



Future Directions

T. Blochwitz

FMI Project Leader

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Future Directions

Consolidation!

FMI Maintenance Release:

- Corrected (w.r.t. English language) specification document was provided by MapleSoft
- 14 open trac tickets with milestone FMI 2.0.1:
 - Ambiguities, contradictions, minor corrections
 - First discussions at February meeting
- Working group (Martin Otter, Torsten Blochwitz) was founded

Development of new features:

- Feature requests from users, organizations, tool vendors
- Four Working Groups were founded at FMI meeting in February
- Working groups develop FMI Change Proposals (FCPs)
- Steering Committee decides about inclusion to FMI specification

Ports & Icons

Rationale

- Structuring of variables into ports in order to make connections between FMUs simpler and less error prone
- Icon representation of models and ports in order to more easily comprehend the meaning connected FMUs

Group

- Leader: Hilding Elmqvist (Dassault Systemes AB)
- > 11 participants
- Work has started

Directions

- Add a list of `<port>` definitions to `<ModelStructure>` that group inputs and outputs and reference flow variables
- Separate definition of FMU icon and port icons in SVG format or bitmap (PNG)

DAE Representation & Directional Derivatives

Rationale

- Support of semi-explicit differential algebraic equations in FMI for Model Exchange with algebraic states and constraint functions
- Directional derivatives w.r.t. parameters are useful for optimization tools

Group

- Leader: Markus Friedrich (Simpack GmbH)
- > 16 participants
- Work has started

Directions

- Extend mathematical representation and semantics
- Introduce lists of `<residuals>` and `<AlgebraicStates>` to `<ModelStructure>` that reference to local variables
- Extend current mechanisms for directional derivatives

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Array Variables

Rationale

- FMI is primarily designed for exchange of scalar variables. Arrays and matrices can be defined by naming convention (using of [index])
- Introduce simple access to array variables (e.g. for better support of look-up tables)

Group

- Leader: Klaus Schuch (AVL)
- > 9 participants

Directions

- Allow variable array dimension for parameters
- API needs to be extended

Hybrid Co-Simulation & Clocks

Rationale

- Allow event handling in Co-Simulation similar to Model Exchange
- Improve time event handling and synchronization of several FMUs in one model

Group

- Leader: Bernhard Thiele (Linköping University)
- > 22 participants

Directions

- Introduce a new FMI kind `HybridCoSimulation`
- Allow switching to `EventMode` at communication time instances like in Model Exchange
- Introduce `clocks` and `extent API` (`fmiSetClock`, `fmiGetClock`)