Collaboratice tasks between SCARA robots with DELMIA

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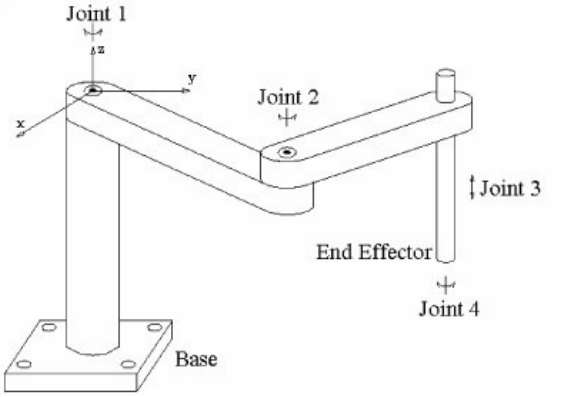
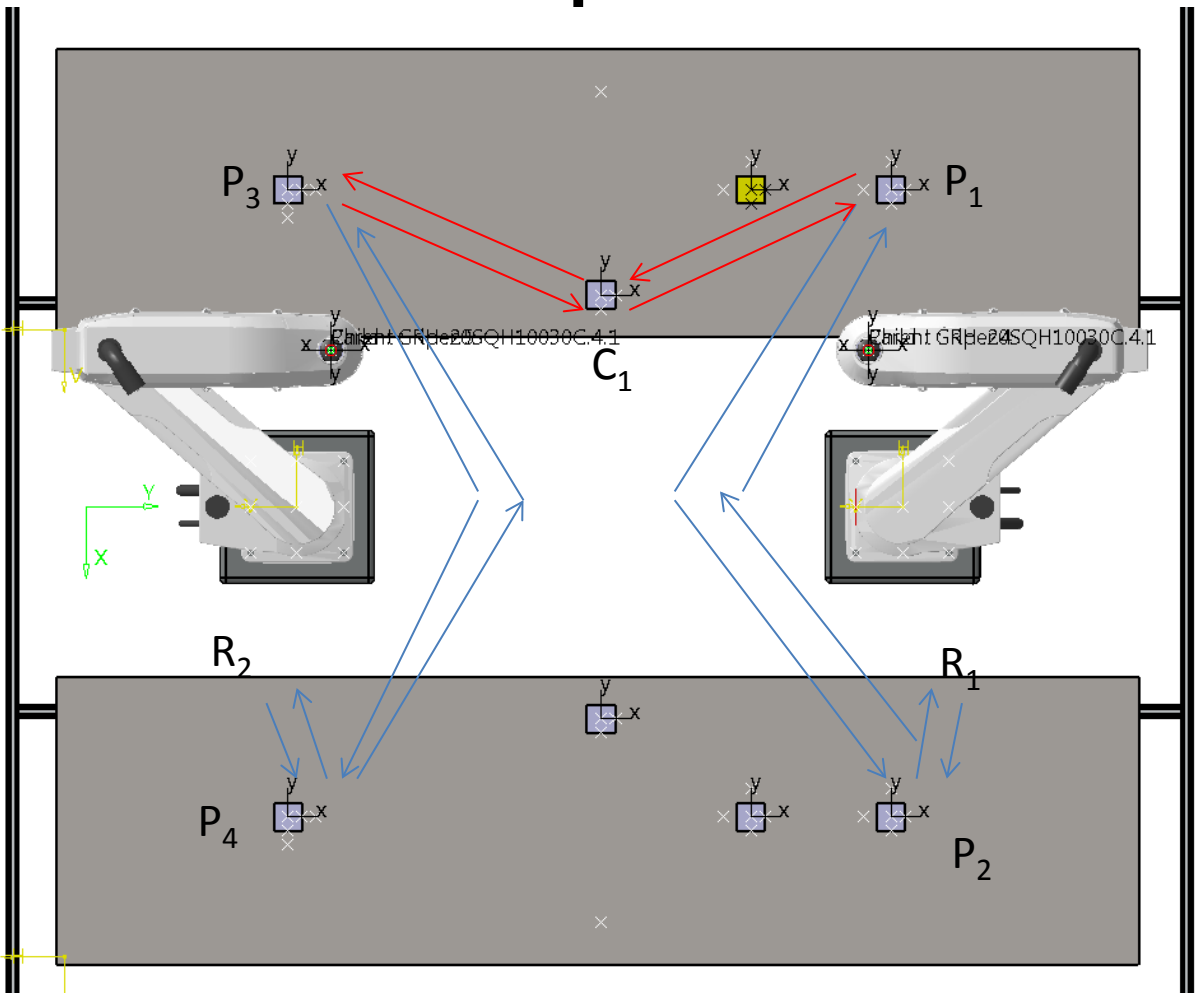


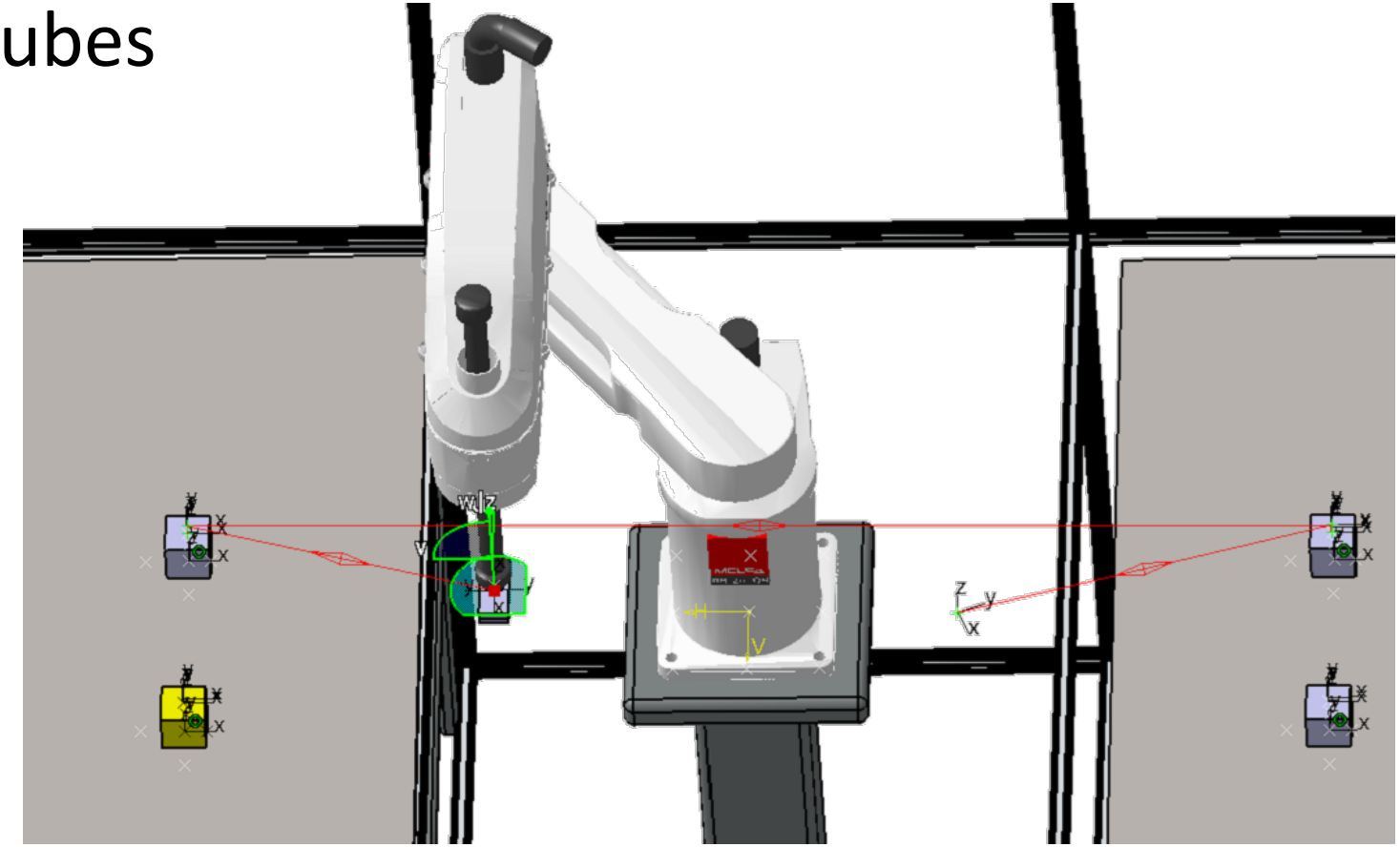
Main tasks

The aim is two show serial and parallel tasks between two robots



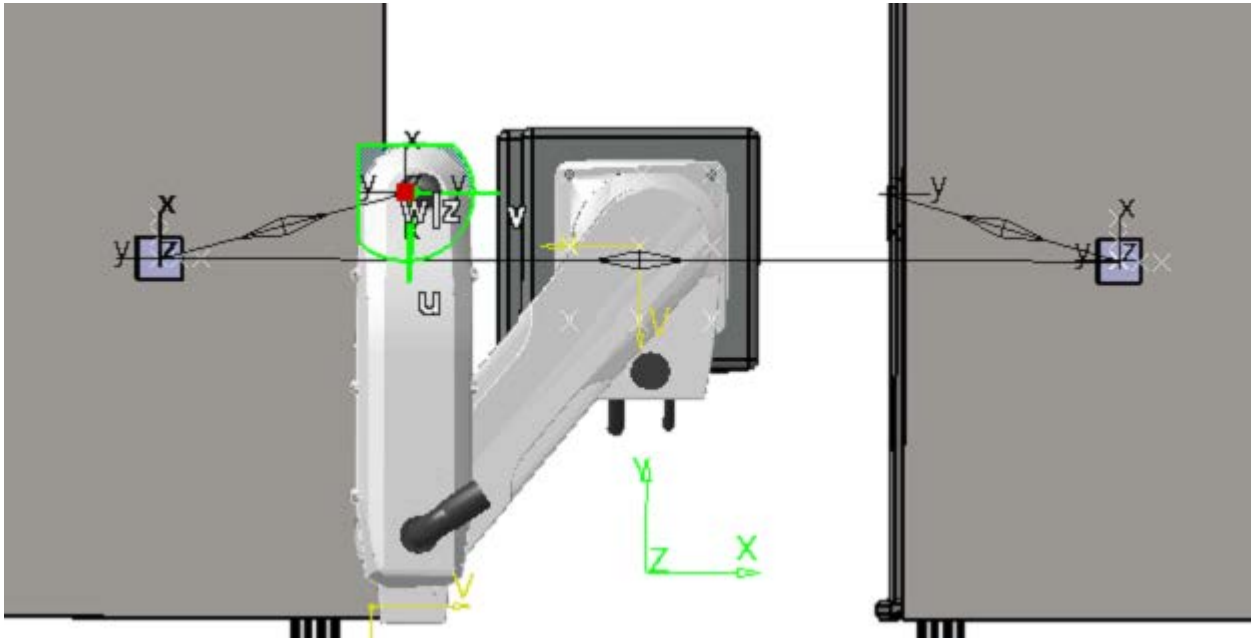
Trajectory for first robot

- Create a loop trajectory between left and right cubes



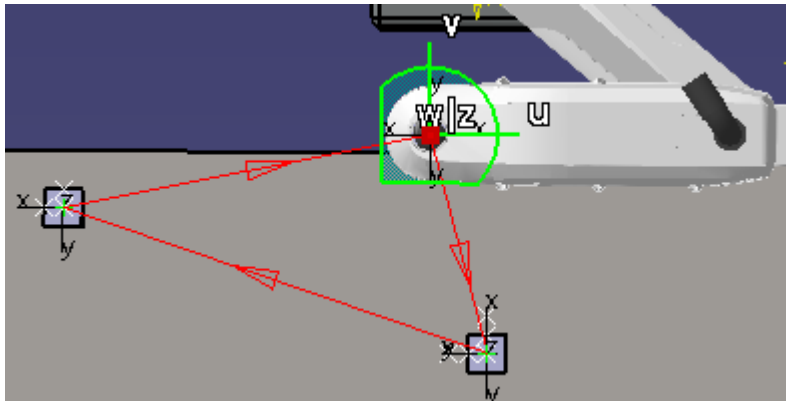
Trajectory for second robot

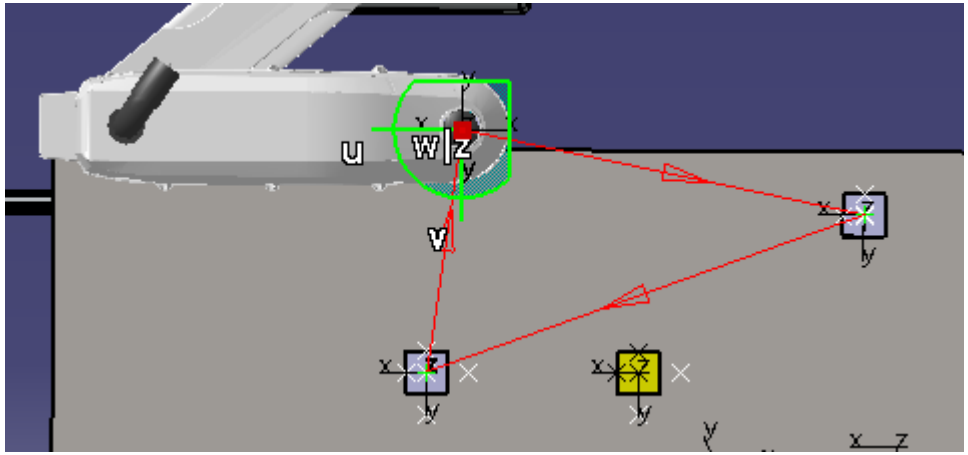
- Create a loop trajectory between left and right cubes



Trajectory for the robots

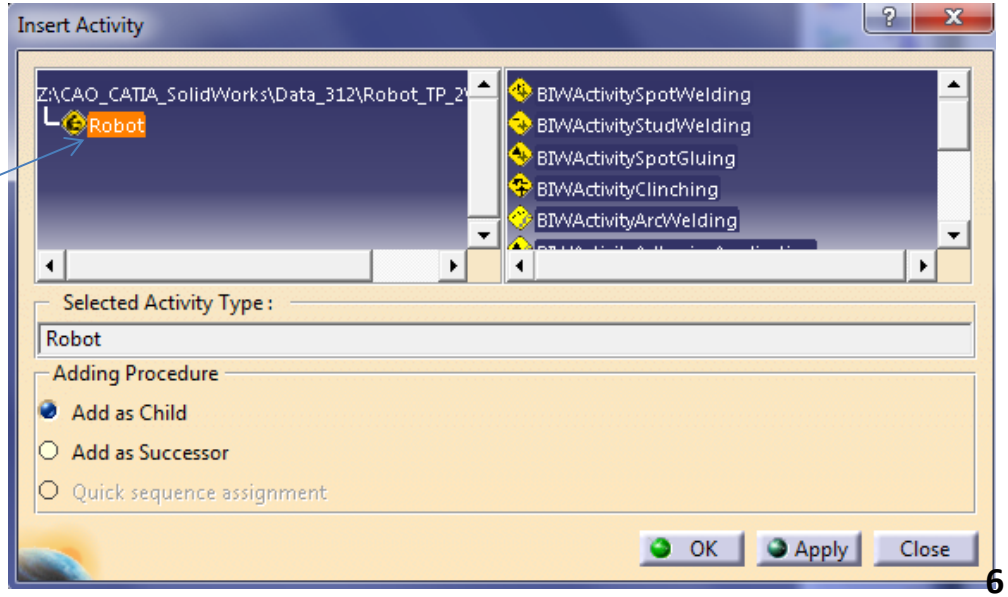
- Create an activity to move up the cube at mid-distance for one robot
- Create, for the other robot, a task to pick the part and move to the left





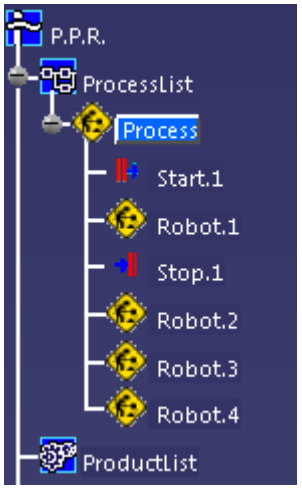
Change workbench

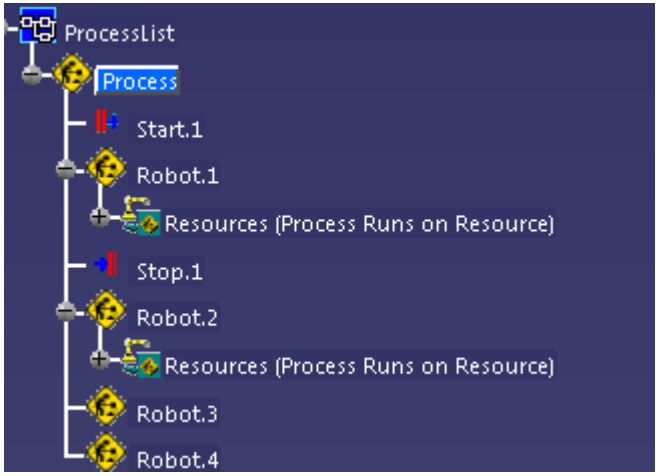
- Move to Workcell sequencing
- Insert an activity library
- Select the Process in yellow and then select the file “Robot.act”
- Insert Activity
- Select “robot”
- Apply four times



Process analysis

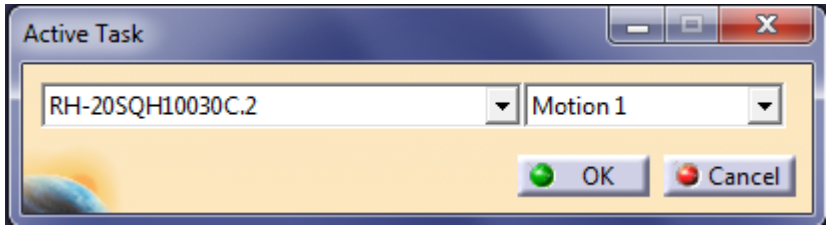
- We have now this process description
- The aim is then to associate some resources 
- Select an activity and then a robot
- Run as a resource
- Apply for both the robots





Process analysis

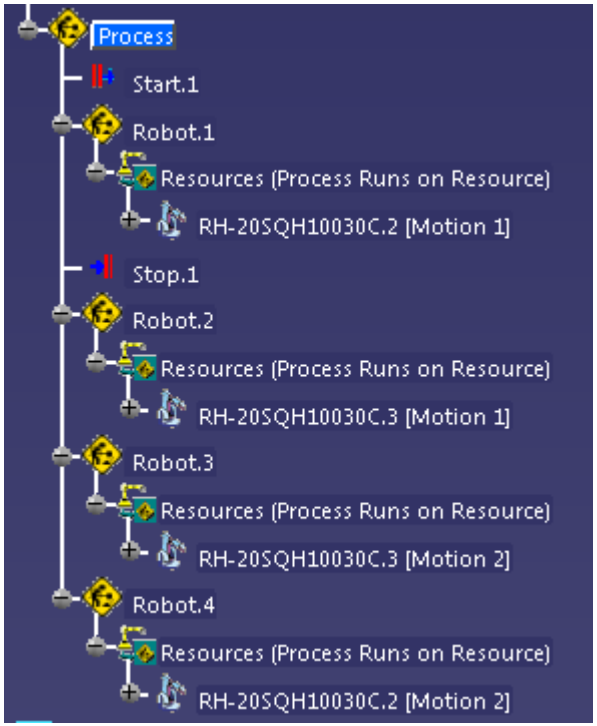
- We have to associate the task to be used for each activity
- Set an active task 



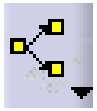
- Repeat the operation for the four activities

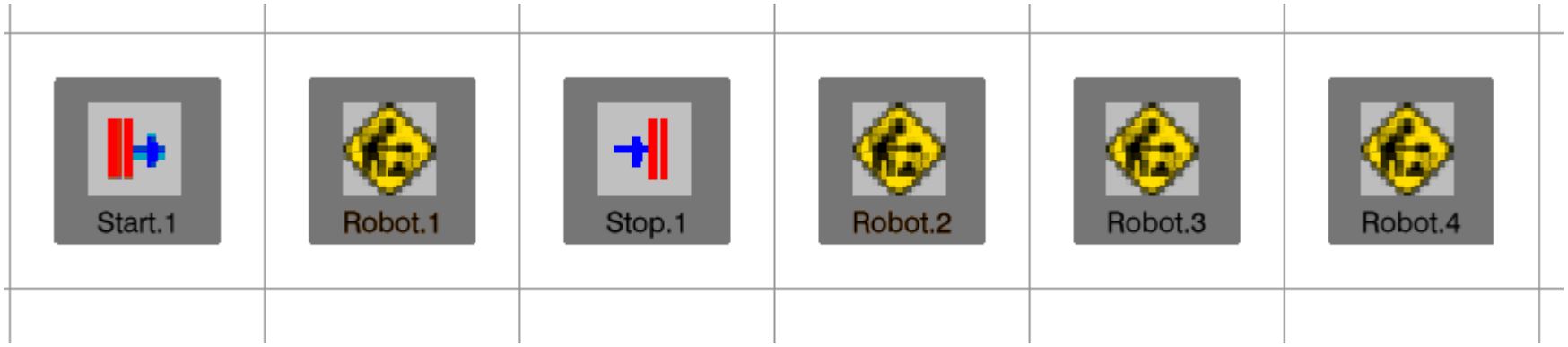
Process analysis

- Define of the activity order ordering



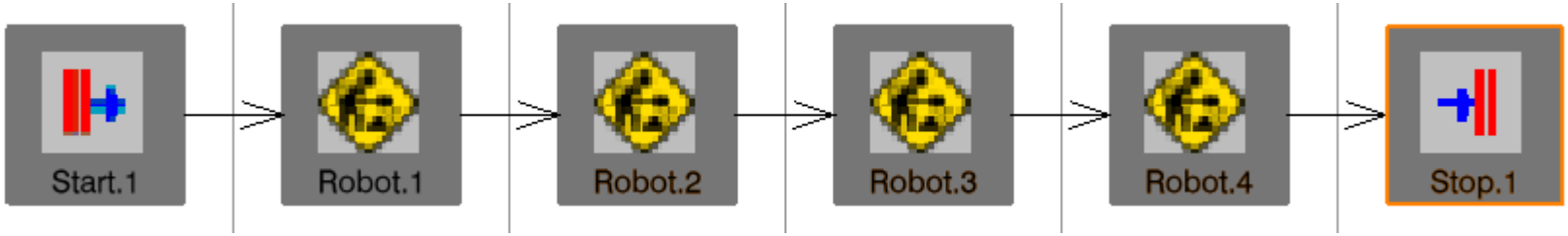
Process analysis

- Now we have four trajectories
- We can play either in series or in parallel
- Open the PERT chart 
- Select to process on the top
- We have to link the activity 



Process analysis

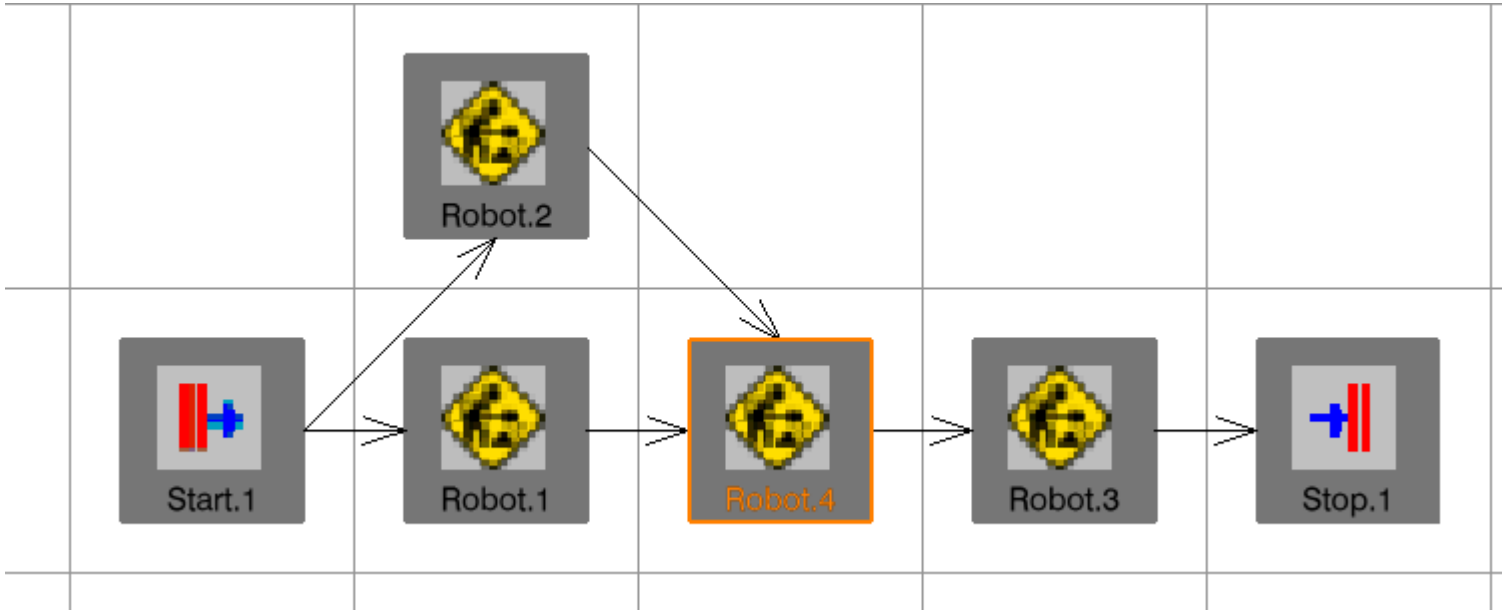
- First solution



- Change window and play the simulation
- We can do it faster…

Process simulation

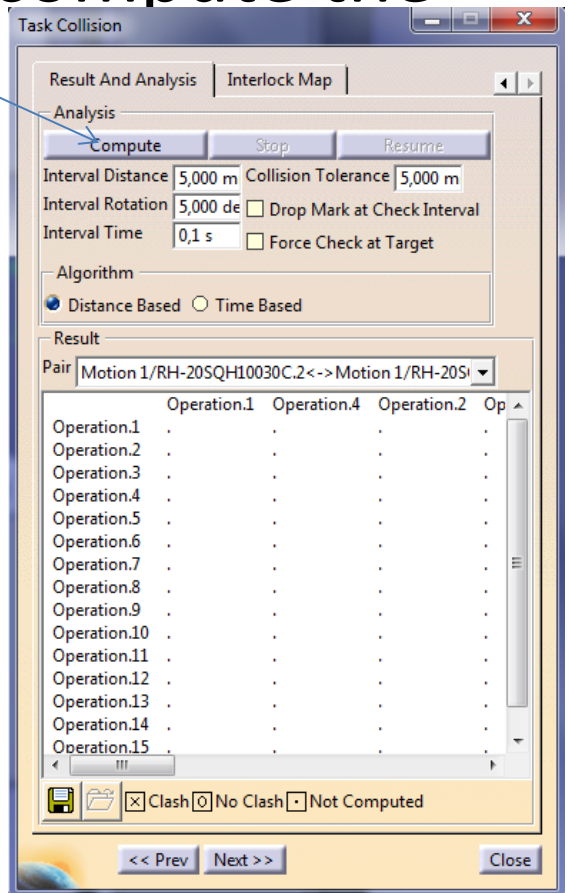
- Second solution

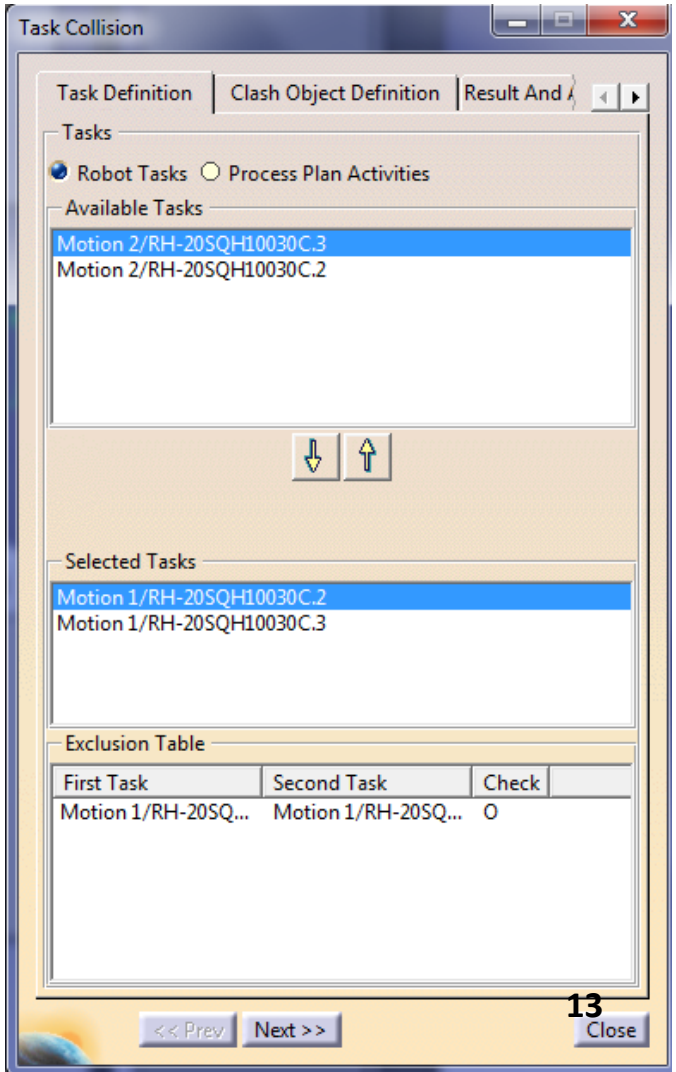


- Play the simulation… we can have collisions!

Automatic task collision analysis

- Select the first two tasks
- Then NEXT, compute the analysis
- Play the simulation





Assignment

- To be send to stephane.caro@ls2n.fr and damien.chablat@ls2n.fr
- A PDF to explain all the steps to manage the robots
  - Either task by task (in serial)
  - Or two tasks at the same time (in parallel)
  - > Compare both the approaches (running time and complexity)