What's New in Structural Analysis Toolkit Professional v7.0.0

SAToolkit Professional v7.0.0 includes the following enhancements and major bug fixes:

All Processors

- Groups can be imported from SET cards in a Nastran .dat file.
- Bug Fix: Binary op2 files written by MSC Nastran 2014 and higher with mode=i8 are incorrect when system cell OP2NEW=1. SAToolkit has been modified to process them correctly.

Sine Processor

The sine processor has been completely rewritten; its user interface has been simplified to be more intuitive. Key new features are:

- Produce peak results over frequencies and load cases.
- Support binary output format (.op2 and .bun).
- Full support of FEMAP neutral file for results, no exception.
- Results can be written to formatted Excel XML workbooks.
- Support corner results for all elemental output requests.
- Enhanced memory management to support very large .op2 files.
- Compute ply stresses/strains for 2D and 3D laminates.
- Compute phase-consistent Von Mises stresses and strains for all elements, including 2D and 3D laminates.
- More element types are supported, the sine processor now supports the same elements as the random processor.
- Can output scalar margins of safety.
- Compute phase-consistent ply failure metrics for 2D and 3D laminates using proprietary algorithms for exact results (Advanced license required). Computed metrics are:
    - Failure indices
    - Strength ratios
    - Margins of safety
- Parallel solver (Advanced license required).

Stress Processor

The stress processor has been completely rewritten and its user interface has been simplified. Key new features are:

- Output strains in addition to stresses.
- Output composite failure metrics
- Support binary output format (.op2 and .bun).
- Enhanced memory management and performance to support very large .op2 files.
- Critical stress cases, subcases and plies (for laminates) are reported in the text and Excel files and can also be post-processed graphically via the binary output..
- Summary tables by subcase and by stress case are generated.
- Graphical envelopes by subcase are generated.
- Results can be written to formatted Excel XML workbooks.
- More element types are supported, the same as the sine and random processors.
- Can output scalar margins of safety.

Random Processor

- Binary output does not require the Advanced license anymore.
- All output requests now support neutral file output for the peak and positive crossings results.
- Support CELAS3 and CELAS4 elements.
- The margin of safety cutoff is now ignored while writing the neutral file.
- Bug fix: Elemental PSD Functions were not written out to the UNV file.

Grid Point Force Processor

- Bug Fix: Sum of R1 moments was incorrectly computed.
- Bug Fix: INF could end up being written to excel files when one allowable is 0.0. In such cases, the macro could not format the workbook successfully.

Element Force Processor

- Bug Fix: Main form dialog settings could be lost when Cancel/Reset was pressed in the group selection dialog or in the subcase selection dialog.

Supported NASTRAN Versions

- NX NASTRAN 10.0, 10.1, 10.2, 11.0, 11.0.1 and 11.0.2
- MSC NASTRAN 2016.0.0 and 2017.0.0