SBFC

The Systems Biology Format Converter Framework

Introduction

What is SBFC?

Context

- Computational Modeling in Biology
    - Community with different goals
        - Descriptive models
        - Mathematical models
    - Different Formats
        - SBML, BioPAX, CellML, …
        - Octave, R, Matlab, Mathematica, …
        - SBGN, GPML,...

Context

- Problem of interoperability
- Need for conversion between formats

Problem

- Lots of different formats

- Existing conversion tools by different groups

- Separate programs in different programming languages

- Often integrated in existing tools – not easy to reuse

Goal

- Generic Framework in Java
    - potentially translate any format into another
    - add new converters easily
    - easy to use locally (command line tool)
    - easy to integrate into existing applications

Goal

- Web Application
  - model upload (file, URL, copy/paste)
  - Prototype using EBI resources

- Web Service
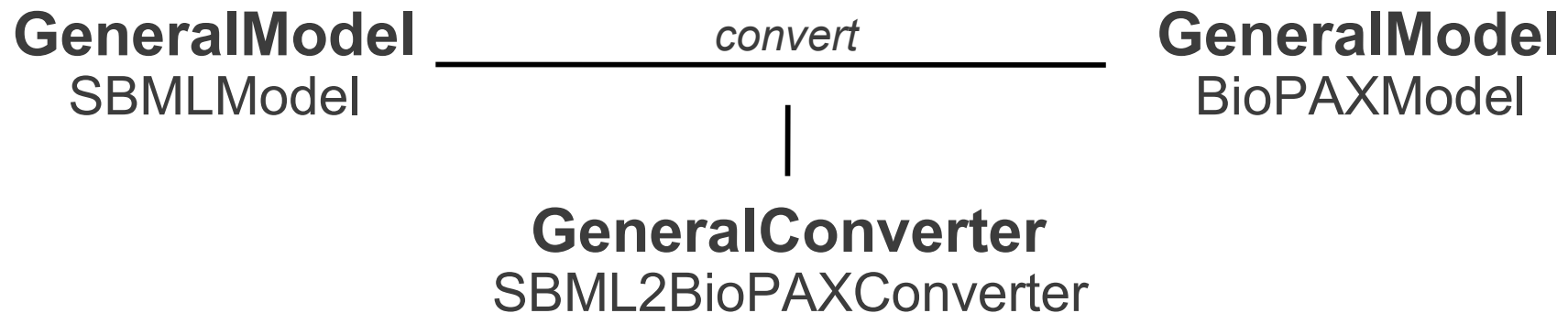 - use converters from within applications

SBFC API

- Interfaces:

  `GeneralModel` and `GeneralConverter`

SBFC API

- Interfaces:

  `GeneralModel` **and** `GeneralConverter`

GeneralModel ————————— *convert* ————————— **GeneralModel**
SBMLModel | BioPAXModel

GeneralConverter
SBML2BioPAXConverter

SBFC API

- `GeneralModel`
  - read and write methods (from file or from string)
  - method to get the file extension

- `GeneralConverter`
  - input model and output model
  - convert method
  - method to set converter specific options

Development

- Developing a prototype with OSGi

- Modular and generic framework

- "Easy" to add new converters

- Code reuse

- Easy integration of converters (or the complete framework) in existing tools

Web Application

- Accessible from internet browser:
  http://www.ebi.ac.uk/compneur-srv/converters/converters

- Models from files, URL or copy/paste

- Running on a server at the EBI

- Conversion jobs are running on a cluster

Conclusion

- Collaborative Project
  - Framework to combine format converters
  - Open Source: http://sourceforge.net/projects/sbfc/

- Provide your converters as SBFC converters (implement SBFC-API interfaces)

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