

Pharmaceutical
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4

Hands on the „CPPPO“ library code test

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A part of this teaching material has been
prepared for NanoSim (<http://sintef.no/NanoSim/>)



NanoSim

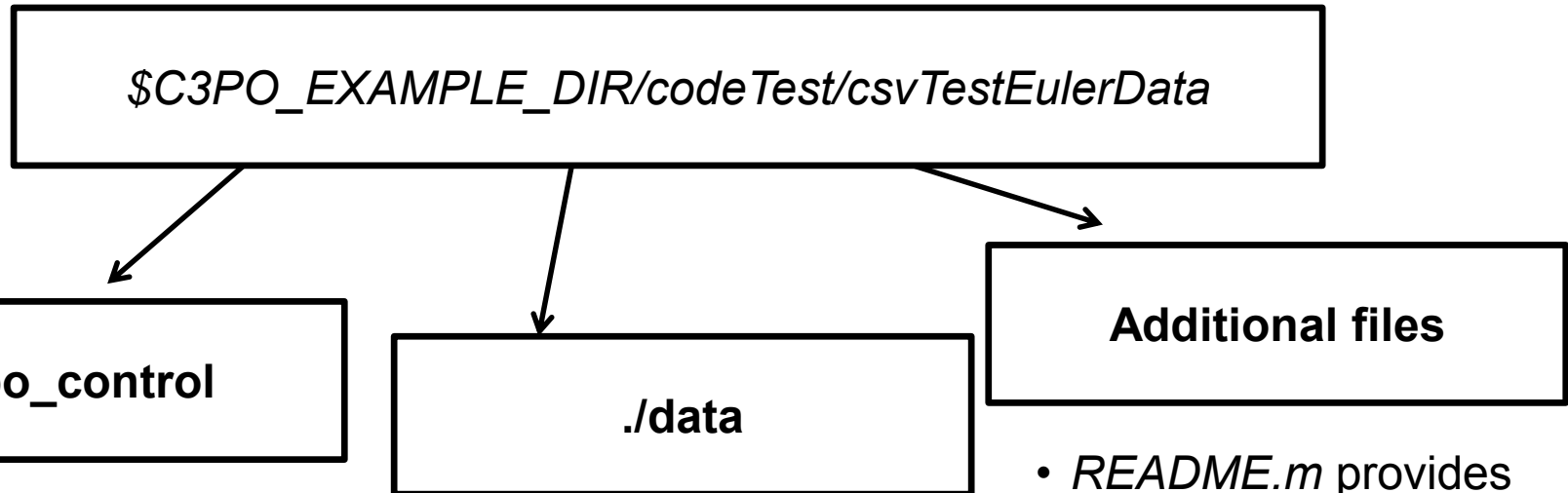
NanoSim - A Multi-scale Simulation-Based Design Platform

Test case - csvTestEulerData

Requirements:

- Be sure that the CPPPO core library is compiled correctly by checking that *libc3po.a* is in `$C3PO_SRC_DIR/core`.
- Make sure that the stand-alone CPPPO-CSV interface is compiled correctly by checking that *c3po_csv* is in `$C3PO_SRC_DIR/interface_CSV`.

Case structure



- Contains c3po.input and the json files required to run CPPPO (see *./doc*)
- It should **always** be named c3po_control

- Contains the CSV data with the values of scalar and vector fields you want to process. They should be ordered accordingly to their time step.

- *README.m* provides a brief description of the case
- *Allclean/Allrun.sh* allow to clean and run the whole case
- *run.sh* allow to run without cleaning
- *mesh.csv* is the csv file containing mesh information.

Walk-through (1)

Have a look at `./c3po_control/c3po.input` and `./c3po_control/c3po.json`

These files contain all the operation and selectors used for this case as well as the main settings for CPPPO.

You can refer to `doc/02_c3poInput.md` for a detailed description.

The file `./c3po_control/mesh.json` allows to specify the **tolerance for filtering operations** and mesh check and **parallel decomposition**.

Additional information can be found in `$C3PO_SRC_DIR/doc/31_CSV_interface.md`

Walk-through (2)

Check mesh.csv and the files in ./data

In order to use CPPPO-CSV interface correctly it is necessary to figure out the correct formatting for mesh and fields.

Additional information can be found in
`$C3PO_SRC_DIR/doc/31_CSV_interface.md`

Walk-through (3)

Run the test case

Run `$C3PO_SRC_DIR/interface_CSV/c3po_csv` or the related symbolic link if you created one.

Alternatively, you can run in parallel using `mpirun - np 2`
`$C3PO_SRC_DIR/interface_CSV/c3po_csv` to run with two processors

Alternatively, **you can run the whole case using `./Allrun.sh`**

Remember to run `Allclean` before leaving the directory!

Walk-through (4)

Modify the test case

- **Add a new filter:**
 - Add a new filter and a new selector in `c3po.input`, name them as you like.
 - Copy an existing filter in `c3po.json` and name it accordingly to your new filter.
 - Modify the coordinate system to spherical and set a filter volume of $\frac{\pi}{6}$ following the documentation in `doc/14_selector_type.md`
 - Run the modified case.

Impressum & Disclaimer

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