

# Displaying parts and ports

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## Introduction

You can display ports, properties, and deep nested properties that have already been created in all [structure diagrams](#). This functionality is driven by stereotypes, which allow you to display properties on which [stereotypes](#) have been applied. If you have applied your own [stereotypes](#) for the elements (e. g., electrical, mechanical, optical), you can use those stereotypes when selecting the properties you want to display on the diagram pane.



### Note

For more information about how to create custom stereotypes and apply them, see [UML Profiling and DSL Guide](#).

## Ways to display parts and ports

You can display ports and properties in the following ways:

- [Using the Display Parts/Ports dialog](#)
- [Using the diagram toolbar and the shortcut menu](#)
- [Using the smart manipulator toolbar](#)
- [Using the drag-and-drop operation in the Composite Structure diagram](#)

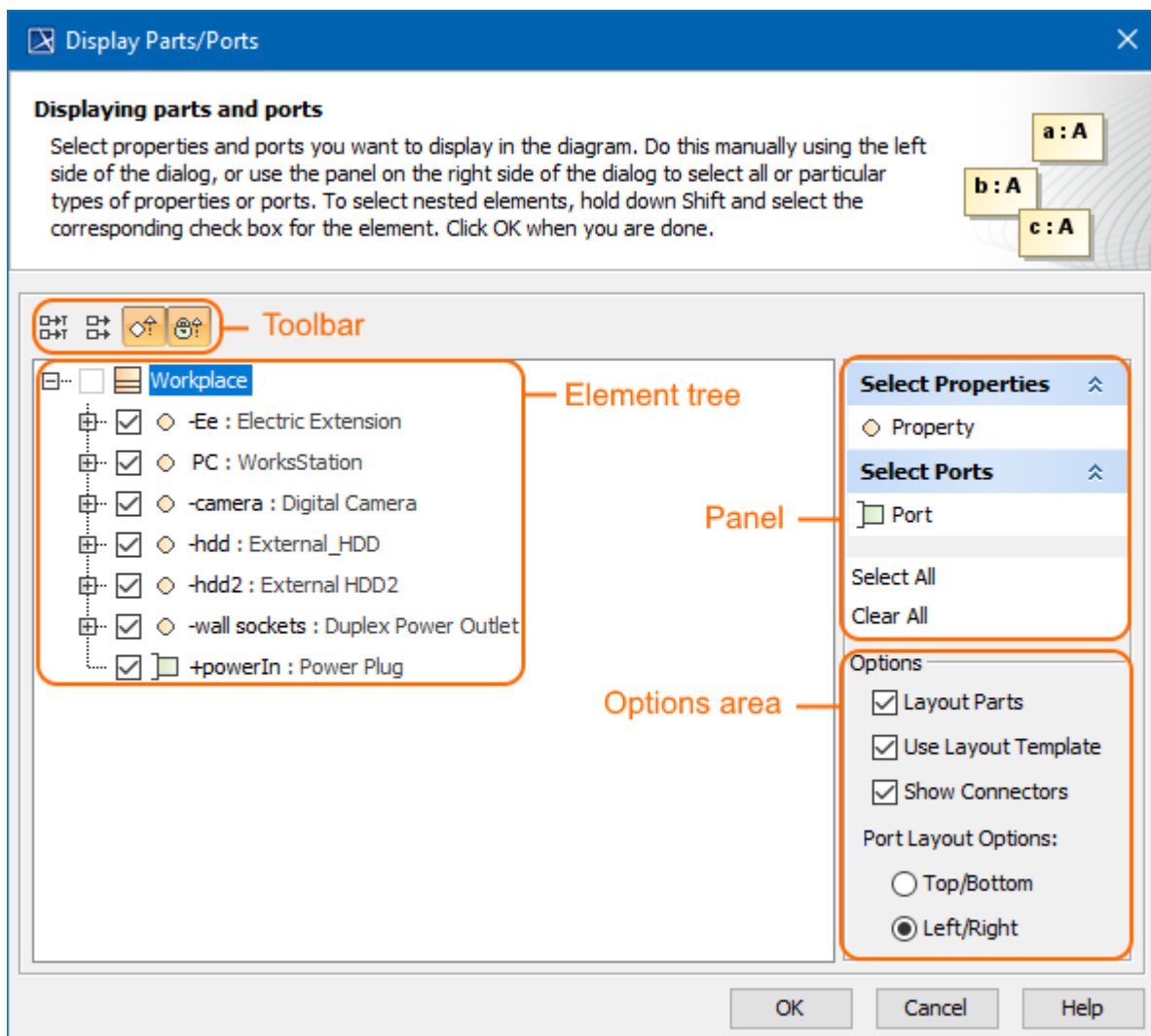
## Using the Display Parts/Ports dialog

You can use the **Display Parts/Ports** dialog to control how much of a structure should be displayed. The **Display Parts/Ports** dialog opens automatically when creating a new [Composite Structure diagram](#) for a [Class](#) element that owns properties. It can also be accessed and opened in the structure diagrams that have already been created. The **Display Parts/Ports** dialog allows you to:

- Preview all [Parts](#), [Ports](#), and other properties in one place.
- Manually or automatically select required [Parts](#), [Ports](#), and other properties you want to display.
- Manually or automatically choose deeply [nested Parts](#), [Ports](#), and other properties you want to display.
- Define layout options for [Parts](#).
- Specify layout options for [Ports](#).






The **Display Parts/Ports** dialog consists of the following areas:

- *Dialog toolbar* allows you to show or hide additional information about listed elements.
- *Element tree* displays all owned internal structure of context [Class](#).
- *Panel* is a context-sensitive area that depends on the selected property from the Element tree. It allows you to batch select [Parts/Ports](#) in the Element tree. You can select all, clear all, or choose only properties by type, stereotype, or aspect.
- *Options* area allows you to choose the layout of the selected parts and [Ports](#) when they appear in the diagram.



The following procedure will guide you in working with the **Display Parts/Ports** dialog when you want to display required properties on the diagram pane.

To display Ports and Properties using the **Display Parts/Ports** dialog

1. Open the **Display Parts/Ports** dialog:
  - When creating a new [Composite Structure diagram](#), the dialog opens automatically.
  - When editing an already created [structure diagram](#), the dialog can be opened in the following ways:
    - Select either a diagram frame or single/multiple element shapes, and, on the diagram toolbar, click  and choose **Display Parts /Ports**.
    - Right-click either a diagram frame or single/multiple element shapes, and select **Display > Display Parts/Ports**.
2. (Optional) Enable buttons from the **Display Parts/Ports** dialog toolbar if you want to show or hide additional information about listed elements:
  - Click  to show the full path of elements.
  - Click  to show the full types of elements.
  - Click  to show the inherited elements.
  - Click  to show the inherited properties.
3. Choose the properties you want to display by using one or more of the following methods:



### Warning

If some check boxes are inactive in the element list, those elements are already displayed in the diagram.

- Use the element tree located on the left side of the dialog:
  - Manually select individual check boxes one by one.
  - Select recursively nested elements by holding down the Shift key while selecting the corresponding check box for the element.



### Example 1

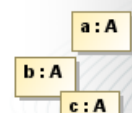
All properties (*socket1*, *socket2*, *socket3*, *powerIn*) of the *Ee* Property are selected recursively by holding down the Shift key while selecting the corresponding check box from the element tree in the **Display Parts/Ports** dialog.

- Use the context-sensitive panel located on the right side of the dialog:

### Display Parts/Ports

#### Displaying parts and ports

Select properties and ports you want to display in the diagram. Do this manually using the left side of the dialog, or use the panel on the right side of the dialog to select all or particular types of properties or ports. To select nested elements, hold down Shift and select the corresponding check box for the element. Click OK when you are done.



### Example 2

All ports (*socket1*, *socket2*, *socket3*, *powerIn*) of the *Ee* Property are selected in the element tree by using the **Select Ports** group in the context-sensitive panel of the **Display Parts/Ports** dialog.

- Specify the

### Display Parts/Ports

#### Displaying parts and ports

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- Click **OK**.

After those steps, all

### Using the diagram

In the structure diagram

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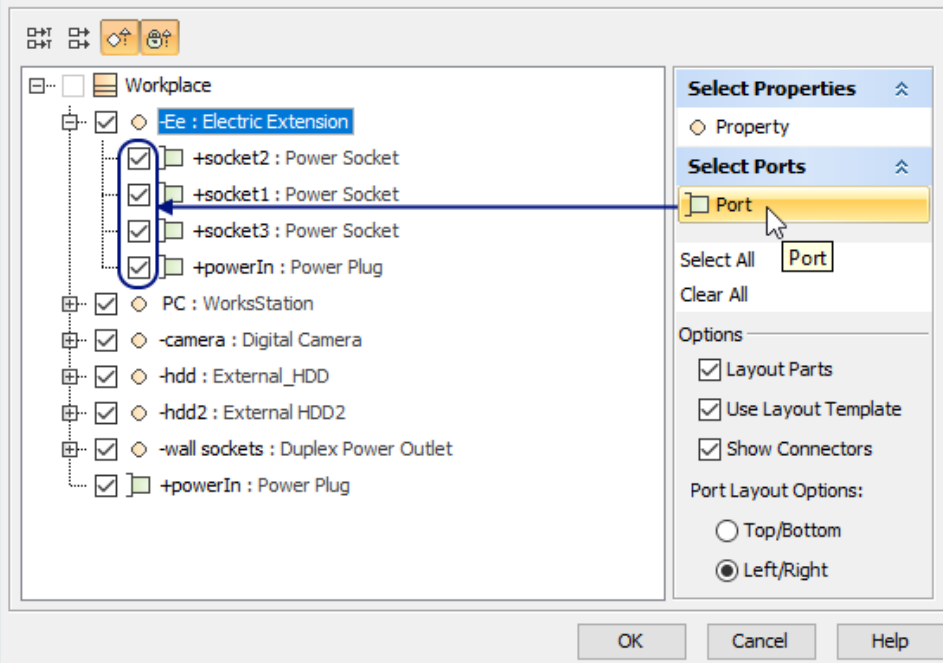
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- [How to display](#)
- [How to display](#)
- [How to hide](#)

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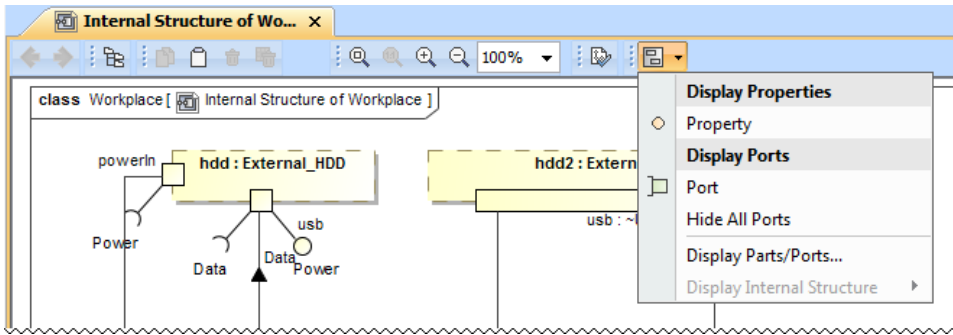
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1. Select either a diagram frame or single/multiple element shapes.

- On the diagram toolbar, click .



- From the opened command menu, select the required properties to display:
  - All Ports that are available to display are listed under the **Display Ports** command group.

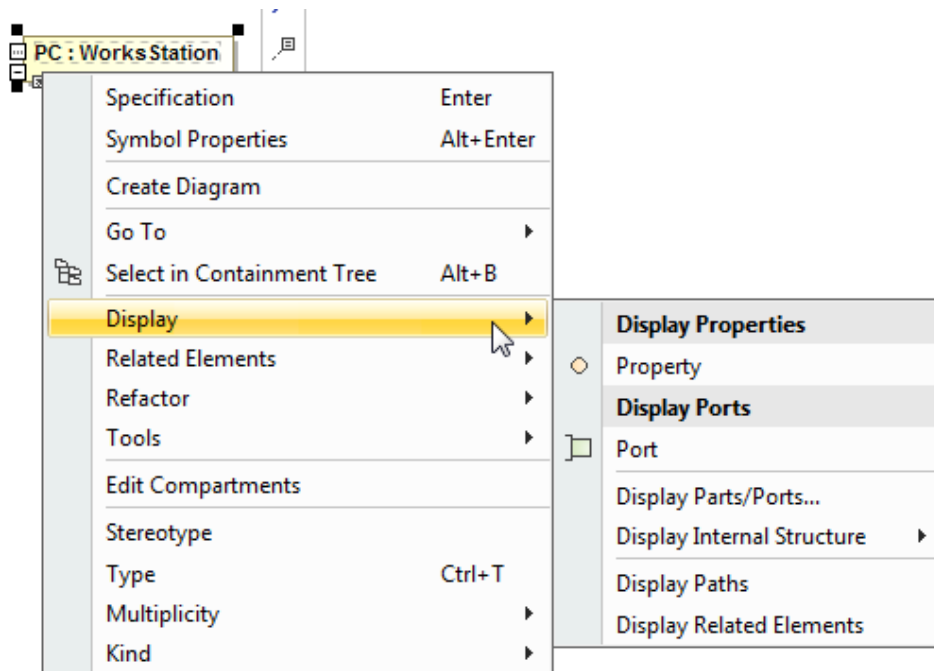
**Important**  
If nothing is selected on the diagram pane, the **Display Ports** command group will contain commands that allow you to display two levels of structure: ports are displayed on the diagram frame and on the first level parts.

- All Properties that are available to display are listed under the **Display Properties** command group.

After selecting the required command from the **Display** button, the appropriate properties are displayed on the diagram pane.

To display Ports, Properties using the shortcut menu

- Right-click either the diagram pane or single/multiple element shapes.
- From the shortcut menu, select the **Display** command group.




- From the opened command menu, select the required properties to display:
  - All Ports that are available to display are listed under the **Display Ports** command group.

**Important**  
If nothing is selected on the diagram pane, the **Display Ports** command group allows you to display two levels of structure: ports are displayed on the diagram frame and on the first-level parts.

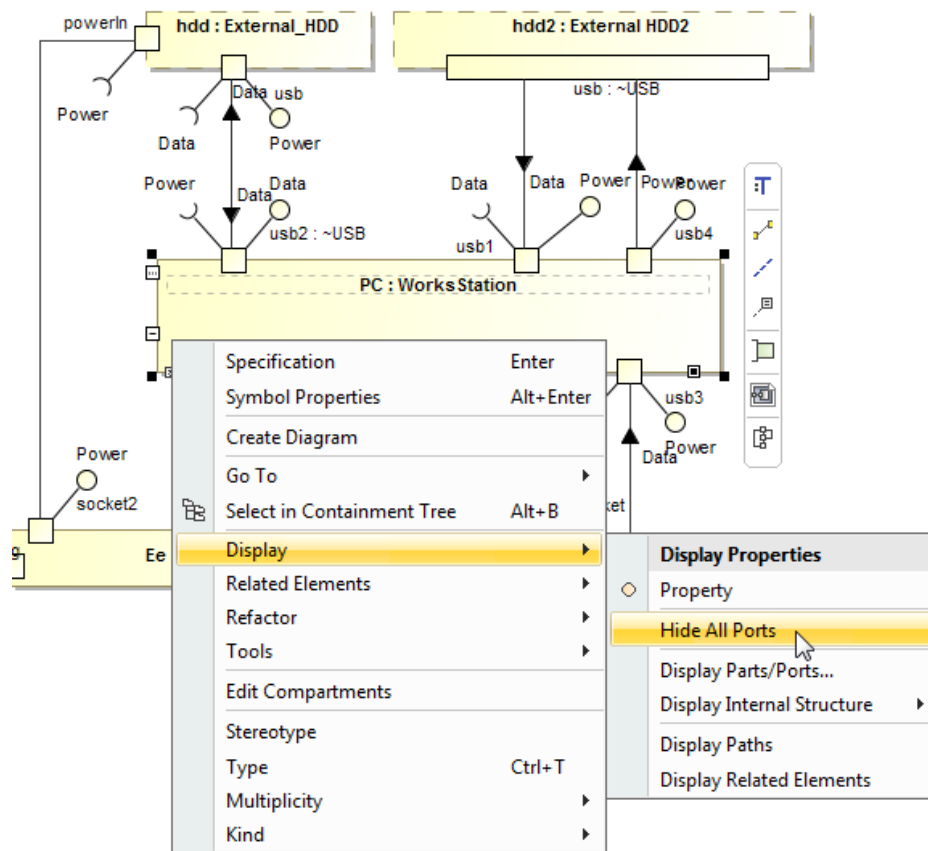
- All Properties that are available to display are listed under the **Display Properties** command group.

After selecting the required command from the Display command menu, the appropriate properties, Ports are displayed on the diagram pane.

To hide Ports

- Select either a diagram pane or any number of element shapes, and, on the diagram toolbar, click  and choose **Hide All Ports**.
- Right-click either a diagram pane or any number of element shapes, and select **Display > Hide All Ports**. After selecting the command, the **Ports** of the selected shape will be hidden from the diagram pane but not removed from the model.


 **Warning**  
If the **Hide All Ports** command doesn't appear, the selection or diagram doesn't contain any **Ports** that can be hidden.




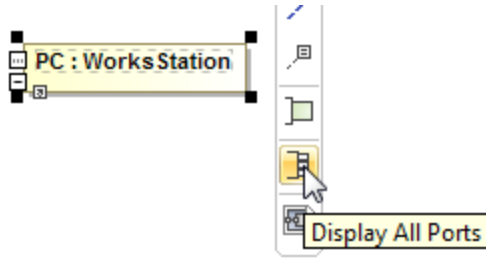
## Using the smart manipulator toolbar

When the properties are already displayed on the **structure diagrams**, you can display their direct ports using the **Display All Ports** button from the smart manipulator toolbar. It does not allow you to display deeply nested ports, only first-level ports. To display deeply nested ports, you should use the **Display Parts/Ports** dialog. Follow the steps below to learn how to display ports of a selected property shape.

To display Ports on shapes

1. Select the required element shape or a diagram frame.
2. From the smart manipulator toolbar, click .  
All first-level Ports of the selected shape will be displayed on the diagram pane.

 **Warning**  
If the **Display All Ports** button is not available, the selected element or diagram doesn't own any Port.



## Using the drag-and-drop operation in the Composite Structure diagram

The most efficient way to create a new property and display it with all [Ports](#) in the [Composite Structure diagram](#) is by dragging the [Class](#) or Property elements. This method does not allow you to display deeply nested properties, only first-level properties. To display deeply nested elements, use the **Display Parts/Ports** dialog. The following procedures will show you:

- [How to create a Property shape and how to display all its Ports when dragging the Class element.](#)
- [How to display a Property shape and all its Ports by dragging the Property element.](#)

You can create a new Property by dragging the [Class](#) element from the [Model Browser](#) to the [Composite Structure diagram](#) pane. The newly created Property will be typed by the dragged [Class](#) and displayed on the diagram pane. If this [Class](#) has [Ports](#) defined, you can display them by using the long drag and selecting an appropriate option from the opened menu (see Example 3).

To create and display a Property by dragging a Class element

- Drag a single or a multiple Class element from the Model Browser onto the diagram pane.
- Drag a single or a multiple Class element from the Model Browser onto the diagram pane, and hold it down until the Tooltip appears (long drag). Drop it, and from the opened menu, select the **Create Property Symbol** command. The new Property is created in the model and displayed on the diagram pane. The newly created Property is typed by the dragged Class automatically.

To create and display a Property and display all its Ports by dragging a Class element

- Drag a single or a multiple Class element from the Model Browser onto the diagram pane, and hold it down until the Tooltip appears (long drag).
- Drop it, and, from the opened menu, select the **Create Property Symbol and Display All Ports** command. The new Property is created in the model and displayed with all its Ports on the diagram pane. The newly created Property is typed by the dragged Class automatically.



### Tip

After creating an element, it is beneficial to find its location in the model tree by performing one of the following:

- Right-click the shape, and, from the shortcut menu, choose the **Select in Containment Tree** command.
- Select the shape and press Alt+B.



### Example 3

You can display a Property shape by dragging a Property element from the Model Browser to the [Composite Structure diagram](#) pane. If this property has [Ports](#) defined, you can display them by using the long drag and selecting an appropriate option from the opened menu (see Example 4).

The following procedures describe how to display Property shape and all its [Ports](#) by dragging the Property element.

To display a Property by dragging a Property element

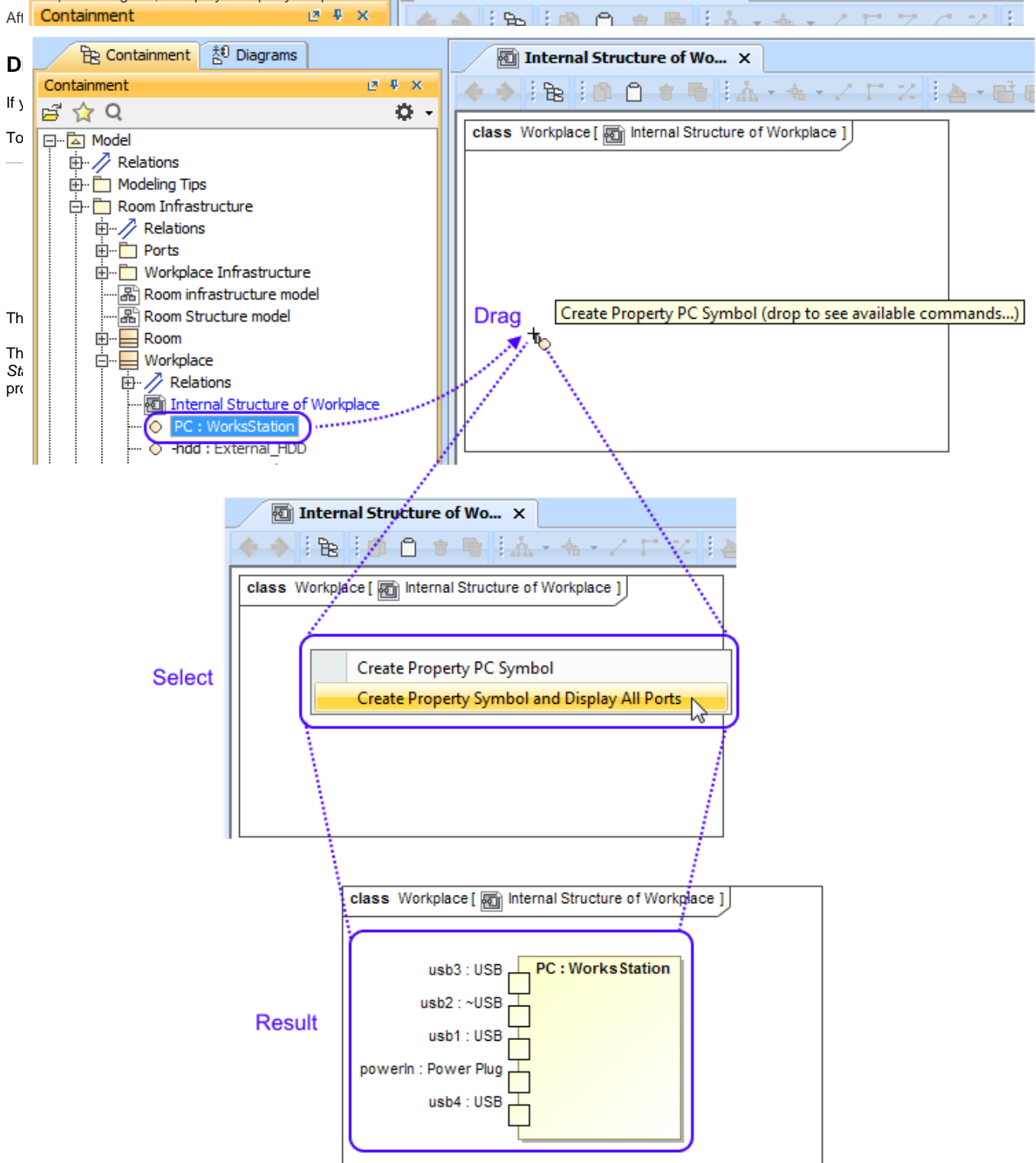
- Drag a single or a multiple Property element from the Model Browser onto the diagram pane.
- Drag a single or a multiple Property element from the Model Browser onto the diagram pane, and hold it down until the Tooltip appears (long drag). Drop it, and from the opened menu, select the **Create Property Symbol** command. The Property shape is displayed on the diagram pane.

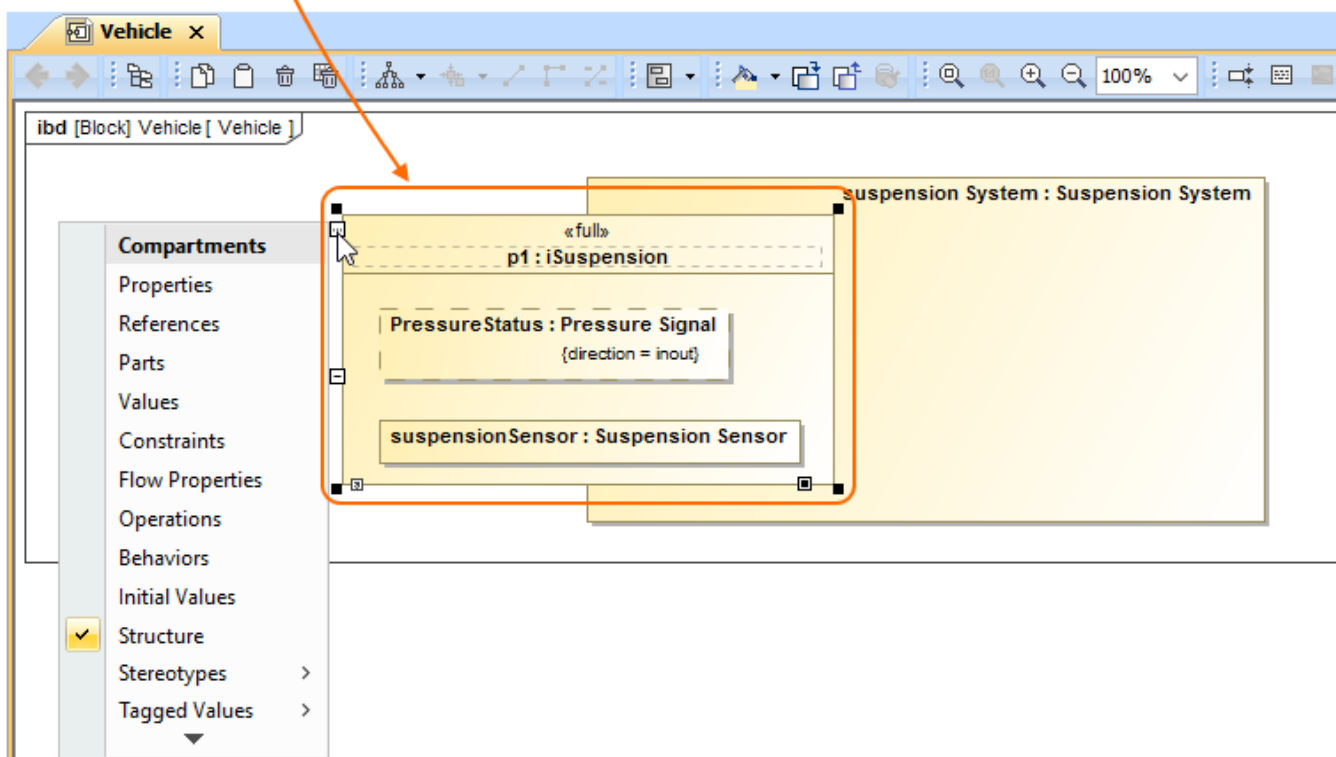
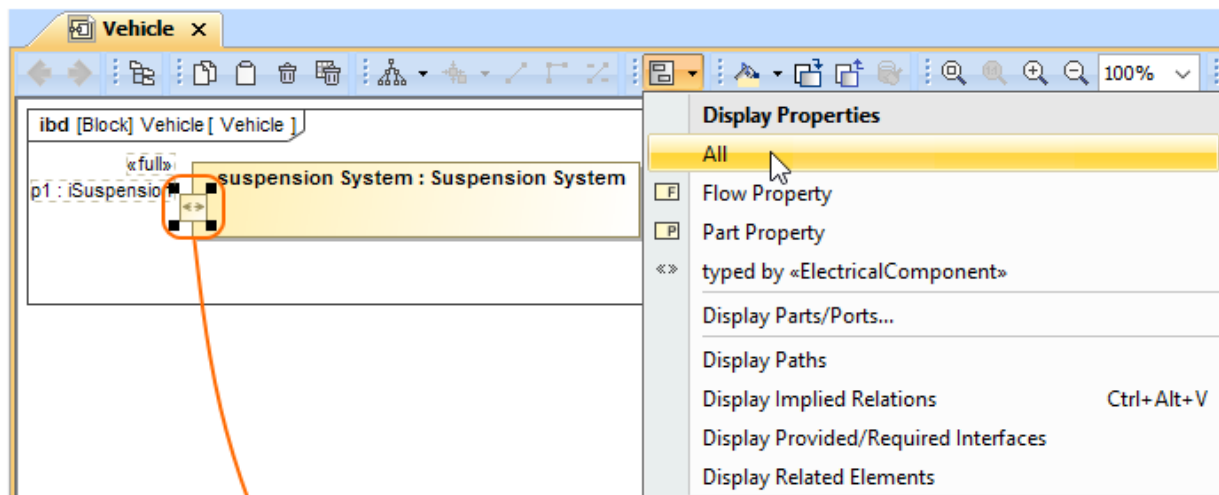
To display a Property with all of its Ports by dragging a Property element

- Drag a single or a multiple Property element from the Model Browser onto the diagram pane, and hold it down until the Tooltip appears (long drag).

• Drop it, and from the opened menu, select the **Create Property Symbol and Display All Ports** command.  
 After selecting the **Create Property Symbol and Display All Ports** command and dragging (long drag) the Class element to *Internal Structure of Workplace* diagram pane, it creates a new Property typed by a *Duplex Power Outlet* Class and displays all Ports on it.

After selecting the **Create Property Symbol and Display All Ports** command, and dragging (long drag) the Property element to *Internal Structure of Workplace* diagram, it displays Property shape and all Ports on it.





#### Related pages

- [Displaying elements](#)
- [Applying Stereotypes](#)
- [Nesting parts that are association ends](#)
- [Mapping ports on a Part type change](#)
- [Class diagram](#)
- [Composite Structure diagram](#)
- [Component diagram](#)
- [Package diagram](#)
- [Deployment diagram](#)
- [Object diagram](#)

#### Sample model

The models used in the figures of this page are:

- The **Composite structure diagram** sample model that comes with MagicDraw. To open this sample do one of the following: download [composite structure diagram.mdzip](#) or find in modeling tool <modeling tool installation directory>\samples\diagrams\composite structure diagram.mdzip.
- The **Vehicle parts under ports** sample model which is available only with [SysML Plugin](#). To open this sample download [Vehicle parts under ports.mdzip](#).