ALC Synthesis

User Manual

ALC Synthesis

Artifact Lifecycle Synthesis Process Manual

A Guide to use Synthesis tool to synthesize a Synchronized Artifact Lifecycle

from an Artifact-Annotated Activity-centric process model.
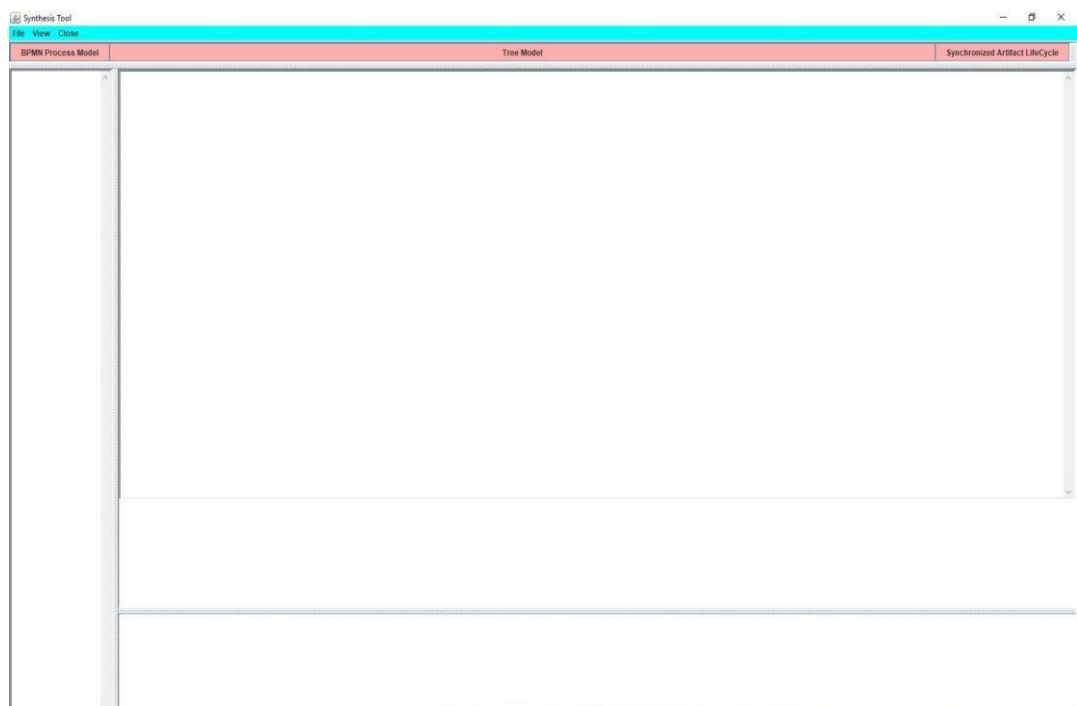
December 1, 2020

I. Introduction

The Synthesis tool mainly extracts a Synchronized Artifact Lifecycle from an Artifactannotated process model (Activity-centric process model annotated with artifacts and their states). The input to the tool is a BPMN process in XML representation. The tool mainly extracts a tree representation of the input BPMN process such as Process tree (or Tree Model) and then generates the lifecycles of artifacts from this representation, finally refines and synchronizes the artifact lifecycles.

ALC Synthesis

Example

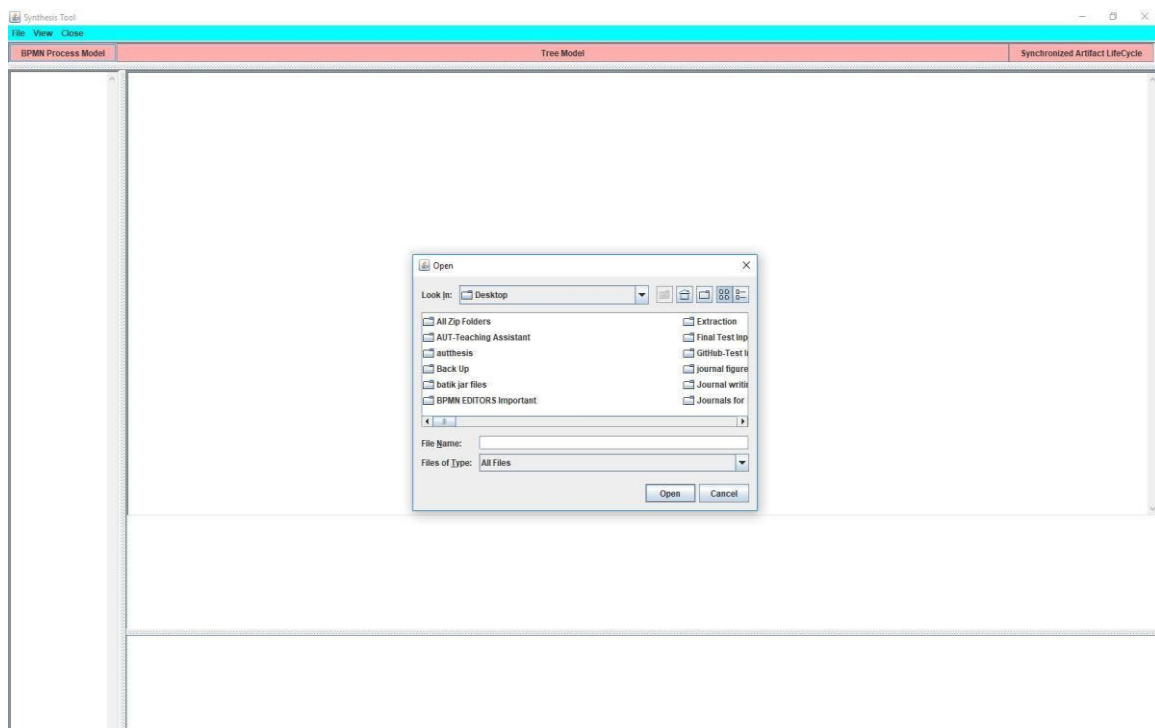Step 1: Load the project on NetBeans IDE.

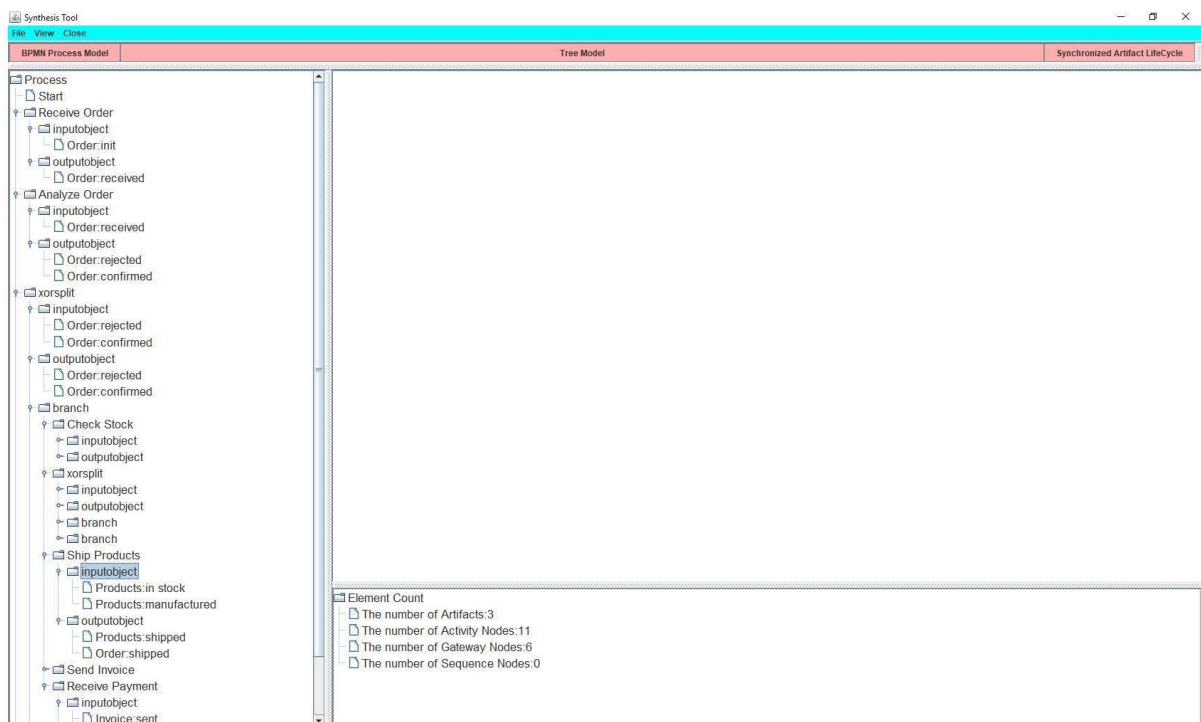Step 2: The following is the GUI visible after running the file 'SynthesisGUI.java'.
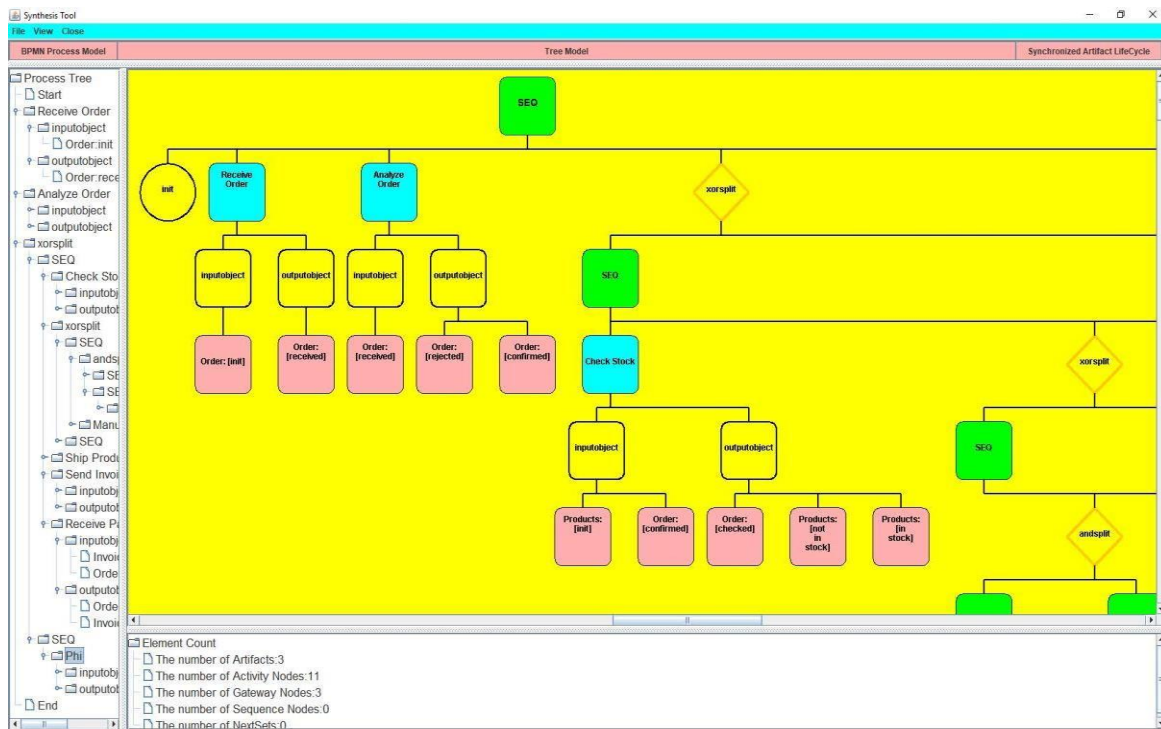
ALC Synthesis

Step 3: Go to File and click on open menu item, which provides a file chooser to browse an input xml file that represents a BPMN process. Another way to browse a file is through 'BPMN Process Model' button. The FileChooser can be visible as follows:

ALC Synthesis

Step 4: when we browse a file, we can see the graphical representation of the process, along with its node count and its tree structure that provides information on the set of nodes of the process along with their input and output artifacts and states. The following shows such representation:

ALC Synthesis

Step 5: The buttons shown on the GUI such as 'Tree Model' and 'Synchronized Artifact Life cycle' are used to view the tree representation of the process model and the artifact life cycles or Synchronized artifact lifecycles. So, click on the 'Tree Model' to view the tree representation of the BPMN process and click on 'Synchronized Artifact Life cycle' button to view the interacting life cycles that are extracted from the tree model. The following screen shots show a sample tree and the resulting synchronized artifact lifecycle of a BPMN process.

The node count in each input model is also shown in the bottom panel, which mainly provides the count of activity nodes, gateway nodes, Seq nodes and artifacts.

ALC Synthesis

Step 6: And finally, to view the synchronized artifact lifecycle click on 'Synchronized Artifact Life cycle'. The resulting ALC for the above process is shown in the following screen.