

User Manual for the i_ToNuSMV prototype

Users should open the working directory that they had specified during installation of the prototype. The *istar2NUSM.exe* is the binary for the tool. Executing this binary opens the tool interface as shown in Figure 1.



Figure 1. The i*ToNuSMV tool 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. We will explain the interface in the following steps.

Step-1: Loading the i* model

Click on the "*Load File*" button on the top left corner of the interface. 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 the textual language. However, make sure you save the file in your working directory before proceeding to the next steps.

Load the '*istar08.txt*' file by clicking on it and then clicking on the Open button. The '*istar08.txt*' file contains a multi-actor i* model consisting of three actors - *Doctor*, *Patient*, and *Tourist*. This is shown in Figure 3. The user should observe that the "*Select Actor*" drop down list and the two buttons below it remain deactivated.

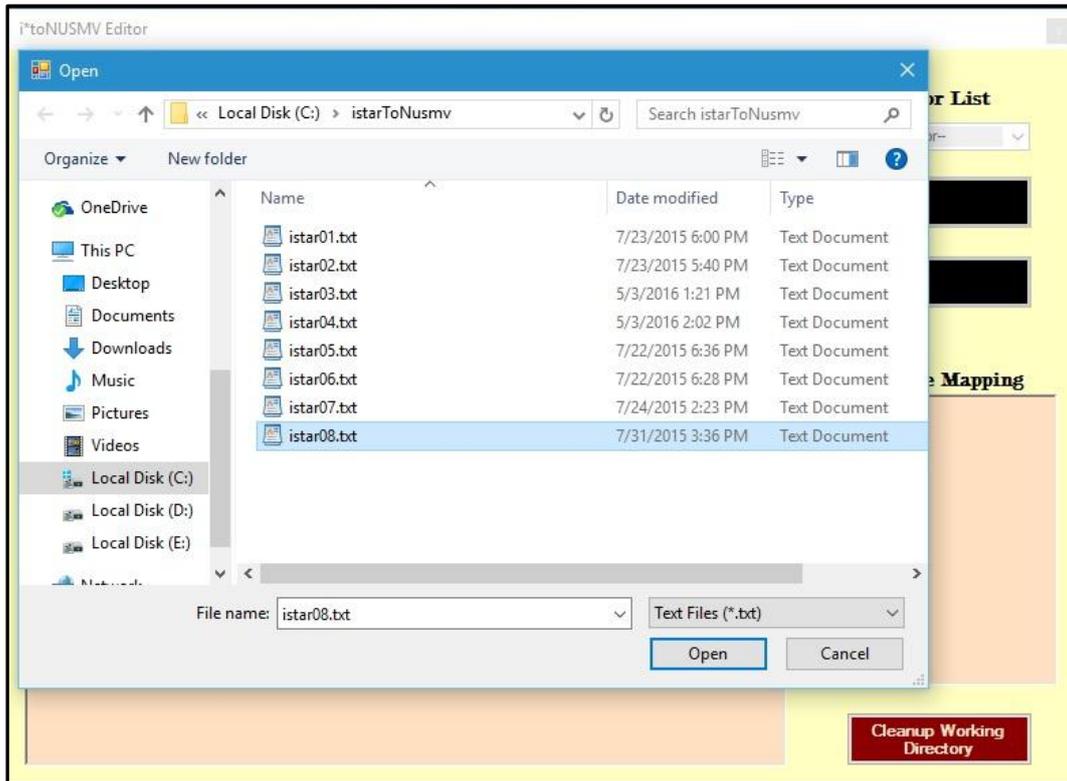


Figure 2: Loading the i* model

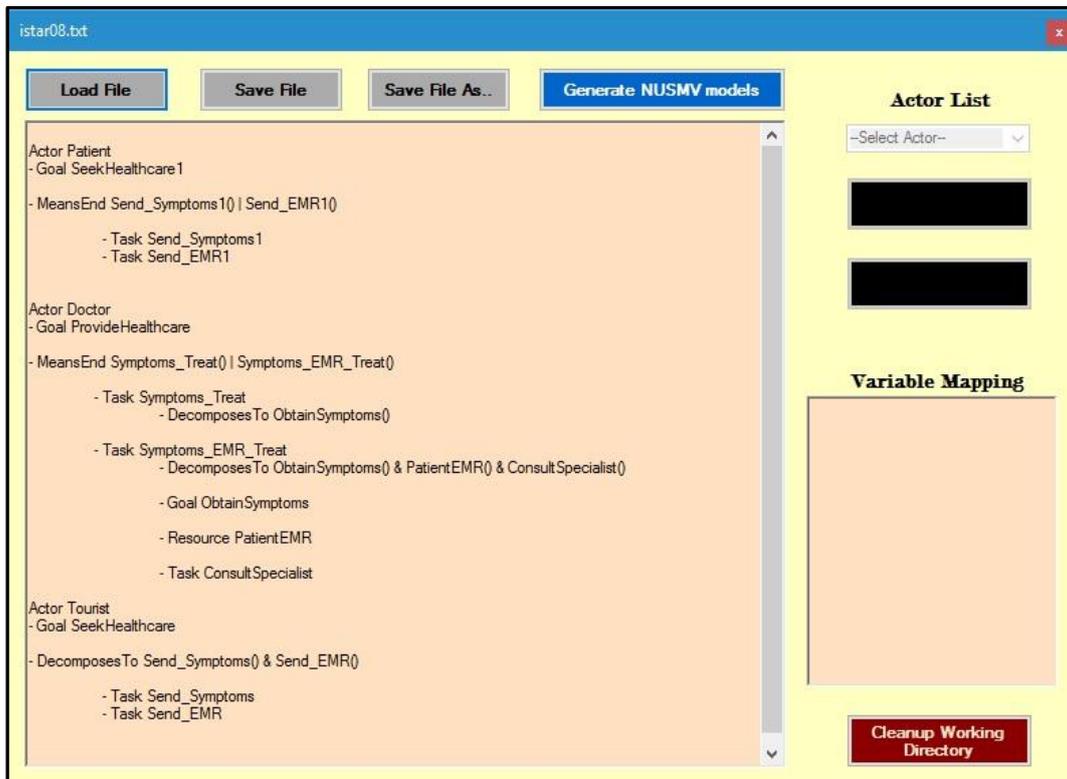


Figure 3: The multi-actor i* model stored in 'istar08.txt'

Step-2: Generate extended Finite State Models and NuSMV input models

Click on the “Generate NUSMV Models” button to generate the extended finite state models (FSMs) and the corresponding NuSMV input models corresponding to each actor. While the FSMs and NuSMV models are generated the entire interface remains deactivated. The execution panel of the backend code pops up in the background, executes, and then closes after execution. Figure 4 provides a screen-shot of what the user sees on clicking the “Generate NUSMV Models” button.

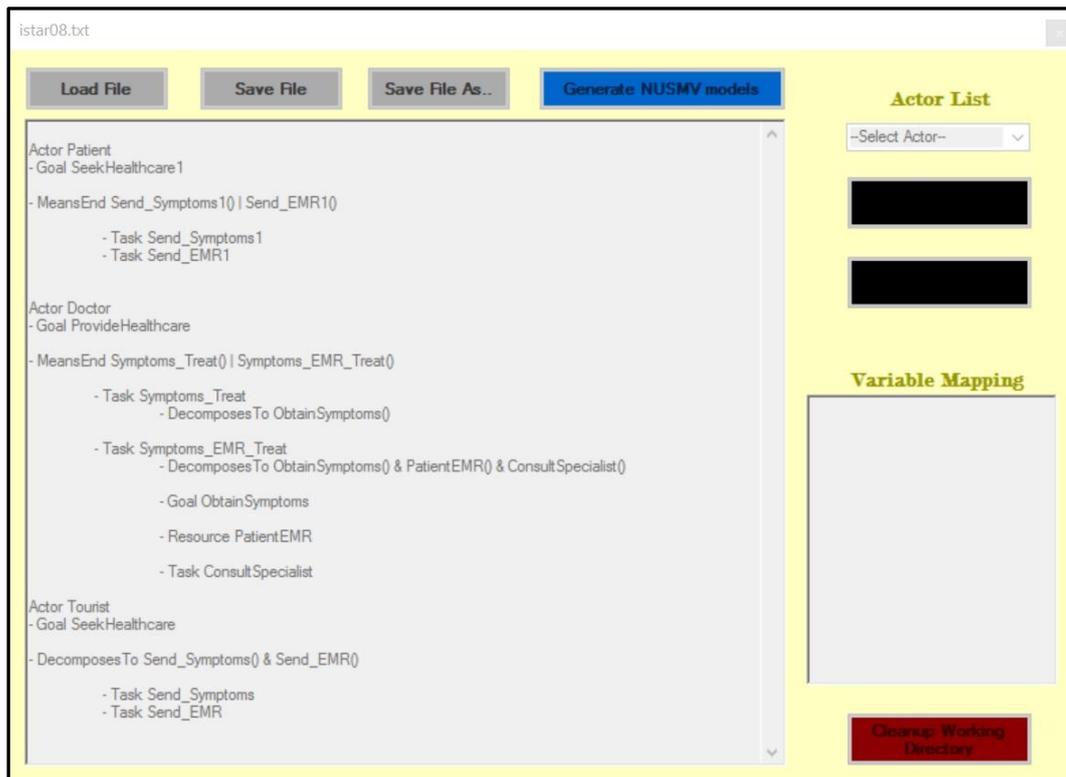


Figure 4: NuSMV models being generated

Step-3: Selecting the Actor

The interface becomes activated as soon as the background code completes execution. On the right hand side, the “Select Actor” drop down list now becomes activated and contains the list of all actors participating in the i* model. The user MUST select an actor whose extended FSM and NuSMV input model the user desires to view in the textbox. Figure 5 captures a screen-shot for selecting a particular actor.

Step-4: Viewing the generated models

Once an actor is selected, the “Show State Transition Table” and “Show NuSMV Input Model” buttons become activated. The user can click on the respective button to see the extended finite state model or NuSMV input model for the corresponding actor. The “Variable Mapping” textbox on the lower right corner of the tool interface lists the variables that have been used in the extended FSMs and NuSMV input models of the selected actor and which particular model element of the actor they represent.



Figure 5: Selecting the actor from the drop down list

Step-4(a): Viewing extended finite state models

In order to view a sample finite state model of the selected actor, click on the “Show State Transition Table” button. The extended finite state model is displayed in the textbox for the selected actor. Figure 6 provides a screen-shot for the *Tourist* actor..

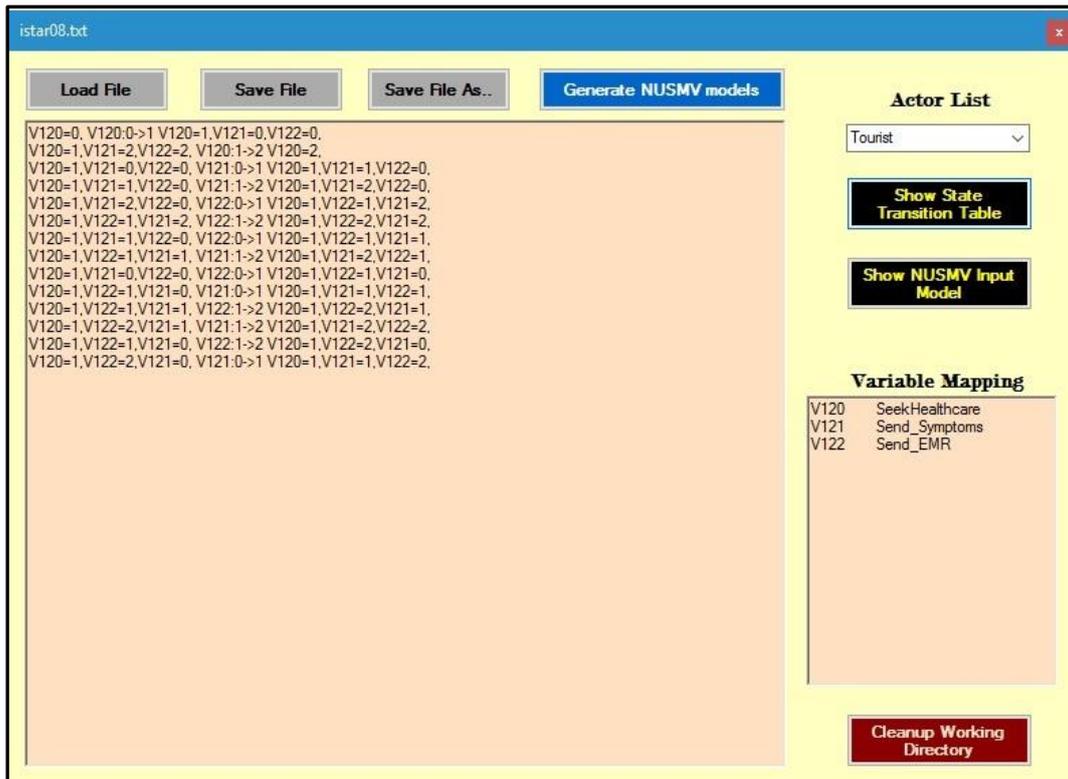


Figure 6: Viewing the extended finite state model (STT.opm) of actor Tourist

Step-4(b): Viewing NuSMV input models

In order to view the NuSMV input model corresponding to the extended FSM 'STT.opm', the user needs to click on the "Show NUSMV Input Models" button. The 'NUSMV_input.smv' file, created for the selected actor, is loaded into the textbox. The "Variable Mapping" textbox lists the set of actor variables as before.

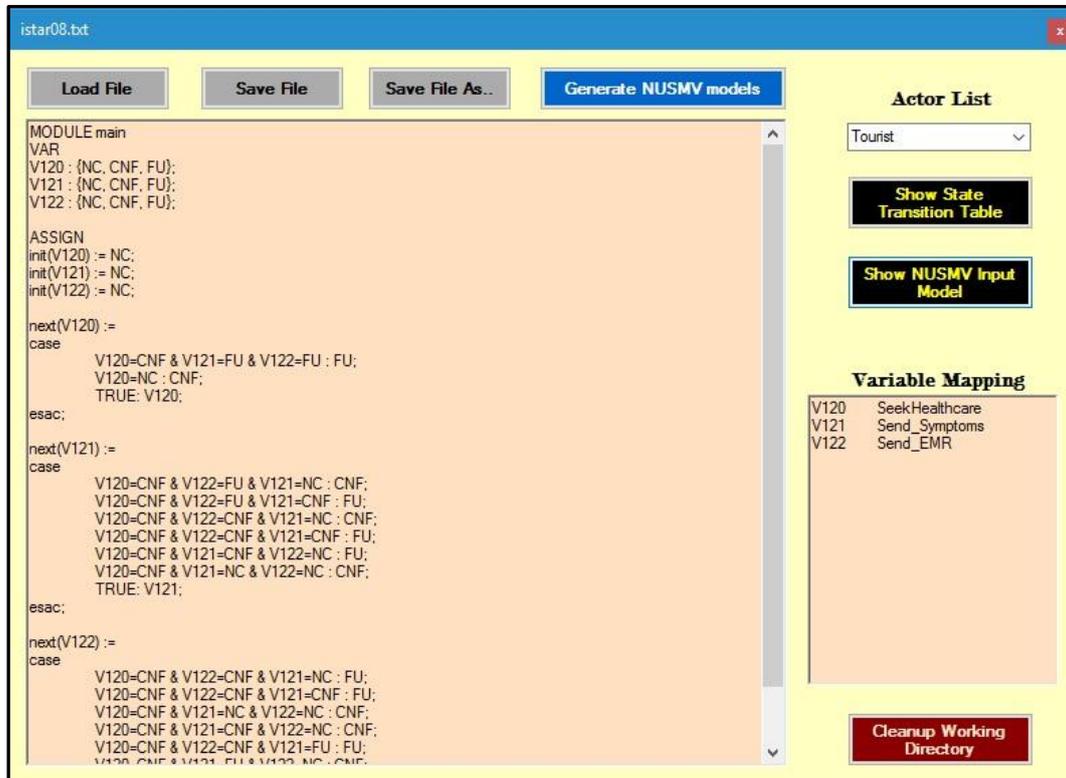


Figure 7: Viewing the NuSMV input model (NUSMV_input.smv) of actor Tourist

Step-5: Cleaning the Working directory

Before loading the next i* model, users MUST click the "Clear Working Directory" button provided in dark red in the lower right corner of the tool interface. This removes all system generated files contained in the 'Output' directory as well as the 'ActorList.opm' file so that the next i* model can be converted. Users can select any of the other models provided with the installation package or write their own i* models for successive tests.