SOLIDWORKS SIMULATION TOP ENHANCEMENT IN 2024

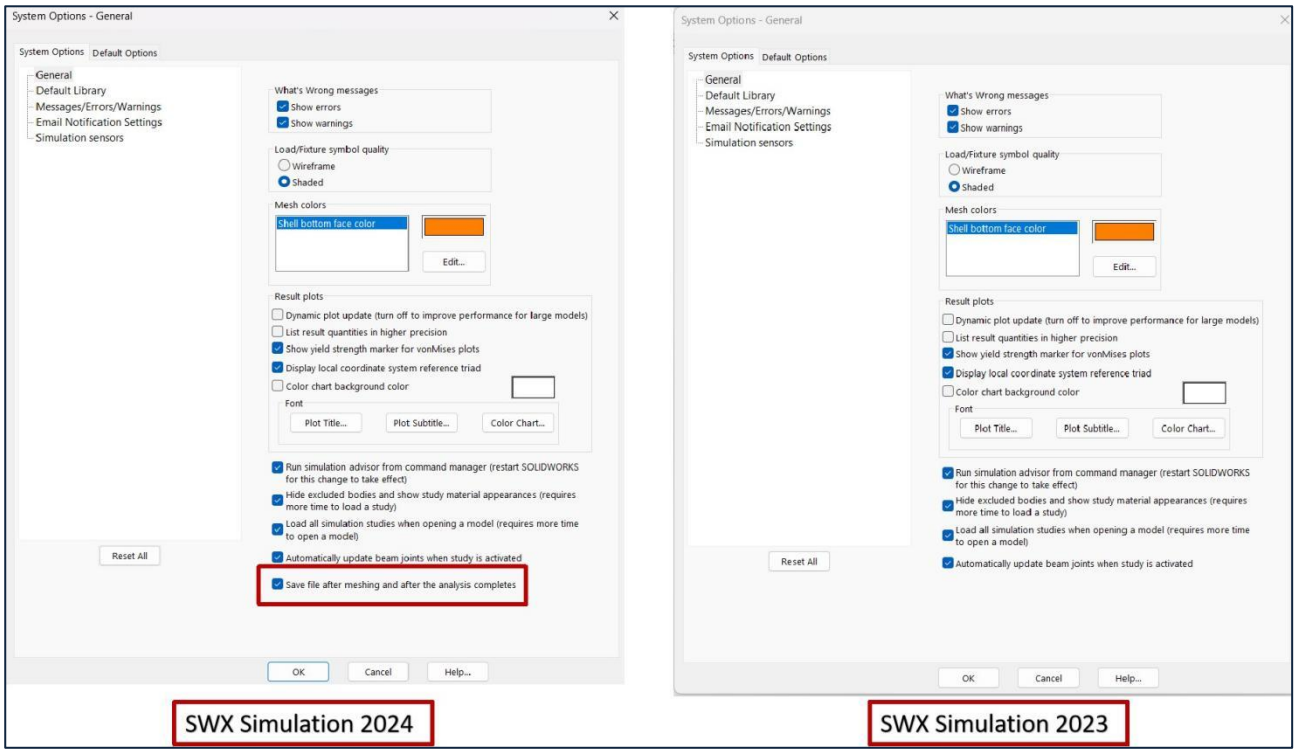
SOLIDWORKS offers us new features and tools in order to improve the functionality and usability of our simulation. All outstanding feedback from clients has been examined and applied by SOLIDWORKS developers to improve the software. A few of the most significant improvements in simulation are described in the following article.

Automatic Saving of a Model File

Model file can be saved after meshing and after the analysis completes.

To turn on automatic saving of a model file: From the System Options > General tab, select Save file after meshing and after the analysis completes.

Data protection in case of unexpected system crashes or power interruptions is ensured by automatically saving the model file when meshing and after completing analysis.

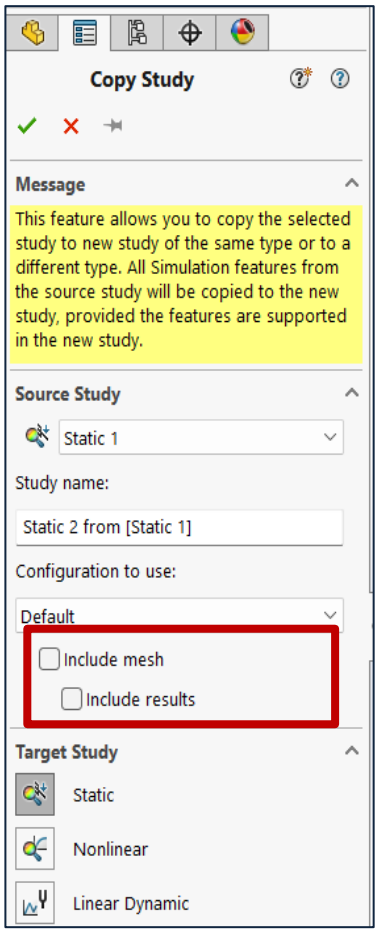


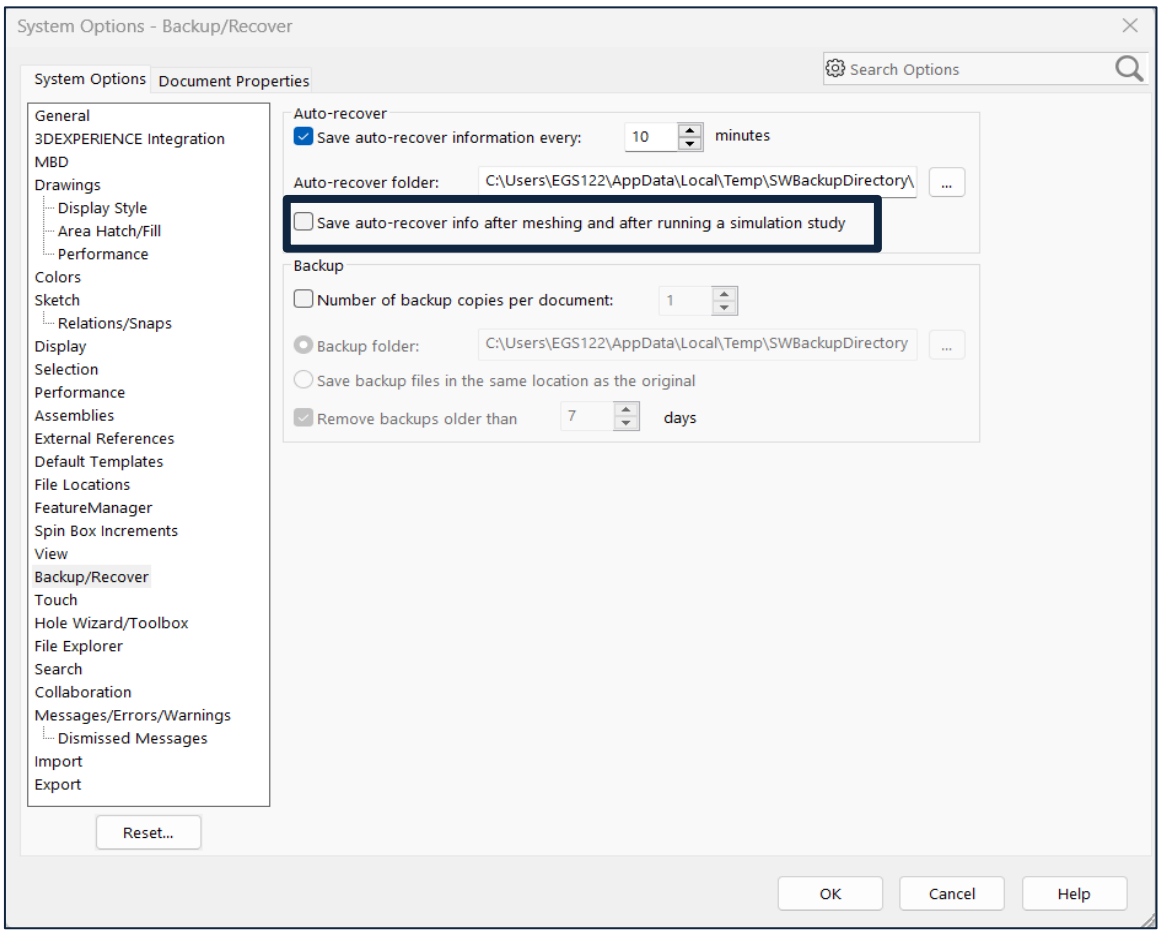
Excluding Mesh and Results When Copying a Study

Time management can be done by excluding mesh and results data when copying a simulation study to a new study.

One can specify global default settings to include or exclude mesh and results when copying a study from the Default Options > Solver and Results > Copy study dialog box.

For individual studies, one can modify the default settings for **Include mesh** & **Include results** in the Copy Study Property Manager.





Automated saving of a Model File (Auto-recover)

File will be saved after meshing & Solving Process Completed by the solver. This is an option in System Level, Not File-Specific or Study Specific.

(Note: This Option is different than **Backup/recover option** from the general setting options)

Enhanced Bearing Connectors

The design of bearing connectors has been enhanced by the introduction of **distributed coupling and tilt stiffness**. The default Connection Type is Distributed to define a new type of bearing connector. Moreover, for stability of the shaft's rotation, you may specify **stiffness**. For linear statics, frequencies, Buckling and Linear Dynamic Studies the bearing connector enhancements are available.

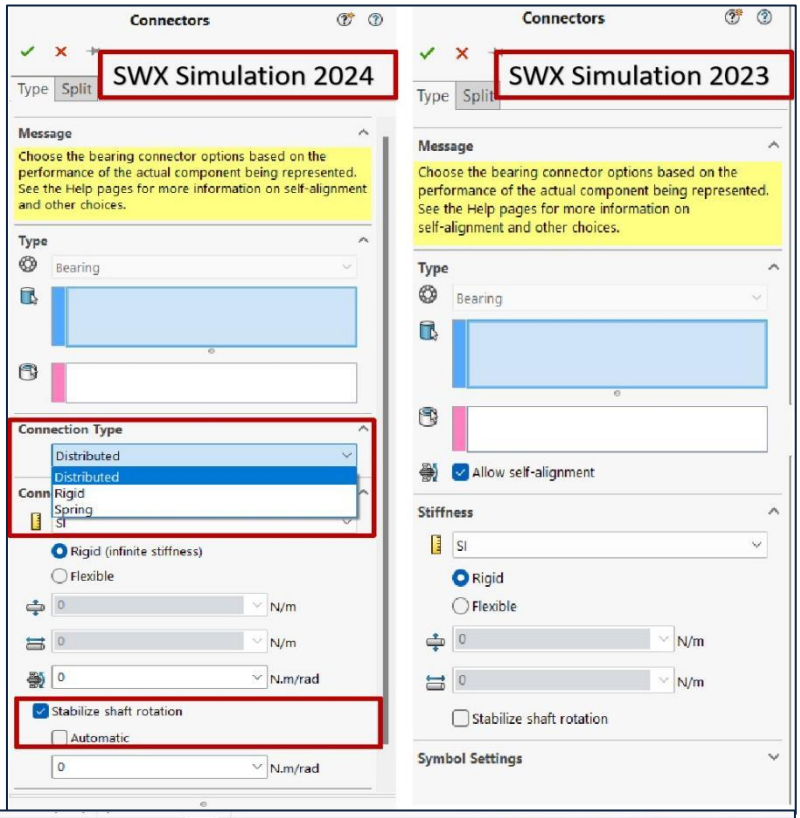
Convergence Check Plot

The regions of the model where the solver encountered contact convergence problems are detected by the Convergence Check Plot.

Access to a Convergence Check Plot:

Do the following thing:

• Click **Diagnostic Tools** > **Convergence Check Plot** (Simulation Command Manager). Click on the results and click on the convergence check plot in the simulation study tree.



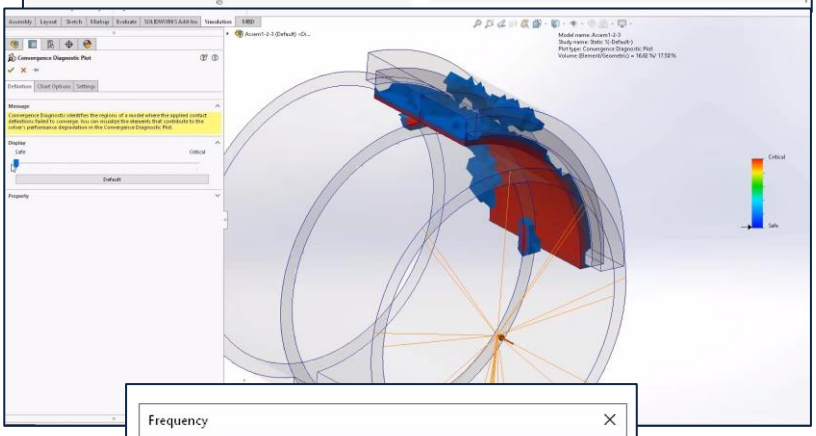
Decoupling Mixed Free Body Modes

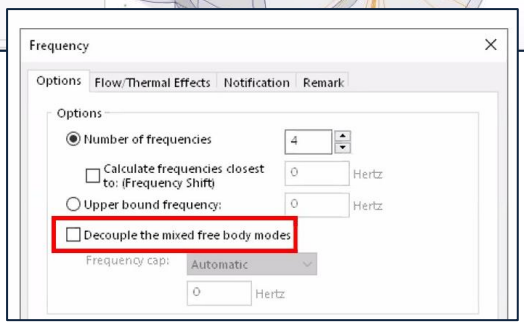
When calculating mode shapes, an algorithm can detect and decouple mixed free body modes.

Select **Decouple the Mixed Free Body modes from the Study Properties** dialog box.

The algorithm resolves mixed motion associated with a rigid body mode and provides precise shape of the rigid body mode in cases where there are multiple free body modes within one model.

(Note: The option to decouple the mixed free body modes is available in Frequency, Linear Dynamic, Harmonic, Random Vibration, and Response Spectrum Analysis studies)





Mesh Performance

For models with multiple identical bodies, the meshing time with the **blended curvature mesh** decreases. Duplicate bodies in parts and parts in assemblies are identified by an improved mesh algorithm based on Blended curvature.

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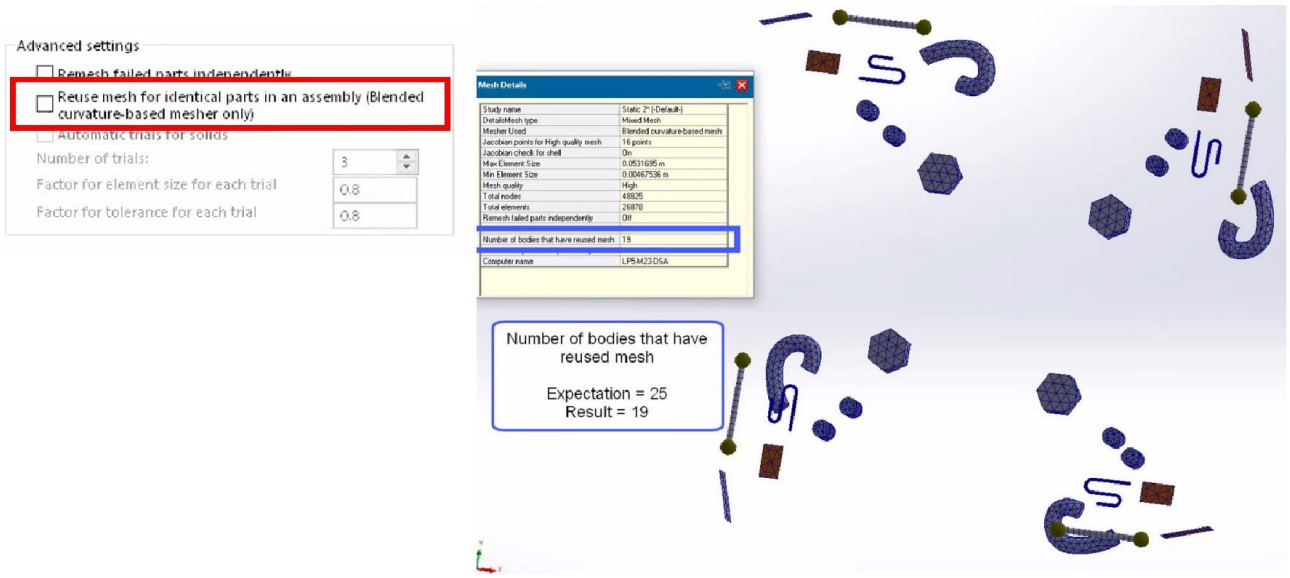
Instead of meshing each part or body independently, the algorithm reuses the same mesh for the same parts or bodies, saving time.

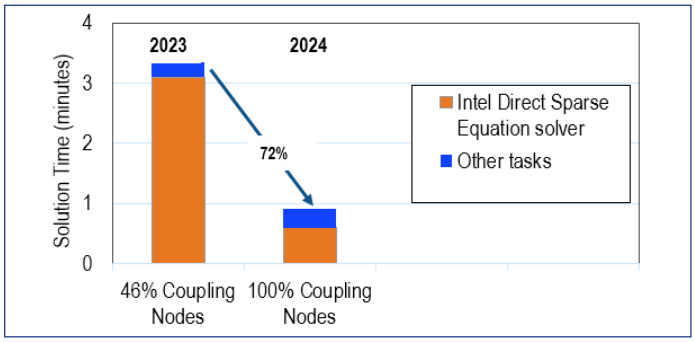


(Note: This mesh enhancement is available with the SOLIDWORKS Simulation Premium and SOLIDWORKS Simulation Professional licenses)

Performance Enhancements

It is more efficient to conduct larger linear dynamic and p-adaptive studies. Due to this, the stress calculation of large linear dynamic and p-adaptive studies is optimised.

The solver improves the allocation of memory. Improved memory estimate, allocation, and management by the solver allows the Completion of large surface to surface bonded interaction sets that have previously failed because of insufficient memory. This improvement applies to the SOLIDWORKS Simulation Professional and Premium licenses)



More accurate results can be obtained from studies that use remote displacements or external rotations applied to large faces on a distributed connection. All coupling nodes are included in the distributed constraint for distance displacement or remote rotation within SOLIDWORKS Simulation 2024.