AUTOMATION PROCESS FOR OCCUPANT SAFETY MODELS WITH ANSA AND LS-DYNA

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ABSTRACT
CAE Models are becoming more sophisticated and detailed enabling us to predict tendencies as well as represent physical repercussions more accurately. However, ensuring a standard quality for the provided models is a cumbersome task. Automation tools ensure that some critical aspects are partially fulfilled, while the time needed and effort for the preparation of the model is also reduced.

Nevertheless there are still many issues that may rise in the process.

The present paper deals with such a process with regard to the setup of an Occupant Safety Model, and more specifically handles the critical parts of such a model. The following steps are implemented in such a process, taking into account the discipline, the regulation and some additional parameters:
i)Dummy positioning and Dummy depenetration with the Marionette tool provided from version 19.0.0
ii)Seat positioning according to the user's needs through the Kinematic Tool
iii)Dummy- Seat depenetration
iii)Seat belt generation and positioning with the corresponding components (Retractor, Seat belt buckle etc.)

Thanks to the various tools that ANSA provides, and their resulting flexibility, a number of checks is implemented for each of the above mentioned steps, ensuring that the process is always consistent and the same criteria are met for all models (Set definition, Contact checks etc.). As a result an "error free key file" is created.

Although, applying the automation process reduces the time needed to create stable and qualitative CAE models, further steps are planned, so that the user is provided with the flexibility to:
i)Retract information from a Database
ii)Resume the process from a certain step, depending on the effect of the redefined parameters