New software version release announcement
August 16, 2010

BETA CAE Systems S.A. announces the release of ANSA v13.1.0
with important enhancements and code corrections.

The official software release is comprised by the latest ansa_v13.1.0 that resides in the server at the time of this announcement.
These replace any pre-releases and files downloaded prior to this date (i.e. 16-August-2010).

Main new features introduced

Numerous known issues resolved

Compatibility issue

Documents

Scripts Collection (User defined functions)

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*For details about the new software features and enhancements please, refer to **Help>What's new** accessed by top menu bar option within ANSA or the "**ansa_v13.1.0_whats_new**" pdf document, that can be downloaded separately.*

Main new features introduced

Automatic Middle Surface Mesh Generation

- FE surface mesh creation on the middle surface of a solid described model.
- Nodal Thickness is calculated for each shell element

Include files Configurator

- New tool for generation of different model variants or load cases
- Communication with Data Management

Multi CPU operation

- New command line argument **-np** that specifies the maximum number of CPUs that ANSA can use by application of multi thread functions

Database browser

- Direct creation of new entities
- New filtering and modification features
- Direct editing within the List
- Selection tools implementations
- Sets browser tab
- Storing of Advanced Modifications enabled

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Search Engine tool

- Direct activation of function - command line
- Quick identification of functions
- Functions history list
- Most used functions quick access
- Global filtering and identification of entities

User Interface

- ANSA Launcher window opens at the execution of startup scripts ansa.sh, ansa64.sh or ansa.bat, ansa64.bat, allowing the user to select from the available layouts and settings
- Multiple windows with different views
- Cutting Planes
- New selection tools
- Optional settings for view manipulation (mouse wheel, double click for PID selection)
- Legends custom positioning on graphic area
- On screen Quality Criteria activation/handling
- New Drawing modes

CAD data translation

- Unified CAD Translator is now available also for IBM AIX, SUN Solaris and MAC OS
- New Graphical User Interface which integrates all translation modes
- New translation options

DATA Management (ANSA DM)

- New Comparison tool: identification of differences in geometry, attributes, solver-specific definitions, connections
- Matching and Operation modes
- Browsing the comparison results
- Associativity of the comparison report with the drawing area
- DM Browser: new tool that allows the browsing of the current DM root contents
- Enhancements in Part Representation

TASK Manager

- Check DM Updates allows the user to "schedule" a check for availability of newer parts, groups and includes in DM

Geometry handling

- Various enhancement in geometric entities manipulation
- Compatible Flanges definition
- Holes opening and Washer (zones) isolation
- New options for curves and points creation

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Batch meshing

- Multiple CPU support
- Simplified and easier parameters selections
- New Wrap Scenario
- New Solids Structural Mesh session for triangular mesh (map mesh on fillets & tubes, local length for flanges)
- Enhancements in Sessions handling (drag'n'drop, copy-paste,...)
- Significant improvements in features treatment
- Automatic-default-treatment for features enabled
- Bolt holes treatment based on Bolt Connections attributes
- Mesh Parameters: Definition of parameters (target element length, hole zones, etc) by expressions

Surface meshing

- Multi core CPU usage for surface meshing and other meshing functions
- Mesh Parameters button placed on top menubar
- Mesh Parameters: Smart configuration of tabs/settings based on mesh type
- Mesh Parameters: Definition of parameters (target element length, hole zones, etc) by expressions
- Direct info and editing of functions parameters via the Options window
- Mesh Areas Simplification: defeaturing (Join & Cut)
- Convert of 1st to 2nd order surface mesh defined on Geometry (macro areas)
- Automatic selection of features (Holes, Flanges, Fillets,...) for Mesh improvement (Recons, Reshape, ...)
- Mesh Generators (Free, Spot, etc) can be applied on FE-Mesh (not related to Geometry)
- Enhancements in Nodal Distribution: on screen info, quick number assignment
- New interface and capabilities for nodal movement
- New interface and capabilities for elements (shell-solid) creation
- Incomplete elements check and fix

Volume Meshing

- Volume mesh separate menu is available
- New Module HEXABLOCK for generation of Hexa mesh based on block box topologies
- New MAP function for structured solid mesh on complex geometries
- TETRA RAPID: new fast algorithm that generates tetras with a rate of almost 4000000 solids per minute
- HEX.POLY: new function for fast hexa-polyhedral volume meshing
- DUAL SWEEP : new function that creates solid mesh, based on two guidelines
- CONV2POLY : Conversion of hybrid meshes to polyhedral meshes
- Automatic quality fix of volume meshes (VOLUMEs>IMPROVE [Fix Qual])

Parts Manager

- New Interface (window layout customization)
- New navigation and Visibility control features
- Direct info and editing of Parts/Groups
- New Filtering capabilities
- Drag 'n' Drop for new Part/Group creation
- User Attributes
- View Drawing mode

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Assembly

- Assembly group of functions placed in lower General Buttons menu
- Connections Template and Template manager introduced
- Enhanced connections handling via the Connections Manager with highlight ans selection options
- Connections Options control via Windows>Options>Settings (Thick-PID map, Post Realization function, ...)
- Connections Drawing mode based on Connectivity, Diameter, Type, ...
- Duplicate connections identification and handling new options
- Splitting and Merge options for Connection Lines
- Preview mode for mesh dependent connections realization
- Various mesh patterns for spot-welds
- Bolt connection attributes and searching options introduced
- New FE-Representation for all connection types.

Results Mapping

- Nodal thickness, pressure, initial stress etc can be mapped from an existing file to a different mesh
- Supported source file formats:
  - Input files of: NASTRAN, LS-DYNA, PAMCRASH, ABAQUS, RADIOSS, ANSYS, PERMAS.
  - Output files of PAMSTAMP
- Various connectivity and mapping options
- Interpolation methods
- Auto position of parts

Pre-Processing tools

- SETs management integrated in Database Browser and also accessed by top menubar
- Output type option for SETs
- New interface for 2D and 3D elements creation
- Connectors & GEBs written as ANSA Comments
- Material orientation of solid elements
- User Defined Attributes supported for shell and solid properties
- Drawing mode for Include files
- Include paths for Include files
- Additional model's Checks & fixes for all solvers
- Input and Output support of FiberSim metadata
- Parts Manager hierarchy can be output in XML format or M00 format
- Support of Undefined Load Curves and Amplitudes
- Frozen-ID & Frozen-Delete status saved in ANSA Comments

Crash & Safety modeling tools

- New Seat Belt tool (direct modification, Reapplication)
- New Dummy articulation tool (rotate, translate, move limbs)
- Pedestrian safety tool: reference lines according to EuroNCAP 5.1, EU Phase1& 2, JNCAP, TRIAS 63
- Pedestrian safety tool: Manipulation of Reference lines creation
- Pedestrian safety tool: BLE Target points and Legform test calculation
- Target Point entity introduced for Pedestrian & Occupant safety tools allowing direct and auto selection
- Signification additions for FMVSS-201U tool
- Multi-Body kinematics tool for complex positioning applications
- state-of-the-art functions for handling dummy models, seats, convertible roofs, suspensions ...
- Dummy model members articulation improvements

NASTRAN

- GEB_BC support of Pre-Tension definition
- Edit Modal model (via Parts manager)

ABAQUS

- Support of 9-digits for Nodes, Elements and Coupling IDs
- DEPENDENCIES parameter for *SPRING property
- *DISTRIBUTION for shell offsets
- New *MPC types
- New keywords for Cavity Radiation definition
- *BASE MOTION keyword for linear, eigenmode based, dynamic procedures
- New features in Substructure tool - Model Cut
- *PARAMETER keyword support in INPUT
- New interface and features in CONTACT>FLANGES
- Enhancements in PRE-TENSION tool
- ABAQUS/Explicit: TIMESTEP criterion calculation for shells, solids, cohesives and beams
- Mass Scale draw mode for Abaqus/Explicit
- Support of various keywords

LS-DYNA

- Support of 9-digits for Materials, Sections and Load Curves(LC) ids
- *PARAMETER keyword support in INPUT
- PART_COMPOSITE is supported for laminates definition
- Support of *INCLUDE_PATH
- Support of various keywords

PAM-CRASH

- Support of v2009 - v2010 Explicit and Implicit
- Full support of GES (SETs Auxiliary option)

RADIOSS

- Support of v9 and v10
- Support of Radioss FTSS dummy models

PERMAS

- Significant support of keywords

Morphing

- Menus & Buttons modification
- Geometry & FE Morphing via Shape Fitting of Direct Morphing
- Automatic Holes Identification and resizing via Direct Morphing
- FE Direct Morphing according selected Cross Sections
- Cross Section Box Morphing
- New powerful Morphing algorithms in Direct Morphing functionality
- New Morphing Box type, supporting surface Control Points
- Automatic application of User defined tangency

Optimization

- Massive definition of Optimization Task Design Variables through the Database Browser
- Massive definition of Design Variables for Morph parameters
- Massive manipulation of Design Variable in Optimization Simulate Too
- Design Of Experiments (DOE) functionality for the checking and validation of the Optimization process set-up
- Support of the TOMVAR, TOPVAR keywords of NASTRAN SOL200 for topology optimization

TOSCA Structure pre-processing

- LoadCase selection from the current Database
- Normalization of the Objective function Terms
- Maintenance of Boundary conditions, Loads & unsupported keywords

Cross Section Tool

- Major improvement of management and manipulation of cross sections
- Split Screen
- New options in Cut / MultiCut functions
- Handling of Cross Sections via Database Browser
- New entity card for CS with Profile image
- Settings control via the Windows>Options>Settings
- Direct Movement of control points of CS curve
- Shaded mode along the body of beams having CS property

Volume Traps tool

- New interface
- Results visualization in List

Scripting

- New library functions for GUI designing of User-defined function
- Enhancements of existing functions for handling DECK CONTROLs
- Various new built in functions and new options

For more details...
For details about the new software features and enhancements please, refer to the "**ANSA v13.0.1 Release Notes**" pdf document, that can be downloaded separately and that is also accessible through the *Help>ANSA documentation index* menu bar option within ANSA.

Numerous known issues resolved

Important code corrections have been achieved. More details will be announced.

Compatibility issues

ANSA databases saved by version 13.1.0 cannot be opened by earlier versions. However, files saved by later ANSA versions (i.e. v13.1.1) will be opened by v13.1.0

Documents

New documents released:
- ANSA and µETA for Pedestrian Safety
- Tutorial sub-structuring in PAM CRASH
- Updated existing tutorials and examples.

Scripts collection

Updated script user functions and many additional ones are included in the ANSA v13.1.0 package

Download

Our customers may download the new software examples and documentation from their account in our download server.
You may access your account through the 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 being served by local business agents may get the software through their channel.

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