

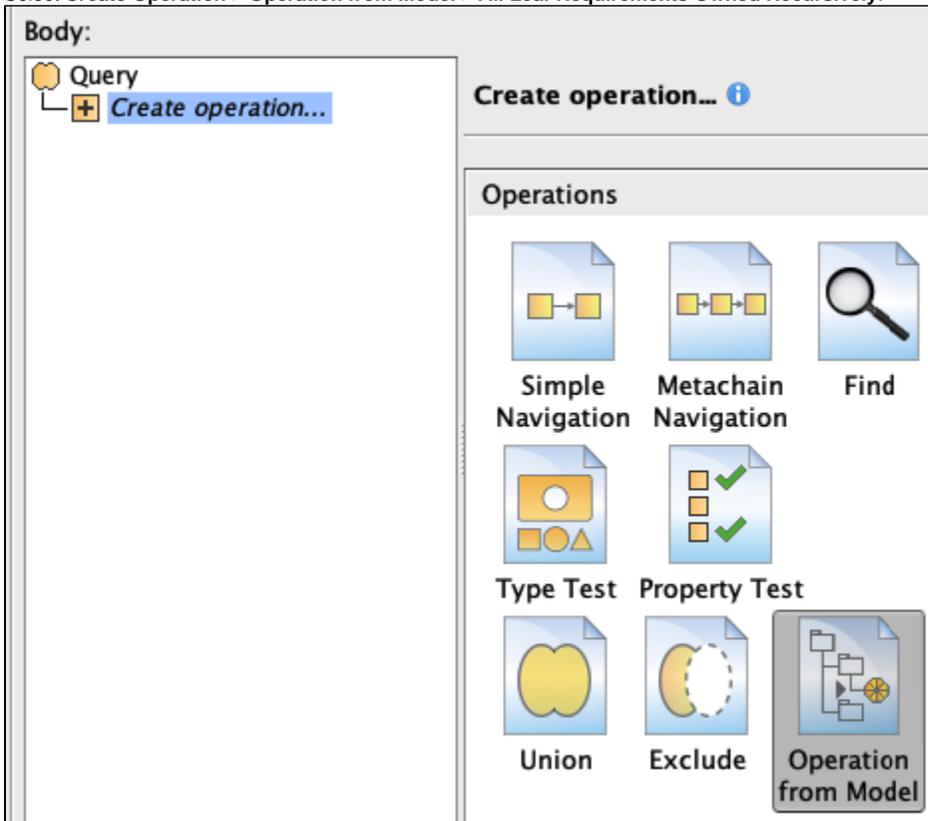
# Case 15. Requirements Coverage by Design Elements

Prerequisites:

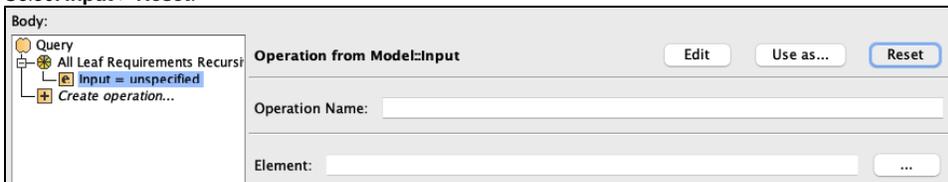
- [Case 15.1. All Leaf Requirements Owned Recursively](#)

To create a Requirements Coverage by Design Elements Legend

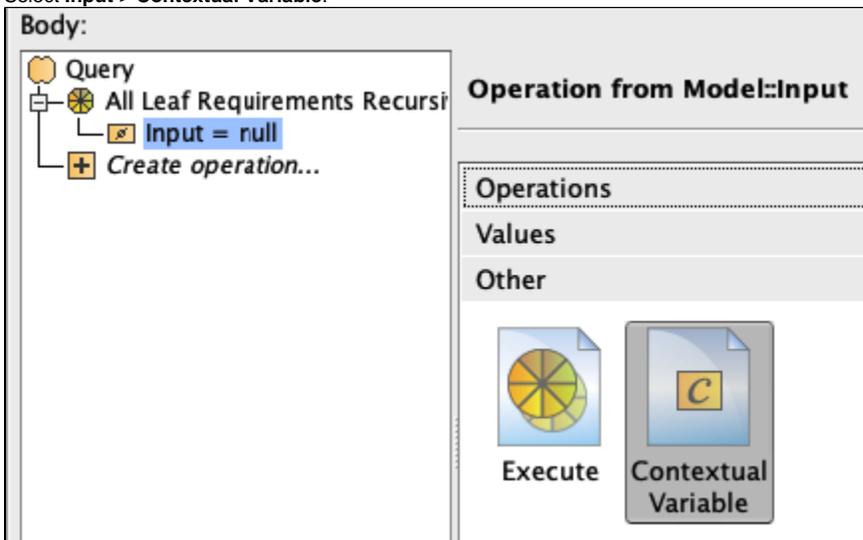
1. Create a **Legend**.
2. Create a **Legend Item** named '0%-25%'.
3. Right-click the **Legend Item** and open its **Specification window**.
4. Click three dots  next to the **Elements by Condition** property to edit it.
5. In the **Elements by Condition** dialog, set the **Element Type** to **Requirement**.
6. Rename **Custom** to **Query**.
7. Select **Create Operation > Operation from Model > All Leaf Requirements Owned Recursively**.



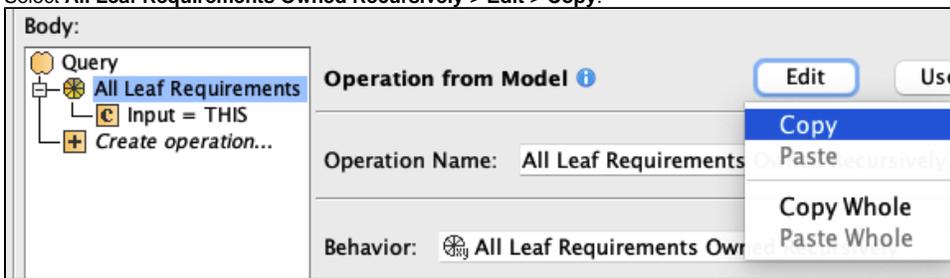
8. Select **Input > Reset**.



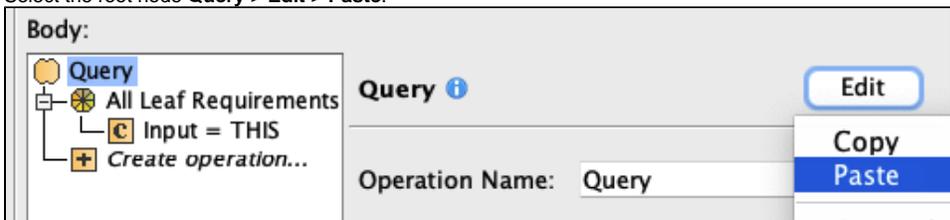
9. Select **Input > Contextual Variable**.



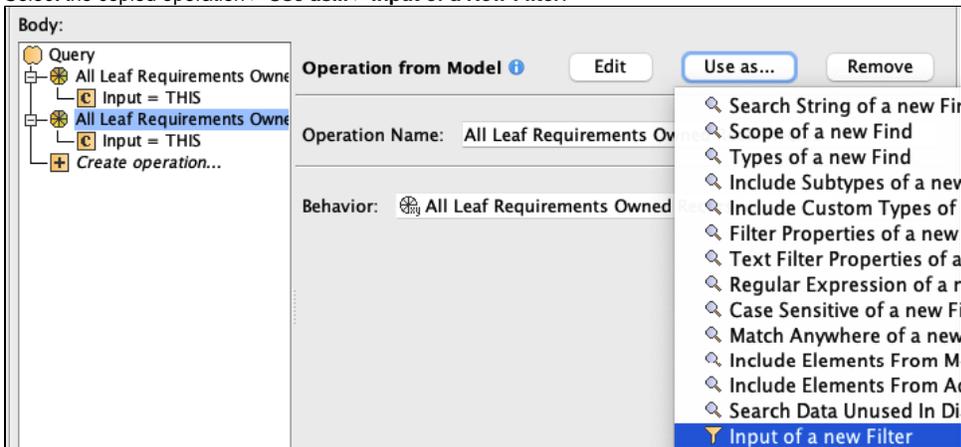
10. Select **All Leaf Requirements Owned Recursively > Edit > Copy**.



11. Select the root node **Query > Edit > Paste**.



12. Select the copied operation > **Use as... > Input of a New Filter**.



13. Select Predicate > Nested Operation.

The screenshot shows the 'Filter::Predicate' configuration window. On the left, a tree view shows a 'Query' node containing 'All Leaf Requirements Owned Re', 'Input = THIS', 'Filter', 'Input = All Leaf Requirement', 'Predicate = null' (highlighted), and 'Create operation...'. On the right, the 'Filter::Predicate' panel has a title bar and an 'Operations' section. The 'Operations' section contains six icons: 'Type Test', 'Property Test', 'Operation from Model', 'Script', and 'Nested Operation' (highlighted with a grey background).

14. Select Body > Operation from Model > Not.

The screenshot shows the 'Body' configuration window. On the left, a tree view shows a 'Query' node containing 'All Leaf Requirements Owned Re', 'Input = THIS', 'Filter', 'Input = All Leaf Requirement', 'Predicate = Nested Operation', 'Body = null' (highlighted), 'arg', 'Create parameter...', and 'Create operation...'. On the right, the 'Body' panel has a title bar and an 'Operations' section. The 'Operations' section contains eight icons: 'Simple Navigation', 'Metachain Navigation', 'Find', 'Filter', 'Type Test', 'Property Test', 'Union', 'Exclude', 'Operation from Model' (highlighted), and 'Script'.

15. Select A > Reset.

The screenshot shows the 'Body' configuration window with the 'Operation from Model' configuration panel open. On the left, a tree view shows a 'Query' node containing 'All Leaf Requirements Owned Re', 'Input = THIS', 'Filter', 'Input = All Leaf Requirement', 'Predicate = Nested Operation', 'Body = Not1', 'A = false' (highlighted), 'arg', and 'Create parameter...'. On the right, the 'Operation from Model' configuration panel has a title bar with 'Operation from Model:...', 'Edit', 'Use as...', and 'Reset' buttons. Below the title bar, there is an 'Operation Name:' field and a 'Value:' section with a 'false' radio button.

16. Select A > Operation from Model > isEmpty.

17. Select **Input > Simple Navigation**. Select **Satisfied By** and set **Is Applied** to true, and **Direction** to **Source To Target**.

Relation Criterion	Is Applied	Direction	Properties	Result T...
Satisfied By (<AbstractRequirement>)	<input checked="" type="checkbox"/>	Source To Target		

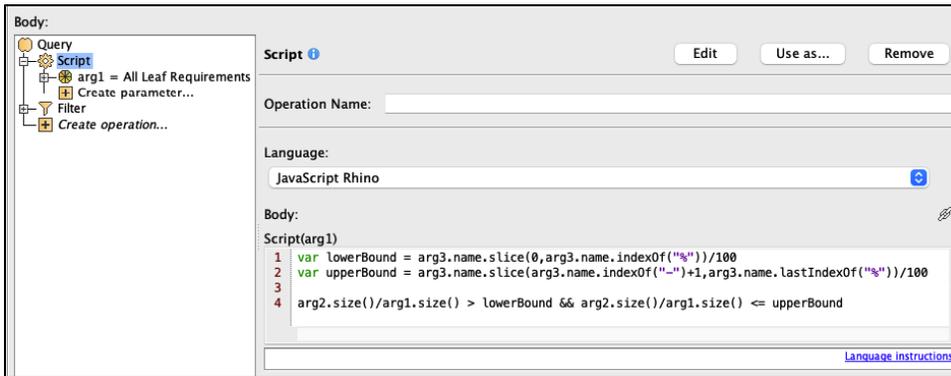
18. Select **All Leaf Requirements Owned Recursively > Use as... > arg of a new Script**.  
 19. From the **Language** drop-down list, select **Javascript Rhino**.  
 20. Insert the following script as the **Body**:

```

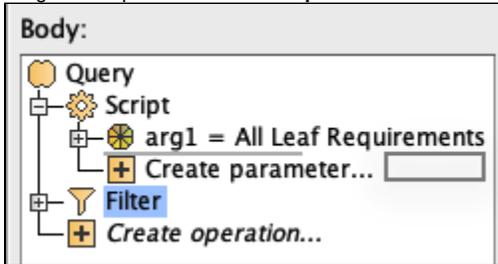
JavaScript Rhino

var lowerBound = arg3.name.slice(0,arg3.name.indexOf("%"))/100
var upperBound = arg3.name.slice(arg3.name.indexOf("-")+1,arg3.name.lastIndexOf("%"))/100

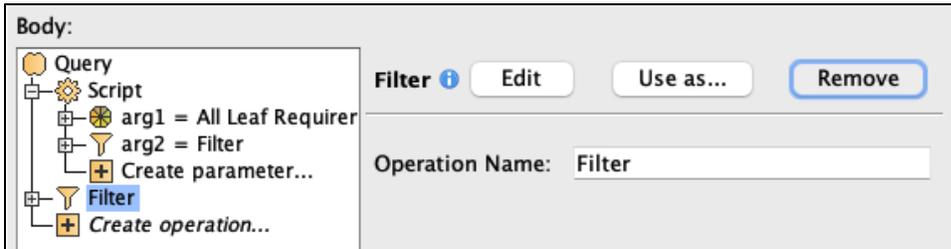
arg2.size()/arg1.size() > lowerBound && arg2.size()/arg1.size() <= upperBound
  
```



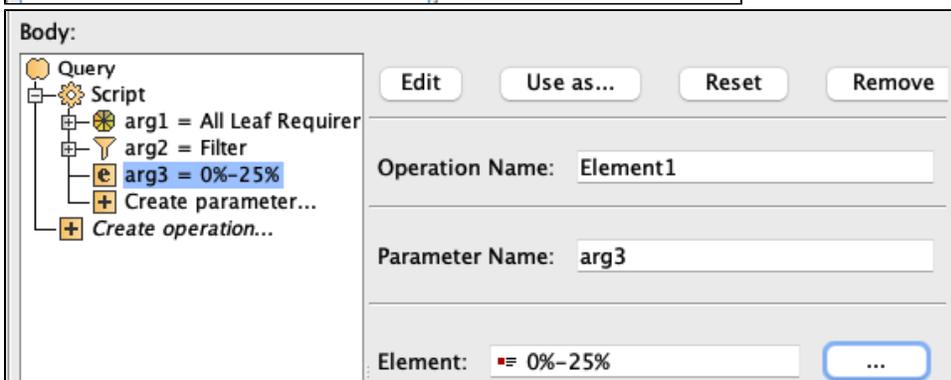
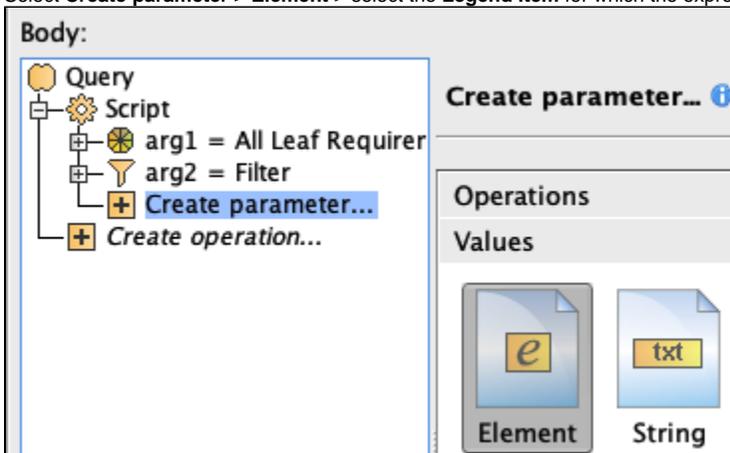
21. Drag-and-drop **Filter** onto **Create parameter** to create a second parameter for the **Script**.



22. Select **Filter** > **Remove**.



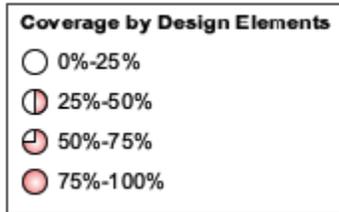
23. Select **Create parameter** > **Element** > select the **Legend Item** for which the expression is defined.





If you cannot see the **Legend Item**, make sure the **Search for** option is set to **Any Element**.

24. Clone the created **Legend Item** and rename the new items accordingly:
- 25%-50%
  - 50%-75%
  - 75%-100%



#### Sample model

The model used in these examples is the *Case Studies for Querying the Model* sample model. To open this model, you need to download [case studies for querying the model.mdzip](#).