facilitating
Data Management in ANSA

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Data Management is unquestionably one of the most critical factors that contribute to the efficiency and productivity of CAE teams. The huge amount of data involved in pre-processing as well as the need for synchronization of the CAE model with the design evolution, intensify the need for flexible and inexpensive solutions that can bridge the gap between the PDM systems and the CAE-world and become a reference point throughout the CAE cycle.

Addressing these needs, BETA CAE Systems provides integrated solutions for the effective and cost-efficient management of data, starting from the PDM systems export and all the way to the output of the keyword file. Out of the box solutions for the interaction with PDM systems and breakthrough CAD input technologies ensure a smooth and effortless transition to the CAE world. From then on, the ANSA Data Management (ANSA DM) takes over, streamlining data exchanges between engineering teams and assisting the engineers in the model management on both ANSA- and Include- files basis.

Interacting with PDM/PLM Systems

CAE processes begin by gathering information related to the simulations that will follow. The bulk of such information consists of the vehicle product structure and the related CAD- and meta-data, but may also extend to the loadcase scenarios, the analysis results and the respective evaluation reports. As this information is usually handled by an enterprise PDM/PLM system, ANSA is able to communicate with established PDM/PLM platforms (e.g. Siemens PLM Teamcenter, Simulia SLM etc) to collect the required information and feed it to the ANSA Data Management system, in order to serve downstream CAE processes.

CAD Input Technologies

The conversion of CAD data into ANSA files is one of the important starting points of the CAE workflow. Therefore, the CAD-Translators aim at the production of a high quality geometry result, providing the automatic tools for the preparation of the CAE “representation” of the components namely, automatic cleanup, mid surface generation, thickness and material assignment, interpretation of CAD/PDM-attributes (such as CAD version, release date and designer’s name). 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, engineers are able to decide whether the model should be updated or not. 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 DM Browser. The results of a query can be directly merged in the model or replace their variants currently in use.

Features

- Direct input of product structure from CAD/PDM
- Direct open of CAD files in ANSA
- Multiple-instances recognition and special treatment
- Parts, groups and include files caching
- Study versions organization
- Check for DM Updates
- Compare tool
- Model variants handling
- Browsing based on queries

Benefits

- Direct generation of connections from CAD data
- Flawless translation of native CAD files into ANSA files
- Organization of all pre-processing data
- Maintenance of CAD/PDM meta-data in CAE model
- Synchronization of the CAE model with CAD evolution
- Collaboration among engineers and departments
- Assistance in decision making
- Adaptivity to existing practices
- Automatic updates notifications