

# Signal FFS™

## Patch release notes – Version 5.3.2.1

### Resolved Issues

- The local metal loss thickness grid file import was updated to allow for non-uniform grid spacing.
- The local metal loss flaw location, internal or external, selected in the Design form was fixed to avoid that option being reset.
- Several minor user interface items were also fixed.

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## Maintenance release notes – Version 5.3.2

### Updates

- Updated the Intel Fortran version, affects dependency DLLs in the installer
- Improved rainflow calculator
- Updated Part 3 brittle fracture report to include "Satisfies" or "Does not satisfy" in summary and step-by-step results
- Updated the Word template footer text about Quest Integrity
- Added tool tip text for default secondary/residual stress with information about supported geometry, crack shape, crack location, and material type
- Added brittle fracture Part 3 Level 2 Step 4 check for as-welded condition in option B reduction of MAT
- Improved limiting load analysis to converge for initial small or large loads
- Added dent and dent + gouge artwork to Dimensions page for input clarification
- Updated Part 12 Table 12.2 values for minimum temperature for CVN data above 40 Joules

### Resolved Issues

- Fatigue analysis does not return a result and continues to run – added a check for non-converging grow-to-failure analyses to end the analysis
- Updated Loads form global bending stress plot for circumferential crack to show correct stress at inside surface
- Updated gouge assessment using Part 12 and Part 5 for the choice of "Other" design code includes MAWP and check on CVN

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## Maintenance release notes – Version 5.3.2

- Corrected Part 12 dent-gouge Level 1 and Level 2 assessment
- Added information for test pressure and MAOP calculation for local metal loss using B31.8
- Added Part 9 crack known flaw assessment reporting updates for values in each step
- Corrected creep Level 1 time-independent upper limit curve for mm-MPa units
- Corrected toughness units label for Jc in the Results input summary
- Deactivated 2016 plasticity interaction factor calculation when using 2021 API 579 for the thick-wall cylinder geometry
- Updated limiting load analysis for circumferential cracks using 2021 API 579 reference stress solutions to also vary pressure with other loads during calculations
- Corrected tabular  $da/dN$  fatigue data column unit labels in the Input Data tab of the Results form as well as the report file
- Updated plasticity interaction factor limit for 2021 API 579
- Removed the global bending stress in the Loads form for the cylinder with embedded crack
- Set negative stress intensity to zero for the plasticity interaction factor calculation in the Kr ratio for each crack front location
- Check creep assessment using a corrosion rate for negative thickness that could occur during the loading exposure increments
- Updated sphere default weld residual stress in the Loads form
- Added creep loads form input for outside diameter values for external corrosion option

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- Included the user-defined minimum required thickness in the Level 2 stress ratio calculation
- Corrected Part 5 Local Metal Loss Step 9 to use longitudinal minimum thickness value rather than the limit thickness from Table 4.4
- Confirmed stress input in the Loads form to show the correct stress distribution through the plate thickness
- Corrected the flat plate infinite length crack reference stress solution
- Updated parametric limiting flaw analysis using toughness master curve with varying temperature input and choice of material exemption curve
- Added reporting of the final MFHr for groove metal loss in atmospheric storage tank analysis
- Corrected the General Metal Loss FCA validation to a curve when the input is available in the GUI
- Added the Part 9 toughness index temperature value given in the Input Data tab of the Results form as well as in the report file
- Set Methodology menu to start as API 579 2021 in the Home form
- Removed the ability for user to customize GUI toolbars