Manage Multi-Disciplinary Load Cases in SDM:
Model Setup and Evaluation of Results

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Due to the continuously increasing demand in Computer Aided Engineering (CAE), it is essential for high efficiency and transparency to automate and standardize processes. In many cases, Simulation Data Management (SDM) software is used for this purpose.

To achieve all mechanical target values of a product, there are several standard disciplines in the field of CAE, such as crash, Noise Vibration Harshness (NVH) or fatigue. Assembly, solving and postprocessing for these disciplines can differ greatly from one another. For this reason, it is best practice in many companies to carry out the optimization of a model in each discipline separately and to compare the results and structural adjustments with other disciplines at regular intervals. This approach can lead to several disadvantages like redundant workload or time delays.

With the help of a base model and the SDM system SCALE.sdm, several disciplines can be covered based on a single source of truth. The basic approach is not to work directly on the solver specific files, but on the base model itself. All discipline and solver specific files are generated from this file automatized with SCALE.sdm. As an example, the two disciplines Crash and NVH are considered in this paper. For Crash the solver LS-Dyna is used while NVH is handled by Abaqus.

To successfully manage multidisciplinary load cases a complete database, flexible load case creation, automated processes, and a dynamic result comparison is required. Using SCALE.sdm all these points can be fulfilled, which leads to an optimization of workflows and resources.