
SimBreakpoint Tool

This tool will be helpful for setting conditional break point in a given model for debugging purpose. model for debugging purpose.

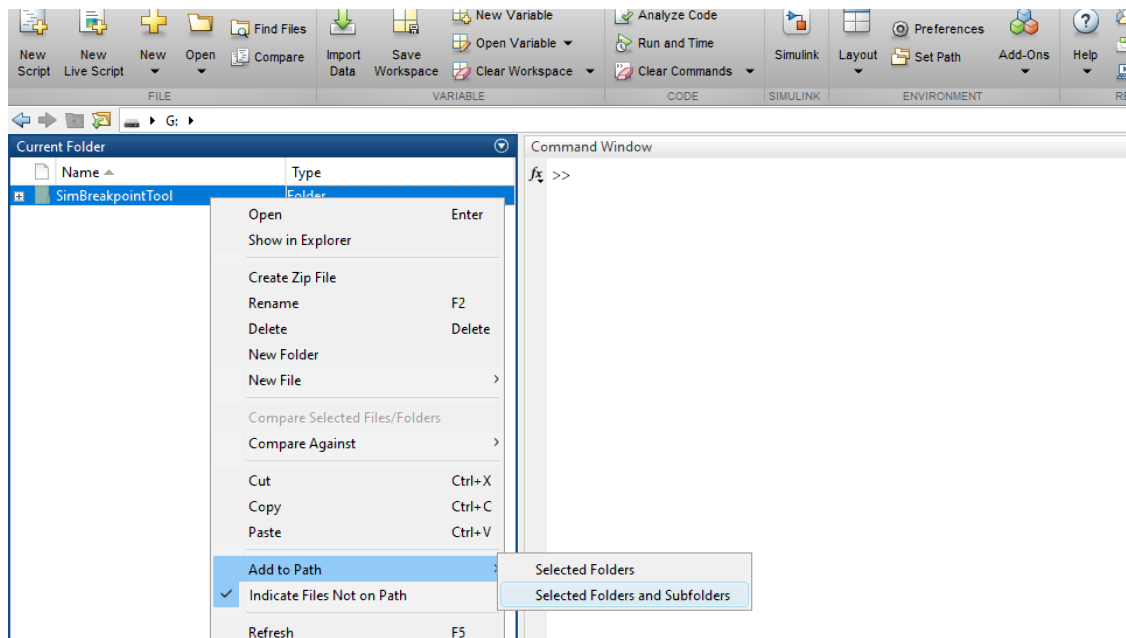
Developed by: Sysenso Systems, <https://sysenso.com/>

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Version: 1.0 - Initial Version.

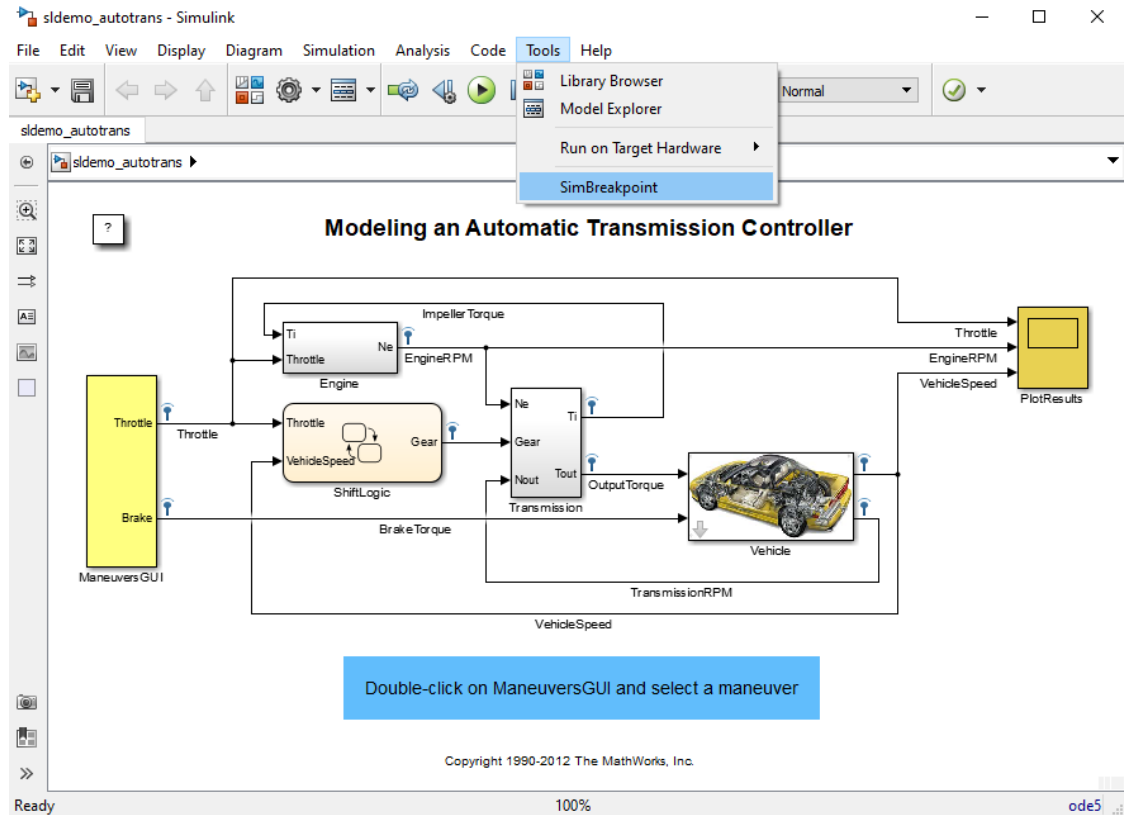
Steps to use this tool

- Download and move the files into the required path and add it to MATLAB path

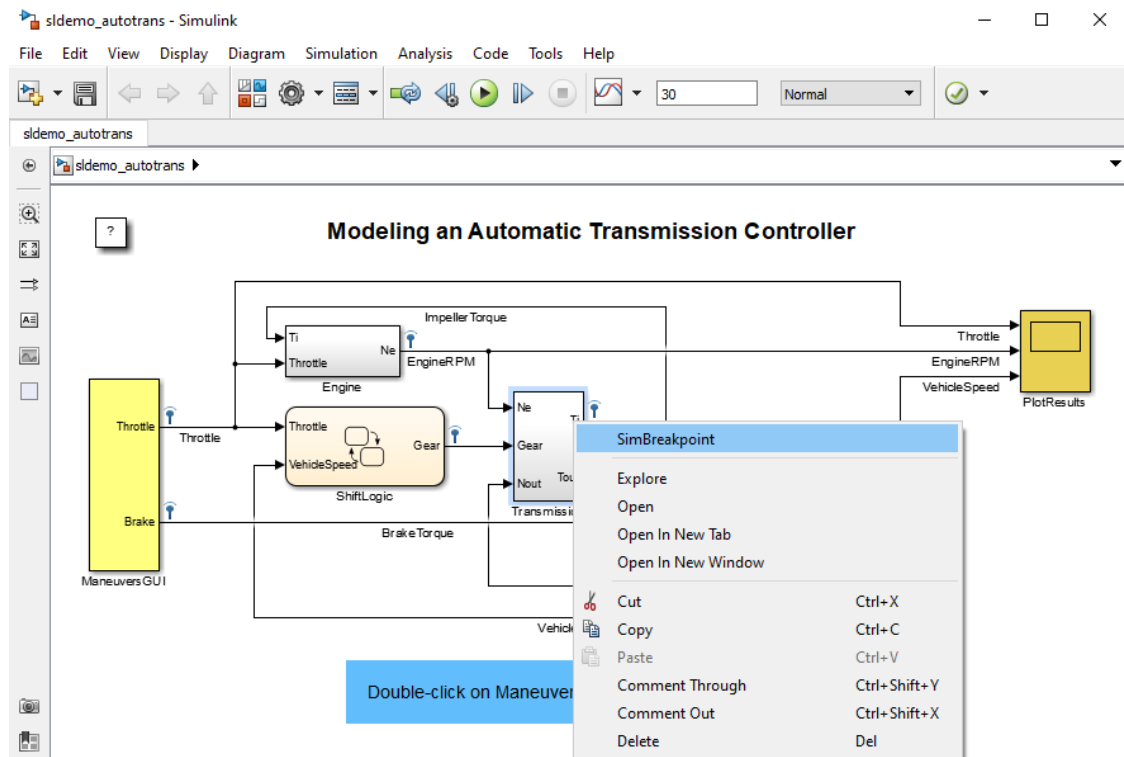


- Open the Simulink model that has to be debugged.
- Ensure that in Simulink Tools menu has a menu item 'SimBreakpoint' is present. If not, run the command ">> sl_refresh_customizations" in the MATLAB command window

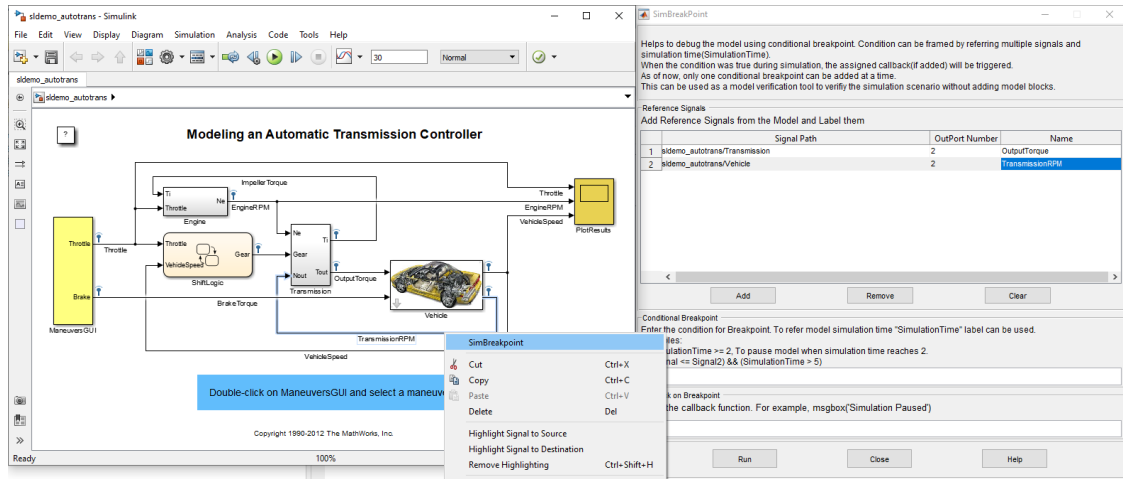
SimBreakpoint Tool



- SimBreakpoint tool can be launched from Tools/SimBreakpoint menu or from the model context menu.



- Select the signal and add it to the GUI(Reference Signals Panel). User have to give a unique signal label for every entry.



- Enter the breakpoint condition (Example : `SimulationTime == 1 && signalA < signalB`). `signalA` and `signalB` should present in the Reference Signals Panel. `SimulationTime` will refer the model simulation time.

SimBreakPoint

Helps to debug the model using conditional breakpoint. Condition can be framed by referring multiple signals and simulation time(SimulationTime).
When the condition was true during simulation, the assigned callback(if added) will be triggered.
As of now, only one conditional breakpoint can be added at a time.
This can be used as a model verification tool to verify the simulation scenario without adding model blocks.

Reference Signals

Add Reference Signals from the Model and Label them

	Signal Path	OutPort Number	Name
1	sldemo_autotrans/Transmission	2	OutputTorque
2	sldemo_autotrans/Vehicle	2	TransmissionRPM

Add
Remove
Clear

Conditional Breakpoint

Enter the condition for Breakpoint. To refer model simulation time "SimulationTime" label can be used.
Examples:
1. SimulationTime >= 2, To pause model when simulation time reaches 2.
2. (Signal <= Signal2) && (SimulationTime > 5)

TransmissionRPM > 3000 && OutputTorque > 300

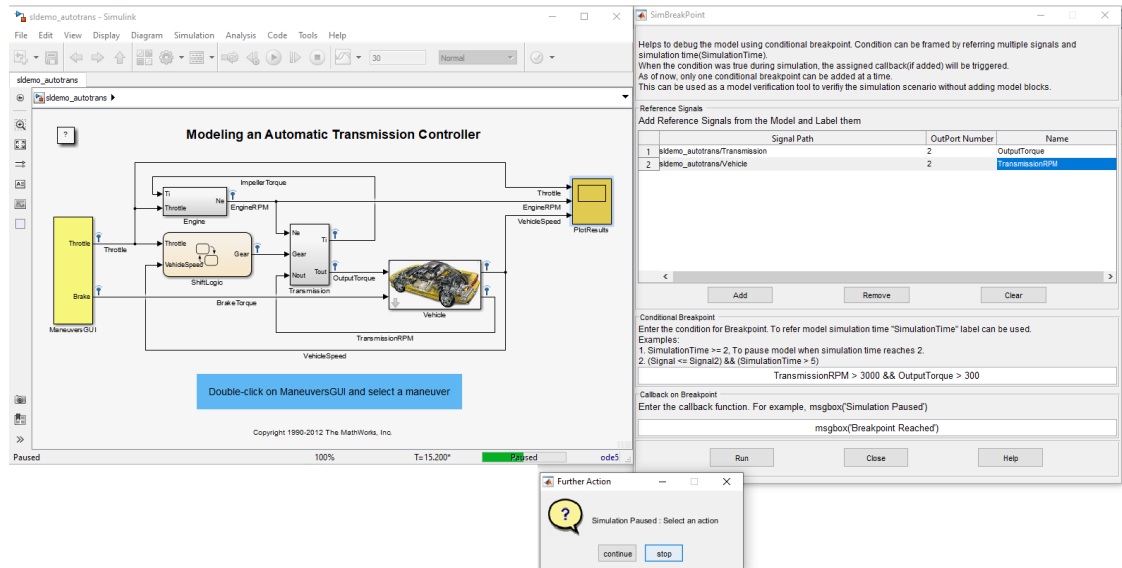
Callback on Breakpoint

Enter the callback function. For example, msgbox("Simulation Paused")

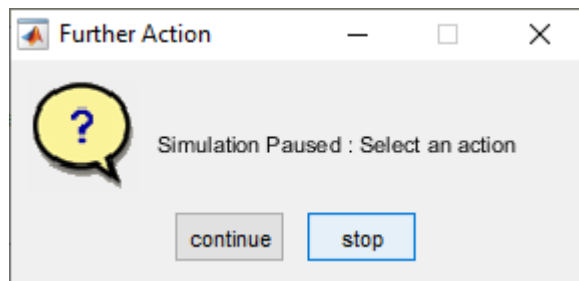
msgbox("Breakpoint Reached")

Run
Close
Help

- Use "Run" button to initiate simulation in the custom debugging model.
- The breakpoint condition will be evaluated during every timestep. If it is true then the simulation will be paused for the user to explore the model.



- Either user can stop the simulation or continue the simulation with the breakpoint condition.



- Optional: User can add a callback function which will be evaluated when the breakpoint scenario happens.

