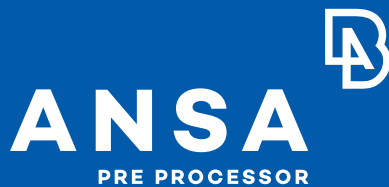# Data management

Master your simulation data

Synchronize your CAE data with the evolution of your designs

BETA CAE Systems provides integrated solutions for effective and cost-efficient data management. Bridge the gap between the PDM systems and the CAE-world with out of the box solutions for the interaction with PDM systems. Breakthrough CAD input technologies ensure a smooth and effortless transition to the CAE world, while data exchanges between engineering teams are streamlined assisting engineers in model management.

A library of pre-processing model data

The data management system integrated in ANSA, enables the creation and maintenance of a library of part and sub-system representations. For parts, the library contains the ANSA representation of the geometries and the alternative mesh representations, used in different load-case models, for all different CAD versions. For sub-systems, the library contains assemblies for different analyses and solvers, for all different CAD freezes.

Once an ANSA session is connected with a library of pre-processing model data, several core modelling tools such as, the Model Browser, the Batch Mesh Manager and the Product Tree Editor, make use of the library in order to boost their performance.

The data management system delivers a number of sought-after capabilities, including the reusability of library and carry-over parts, the single processing of multi-positioned parts, and the version control of CAE model iterations.

Interfacing with PDM/PLM Systems

In contemporary product development, the overall planning of CAE activities is based on the release dates of CAD data. Those dates trigger the initiation of numerous processes starting with the transfer of the CAD data into the CAE environment. However, downloading and processing the relevant data sets for CAE analysis, has traditionally been a cumbersome procedure carried out by specialists only. Recognizing this bottleneck, BETA CAE Systems offers a complete set of solutions for the interfacing with PDM systems, to empower you to process CAD/PDM data working solely with tools they are familiar with.

ANSA offers built-in interfaces for importing product definition data from established PDM systems such as those of Siemens PLM Teamcenter and Dassault Systemes Enovia, as well as a scripting API for the creation of custom interfaces for handling any data format. Through these interfaces, you can import the geometry and meta-data of the model directly in ANSA through a user-friendly GUI.

Interfacing with SDM Systems

With ANSA data management, it is possible to create the library of the pre-processing model data directly in a folder in the file-system. This "file-based" approach covers the needs of small teams but loses its efficiency as it scales up at the complete discipline or enterprise level. Thus, for larger scale applications at an enterprise level, ANSA data management offers a direct interface with SPDRM, the Simulation Process Data and Resources Manager. This enables the seamless use of the SPDRM data server for all model data I/O operations directly from within ANSA, combining the benefits of a server-based simulation data management system with the high-end model management tools of the pre-processor.

CAD Input Technologies

The conversion phase is not limited to the geometric definitions, but it also expands to the extraction of assembly information like hierarchy and positioning data, as well as to the conversion of connection information (such as spot welds, seam welds, adhesives, etc.). The CAD input is supported for the following formats: CATIA, CGR, NX, JT, Pro/ENGINEER, SolidWorks, Invertor, IGES, STEP, VDA.

Representations Management

Different representations can be created and stored, facilitating the use of a component in multiple disciplines. Serving this purpose, representations can either be detailed or reduced FE-models. All the detailed FE-representations of a component are created by the Batch Meshing tool on a common geometrical basis. Reduced representations, like the lumped mass, are abstractions of a detailed representation, suited for a particular analysis. The Parts Representation Manager controls the generation of new representations and the direct switch from one to the other. Each representation can accept an arbitrary number of study versions, allowing the introduction of design changes on FE-model level.

Compare

To assist and accelerate decision making, the Compare tool allows for the fast identification of differences in geometry, connections, and solver-specific definitions. From a single part to a full scale assembly, the organization of information, the easy navigation and the synchronization of the comparison report with the drawing area make the compare tool ideal not only for tracking changes but also for selective model updating, enabling the transfer of model attributes to the model at hand.
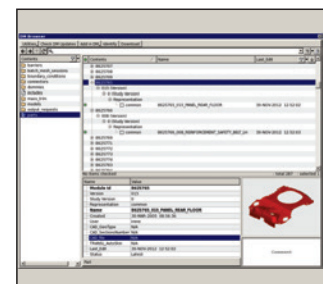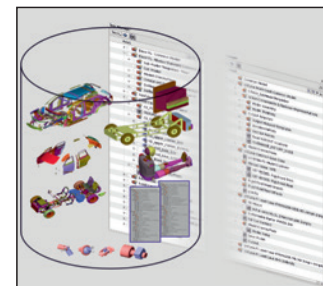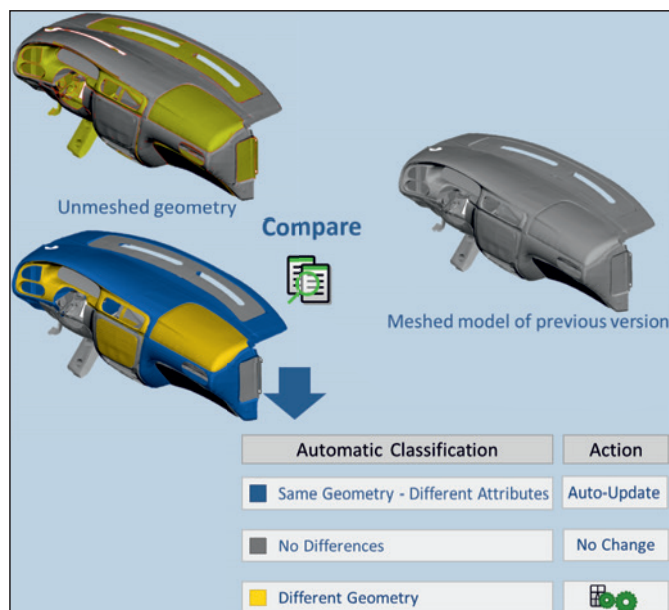
Updates notifications

ANSA DM makes the timely identification of component updates possible by monitoring all changes related to the model at hand. Newer CAD versions, study versions or plain file changes can be detected and, with the aid of the compare tool, you can decide whether the model should be updated. Identified updates are incorporated in the model by direct replacement of the respective older versions currently in use. During this process, all affected connection and mass information, as well as boundary conditions are automatically adapted to the model changes.

DM Browsing

The efficiency of any data management solution is dependent upon the ease with which the right data can be found. The DM Browser enables the identification of ANSA and Include files using predefined filters or user-defined queries. The creation and last-edit dates, the user name, and the user comments, are only a few of the file attributes that can be "scanned" by the DM Browser. The results of a query can be directly merged in the model or replace their variants currently in use.

BETA
SIMULATION SOLUTIONS

physics on screen