

# Bi-directional Coupling of Simulation Tools with a Walkthrough System

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## Summary

Visualising is a method used to help experiencing and understanding causal cohesions in simulation processes. For this purpose, tools for visualising are already implemented in prevalent simulation systems. The user creates his simulation model and generates a 3-dimensional (2,5-dimensional) visualising by means of the simulation system. This helps examining the process which makes it easier for the viewer to “understand” it. Simulation tools usually only provide the opportunity for a unidirectional visualising. In a 3-dimensional surrounding the viewer can not implement an interaction with the simulation while the system is running. Though an interaction during the simulation run enables the user to gain a better understanding of causal cohesions. Solutions via HLA are sophisticated and therefore rather suited for extensive projects.

We present a distributed system consisting of a commercial manufacturing simulation tool, a coupling module and a walkthrough system. The distributed system in conjunctions with the coupling module guarantees generality and a wide field of applications of the walkthrough system. Further it guarantees flexibility and selection of the specialized graphics hardware for the walkthrough system. A further contribution of this paper is the solution of the time synchronisation problem caused by simulation tool and walkthrough system.

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