

Changes to FRANC3D from Version 7.0.9 to 7.1.0

Dec 1, 2017

- 1) Added Display menu, which includes View Response and Create Animation. View Response was moved from the Advanced menu. Create Animation was developed starting from the stand-alone GrowthSequence program, which is no longer distributed.
- 2) A Capture button was added to the main Window to provide .png or .jpg images of the current model.
- 3) Fatigue crack growth dialogs have been revised to allow time or cycle or combined time+cycle dependent crack growth. Multiple load steps and load substeps are supported.
- 4) View/Edit Growth Parameters button was added to the Fatigue menu to allow a user to edit the fatigue growth model parameters.
- 5) User-defined Python functions for crack growth are now supported. A Read User Extensions menu button was added to the Advanced menu.
- 6) The VCCT (virtual crack closure technique) was added for computing SIFs. This is intended primarily for bi-material interface cracks, which will be supported in the next release (Ver 7.2). VCCT works for isotropic and anisotropic materials.
- 7) Displacement Correlation SIFs for orthotropic materials is now supported.
- 8) A Large Rotations check box was added for the M-integral SIFs for analyses with large rigid body motions, such as rotating gears.
- 9) The Fretting module interface was modified to support multiple load step analyses.
- 10) Documentation and tutorial example files have been updated.

Changes to FRANC3D from Version 7.0.8 to 7.0.9

July 2017

- 11) Fix issue with ANSYS contact material ids
- 12) Allow multiple ANSYS pilot nodes (and associated contact surfaces).
- 13) Fix ABAQUS Python script to get all frames of results (first frame was missing).
- 14) Add support for ABAQUS analytical (revolution and cylinder) surfaces.
- 15) Add support for ABAQUS ROTA dload.
- 16) Add support for "adjust=nset" in ABAQUS contact pair.
- 17) Fix issues processing ANSYS surf154 elements – specifically for elements with missing or condensed nodes.
- 18) Ensure the ANSYS local cracked .cdb file includes the TREF value.
- 19) Fixed some bugs in surface meshing.
- 20) Allow multiple crack front group labels for user-mesh cracks.
- 21) Added check box to turn on/off curvature correction for M-integral SIFs (for some cases with high Mode II and negligible Mode I, the correction produced incorrect Mode II SIFs).
- 22) Ortho-view icon updated in Submodel dialog when "Rubberband" tool is selected.
- 23) Fixed ANSYS contact "keyopt" default values.

Changes to FRANC3D from Version 7.0.7 to 7.0.8

Apr 2017

- 1) Fixed a problem with unit conversion between FE model and crack growth data, when mixed units are used.
- 2) Fatigue cycles are now represented by int64 data type to allow for larger numbers.

Changes to FRANC3D from Version 7.0.6 to 7.0.7

Feb 2017

- 1) Changes to FE readers to check for empty first load cases. This eliminates solve time for an empty load case after crack insertion and thus removes set the resulting SIFs that are all zero.
 - i) NASTRAN load step added for .bdf files without a SUBCASE.
- 2) Changes to convert crack face traction from pressures or shear tractions to equivalent nodal forces, which simplifies the ANSYS interface considerably as SURF154 elements are not needed on the crack faces to apply shear. (See additional documentation.)
- 3) ABAQUS .rpt file reader edited to make somewhat more robust. Report (.rpt) files are used to apply mesh-based stress as crack face traction.
- 4) ABAQUS heat transfer element types read and converted to structural elements.
- 5) ABAQUS element type string in session log and command language interpreter fixed.
- 6) ABAQUS first pass reading of *Nset and *Elset data defined after *Boundary or *Dload data that references the sets.
- 7) ABAQUS *Submodel defined within *Assembly processed.
- 8) ANSYS SURF154 element pressure mapped to solid element faces for local model.
- 9) ANSYS load steps include time and additional boundary condition data passed through.
- 10) WriteCOD dialog in the Advanced menu modified to allow specification of the load step.
- 11) Crack growth dialog for the case of Implicit R fixed so that all user edits to the dialog are collected.
- 12) User-defined crack growth increment table access fixed; index into the table was off by 1.
- 13) Reference temperature set as the default temperature (instead of 0.0) when computing SIFs using M-integral if user turns off the "do thermal" flag.
- 14) A number of bug fixes have been made to the crack insertion and meshing library also.