

NOMAD-Based Optimizations and Lazarus Support for SimuSage

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ABSTRACT

A new component was added to SimuSage, GTT-Technologies' component library for rapid process modelling. The new TPbOptimizer component is based on NOMAD [1], which is also used in the FactOptimal module of FactSage.

NOMAD (Nonlinear Optimization by Mesh Adaptive Direct) is designed for the constrained optimization of black box functions with a small number of variables.

The new TPbOptimizer component provides a graphical user interface between a SimuSage flowsheet and NOMAD in order to set objectives, variables, constraints and optimization parameters.

SimuSage has also been ported to Lazarus, a Delphi®-compatible, open-source cross platform IDE based on Free Pascal.

A brief example of a SimuSage-based process simulation under Lazarus with NOMAD-based optimizations will be shown.

[1] Aued, C., and Dennis, J. (2006). Mesh Adaptive Direct Search Algorithm for Constrained Optimization. SIAM J. Opt. 17, 1, 188-217