# CONVERGE Studio Overview

What is CONVERGE Studio?

- A graphical pre- and post-processor that is included with the CONVERGE solver

- Windows or Linux

- Contains modules that can be accessed by the buttons in the lower left corner
  - o *Case Setup*
  - o *Chemistry*
 - o *Line Plotting*
  - o *Post-Processing 3D*
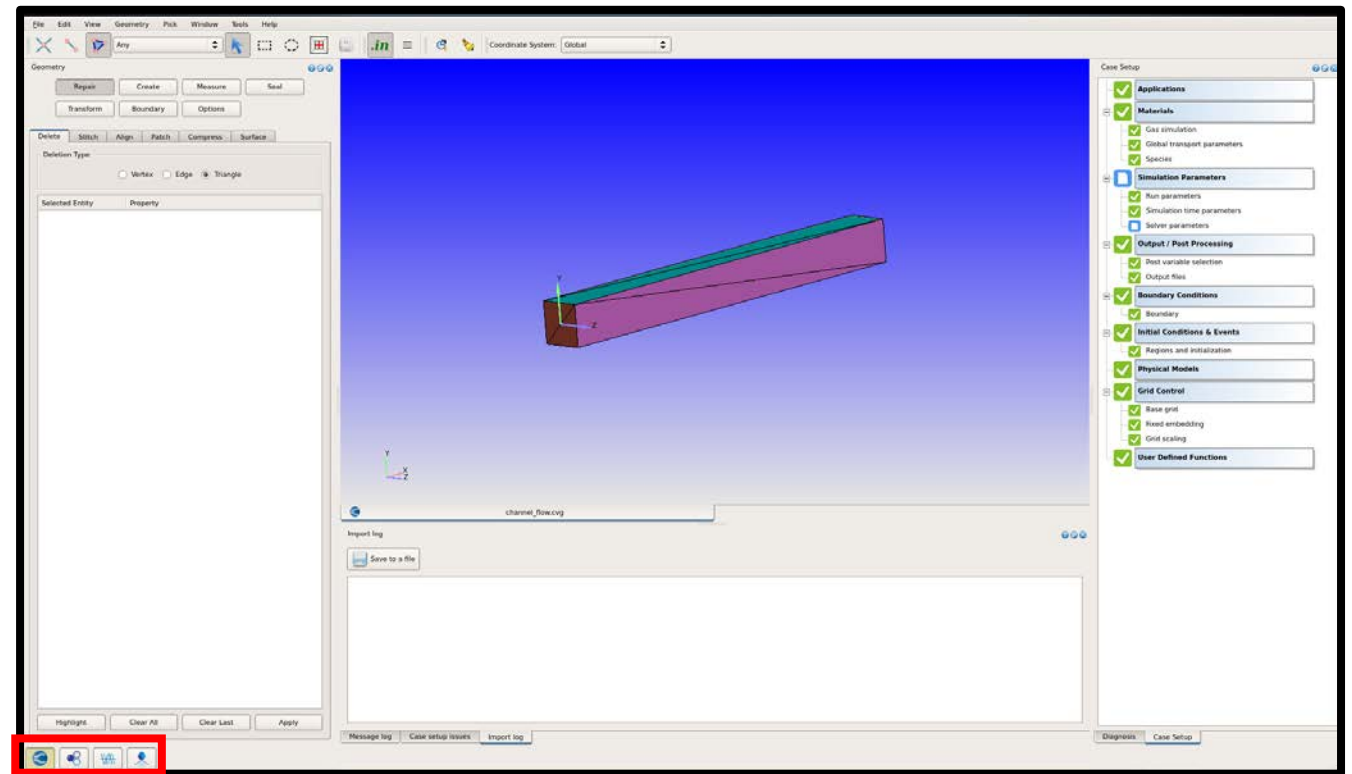
The *Case Setup* Module (1/3)

- Use the *Case Setup* module to set up and repair the surface geometry and to configure the input files

- Because the CONVERGE solver creates the mesh automatically at runtime, you do not need to create a mesh

- Save your project in this module as a **.cvg* file (a CONVERGE Studio-specific format)

 o CONVERGE and other programs are unable to open **.cvg* files
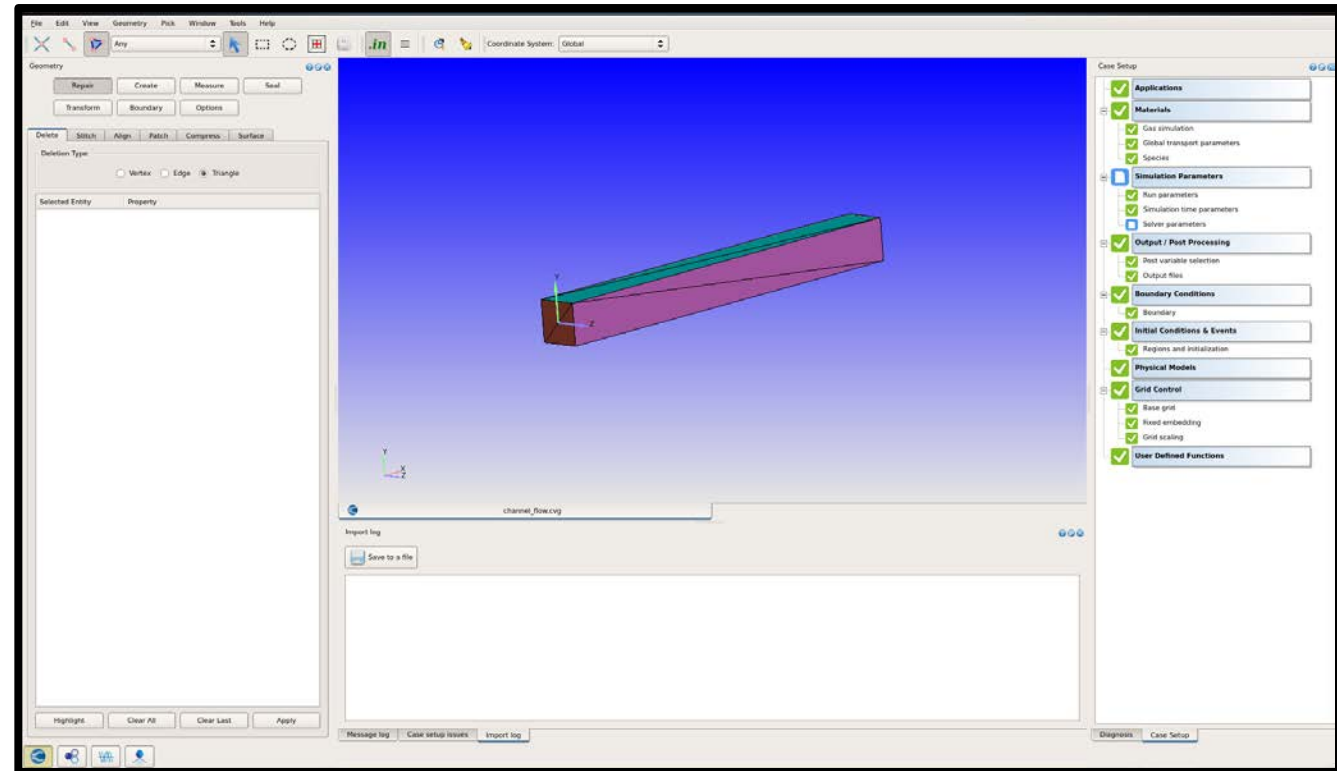
The *Case Setup* Module (2/3)

- Use the tools in the *Geometry* dock to prepare the geometry
  - Create or delete entities
  - Resize or move portions of the surface
  - Repair surface defects
 - Flag boundaries
  - Etc.
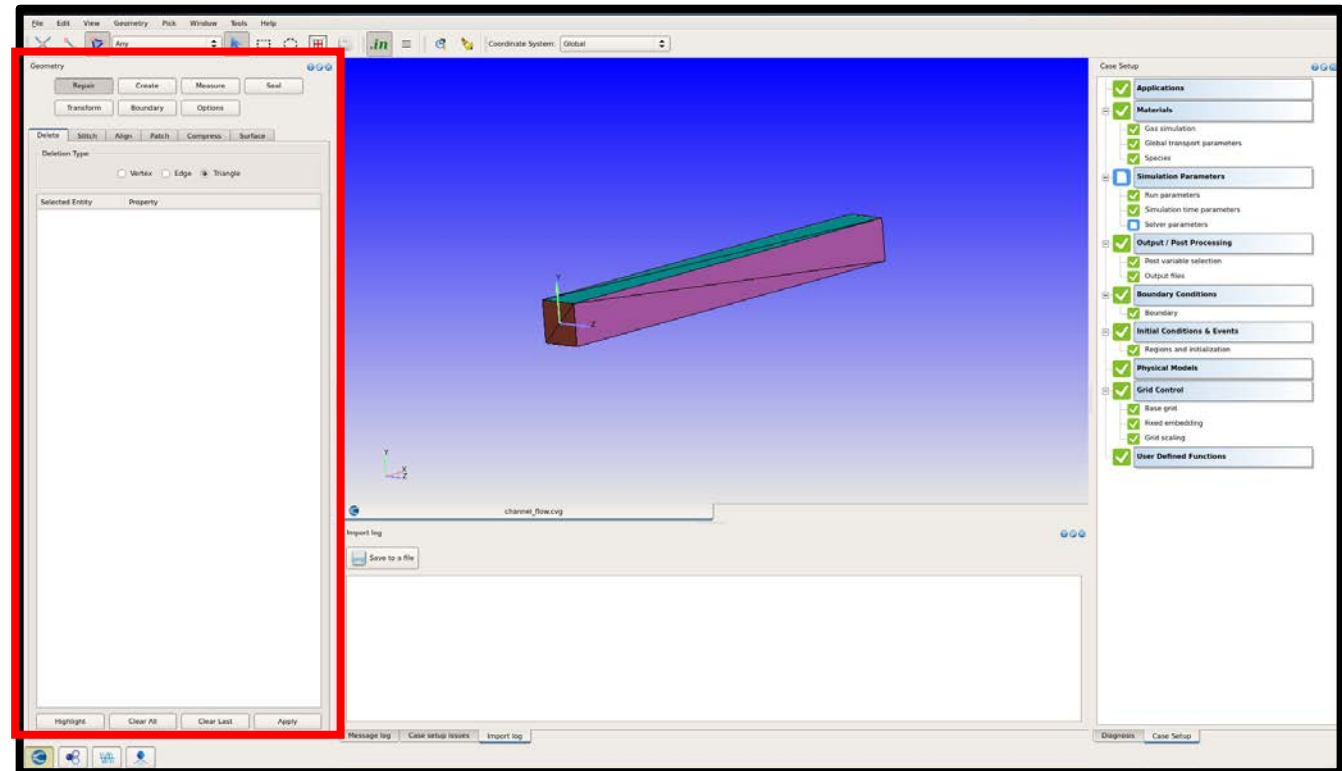
The *Case Setup* Module (3/3)

- Work through the *Case Setup* dock to set up the case
    o Select physical models
    o Define boundary conditions
    o Set up grid control options
    o Specify post-processing parameters
    o Etc.
- Export input files, including the geometry file, to your Case Directory
- The CONVERGE solver will read the input files
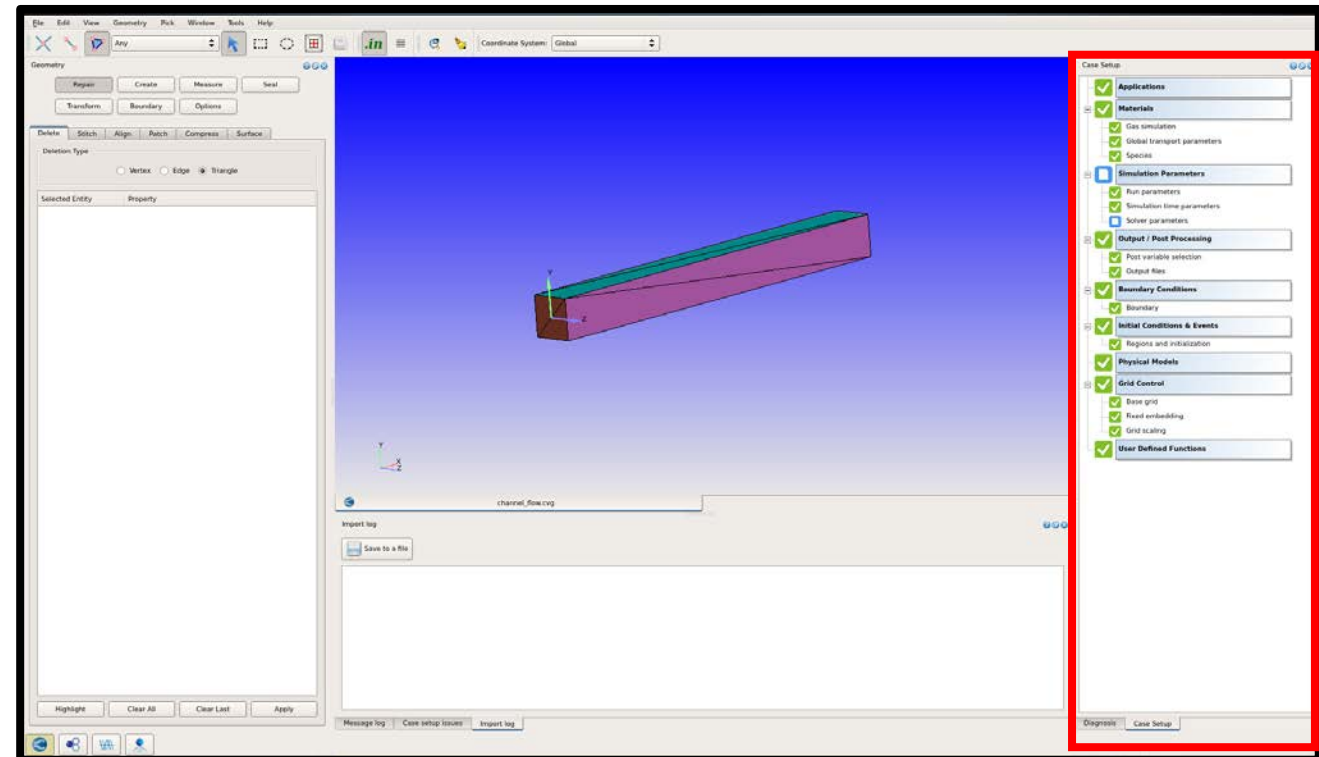
The *Chemistry* Module

- Use the *Chemistry* module to set up and run various tools
  - Zero- and one-dimensional chemistry tools
  - Mechanism reduction
  - Mechanism merge
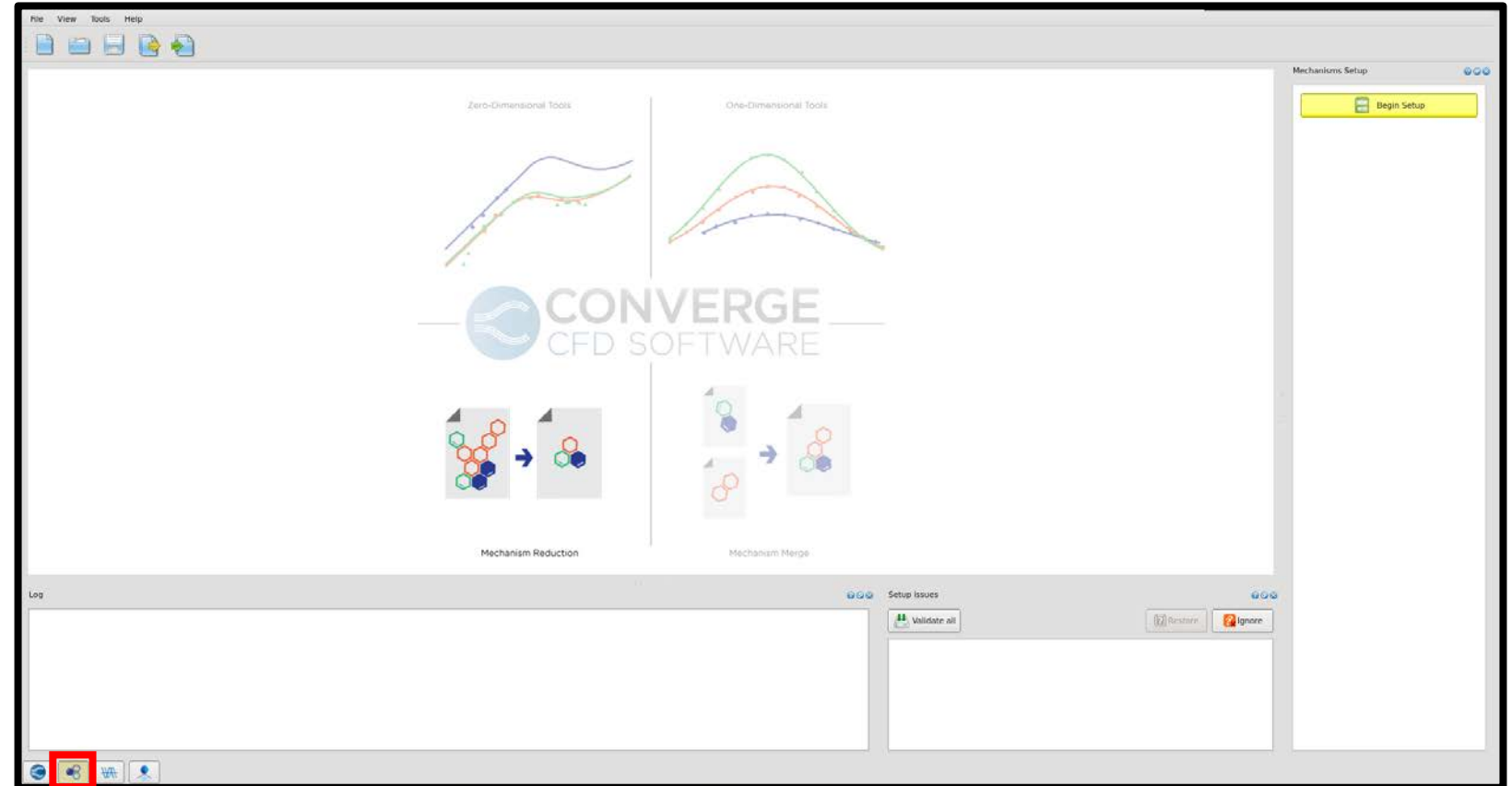
The *Line Plotting* Module (1/2)

- Use the *Line Plotting* module to create and export 2D plots of simulation data

- This module reads data from the CONVERGE *.out files or any other column-based text files

- Save your work in this module as a *.psp file
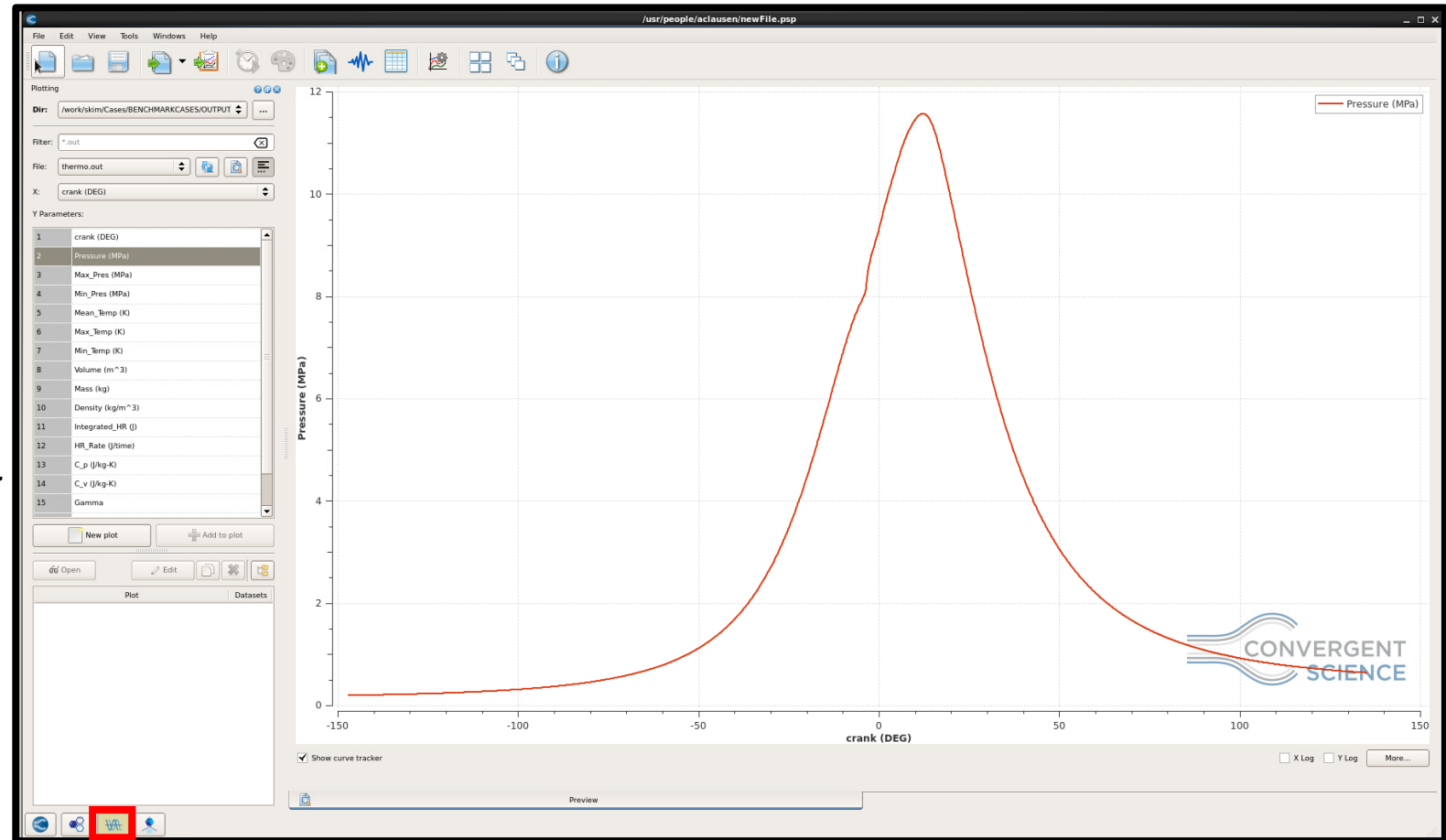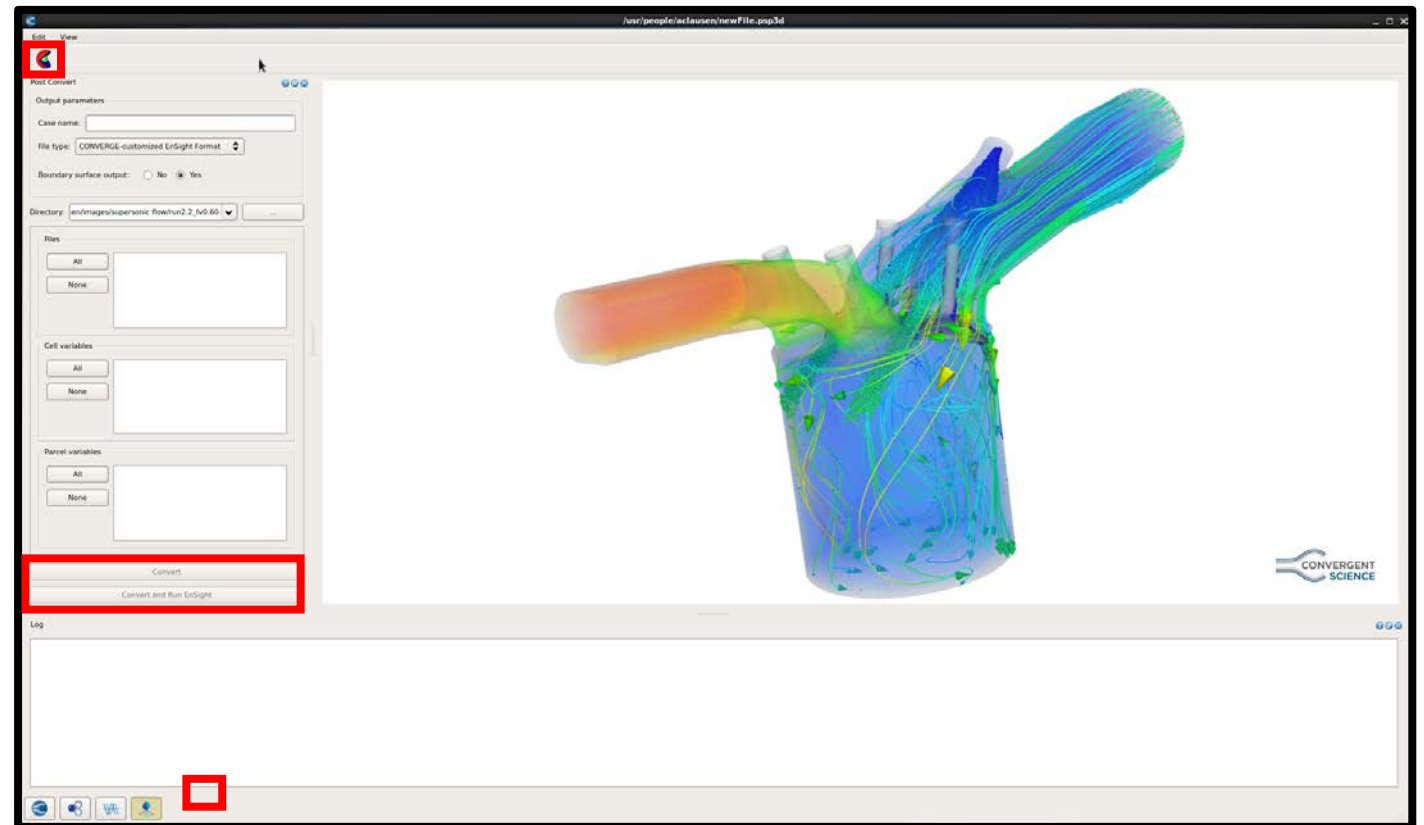
The *Line Plotting* Module (2/2)

- The *Line Plotting* module contains helpful features you can initiate
  - Updates a plot with new data while the simulation is running
  - Creates multi-directory plots to compare data sets from different simulations on the same plot
  - Combines data sets from multiple output files (*e.g.,* from several restarts) to create plots
  - Calculates the FFT, apparent heat release rate, and engine work
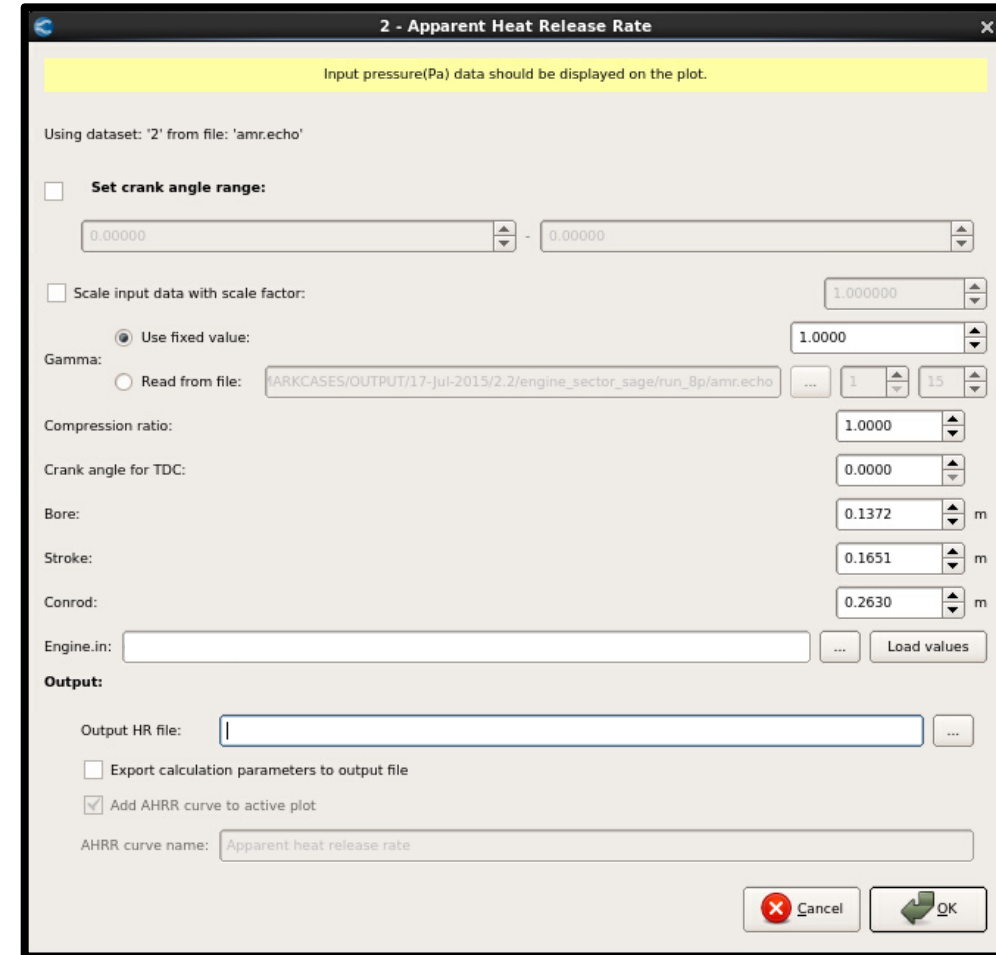
The *Post-Processing 3D* Module

- Use the <u>Convert</u> button to post convert binary output files

- Launch EnSight from *Post-Processing 3D* module

  - Note that you can use other 3D visualization programs such as GMV, FieldView, Tecplot, or Paraview

THANK YOU!

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