

GAMS-CAPRI Training

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Introduction to CAPRI (model infrastructure)

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Overview

- ❑ What is CAPRI
- ❑ Model architecture
- ❑ Working with the CAPRI GUI
 - ▶ Editing user settings
 - ▶ Looking at scenario results
 - ▶ Running CAPRI from the GUI

What is CAPRI

CAPRI overview (1)

- ❑ Global, comparative static, partial equilibrium, agro-economic model designed for ex-ante impact assessment
- ❑ Detailed coverage of primary and (some) secondary agrifood products
- ❑ Heterogeneous regional representation (modular) with an European focus
 - ▶ Global spatial multi-commodity model for agricultural products
 - ▶ On the supply side: regional programming models at NUTS 2 level (for EU, Norway, Turkey and Western Balkans) with a detailed representation of agricultural policies
 - ▶ Optional farm type supply models
 - ▶ 1x1 km downscaling components for EU-28
 - ▶ Regionalized small open economy CGEs at NUTS 2 level for EU-28
- ❑ Rather unique combination of spatial global trade model with regional programming models based on sequential calibration

CAPRI overview (2)

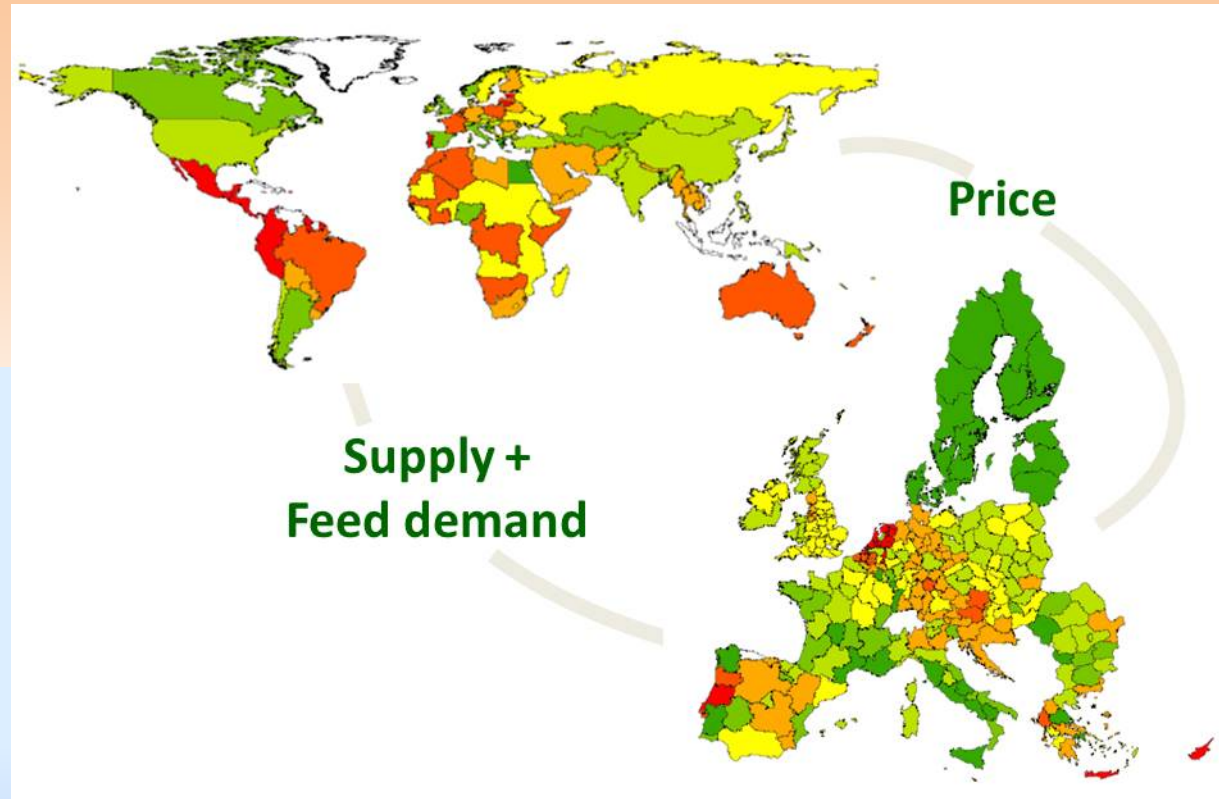
Market module

- Global coverage: around 40 trade blocks
- About 50 agrifood products
- Bilateral trade
- Detailed trade policies

Supply module

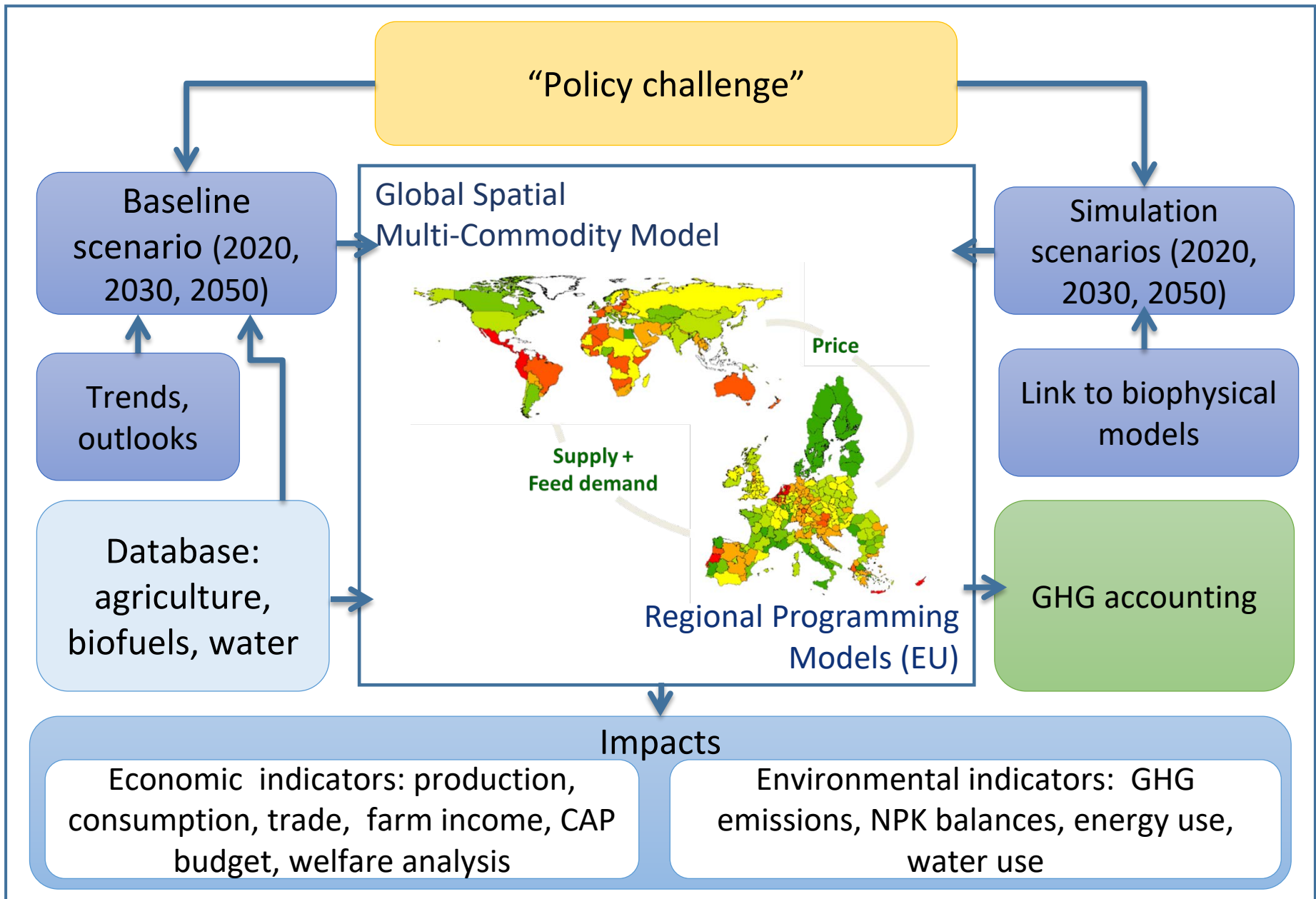
- 280 regions within the EU28 (NUTS2 level), Norway and Western Balkans
- Optimization under constraints
- Detailed policy representation (CAP)
- Interlinkages agriculture-environment

Global multi-commodity model



Regional supply models (Europe)

Ex-ante impact assessment with CAPRI



Model architecture

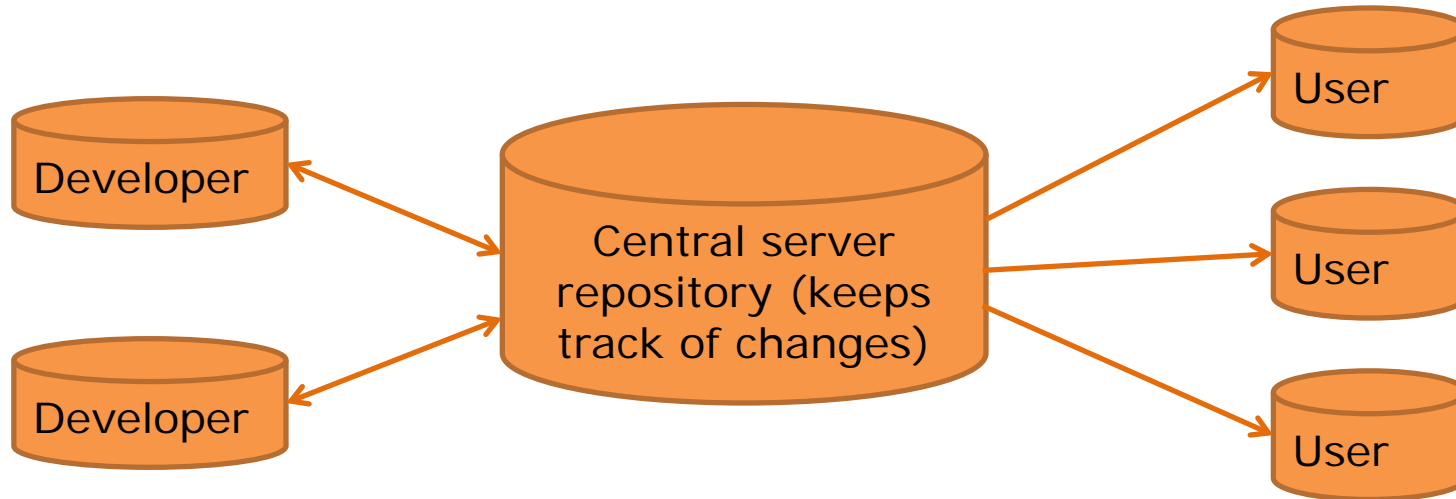
Technical implementation

CAPRI modelling system:

- ▶ Economic model and data base generation in GAMS Language
- ▶ Graphical User Interface (GUI) in Java
- ▶ CAPRI system hosted in a software versioning system (Tortoise SVN used to communicate with the SVN server)



CAPRI is hosted in a versioning system



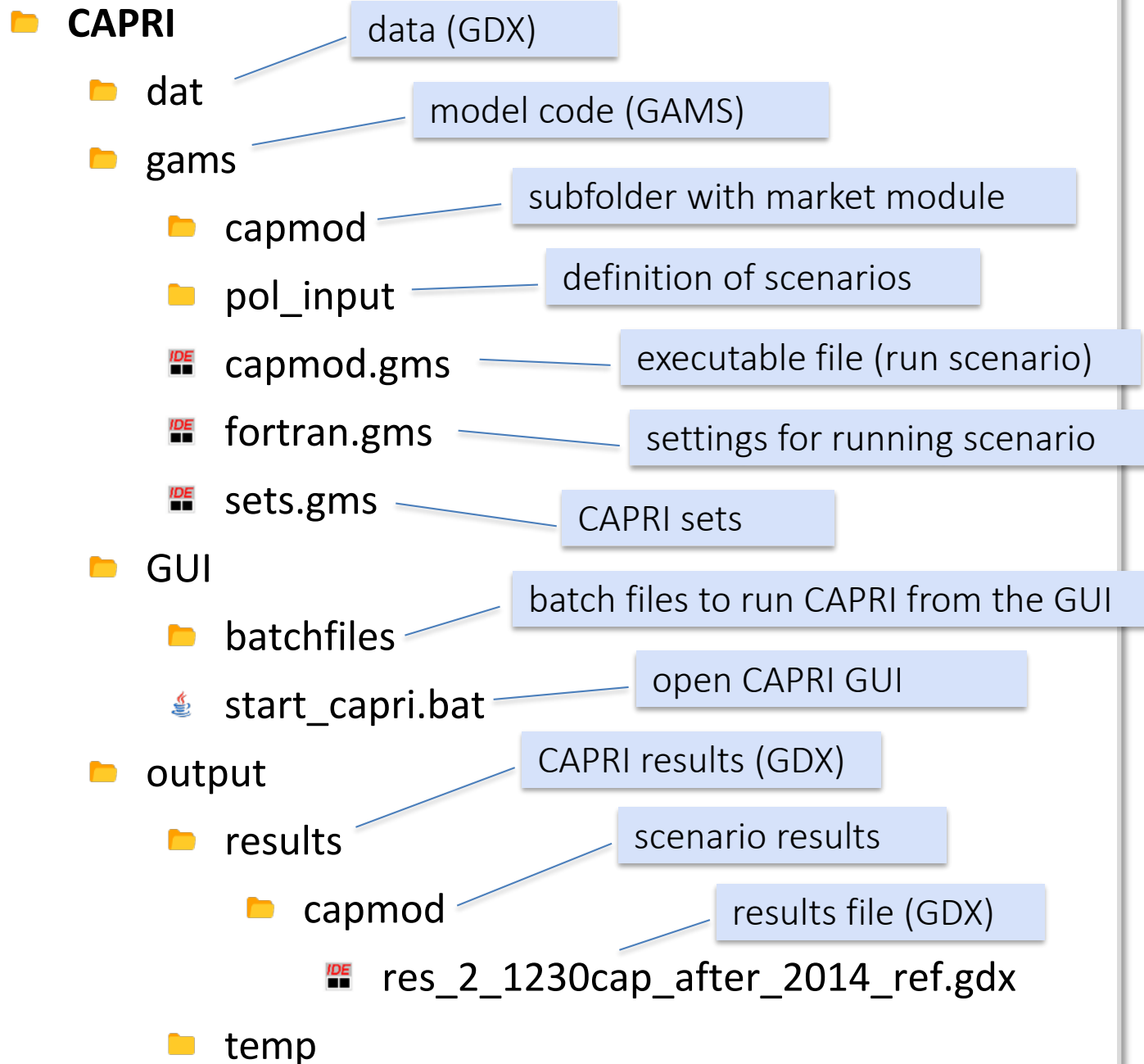
SVN => Subversion (version control system)
=> Software: TortoiseSVN

SVN repository:

Model : <https://svn1.agp.uni-bonn.de/svn/capri/trunk>

Results: https://svn1.agp.uni-bonn.de/svn/capri_out_after2016/results

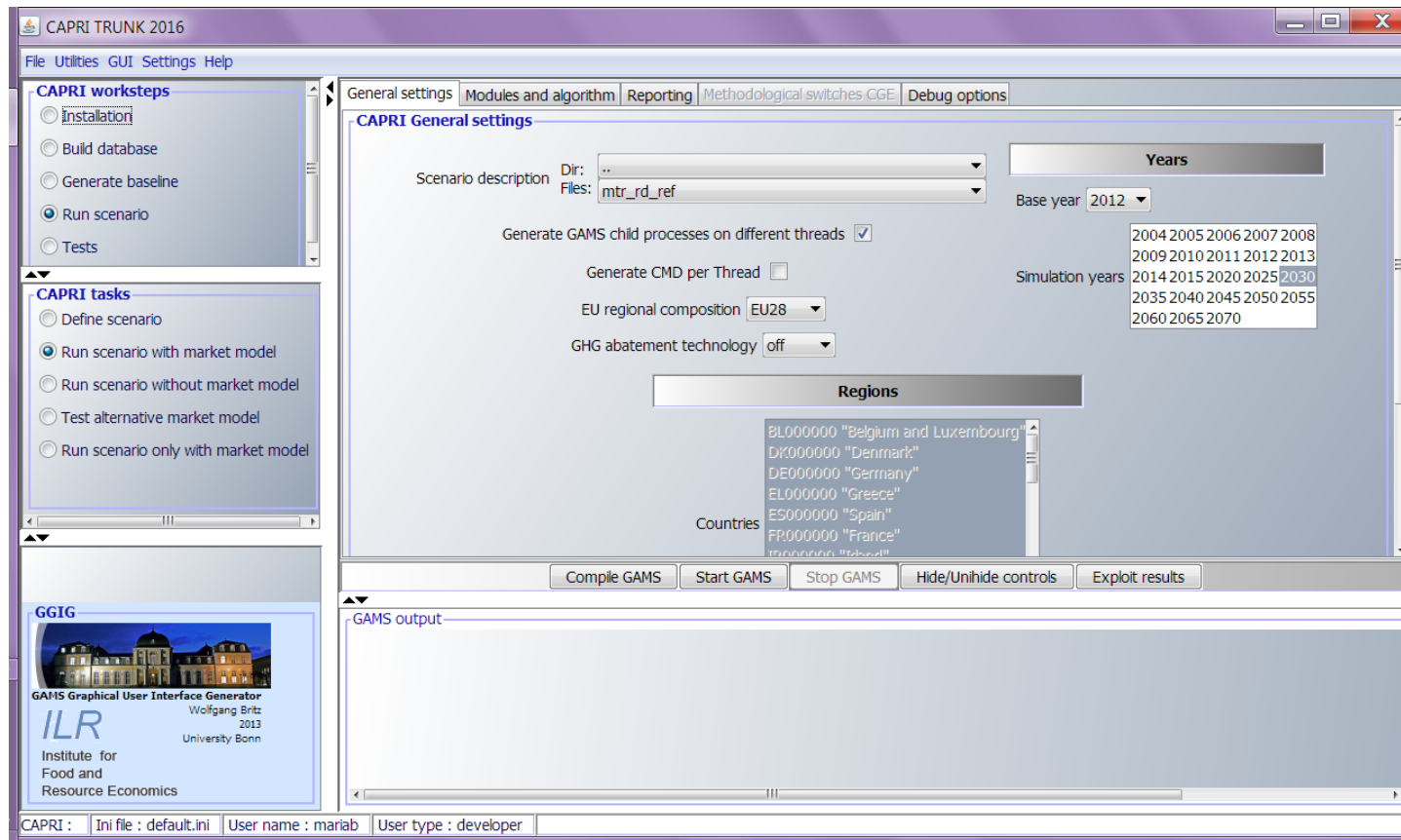
Folder structure



Working with the CAPRI GUI

How to open the GUI

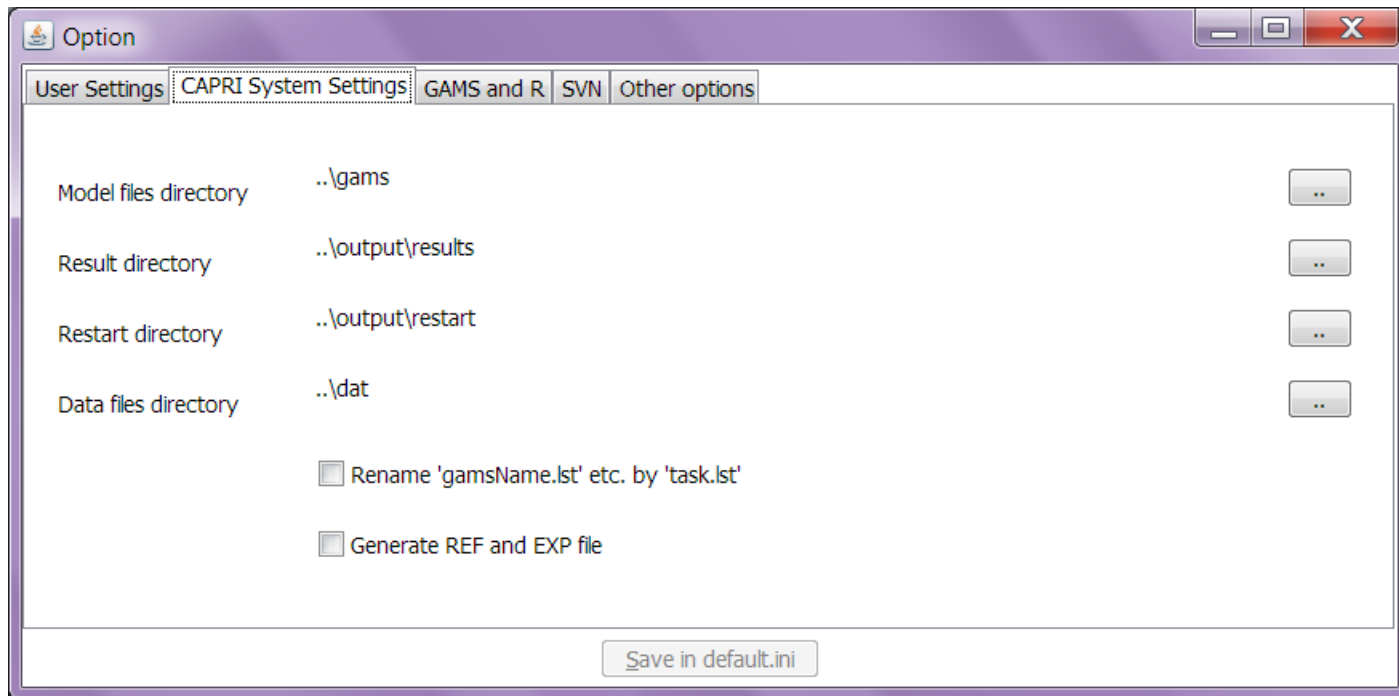
In the GUI directory: double click in the file **start_capri.bat**



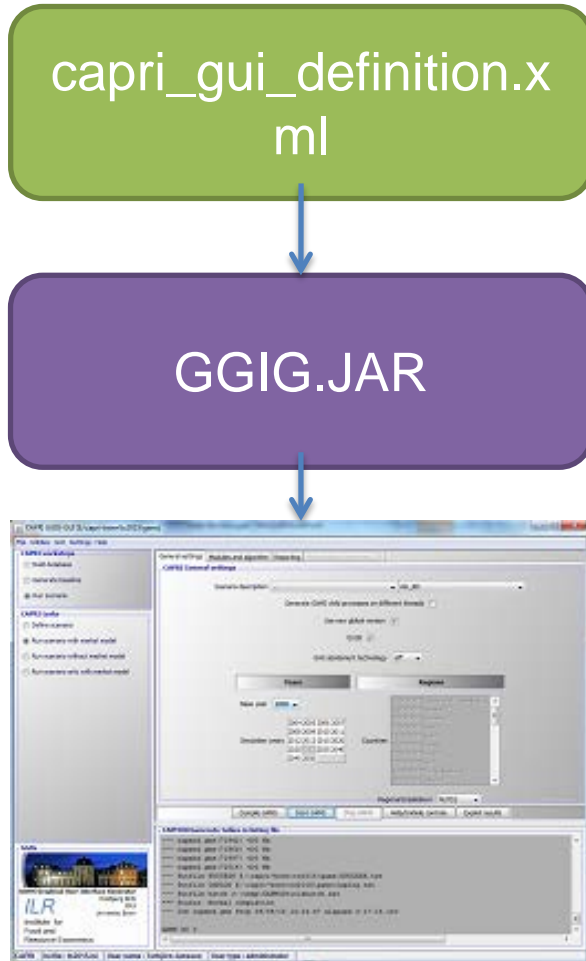
CAPRI-GUI: edit settings

Check settings by selecting Settings / Edit settings

- ▶ Enter the right paths for model, results, and GAMS program (if installed)

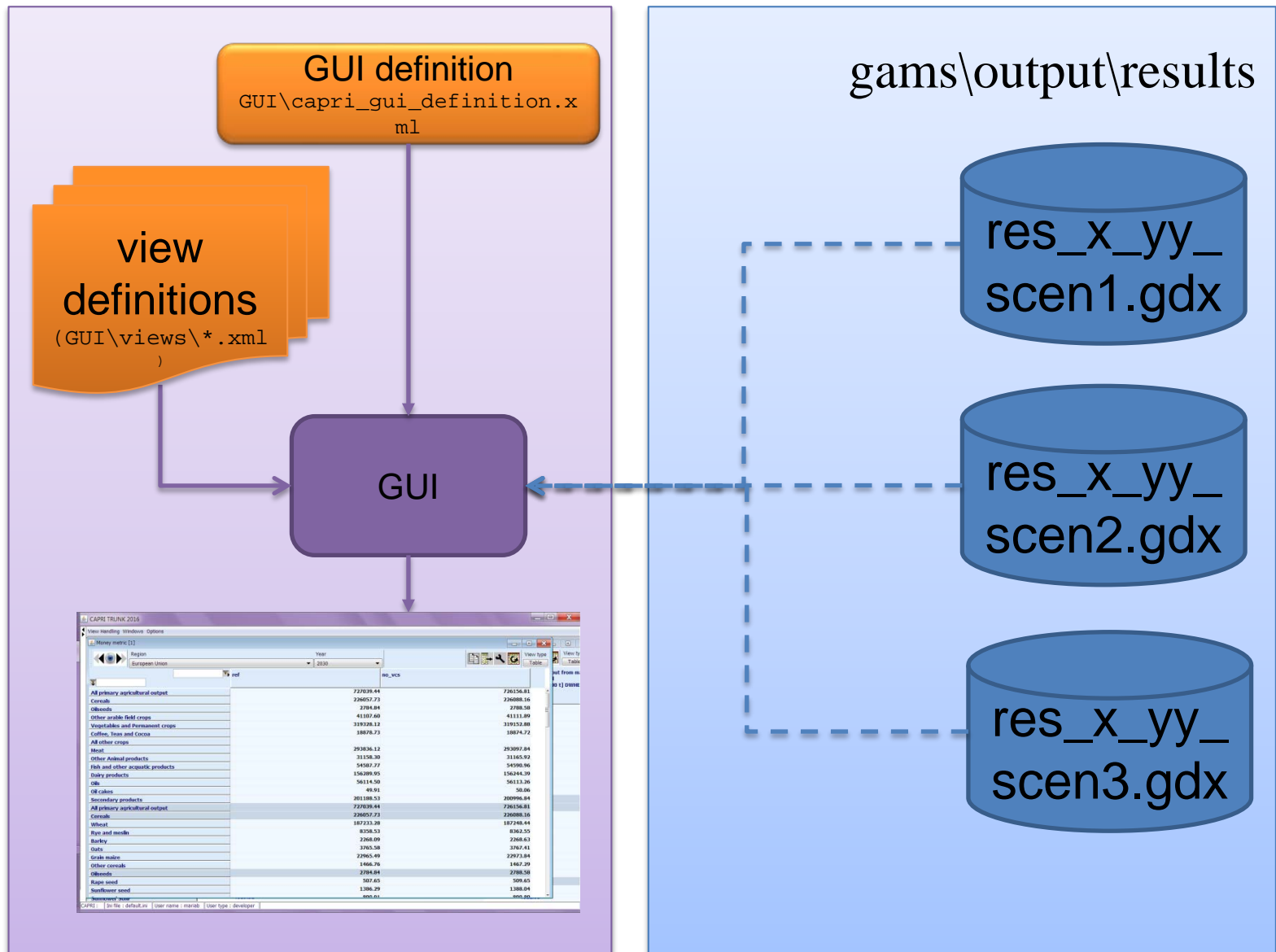


GUI architecture



- ❖ The GUI is generic (not only for CAPRI)
- ❖ XML-files define
 - ❖ Controls to display
 - ❖ Programs to run
 - ❖ Reports (views)

Viewing CAPRI results in the GUI



CAPRI-GUI: looking at scenario results

Open baseline scenario results by selecting

- ▶ CAPRI Task: run scenario with market model / exploit results
- ▶ Select: countries, regional level, simulation year and scenario file
- ▶ Click Show Results
- ▶ Navigate through the result tables

Open the CAPRI baseline (2030)

The screenshot displays the CAPRI TRUNK 2016 software interface. The main window is titled "Result exploitation" and contains several configuration options:

- Country selection:** A list box showing the following countries: EU "EU27", EL "Greece", IT "Italy", SE "Sweden", HU "Hungary", EE "Estonia", MT "Malta", TUR "Turkey", and MO "Montenegro".
- Regional level:** A text input field containing the value "029".
- Base year selection:** A text input field containing the value "04081012".
- Simulation year selection:** A list box showing the following years: 0001, 0203, 0405, 0607, 0809, 1011, 1213, 1415, 1617, 1819, 2021, 2223, 2425, 2627, 2829, 3031, 3233, 3435, 3637, 3839, 4041, 4243, 4445, 4647, 4849, 5051, 5253, 5455, 5657, 5859, 6061, 6263, 6465, 6667, 6869, 70.

On the right side of the "Result exploitation" window, there is a list of 15 scenarios, each with a corresponding text input field. Scenario 1 is filled with the text "res_2_1230cap_after_2014_cal".

At the bottom of the window, there are three buttons: "Show meta", "Show results", and "Load content of files into".

The status bar at the bottom of the application shows the following information: CAPRI : Ini file : default.ini User name : mariab User type : developer Run scenario: Run scenario with market model

Running CAPRI from the GUI

Two options to run scenarios from the GUI:

- ▶ CAPRI Task: run scenario with market model / select settings in the GUI / click Start GAMS
- ▶ Batch file: GUI => Batch execution / Select batch file to run / click Start Batch Execution
 - ❖ Preferred option since there are quite a few settings to select before running a CAPRI scenario
 - ❖ Predefined batch files exist (at least for the baseline scenario) and can be used as templates

Running CAPRI from the GUI

