User Manual for i*ToNuSMV Version 3.0

Users should open the working directory that they had specified during installation of the prototype. The istar2NUSMV.exe is the binary for the tool. Executing this binary opens the tool interface as shown in Figure 1.

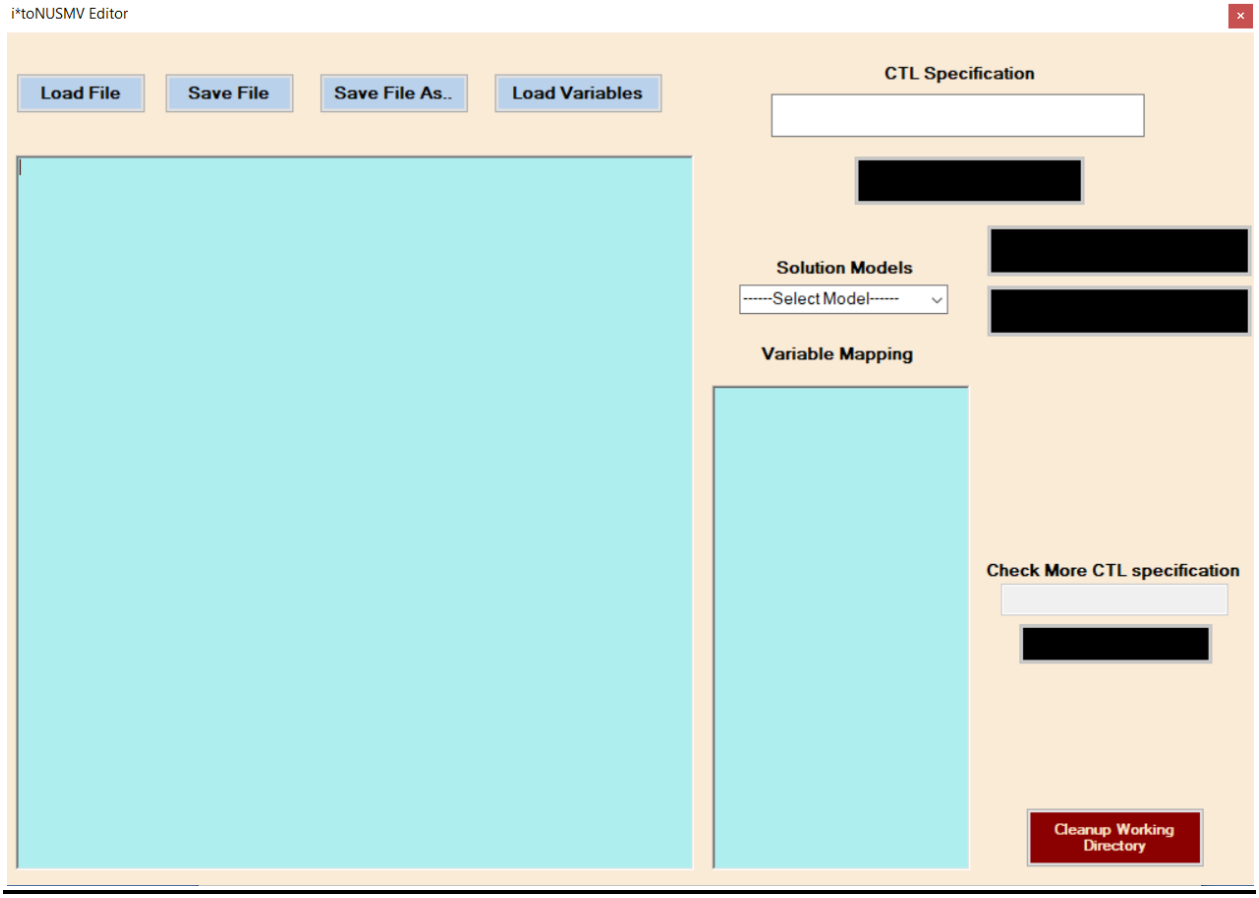

Figure 1: i*ToNuSMV 3.0 interface

The interface has 3 buttons on top - Load File, Save File, and Save File As – for loading previously saved i* models or writing new ones and storing them in the working directory.

Step 1: Loading the i* Model

Click on the “Load File” button on the top left corner of the interface (refer Figure 1). The Open File dialogue appears on the screen. Go to the working directory specified in the installation path that you provided during setup. You will see some sample i∗ models that have been provided in the installation package as shown in Figure 2. You can write your own i∗ models in the text box provided if you are familiar with tGRL. However, make sure you save the file in your working directory before proceeding to the next steps.

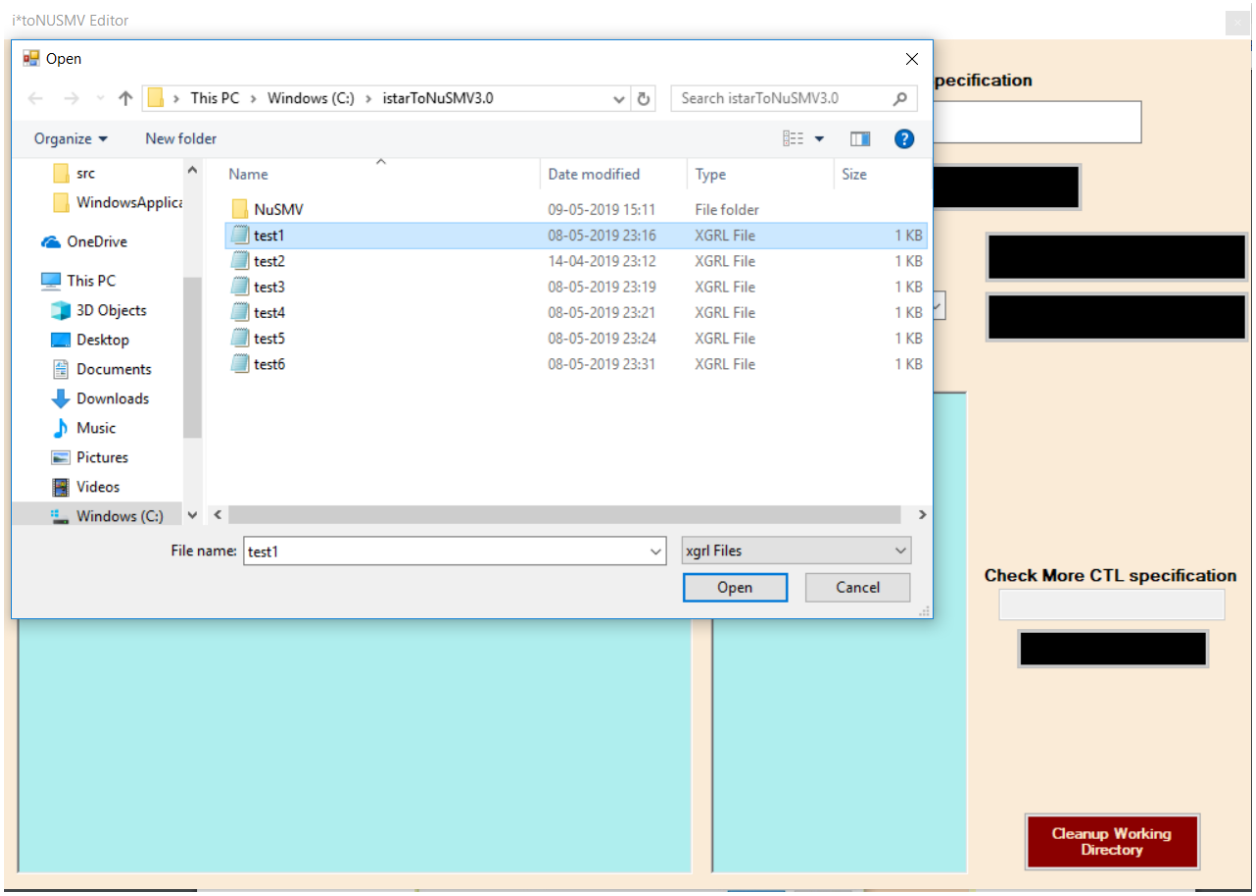

Figure 2: Opening test1.XGRL

Load the ‘test1.xgrl’ file by clicking on it and then clicking on the Open button. The ‘test1.xgrl’ file contains a single-actor i* model. This is shown in Figure 3. The user should observe that all the buttons on the right hand-side remains deactivated.

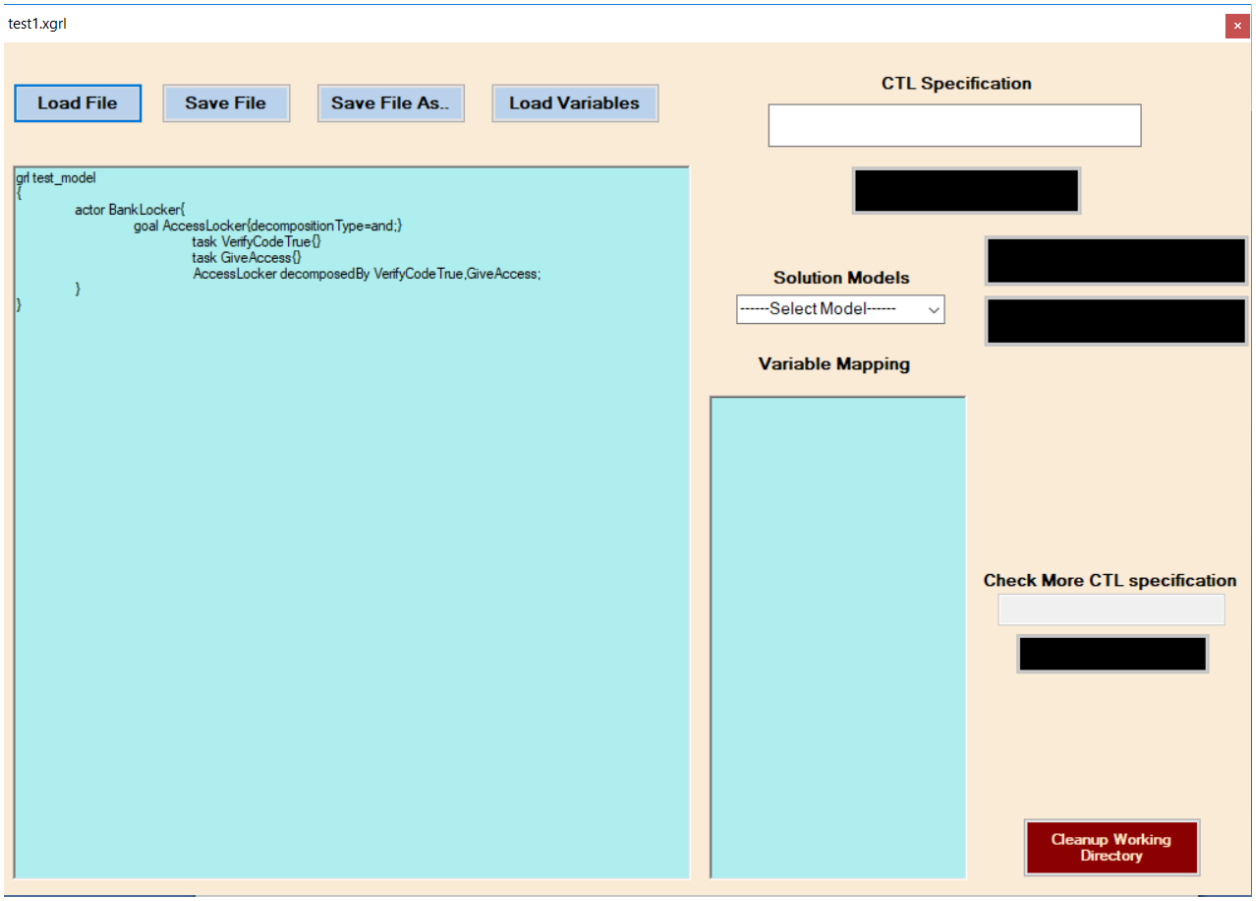

Figure 3: i* model loaded

Step 2: Generate variable mapping

Click on the “load variables” button to see the variable mapping for each model element. This is shown in figure 4.

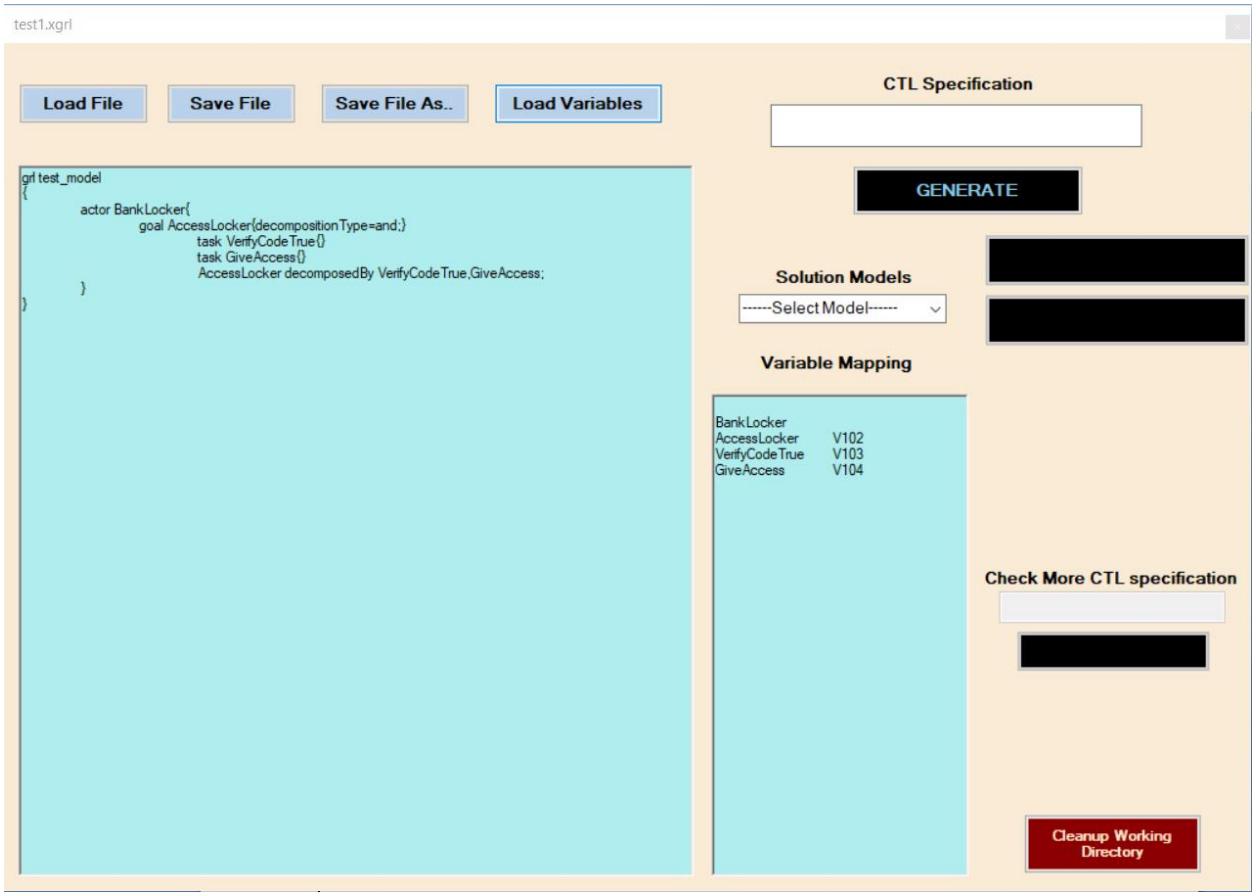

Figure 4: Variable mapping of model elements

Step 3: CTL Specifiaction and Model Generation

Provide a “CTL Specification” in the text box and click on “Generate” button. The CTL specification must include the identifiers provided in the variable mapping box. The figure 5 shows the scenario after giving CTL specification and clicking on generate button..

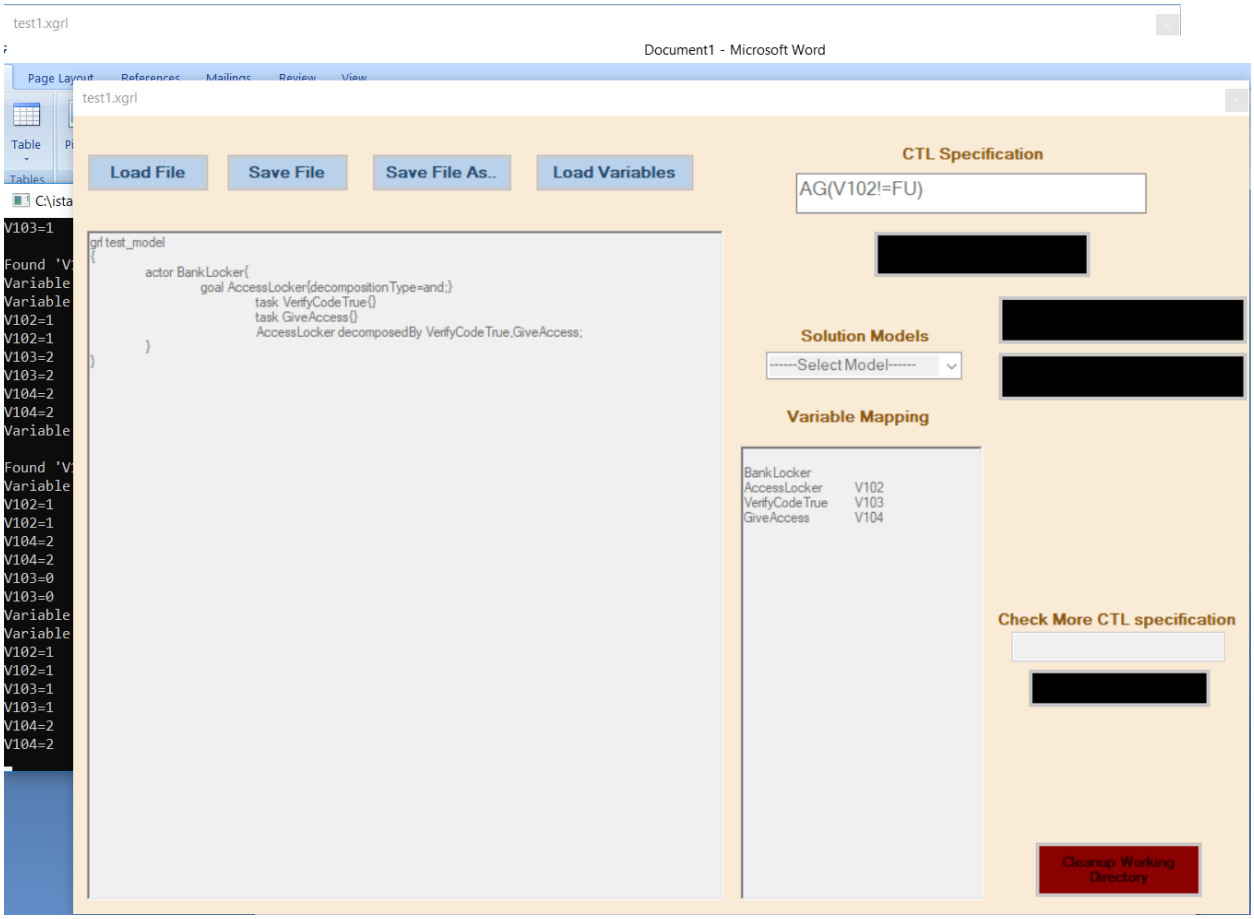

Figure 5: Generation of FSM based on CTL specification

Step 4: Check Output Models

Click on the drop-down list below solution models label to check number of different solution model generated. This is shown in figure 6. Then select any of the model and click on “Show State Transition Table” button to check finite state model and click on “Show NuSMV Input Model” to check NuSMV Input model (figure 7 & figure 8).

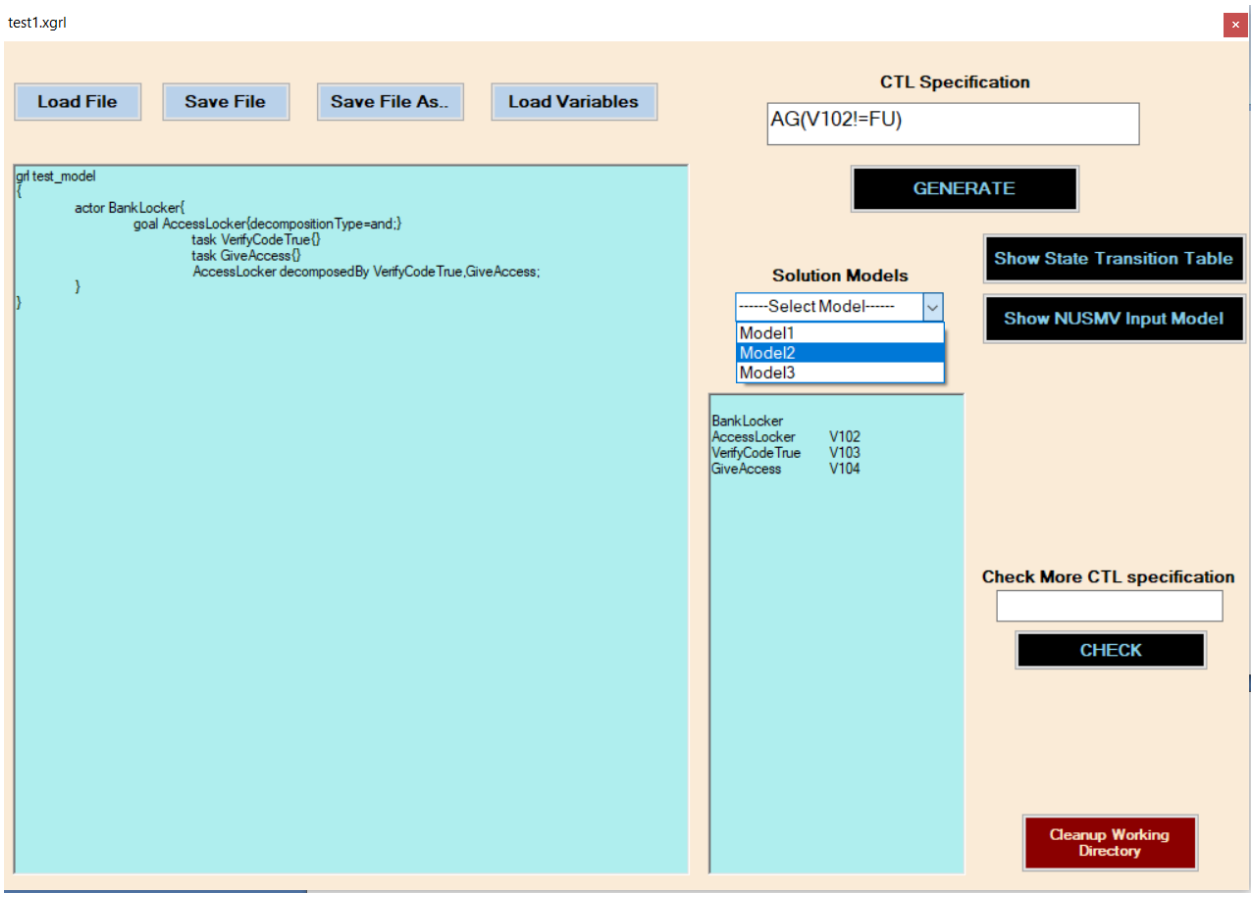

Figure 6: Showing Solution Models generated

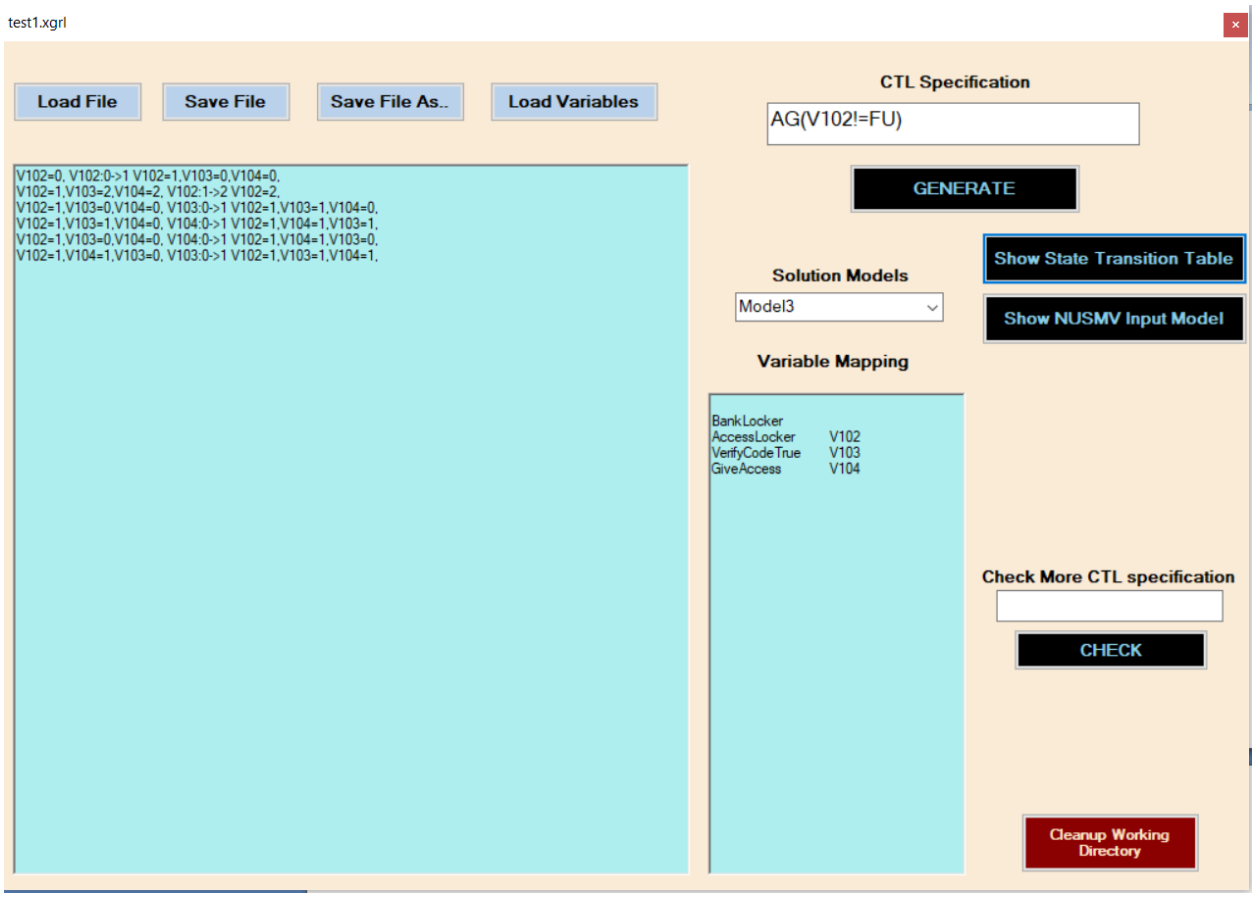

Figure 7: Showing Model 3 State Transitions

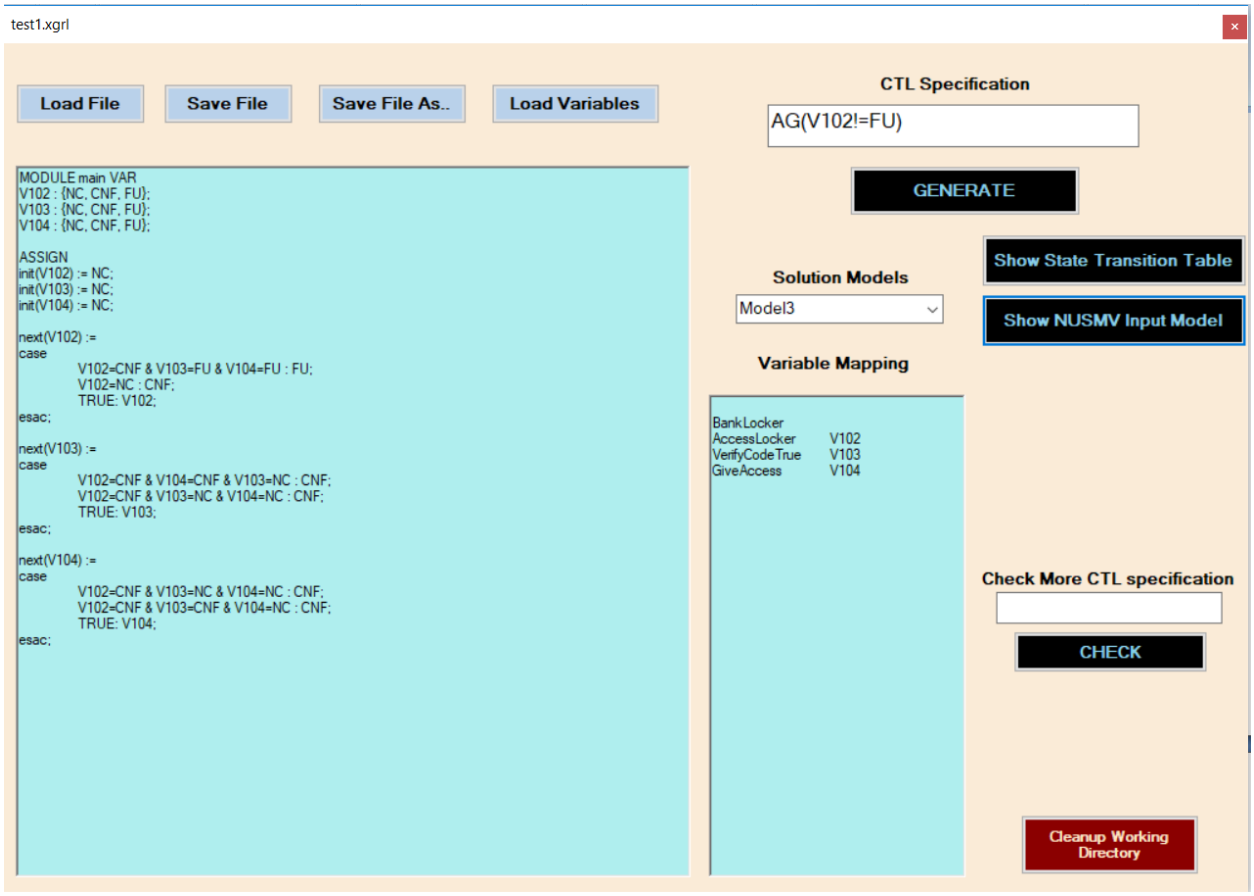

Figure 8: Showing Model 3 NuSMV Input

Step 5: Validate Output Model

Select any output model and specify the CTL property needs to be checked in the text box above check button and click on “Check” button. Figure 9 shows CTL property specified for model checker and selected model. Figure 10 shows the output of NuSMV model checker.

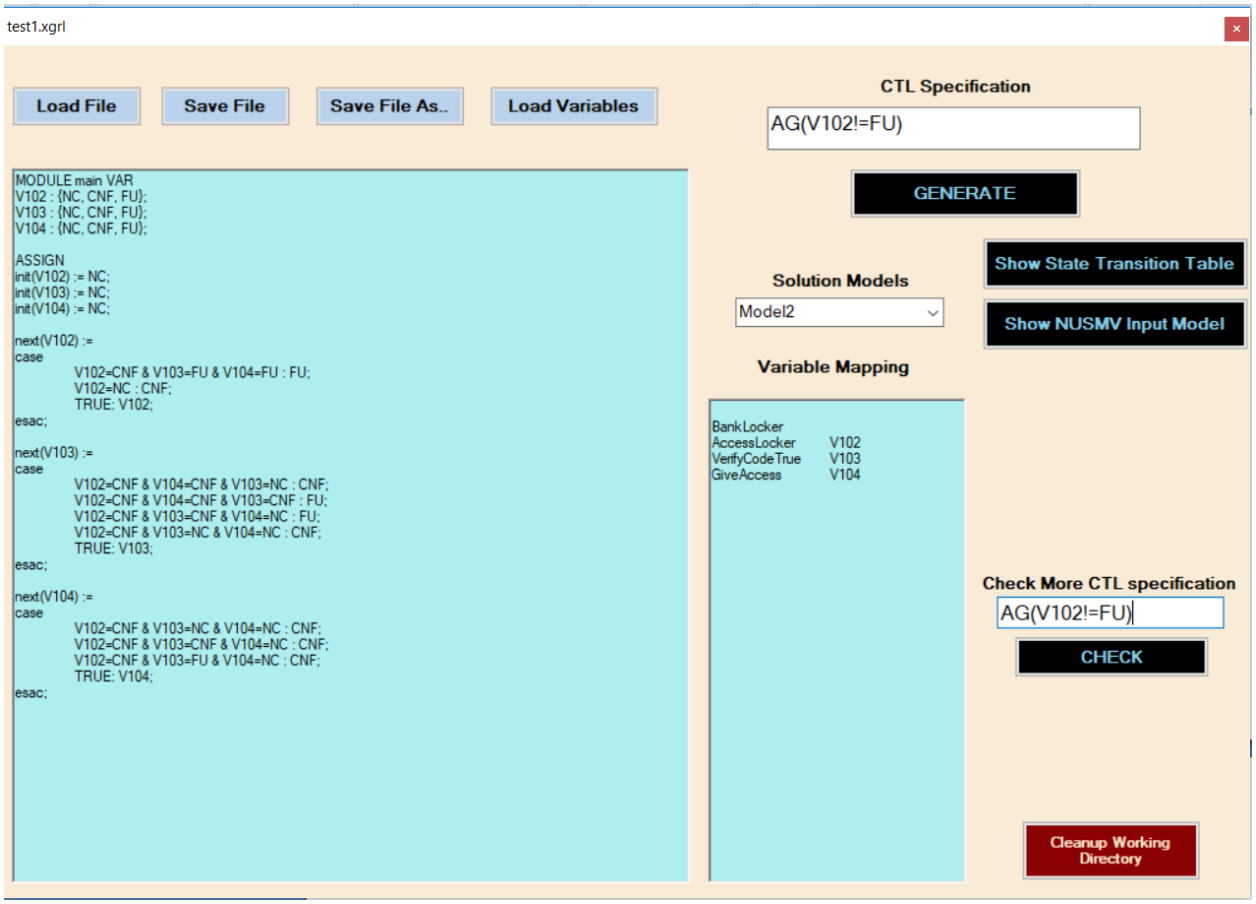

Figure 9: Model 2 selected and CTL property specified for NuSMV model Checker

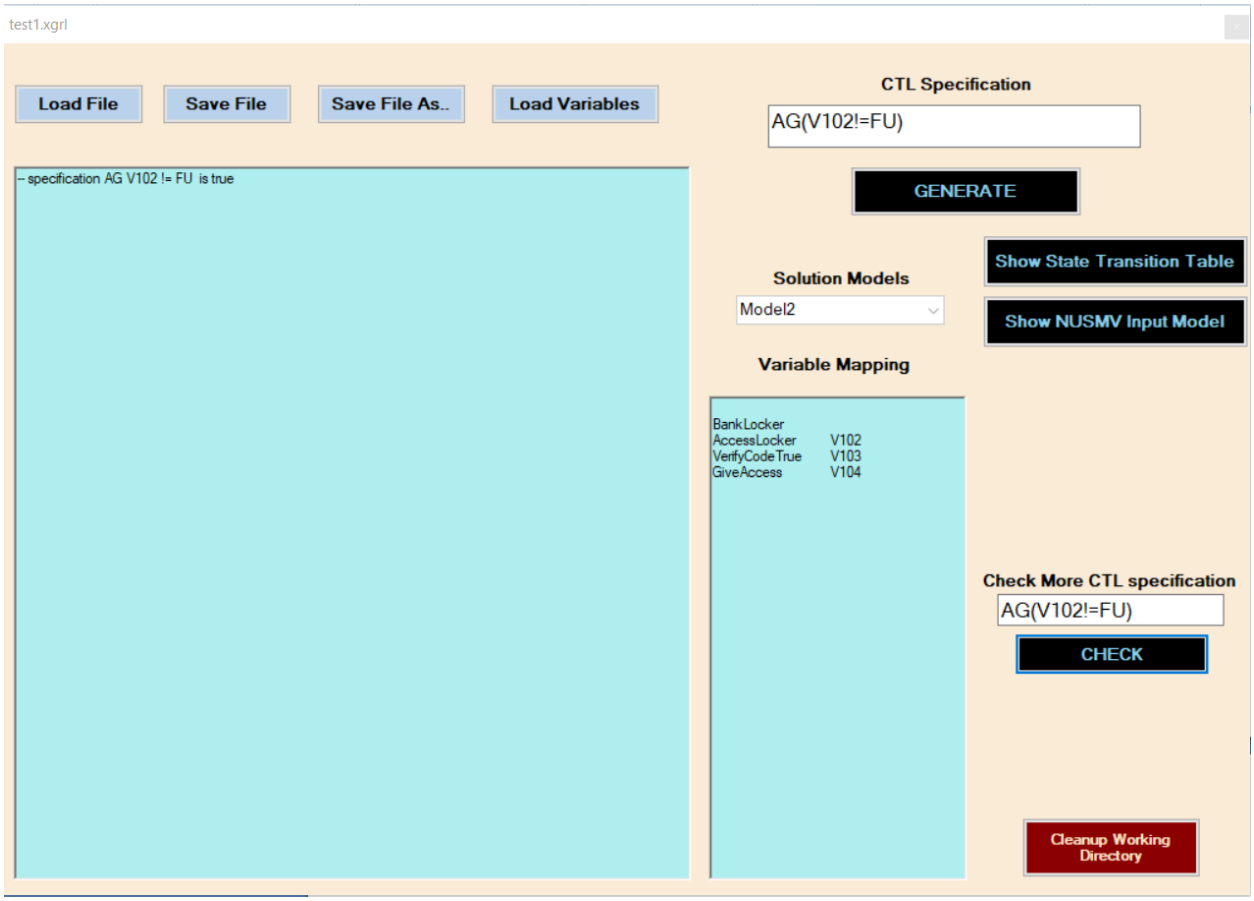

Figure 10: Output of NuSMV model checker

Step 6: Cleaning Directory

Before loading the next i∗ model, users MUST click the “Clear Working Directory” button. This removes all system generated files contained in the ’Output’ directory and different solution model as well as the ’ActorList.opm’ file so that the next i∗ model can be tested upon. Users can select any of the other models provided with the installation package or write their own i ∗ models for successive tests.