Provided and Required Interfaces

Provided/Required Interfaces help to identify compatible ports that can be connected together in the SysML Internal Block Diagram. On a port, you can:

- Creating provided and required interfaces
- Displaying provided/required interfaces
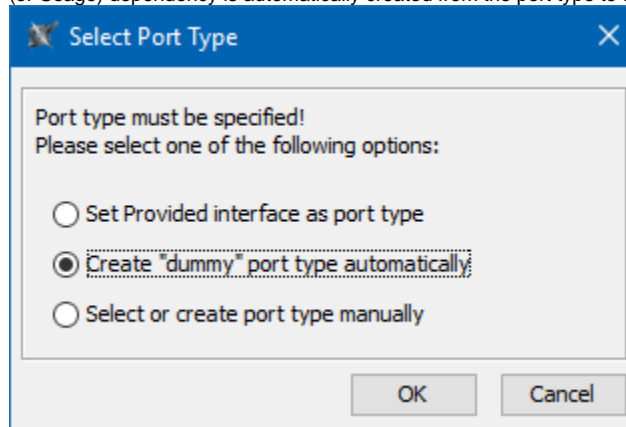
Creating provided and required interfaces

To create new Provided/Required Interface of a port

1. Do one of the following:
   - Right-click any kind of port shape and from the shortcut menu select **Specification**. In the Specification window, select the **Provided /Required Interfaces** property group.
   - Select a Port shape and from its smart manipulator, click <img> .
2. In the **Provided/Required Interfaces** pane, click the **Add** button and select either Provided or Required.
3. Two situations are available:

   - If the port is typed, the **Select Interface** dialog opens (see the following figure). In this dialog you can do the following:
     - Select and existing interface (and flow specifications) to be used as the Provided / Required Interface of the port.
     - Make sure the **Creation Mode** is switched on, click the **Create** button, and select **Interface**. In the specification window, type its name, and click **Close**. The new interface is created. Select it to be used as the Provided / Required Interface of the port.
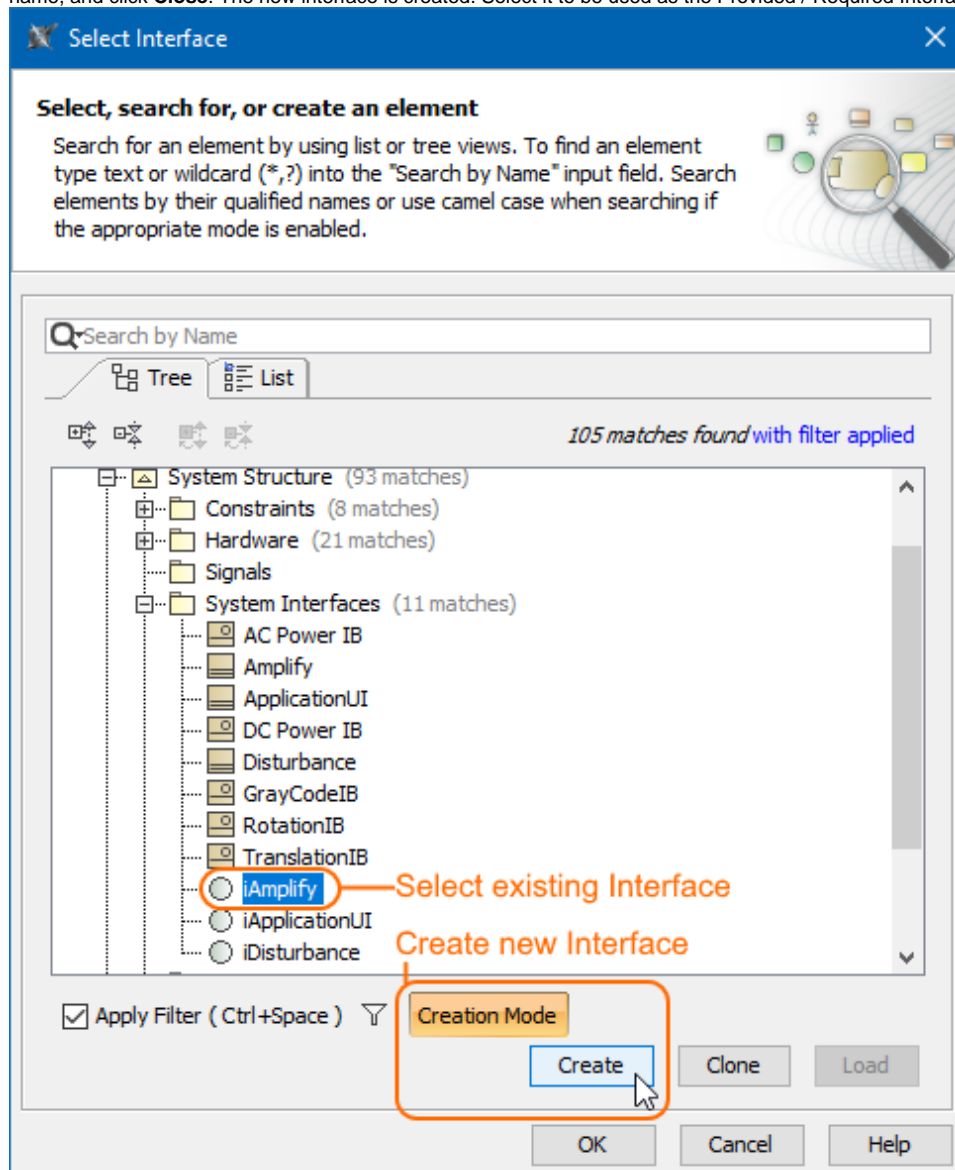
   - If the port is not typed, the **Select Port Type** dialog opens (see the following figure). You can do the following:

- **Set provided interface as port type** (for Provided Interface only). The **Select Interface** dialog opens. In this dialog, you can either choose an existing interface or create a new one, to be used as the Provided Interface and the type of the port.
- **Create "dummy" port type automatically**. The **Select Interface** dialog opens. In this dialog, you can either choose an existing interface or create a new one, to be used as the Provided or Required Interface of the port. In addition, a dummy classifier, realizing (for Provided) or using (for Required) the interface, is automatically created and used as the type of the port.
- **Select or create port type manually**. If you select this option, the **Select Port Type** dialog opens. In this dialog, choose a classifier to be used as the type of the port. Click **OK**, the **Select Interface** dialog opens. In this dialog, you either choose an existing interface or create a new one, to be used as the Provided or Required Interface of the port. In addition, a Realization (or Usage) dependency is automatically created from the port type to the Provided (or Required) Interface of the port.

Displaying provided/required interfaces

To display provided/required interfaces

1. Select the port shape that has the provided/required interfaces you want to display.
2. Do one of the following:
   - From the port shortcut menu, select **Display** > **Display Provided/Required Interfaces**.
   - On the diagram toolbar, click and select **Display Provided/Required Interfaces**.

   The Required/Provided Interfaces are displayed on the port, in the form of ball-socket (lollipop) notation.

Ports can provide or require many interfaces, therefore, you can choose which ones to display or hide. Use the **Edit Compartment** dialog to manage the visibility of these interfaces.

Related pages

- Specifying feature directions

Sample model

The model used in the figure of this page is the **InvertedPendulum** sample model. To open this sample do one of the following:

- Download *InvertedPendulum.mdzip.*
- Find in modeling tool *<modeling tool installation directory>\samples\SysML\Inverted Pendulum\Inverted Pendulum.mdzip.*