

Z-set release notes

9.1.5

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This document summarizes the principal enhancements and fixes with respect to the previous Z-set release (9.1.4).

1 Zebulon

- Direct linear solver on Linux interfaced with Mumps 5.4.1 and Mkl 2020, resulting in efficient computation times.
- Direct linear solver on Windows interfaced with Mumps 5.1.2 and Mkl 2019, resulting in efficient computation times.
- Iterative CPCG solver : handling of unconnected contact parts in the coarse mesh projections.
- Enhanced contact detection algorithms (kD tree based).
- Improved shell/membrane formulations : handling of non uniform thicknesses in sequential and DD parallel modes.

2 Z-cracks

- Integration of MG cleaner feature for MeshGems remeshing tools. Helps in handling remeshing of complex geometries.
- Enriched Ansys Z-cracks interface, capable of handling various forms and formats of native Ansys boundary conditions.
- Automated testing of Ansys Z-cracks new test database, using explicit ZProgram scripts.
- Improved Z-cracks interface, with functionalities regrouped under relevant tabs of the interface.

3 Interfaces

- The Zmaster, Z-mat, Z-post and other modules of the Z-set interfaces with the latest releases of Abaqus and Ansys (2023).
- Z-mat interface for Forge software.
- Interface with Forge NxTGui, enables the visualization of native Z-set results (mesh+results) in the NxTGui 4.0
- Interface Z-mat with code Morfeo.
- The Z-set Paraview plugin compiled with the latest release (5.11).

- Up-to-date zset4python plugin code (python 3.9) in the commercial release.

4 Z-post

- Thermal barrier post processing bug fixes.

5 Miscellaneous

- Various Z-air related enhancements.
- MeshGems remeshing algorithm improvements :
 - New mesh_gems_unconnected function to better handle complex assemblies involving contact.
 - Automatic preservation of various mesh entities (nset/bset/elset etc).
 - Implementation of fixed_nset option to preserve position and ids of concerned nodes.
- Enhanced translation of native Ansys input files to Z-set input file format.