

# Modifying relationships in Dependency Matrix

You can edit relationships and element properties directly in matrices. Clicking the selected cell allows for

- Creating or deleting relationships between elements.
- Defining or removing element properties or tags.

This feature not only facilitates management of ordinary relationships between elements, but also allows for a faster creation of traceability links between elements, for example, between requirements and the architecture or requirements and test cases. Such an improvement saves huge amounts of time in comparison to linking elements in diagrams. It significantly increases applicability and usability of matrices.

To create a new relationship between model elements in the dependency matrix



Commands on the shortcut menu of the cell, for creating a new relationship, depend on criteria specified in the **Criteria** area of the matrix:

- Possible relationship types correspond to the types specified as dependency criteria (see solid-line boxes in the following figure).
- Possible directions correspond to the directions specified in the **Direction** drop-down list (see dashed-line boxes in the following figure).

1. Do one of the following:

- Double-click the cell. If only one relationship type and direction is available, the relationship is created instantly. If several relationship types or directions are available, the shortcut menu opens.
- Right-click the cell. The shortcut menu opens.

Dependency Criteria: Satisfy ... Direction: Row to column Show Elements:

| Legend                   | UN1 Environmentally friendly | UN2 Charging | UN3 Acceleration | UN4 Cruise control | UN5 Braking | UN6 Capacity | UN7 Range | UN8 Car dashboard ergonomics | UN9 Vehicle mass | UN10 Safety | UN11 Power source management |
|--------------------------|------------------------------|--------------|------------------|--------------------|-------------|--------------|-----------|------------------------------|------------------|-------------|------------------------------|
| System Structure         |                              |              |                  |                    |             |              |           |                              |                  |             |                              |
| ABS System               |                              |              |                  |                    |             |              |           |                              |                  |             |                              |
| Body                     |                              |              |                  |                    |             |              |           |                              |                  |             |                              |
| Brake Subsystem          | 2                            | 1            |                  |                    |             |              |           |                              |                  |             |                              |
| Caliper                  |                              |              |                  |                    |             |              |           |                              |                  |             |                              |
| Chassis                  |                              |              |                  |                    |             |              |           |                              |                  |             |                              |
| Cruise Control Computer  |                              |              |                  |                    |             |              |           |                              |                  |             |                              |
| Dashboard                | 1                            |              |                  |                    |             |              |           |                              |                  |             |                              |
| Electric Motor           | 1                            |              |                  |                    |             |              |           |                              |                  |             |                              |
| Fuel Tank Assembly       | 1                            |              |                  |                    |             |              |           |                              |                  |             |                              |
| High-voltage Battery     | 2                            | 2            |                  |                    |             |              |           |                              |                  |             |                              |
| High-voltage Battery Eco |                              |              |                  |                    |             |              |           |                              |                  |             |                              |
| Interior                 | 3                            |              |                  |                    |             |              |           |                              |                  |             |                              |
| Lighting Subsystem       |                              |              |                  |                    |             |              |           |                              |                  |             |                              |
| PID control system       |                              |              |                  |                    |             |              |           |                              |                  |             |                              |
| Power Subsystem          |                              |              |                  |                    |             |              |           |                              |                  |             |                              |

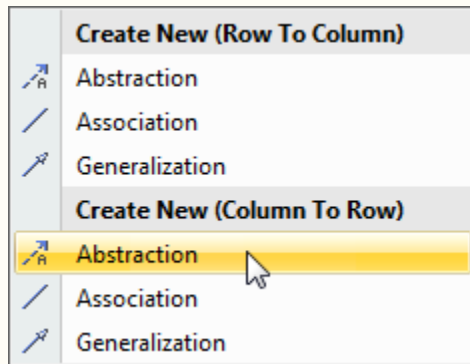
Create New (Row To Column)

Satisfy

2. From the shortcut menu, under **Create New (Row To Column)** or **Create New (Column To Row)**, select a relationship type you need to create.



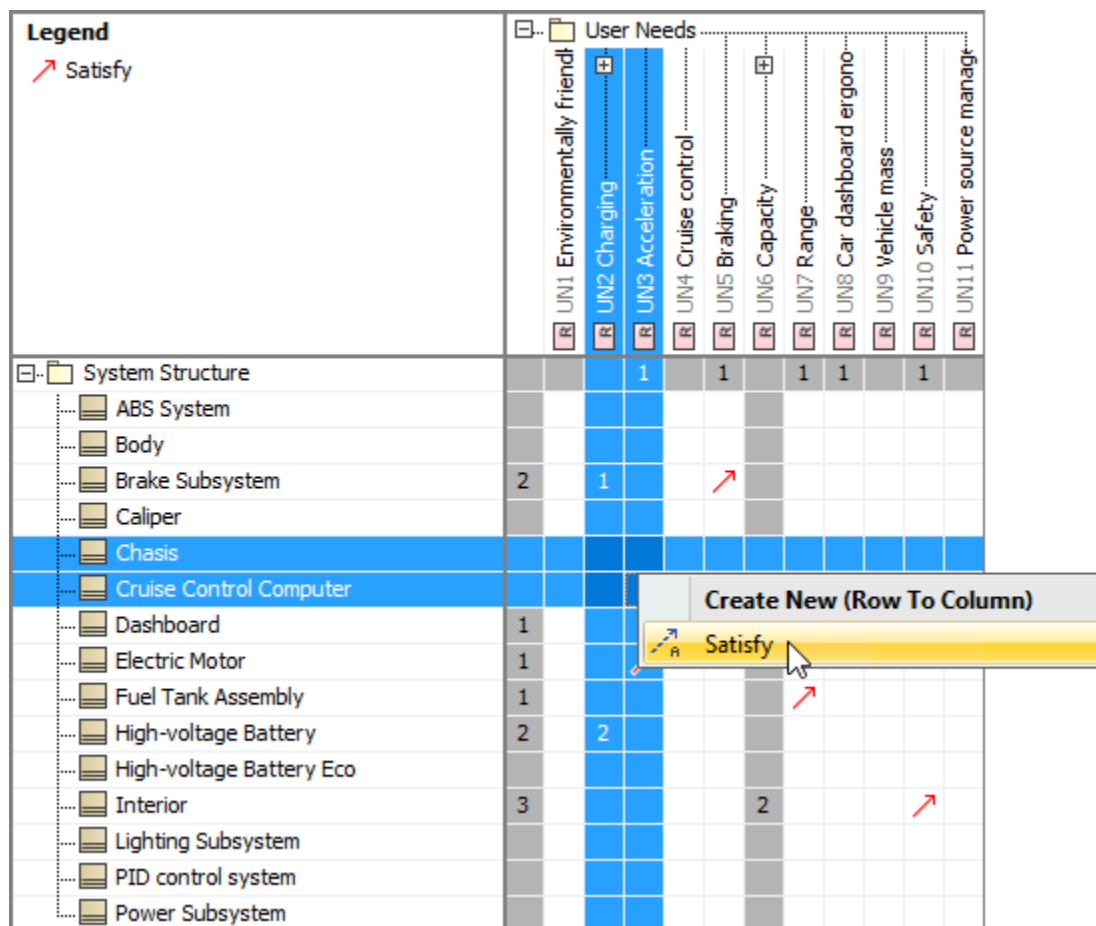
If you have specified to display in the matrix, relationships with both directions, the shortcut menu of the cell will look like the one in the following figure.



Thus make sure you have selected a relationship type with relevant direction.

To create multiple relationships between model elements simultaneously in the dependency matrix

1. Press and hold Ctrl on your keyboard to be able to select multiple row and column elements.
2. Do one of the following:
  - Double-click the cell while holding Ctrl. If only one relationship type and direction is available, the relationship is created instantly. If several relationship types or directions are available, the shortcut menu opens.
  - Right-click the cell. The shortcut menu opens.
3. From the shortcut menu, select the relationship type to create.



To remove a relationship between model elements from the dependency matrix

- Do one of the following:
  - Double-click the cell. If only one relationship type and direction is available, the relationship is removed instantly. If several relationship types or directions are available, the shortcut menu opens.
  - Right-click the cell. The shortcut menu opens.
- From the shortcut menu, under **Delete**, select the relationship you need to remove. The relationship is removed both from the matrix and the model.

Legend

Satisfy

System Structure

ABS System

Body

Brake Subsystem

Caliper

Chassis

Cruise Control Computer

Dashboard

Electric Motor

Fuel Tank Assembly

High-voltage Battery

High-voltage Battery Eco

Interior

Lighting Subsystem

PID control system

Power Subsystem

User Needs

UN1 Environmentally friendly

UN2 Charging

UN3 Acceleration

UN4 Cruise control

UN5 Braking

UN6 Capacity

UN7 Range

UN8 Car dashboard ergonomo

UN9 Vehicle mass

UN10 Safety

UN11 Power source manag

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To remove all relationships of a cell

- Double-click or right-click the cell. The shortcut menu opens.
- From the shortcut menu, under **Delete**, select **Delete All**. The relationships are removed both from the matrix and the model.

To remove relationship(s) of multiple cells

- Press Ctrl and select multiple row and column elements.
- Double-click or right-click the last active cell. The shortcut menu opens.
- In the shortcut menu, under **Delete**, do one of the following:
  - Select the specific relationship type to remove.

- Click **Delete All** to remove all relationships at once.

|                                                                                   |                                   |   |
|-----------------------------------------------------------------------------------|-----------------------------------|---|
|                                                                                   | <b>Create New (Row To Column)</b> |   |
|  | Abstraction «Refine»              |   |
|  | Realization                       |   |
|  | <b>Delete</b>                     |   |
|                                                                                   | <b>Delete All</b>                 |   |
|  | Abstraction «Refine»              |   |
|  | Realization                       |   |
|                                                                                   | <b>Navigate</b>                   |   |
|  | Abstraction «Refine»              | > |
|  | Realization                       | > |