
System Reference Block

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System Reference Block helps to refer the logic of a preferred Subsystem or Model. This block overcomes the limitations of Model Reference and combines the advantages of Library Reference.

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Prerequisite

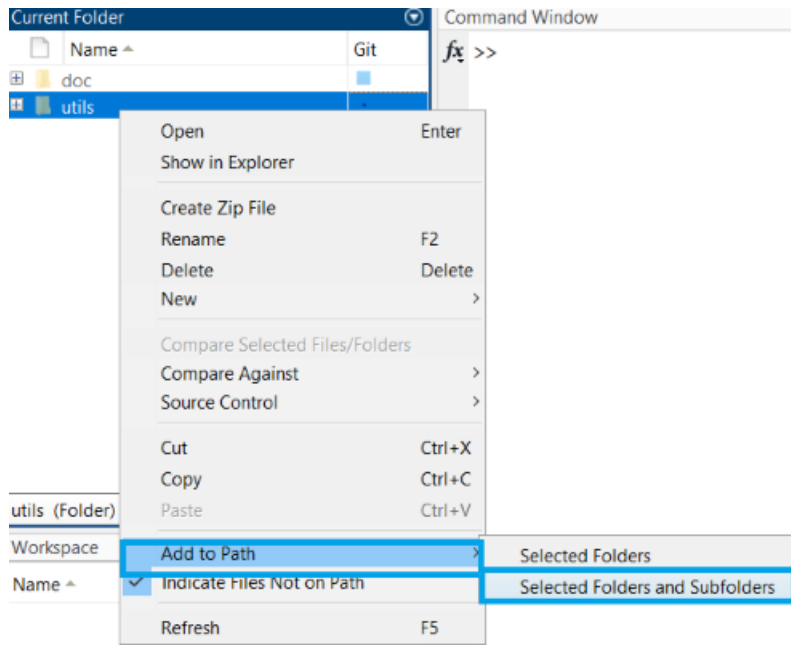
- SIMULINK version 2016b-2021a

Advantages of using System Reference block

1. Referenced model configuration settings will not affect the model reference usage
2. System Reference Block just copies the logic of the desired system as like library reference, whereas Model Reference block actually refers the system selected.
3. Virtual bus can pass the model boundaries.
4. Goto and From blocks can cross system reference boundaries.
5. With System Reference block, we need reference Model or Subsystem.

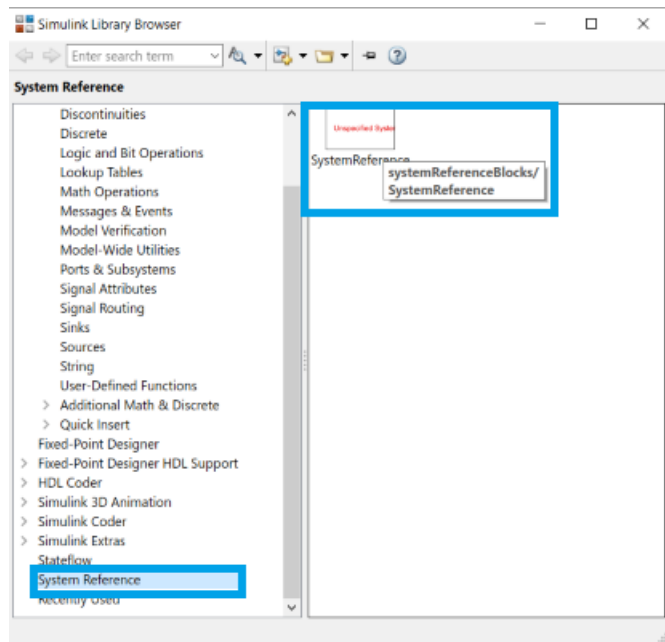
How to launch it:

1. Add the utils folder to the path.



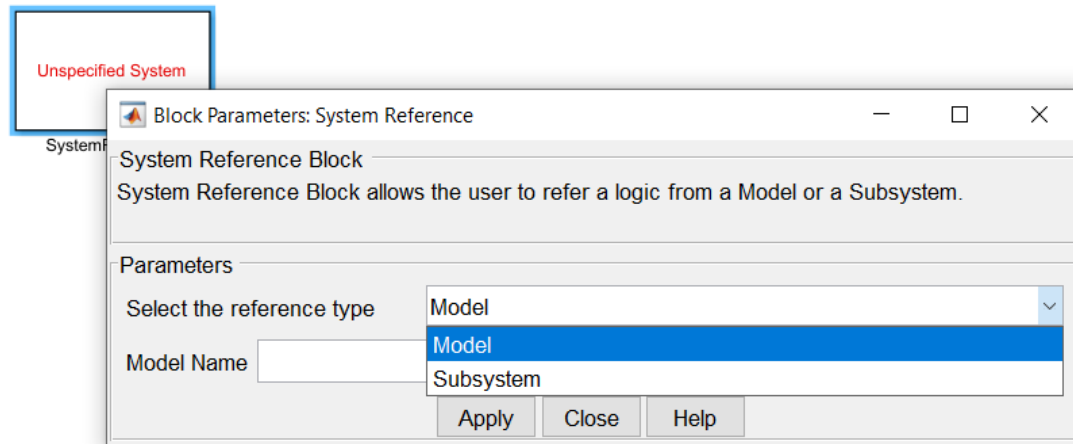
2. Open the library browser and select **System Reference** on the left pane. If not available, Enter the command `sl_refresh_customizations` in the command window and then open library browser.

3. Drag and Drop the **System Reference Block** on the right pane into the required system just like any other block.



Usage instructions

1. Double click the System Reference block to open the **System Reference Block GUI**.



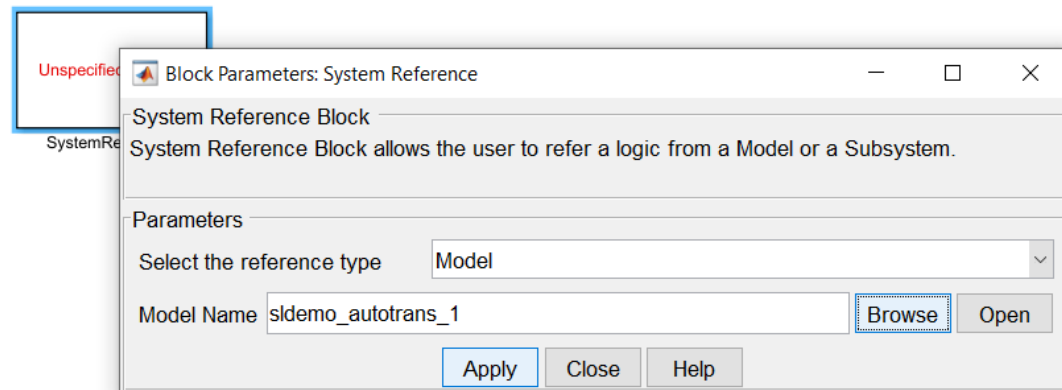
2. Select the reference type.

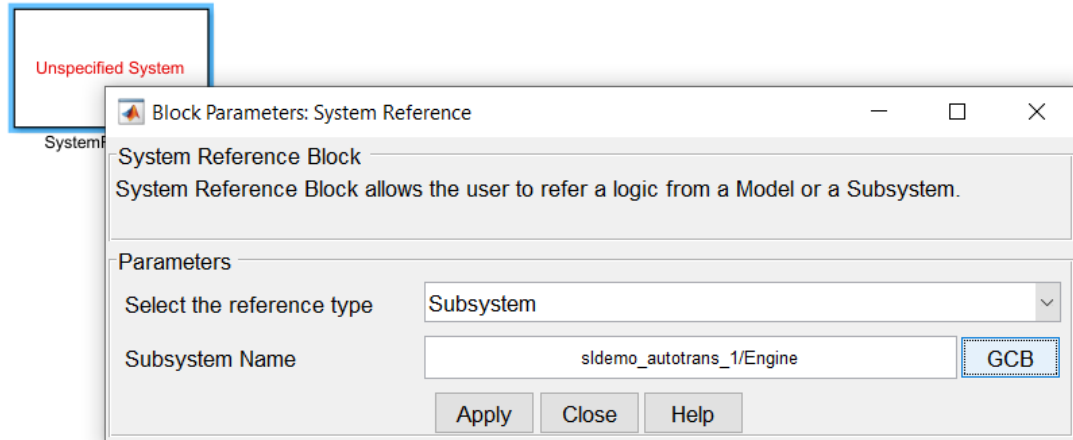
- System Reference block allows the user to select two types of reference.

1. Model Reference.

2. Subsystem Reference.

3. For Model Reference, browse the parent Model using Browse button. For Subsystem Reference, select the parent Subsystem and then click the GCB button.



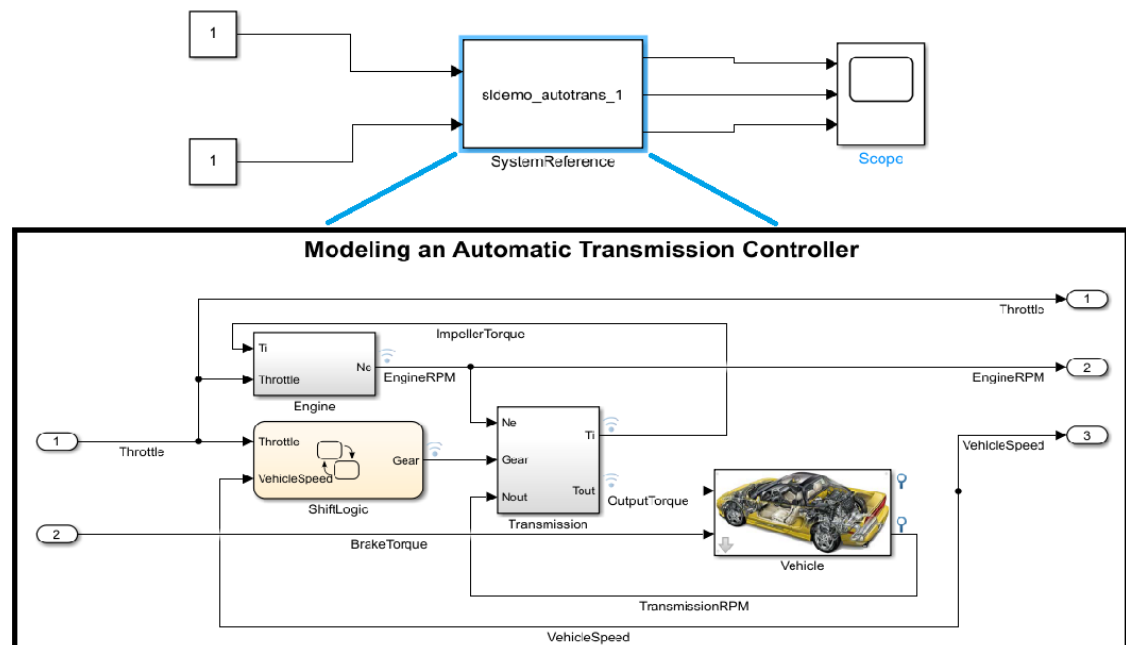


4. Click **Apply**.

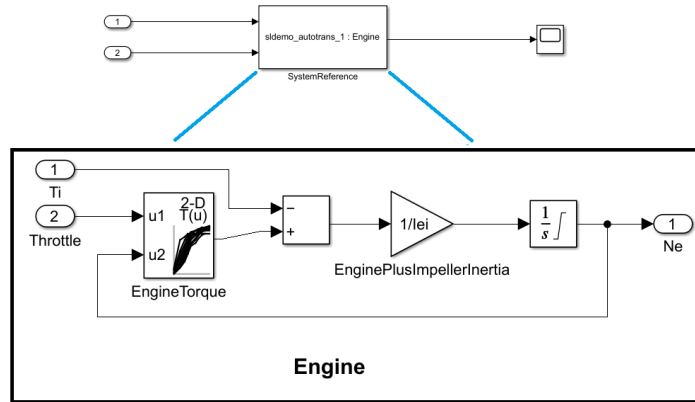
5. Now the selected Model is referred in the child Model.

- In **System Reference Block**, only logic is copied. So when this block is viewed under mask, a copy of selected Model or subSystem will be placed into this block. A sample image is shown below.

Reference Type: Model

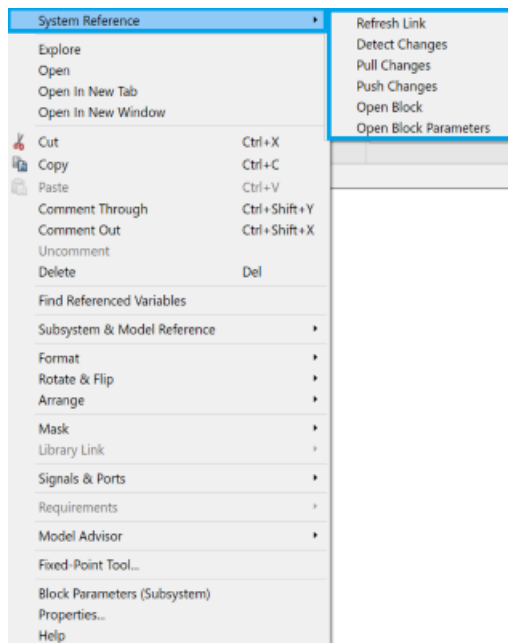


Reference Type: Subsystem



Context Menu

A set of new custom context menus are provided with the System Reference Block under the name "System Reference".



1. Refresh Link: Checks whether the link exists between the child and the parent Model. If the process is unable to establish link which is either due to renaming the parent model/subsystem or the parent model is not in path, the foreground color of System Reference Block is changed to red.

2. Detect Changes: Compares the child and parent Model or subSystem for any block level changes or parameter changes. A text file stored in tempdir contains the list of changes between child and parent. If changes were found, the foreground color of System Reference Block is changed to magenta. Successful pull or push from context menu restores the original foreground color.

3. Pull Changes: Updates the child (System Reference Block) with the changes from the parent.

4. Push Changes: Updates the parent model or subSystem with the changes from the child.

- 5. Open Block: Opens the current System Reference Block to expose the contents inside it.
- 6. Open Block Parameters: Opens the GUI for System Reference.

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