





Webinar:
**What's New in Simcenter 3D
and Simcenter Nastran 2019.2**


Jonathan Hill, ATA Engineering
September 5th, 2019

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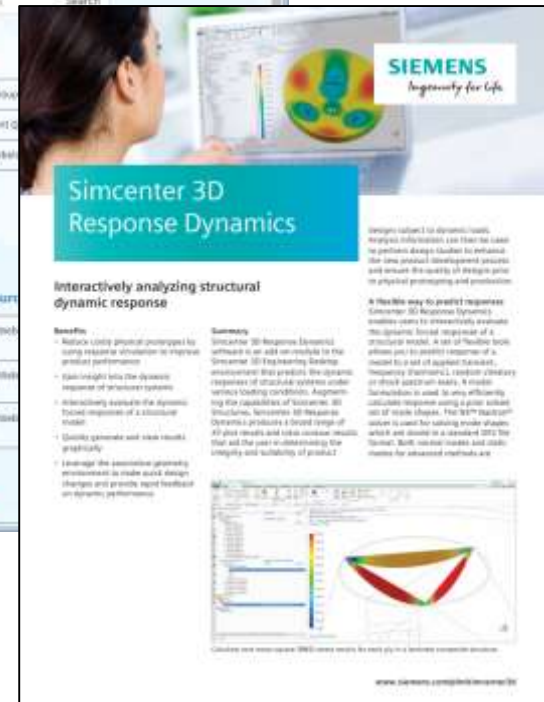
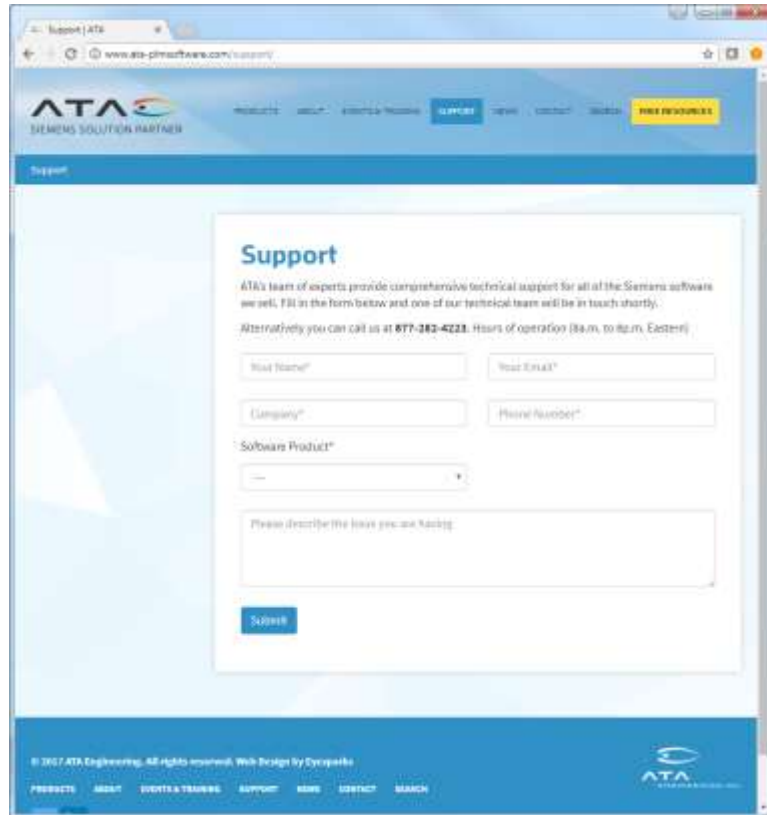
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- Siemens product lines we support include:
 - STAR-CCM+
 - Femap
 - Simcenter Nastran (formerly NX Nastran)
 - Simcenter 3D
 - NX CAD & CAM
 - Teamcenter
 - Solid Edge
- Contact the hotline at 877-ATA-4CAE or <http://ata-plmsoftware.com/support>
- Developer of the official Simcenter Nastran training materials
- Preferred North American provider of Simcenter Nastran training
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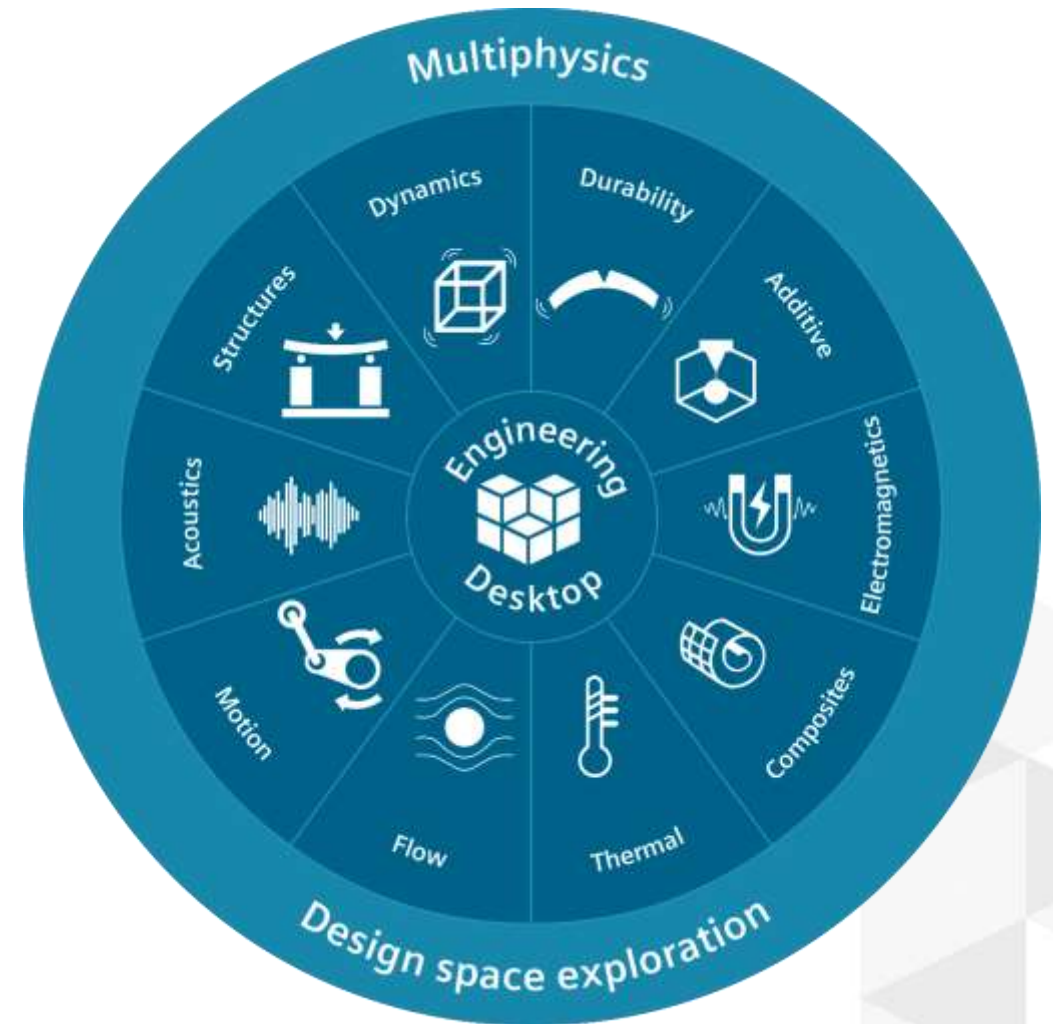
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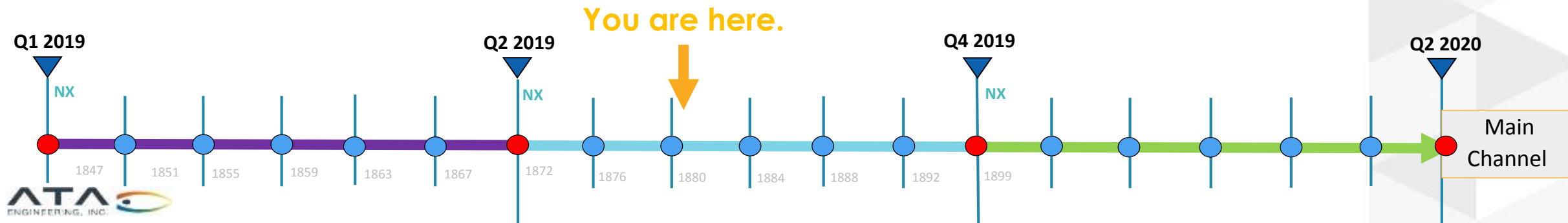
Agenda

1. NX Launcher
2. Selection and Graphics
3. Meshing
4. Post-Processing
5. Simcenter Nastran
6. Additional Highlights



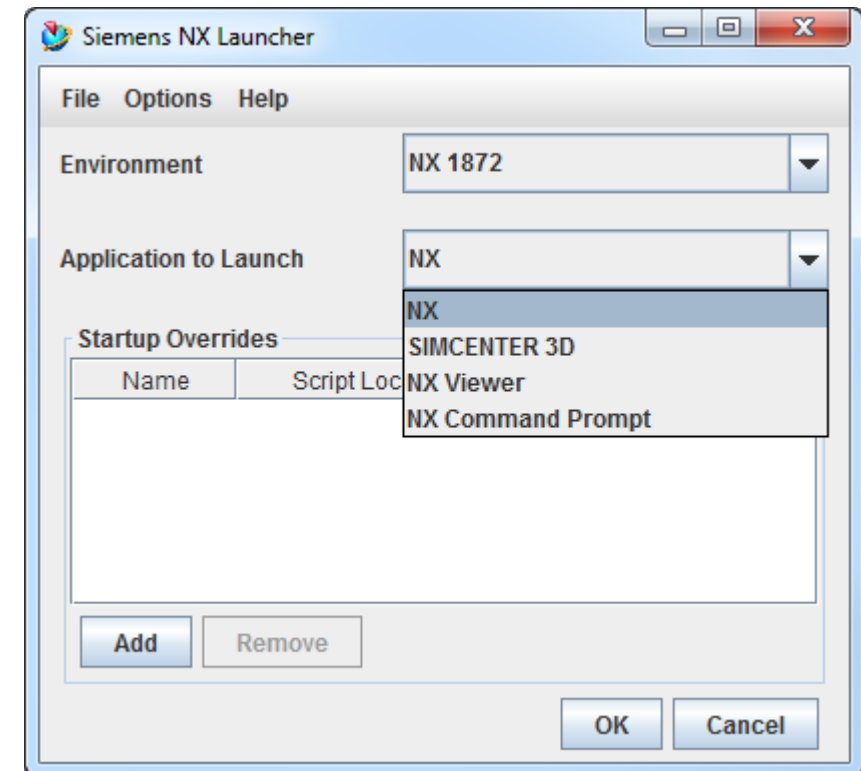
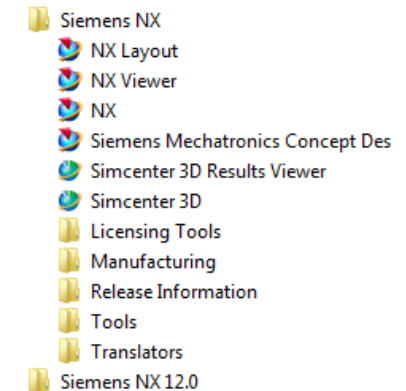
Simcenter 3D and Simcenter Nastran 2019.2 are Available Now

- Simcenter 3D and Simcenter Nastran 2019.2 have been released and are available for download through GTAC:
 - <https://download.industrysoftware.automation.siemens.com/>
 - Don't forget to download a new license file, also available from GTAC:
 - <https://www2.industrysoftware.automation.siemens.com/LicenseManagement/Application>
- This release corresponds with the June 2019 release of NX 1872
- First major enhancement release following the transition to Continuous Release
 - Major enhancement releases every 6 months with schema change
 - Simcenter 3D 2019.2 and NX 1872 models cannot be opened in Simcenter 3D 2019.1 or NX 1847 series of releases
 - Monthly maintenance releases



Siemens NX Launcher Helps Manage Multiple Installations

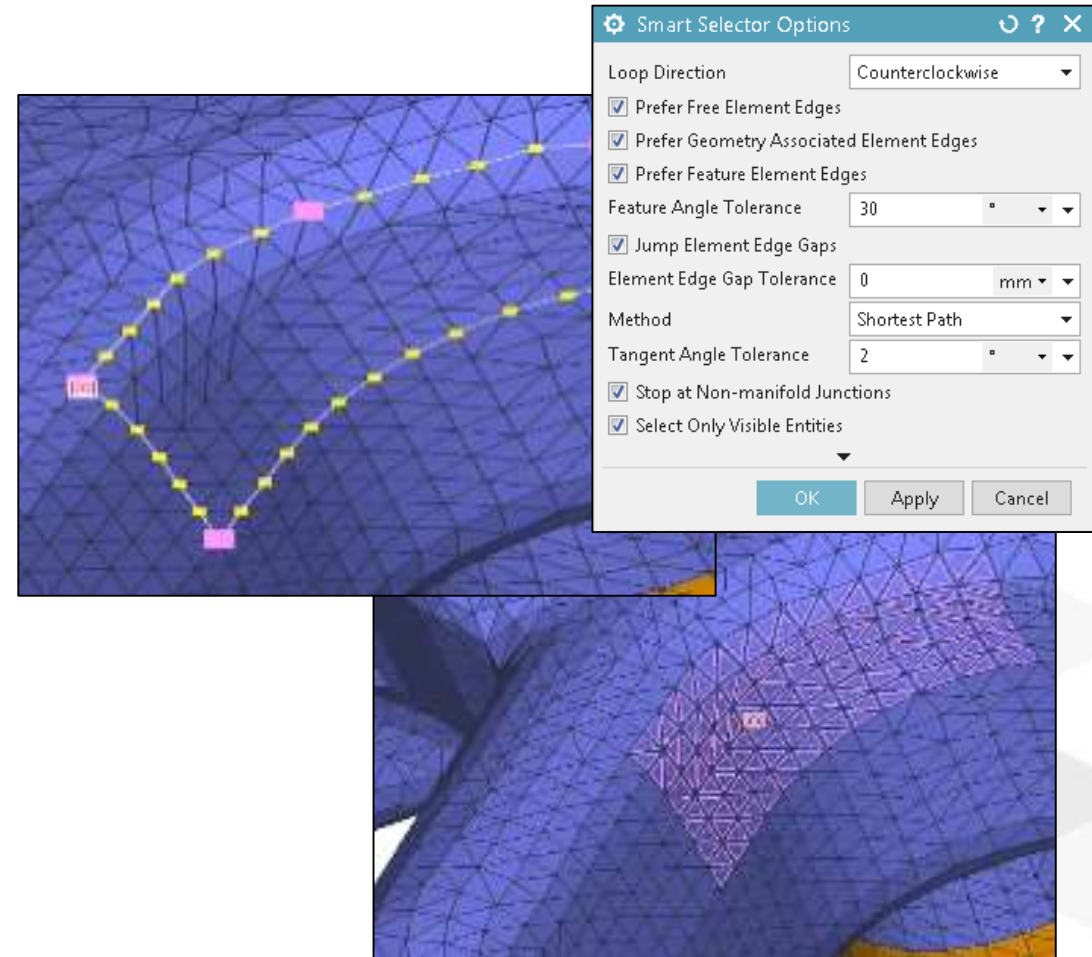
- In the age of Continuous Release, each installation is mapped to the *Siemens NX* folder of the Start menu
 - Previously, versions were listed under *Siemens NX XX.X*
 - The shortcut under *Siemens NX* corresponds to the most recent version installed, not necessarily the most recent release
 - Ex. If a user installs NX 1872 and later installs NX 1847, going to the *Siemens NX* folder and launching NX will open NX 1847
- NX 1872 install files include a new Siemens NX Launcher to specify between versions, applications, and even environments
- Learn more on ATA's YouTube:
<https://youtu.be/WQgl6CBalGg>



Selection and Graphics

Path Selection Methods

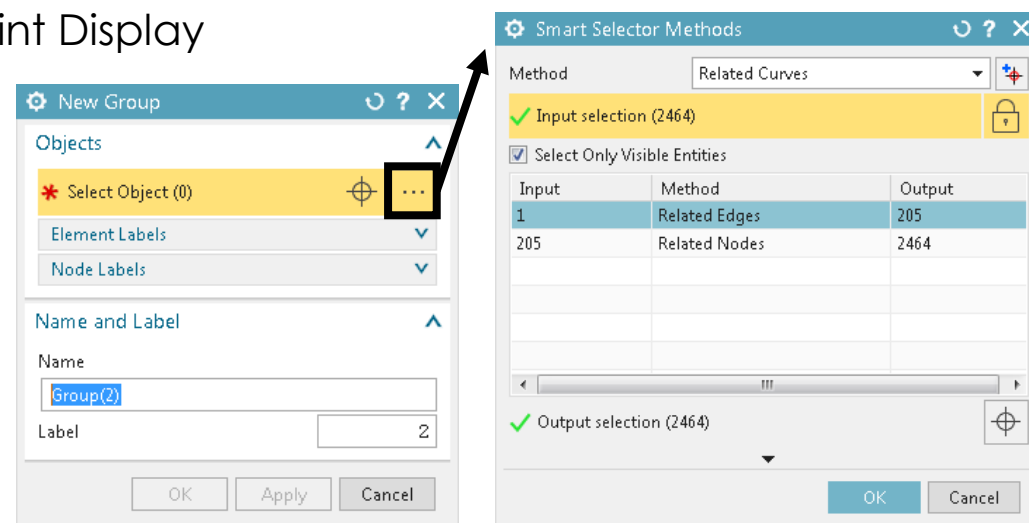
- New selection methods with additional Smart Selector Option support:
 - Nodes along path
 - Element faces enclosed in path
 - 2D elements enclosed in path
 - Nodes enclosed by path
- Element Edge and Element Face are available as a Type Filter
- Highlight support for element faces and element edges when selecting group from Simulation navigator



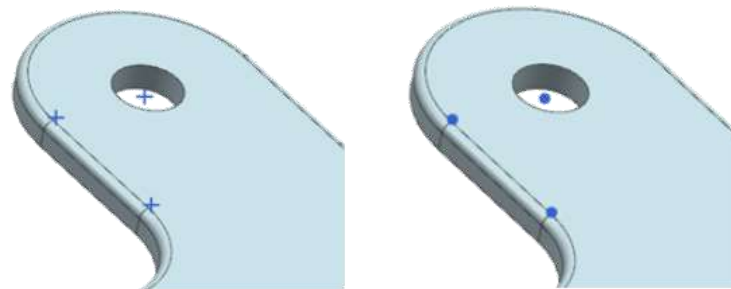
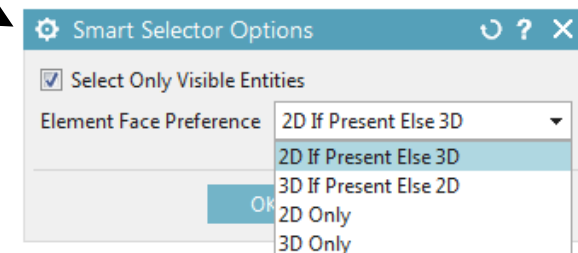
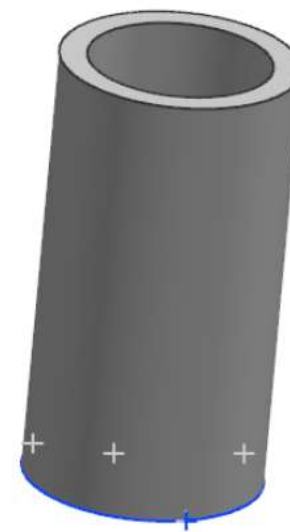
Selection and Graphics

Smart Selector Options and Point Display

- Apply multiple smart selector methods simultaneously
 - Ex. Stack Related Edges to select all edges of a polygon body at once and then Related Nodes to select all nodes
- Specify only 2D or 3D related element faces
- CAD points create associative FEM points and can optionally be mesh points
- Choose a point symbol at Preferences > Object and individually control display of points through solids



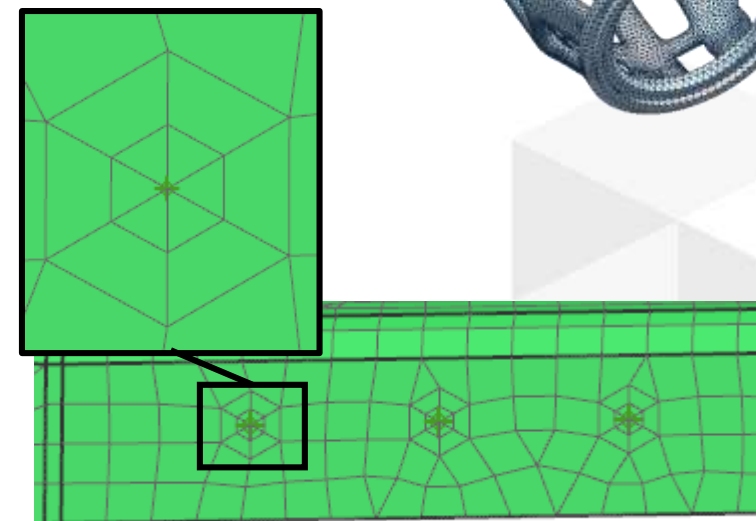
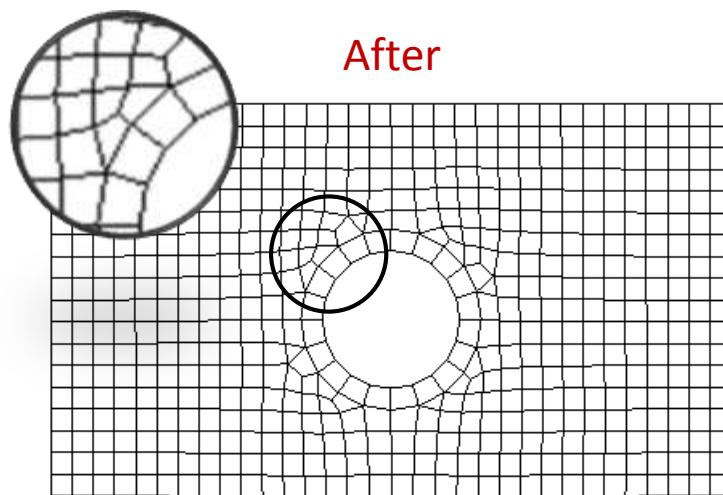
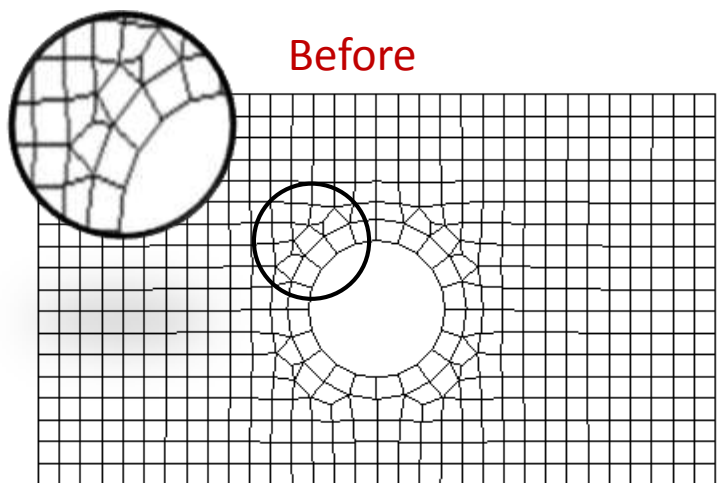
Related Element Faces



Meshing Updates

Remeshing and Mesh Quality

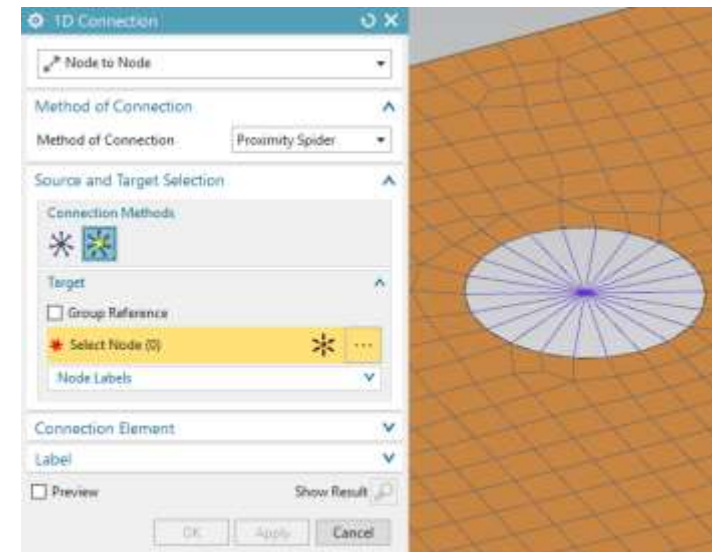
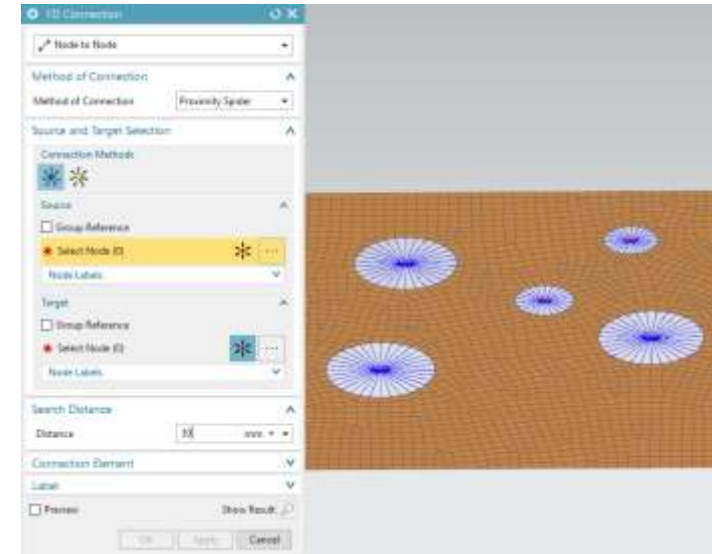
- Expanded set of techniques for modifying an existing 2D or 3D mesh, including possibly the Remesh algorithm
- Spot Weld option for Point Mesh Controls
- Quality and aesthetic improvements for shell meshing
 - Minimize triangles (Single Tri → Minimize Tri), paver improvements, 2+ elements across a fillet, more robust meshing



Meshing Updates

Proximity Spiders and Universal Connectors

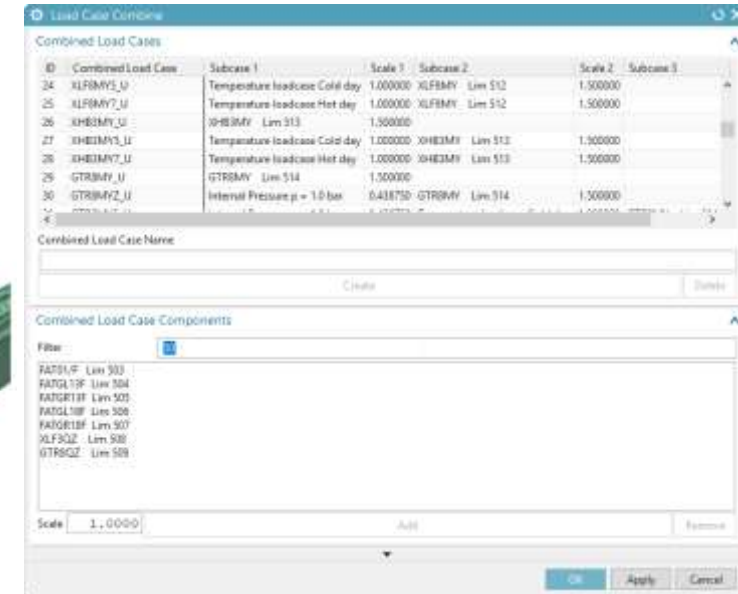
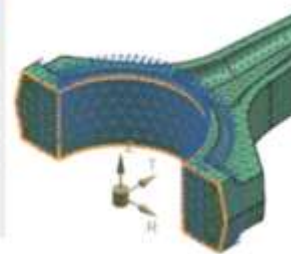
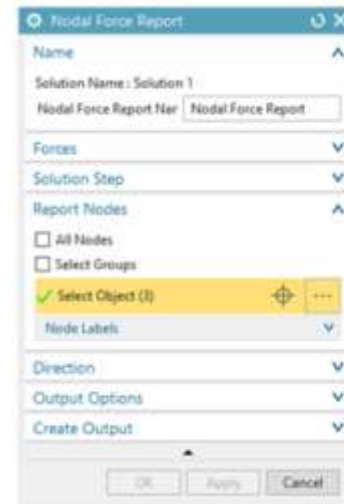
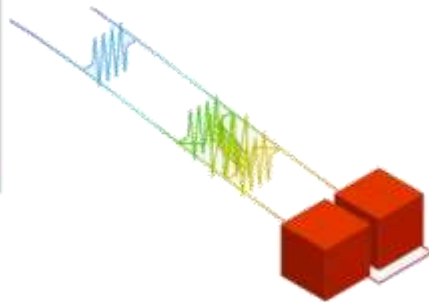
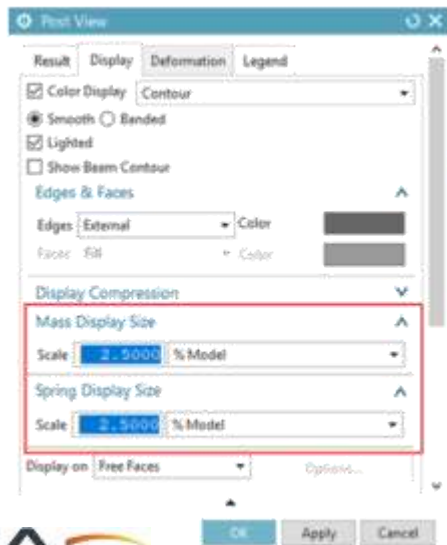
- Proximity Spider method for 1D Node to Node Connection simplifies spider creation
 - Select Core and Leg Nodes – create multiple spiders using a tolerance to filter leg nodes
 - Select Leg Nodes Only – create a single spider connected to node at center of selected leg nodes
- Universal Connector Extensions
 - Bolt diameter detection, solver support options, and rivet creation



Post Processing Improvements

Element Display, Nodal Force Reports, Shell CSYS, and Load Combinations

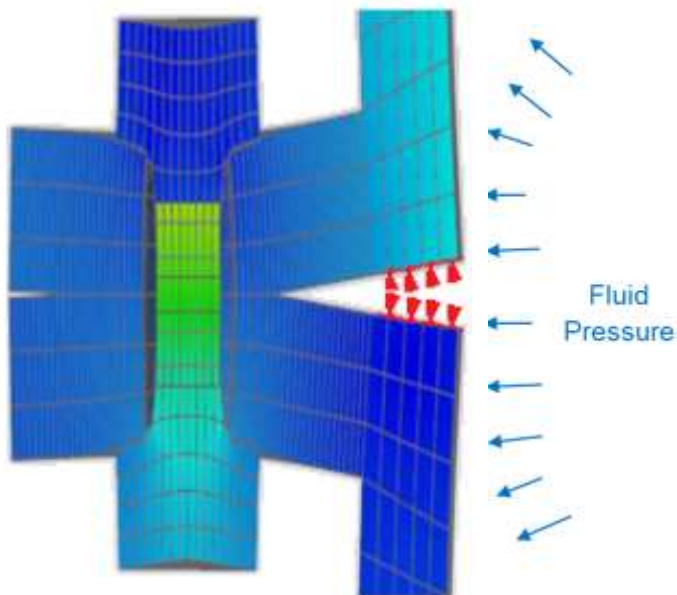
- Control element display size for springs and lumped masses
- Nodal Force Reports accept geometry, mesh, selection recipes, and groups as input
- Display shell results in a user-defined CSYS
- Efficient definition and reuse of linear combinations of load cases
- Editing mode is on by default in the XY Function Navigator



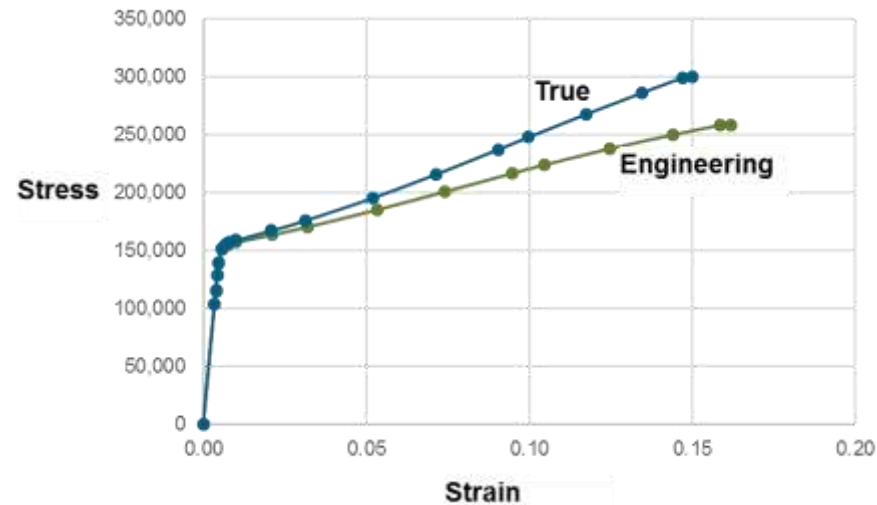
Simcenter Nastran Enhancements

Multi-Step Nonlinear SOL 401 and 402; Performance Improvements

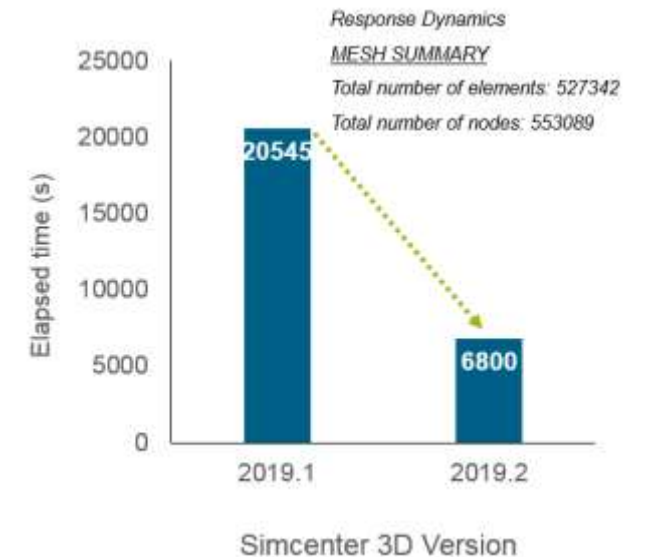
- Simulate pressure load of fluid penetrating between faces in contact
 - Supported in SOL 401 with prototype support in SOL 402



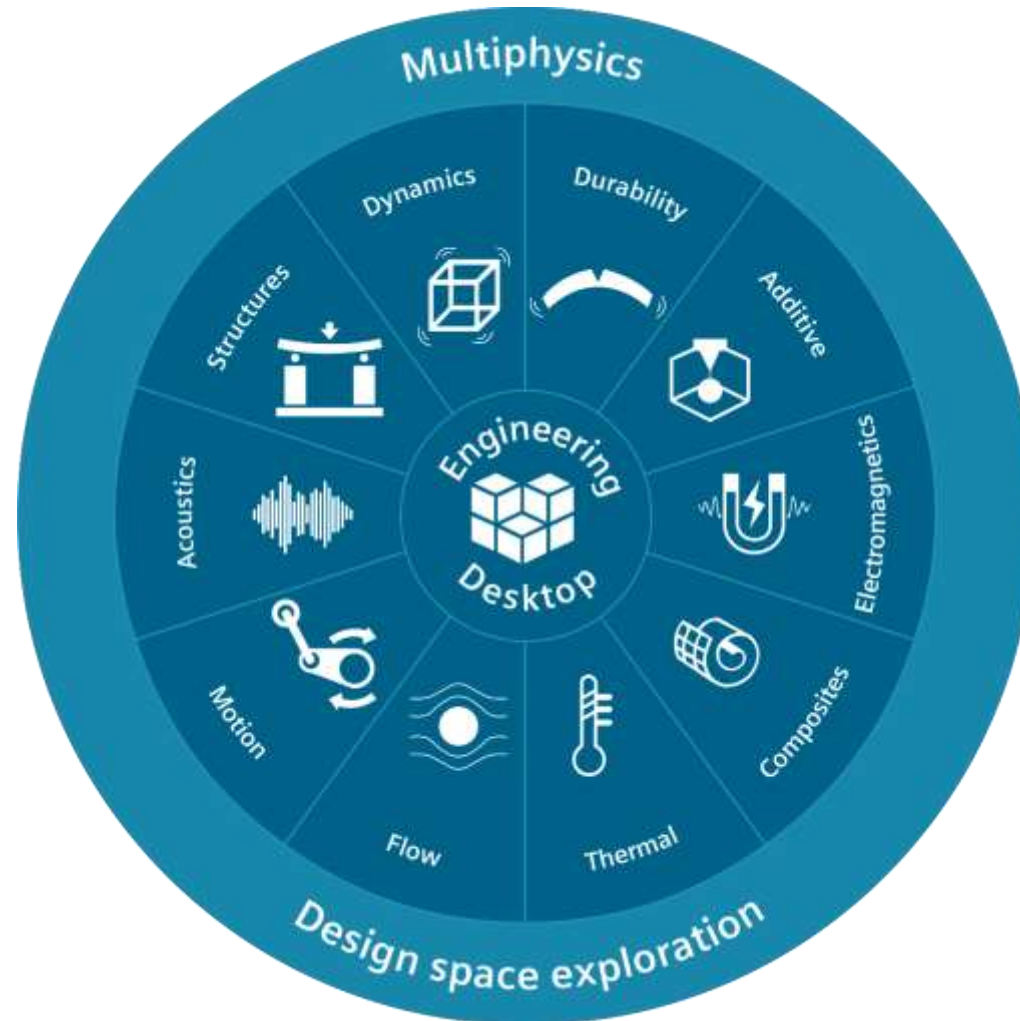
- Added support for using engineering or true stress-strain data for SOL 401 and 402



- Performance Improvements
 - 250X gain for processing MPC Equations
 - Up to 4X gain for Modal and Direct Frequency Response and for SOL 401 with shell elements
 - 3X gain for Response Dynamics/Response Sim

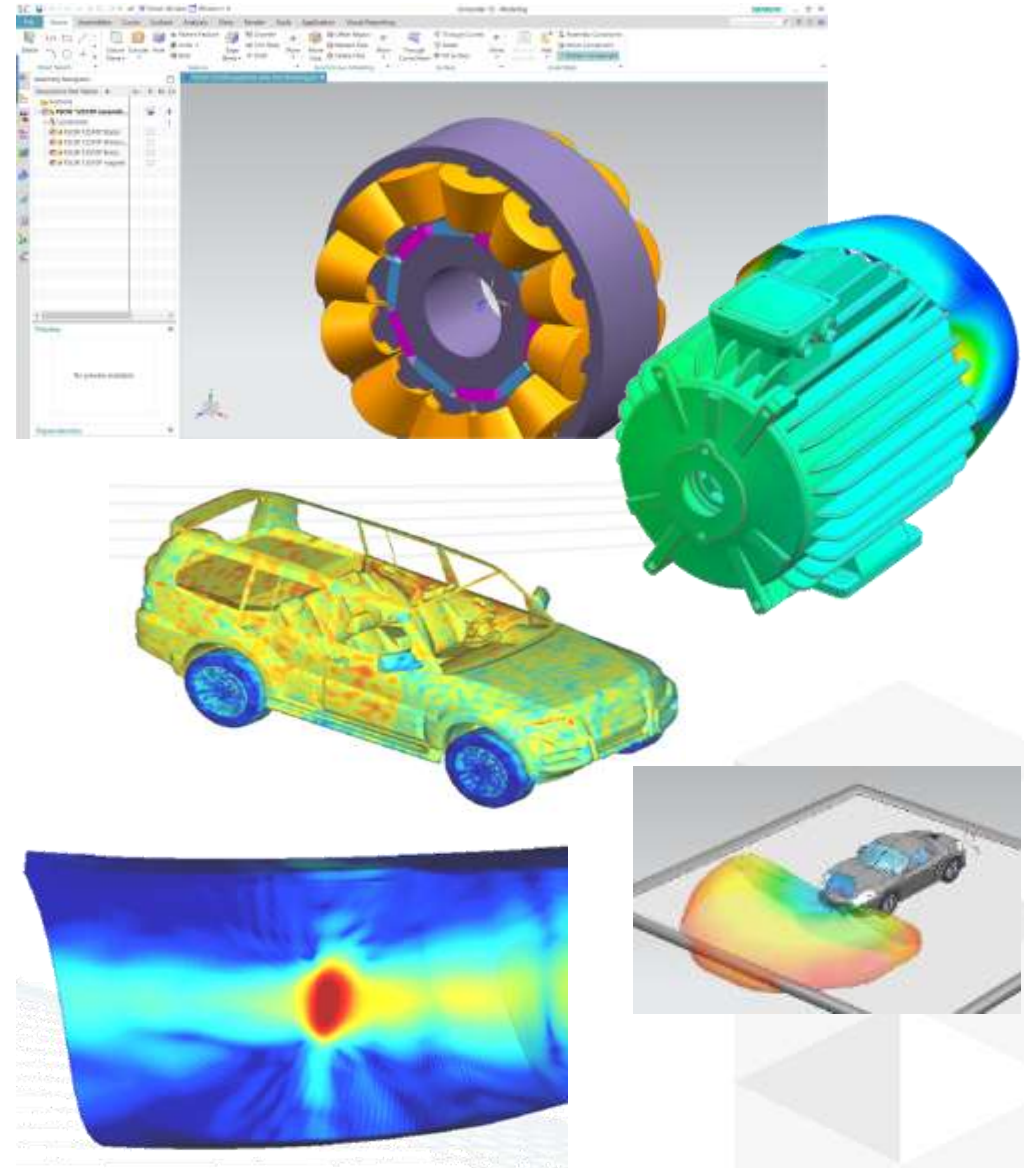


New Feature Highlights for Other Simcenter 3D Disciplines



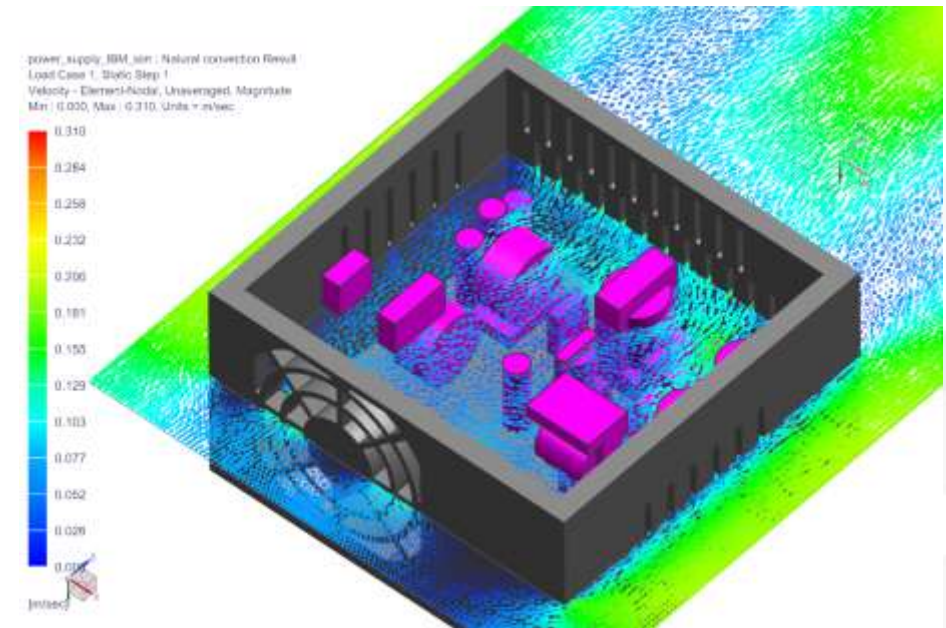
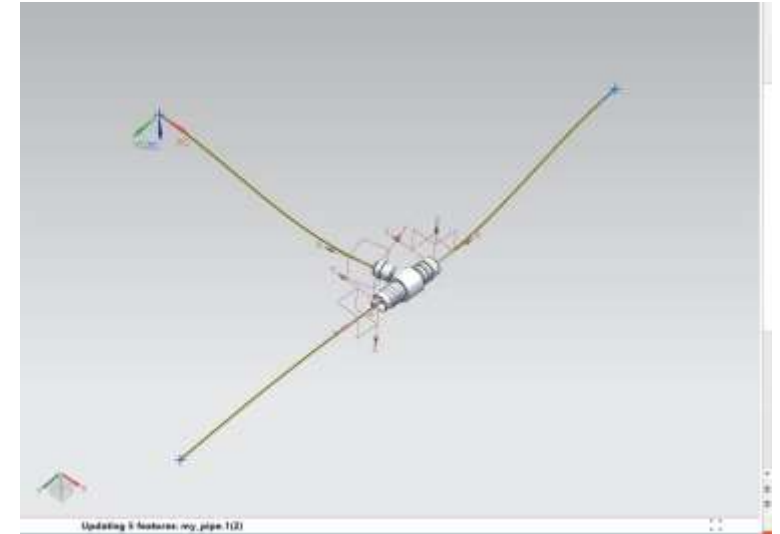
New High- and Low-Frequency Electromagnetic Simulation

- Low-Frequency: electromechanical and energy conversion devices such motors, actuators, and transformers
 - Based on the Simcenter MAGNET solver, with support for static, harmonic, and transient analyses with motion
 - 1D circuit tool for current and voltage sources and extensive EM material library
- High-Frequency: antenna and sensor performance, plus electromagnetic compatibility and interference (EMC/EMI)
 - Maximize performance at any scale with suite of solvers



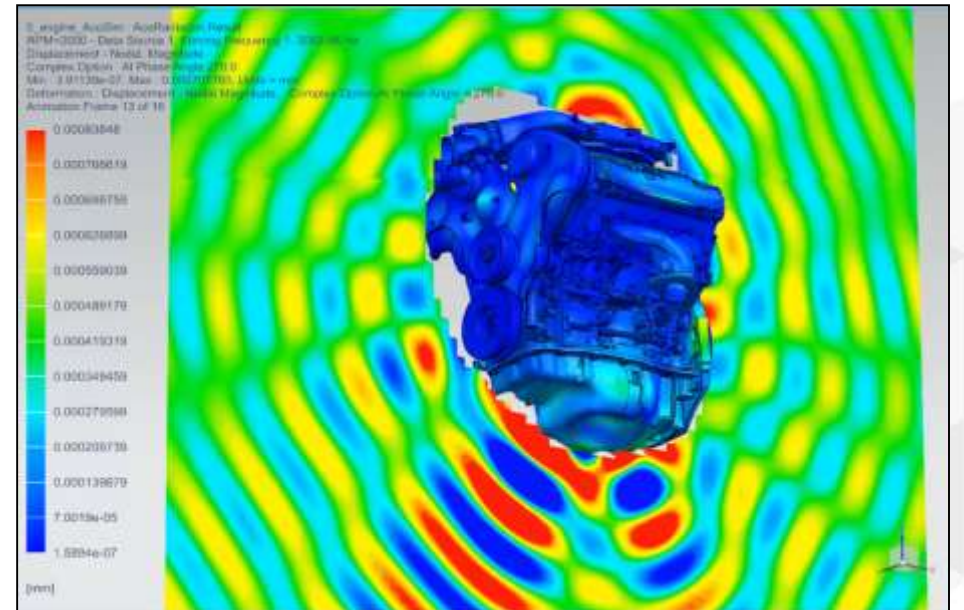
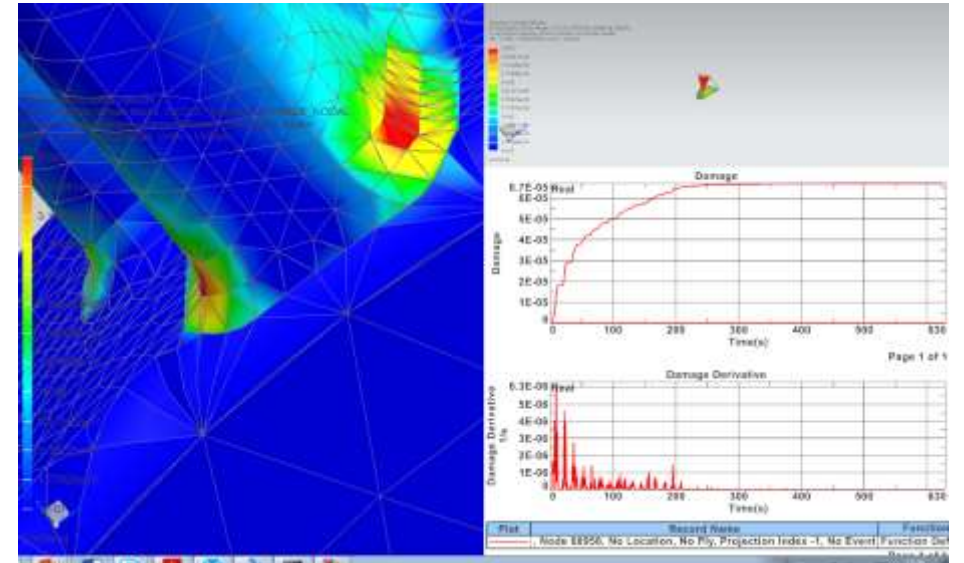
New Features for Simcenter 3D Flexible Pipe, Simcenter 3D Flow, and Simcenter Testlab

- Simcenter 3D Flexible Pipe: Instantly update pipe configurations after a design change
- Simcenter 3D Flow: Immersed boundary method support
 - The only fluid modeling needed is a bounding volume with through-mesh
 - Solver resolves solid-fluid interfaces automatically
- Simcenter Testlab: Enhanced interface with Simcenter 3D Correlation



Extended Support for Simcenter 3D Acoustics, Simcenter 3D Specialist Durability, and Teamcenter Simulation

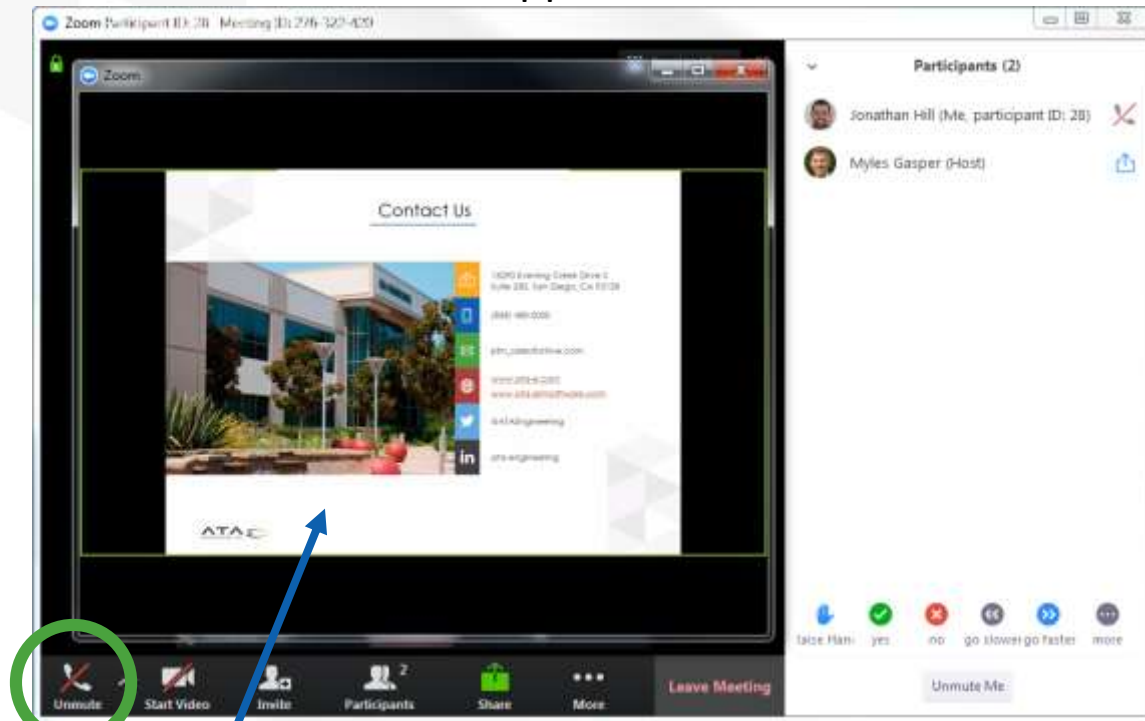
- Simcenter 3D Specialist Durability adds support for parallel computation
- Use ANSYS or Abaqus results as loading in vibro-acoustic or durability simulations in Simcenter 3D
- Quickly identify impacted analyses due to a design change with Teamcenter Simulation



Questions?

Submit questions in the **chat** or **unmute yourself** now

Zoom Application

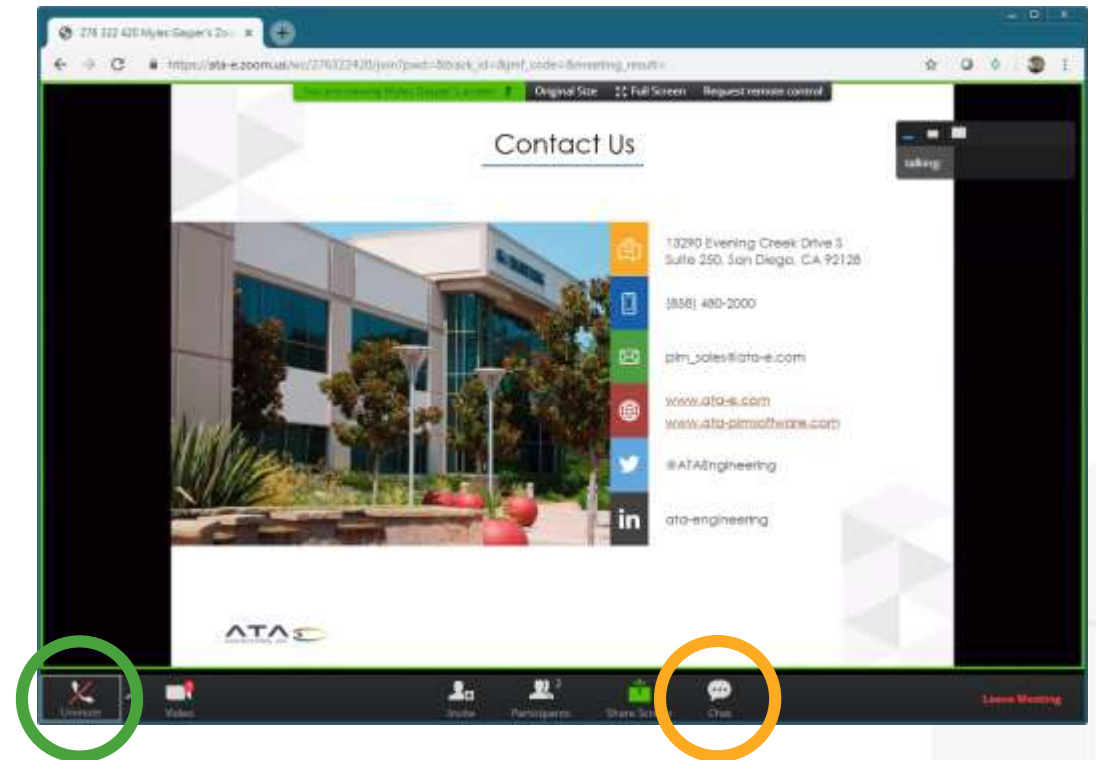


Screenshare in
separate window



Chat is available
under More

Web Interface



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