

FEM Utilities for CATIA

Key Functionality

General

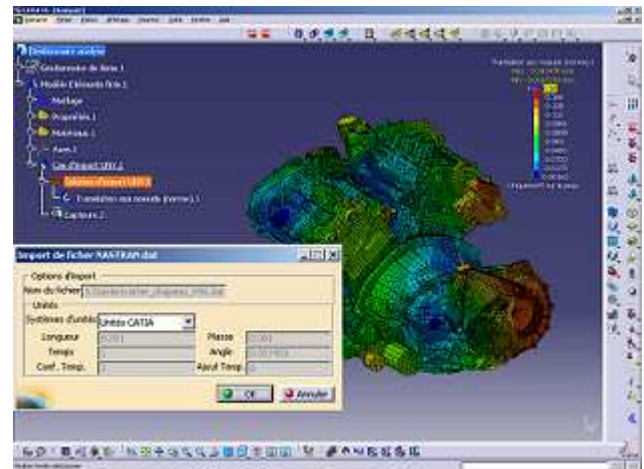
- FEA bidirectional gateways
 - NASTRAN Bulk
 - ANSYS Prep7
- Enhanced meshing and modelling

NASTRAN gateways

- Supported formats are:
- NASTRAN Bulk and op2

Capabilities:

- import and export of structural FE data and results
- support of GPS local beam and shell properties
- support of composite properties
- support of assembly of analysis documents
- support of FEA user numbering if present in the model
- support of multiple load cases and solvers
- support of data mapping



ANSYS gateways

- Supported formats are:
- ANSYS prep7

Capabilities:

- import and export of linear structural FE data
- support of GPS local beam and shell properties
- support of assembly of analysis documents
- support of FEA user numbering if present in the model
- support of multiple load cases and solvers
- support of data mapping

Manual meshing

Meshing operations on nodes:

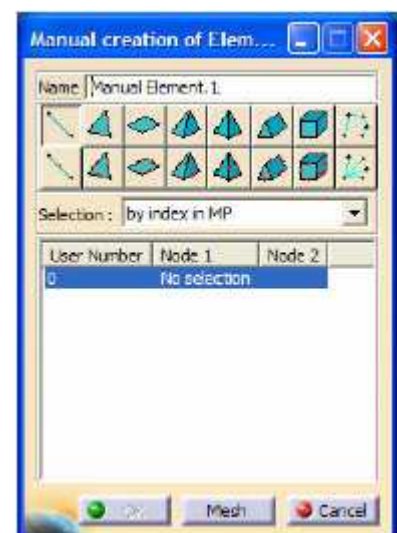
- creation by coordinates, with two existing nodes and a ratio,...
- deletion of nodes
- modification of position
- condensation on destination nodes

Meshing operations on elements:

- creation of 1D, 2D and 3D elements
- deletion of elements
- modification of elements

Full support of spec – update paradigm:

- “Manual Mesh Part” feature used to group manual operations
- advanced nodes and elements selection capabilities enable stability of selection during the updates



Semi-automatic meshing

Three families of capabilities:

- mesh part operators used to modify the result of a mesh part
- meshing by transformation of an existing mesh (including symmetry)
- meshing by extrusion of an existing mesh

Very flexible input specifications:

- input mesh selection by mesh part, group, BRep or mechanical feature
- input mesh can be nodes, 1D elements (or edges), 2D elements (or faces) and 3D elements
- implicit geometry characteristics can be used (e.g. the axis of a cylindrical face)

Supported transformations are translation, rotation, offset, along a spine and projection

Pre-processing

Numbering of FEA data

Through this capability the user is able to control the numbering used by the FEA interfaces when exporting data.

Logical operations on groups

Through this capability the user is able to perform logical operations on groups of nodes or elements. The inputs can be any feature capable of selecting nodes or elements, mesh parts, BReps and mechanical features.

Others

Support of journaling
Access to all capabilities via VB Scripting
Full integration with KnowledgeWare

