# StressCheck Professional v12.0 Release Notes

## Highlights

**StressCheck v12.0 includes significant improvements to the overall user experience, including:**

- Newly refreshed toolbar icons
- New contextual menus
- New assembly meshing with automatic contact detection
- New mesh seeding feature for improved auto meshing results
- Multiple new features for simulation post-processing
- Introduced parameter and formula name input validation
- Introduced independent control over solid body colors
- Enhanced index controls for geometry and mesh objects
- Parameter and object set dependency feedback enhancements
- Object and record selection feedback enhancements

## New Features and Enhancements

See What's New in StressCheck v12.0 video tour.

**Context Menu**

Right-click contextual menus introduced for:

- object deselection
- object isolation
- object hiding/unhiding
- object transparency
- object zooming
- object coloring
- object display filtering
- model views
- results plotting
- and more…

## Model Visualization and Navigation

Improvements to the GUI layout, controls and pane designs originally introduced with the release of StressCheck v11.0.
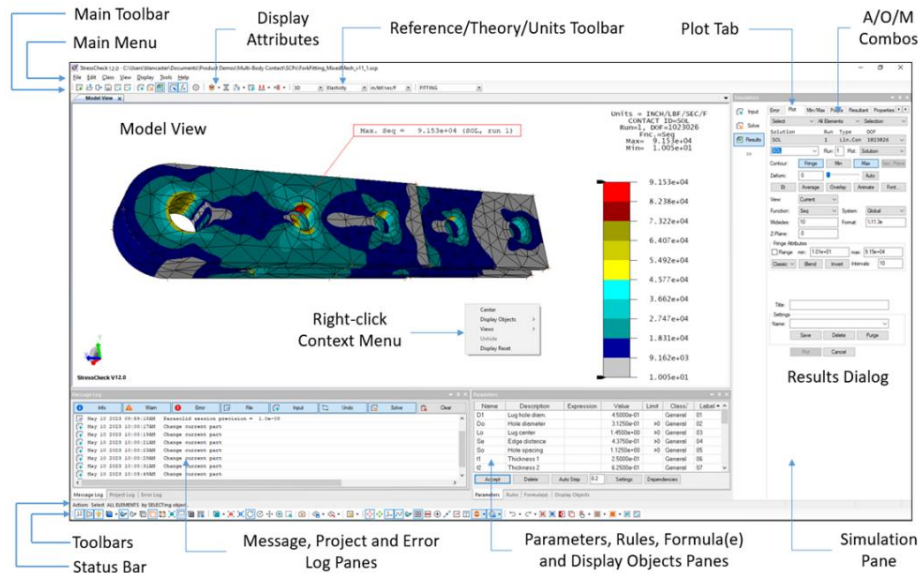


See StressCheck Professional Toolbar Guide for toolbar overview
and GUI Standards & Layout Overview for full GUI documentation.

Upgraded toolbar icons and mouse cursors for a clear and improved user experience.
- New option to select the toolbar icons between 16×16 (default), 20×20 and 24×24 pixels size.
- Toolbar Guide under Help to assist in the purpose of each toolbar icon.

Object Selection / Record Selection Feedback
- Improved object selection feedback and deselection tools for solid modeling operations, automesh assignments, etc.
  - New "Selection Outline" feature to outline obscured boundaries of selected curves, surfaces, solids and elements.
  - "Select Through" feature to limit selection to visible vs obscured objects within the model display.
  - Improved visualization of Selected status on dropdown lists containing assignment/set records.

Introduced support for assignment of:
- attributes to multiple selected bodies.
- individual colors to each solid body.
  - Maintain color definitions for imported solid bodies.
  - New option to support "Solid Body" color for material assignments.

## Pane Enhancements (Parameters, Display Objects, Camera/Lighting/Options)

Enhanced options and preferences available within the Options pane.

Introduced a Camera/Lighting pane with enhanced model rendering options.
- New lighting control with balance (directional/ambient) options.

Overhauled the Display Objects and Color Definitions panes.
- Display Objects pane now supports selective number ranges and additional object types.
- Display Objects Element Resolution and Plot Element Resolution now synchronized.
- Introduced Geometry and Mesh transparency optimization options.

Significant improvements to the Parameters pane presentation and features.
- Column sorting and filtering for Parameters pane table including "Go To" to search for parameters.
- A Dependencies button on the Parameter pane which lists all dependencies on the selected parameter.


## Model Input Feedback/Enhancements

Predictive text for input fields has been implemented for parameter and formula names.
- Validation and autofill also incorporated in applicable fields.

Enhanced Index controls for filtering and sorting Geometry and Mesh object lists including "Go To ID…" to access a specific ID.

Improved object associativity feedback for Geometry and Mesh object selections.

A list of object IDs belonging to a set "Contents:" and a list of objects that reference the set "Used By:" are now displayed when selecting a record on the Sets page.

Clarification of message prompts
- Improved message clarity and consistency for DeLast/Delete/Undo functionality.


## Meshing Improvements

Added Mesh Seeding capabilities.
- Mesh seeding to guide the Automesh by automatically using pre-existing node locations, as well as existing manually meshed elements.

Added Assembly Meshing / Auto Contact capabilities.
- Assembly meshing option to automatically prepare models for multi-body contact optimization.
  - Utilizes face matching algorithm when surface proximity is within a specified tolerance.
  - Free, Bonded or Normal contact now available and differentiated by different colors.
  - Support added for automatic generation of contact zones and assignment of contact constraints.

**Post-Processing/Results Viewing Enhancements**

Improved deformed shape and principal direction plotting features.

- Auto toggles and sliders introduced.

Introduced nine (9) new color map options for fringe plots.

Introduced movable Min/Max labels for Results plotting and extractions.

Introduced a Clear Plot button to quickly clear fringes/deformed shapes.

- Significantly faster than resetting the display.

Enhanced default graph appearance.

Improved performance for multi-run extraction of SIF's and other functions.

Right-click context menus provide improved plot legend features and interactivity, including selection of new plot functions, range min/max, font size, display format, and more.

# Notable Resolved Issues

- Fixed Material Nonlinear Convergence dropdown bug when Technique: Incremental
- Fixed issue with Solution: drop down population in the Solve dialog
- Fixed display of point constraint symbols to be scaled properly
- Fixed issue with boundary errors when alternating between parameter values
- Fixed unnecessary bearing load error messages when manually creating elements
- Fixed unexpected display of TLAP bearing load arrows when scrolling on model window
- Fixed evaluation of parameter expressions to prevent unnecessary model updates
- Fixed issues when solving multi-body contact with defined solution configurations
- Corrected missing suppress small features and slivers options for AddAutoMeshSim method
- Corrected missing Tolerance field when assigning materials via Edge Curve
- Fixed "hidden" File Upgrade Utility prompt issue
- Fixed limitation where Locate sets were not included in Sets Browser
- Fixed expected behavior of Local Size method with Global automeshes Transition Rate
- Fixed Point Load Case Definitions record selection and highlighting issues
- Fixed issue where Crack Front method results in more free edges than is expected
- Fixed issue where load records could not be properly retrieved from the Loads collection and updated in COM via the SetData method
- Fixed issue where users were unable to assign floating symmetry constraints via COM
- Fixed issue where Locate sets were detecting too many boundaries
- Fixed issue where failing Boolean operations were causing additional errors
- Fixed issue with surface and/or curve object set persistence when a parameter change caused an increase or decrease in the number of boundaries