BETA
SIMULATION SOLUTIONS

Airbus (Beijing) Engineering Center

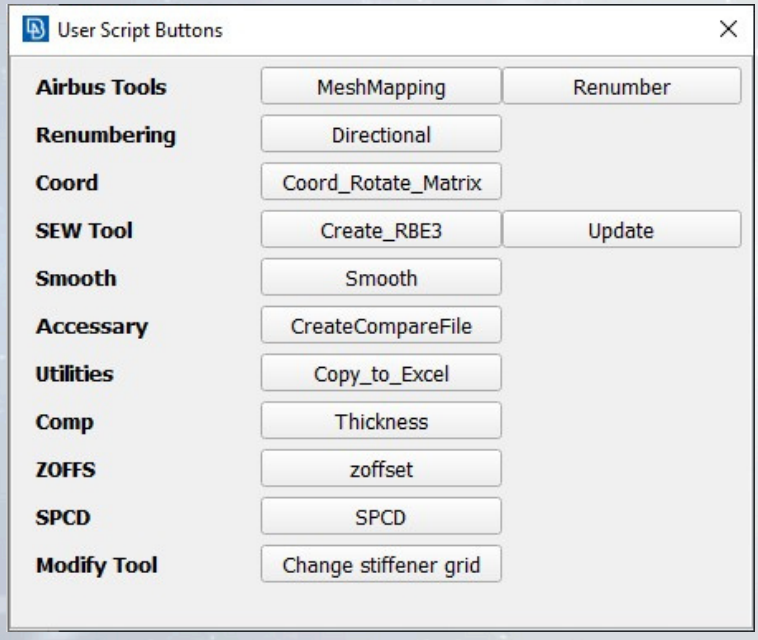
Aerospace Engineering: in-depth bond with corporation workflows

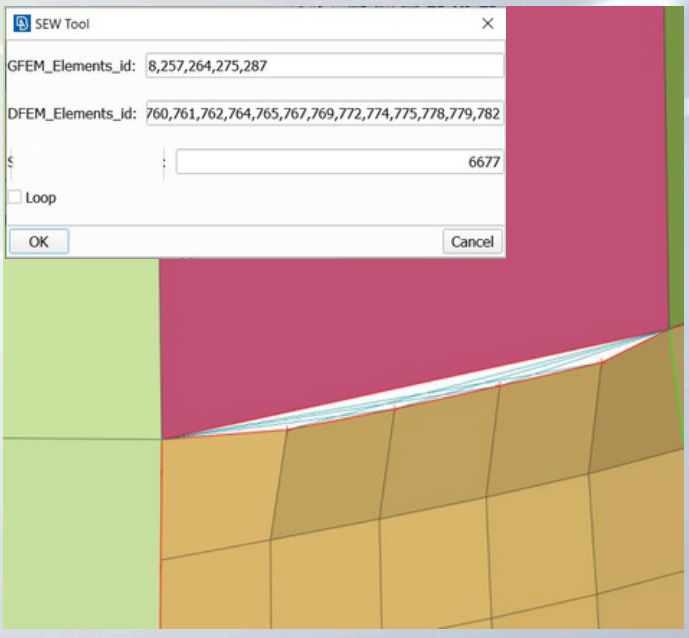
A customized solution to enhance modeling efficiency with BETA CAE Systems software.

The team of BETA CAE System China work closely with our clients to provide solutions that that best meet their needs. In a recent collaboration with Airbus, we successfully addressed key challenges in engineering simulation by delivering three unique solutions developed using our custom development toolkit: direct comparisons in include files, entity value copying to Excel spreadsheets, and an enhanced SEW tool.

With our software solutions, engineers gain the efficiency and precision of modeling powered by BETA CAE Systems, while sharing results in a universal format that is easily interpreted and adopted by other departments. We believe that consistently delivering customized solutions in close collaboration with our clients fosters mutual value and long-term success.

> “We have conducted extensive testing with both simple and complex models with numerous parts, connectivities, materials, and properties. ANSA has consistently demonstrated outstanding performance and efficiency.”
>
> Airbus (Beijing) Engineering Center





Challenge

The objective was to seamlessly integrate ANSA into Airbus's workflow, without disrupting their legacy processes. Three significant challenges were discovered:

- Perceive and compare, Include files from different versions.
- Port the ANSA entity information into an Excel spreadsheet.
- Sew coarse mesh area to fine mesh area.

In this effort, the challenges were:

- Tens of millions of entities are randomly organized, making it difficult to be processed efficiently.
- Formatting entity info messages is challenging to paste directly into Excel spreadsheets.
- To sew the fine mesh area to coarse mesh area, suitable nodes need to be searched and correctly weighted.

Approach

After clarifying Airbus's requirements, our team developed the appropriate scripts to address these challenges with the BETA CAE Systems custom development toolkit.

The first script addressed the formatting the Include file into Nastran. It reorganizes the file structure so that old and new entities are aligned in the same line according to their identities. Changed entities are highlighted, and new entities are moved to the end of the file. By providing both the reorganized and older include files, engineers can easily compare and inspect the updates in the model through a text comparison.

The second script enables the direct pasting of entity information from ANSA to Excel. For instance, after modeling with ANSA, the engineer can easily extract certain material or property information by copying and pasting it to an Excel spreadsheet for tracking and review across departments. The third script provides an interface to automate the sewing process. It automatically assigns a primary-secondary relationship between nodes in coarse mesh and nodes in fine mesh. This facilitates the examination in an area of interest with finer mesh while preserving a universal coarse mesh.

Results

These custom development solutions streamline communication and collabora- tion among the diverse teams engaged in aerospace engineering simulations. By deeply valuing our customers' needs and setting their productivity in a high priority, we strive to foster enduring partnerships with their organizations, creating together significant value.

For more information about BETA CAE Systems, visit www.beta-cae.com.