

HARA Table

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A HARA Table allows you to define Hazardous Events as a combination of Hazards, Effects and an Accident Scenario. By default, the table shows seven columns. The rest of the columns are hidden, but you can show them if needed.

Criteria							
Element Type: Situation		Scope (optional): HazardousEvent		Filter:			
#	Name	Accident Scenario	Hazard	Vehicle Level Effect	System Level Effect	ASIL	Safety Goal
1	HazardousEvent						
2	Steering Hazard	Potential for vehicle to depart the intended path/lane and collide with oncoming traffic or roadside objects before driver is able to control the situation. If steering produced unintended yaw momentum, could cause loss of control of the vehicle	Unintended Loss of Vehicle Lateral Motion Control Unintended Vehicle Lateral Motion/Unintended Yaw	Vehicle body tilts in wrong direction. Vehicle center of gravity is shifted towards the outside of the curve. High speed collision with another vehicle or object(s)	The steering system provides torque actuation unexpectedly when there is no driver request	D	1 Prevent Unintended Vehicle Lateral Motion
3	Delayed Tilt - Normal driving in curve	Vehicle entering a slight curve at approx. 0 degree vehicle body tilt angle. Low tilt angle is required but provided tilt is delayed.	Degraded Vehicle Stability	Vehicle body does not tilt (at first). Vehicle center of gravity does not move towards the center of the curve.	System tilts vehicle body after it is required	QM	
4	Inverted Tilt - Normal driving in curve	Vehicle entering a slight curve at approx. 0 degree vehicle body tilt angle. Low tilt angle is required but provided tilt is in opposite direction.	Degraded Vehicle Stability	Vehicle body tilts in wrong direction. Vehicle center of gravity is shifted towards the outside of the curve.	System tilts vehicle body in wrong direction.	A	

Show the description area to see all information about a Hazardous Event in one place

Delayed Tilt - Normal driving in curve

[Hide Description](#)

System Function Tilt the Vehicle Body Malfunctioning Behavior vehicle body tilt	Hazard Degraded Vehicle Stability System Level Effect System tilts vehicle body after it is required Vehicle Level Effect Vehicle body does not tilt (at first). Vehicle center of gravity does not move towards the center of the curve. Safety Goal
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ASIL QM

C1 Since the curve is minimal, it is relatively easy to maintain vehicle stability. Driver can recognize the lack of immediate vehicle tilt and reduce speed.

E2 Driving at high speed on slightly curvy roads is part of normal driving

S3 Vehicle may hit obstacles at high speed

Vehicle Usage	Traffic And People	Location	Road Condition	Environmental Condition
Normal driving in curve Driving at Speed	Traffic Free Flow	Highway City Roads	AnyRoadCondition	AnyEnvironmentalCondition

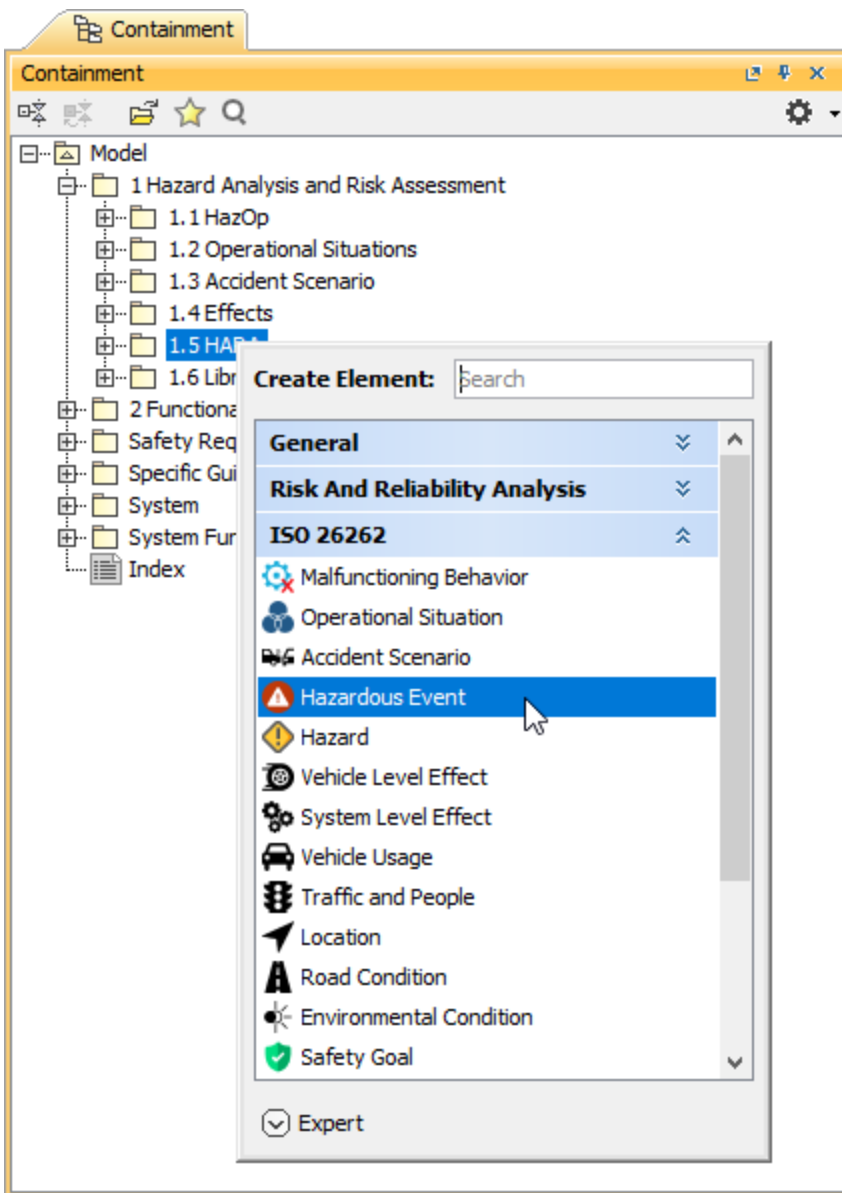
An example of a HARA Table.



Creating HARA Table

You can create a HARA Table as described below.

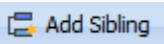
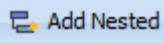
To create a HARA Table



3. When a Hazardous Event is created, type the name of the element and press Enter.

When you create a Hazardous Event in the model browser, it is automatically added to a HARA Table if it exists.

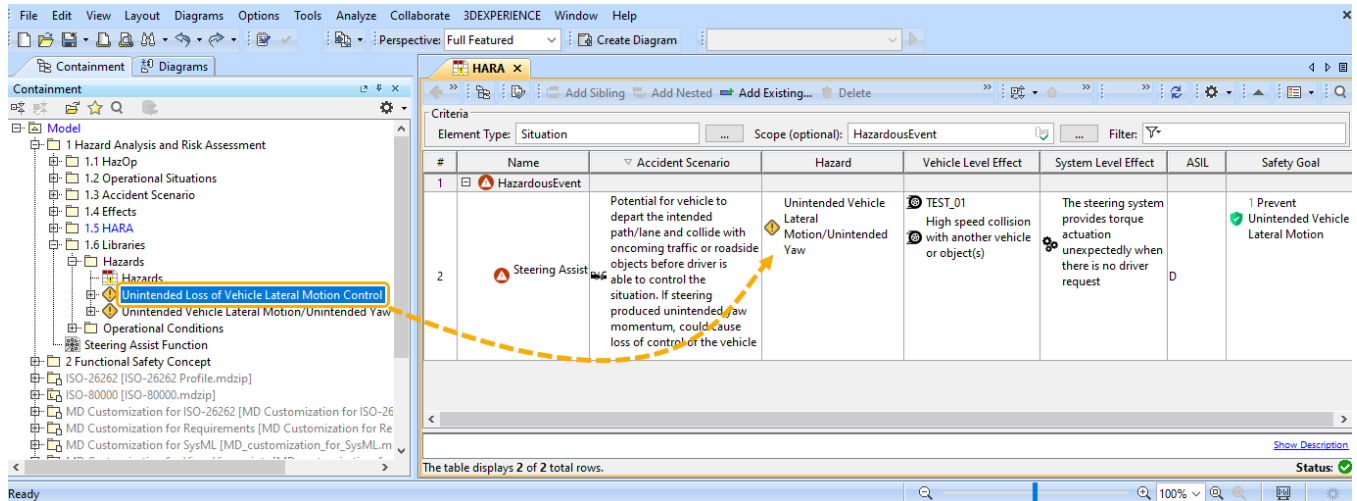
To create a Hazardous Event in a HARA Table

1. In a HARA Table, select a table row.
2. Do one of the following:
 - In the table toolbar, click  **Add Sibling** to create an element of the same level as the one you have selected.
 - In the table toolbar, click  **Add Nested** to create an element nested under the selected element.
3. Type the name of the new element and press Enter.

When you create a Hazardous Event and add it to a HARA Table, you need to define the element as described in the section below.


Defining Hazardous Events


After creating a Hazardous Event, you need to define it by assigning an Accident Scenario, Hazards, and Effects to the element. You also need to create and assign a Safety Goal. The Accident Scenario, Hazards, Effects and Safety Goal also can be dragged from the Containment tree.



Dragging and dropping the **Hazard** in the HARA Table


To assign an Accident Scenario

1. In a HARA Table, double-click the cell the **Accident Scenario** column and click .
2. On the left side of the **Select Element** dialog, open the **List** tab.
3. Select the Accident Scenario you want to assign.
4. Click **OK**.


 Use filters to find elements quicker

After assigning an Accident Scenario to a Hazardous Event, the Automotive Safety Integrity Level (ASIL) is calculated automatically.


Assigning Hazards

1. In a HARA Table, double-click the cell of the **Hazard** column and click .
2. On the left side of the **Select Element** dialog, open the **List** tab.
3. Double-click the Hazards you want to assign. The elements should be added to the selected elements area.
4. Click **OK**.

To assign an Effect

1. In a HARA Table, double-click the cell of the column representing the group of Effects (**Vehicle Level Effects** or **System Level Effects**) you want to assign and click .
2. On the left side of the **Select Element** dialog, open the **List** tab.
3. Double-click the Effects you want to assign. The elements should be added to the selected elements area.
4. Click **OK**.

To create and assign Safety Goal

1. In a HARA Table, double-click the cell of the **Safety Goal** column and click .
2. In the **Select Elements** dialog, enable the **Creation Mode** if it is not enabled yet.
3. In the element tree on the left side of the dialog, select the owner of a Safety Goal and click the **Create** button.

4. When the Specification window of the created element opens, enter the element name and close the Specification window. The element is created and automatically added to the selected elements area on the right side of the **Select Elements** dialog.

a. In the **Select Elements** dialog, click **Filter by ISO properties** box.

b. In the **Select Properties** dialog, click the **Value** box of a property and select the desired property value from the list.

Use the List or Tree view to search for an element. To find the element, type a name in the "Search by Name" box. You can also use wildcards (* ?). Click the magnifying icon to select searching for elements by qualified names, or use camel case.

Select Properties

Select properties and specify values for them. Selected properties will be included into filter query.

Is Applied	Name	Value
ISO 26262 properties		
<input type="checkbox"/>	System Behavior	
<input type="checkbox"/>	Controllability	
<input type="checkbox"/>	Exposure	
<input type="checkbox"/>	Malfunctioning Behavior	
<input type="checkbox"/>	Operational Situation	
<input type="checkbox"/>	Environmental Condition	
<input type="checkbox"/>	Location	
<input type="checkbox"/>	Road Condition	
<input type="checkbox"/>	Traffic And People	
<input type="checkbox"/>	Vehicle Usage	

Search by Name

5 matches found

- ☐ E0
- ☐ E1
- ☐ E2
- ☐ E3
- ☐ E4

5. Click **OK** to

- c. Click **OK**.

Now the **List** tab displays the elements with the selected property value.