

FROM MODEL ASSEMBLY TO LOAD-CASE SET-UP: A HOLISTIC APPROACH

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ABSTRACT

Contemporary product development poses great challenges to the CAE software vendors to deliver solutions that will boost productivity and reduce the simulation turnaround time. On one side, rich product lines, high product diversity and a multitude of simulated phenomena increase the complexity of the model handling and organization. On the other side, short development cycles require that CAE tasks are distributed and parallelized among different teams and individuals. Both these factors render the modularization of the CAE model more than necessary. But, is it possible to get the benefits of modularization without the downsides?

This contribution introduces a new simulation environment in ANSA for the composition of simulation runs in a modular, bottom-up approach, from subassemblies to higher-level assemblies, loadcases and simulation runs. This new environment integrates state-of-the-art technology for model assembly and loadcase application, and by making extensive use of a data management backbone, it delivers a concrete solution for quick and easy composition of the solver main files either “from scratch” or by modifying a previous simulation.

The presented simulation environment addresses a number of key challenges for modelling and analysis teams in the CAE community: How to assemble ready made, validated includes without modifying them during the creation of the connection elements? How to assemble files without loading them at all? How to avoid id conflicts between includes without keeping track of id ranges for each include? How to define loadcases by using library files that will first be adapted to the model and then be treated as “read-only” during the output of the main file? And also, how to capture the complete map of simulations that need to be carried-out on different model configurations without the need of complicated spreadsheets?