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Automation of Java File Creation & Batch Mode Submission for STAR-CCM+ Simulation Models to be used in a Design of Experiments & Multi-Objective Optimization



Exploring the design space of a simulation requires the preparation of multiple STAR-CCM+ simulation files. Setting various run dependent conditions such as inlet velocity and rotating body angular velocity can be done using STAR-CCM+'s batch mode and an internally defined java macro file. When the run dependent conditions need to be altered to conform to a statistically defined design of experiments or as part of a multi objective optimization the amount of simulation preprocessing that needs to occur becomes unmanageable for the CFD analyst.

This presentation investigates the process of using commercially available third party software to integrate with STAR-CCM+ in order to automate the creation of the Java macro files that will define the STAR-CCM+ run. The OPTIMUS software package from NOESIS Solutions was used to quickly set run conditions and automatically submit the runs to an external cluster. The setup was easy and repeatable and enables many simulations to be run with low user interaction. In addition, the validation of this process enables the setup for more complex automated simulations. The work shown will also demonstrate the time savings and performance that was realized by using this tool.

Author Company:

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Industries:

Products:

Conference:

[STAR Global Conference 2013](#)^[2]

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