Displaying implied relations

The implied relation functionality allows you to analyze existing relations among parts in the Internal Block Diagrams. It lets you know that parts are somehow related without giving the detailed view of actual Connectors and ports. You can display implied relations between parts which are connected through ports/interfaces. The implied relation is represented as a dashed line with a short summary in label of how many actual connectors are underneath.

The implied relation functionality allows you to:

- Display implied relations between Part Properties through ports/interfaces.
- Display actual Connectors and ports from the implied relations level by level or all at once.
- Find actual Connectors in the Containment tree directly from the implied relation.
- Specify symbol properties of the implied relation.

On the left side: the implied relation shows that 18 connectors exist between TV and TV Tuner parts. On the right side: all 18 actual connectors and ports are shown by using the Semantic Zoom In, or Display Underlying Connectors command.

The following procedures describe how you can:

- Display implied relations.
- Display actual connectors and ports.
- Select actual connectors in the Containment tree.
- Change the label display mode.

Displaying implied relations

You can display implied relations between Part Properties, diagram frames which are connected through Ports/interfaces.

To display implied relations

1. Select the Part Property shape, diagram pane, or diagram frame you want to display implied relations.
2. Do one of the following:
   - Right-click to open the shortcut menu, and select Display > Display Implied Relations.
   - On the diagram toolbar, click \( \text{Display} \) and select Display Implied Relations.
   - Press Ctrl+Alt+V.

The implied relations are displayed between Part Properties and/or Part Properties and diagram frame.

Three implied relations displayed between Part Properties typed by TV and TV Tuner Blocks and diagram frame by using the Display button from the diagram toolbar.

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Sample model

The sample model used in the figures on this page is the Implied Connectors sample model. Download Implied Connectors.mdzip.
Displaying actual connectors and ports

When trying to see the detailed view underneath the implied relation, you can display actual Connectors and ports directly from the implied relation in the following ways:

- Using the **Semantic Zoom In** button to show actual ports and Connectors by expanding only one level into deep at a time. [How to >](#)
- Using the **Display Underlying Connectors** command to show all actual ports and Connectors at once. [How to >](#)

### How to use the Semantic Zoom

This feature allows you to view details of the implied relation and display nested ports level by level into deep. The **Semantic Zoom In** button displays ports and/or Connectors which are underneath the implied relation by expanding only one level into deep at a time. You can use that button until all actual ports and Connectors are displayed and implied relation disappears. The **Semantic Zoom Out** button collapses displayed actual ports and/or Connectors on the diagram one level at a time.

To display/collapse actual ports and Connectors one level into deep at a time:

1. Select the implied relation.
2. From its smart manipulator toolbar select:
   - The **Semantic Zoom In** button to display actual ports and Connectors one level into deep.
   - The **Semantic Zoom Out** button to collapse displayed actual ports and Connectors one level into deep.

![Displaying/collapsing all actual ports and Connectors by using the Semantic Zoom In/Out button.](image)

### How to use the Display Underlying Connectors command

You can display all actual Connectors and ports from implied relations at once with one click.

To display all actual Connectors and ports at once:

1. Select the implied relation.
2. From its shortcut menu, select the **Display Underlying Connectors** command.
Displaying all actual Connectors and ports by using the Display Underlying Connectors command.

**Selecting actual Connectors in the Containment tree**

If you want to see an actual Connectors underneath the implied relation without displaying them, you can select them in the Containment tree. How to select actual Connector in Containment tree read the following procedure.

To select actual Connector in the Containment tree

1. Select the implied relation.
2. From its shortcut menu, point to the **Underlying Connections** command group, and select an appropriate Connector.
   Actual Connector is selected in the Containment tree.

The Underlying Connectors command group provides a list of actual Connectors which are underneath the implied relation.

**Changing the label display mode**
The label of implied relation provides useful information about actual ports and Connectors. You can define how much of the information should be shown in the label by changing the **Label Display Mode**. The procedure below describes how to change the label display mode and explains the meaning each of display mode.

To change the label display mode:

1. Select the implied relation.
2. Open its **Symbol Properties** dialog.
3. Find the **Label Display Mode** property and select one of the following:
   - **Do Not Display** - to hide the label.
   - **Compact** (default) - to show a short summary in the label of how many actual connectors are underneath. It also displays names of the first level ports at both connector ends, if actual connectors exist only between two ports. Otherwise, the names will not be shown.
   - **Detailed** - to show all names or types of ports on both actual connector ends.

**Example of Compact label display mode**

The figure below demonstrates the situation, when all labels of implied relations provide a different information despite the same **Compact** display mode is selected for all of them.

Three labels of the implied relation with Compact display mode which provides different information.

1. The label of the implied relation between Part Property typed by *TV* Block and diagram frame indicates that only 1 actual connector exists between part and diagram frame because the number is not shown in brackets. The *power in* and socket 2 names in the label shows the names of the first level ports.
2. The label of the implied relation between Part Properties typed by *TV* and *TV Tuner* Blocks indicates that 18 actual connectors exist between those parts. The *hdmi* name in the label shows the names of the first level ports.
3. The label of the implied relation between Part Property typed by *TV Tuner* Block and diagram frame indicates that 9 actual connectors exist between part and diagram frame. The names of ports are not displayed in the label because actual connectors (which are underneath of implied relation) have different first level ports at both ends.
Example of Detailed label display mode

The figure below demonstrates the situation, when all labels of implied relations provide a different information despite the same Detailed display mode is selected for all of them.

In the illustration, provide the same information as Compact display mode because actual connectors exist only between two ports. The label between the TV Tuner Block and diagram frame (3.) shows that 8 connectors exist between internet and LAN socket ports and 1 connector between power in and socket 2 ports. It is useful to set the Detailed mode when you want to see all first level port names in the implied relation label (see figure below).

4. Click OK.