GAMS-CAPRI Training

Sevilla, 9-11 April 2018

GAMS-CAPRI features (Hands-on exercises)

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Overview

- CAPRI sets
- CAPMOD components
- Defining a new scenario
- Running scenarios
- Checking results

CAPRI sets

Exercise 1: CAPRI sets

1. To use GAMSIDE to view CAPRI code, first create a GAMS project file in folder CAPRI/GAMS and call it openIDE.gpr

2. Open sets.gms and find out what the set element ”GVAP” means.

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3. Find at least three sets where this element is a member

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   .....

   .....

Exercise 2: Master sets

1. Find at least three master sets used in CAPRI

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   .....

2. How have you identified them?

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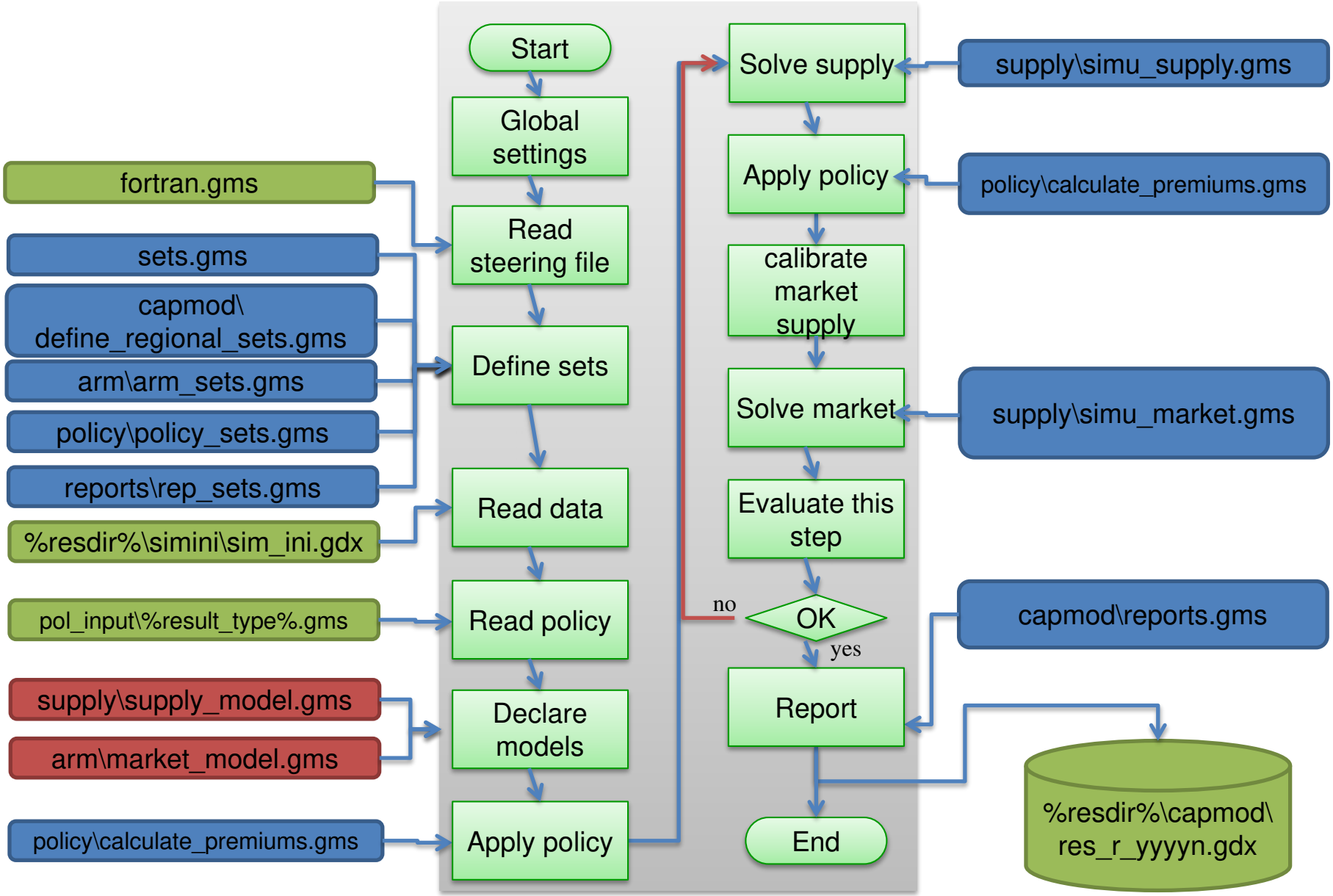
Exercise 3: View sets in Excel file

1. Use GDX2XLS to dump all the content of the file **sets.gms** to an Excel file

   a) Verify that every set gets its own sheet in the Excel file

CAPMOD components

Program flow of CAPMOD.gms



Exercise 4: CAPMOD modules

1. In which line of capmod.gms is simu_supply called?

   .....

2. In which line of capmod.gms is simu_market called?

   .....

Exercise 5: Scenarios

1. In which line of capmod.gms is the policy scenario included?

   .....

Defining scenarios

Exercise 6: Defining scenarios

1. Make a copy of ”gams\pol_input\cap_after_2014**ref.gms**” and call it ”**cap_ref.gms**”. This scenario correspond to the CAPRI baseline and includes the CAP 2014-2020.

2. Create a new scenario ”**cap_no_vcs.gms**” to simulate the CAP 2014-2020 but without voluntary coupled support. All other policy measures are identical as in ”**cap_ref.gms**”

Running scenarios

Exercise 7: Running scenarios

1. Prepare the batch file

   a) Make a copy of ”**GUI\batchfiles\build_database_and_baseline.txt**” and call it ”**run_cap_scenarios.gms**”

   b) Check the folder settings at the beginning of the file ”**run_cap_scenarios.gms**” and change them to fit yours

   c) Delete all TASKS in this file apart from "Run scenario with market model". Modify this task to fit the two scenarios defined in previous exercise.

Exercise 6: Running scenarios

2. Run the scenarios using the CAPRI GUI
   a) Open GUI=>Batch execution
   b) First, only compilation. Verify that new fortran.gms files have been generated. Find your scenario names in those files.
   c) Next, simulation. Verify the model runs.
   d) Exploit results in the GUI, comparing the new scenario cap_no_vcs against the baseline.

Checking results

Exercise 8: Checking results

2. Exploit scenario results using the CAPRI GUI
   a) Open the results files for the two scenarios and check main results
   b) Compare results of the NO_VCS scenario against the baseline

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More GAMS_CAPRI exercises

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Overview

- Checking the code
- Mappings
- Manipulation of GDX files
- Batinclude

Checking the code

Searching for specific elements in the code

- Useful files to check the code (output from GAMS):
  - taskname**.exp** (sequence of statements)
  - taskname**.ref** (all items included in task)
- Text editor to search for specific elements
  - GamsIDE
  - UltraEdit, Notepad++, ...

Exercise 1: Ref and Exp files

1. Run the scenario **cap_no_vcs** and check the content of files **.ref** and **.exp** generated by a GAMS run

2. Find simu_supply.gms and simu_market.gms . What file is run first?

   .....

3. Find out where the set XX_all is defined

   .....

Mappings

Mappings – Example

- Use of regional mapping map_rr to aggregate UAA from the regional to the national level

create_sim_ini_gdx.gms

```
DATA(MSAGG,"UAAR","LEVL","Y")    =
SUM(MAP_RR(MSAGG,RU), DATA(RU,"UAAR","LEVL","Y"));
```

Exercise 2: CAPRI mappings

1. Open file gams\reports\sol_market.gms
2. Find at least 3 lines of code where map_rr has been used and explain why the mapping has been used.

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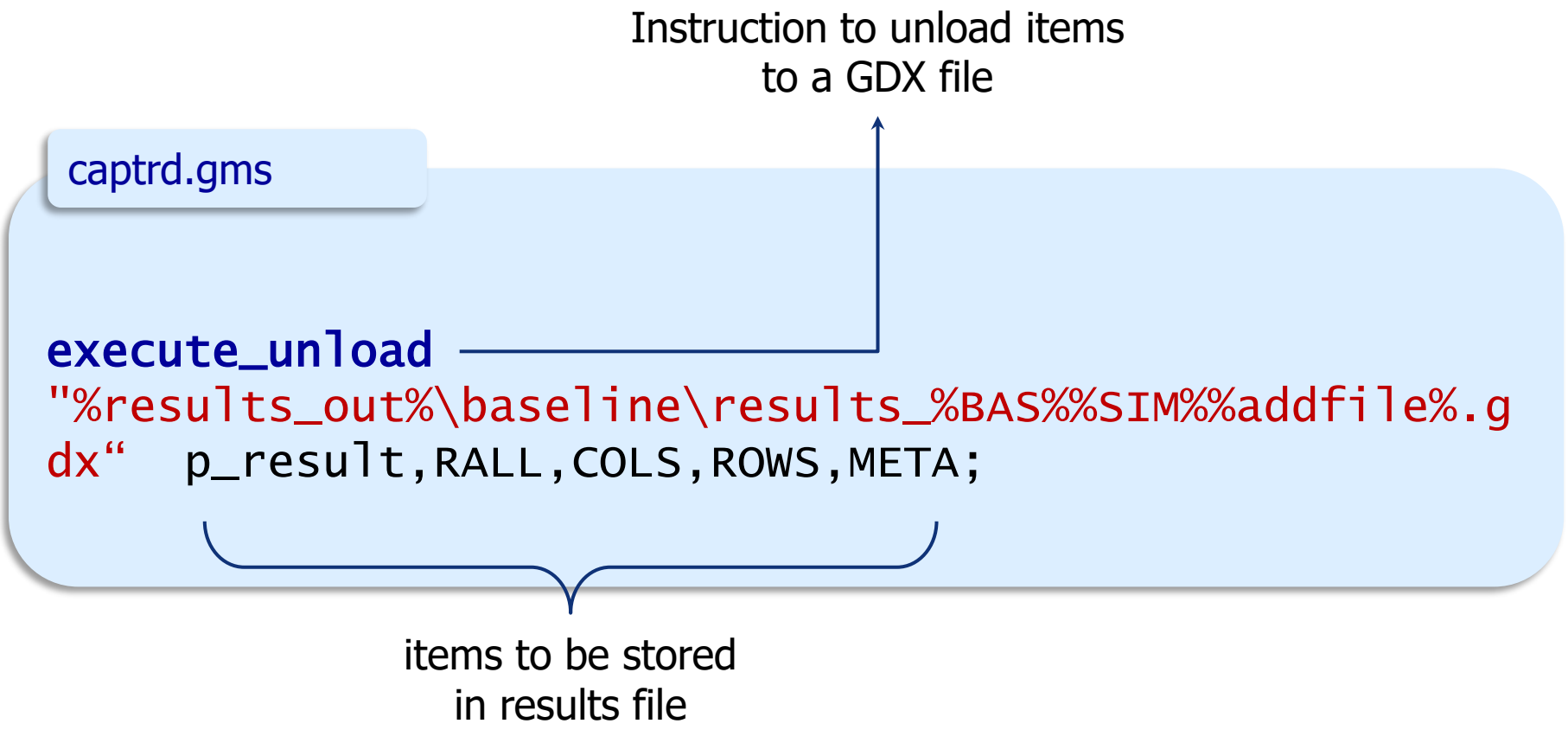
Manipulation of GDX files

Unload to GDX – Example



Exercise 3: $abort

1. Open capmod.gms and find a place where $abort is used before and execute_load statement. Explain what the $abort command does

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Exercise 4: Save results to GDX

1. Open set_and_store_dataout.gms and find out the place where results from the current run are saved to a GDX datacube

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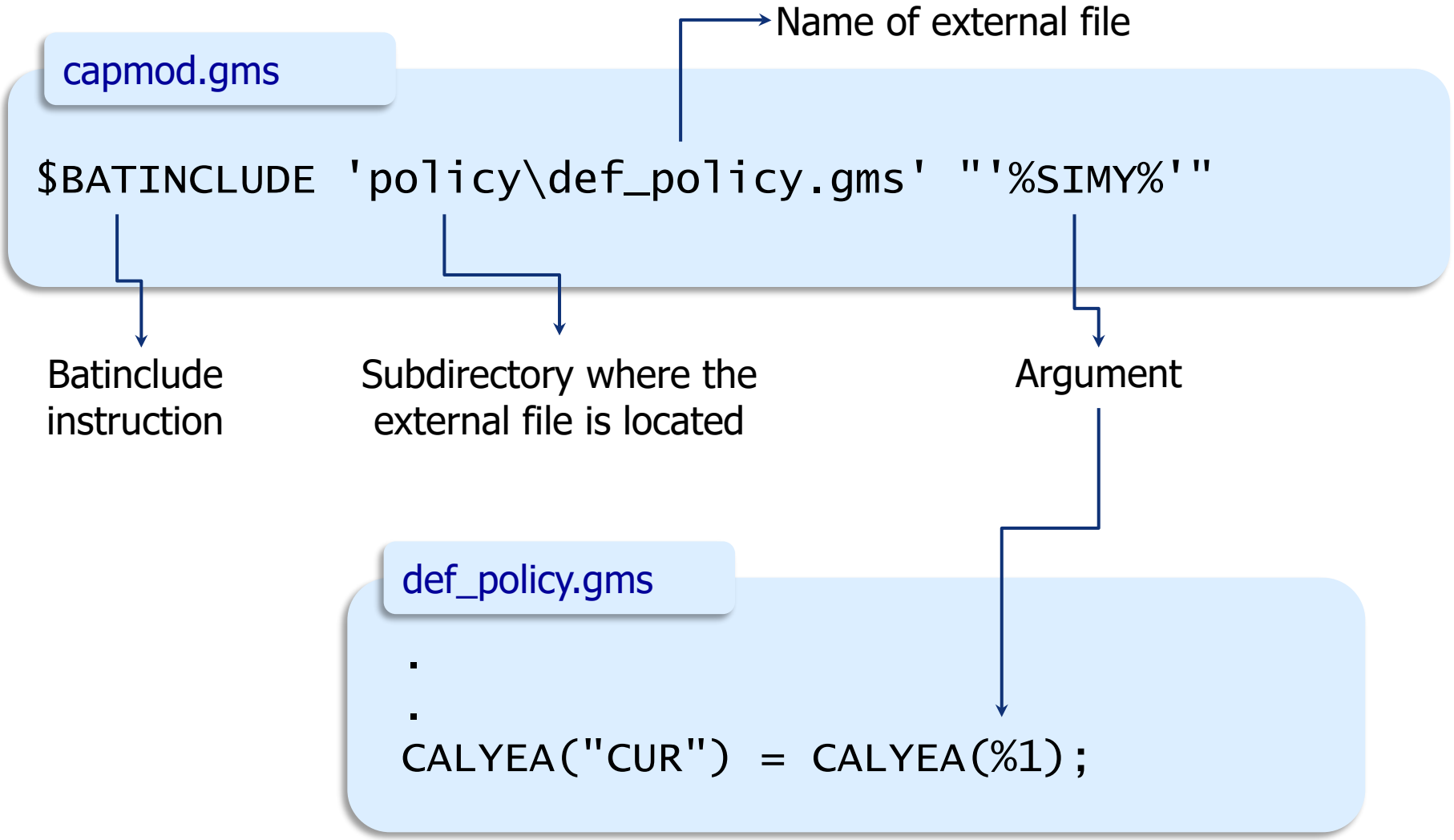
Batinclude

Batinclude – Example



Exercise 5: Batinclude

1. Open capmod.gms and find out the line where define_inputs.gms is included.
2. Explain what the command $batinclude does