Advanced Simulation Summit

cadmicro

DASSAULT SYSTEMES

What Was New in Simulation

cadmicro

DASSAULT SYSTEMES

SIMULATION

Linkage Rod Connector*

Model the behavior of a connecting rod with rigid, pivotal and/or spherical end conditions with this new virtual connector

- Choose from several different cross sections
- Apply dimensions and materials
- Solve for shear, axial and bending loads

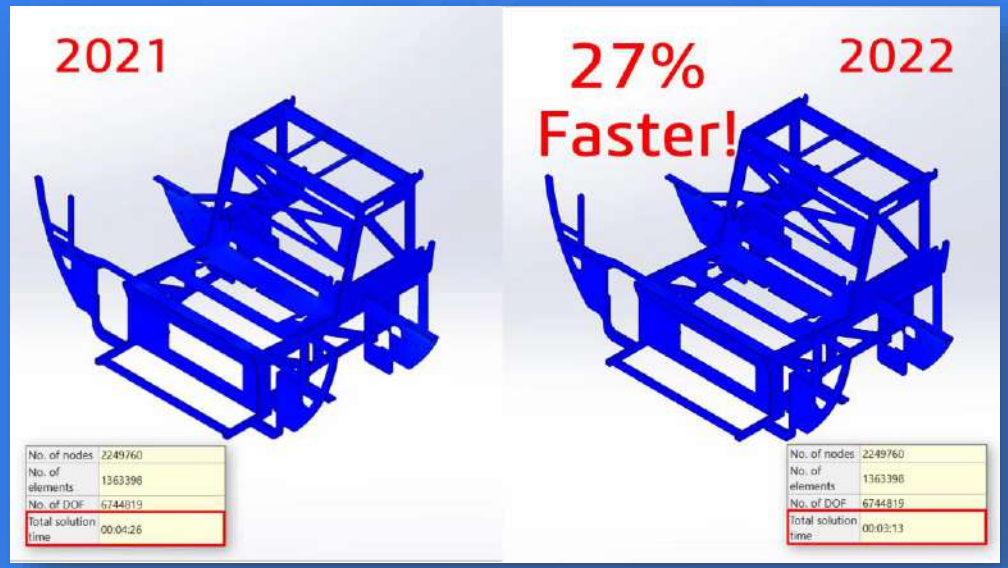
Blended Curvature Based Mesher

The Blended Curvature Based (BCB) mesher is now default for SOLIDWORKS Simulation

- Mesh controls for BCB mesher can now accept mesh coarsening and/or refining outside of the global BCB size range

Improved Performance

Solve times for studies with bonded contacts and virtual connectors are reduced by up to 30%



*Available with SOLIDWORKS Simulation Professional and SOLIDWORKS Simulation Premium.

SOLIDWORKS

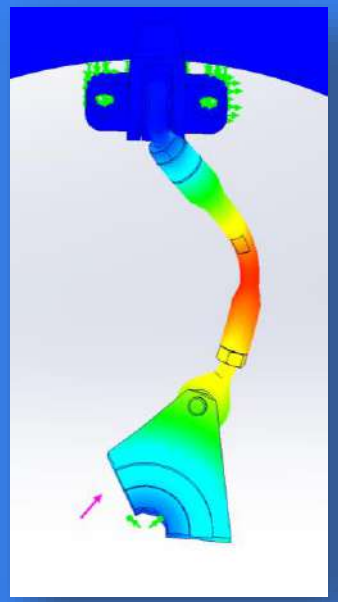
Automatic Solver Selection

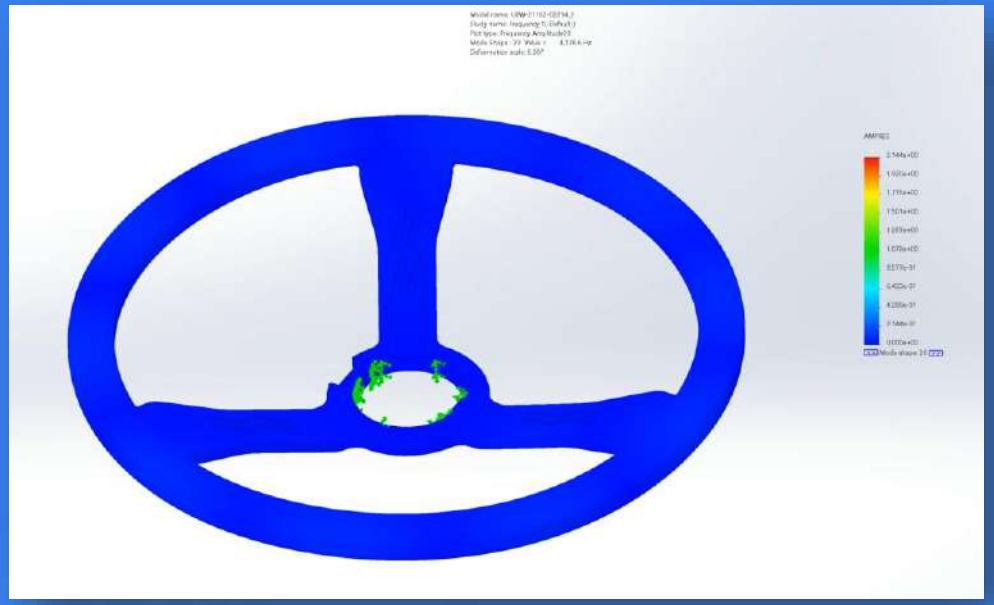
Automatic Solver selection is now available for the following study types:

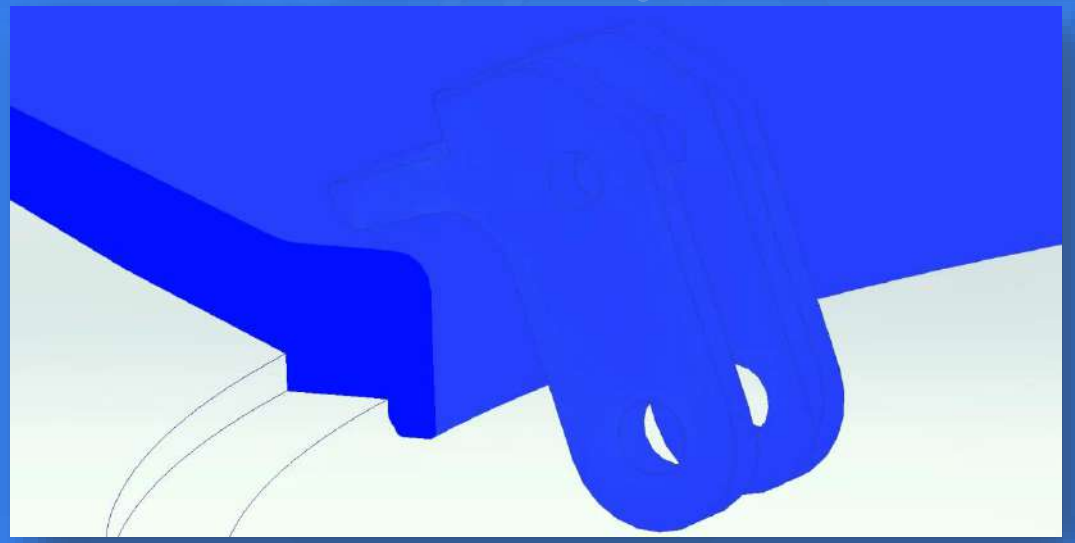
- Frequency
- Buckling
- Nonlinear

Beam Shear Factor Calculation

Beam Shear Factor now considers the beam's material and section shape







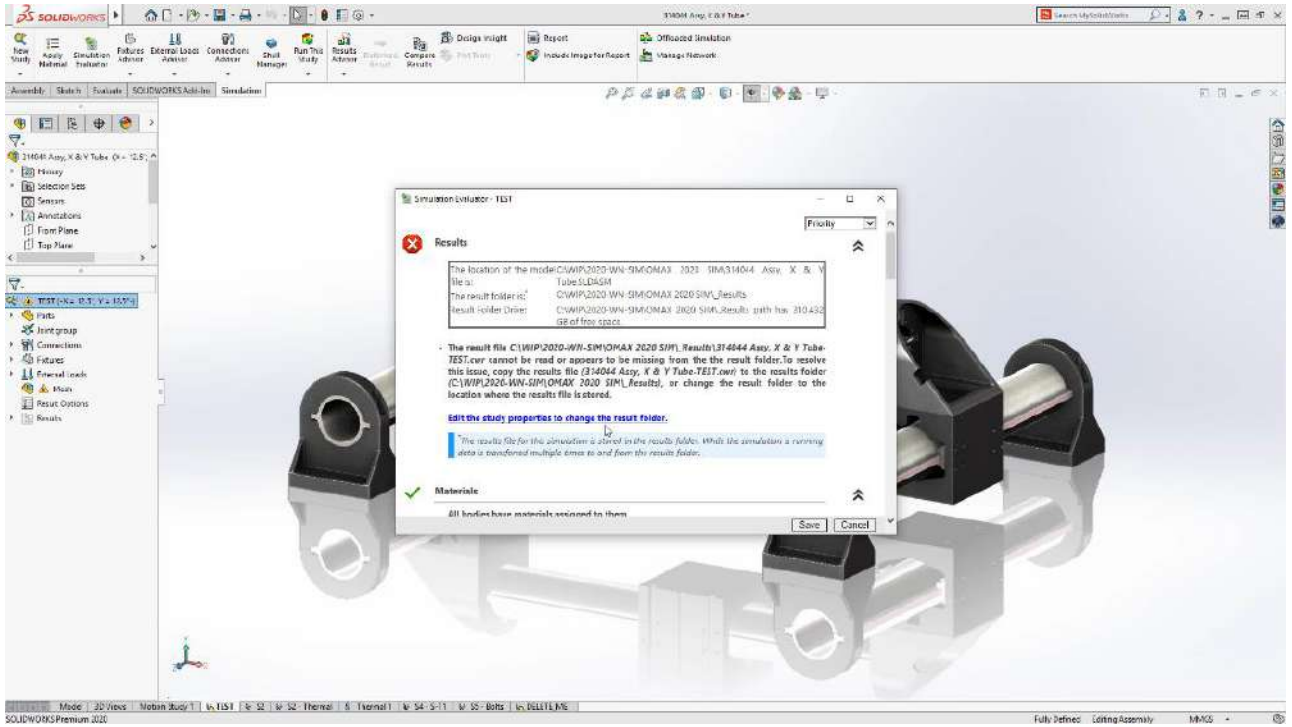
Simulation

- Faster Contact Calculation
- Contact Stabilization
- Geometry Correction for Contacts
- Efficient Robust Meshing
- Mesh Diagnostics
- Automatic Solver Selection
- Conventional Contact Terminology

SIMULATION

User Interface

- SHIFT+C to Collapse Tree
- SIMULATION Evaluator
- Delete Study without loading



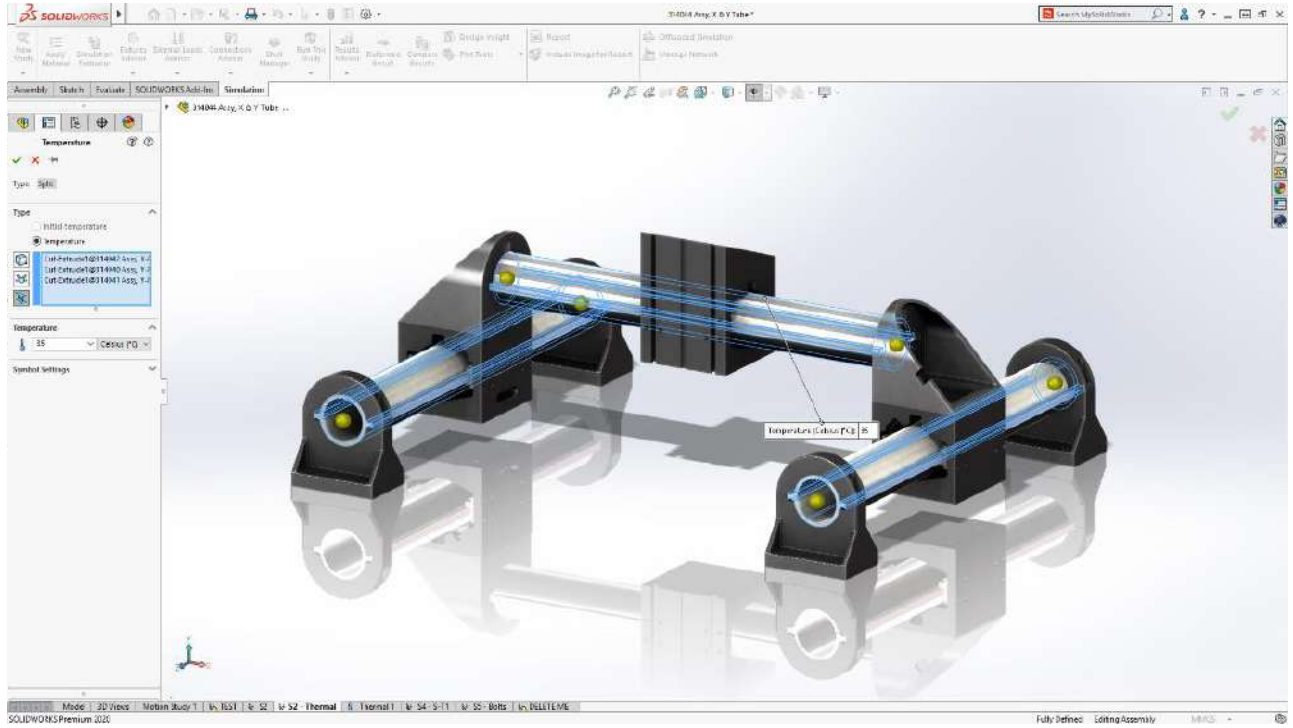
Simulation Setup made faster

SIMULATION

Beam Elements with Thermal Conditions

- Static Study with Temperature
- Thermal studies with Beams
- Thermal Results in Static Study

Support for more real world conditions



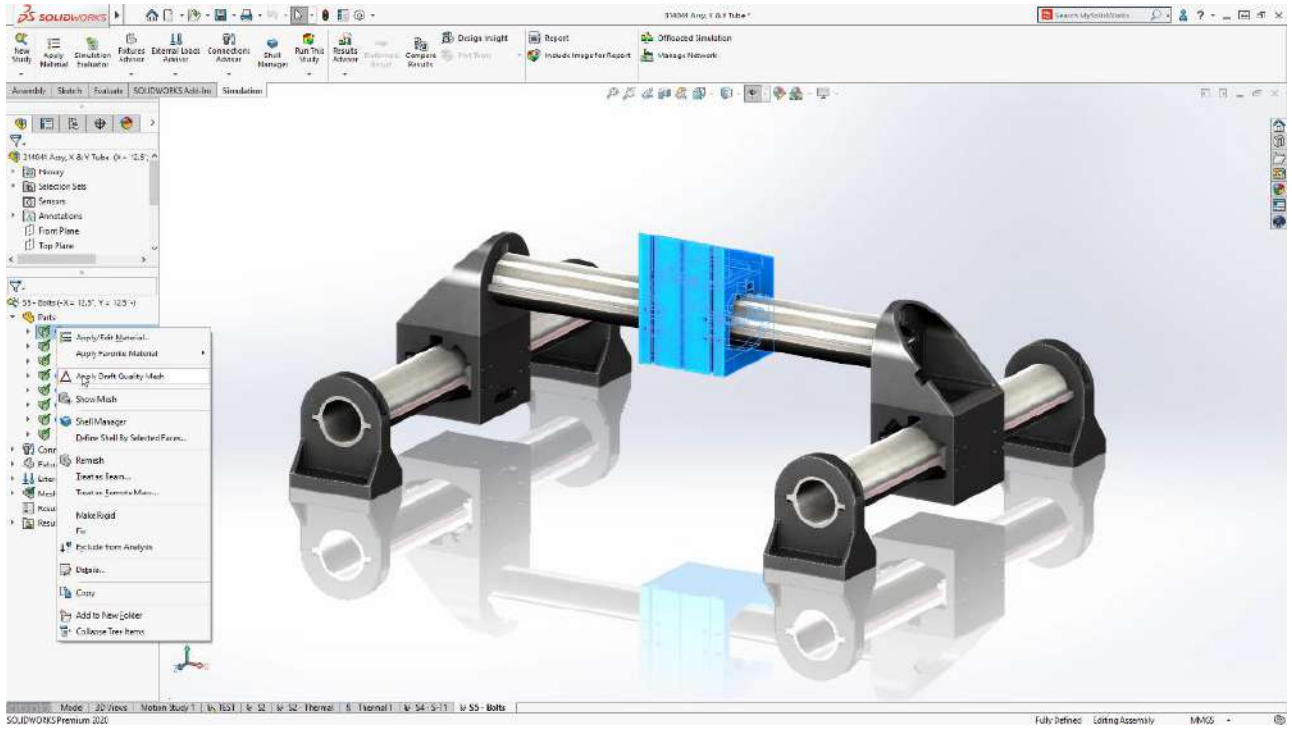
SIMULATION

Mix Draft and High Quality Mesh

Distributed Connection

- Bolt Connectors
- Pin Connectors

High quality results where you need them

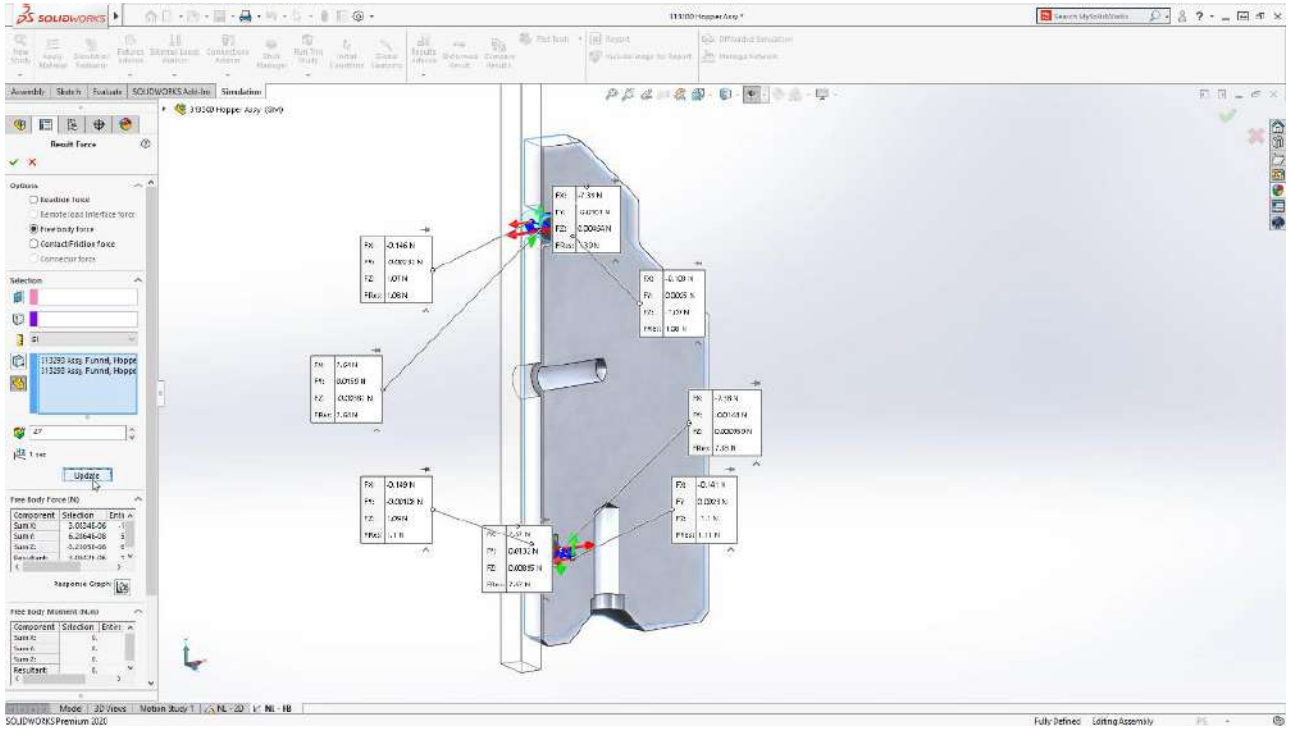


SIMULATION

Free Body Forces

Non-Linear Static

Non-Linear Dynamic



Detailed output to drive your design

FLOW

Flux Plot in Transient Explorer

Get in-depth, dynamic numerical results by viewing the new Flux Plot in Transient Explorer

Merge Plot

Compared plots can be merged to a single plot showing the overall Maximum or Minimum results across projects

Difference Plot

Compared plots can now be shown as difference plots between one project and a reference project

Scene Plot Enhancements

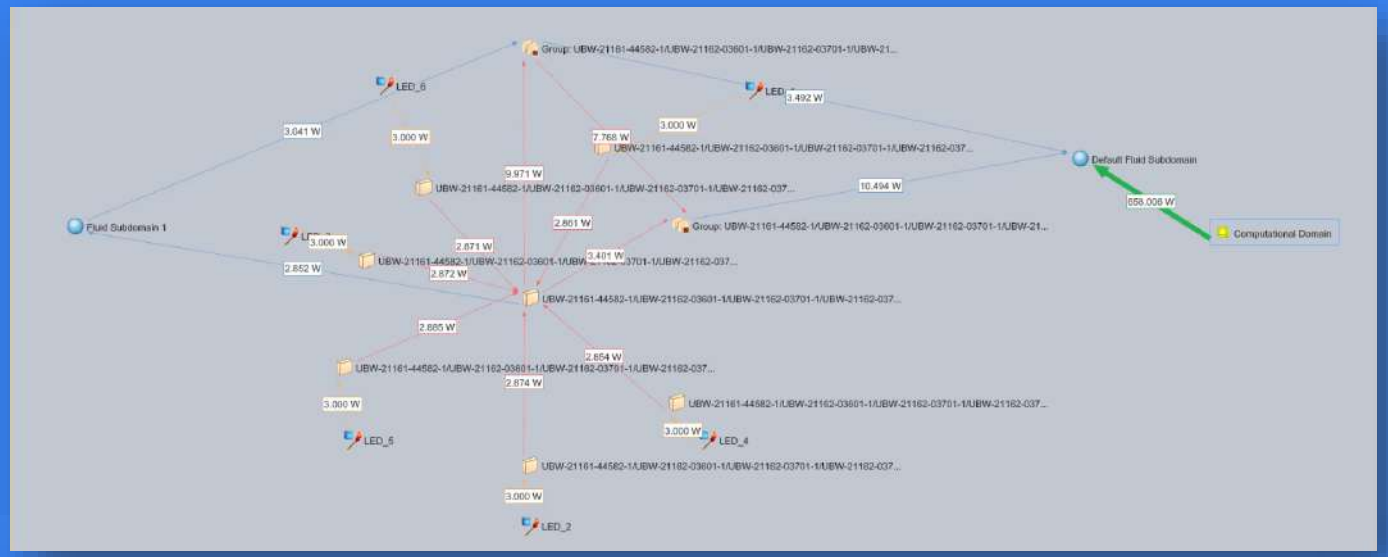
Now stores model orientation, zoom and part visibility - so creating that perfect scene will also retain display settings

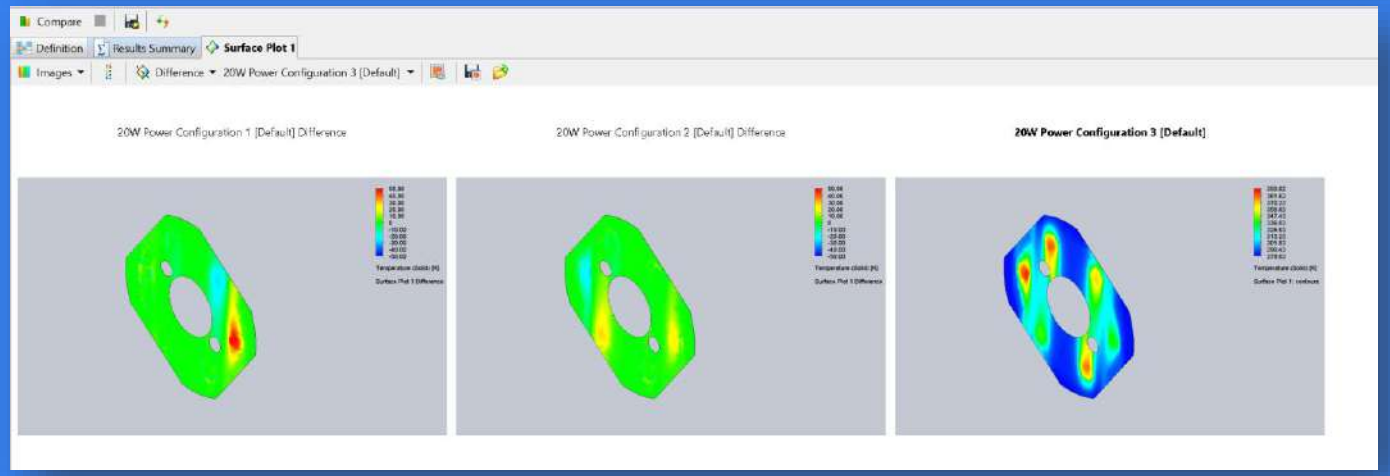
Equation Goals Update

Equation goals can be created *after* running an analysis that compute values based on other calculated goals

Results Summary

Tabulates analysis data that provides a high-level overview of important information across projects





SOLIDWORKS

Probes

Probes can now be copied to projects along with the plots that defined the probes

Check Geometry

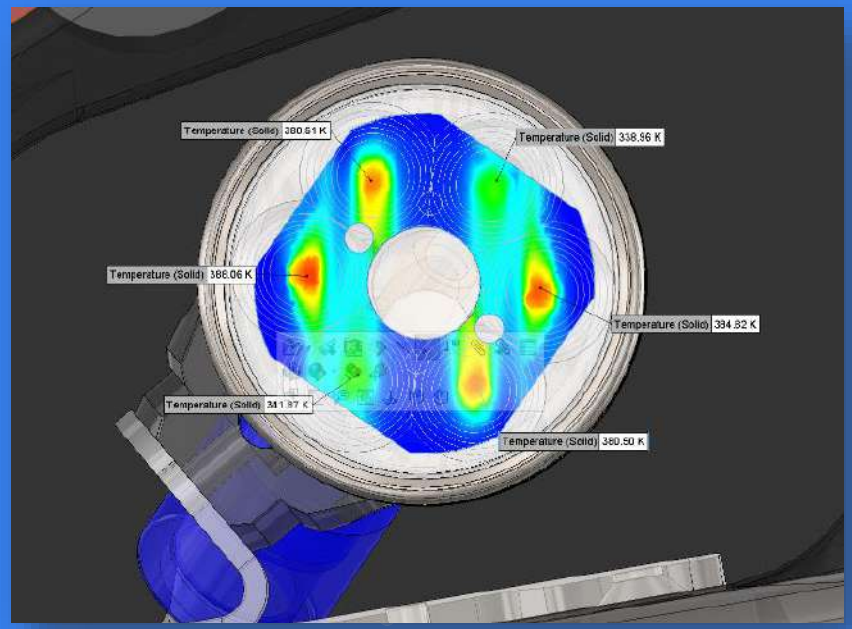
When using **Improve Geometry Handling** mode, users can now create solid and fluid bodies

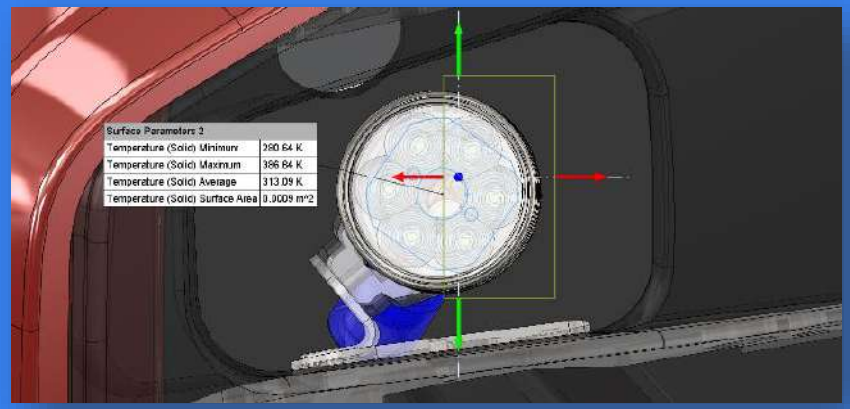
Remove Missing Entities

Automatically remove reference geometry (faces, edges, and points) of missing or suppressed bodies from the selection

Surface Parameters

Crop region is now accounted for in the Surface Parameter calculation





Flow Simulation

- Free Surface with Rotation
- Flux Plot Energy Balance
- Improvements with Goals
- Plots from Scene Template
- Plot Min/Max Calculated from Cropped Region
- Enhanced Custom Visualization Parameters

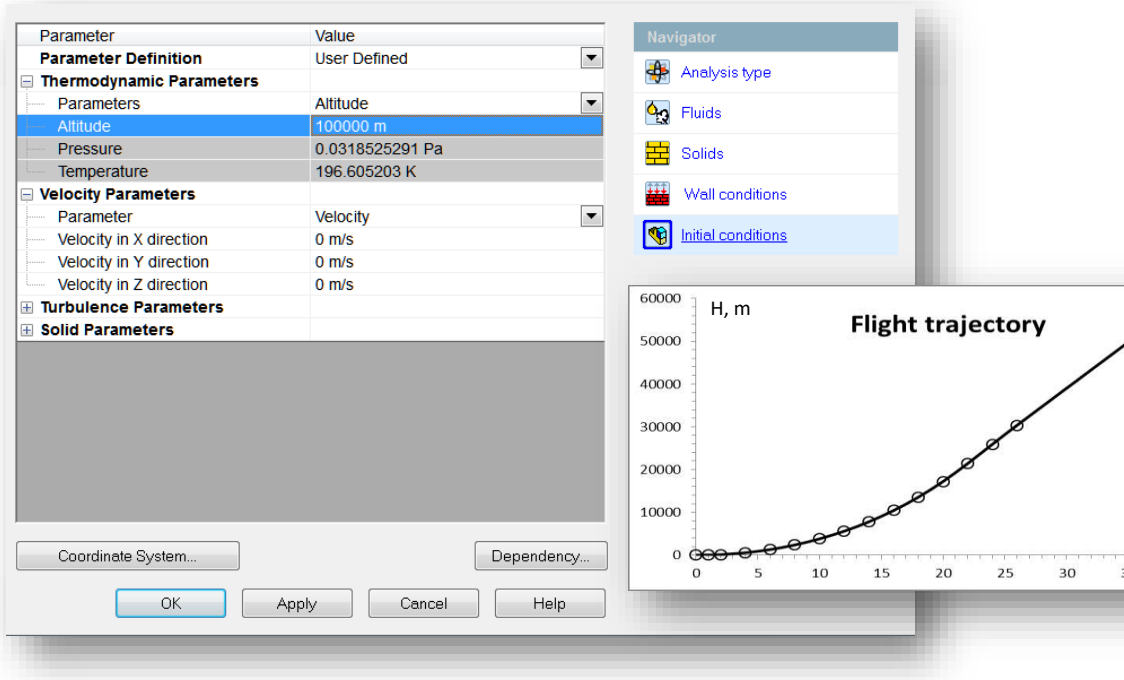
FLOW SIMULATION

Altitude for temperature and pressure

Fan De-Rating

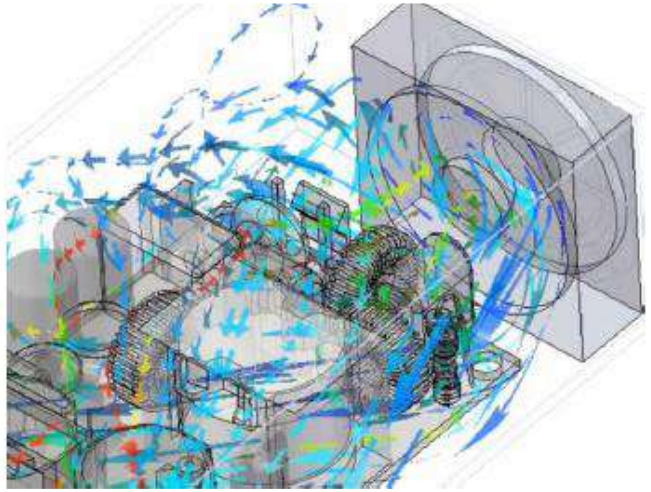
Logical Expressions in Formula Dependency

Heat Exchanger model in porous media



Powerful enhancements for complex Flow Simulation

$$\Delta P_d = DF^2 \cdot \Delta P$$
$$\dot{m}_d = DF \cdot \dot{m}$$



Symmetry Boundary Condition

Mirror your cavity and runner system (either solid or sketch based) across 1 or 2 planes. Time saver for Right and Left handed parts.

Cyclic Boundary Condition

Create additional virtual cavities in a circular pattern around an axis. (either solid or sketch based runners

Sketch Based Runner Updates

Simplified UI, new ‘Flip Dimension’ button and automatic solving for number of elements makes custom runners easier to create.

New Injection Location Advisor

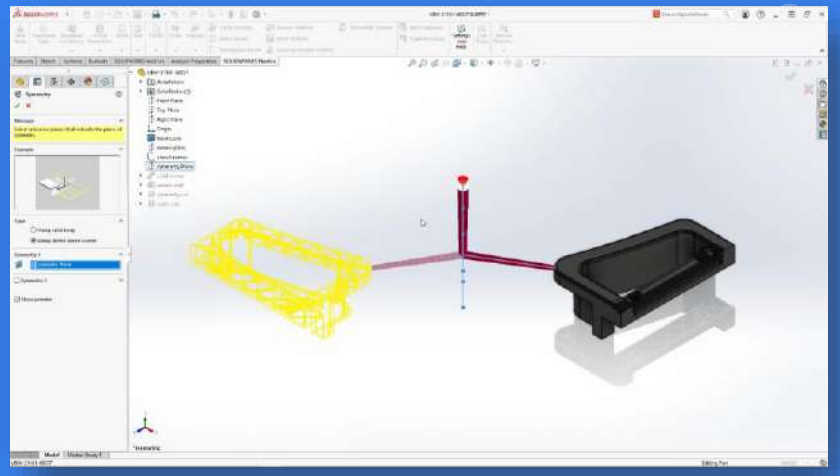
Now works directly on the model geometry and automatically solves for optimal pull-direction.

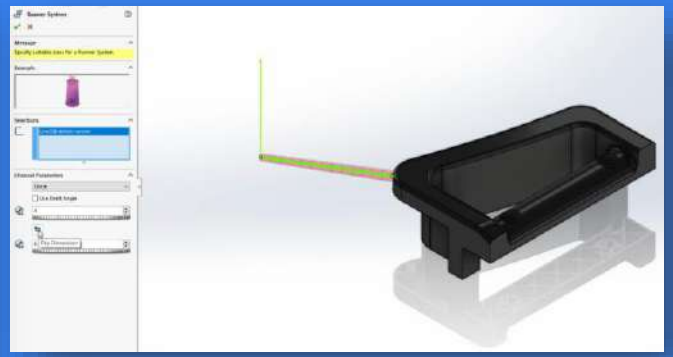
Expanded Material Database

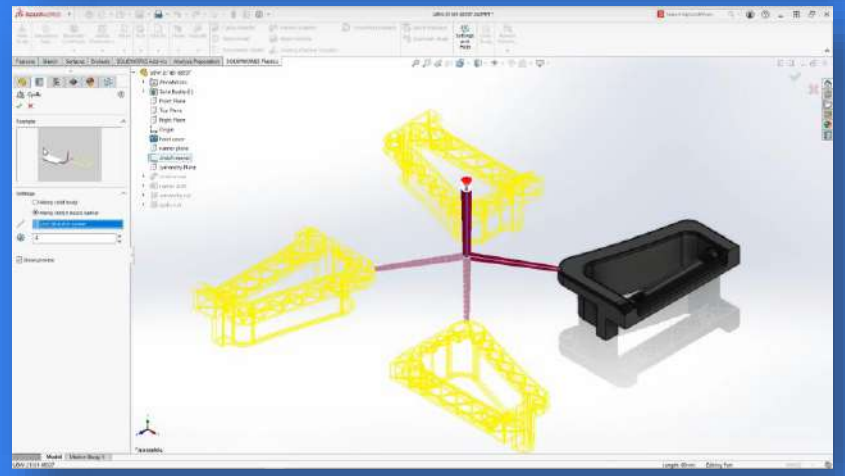
Over 100 new materials added, and over1500 materials updated to improve solution accuracy.

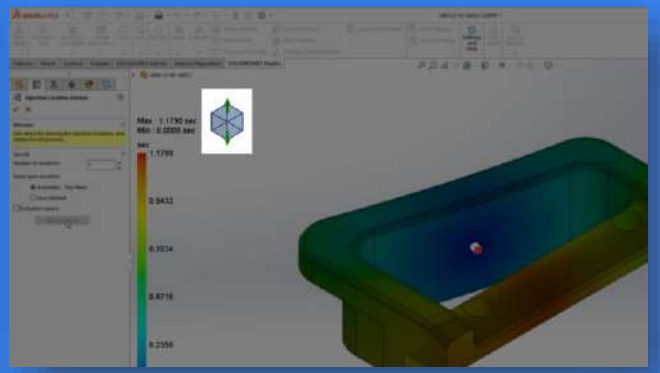
‘Run’ from the Top of the Tree

Simply Right-click at the top of the tree to run your Fill, Pack, Cool and Warp studies









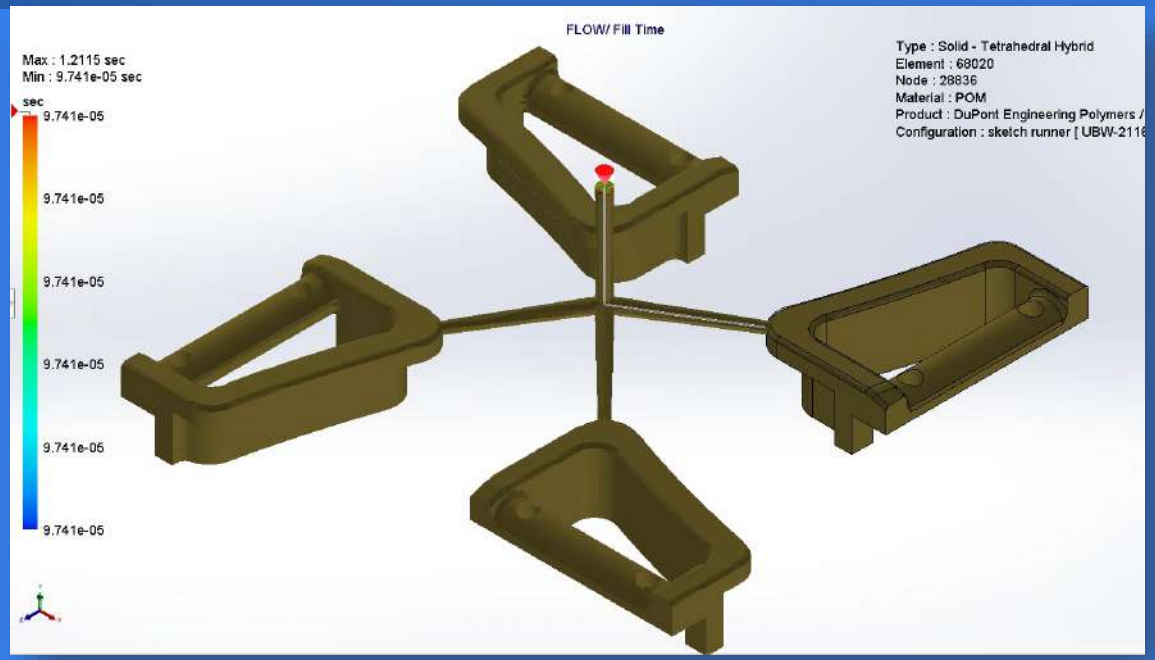
PLASTICS

Cool Solver is now 20% faster!

Direct Solver is now 50% faster!

Scaling for High Resolution displays

Can now support 4K and higher resolution displays.



SOLIDWORKS

Plastics

- Domain-Based Material Definition
- New Materials for Plastics
- Multi-Material Overmolding Injection Process
- Sketch-Based Baffle & Bubblers