Manual For MiSAR Parser

Functionality: The MiSAR parser generates the MiSAR Platform Specific Model (PSM) of a microservice software system. Currently the parser is able to analyse Java projects with Docker and SpringCloud frameworks. Therefore, the parser can receive Java, YAML and XML files such as docker-compose.yml and pom.xml. The Spring boot framework and technologies include Consul, Eureka, MongoDB, MySQL, Neo4j Graph database, OAuth2 and RabbitMQ.

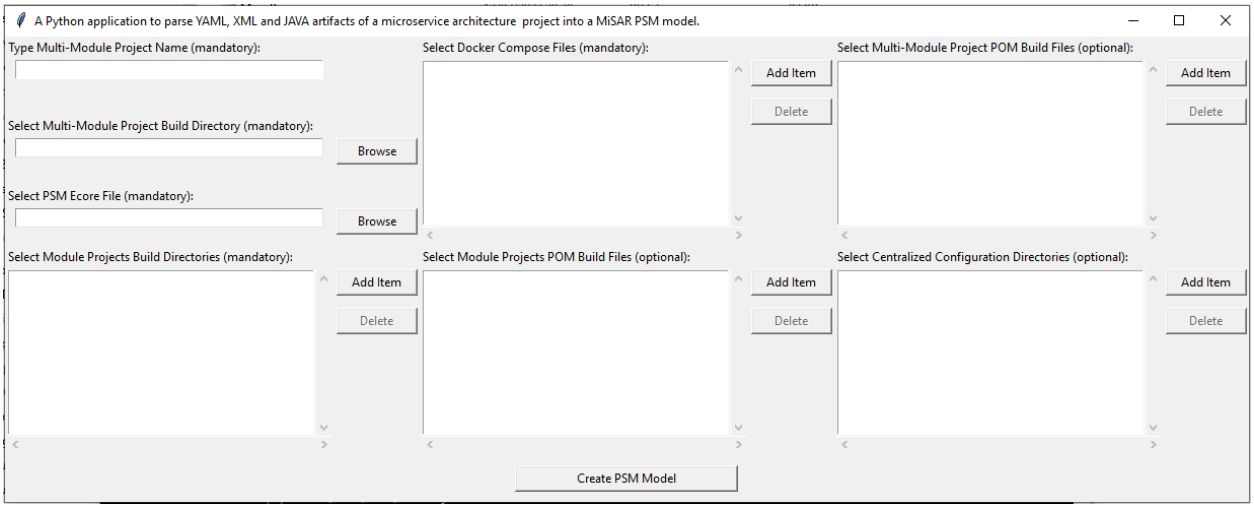
Installation Guidelines

MiSAR parser is a Python application. You need to run the MisarParser.py

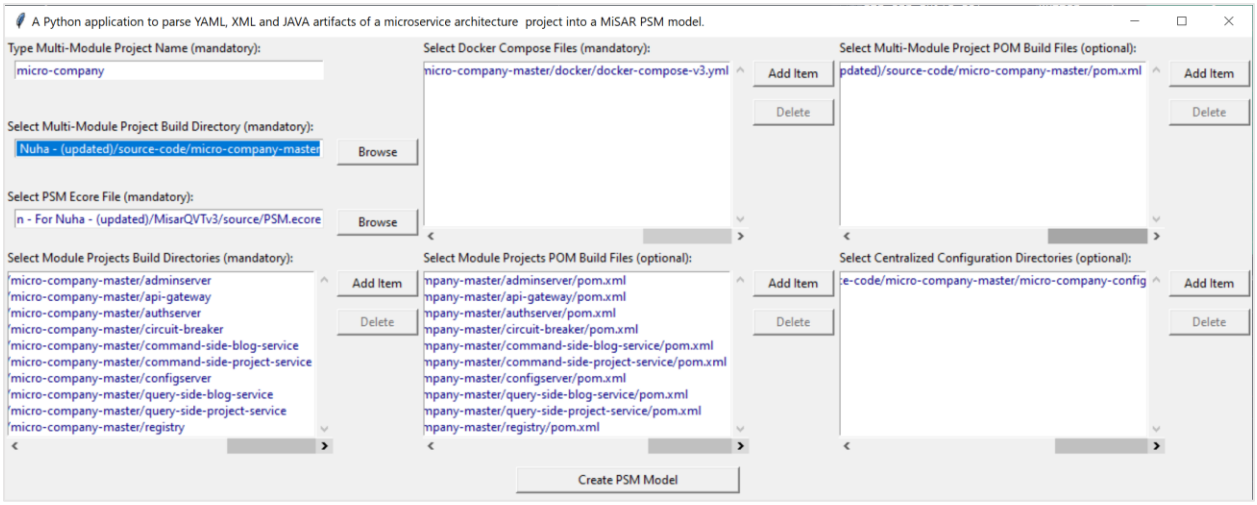
1) Install Python 3
2) Using the Command Prompt install:
    a. pyecore as follows: pip install pyecore
    b. pyYaml as follows: pip install pyYaml
    c. xmltodict as follows: pip install xmltodict
    d. javalang as follows: pip install javalang
3) Alternatively, Open the file ***MisarParser.py*** using a Python IDE (e.g. ***Spyder***).
    a. Go to ***Run*** -> ***Run***
    b. If any package or module does not exist in the environment, install it via ***Anaconda Prompt*** using the command: `pip3 install <package-name>`

User Guidelines

1. Download all source files of microservice-based project (along with central configuration files if any) to a local drive.
2. Download the PSM Ecore metamodel file from the MiSAR repository
3. Once you run the MiSAR Parser, the User Interface will appear as follows:

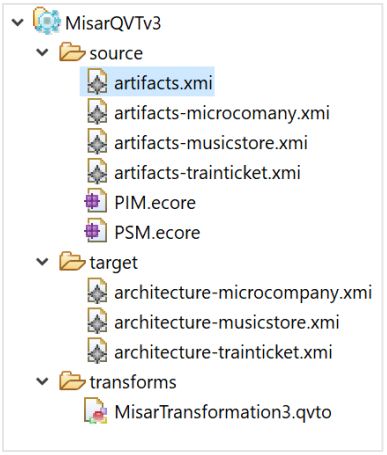


4. Make sure that you select the ***PSM Ecore File*** located at path ./***MiSARQVTv3/source/PSM.ecore*** inside the ***MiSARQVTv3*** eclipse project.
5. Fill in each of spaces by browsing the microservice project and selecting the files. An example is a as follows:

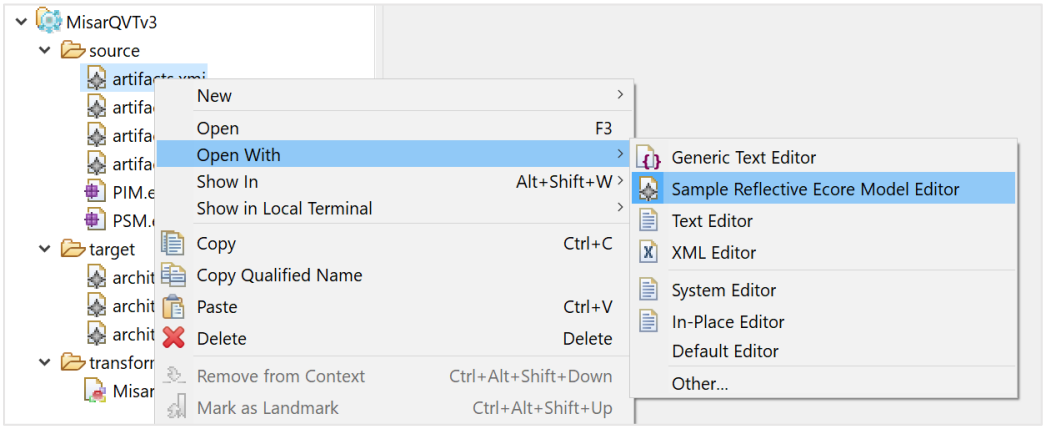


6. Also make sure that all mandatory fields are filled, then click on ***Create PSM Model***

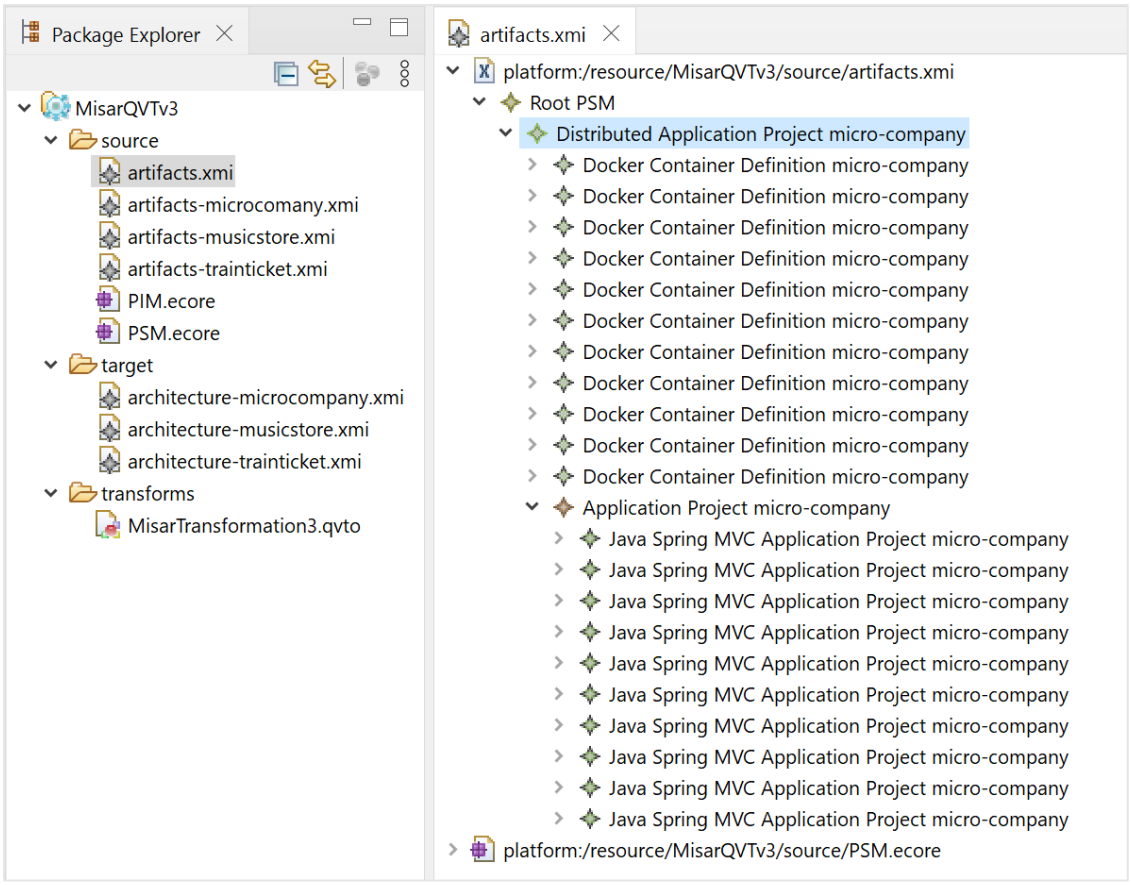
7. When parsing is completed (This can take several minutes depending on the number of files and the size of the project), the output PSM instance file ***artifacts.xmi*** will be saved automatically at path ./***MiSARQVTv3/source/artifacts.xmi*** inside the ***MiSARQVTv3*** eclipse project.
8. Right click on ***MiSARQVTv3*** project folder then click on ***Refresh***



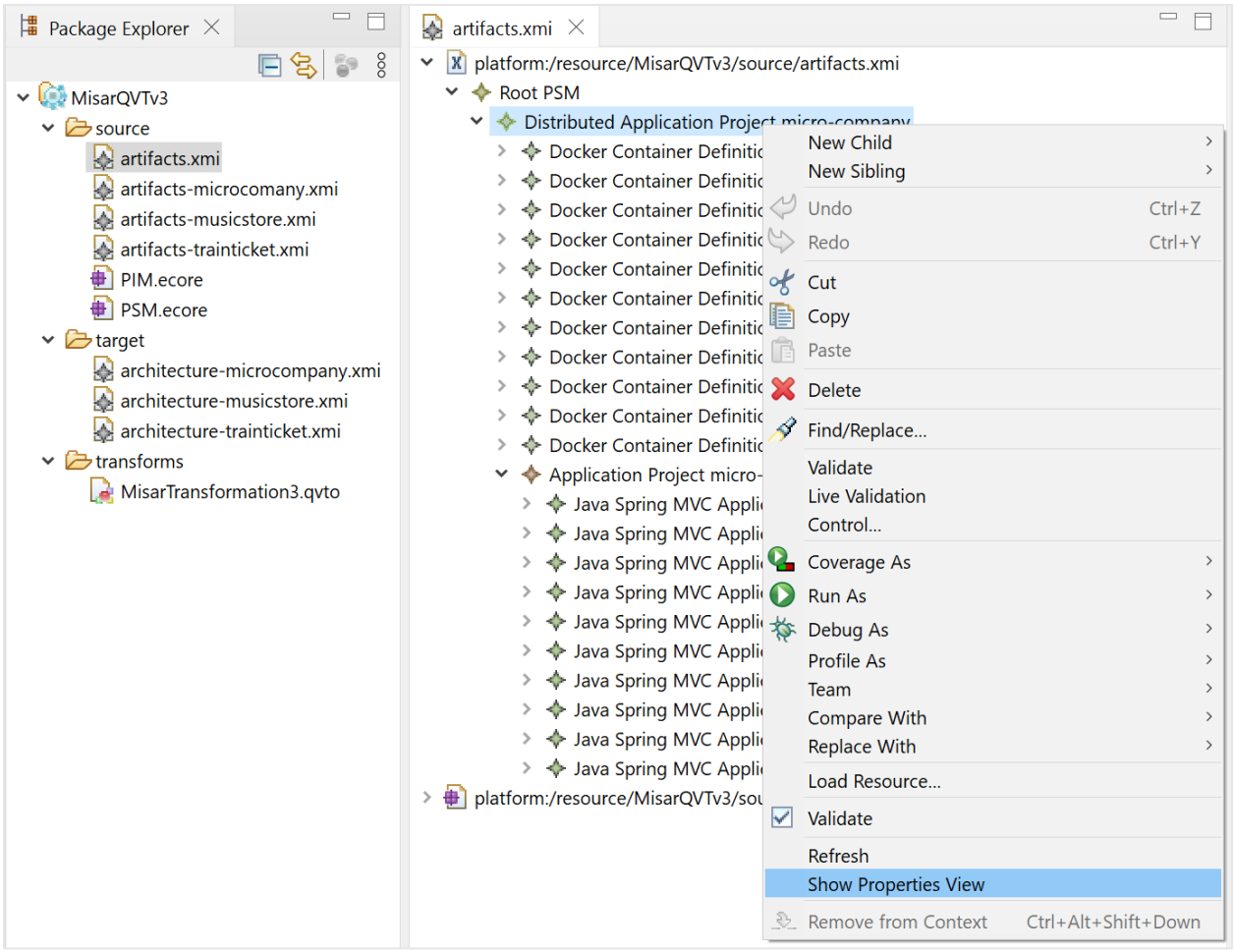
9. To open the PSM instance file in tree-view, right click the ***artifacts.xmi*** file then ***Open With*** -> ***Sample Reflective Ecore Model Editor***

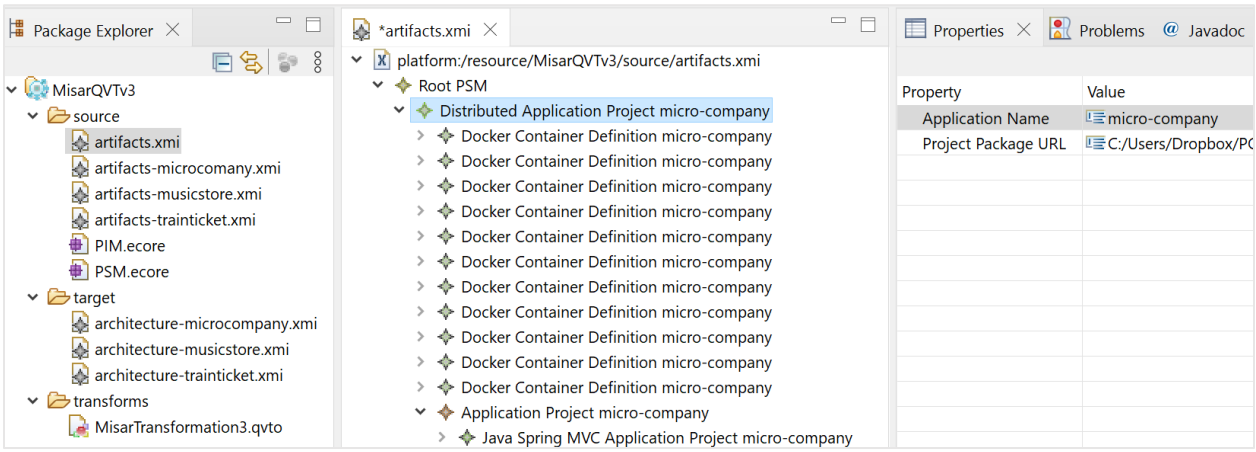


10. If the PSM instance file fails to open in tree-view, right click the ***artifacts.xmi*** file then ***Open With*** -> ***Text Editor***. At line 2, remove the following attribute inside `<PSM:RootPSM>` element:
`xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"`
Save and close ***artifacts.xmi*** file then repeat steps 9 and 10.



11. To view one the attributes of one PSM instance element, right click the element then ***Show Properties View***


Package Explorer
MisarQVTv3
source
artifacts.xmi
artifacts-microcomany.xmi
artifacts-musicstore.xmi
artifacts-trainticket.xmi
PIM.ecore
PSM.ecore
target
architecture-microcompany.xmi
architecture-musicstore.xmi
architecture-trainticket.xmi
transforms
MisarTransformation3.qvto
artifacts.xmi
platform:/resource/MisarQVTv3/source/artifacts.xmi
Root PSM
Distributed Application Project micro-company
Docker Container Definitic
Application Project micro-
Java Spring MVC Applic
platform:/resource/MisarQVTv3/sou
New Child
New Sibling
Undo Ctrl+Z
Redo Ctrl+Y
Cut
Copy
Paste
Delete
Find/Replace...
Validate
Live Validation
Control...
Coverage As
Run As
Debug As
Profile As
Team
Compare With
Replace With
Load Resource...
Validate
Refresh
Show Properties View
Remove from Context Ctrl+Alt+Shift+Down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source
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artifacts-trainticket.xmi
PIM.ecore
PSM.ecore
target
architecture-microcompany.xmi
architecture-musicstore.xmi
architecture-trainticket.xmi
transforms
MisarTransformation3.qvto
*artifacts.xmi
platform:/resource/MisarQVTv3/source/artifacts.xmi
Root PSM
Distributed Application Project micro-company
Docker Container Definition micro-company
Application Project micro-company
Java Spring MVC Application Project micro-company
Properties
Problems
Javadoc
Property
Value
Application Name
micro-company
Project Package URL
C:/Users/Dropbox/PC