GLview Inova Software Suite

ceetron®

understanding by visualization

The GLview Visualization Concept

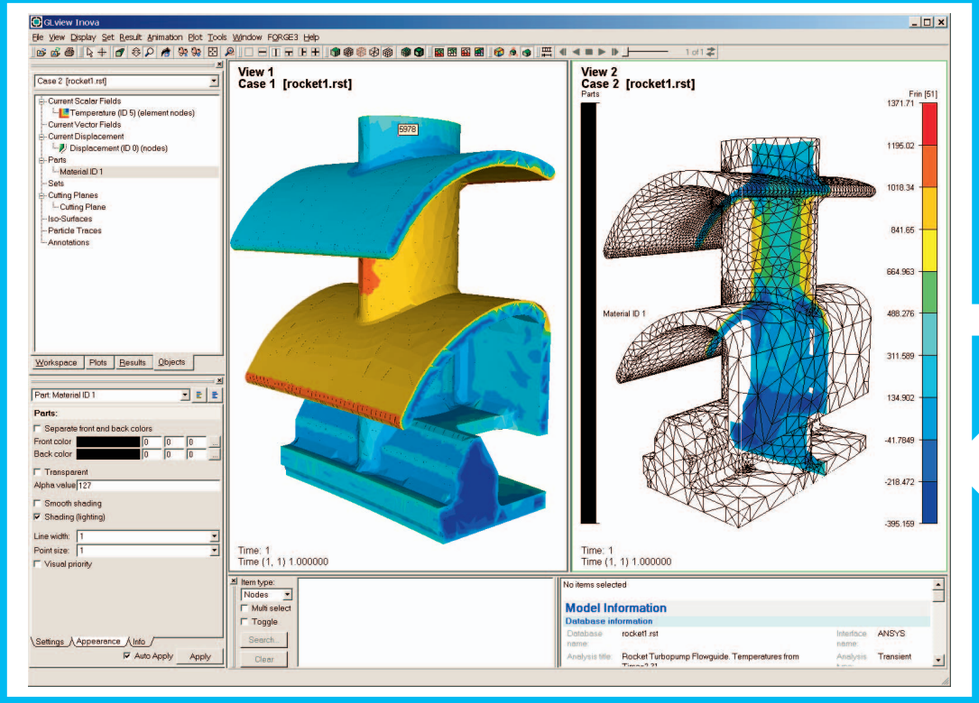
The GLview Software Suite consists of software components for visualization of engineering data that can satisfy the most demanding requirements in terms of functionality, ease of use and integration with other software. The software components provides excellent tools for interpretation and post processing of CAE data and for sharing, presenting and communicating the results of your work.

The main components of the GLview Visualization Concept are:

- GLview Inova for post processing, animation and result interpretation
- GLview Express for sharing and communication data to colleagues, clients or customers.
- GLview 3Dplugin for presenting full 3D models and results in PowerPoint or Internet Explorer

The link between the components is the compact and efficient VTF file format. These files are also used when sharing and communicating data to others. In addition, Ceetron provides software development tools for creating customized pre- and post processing solution for integration with in-house software.

Result interpretation

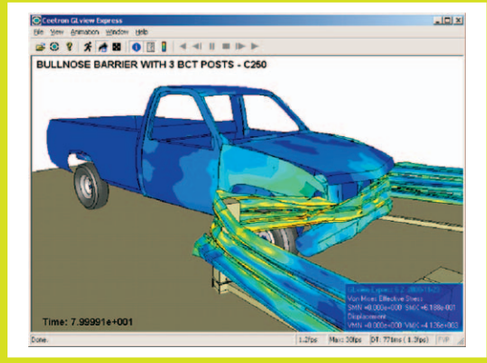


GLview Inova Post-processor (for OEM only)

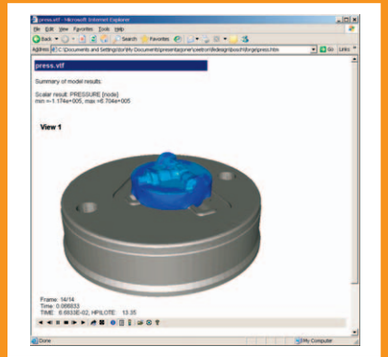
Supported CAE systems:
ANSYS, ABAQUS, FEMAP, I-DEAS, MSC.Nastran, LS-DYNA, RADIOSS, FLUENT and CGNS

GLview VTF file format

Result presentation & communication



GLview Express:
Free stand-alone viewer.



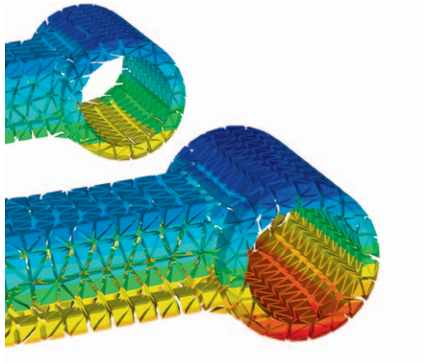
GLview 3D PlugIn:
Free viewer. PowerPoint. Internet Explorer

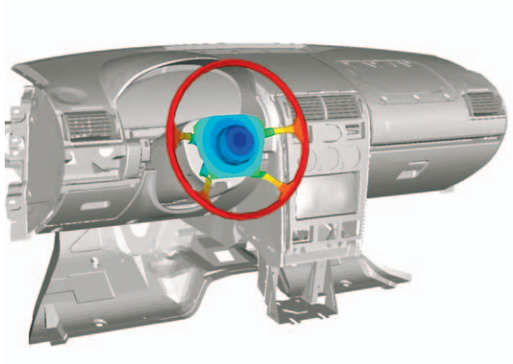
Increase the understanding of analysis data with GLview Inova.

GLview Inova is a modern, full-blown post-processor – ready to use with all major CAE software systems on the market. GLview Inova is aimed for engineers in the CAE community. It can be used as is, or as a basis for further customization to meet special needs. GLview Inova runs on Windows and Linux platforms with a unified look and feel. Direct File interfaces to the major standard CAE systems are integrated.

Key functionality

- Excellent model and results overview
- High performance interactive graphics utilizing OpenGL
- Interactive animations
- Powerful 2D Plotting
- Export to GLview Express and GLview 3D Plug-in (PowerPoint and Internet Explorer)
- Support for large models
- Model queries (find/picking)
- Model annotations
- Support for multiple databases, cases and views.
- Scripting fuctionality
- Direct Interface to major CAE systems such as ANSYS, ABAQUS, FEMAP, I-DEAS, MSC.Nastran, LS-DYNA, RADIOSS, FLUENT og CGNS





Main workspace layout

The main application window area consist of five main parts:

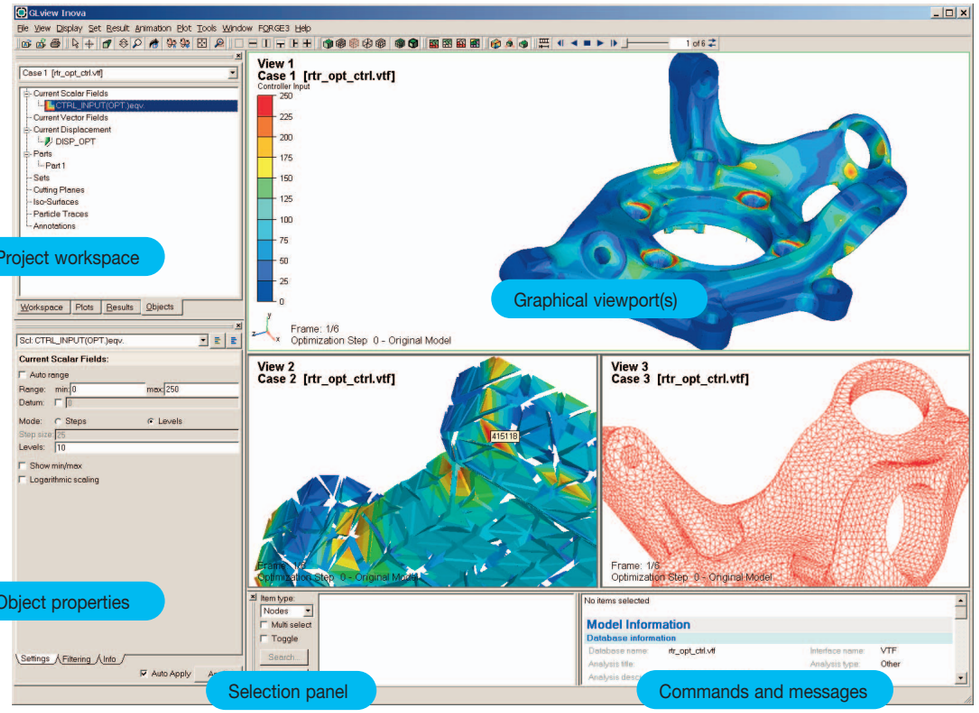
Project workspace:
Uses four tabbed views to give an overview of the workspace.

Object properties:
Shows object settings and properties for the currently selected objects

Graphics viewports:
Shows 1, 2, 3 or 4 graphical viewports

Selection pane:
Allows selection of model entities and provides feedback on selected items

Commands and messages:
Allows input of commands, and displays messages from the application.



How to integrate GLview Inova with your in-house analysis software?

GLview Inova can be used to post process data from in-house CAE software. Data can be imported into GLview Inova in two ways:

Export to VTF. The application can export to the VTF format (ASCII or binary), either by writing directly to the files using the publicly available specifications, or by using the GLview Express Writer library (available on all platforms, with mappings for C++, C and FORTRAN).

Direct reader in GLview Inova. A direct reader can be implemented in GLview Inova for proprietary file formats. When the data is read into GLview Inova, a complete post processing solution is available to the users, including access to the free viewers GLview Express and GLview 3DPlugin. A customized look-and-feel as well as new features can be added upon request.

As soon as GLview Inova is able to read the CAE data, a complete post processing solution is available to your users, with access to the free viewers GLview Express and GLview 3D plug-in.

A customized look-and-feel as well as new features can be added upon request.

Improve the communication in CAE projects by using GLview Express

GLview Express is a free 3D viewer, enabling GLview Inova users to share and distribute analysis data to clients and colleagues. GLview Express is the CAE world's equivalent to Adobe Acrobat Reader.

Key Features

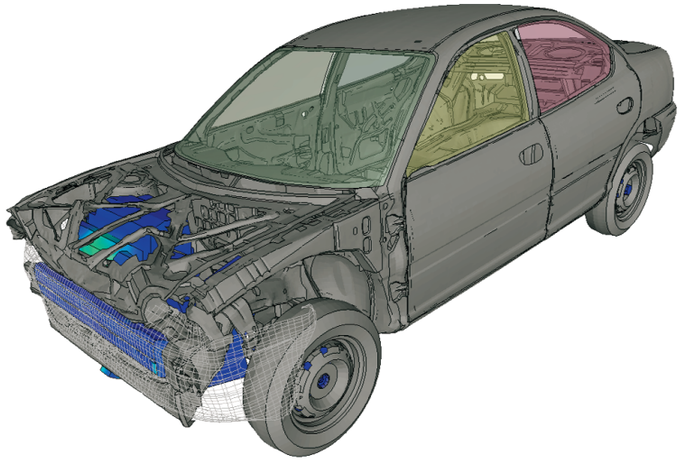
- 3D visualization and interactive animation
- Reads and displays VTF files generated by GLview Inova
- VTF files contain current model, results, and settings from GLview Inova
- No access to change display settings
- Stand alone application
- Free distribution!

How do customers use GLview Express

- Presentation tool to share VTF files with colleagues and partners
- Marketing tool for presentation, documentation, and distribution of VTF files towards existing and potential customers
- Include GLview Express for free in technical reports to experience full 3D interactivity
- Distribute VTF files by means of GLview Express, which can be downloaded from our website

Distribution of files

The VTF files generated by GLview Inova are compact, and often suitable for distribution across the Internet. In case of large datasets, the files can easily be distributed along with GLview Express on a CD-ROM.



Increase the understanding of analysis data with GLview 3D plug-in

GLview 3D Plug-in is a free component enabling users of GLview Inova to present real analysis data in PowerPoint presentations, Microsoft Word documents, or over the Internet using Internet Explorer.

Key Features

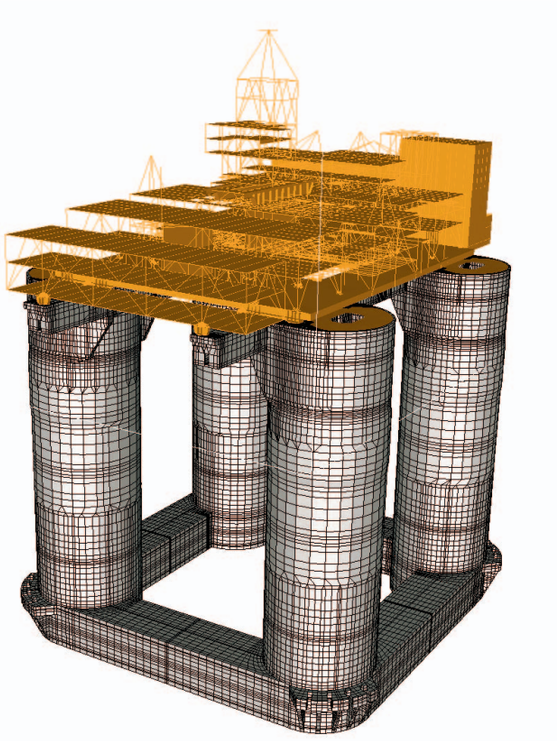
- 3D visualization and interactive animation
- Reads and displays VTF files generated by GLview Inova
- VTF files contain current model, results, and settings from GLview Inova
- No access to change display settings
- Supports PowerPoint, Word, and Internet Explorer
- Free distribution!

How do customers use GLview 3D Plug-in

- Marketing tool to present VTF files interactively in PowerPoint
- Electronic reporting tool to display VTF files interactively in Word or Internet Explorer
- Include GLview 3D Plug-in for free in presentations or electronic reports
- Powerful visualization component for Simulation Data Management Systems.

Distribution of files

The VTF files generated by GLview Inova allow you to compress your orginal files. This makes it easier to present and distribute your analysis models in PowerPoint, Word, and Internet Explorer.



Technical Data of GLview Inova

File import

- GLview VTF format (ASCII, open binary, encrypted binary for GLview Express)
- In-house formats (customized import filter required)
- On request:
  ABAQUS: Binary post file (.fil, .odb). Input file (.inp)
  ANSYS: Binary results files (.rst,. rth and .rfl)
  FEMAP: ASCII neutral file (.neu)
  I-DEAS: ASCII universal file (.unv)
  LS-DYNA: State Database (d3plot), Time History File (d3thdt)
  MSC.Marc ASCII (.t19) & binary (.t16)
  MSC.Nastran: Binary Output 2 files (.op2).
  Input bulk data
  NE/Nastran NX Nastran:
  Binary Output 2 files (.op2) and bulk data
  RADIOSS: Binary ModAnim file
  FLUENT: Binary output (.cas, .dat)
  CGNS: Binary output (.cgn)

File export

- Export to VTF file format for viewing with GLview Express and the GLview 3D Plug-in. Optional file compression methods included.
- Export to BMP, JPG, PNG, TIFF, GIF still image formats.
- Export to animated GIF, AVI and MPEG.
- HTML Export
- Powerful overview and selection of load cases and results to display.
- Advanced result mapping and handling for efficient interpretation and analysis of results.

Results presentation

- Scalar results
  Multiple scalar fields.
  Scalar results can be displayed as fringes (filled contours), contour lines, iso-surfaces or mapped onto cutting planes or iso-surfaces.
- Advanced Color Legend
  A number of different color spectra, e.g. Red to Blue, Black to White, can be allocated to scalar results.
- Vector Fields
  Single or multiple vector fields
  Filtering on components or absolute values.
  Multiple vector fields can be loaded and displayed as vector arrows in addition to displacements. Vector fields can be mapped onto iso-surfaces, cutting planes and particle traces.
- Display result values as numeric text labels and show min/max result values using text labels.

Model queries

- Advanced picking for enhanced interactive selection and querying.
- Detailed information on selected i tems.

Display and viewing

- Multiple graphical viewports.
- Fully configurable load case/time-step and result selection in each view.
- Intelligent model navigation.
- Zooming, including rubber band zoom.
- View shrunken mesh.

Animation

- Easy animation setup.
- Interstate interpolation.
- Mode shape animation
- Scaled Real Time animation
- Particle Trace Animation

2D plotting

- Multiple 2D plots.
- Plotting of variables directly from result database.
- Time history plots of any variable at a node.
- Plotting of one variable against another.
- Plotting of variables along lines and curves on the geometry

Element sets

- Load set specifications available in the result file.
- Combine sets by set operations (union, intersection, subtraction).
- Show sets by color-coding.
- Enable/disable display of all the elements in a set.

Feature extraction

- Multiple iso-surfaces.
- Mapping of scalar and vector result onto iso- surfaces.
- Mapping of user selectable scalar and vector results onto cutting planes.
- Advanced Particle Tracing
- Regular Grid Vectors on Cutting Planes
- Model Clipping

Annotation

- Textual annotation
- Interactive distance measuring and labeling on the 3D scene

Scripting

- Fully implemented script language
- “Record” functionality for creation of script files

Supported platforms

- Widows and Linux platforms.
- Localized versions available on request.

Evaluation

GLview Inova and the free software components GLview Express and GLview 3DPlugin can be downloaded for evaluation from the Ceetron download area.

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