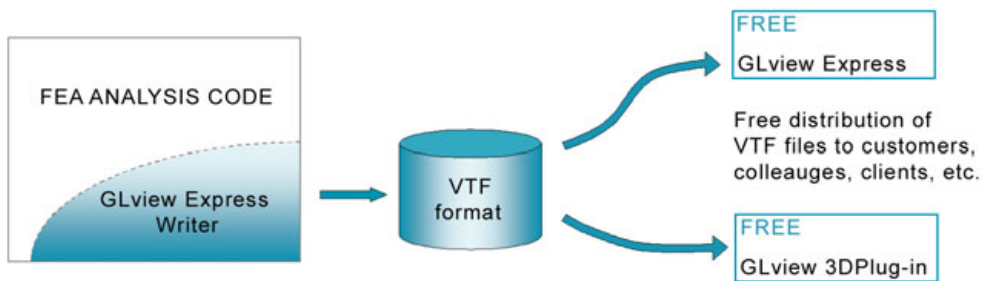


The GLview Express Writer enables developers of commercial and in-house FEA codes to utilize the free presentation tools GLview Express and GLview 3D Plug-in. By using these products, FEA data can easily be shared across different HW and SW platforms without the need of installing licensed software.

By using GLview Express, the FEA model and results can easily be shared with colleagues, suppliers, partners, and management for review or for further analysis. With the use of GLview 3D Plug-in, the 3D FEA data can be viewed interactively in PowerPoint or Internet Explorer.

Geometry models, result selections, animation settings, and various output options (e.g. draw modes wire frame, points, surfaces) can be conveyed to GLview Express and GLview 3D Plug-in by means of a VTF file. The VTF file format preserves all FEA characteristics such as node and element numbering, element topology, and the original numerical result values. The VTF file can be distributed to colleagues, sub suppliers, partners, and management for review. Moreover, the VTF file can be read by the full blown post-processor GLview Pro for further interpretation and analysis.



### How can FEA code vendors utilize the GLview Express Writer?

- *Low-cost visualization solution:* The Express Writer allows FEA code vendors to offer their end-users a low-cost visualization and presentation solution. The end-user do not have to purchase the full post-processor GLview Pro or any other post processing software.
- *Deliverables:* The Express Writer is delivered as a fully documented object library and C++ header files for Windows and most UNIX platforms. The object-oriented architecture is written in ANSI C++, providing high-level portability. The C++ header files come as obfuscated source code. Interface layers for access from FORTRAN and C are also available.



## Key benefits

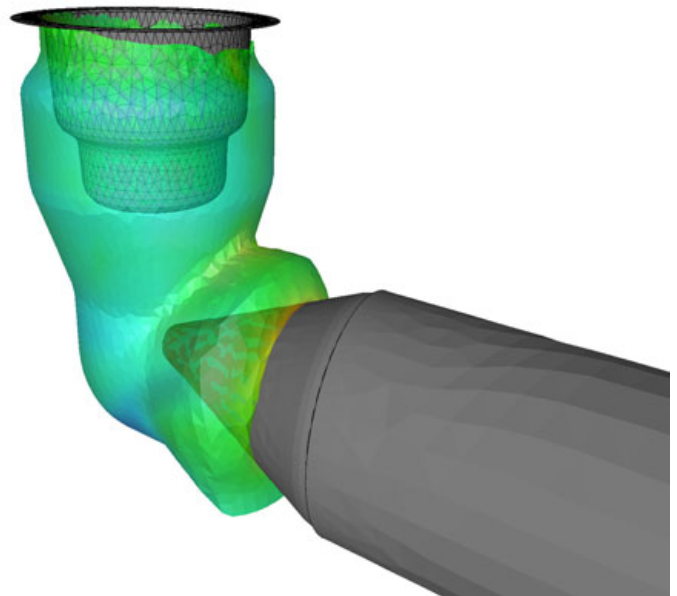
- *Presentation of FEA data:* Enables features for sharing, communicating, and presenting FEA results using the free tools GLview Express and GLview 3D Plug-in.
- *Easy to implement:* Saves time and costs.
- *Cross-platform Windows/UNIX visualization:* Express Writer enables cross-platform solutions - from Windows laptops up to high-end UNIX workstations. Moving databases across different HW/SW platforms is often cumbersome. By using the VTF format as a common data carrier, the results can be visualized across hardware platforms without any conversions.
- *VTF Export as selling point:* The VTF export feature provides a competitive edge for FEA code and will generate attention amongst potential customers of your application.

## The VTF file format

Ceetron has developed the VTF file format to be a carrier of FEA data. The format contains descriptions of all information relevant to FEA data such as geometry (adaptive/static mesh), node/part/set/element definitions, scalar and vector fields, time steps, etc. In addition the format has functionality to carry information related to presentation and visualization of the FEA data. This is typically attributes such as drawing modes (surface, wireframe, etc.), color settings, etc.

The VTF Format exists in three different modes - ASCII, Binary, and VTF Express mode.

The VTF Express mode is a licensed format and can only be written by GLview Pro or by GLview Express Writer.



## Business opportunities and return of investment

### Vendors of commercial FEA code

By implementing the GLview Express Writer in your code, you can offer your customers the engineering world's equivalent to Acrobat (R) Reader. The GLview Express Writer allows your users to share, communicate, and present results from your FEA code in full 3D.

Some business opportunities:

- Offer GLview Express as a low-cost, company-wide presentation and visualization solution. Anyone can load a VTF Express file and study the simulation results, present highlights and conclusions - without the need of installing proprietary post-processors.
- Let your customers build an internal project archive. By storing a copy of all simulations in your FEA code on the VTF format, it is easy to build a version control system, or access former versions of the simulations without transferring large amounts of data.
- Let your customers build a showroom: Publish previous simulation jobs on the company intranet - or externally via the Internet - by visualizing VTF files in the GLview 3D Plug-in.



## Licensing models

The structure of the GLview Express Writer licensing model has two parts

- Annual license fee of the development library
- Royalty on the distributed licenses

Included in the fee for the Development License is support and upgrades of the development libraries.

The second part, Royalty on distributed licenses, is computed from the number of licenses of the end user product that uses the Express Writer feature. For further pricing information, please contact us at [info@ceetron.com](mailto:info@ceetron.com)

## Products from Ceetron

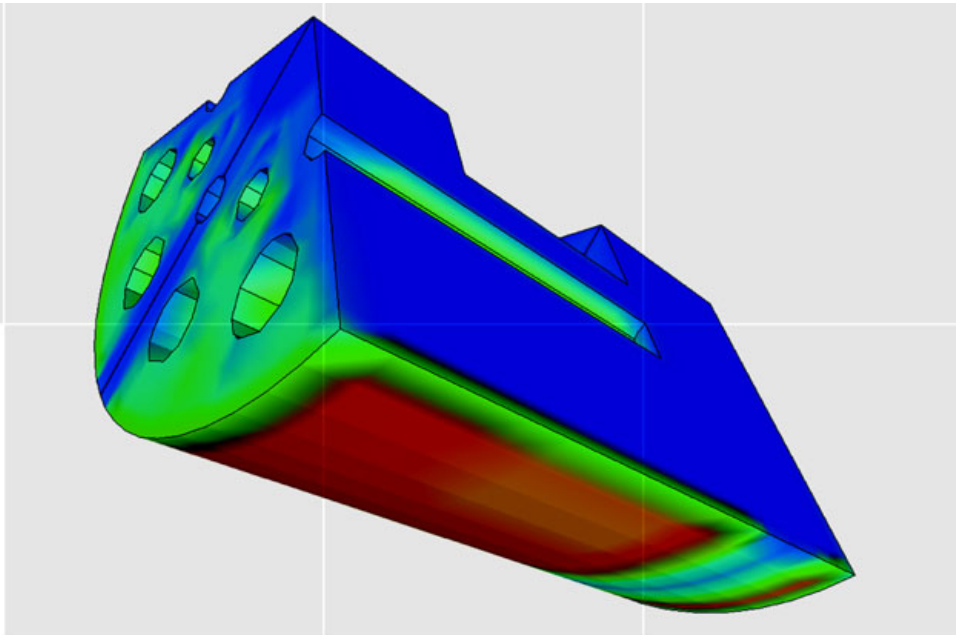
<b><i>End user products</i></b>	
GLview Pro	Post-processor supporting standard FEA codes such as ABAQUS, ANSYS, FEMAP, I-DEAS, LS-DYNA, MSC.MARC, NSC.NASTRAN, RADIOSS, and others. Available on Windows, UNIX, and Linux.
GLview Express	Free viewer. Reads the VTF Express format. Available on Windows, UNIX, and Linux.
GLview 3D Plug-in	Free viewer. Reads the VTF Express format. Available on Windows.
<b><i>Software developer tools</i></b>	
GLview Visualization API	Software development library for building custom visualization solutions. Fully documented object oriented class library for Windows and UNIX.
GLview Express Writer	File export toolkit for GLview Express and GLview 3D Plug-in. Fully documented object oriented class library for Windows and UNIX.

## Customer references using the GLview Express Writer

FE-Design ([www.fe-design.com](http://www.fe-design.com)) has implemented GLview Express Writer into their FEA system TOSCA. TOSCA is a software program for non-parametric structural optimization (topology and shape) and consists of the modules TOSCA topology, TOSCA.shape and TOSCA.pre. TOSCA does not have its own post-processor, but can output the results to various formats such as MSC.Patran or FEMAP and ABAQUS. By implementing the GLview Express Writer, FE-Design can offer their customers an easy-to-use visualization solution through GLview Express.

Blue Ridge Numerics ([www.brni.com](http://www.brni.com)) is a computational fluid dynamics (CFD) software company providing digital prototyping tools that are accessible within the MCAD environment. Engineers can use CFdesign software to quickly and thoroughly evaluate design concepts under complex, real-world conditions. By exporting results from the CFD simulations to the VTF Express format, engineers can share and communicate their results with clients and colleagues.

## Evaluation of GLview Express Writer



A free evaluation of GLview Express Writer is available for download at [www.ceetron.com](http://www.ceetron.com). Support from Ceetron software engineers will be available during your evaluation.

For evaluation of the GLview Express Writer, please contact:

### Contact information

**Ceetron GLview AS**  
**P.O.Box 1247**  
**Pirsenteret**  
**N-7462 Trondheim**  
**Norway**

**Phone: +47 7354 6150**  
**Fax: +47 7354 6144**

**e-mail: [info@ceetron.com](mailto:info@ceetron.com)**

