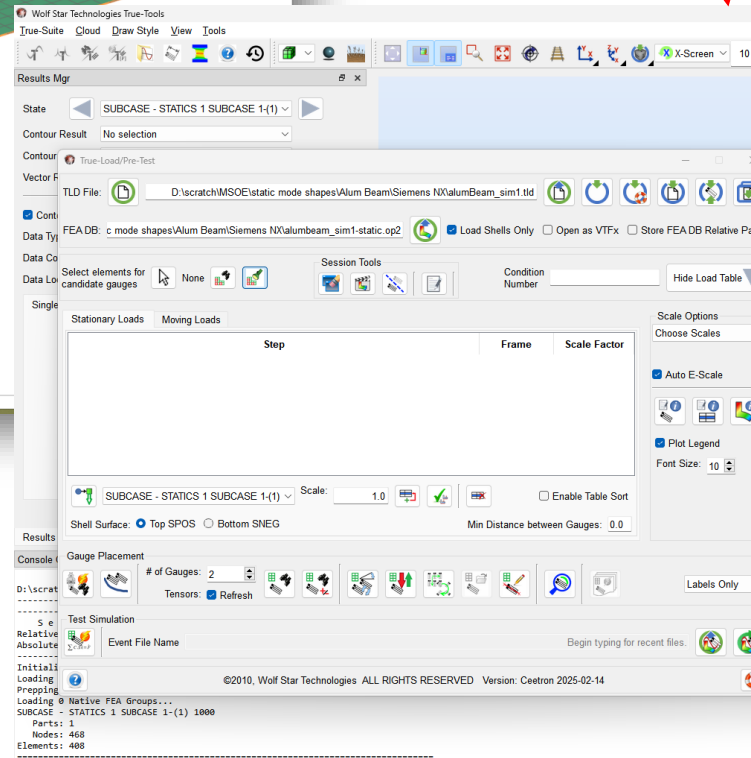
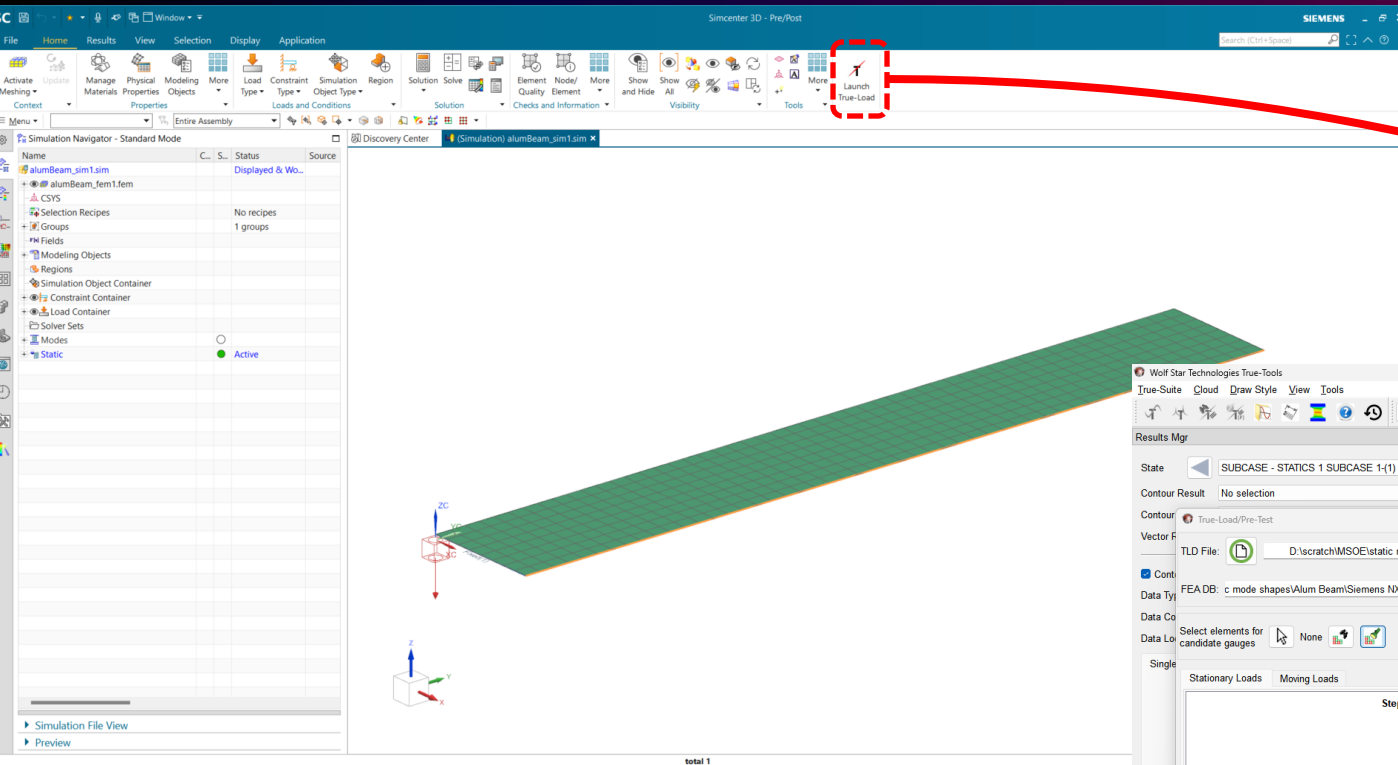


Tools → 3rd Party Plugins → Install Siemens SimCenter Plugin
installs the plugin into SimCenter

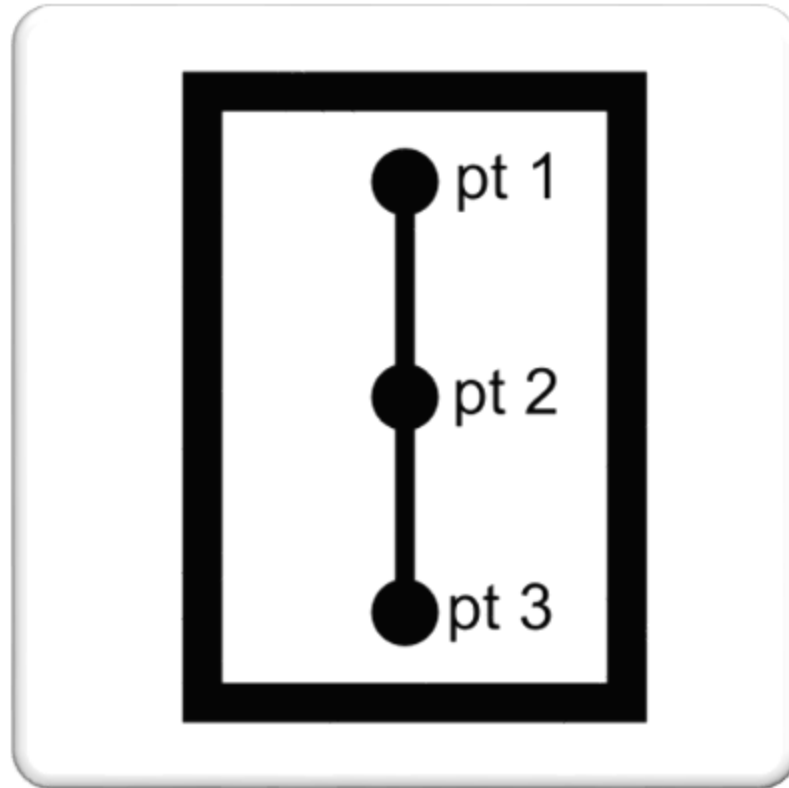




Launch True-Load from SimCenter



Import Gauges from 3 Pt CSV





Import Gauges from 3 Pt CSV

Gauges can now be imported from a **3 Pt formatted CSV file**. Previously, only the Gauge Lines CSV format was accepted.

Indicate the format using the CSV Type options (details next) ->

The screenshot displays the 'True-Load/Pre-Test' application window. A 'Load Old Gauges' dialog box is open, allowing users to import gauge data from a CSV file. The dialog includes a text field for the 'Old Gauge File', a 'CSV Type' section with radio buttons for 'Gauge Lines' (selected) and '3 Pt', and a 'Settings' section with checkboxes for 'Merge Gauges', 'Global Search' (checked), 'ZIP selection' (checked), and 'Import GOIs'. The main application window behind the dialog shows various settings like 'Increment', 'Scale', 'Shell Surface', and 'Gauge Placement'. A blue arrow points from the 'Load Previously Defined Gauges' button at the bottom to the 'Load Old Gauges' dialog box.

Load Previously Defined Gauges



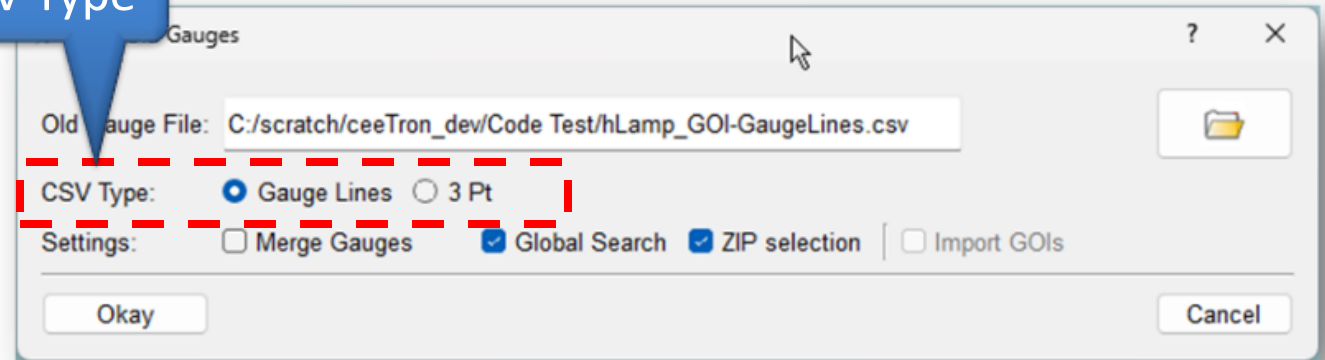


Import Gauges from 3 Pt CSV

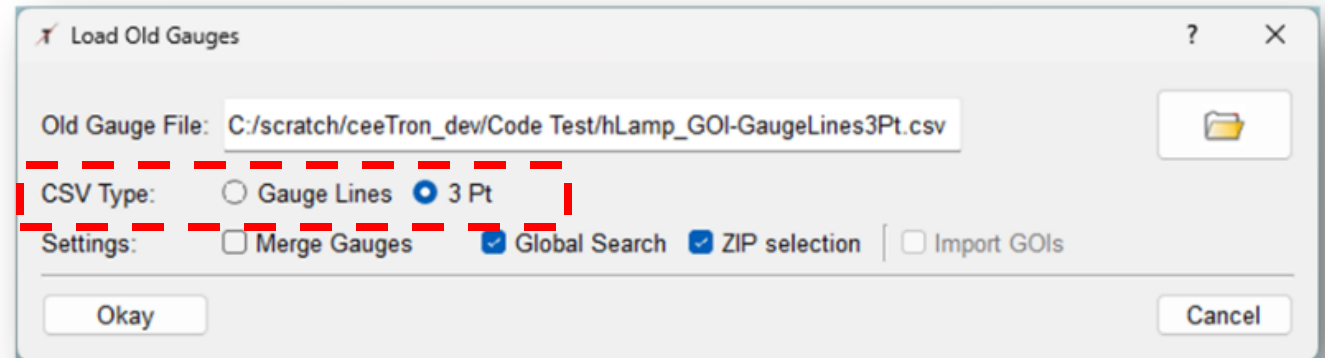
The Gauge Lines option is for a CSV file with x, y, z, u, v, w data on each row of the CSV file describing the position (x, y, z) and orientation vector (u, v, w) of each gauge. This was the default in previous releases.

The **3 Pt option** is for a CSV file containing three rows of x, y, z data for each gauge. The three x, y, z rows are describing three points that lie along the gauge.

CSV Type



-or-



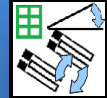
Gauge Angle Optimization



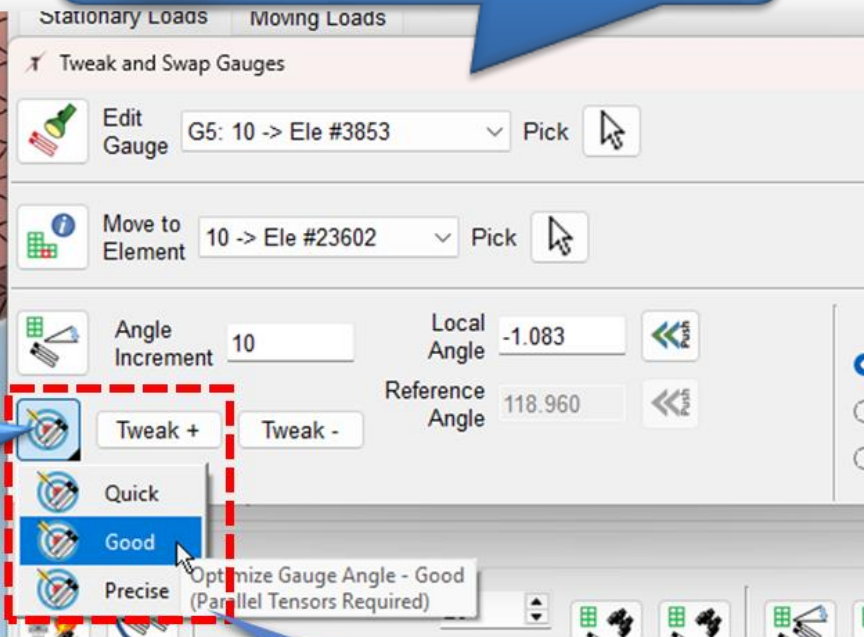
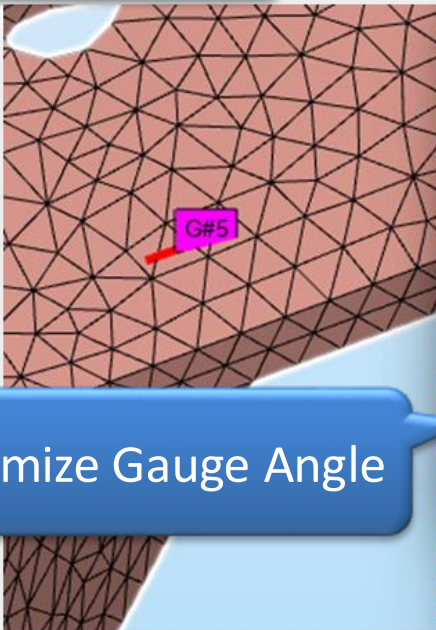
Gauge Angle Optimization



Pre-Test



Tweak and Swap



Optimize Gauge Angle

- Find the orientation for the selected gauge that minimizes the overall condition number.
- Choose Quick, Good, or Precise (time vs precision)
- **Parallel Tensors required due to processing speed.**

Choose the accuracy / speed for optimization

HyperLife Export





HyperLife Export

True-QSE supports Altair HyperLife, a Siemens product.

To export load and event functions to HyperLife, (1) click the HyperLife Export button and (2) choose your settings.

HyperLife Export

Export to HyperLife

Event Duration: 3600.000

30 repeats

sec
min
hour
day
week
month
year

Choose Repeats

FEA: Step	FEA: Frame	Scale Factor	Amplitude
SUBCASE 1-(1)	1000	1.0	<TFU F
SUBCASE 2-(1)	1001	1.0	<TFU F
SUBCASE 3-(1)	1002	1.0	<TFU F
SUBCASE 4-(1)	1003	1.0	<TFU F

Amplitude Options

Font Size: 10

Plot Legend: Y Lin Y Log

Simple X Lin X Log

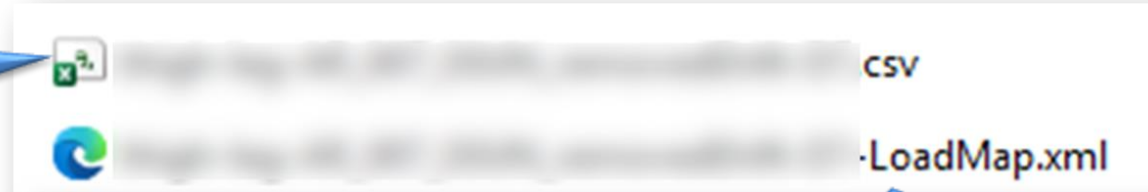
©2010, Wolf Star Technologies ALL RIGHTS RESERVED Version: Hoops Envision 2026-02-09





HyperLife Export

Load data is saved as a CSV file



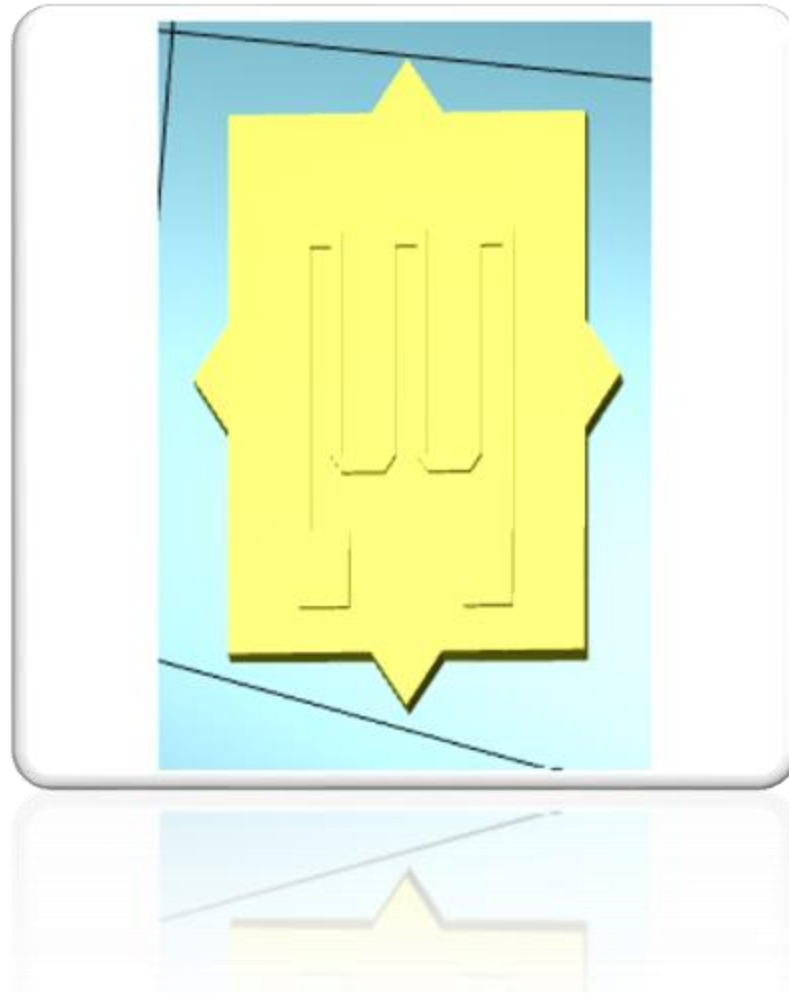
Event data is saved as an XML file.

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <!--HyperLife from True-QSE!-->
3 <HyperLifeInput profile="Basic" version="2025.1.0.28">
4   <InputFiles>
5     <ModelFile>D:\scratch
6     <ResultFile>D:\scratch\
7   </InputFiles>
8   <LoadMap typeofloading="Time Series">
9     <Channel>
10      <tabfat id="1" type="Time Data">.\
11    </Channel>
12    <FatigueEvents>
13      <Event Configuration="superposition" Gate="0" id="1" name="Event_1">
14        <LoadStep LDM="1" Offset="0" Scale="1.000000" block="1" resultfile="" sim="2" subcase
15        <LoadStep LDM="1" Offset="0" Scale="1.000000" block="2" resultfile="" sim="2" subcase
16        <LoadStep LDM="1" Offset="0" Scale="1.000000" block="3" resultfile="" sim="2" subcase
17        <LoadStep LDM="1" Offset="0" Scale="1.000000" block="4" resultfile="" sim="2" subcase
18        <LoadStep LDM="1" Offset="0" Scale="1.000000" block="5" resultfile="" sim="2" subcase
19        <LoadStep LDM="1" Offset="0" Scale="1.000000" block="6" resultfile="" sim="2" subcase
20      </Event>
21    </FatigueEvents>
22    <Fatseq>
23      <Fatevnt EventId="1" EventName="Event_1" Repeats="30"></Fatevnt>
24    </Fatseq>
25  </LoadMap>
26 </HyperLifeInput>
```

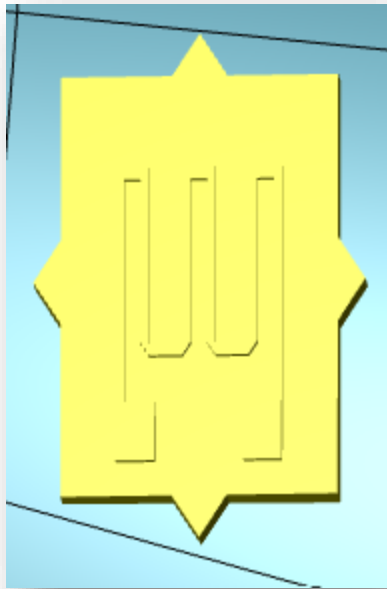
The XML file can be directly opened in the HyperLife software.
Note that fatigue materials will need to be assigned in the HyperLife software.



Standard Gauge Display



Standard Gauge Display



There is now an option to display standard strain gauges on the model.

Accurate gauge shapes assist in visualization, planning, and real-world gauge placement.

Standard Gauge Display

Display standard gauges on the model:

1



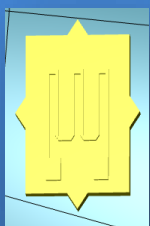
Pre-Test

2

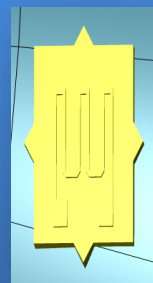
Gauge Label Options

3

Choose



OR



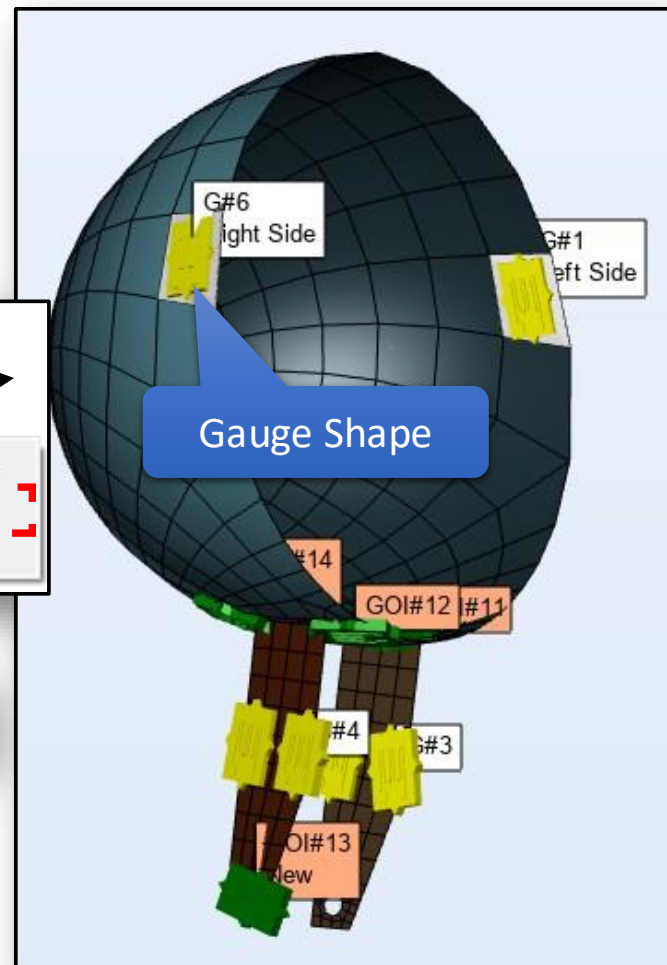
CEA-125

CEA-250

All Details	
Labels Only	
No Details	
CEA-125	CEA-125-mm
CEA-250	CEA-125-in
	CEA-125-m

4

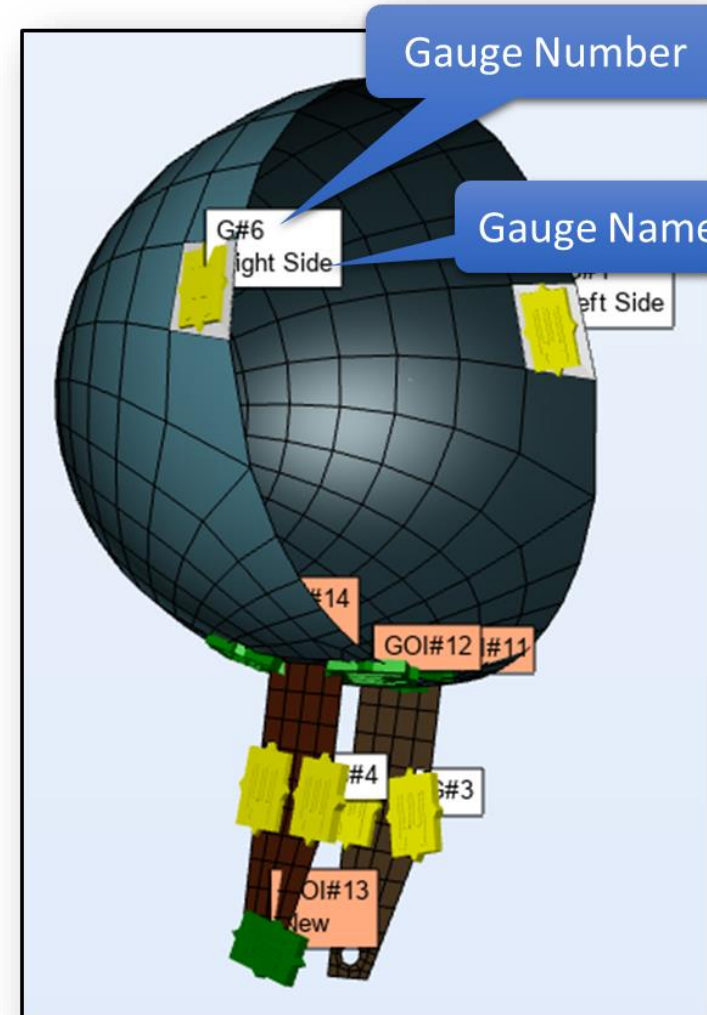
Select Units



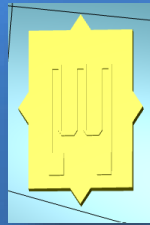


Standard Gauge Display

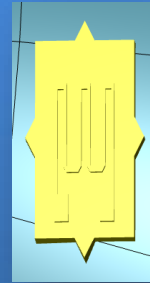
Labeled with Gauge Number
and Gauge Name



Standard Gauge Display



CEA-125



CEA-250

Dimension Reference:

- CEA-125: 10.77mm x 6.9mm x 2.14mm, [Vishay MicroMeasurements DataSheet](#)
- CEA-250: 14.0mm x 6.9mm x 2.14mm, [Vishay MicroMeasurements DataSheet](#)

Standard Gauge Display

Export these gauges with the "3D STL" option.



Gauge Line Specifications

Export Type: Gauge Line CSV 3 Point CSV Punch XML 3D STL Process GOIs

Output Folder: Gauge Box

3D STL

The STL file is used for importing gauges into CAD Systems. This is a 3D solid faceted representation of the gauges.

Length: 0.551181102362 250UWA

Width: 0.271653543307 49 % Inches Millimeters

Depth: 0.110236220472 20 % Feet Meters

One STL per Gauge STL with all Gauges Write Shells

Apply Cancel

Parallel Tensors





Parallel Tensors

Speed Increase!!!

The newly added optional Parallel Element Tensors feature increases the speed of:

- Finding gauges
- Updating the eMat
- *All operations that require gathering element tensors in Pre-Test and Post-Test*

Benchmarking shows an average speed increase for gather element tensors operations of 1631%! This translates into an average speed increase for Find Gauges of 338%.

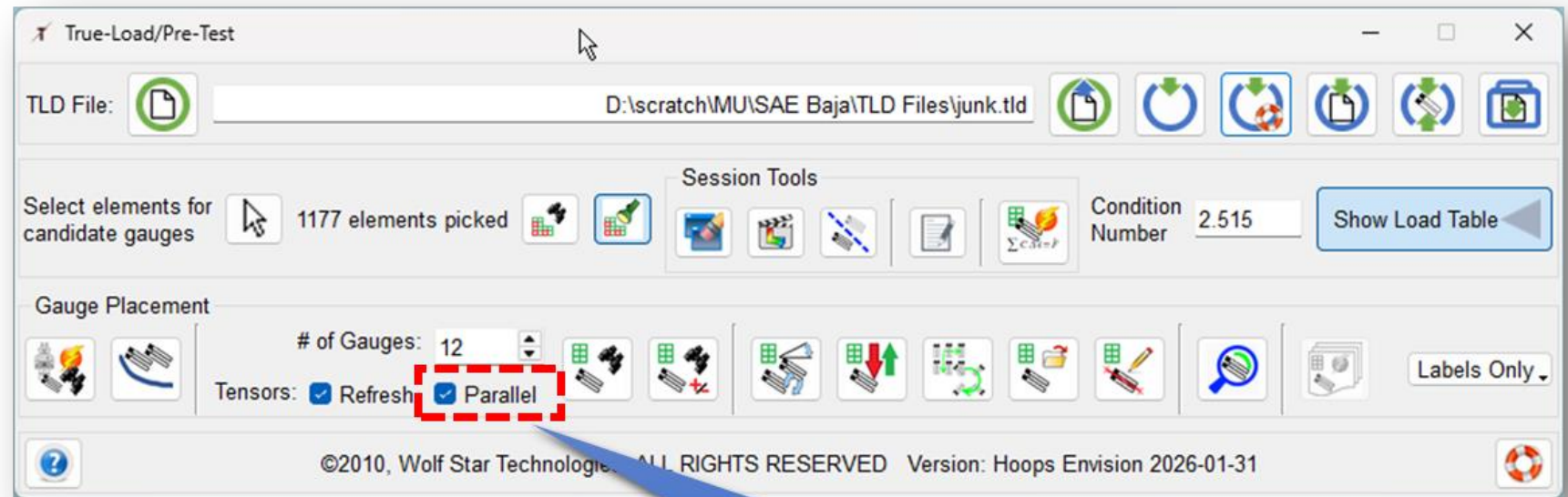




Parallel Tensors

Enable Parallel Tensors with the “Parallel” checkbox on the Pre-Test form.

Note – this feature is enabled by default when creating new TLD files.



Parallel Element Tensor Checkbox



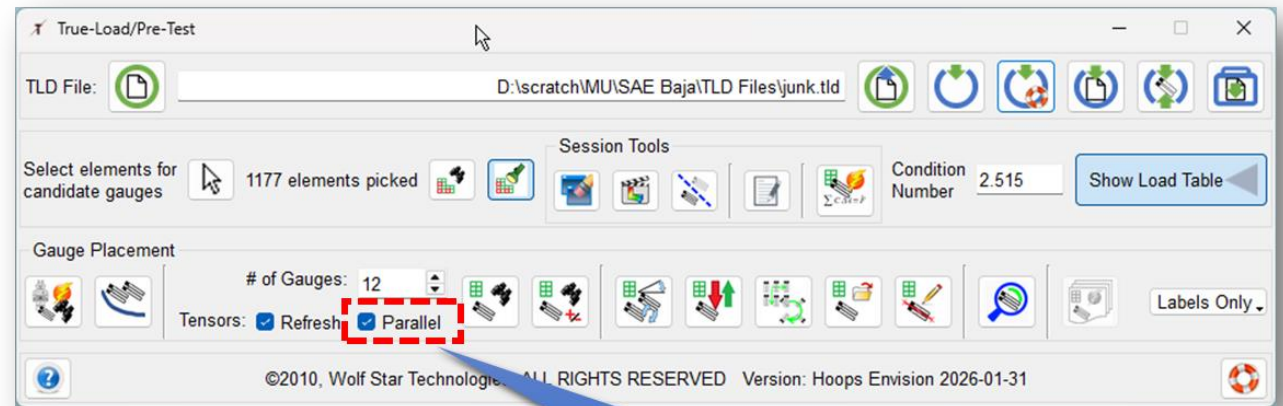


Parallel Tensors

Enable Parallel Tensors with the “Parallel” checkbox on the Pre-Test form.

One-time operations done automatically when the “Parallel” checked:

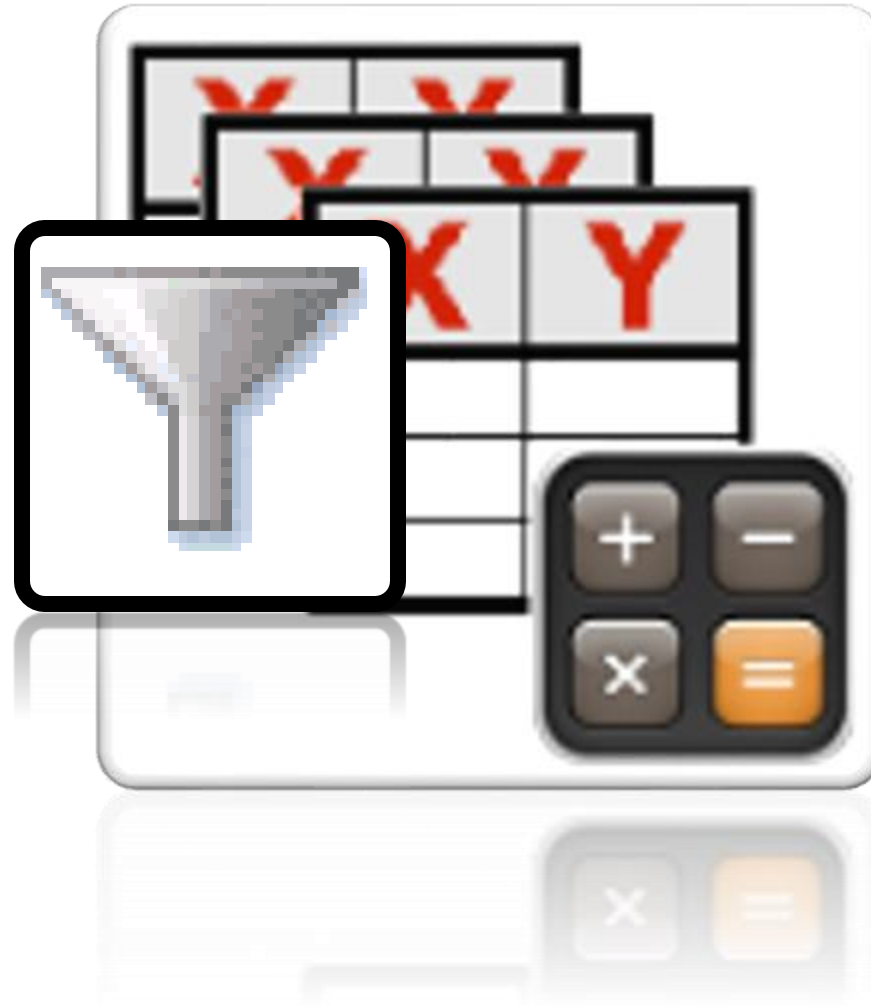
- 1) A VTFx version of the FEA file is generated
- 2) The element tensors for all shell elements in the model for all loads in the load table are stored on disk as PKL files.



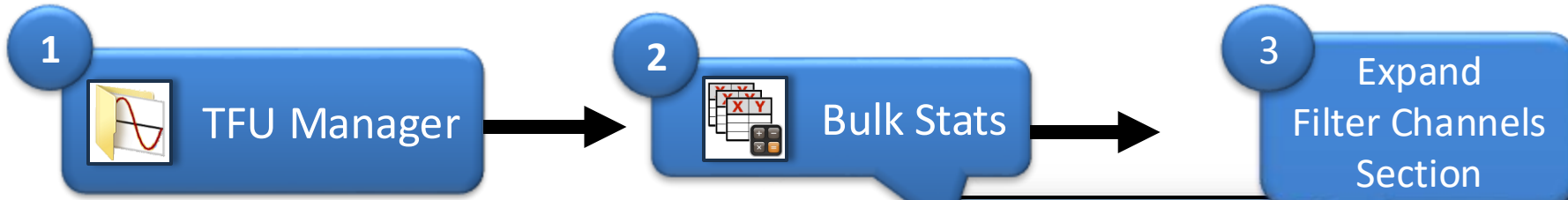
Parallel Element Tensor Checkbox



Bulk Stats Channel Filtering



Bulk Stats Channel Filtering



In addition to the Filter Files feature, **Bulk Stats now has a Filter Channels feature.**

- Channel (function) filters are case-sensitive and applied after clicking “Apply”.
- Channel filters are applied whether the section is expanded or hidden – only clearing the filter fields removes channel filters.

Channel Filter Fields

Clear Channel Filters

Expand Filter Channels Section

Bulk Statistics

Search Folder: to [Code Test] [Folder Icon] [Refresh Icon]

Search Sub-Folders

Contains: Scooter [Refresh Icon]

Does Not Contain: Ctrl [Refresh Icon]

Filter Channels

Contains: Sim

Does Not Contain: Mes

Clear Channel Filters

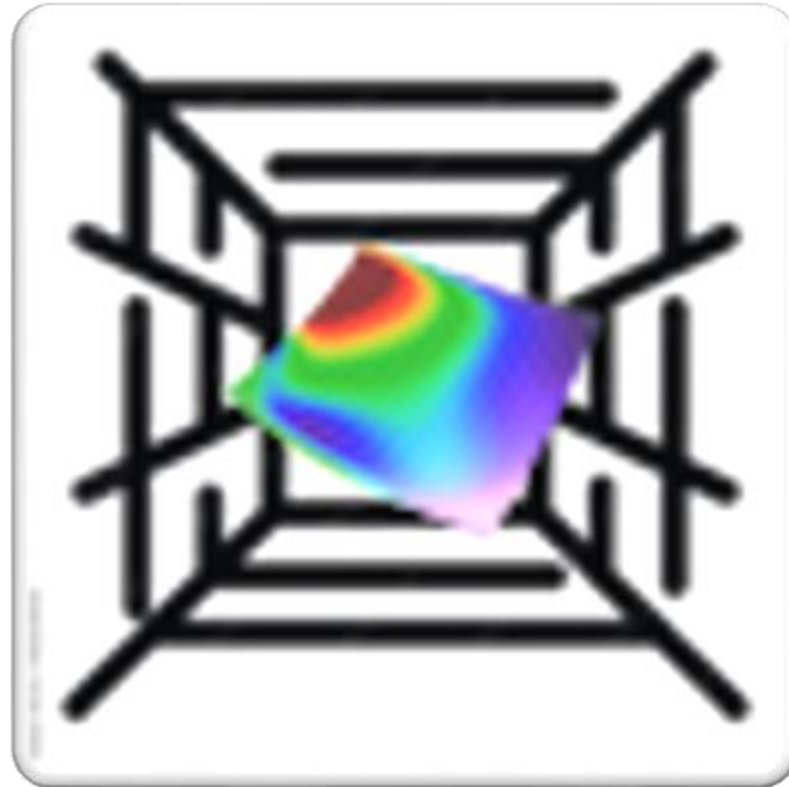
Report Name (.html) bulkStats_2 3.html

Apply Cancel

Hide Base Directory

File Name
9
10
11
12
13
14
15
16
17
18

Equivalent Static Modes





Equivalent Static Modes

True-Load now supports modal analysis of redesigns with the **Equivalent Static Modes** utility.

Equivalent Static Modes is a new method developed by Dr. Tim Hunter and Dr. Sudhir Kaul in 2025 and currently awaiting peer review. With Equivalent Static Modes:

- Estimate the dynamic response of a system through multiple design iterations using previously calculated modal participation factors (MPFs)
- Explore designs directly in True-QSE
- About 10x faster than alternatives (i.e. eigenmode calculation)

Read a detailed explanation in the documentation: [Common Tools > Tools Menu > 6.12 Equivalent Static Modes](#)





Equivalent Static Modes

1. Set up a TLD file based on eigenmodes.



Pre-Test

The screenshot displays the True-Tools software interface. The 'Normal Modes' table is highlighted with a red dashed box, showing the following data:

Step	Frame	Scale Factor
1 Normal Modes.Mode 1: Value = 23066. Freq = 24.172 (cycles/time)-(1)	1001	1.4287763800646333
2 Normal Modes.Mode 2: Value = 28630. Freq = 26.930 (cycles/time)-(2)	1002	1.0
3 Normal Modes.Mode 3: Value = 65253. Freq = 40.656 (cycles/time)-(3)	1003	8.89008980370341
4 Normal Modes.Mode 4: Value = 8.98828E+05 Freq = 150.89 (cycles/time)-(4)	1004	3.3839416912756772
5 Normal Modes.Mode 5: Value = 9.62160E+05 Freq = 156.11 (cycles/time)-(5)	1005	2.74193842699088

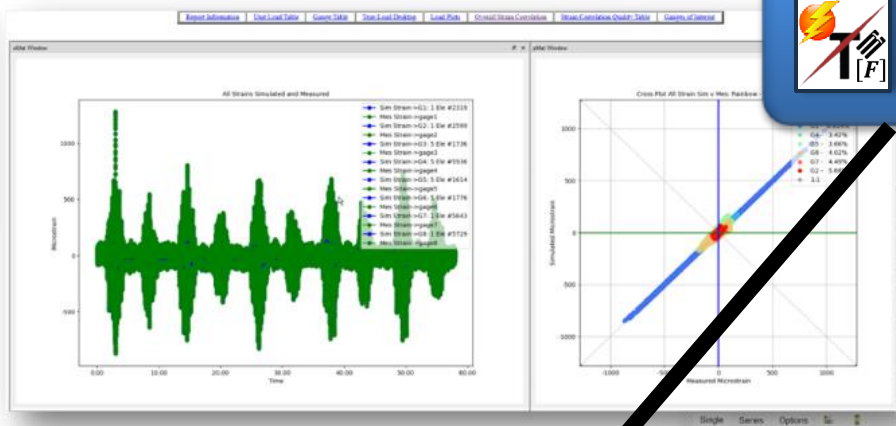
The 3D model of the engine mount plate is shown with gauge locations labeled G#1 through G#8. A blue callout box labeled 'Eigenmodes' points to the 3D model.



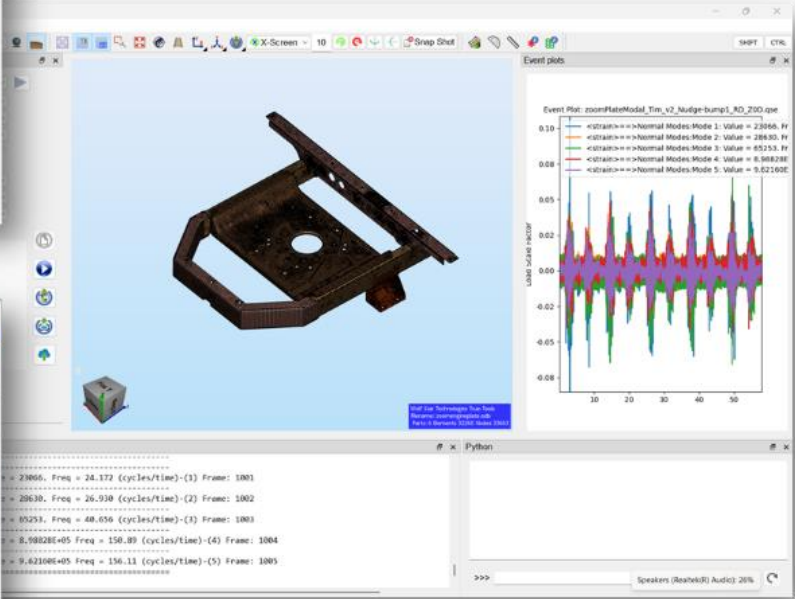


Equivalent Static Modes

2. Use Post-Test to generate QSE file containing the MPFs of the modes.



 Post-Test



True-QSE

Event (QSE) File: `ngine Mount Plate\Text Data\eqvStaticModes\zoomPlateMode_Tim_v2_Nudge-bump1_RD_200.qse`

FEADD: `lstatic mode shapes\Engine Mount Plate\FEA\zcomengreplate.odb`

Event Definition

FEA Step	FEA Frame	Scale Factor	Model	Amplitude
1. Normal Modes Mode 1. Value = 23066. Freq = 24.172 (cycles/time)(1)	1001	1.0	<TFU File>	bump1_RD_200_t
2. Normal Modes Mode 2. Value = 29630. Freq = 26.930 (cycles/time)(2)	1002	1.0	<TFU File>	bump1_RD_200_t
3. Normal Modes Mode 3. Value = 65253. Freq = 40.656 (cycles/time)(3)	1003	1.0	<TFU File>	bump1_RD_200_t
4. Normal Modes Mode 4. Value = 8.98828E+05. Freq = 150.89 (cycles/time)(4)	1004	1.0	<TFU File>	bump1_RD_200_t
5. Normal Modes Mode 5. Value = 9.62108E+05. Freq = 156.11 (cycles/time)(5)	1005	1.0	<TFU File>	bump1_RD_200_t

Step: Normal Modes Increment Scale: 1. Amplitude: bump1_RD_200_t=>Normal Modes Mode 1. Value = 23066

Results Generation: Include Pre-Load Add Pre-Load Subtract Pre-Load Pre-Load State

Amplitude Options: Plot Legend Y Lin Y Log X Lin X Log

Font Size: 10

Help Options

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QSE File with MPFs





Equivalent Static Modes

3. Create a new FEA model with design changes.

Write the input deck for the FEA solver (e.g. INP, BDF, DAT, FEM)

The screenshot shows the Abaqus/CAE 2024 interface. The main window displays a 3D model of a mechanical part, likely a bracket or support, with a green mesh overlay. The model is viewed from an isometric perspective. The software's menu bar and toolbars are visible at the top. A Notepad window is open in the foreground, displaying the input deck for the FEA solver. The input deck contains the following text:

```
1 *Heading
2 ** Job name: slotted Model name: bump1-Slotted-QSE
3 ** Generated by: Abaqus/CAE 2024
4 *Preprint, echo=NO, model=NO, history=NO, contact=NO
5 **
6 **
7 ** PART INSTANCE: MY2015_FRAME_ANALYSIS-1
8 **
9 *Node
10 1, -9.58904266, 1.39310694, -15.125
11 2, -9.58904266, 1.39310694, -28.625
12 3, -9.83374596, 1.54900002, -28.625
13 4, -9.83374596, 1.54900002, -15.125
14 5, 9.83374596, 1.54900002, -15.125
15 6, 9.83374596, 1.54900002, -28.625
16 7, 9.58904266, 1.39310694, -28.625
17 8, 9.58904266, 1.39310694, -15.125
18 9, 10., 1.54900002, -28.625
19 10, 10., 1.35000002, -28.8239994
20 11, 9.83374596, 1.35000002, -28.8239994
21 12, 9.55682278, 0.853137314, -28.8239994
22 13, 9.3764677, 0.937238336, -28.625
23 14, 9.76939774, 1.30900586, -28.8239994
24 15, 9.5067997, 0.756982625, -28.8239994
25 16, 9.33440876, 0.85639149, -28.625
26 17, -9.55682278, 0.853137314, -28.8239994
27 18, -9.3764677, 0.937238336, -28.625
28 19, -9.33440876, 0.85639149, -28.625
29 20, -9.5067997, 0.756982625, -28.8239994
```





Equivalent Static Modes

4. Launch the Equivalent Static Modes tool from the Tools menu. In the Equivalent Static Modes form:

- Select the TLD file from step 1
- Click the Generate Acceleration Fields button
- Select the input deck from step 3
- Click the Generate Equivalent Static Modes button

Wolf Star Technologies True-Tools
True-Suite Cloud Draw Style View Tools

Results Mgr

State: Normal Modes:Incret

Contour Result: No selection

Contour Style: Contour

Vector Result: No selection

Filter: Contour Vector

Data Type: [Empty]

Data Component: [Empty]

Data Location: [Empty]

Single Series Options

Tools

- Reset Window Layout
- Measure Utilities
- Protractor
- Ruler
- Node Info
- Element Info
- All Cross-Plots
- Max QSE Loads to CSV
- Update FEA Path
- CAE2VTFx
- Generate Random Strains on TLD
- Gauge Transform Wizard
- Equivalent Static Modes**
- Print Current Working Dir
- Change Working Directory
- Open Scratch Directory
- Clean Up Scratch Files
- Edit Config
- Get Host ID
- Update True-Load Software
- Check License Status
- 3rd Party Plugins
- True-Tools Help
- About

Equivalent Static Modes

Foundational TLD File: [Red dashed box] mode shapes/Engine Mount Plate/TLD Files/zoomPlateModal_Tim_v2_Nudge.tld

Foundational Modal FEA DB: cratch\MSOE\static mode shapes/Engine Mount Plate/FEA/zoomengineplate.odb ✓

Acceleration Field PKL: mode shapes/Engine Mount Plate/FEA/zoomengineplate-accField.pkl ✓

New Mesh FEA Input Deck: [Red dashed box] D:/scratch/MSOE/static mode shapes/Engine Mount Plate/FEA/slotted.inp

New Mesh Locations PKL: \E/static mode shapes/Engine Mount Plate/FEA/slotted-centroids.pkl ✓

FEA Include Deck: SOE/static mode shapes/Engine Mount Plate/FEA/slotted-include.inp ✓

FEA Bulk Data Deck: [Red dashed box] static mode shapes/Engine Mount Plate/FEA/slotted-staticModes.inp ✓

Generate Acceleration Fields

Generate Equivalent Static Modes

Results Mgr Group Mgr Part Mgr XY Mgr

Console Output

```
14:26:57: 1004 (1 of 5) 20.0% Elapsed time: 0.630 s Remaining time: 2.519 s
*Load Case, name=Equiv Static Mode #1004: Mode 4: Freq: 150.89 (Hz)
14:26:57: 1005 (1 of 5) 20.0% Elapsed time: 0.822 s Remaining time: 3.288 s
*Load Case, name=Equiv Static Mode #1005: Mode 5: Freq: 156.11 (Hz)
Target Deck D:/scratch/MSOE/static mode shapes/Engine Mount Plate/FEA/slotted-staticModes.inp updated with *INCLUDE
Include Deck: D:/scratch/MSOE/static mode shapes/Engine Mount Plate/FEA/slotted-include.inp written.
-----
New Mesh Locations PKL found: D:/scratch/MSOE/static mode shapes/Engine Mount Plate/FEA/slotted-centroids.pkl
FEA Include Deck found: D:/scratch/MSOE/static mode shapes/Engine Mount Plate/FEA/slotted-include.inp
FEA Bulk Data Deck found: D:/scratch/MSOE/static mode shapes/Engine Mount Plate/FEA/slotted-staticModes.inp
Generating Equivalent Static Modes Complete
-----
```

Deck created to solve for equivalent static modes.





Equivalent Static Modes

5. Step 4.d creates a FEA input deck ending with “staticModes”.

Solve this input deck.

```
C:\Windows\System32\cmd.e x + v
Microsoft Windows [Version 10.0.26200.7623]
(c) Microsoft Corporation. All rights reserved.

D:\scratch\MSOE\static mode shapes\Engine Mount Plate\FEA>abaqus j=slotted-staticModes cpus=8 interactive
Analysis initiated from SIMULIA established products
Abaqus JOB slotted-staticModes
Abaqus 2025.HF6
Abaqus License Manager checked out the following licenses:
Abaqus/Foundation checked out 7 tokens from Flexnet server WST12.
<61 out of 68 licenses remain available>.
Begin Analysis Input File Processor
2/9/2026 2:34:15 PM
Run pre.exe
2/9/2026 2:34:22 PM
End Analysis Input File Processor
Begin Abaqus/Standard Analysis
2/9/2026 2:34:22 PM
Run standard.exe
2/9/2026 2:34:30 PM
End Abaqus/Standard Analysis
Begin SIM Wrap-up
2/9/2026 2:34:31 PM
Run SMASimUtility.exe
2/9/2026 2:34:31 PM
End SIM Wrap-up
Abaqus JOB slotted-staticModes COMPLETED

D:\scratch\MSOE\static mode shapes\Engine Mount Plate\FEA>
```





Equivalent Static Modes

6. Open the QSE file from step 2. It is recommended to perform a File Save As (1). In the True-QSE GUI, point the FEA DB to the FEA DB (2) generated in Step 5. Note, a slight anomaly in the True-QSE GUI. It is best to now Close and Save the QSE file (3) and then re-open True-QSE (4). This process heals the FEA Step names to the new quasi-static equivalent static mode names.

FEA: Step	FEA: Frame	Scale Factor	Model	Amplitude
1-EquivStaticModes.Load Case: EQUIVSTATICMODE#1001:MODE1:FREQ:24.172(HZ)-(1)	1001	1.0	<TFU File>	bump1_RD_Z0D_tfu=>Normal M
2-EquivStaticModes.Load Case: EQUIVSTATICMODE#1002:MODE2:FREQ:26.930(HZ)-(2)	1002	1.0	<TFU File>	bump1_RD_Z0D_tfu=>Normal M
3-EquivStaticModes.Load Case: EQUIVSTATICMODE#1003:MODE3:FREQ:40.656(HZ)-(3)	1003	1.0	<TFU File>	bump1_RD_Z0D_tfu=>Normal M
4-EquivStaticModes.Load Case: EQUIVSTATICMODE#1004:MODE4:FREQ:150.89(HZ)-(4)	1004	1.0	<TFU File>	bump1_RD_Z0D_tfu=>Normal M
5-EquivStaticModes.Load Case: EQUIVSTATICMODE#1005:MODE5:FREQ:156.11(HZ)-(5)	1005	1.0	<TFU File>	bump1_RD_Z0D_tfu=>Normal M

Once this is done, the QSE file can be used to generate any response on the structure, generate durability runs or even create an Operating Deflection Shape. **This is all done WITHOUT additional Eigenmodes or new MPF Calculations!!!!**





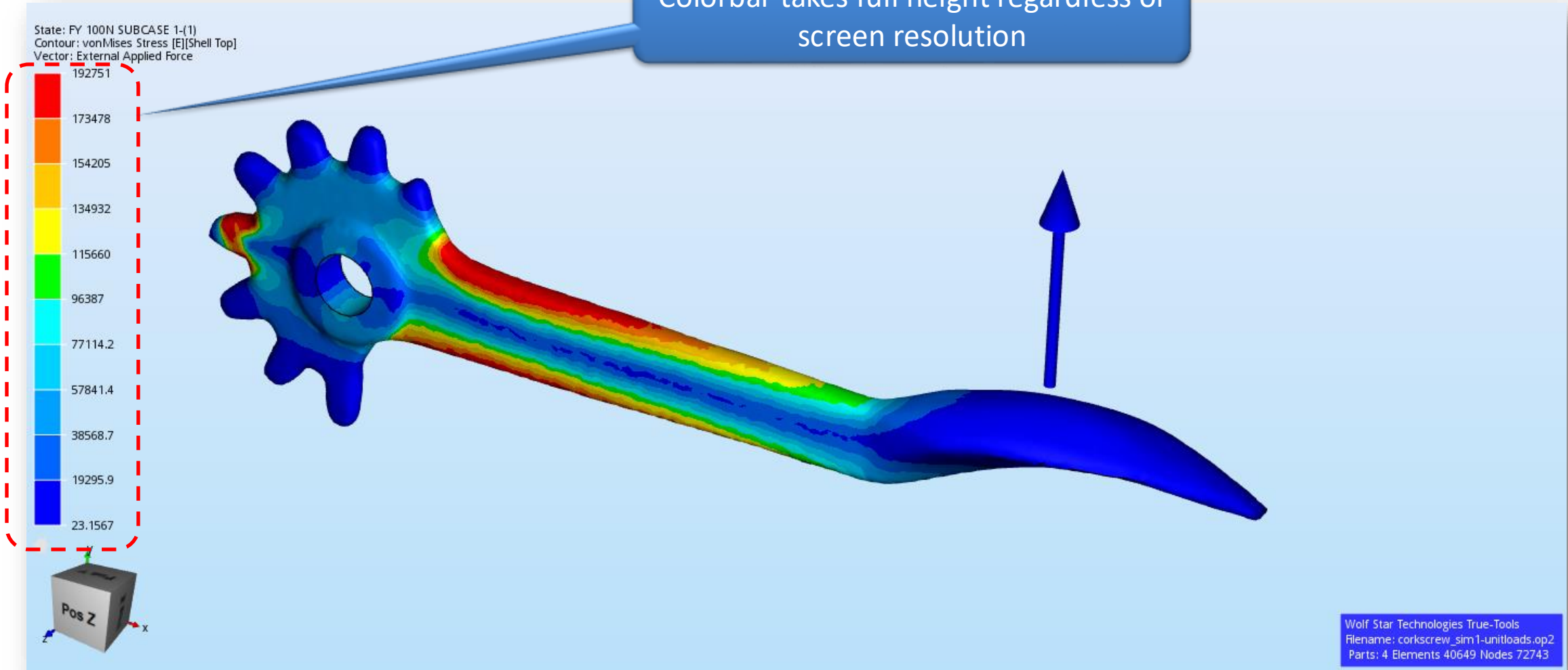
Color Bar Height





Color Bar Height

Colorbar takes full height regardless of screen resolution



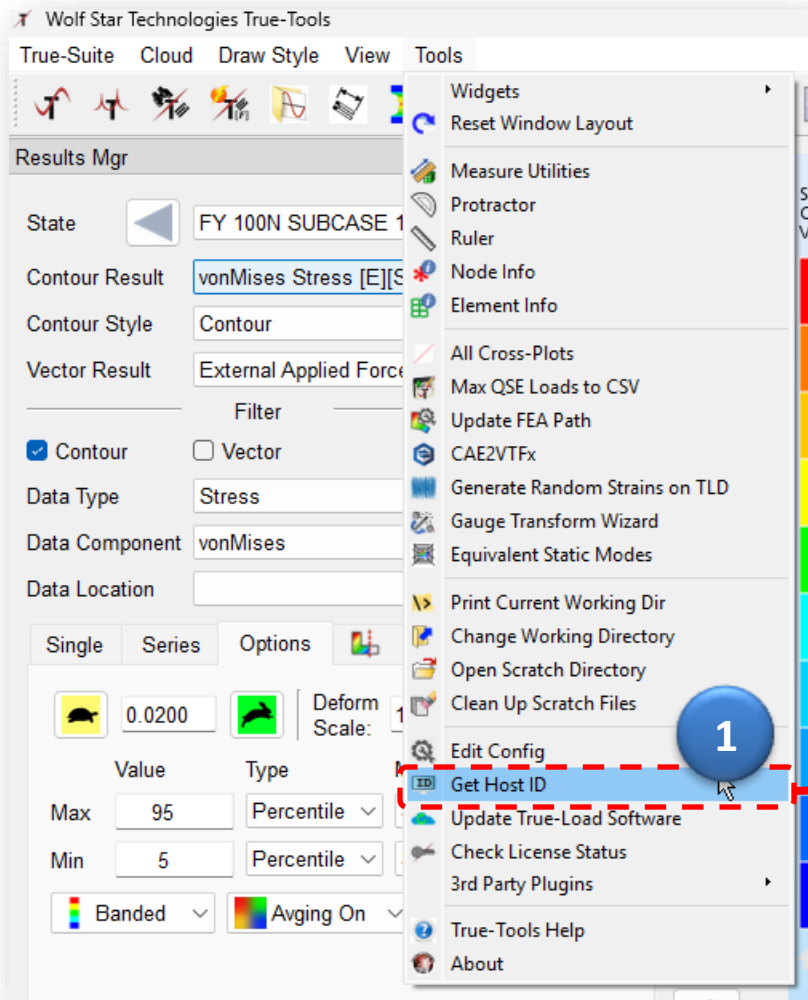
Get Host ID





Get Host ID

Tools → Get Host ID



```
Console Output

      C l e a n i n g   o l d   s c r a t c h   f i l e s . . .
Legacy format:

Old process(es):
=====
D:/scratch/Cork Screw/FEA/corkscrew_sim1-unitloads.op2
Initializing 0 Native FEA Groups...
Loading State ...
Prepping Part Indices...
Loading 0 Native FEA Groups...
 0.000 s: Calculating Percentiles for State 1000
 0.050 s: Percentile Calculation Finished
Saving to clipboard...
Image copied to clipboard
=====
MAC:C4:FF:99:4E:89:04
=====
```



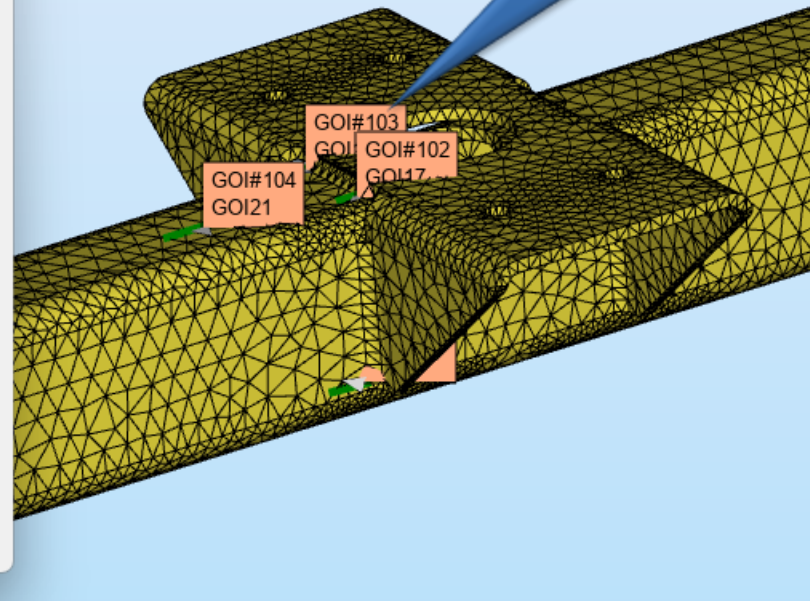
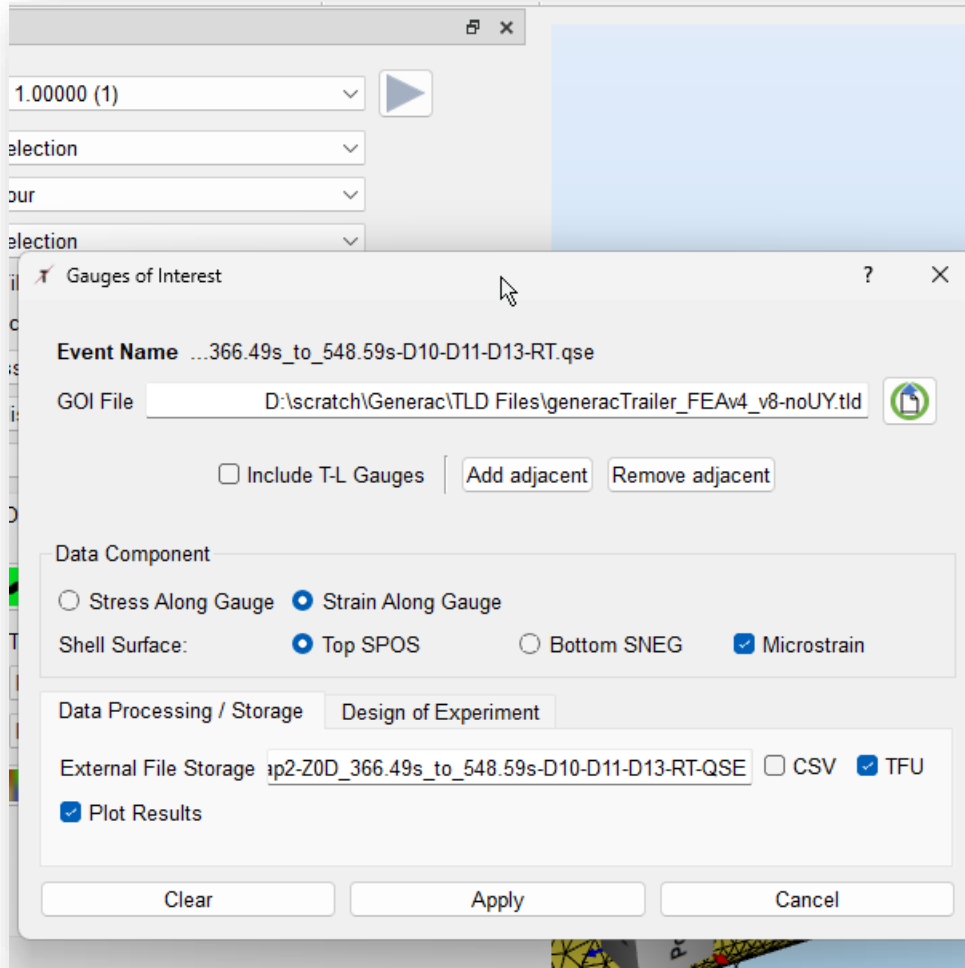
GOI Labels





GOI Labels

GOIs in QSE now shown with labels only.
Previously these labels were verbose and very large.





Hoops Envision





Hoops Envision

3D visualization within True-Load is powered by Hoops Envision from Tech Soft 3D

Console Output

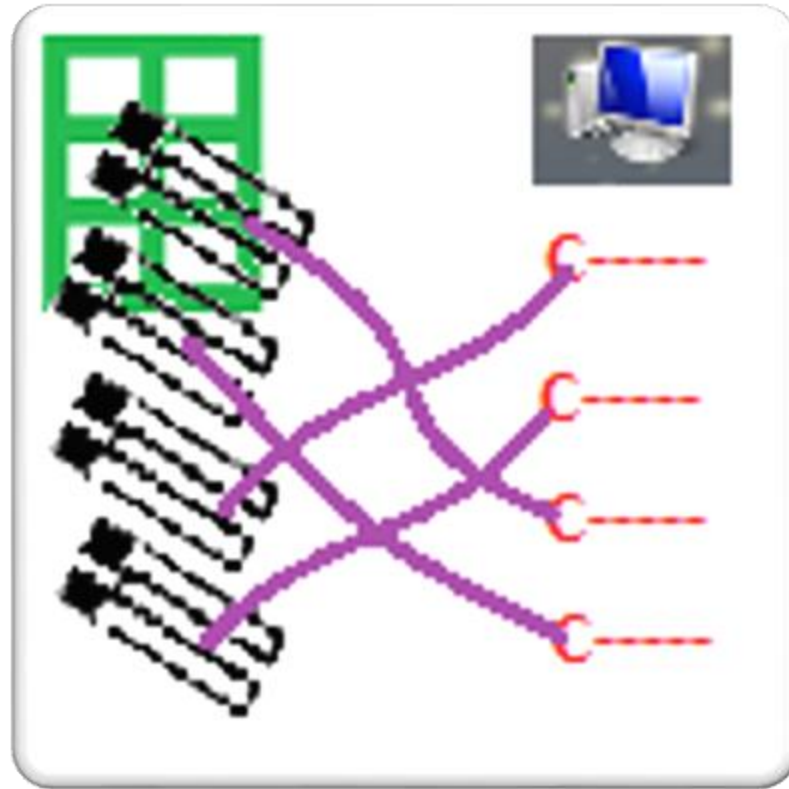
```
=====
W o l f   S t a r   T e c h n o l o g i e s ,   L L C
    True-Tools Application Suite
    Copyright(c) 2010 -- ALL RIGHTS RESERVED
    True-Suite Version: Hoops Envision 2026-02-12
=====
```

```
Powered by Tech Soft 3D Hoops Envision 5.1.0
```

Ceetron is now Hoops Envision



Post-Test Report: Map File Name





Post-Test Report: Map File Name

Post-Test Report: Input and Output Files

Map File (.map)

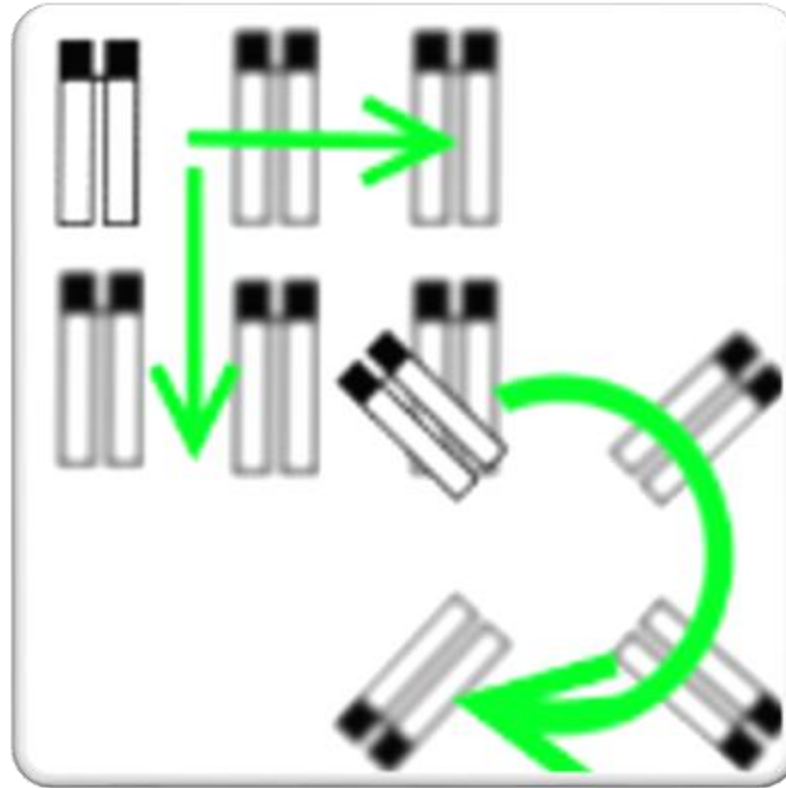
*True-Load HTML file from Post-Test
Report Written: Mon Nov 24 11:06:34 2025*

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

<u>Required Input Files</u>	<u>Output Files</u>
True-Load File: [blurred]	Quasi-Static Event (QSE) File: [blurred]
Gauge Map File: [blurred]	True-Function File (TFU) File: [blurred]
Software Version: [blurred]	HTML Report File: [blurred]
Strain Data File: [blurred]	Simulated / Measured Strain File: [blurred]
FEA DB File: [blurred]	Number of Gauges: [blurred]
VTFx File: [blurred]	Condition Number of eMat: [blurred]
Shells Only: [blurred]	



Pattern Gauges: Drag Select





Pattern Gauges: Drag Select

Select multiple rows with click-and-drag.

Before the user had to check each gauge one by one.

Click

Sel	Gauge
<input checked="" type="checkbox"/>	G#1: Part 0:Ele#240 Ang 75.00
<input type="checkbox"/>	G#2: Part 1:Ele#19 Ang 90.00
<input type="checkbox"/>	G#3: Part 1:Ele#16 Ang 72.34
<input type="checkbox"/>	G#4: Part 2:Ele#16 Ang 90.00
<input type="checkbox"/>	G#5: Part 2:Ele#19 Ang 90.00
<input type="checkbox"/>	G#6: Part 0:Ele#71 Ang 0.00

Drag

Release

Sel	Gauge
<input checked="" type="checkbox"/>	G#1: Part 0:Ele#240 Ang 75.00
<input checked="" type="checkbox"/>	G#2: Part 1:Ele#19 Ang 90.00
<input checked="" type="checkbox"/>	G#3: Part 1:Ele#16 Ang 72.34
<input checked="" type="checkbox"/>	G#4: Part 2:Ele#16 Ang 90.00
<input checked="" type="checkbox"/>	G#5: Part 2:Ele#19 Ang 90.00
<input type="checkbox"/>	G#6: Part 0:Ele#71 Ang 0.00

Rectangular Pattern

Copies Offset Vector

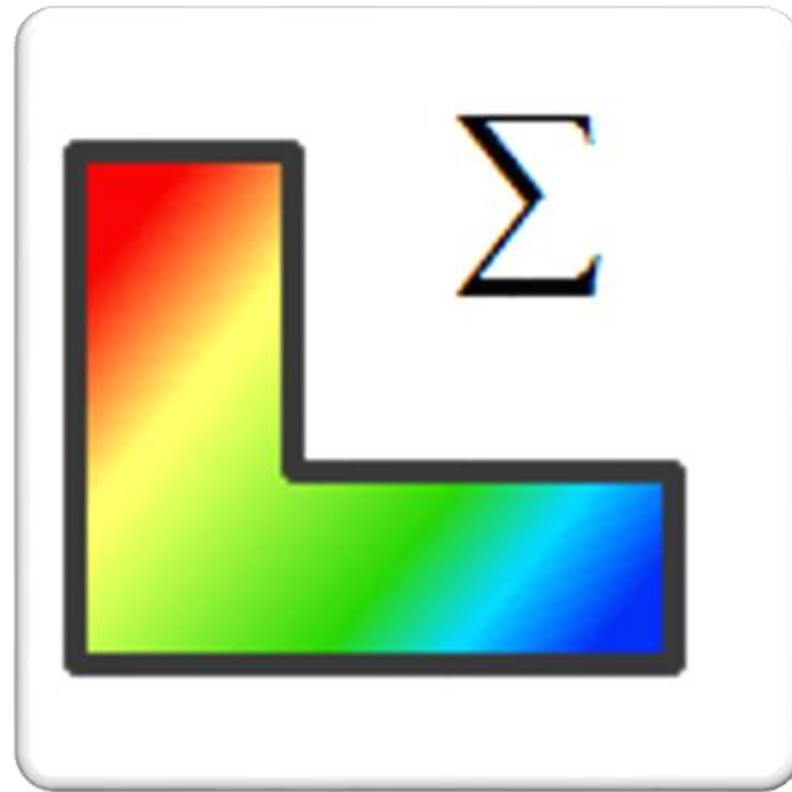
Dir 1 2 1.0

Dir 2 2 1.0

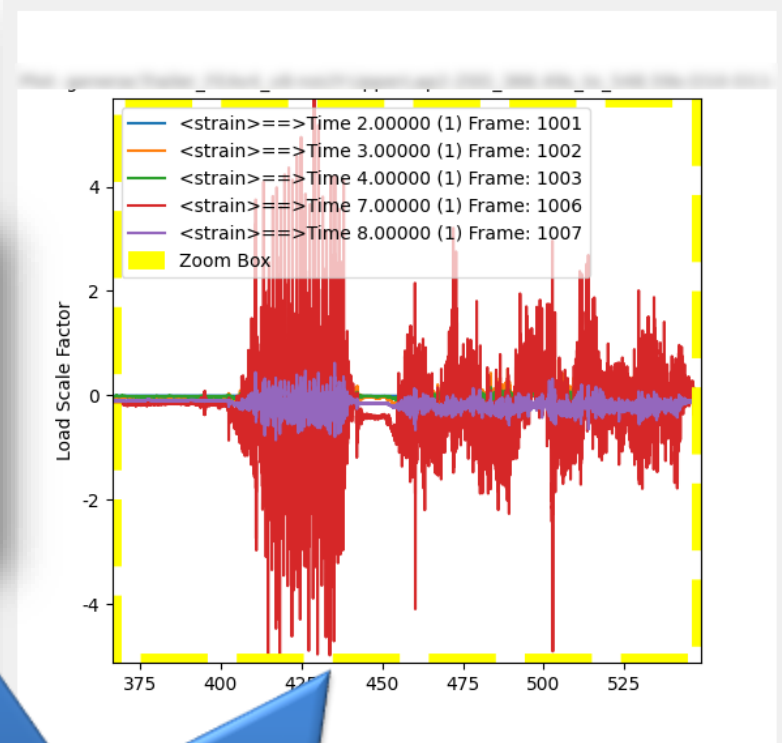
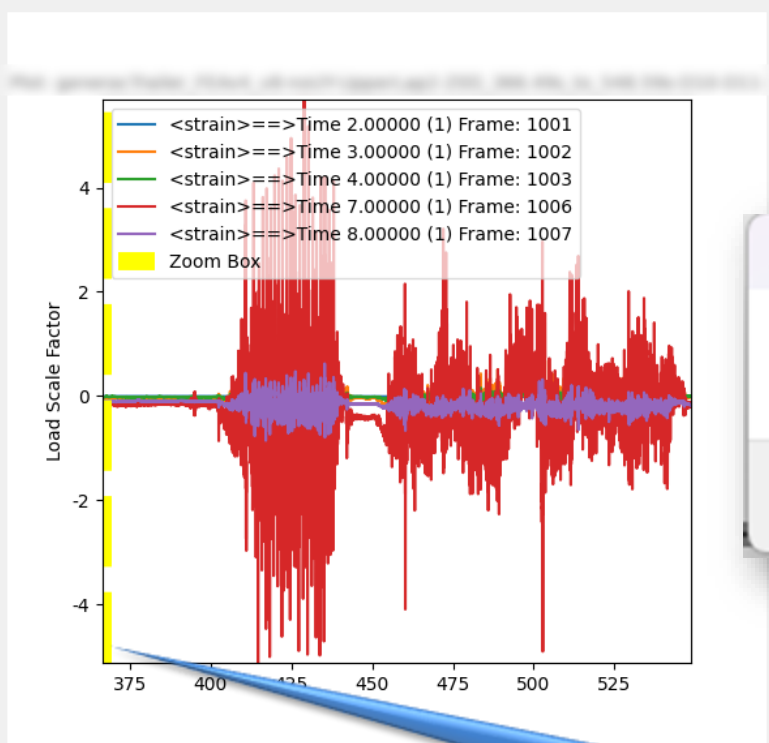
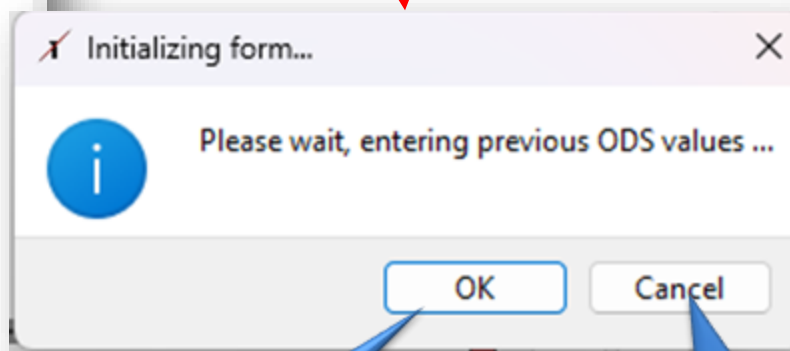
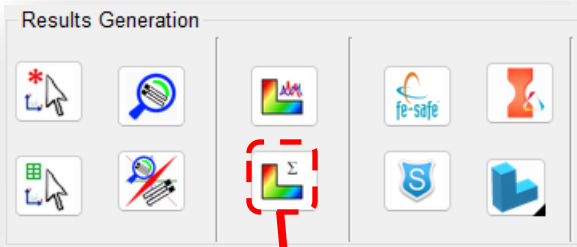
Apply



ODS Load Old Limits



ODS Load Old Limits



OK or Wait retrieves previous time limits

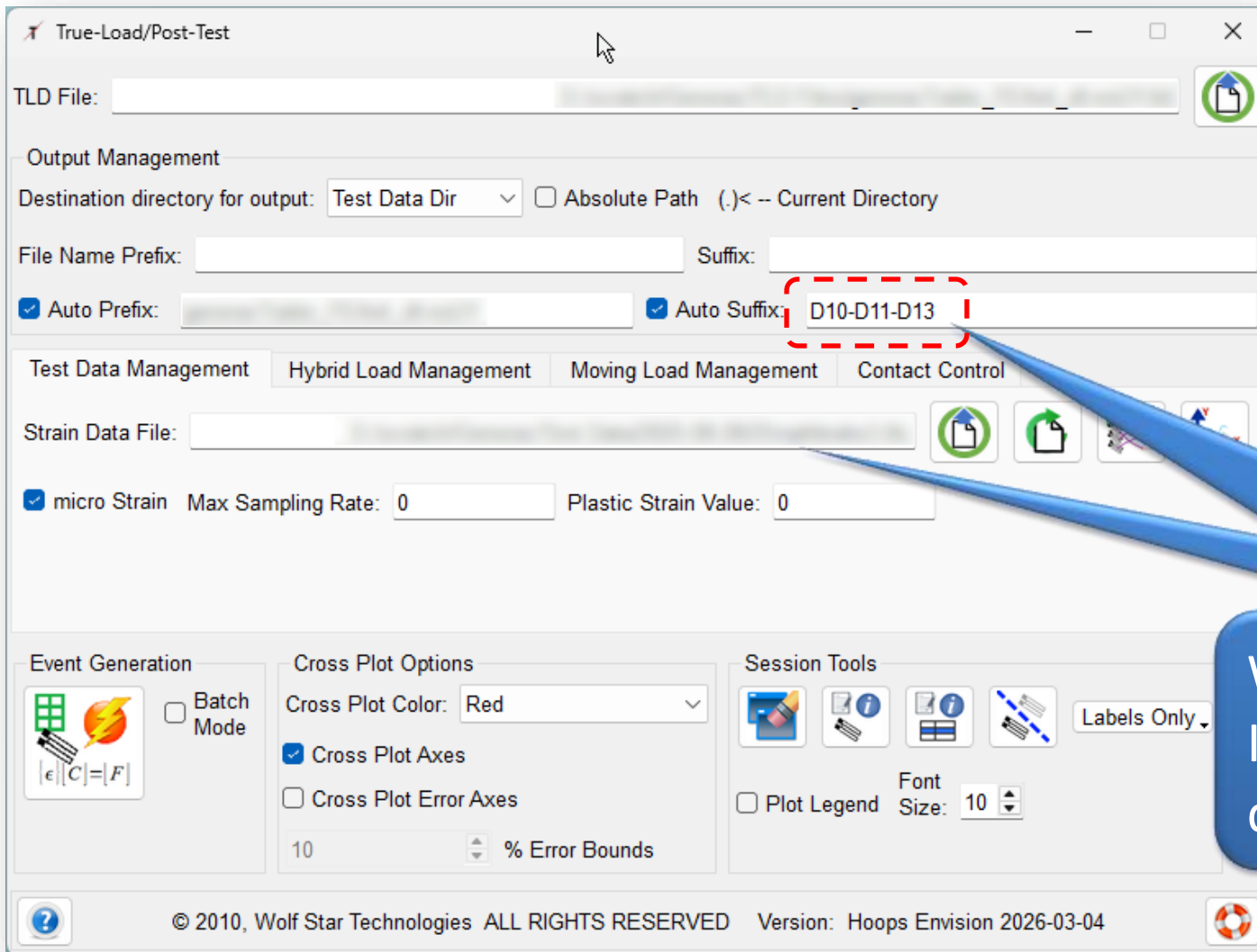
Cancel sets limits to full time domain

Post-Test – Drop Gauges





Post-Test – Drop Gauges



When loading strain data:
If MAP file exists, gauges are automatically
dropped

