

Nastran Data Translator

Advanced bi-directional interface between NX I-deas and Nastran

Benefits

- NX I-deas geometry-based FE modeling tools simplify the modeling process
- Run-ready decks reduce, or eliminate, intermediate processing requirements
- The translator supports wide variety of elements and other model entities

Features

- Supports a broad range of Nastran entities and solutions
- Provides advanced formatting options for tailoring the model and viewing results

Summary

The Nastran Data Translator provides bi-directional exchange of finite element models and simulation results between NX™ I-deas™ software and Nastran. This allows the user to combine NX I-deas finite element preprocessing and postprocessing software with Nastran analysis. NX I-deas Simulation software and the Nastran Data Translator provide all the tools needed to build models, to define Nastran solution parameters and to view the solution results.

The power of NX I-deas preprocessing and postprocessing is an ideal partner with Nastran solution capabilities. NX I-deas geometry-based finite element modeling tools simplify the modeling process. The Nastran Data Translator builds Nastran run-ready bulk data decks, so little or no intermediate processing is needed. Solution results are imported directly from Nastran binary results files.

Importing Nastran models and results

- Complete Nastran finite element models including bulk data as well as executive and case controls
- Model information from either bulk data decks or binary output2 files
- Solution results from binary output2 files
- Cross-platform reading of output2 files
- Estimation of beam element cross-section shapes for graphical display
- Selective results import
- Optional output2 file viewer feature
- Optional creation of intermediate universal files
- Physical, material property and beam section names imported from Femap™ software, Hypermesh and PATRAN decks

Exporting Nastran models

- Complete run-ready Nastran decks including file management, executive and case controls, bulk data and over 200 available solution parameters
- Support solutions 101, 103, 105, 108, 111 and 159
- Optional selection of the Nastran basic coordinate system
- Optionally export a subset of the NX I-deas finite element model
- Optional comment card migration and reordering using template deck
- User-defined entries in all sections of the deck
- Mutually exclusive degree of freedom set verification

NX

Nastran Data Translator

Round-tripping

Special features maintain data format and integrity for complete import and export cycles.

- CORD1, CORD2 cards, beam orientation vectors, material coordinate systems
- NX I-deas groups
- NX I-deas physical, material property and beam section names

Elements and other entities

A wide variety of elements and other model entities are supported.

- Lumped mass, spring, damper, gap, rigid and constraint elements
- Axisymmetric shell and solid elements
- Rod, beam and pipe elements
- Shell and membrane elements
- Plane stress and plane strain elements
- Solid elements
- Trace lines
- Superelements
- Fluid nodes
- Scalar points
- Permanent single point constraints

A complete list of Nastran entity support is provided in the NX I-deas online help documentation.

Loads and boundary conditions

Loads and boundary conditions for structural and thermal analysis are supported.

- Nodal, elemental and geometry-based structural loads
- Beam concentrated and distributed loads
- Gravity, rotational velocities and acceleration loads
- Nodal, elemental and geometry-based thermal heat loads
- Nodal restraints and temperatures
- Traction loads

- Multipoint constraints and coupled degrees of freedom
- Connection, kinematic and master degrees of freedom

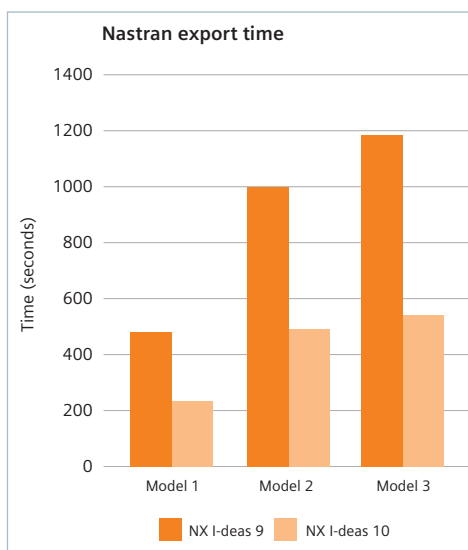
Analysis results

The following results are recovered into NX I-deas for postprocessing and display:

- Element and play stress
- Strain, ply strain, strain energy and composite failure index
- Displacement, mode shape, velocity, acceleration and pressure
- Element force and grid point force
- Reaction force, temperature and heat flux
- Real and complex dynamic results
- SORT2 results
- Nastran mass and stiffness matrices

Increase efficiency

The performance of the Nastran Data Translator is regularly monitored for continuous improvement. This chart reflects the reduction in export time between NX I-deas 9 and NX I-deas 10 for three industry-representative models.



Compatibility

Full support for NX I-deas, MSC, CSA and UAI Nastran is provided, with partial support for NE and COSMIC Nastran. The NX I-deas Nastran Data Translator is compatible with the following Nastran releases:

- MSC.Nastran v2001.9 or earlier
- NX Nastran® v1.0
- CSA Nastran v99
- UAI Nastran v20.1

Computing platforms

Nastran Data Translator is supported on HP, Sun, IBM and SGI Unix and Windows 2000/NT hardware platforms. Visit http://support.ugs.com/online_library/certification/ for additional system configuration information.

Prerequisite

NX I-deas MasterFEM
NX I-deas Simulation Modeling Set

Contact

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