

Run-Configuration of Tulsa

Step 1: Prerequisites

Install the **Epsilon Framework**, **DICE Profile** and **EMF** to the Eclipse.

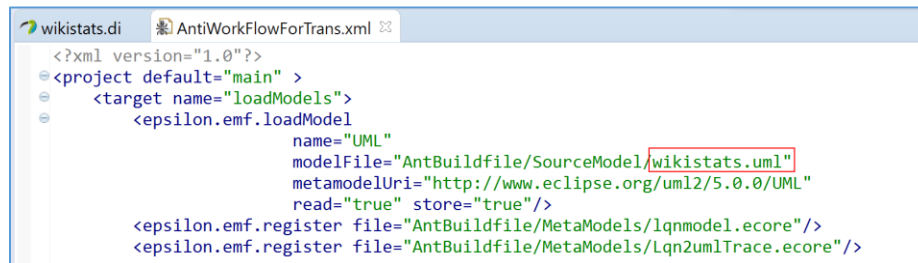
- Epsilon: <http://www.eclipse.org/epsilon/download/>
- DICE Profile: <https://github.com/dice-project/DICE-Profiles>
- EMF: <http://www.eclipse.org/modeling/emf/updates/>

Step 2: Import the UML file

Copy the UML file to the folder “AntBuildfile/SourceModel/”.

Step 3: Configure the Ant build file - **AntiWorkFlowForTrans.xml**

- 1) Enter the UML file location



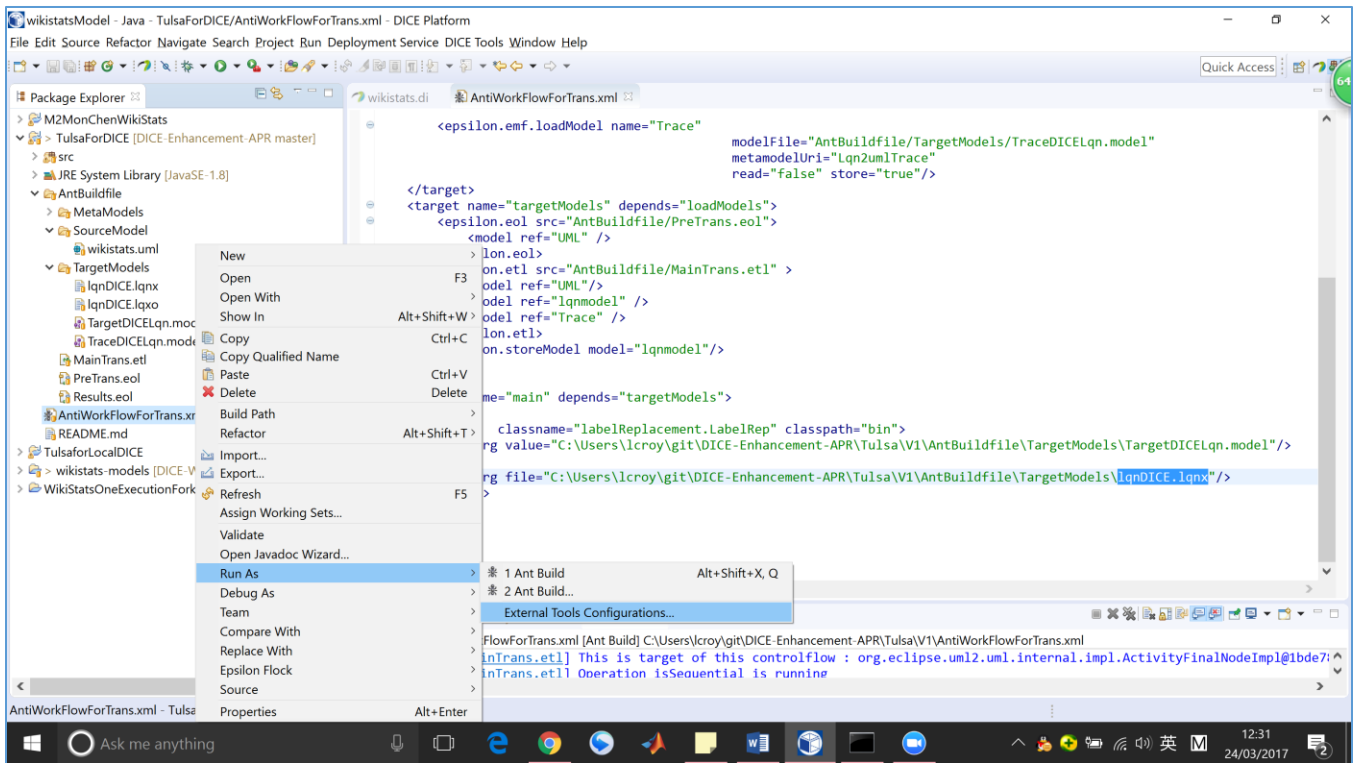
```
<?xml version="1.0"?>
<project default="main" >
  <target name="loadModels">
    <epsilon.emf.loadModel
      name="UML"
      modelFile="AntBuildfile/SourceModel/wikistats.uml"
      metamodelUri="http://www.eclipse.org/uml2/5.0.0/UML"
      read="true" store="true"/>
    <epsilon.emf.register file="AntBuildfile/MetaModels/lqnmodel.ecore"/>
    <epsilon.emf.register file="AntBuildfile/MetaModels/Lqn2umlTrace.ecore"/>
  </target>
</project>
```

- 2) Enter the location where LQN model (“TargetDICElqn.model” and “lqnDICE.lqnx”) will be saved

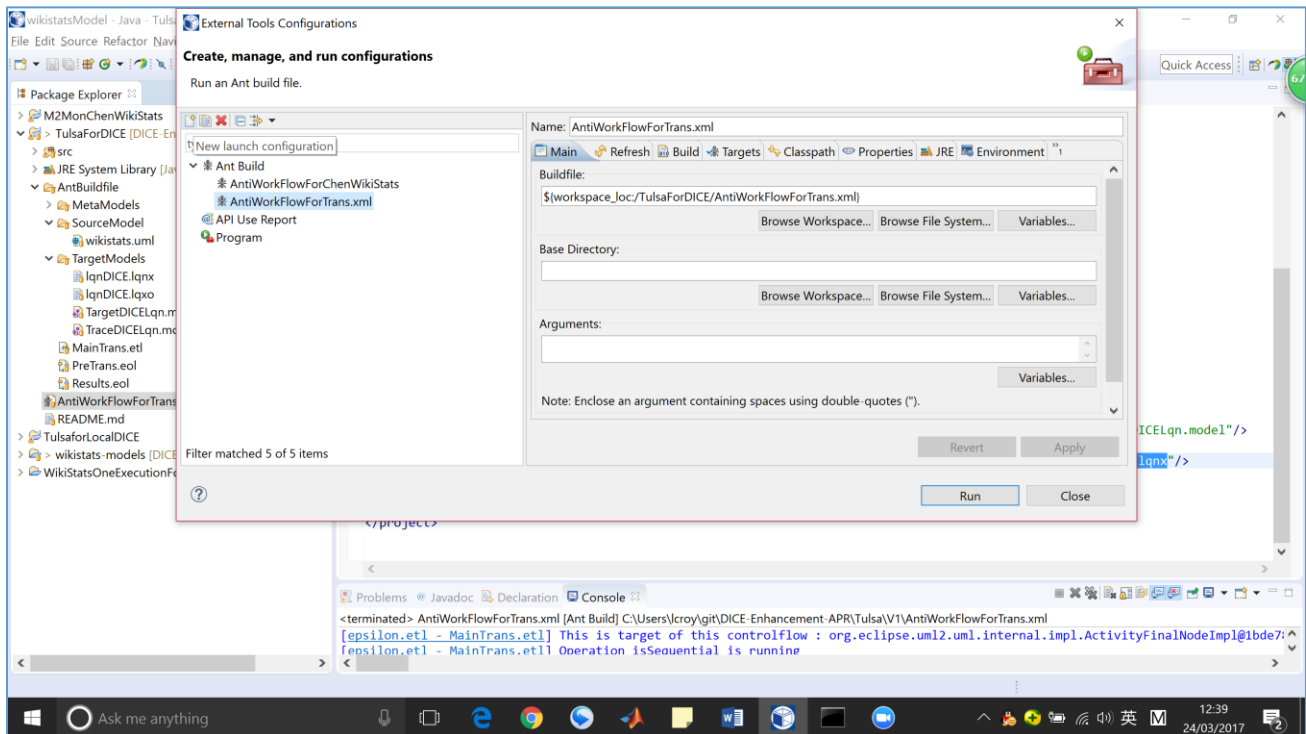
```
<target name="main" depends="targetModels">
  <java classname="labelReplacement.LabelRep" classpath="bin">
    <arg value="C:\Users\lcroy\git\DICE-Enhancement-APR\Tulsa\V1\AntBuildfile\TargetModels\TargetDICElqn.model"/>
    <arg file="C:\Users\lcroy\git\DICE-Enhancement-APR\Tulsa\V1\AntBuildfile\TargetModels\lqnDICE.lqnx"/>
  </java>
</target>
```

Step 4: Running the Transformation Process

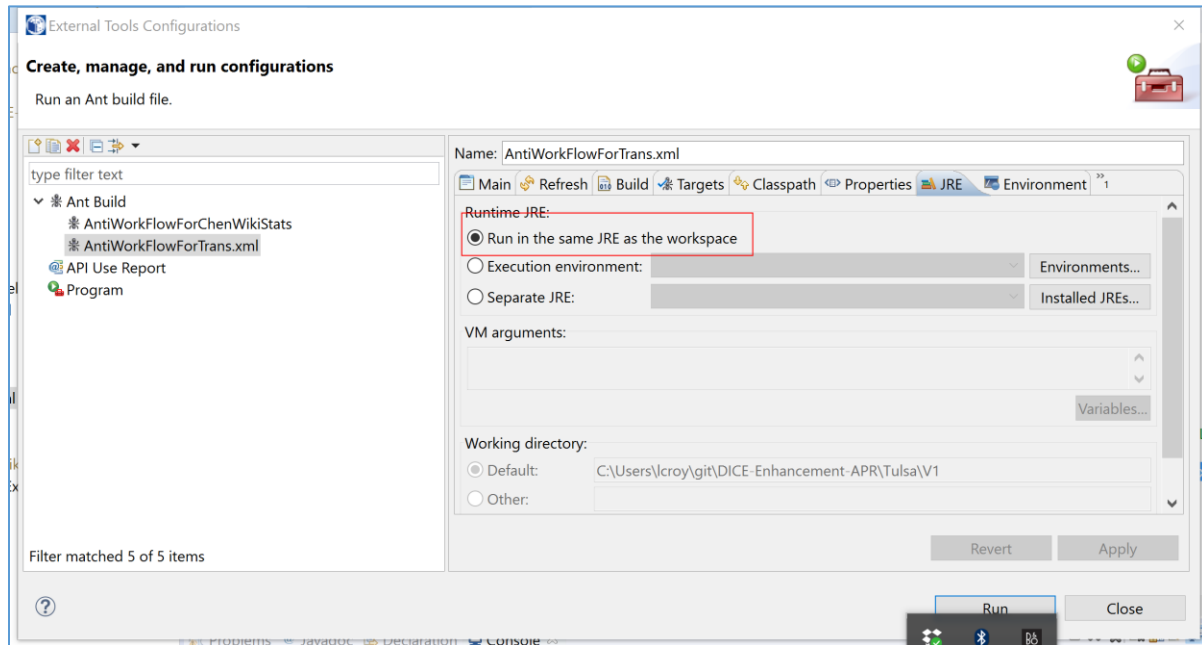
- 1) Right click the **AntiWorkFlowForTrans.xml** file: Run AS -> External Tools Configurations



- 2) Click “New launch configuration” button, and then click “Browse Workspace...” to select the **AntiWorkFlowForTrans.xml**.

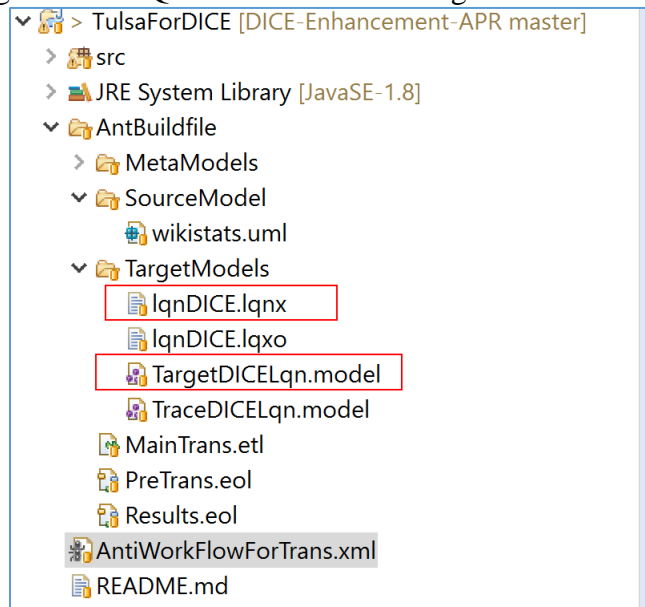


- 3) When running an ANT workflow that involves Epsilon tasks, please make sure you select the **Run in the same JRE as the workspace** option under the **JRE** tab of your launch configuration, then click the “Run”.



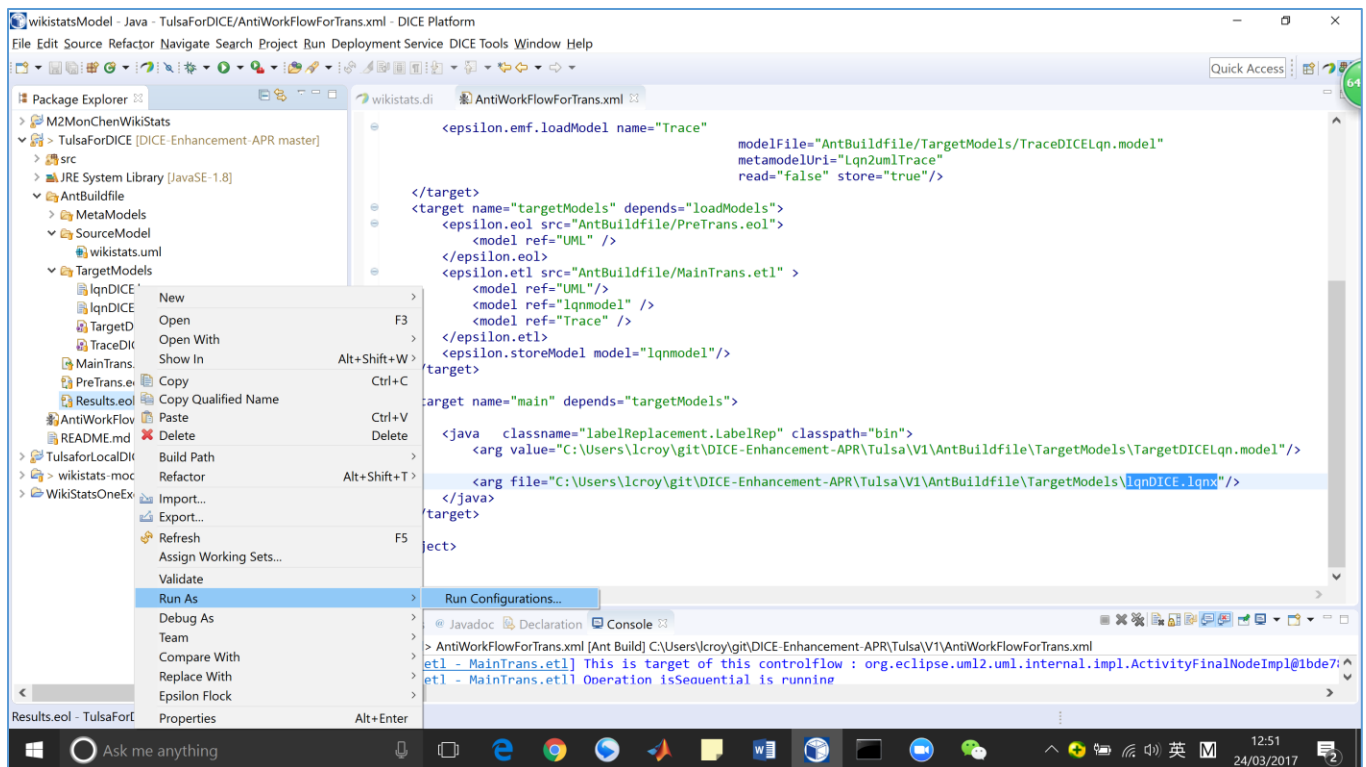
Step 5: Generate the LQN model

The files in the red boxes are generated LQN models after running the Ant build file.

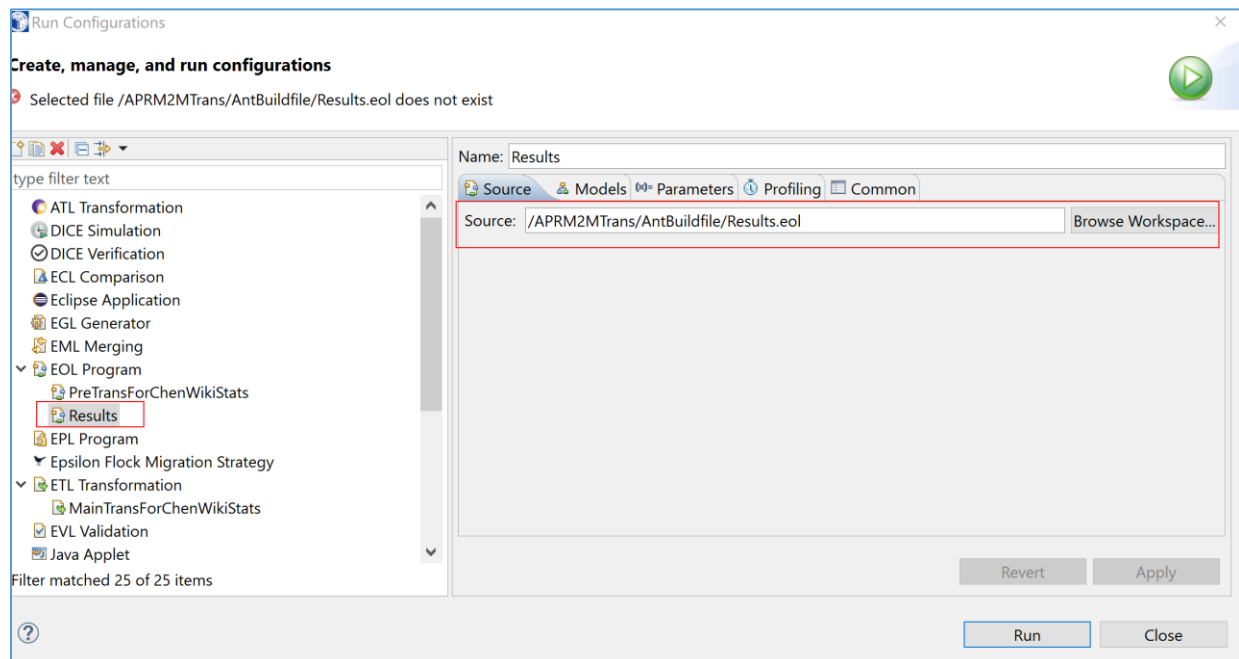


Step 6: Feedback of Performance results to Software Model:

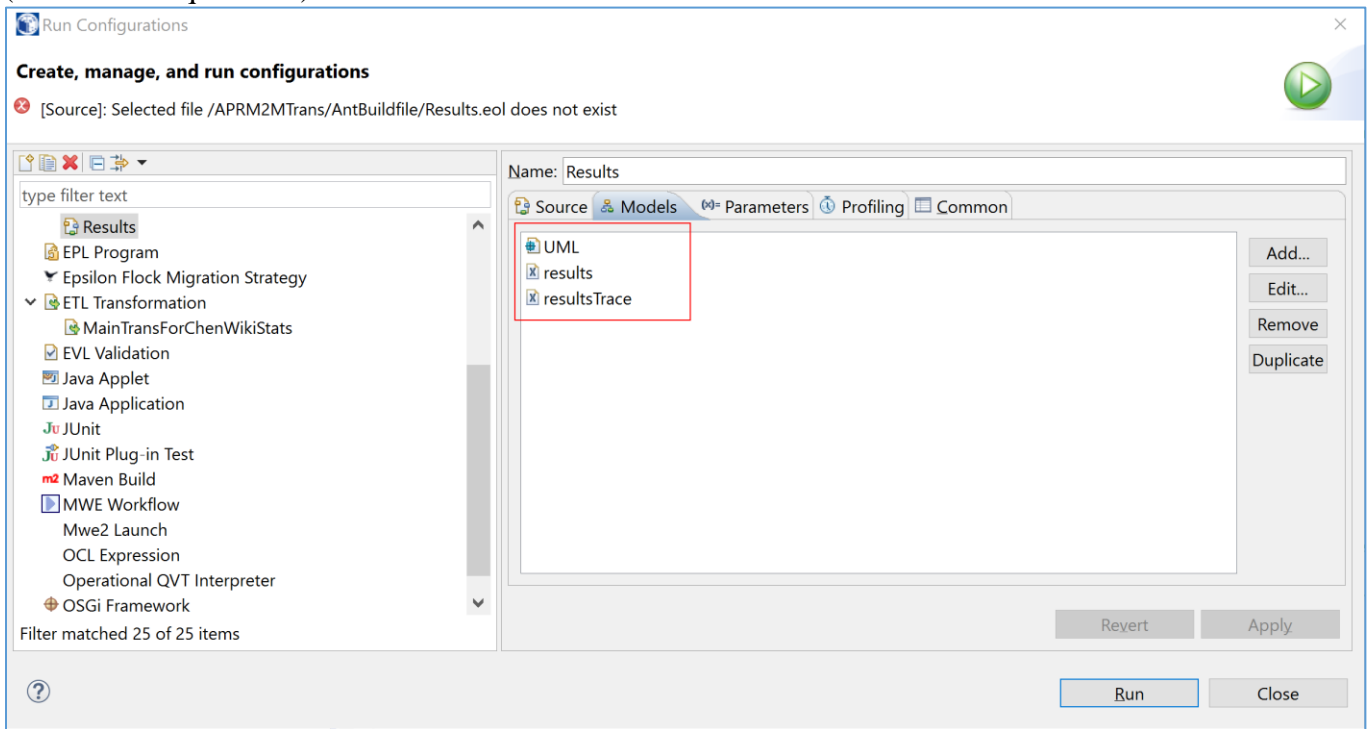
- 1) Right click on **Results.eol** (its path /AntBuildfile/Results.eol): Run As -> Run Configuration



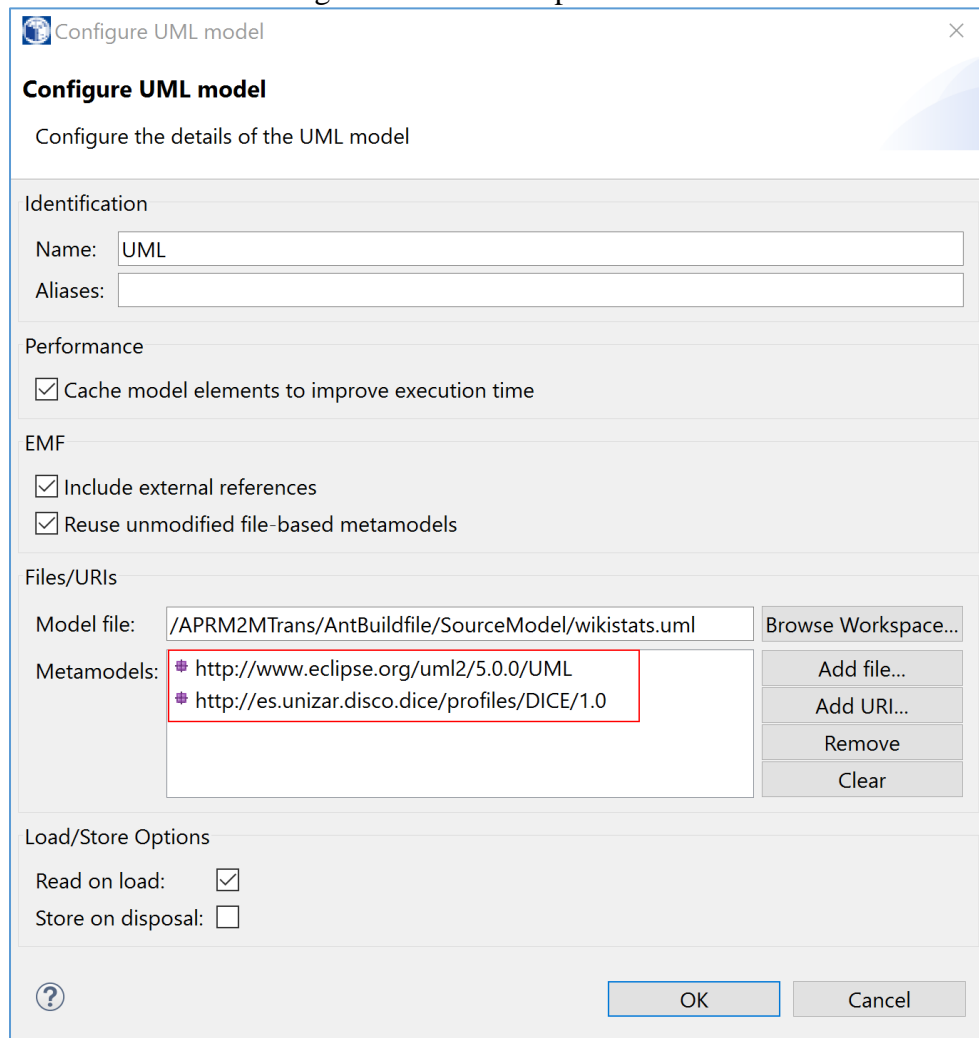
- Click “New launch configuration” button to import the **Results.eol** file, and then click “Browse Workspace...” to select the **Results.eol**.



- 3) In configuration you need to add three files: UML file, Solved file(lqnDICE.lqxo) and Trace file (TraceDICElqn.model).



- Add UML file - wikistats.uml. Including UML and DICE profile as Metamodels



- Add a plain xml file for analysis results – lqnDICE.lqxo (LQN performance results after solving it by existing solver)

Configure Plain XML Document

Configure the details of the Plain XML Document

Identification

Name: results

Aliases: X

Performance

☒ Cache model elements to improve execution time

Files/URIs

☒ Workspace file

File: /APRM2MTrans/AntBuildfile/TargetModels/lqnDICE.lqxo Browse Workspace...

URI:

Load/Store Options

Read on load: ☒

Store on disposal: ☐

OK Cancel

- Add a plain xml file for trace – TraceDICElqn.model(generated automatically after running the transformation)

Configure Plain XML Document

Configure the details of the Plain XML Document

Identification

Name: resultsTrace

Aliases: X

Performance

☒ Cache model elements to improve execution time

Files/URIs

☒ Workspace file

File: /APRM2MTrans/AntBuildfile/TargetModels/TraceDICElqn.model Browse Workspace...

URI:

Load/Store Options

Read on load: ☒

Store on disposal: ☐

OK Cancel

- 4) Click “run” button and the results will show at console. The following is an example of the analysis results.



The screenshot shows an IDE window with a 'Console' tab active. The console displays the following text:

```
Epsilon
results for processor storm_1 utilization = 3.8156
Real
The source is storm_1
Sequence {Device [name=cluster1, qualifiedName=RootElement::cluster1, visibility=public, isLeaf=false, isAbstract=false, isFinalS
Device cluster2
Device cluster3
The task name is WikistatsApplication
Throughput = 0.0293282
utilization = 6.21329
phase1-utilization = 6.21329
phase2-utilization = 
phase3-utilization = 
proc-utilization = 3.8156
The source is WikistatsApplication
Artifact WikistatsApplication
```

The console window has a scrollbar on the right side, and the text is displayed in a monospaced font.