

FAME – The open Framework for Agent-based Modelling

Next Steps and Community Interaction

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FAME: In a Nutshell

Name: open Framework for distributed Agent-based Modelling of Energy systems

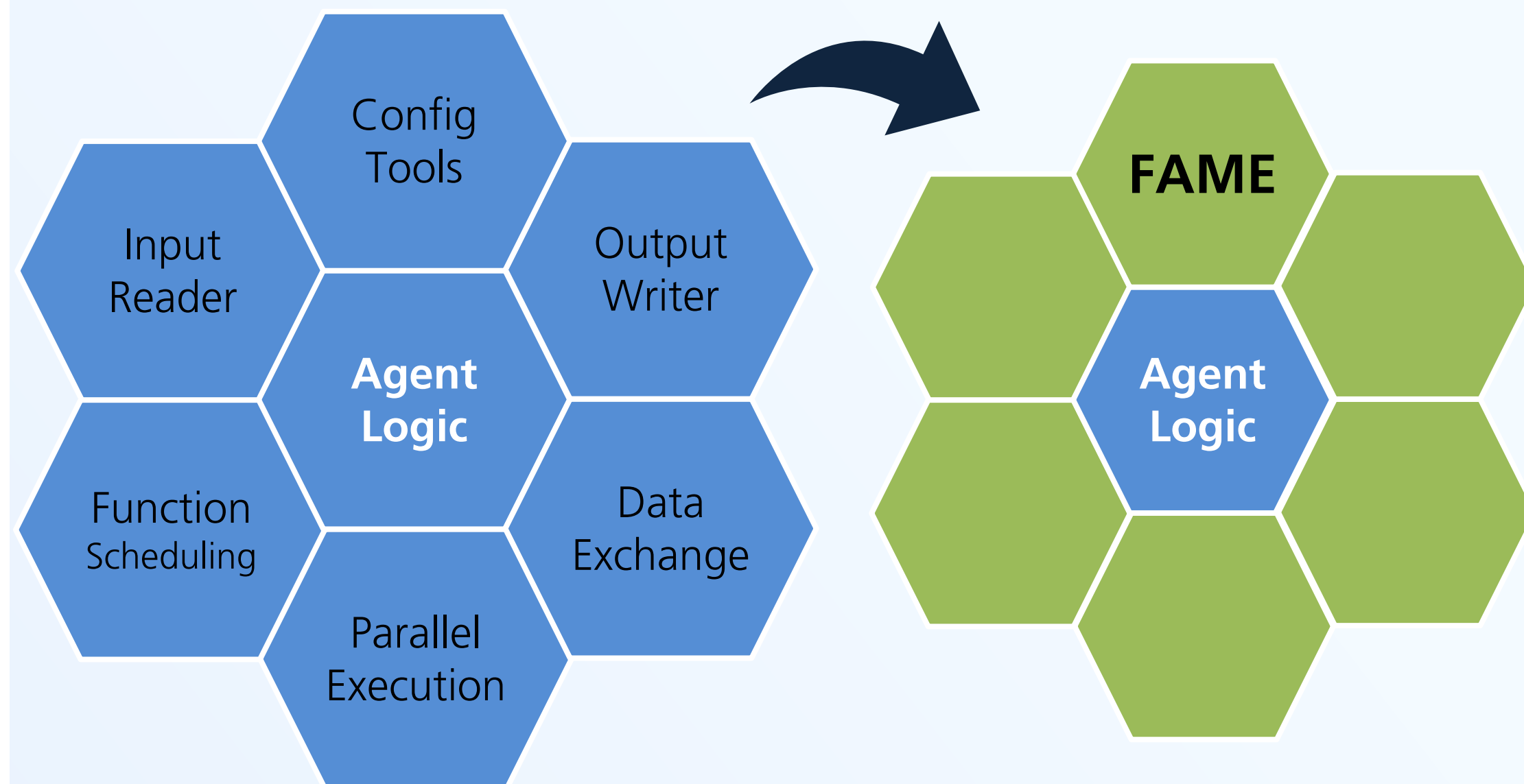
Purpose: rapid development & fast execution of complex agent-based energy system simulations

License: Apache 2.0

Languages: Java & Python

Developed since: 2017

Aim: Reduce overhead code



FAME: Premises

Scalable: use Laptops / Servers / HPC

Portable: works with Windows / Linux / Mac

Configurable: adapt inputs, agents & execution order outside of code

Multi-core ready: go multi-core without any code adaptations

FAME: Planned Improvements

FAME's two user groups are modelers and scientific model users. We aim at improving the FAME workflow, performance and usability for these users.

The following milestones are currently envisioned:

Enhanced Inputs: Allow inputs to be read from database or JSON files

FAME-Prepare: Provide an automatic analysis of FAME models to make FAME-Io & FAME-Gui operate any model code

New CLI: Reorganise FAME's command line interface to assess & run different FAME models

Improve Reproducibility: Ensure long-term reproducibility of any model result by allowing to store models, their inputs & their outputs in one simulation file.

Use Meta Data: Enhance FAME to store and show additional meta data for inputs, outputs and other properties of agents.

FAME: Material

We strive to remove barriers and to maximise the benefit of applying FAME. So far, we provide the following material to use FAME:

README, Wiki, JavaDoc, Architecture Documentation, Getting-Started Guide, Development Guidelines, PyPi & Maven Integration, CLI, GUI

In addition, we plan to build the following material:

Tutorials, Video-Tutorials, ...

→ **What would help you when learning a new framework?**

FAME: Community Interaction

We love to learn from the community and interact with modelers out there! Here's what we expect to see:

Questions / Ideas @ openmod-Forum / Stack Overflow

Bug reports

Feature requests

→ **How would you like to contribute to a framework?**

FAME: Components

FAME is split into multiple components, each addressing a specific task:

FAME-Core: Provides methods to create & run agent-based simulations

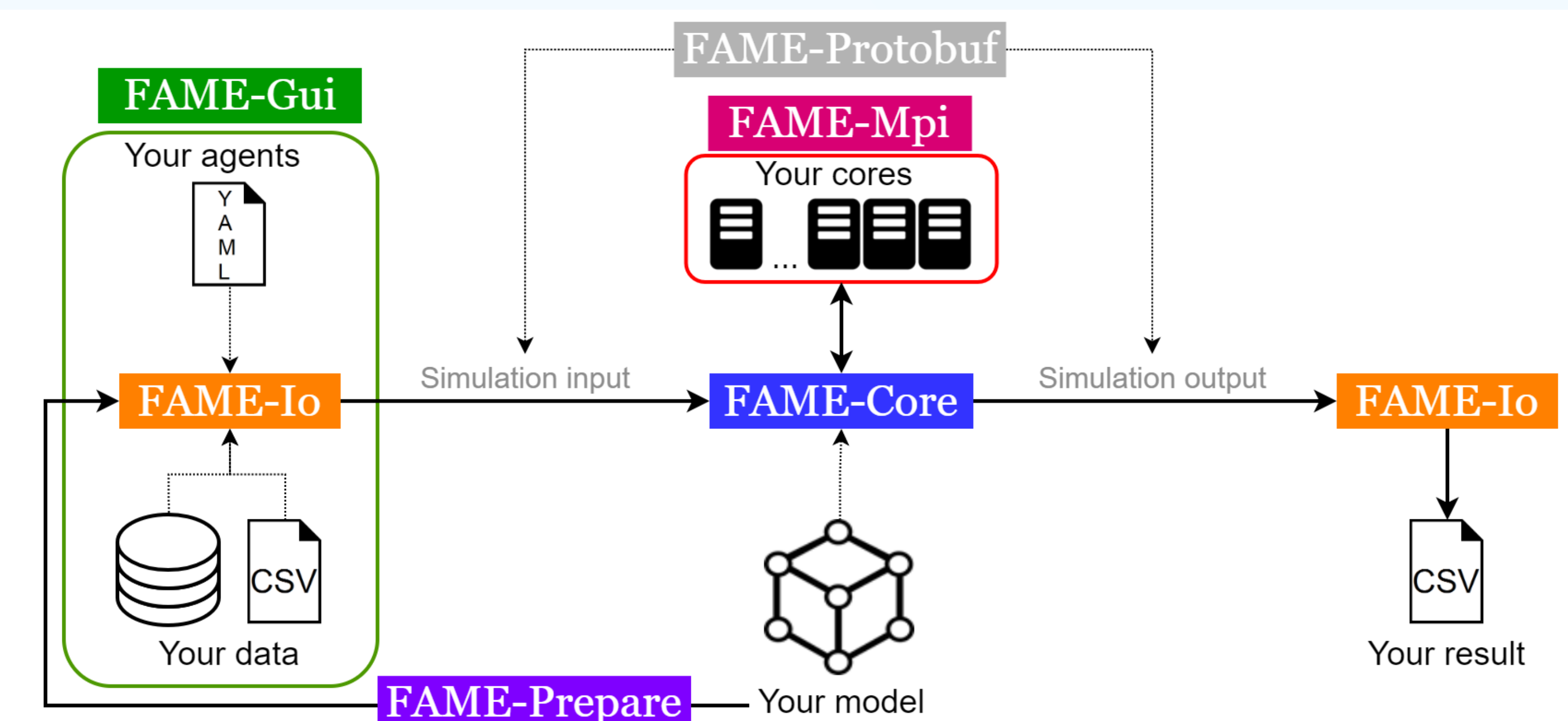
FAME-Io: Feeds input data to & extracts results from simulations

FAME-Mpi: Coordinates processes in multi-core mode

FAME-Protobuf: Defines input & output file formats

FAME-Gui: Drag & drop configuration of FAME-based models (in Beta)

FAME-Prepare: Analyses FAME models for simplified configuration (planned)



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Fig.1: Workflow of FAME components during model execution

FAME: Examples

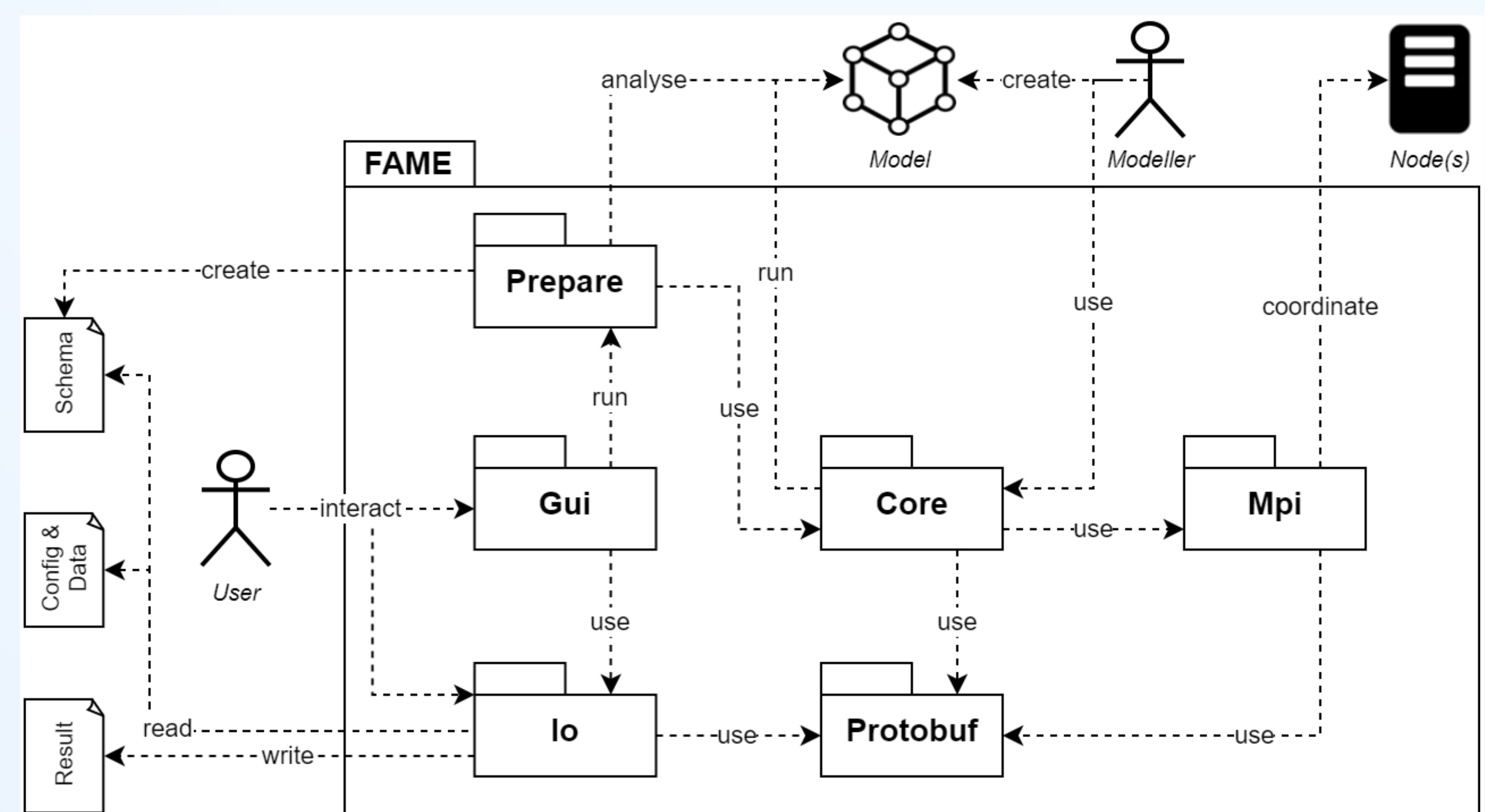
FAME-Demo: Lightweight code to demonstrate FAME's most important features and their application in energy systems analysis

<https://gitlab.com/fame-framework/fame-demo>

AMIRIS:

Full-fledged energy market simulation available OS at GitLab

<https://dlr-ve.gitlab.io/esy/amiris/home>



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Fig.2: Level 0 Building Block View of FAME's architecture documentation

Important Links

- Repository <https://gitlab.com/fame-framework>
- Wiki <https://gitlab.com/fame-framework/wiki/-/wikis/home>
- Javadoc <https://fame-framework.gitlab.io/fame-core/>
- E-Mail FAME@dlr.de

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