

## BETA CAE Systems S.A. announces the new v14.2.0 release of the ANSA & $\mu$ ETA pre- & post-processing suite

BETA CAE Systems S.A. announces the release of the new 14.2.0 version of ANSA &  $\mu$ ETA pre- and post-processing suite. A number of new features have been added enhancing the capabilities and the solutions that our suite offers.

In this version we have deepened ANSA's functionality throughout its implementation during the CAE processes. From CAD data translation, geometry handling and design, meshing and modeling to model set up in the numerous decks the v14.2.0 of ANSA offers a fully augmented solution in your daily CAE working ways.

In the same notion, the v14.2.0 of  $\mu$ ETA has also been enriched raising the bar of effective post-processing to even higher levels. Amongst the numerous enhancements of this version of our suite the following are the most notable.

### Enhancements and Known Issues Resolved in ANSA

### Enhancements and Known Issues Resolved in $\mu$ ETA

### Compatibility

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## New features, Enhancements and Known Issues Resolved in ANSA

### General Functionality

The **UNDO** and **REDO** commands are now available. Enhancing the user experience performance, ANSA is able to store and retrieve the results of latest used functions. Furthermore, the user can control the number of steps as well as the maximum amount of stored memory.

### CAD data translation

**New translator libraries** have been incorporated resolving several known issues (CT\_2013\_SP2). Moreover, the JT to ANSA translator can now read layer filters from JT files.

### Geometry handling & Design

Expanding the Geometry handling and design capabilities a number of new functions have been introduced. The generation of Helical surfaces from selected curves or CONs by extrusion is now possible. Additionally, new Curve definition functions such as the ELLIPSE, the INVOLUTE, and the EPICYCLOID have been added. Through a new function named Connect with faces it is possible to create faces to connect source with target perimeters.

### Meshing

Additions were also made to offer **more options and unprecedented quality in mesh generation**.

The performance of **Wrapping** has been significantly enhanced generating meshes faster with less memory usage, with fewer elements, and minimizing problematic areas, such as intersections and flipped elements.

A **watertight modeling** new technique [Fuse] was also implemented for the cases of parallel surfaces, such as those of the engine blocks offering quick and accurate results.

The merging of intersecting volumes consisted by shell or solid (tetra) elements is now possible through another new function. The volume mesh layers generation has been improved and known quality issues while generating a large total number of layers and height have been resolved.

Also, a new COMPATIBLE function has been added. Using this function the user can copy and adapt an origin mesh to a target one.

### Modeling

Seeking to offer additional options and ease-of-use we have also enriched ANSA's modeling capabilities.

The parameterization of solver deck files was further enhanced (LS-DYNA: \*PARAMETER, Abaqus: \*PARAMETER, Pam-Crash: PYVAR/\_). An assistant is available which sets up the parameters, reviews were they are used and is notified whether a conflict exists.

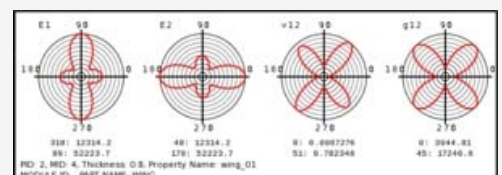
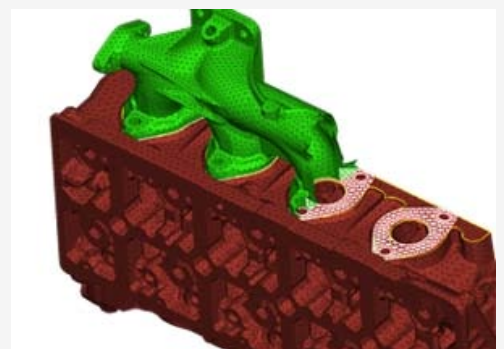
New checks, the VOID AREA and the LAMINATE MAPPED DATA have been added. The former, detects gaps in a volume mesh. These areas can be meshed by using the fix option. The latter, identifies divergence in Theta and/or Thickness among each layer of each sequence and for every laminate.

Polar plots for E1, E2, v12 and G12 (MAT8) have also been added in the Laminate Tool's report for Laminates that do not have mapped data. The equivalent plot of all layers of each property are shown for every value and the min/max value, and the angles in which they occur are reported below each plot.

### Solver Interfaces

A special interface for the **SC/TETRA** solver deck has been added.

It is also now possible to **Import/Export MOLDFLOW files** and **export of FE-mesh in JT format**.



An embedded fatigue analysis is now supported with the following key words:

- SET TYPE=SET 4
- PFTG, FTGDEF, FTGPARM, FTGLOAD, FTGEVNT, FTGSEQ

## Script collection

A **new RADACT interface script** provides the ANSA user with capabilities to easily create and export a RADACT input file, ready to be solved with ACTRAN solver. Moreover, it automatically creates or imports all necessary meshes for the acoustic finite and infinite domain by using the convenient selection capabilities embedded in ANSA for the respective properties from the model. It also assigns the respective structural results file and sets up all necessary solver and analysis parameters, in order to export the complete RADACT input file.

For more details about the new software features, enhancements and corrections please, refer to the [Release Notes](#) document.



## New features, Enhancements and Known Issues Resolved in $\mu$ ETA

### General Functionality

As with ANSA, we have also enriched  $\mu$ ETA capabilities in terms of General Functionality.  $\mu$ ETA can be started on Linux workstations that do not have a running X-server (virtual or real) through the new running option "-virtualx". The real cross section of line elements is now displayed.

The Model deformation can be selectively deactivated on the X,Y,Z directions or be displayed with a different scale factor for each direction. We have also added a new type of IsoFunction named "Cylindrical".

### Supported solvers

Keeping a close watch on the CAE industry and the new requirements that emerge, we augmented the portfolio of solver files that  $\mu$ ETA supports.

**Abaqus:**  $\mu$ ETA now supports reading Abaqus 6.13 files on MS-Windows and Linux workstations. Additionally .odb files of all Abaqus versions are scanned for results much faster than before. Complex results of connectors can be plotted using the 2d plot functionality of  $\mu$ ETA. The Equivalent Radiated Power (ERP) user toolbar of  $\mu$ ETA now supports processing Abaqus results.

**Fluent:** CFD-post .cdat files can now be post-processed. User-Defined Memory (UDM) stored results can be post-processed. Read of hanging nodes is now supported.

**LS-DYNA:** The keywords ELEMENT\_SHELL\_COMPOSITE and ELEMENT\_SHELL\_OFFSET\_COMPOSITE are now supported. Additionally, it is now possible to read SPH results from femzip-compressed result files.

Nastran  $\mu$ ETA now supports post-processing Nastran Embedded Fatigue (NEF) and gzip-compressed .op2 files. Concerning the support of resultsets, 2d Element Force and 2d Element Moment tensor results can now be read.

**Permas:** The FLA2, QUAD4S and TRIA3S elements are now supported by  $\mu$ ETA. Additionally, it is possible to load VDI2014 composite results, calculated by  $\mu$ ETA upon reading. Concerning the support of resultsets, line-element results as well as reaction force and contact results can now be read. The 2d plot interface of  $\mu$ ETA now supports plotting XYDATA, MODFAC and PARTSUM results from ASCII .post files. Permas result files are now supported in the NVH Calculator tools for NVH post-processing.

### 2D Plots

A new toolbar is introduced, dedicated to 2d plot drawing styles.

New curve functions have been also introduced for Power Spectral Density (PSD) calculations, and for filtering curves with the options "Ideal Band Pass", "Octave Low Freqs (TerzFilter)", and "Third Octave Low Freqs (TerzFilter)".

### NVH

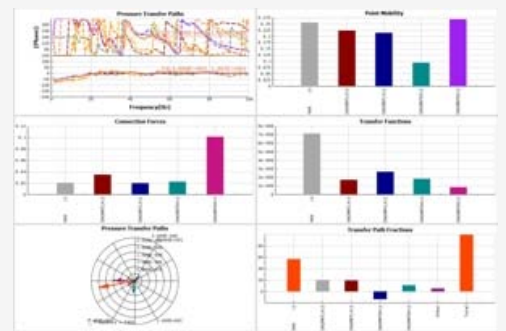
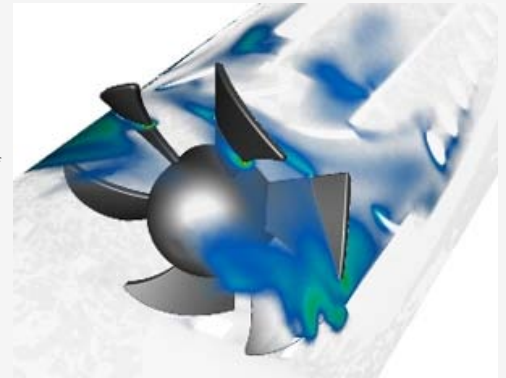
The "Modal Response" and "FRF Assembly" calculators have new options for Modal and Panel Contribution analysis: three plots are created (a curve plot, a Bar Chart and a Polar plot with top N contributions for the selected peak frequency) and a list with top N contributions for the selected peak frequency. All these plots are handled easily through a dedicated new GUI called "Fractions".

The TPA (Transfer Path Analysis) functionality of the "FRF Assembly" calculator has a new option for creating six plots:

- curve plot, a bar chart with point mobility
- bar chart with connection forces
- bar chart with Transfer Functions
- bar chart with Transfer Path Fractions
- polar plot with Transfer Paths for the Top N-Paths for a selected peak frequency).

All these plots are handled easily through a dedicated new GUI called "Fractions". In addition to these, DNA plots for Connection Forces, Transfer Functions and Point Mobility can also be created along with a Transfer Paths DNA plot.

In the "Curves" tab of the of Read Results interface, a new option named "Modal Response (contribution analysis)" can be used to perform Modal / Panel Contribution analyses upon reading respective results. All these plots are handled easily through a dedicated new GUI called "Fractions"



### CFD

$\mu$ ETA now supports post-processing FoamPRO results. Streamlines can now be created from cut planes.

### User Toolbars

A new toolbar named **Map Results** can be used to interactively map results from one model to another.

For more details about the new software features, enhancements and corrections please, refer to the [Release Notes](#) document.



### Compatibility

ANSA files saved with version 14.2.0 can be opened by v14.1.x and v14.0.x but not previous versions.

The .metadb files saved with  $\mu$ ETA version 14.2.0 are compatible and can be opened by earlier versions of  $\mu$ ETA.

BETA CAE Systems in co-operation with **NVIDIA**, tested more **graphics hardware and drivers** for this ANSA &  $\mu$ ETA version. ANSA &  $\mu$ ETA v14.2.0 was also tested and certified for the following configurations:

#### Linux 64bit

hardware	driver
Quadro K4000	319.32
Quadro K5000	319.32
Quadro 5000	319.32

#### Windows 64bit

hardware	driver
Quadro 4000	320.00
Quadro 2000	320.00
Quadro K4000	320.00



## Download

### Where to download from

Customers who are served directly by BETA CAE Systems S.A. may download the new software, examples and documentation from their account on our server. They can access their account through the "user login" link at our web site <http://www.beta-cae.gr>. Contact us if you miss your account details. The [ Public ] link will give you access to the public downloads area. Customers who are served by a local business agent should contact the local support channel for software distribution details.

### What to download

All files required for the installation of this version reside in the folder named "**BETA\_CAE\_Systems\_v14.2.0**" and are dated as of **August 2<sup>nd</sup>, 2013**. These files should replace any pre-releases or other files downloaded prior to that date.

The distribution of this version of our pre- and post-processing suite is packaged in one, single, unified installation file, that invokes the respective installer and guides the procedure for the installation of the required components.

For the installation of the software on each platform type, the following files have to be downloaded:

- the .sh installer file residing in the folder with respective platform name, for Linux amd MacOS, 32bit or 64bit or the respective .msi installer file for Windows, 32bit or 64bit, and
- the tutorial example files that reside at the top level of the folder of this distribution.
- In addition to the above, optionally, the  $\mu$ ETA Viewer is available to be downloaded for each supported platform.

The Abaqus libraries required for the post-processing of Abaqus .odb files are included in the installation package and can be optionally unpacked.

Previous software releases can be found in the sub-directory called "old" or in a folder named after the product and version number.



## Documentation

### New Documents

- NVH Console
- Direct Morphing tutorial
- Migrating from v13 to v14

### Release Notes

Please refer to the Release Notes document for more details about the software corrections and the new features.

Detailed Release Notes documents are available in PDF in the download directory and also in the /docs sub-directory within the installation directory.

### Tutorial files' availability

A TUTORIALS folder in the public area has been added, including the tutorial documentation and the necessary demo files, to facilitate the tracking of the new and the updated tutorials. This folder includes the complete package of the tutorials and a package with only the updated ones.

