

# FMICS2023 Guide

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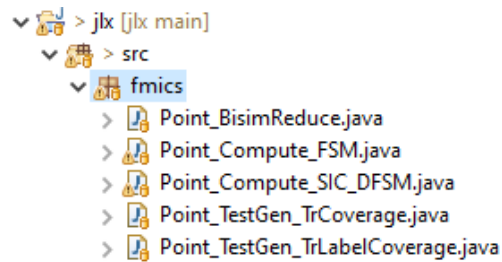
May 2023

## 1 How to set up the software framework

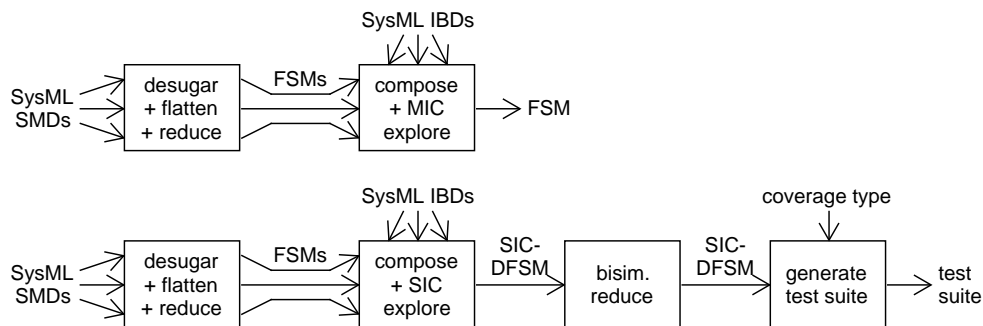
See *SETUP.pdf*.

## 2 How to run the pipelines

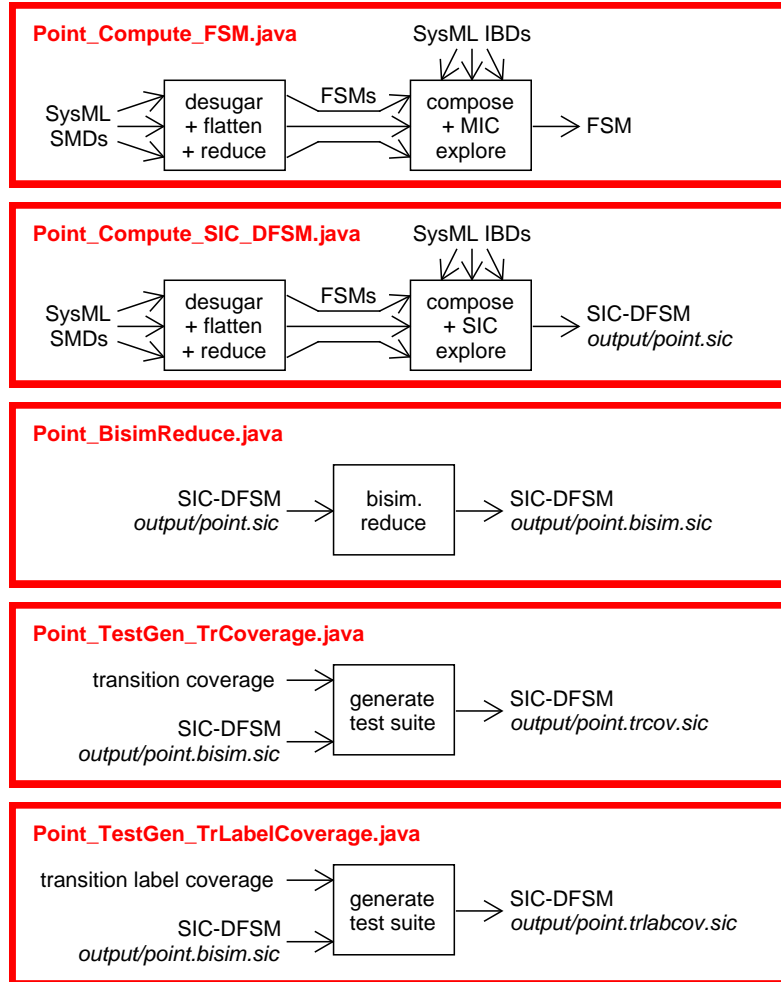
In the paper, two pipelines are described from EULYNX specifications to FSMs/SIC-DFSMs. These pipelines can be run by using the files in the ‘fmics’ package:



In the paper, the following image is shown of the pipelines:



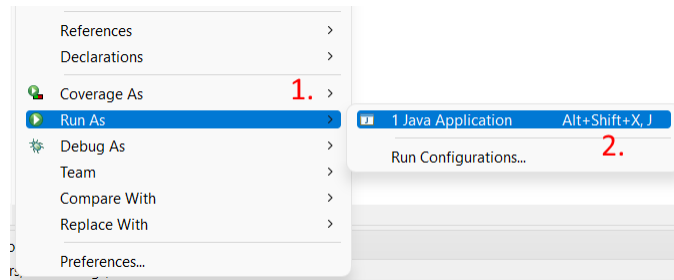
This image maps to the files in the ‘fmics’ packages as follows:



We make several comments:

- The FSM that is computed by ‘Point\_Compute\_FSM.java’ is *not* used (it is not even saved to disk).
- The SIC-DFSM that is computed by ‘Point\_Compute\_SIC\_DFSM.java’ is saved to disk under the name ‘point.sic’.
- ‘Point\_BisimReduce.java’ loads ‘point.sic’, reduces it, and saves the result under the name ‘point.bisim.sic’.
- ‘Point\_TestGen\_TrCoverage.java’ loads ‘point.bisim.sic’, generates tests, and creates a new SIC-DFSM file named ‘point.trcov.sic’ (which contains the generated tests).
- ‘Point\_TestGen\_TrLabelCoverage.java’ loads ‘point.bisim.sic’, generates tests, and creates a new SIC-DFSM file named ‘point.trlabcov.sic’ (which contains the generated tests).

To run one of the files in the ‘fmics’ package, right-click it. A context menu appears:



Navigate to the ‘Run As’ sub-menu, open it, and click the ‘Java Application’ option.

### 3 How to run the simulator

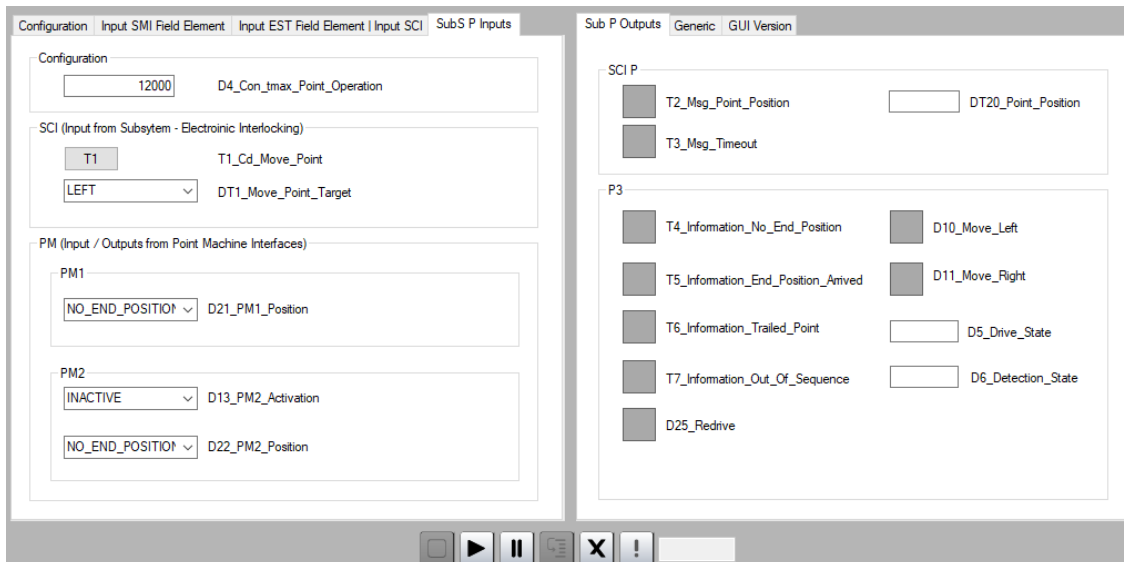
*The software simulator runs on Windows 10 or above only.*

The software simulator can be run in two ways:

- In manual mode.
- In test mode.

#### 3.1 Manual mode

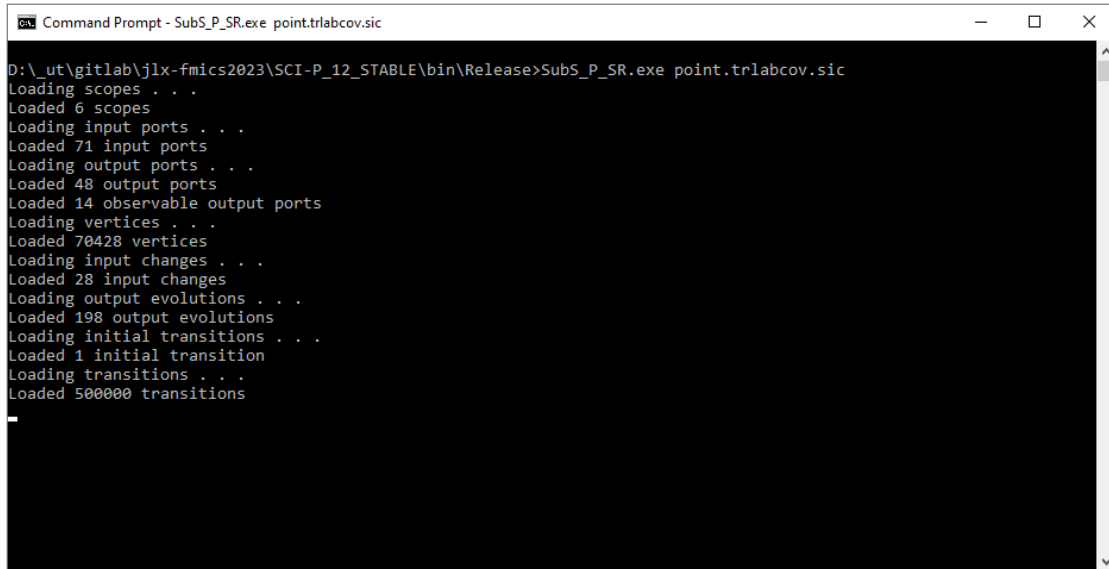
“Manual mode” is the mode for which the software simulator was developed. It is started by running the executable ‘/SCI-P\_12.STABLE/bin/Debug/SubS\_P\_SR.exe’. A GUI appears:



Inputs are available on the left-hand side of the GUI; outputs are displayed on the right-hand side of GUI.

## 3.2 Test mode

“Test mode” is what we added to the software simulator code base to perform automated model-based testing. It is started by running the executable ‘/SCI-P\_12\_STABLE/bin/Release/SubS\_P\_SR.exe’ from CMD, with the ‘.sic’ file as a parameter:



```
Command Prompt - SubS_P_SR.exe point.trlabcov.sic
D:\_ut\gitlab\jlx-fmics2023\SCI-P_12_STABLE\bin\Release>SubS_P_SR.exe point.trlabcov.sic
Loading scopes . . .
Loaded 6 scopes
Loading input ports . . .
Loaded 71 input ports
Loading output ports . . .
Loaded 48 output ports
Loaded 14 observable output ports
Loading vertices . . .
Loaded 70428 vertices
Loading input changes . . .
Loaded 28 input changes
Loading output evolutions . . .
Loaded 198 output evolutions
Loading initial transitions . . .
Loaded 1 initial transition
Loading transitions . . .
Loaded 500000 transitions
```

Discrepancies are summarized in a file called ‘discrepancies.txt’, found in the same location as the executable:

SCI-P_12_STABLE > bin > Release				
Name	^	Date modified	Type	Size
AtegoSySimControls.dll		25-10-2017 19:34	Application exten...	141 KB
discrepancies.txt		16-5-2023 15:16	Text Document	2 KB
LoadedModelTest.fail		16-5-2023 15:16	FAIL File	15 KB
point.trcov.sic		29-5-2023 01:30	SIC File	373.050 KB
point.trlabcov.sic		29-5-2023 01:37	SIC File	353.935 KB
SMSupport.dll		25-10-2017 19:34	Application exten...	15 KB
SubS_P_SR.exe		16-5-2023 15:15	Application	705 KB
SubS_P_SR.exe.config		23-4-2021 14:51	XML Configuratio...	2 KB
SubS_P_SR.pdb		16-5-2023 15:15	Program Debug D...	834 KB
SubS_P_SR.vshost.exe		24-4-2020 15:39	Application	22 KB
SubS_P_SR.vshost.exe.config		30-9-2011 15:37	XML Configuratio...	2 KB
SubS_P_SR.vshost.exe.manifest		18-6-2013 14:28	MANIFEST File	1 KB
SubS_P_SR.xml		16-5-2023 15:15	XML Document	2 KB
SySimFramework.dll		25-10-2017 19:35	Application exten...	615 KB
SySimSimulinkLib.dll		25-10-2017 19:34	Application exten...	419 KB
VBSimLibs.dll		25-10-2017 19:35	Application exten...	480 KB
wsltorx.bat		11-10-2021 11:59	Windows Batch File	1 KB