

# FMU import

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## What is FMI?

FMI, also known as a Functional Mock-up Interface, is a tool independent open-source standard that supports both model exchange and [co-simulation](#) of dynamic models in a standardized format. The modeling tool supports FMI versions 1.0 and 2.0.




## What is FMU?

A component that implements FMI is called FMU (Functional Mock-up Unit). It stores a simulation model that adheres to the FMI standard. To be more specific, the FMU file contains an XML description file and implementation in a binary form.

## FMU import

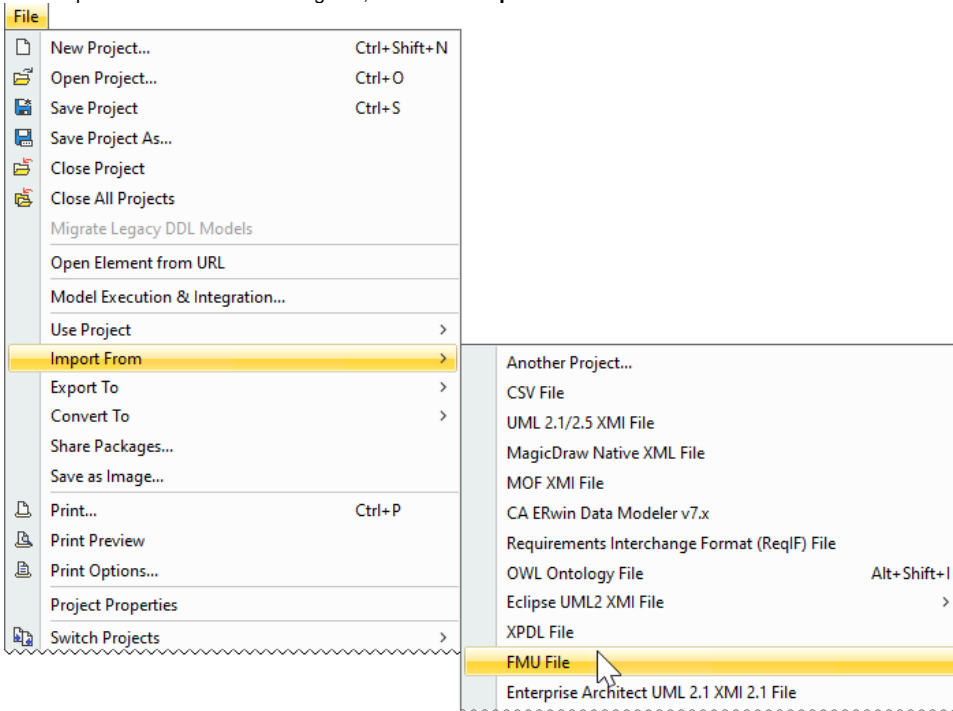
The **FMU Import Options** dialog enables users to customize the FMU file import into the model. For instance, you can specify whether parameters from the FMU file should be imported as ports or value properties. Additionally, you can change the name of the Block (the FMU model name is used by default) and automatically attach the file to the project upon import.

The **FMU Import Options** dialog has the following options:

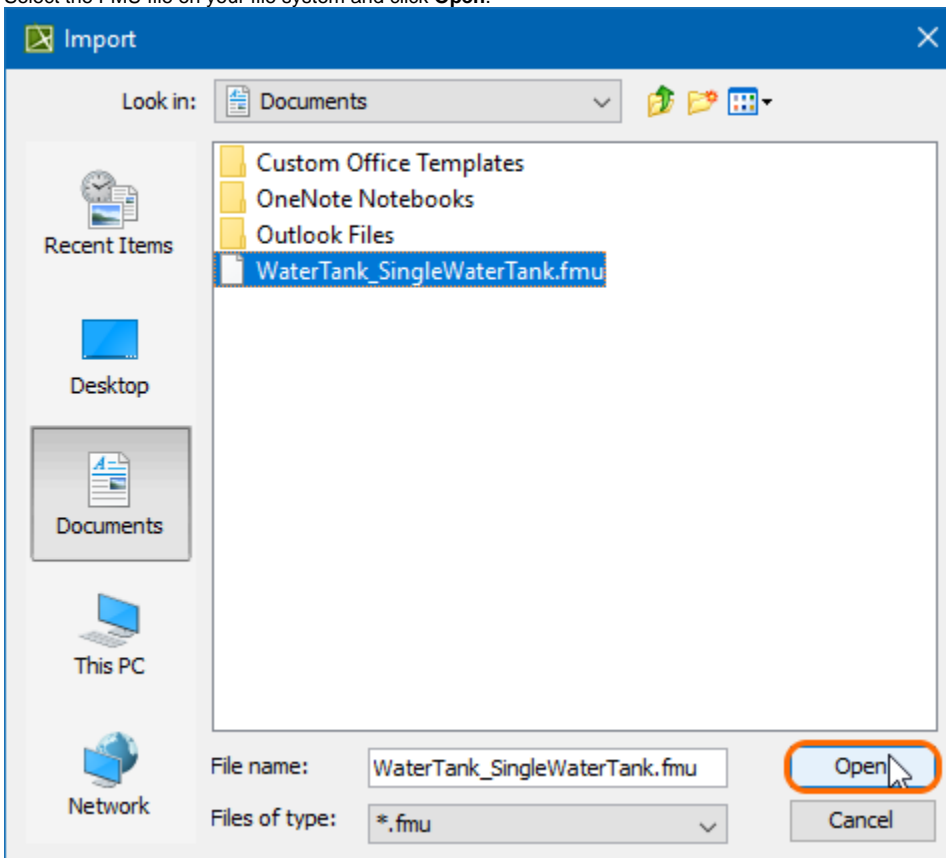
| Option name  | Description   |
|--|---|
| <b>Direction</b>   | The direction of the port: <i>In</i> or <i>Out</i> . <i>Inputs</i> and <i>Outputs</i> are selected to be imported as ports by default.  |
| <b>Name</b>  | The name of the property/parameter.   |
| <b>Type</b>  | The type of the property, for example, value property.  |
| <b>Description</b>   | The textual description of the property.  |
| <b>As Port</b>   | Click to select whether properties should be represented as Flow or Proxy ports. Select None to import the selected properties as value properties.   |
| <b>Interface Block</b>   | Click to select a compatible interface Block or create a new one. <NEW> is selected by default. <div> The Interface Block column is active only if <b>Proxy Port</b> is selected in the <b>As Port</b> column.</div> |
| <b>Redefine</b>  | Click to redefine inherited value or part properties.   |
|  <b>Select All</b>  | Click to select all listed properties at once.  |
|  <b>Select None</b> | Click to deselect all listed properties at once.  |
| <input type="checkbox"/> <b>Attach file to the project</b>   | If the checkbox next to <b>Attach file to the project</b> is selected, the imported FMU file is automatically attached to the model.  |
| <b>Block name:</b> <input type="text" value="WaterTank.Control"/>                                      | The name of the Block created in the model upon import. By default, the name of the FMU model is used, but you can set the one you like.  |

To import the FMU file into the model

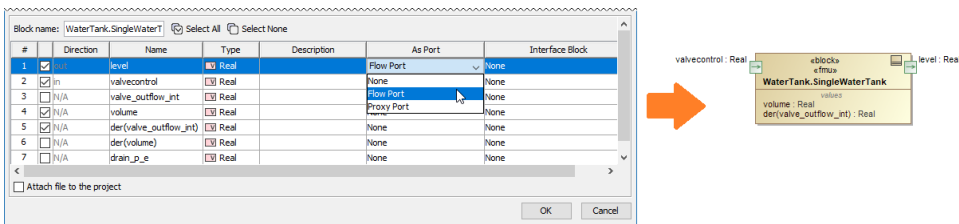
1. In the top-left corner of the modeling tool, click **File > Import From > FMU File**.



2. Select the FMU file on your file system and click **Open**.



3. In the **FMU Import Options** dialog, specify which properties from the FMU file should be imported into your model as values and ports. Click **OK**.

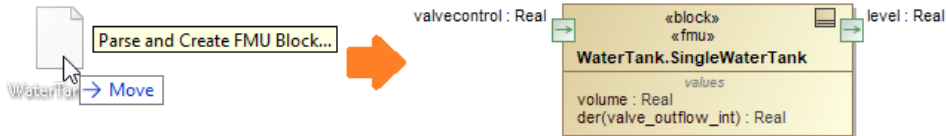


## Dragging and dropping FMU on diagram

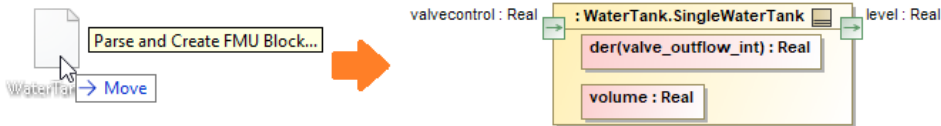
Alternatively, you can import the FMU model by dragging and dropping the selected FMU file directly onto the Block Definition (BDD) and/or Internal Block (IBD) diagrams.

To import the FMU file into the model using BDD/IBD

1. Locate the **FMU file** on your file system.
2. Do either:
  - Drag and drop the file from your file system onto the BDD diagram. A Block with the applied «FMU» stereotype is created in the model after customizing FMU import via the **FMU Import Options** dialog.

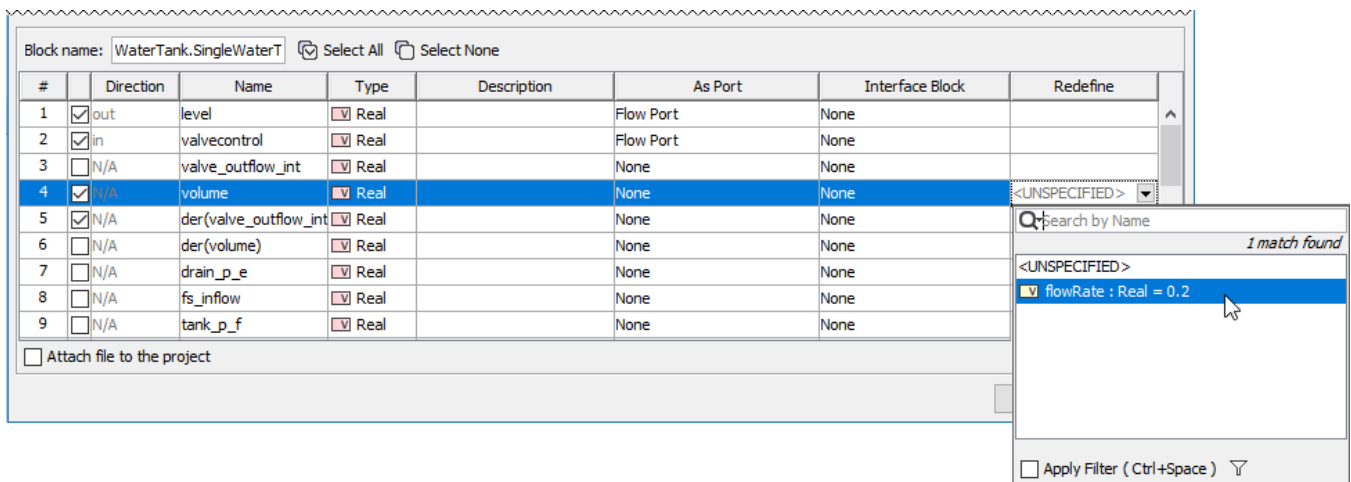


- Drag and drop the file from your file system onto the IBD diagram. A Part property is created in the model after customizing FMU import via the **FMU Import Options** dialog.



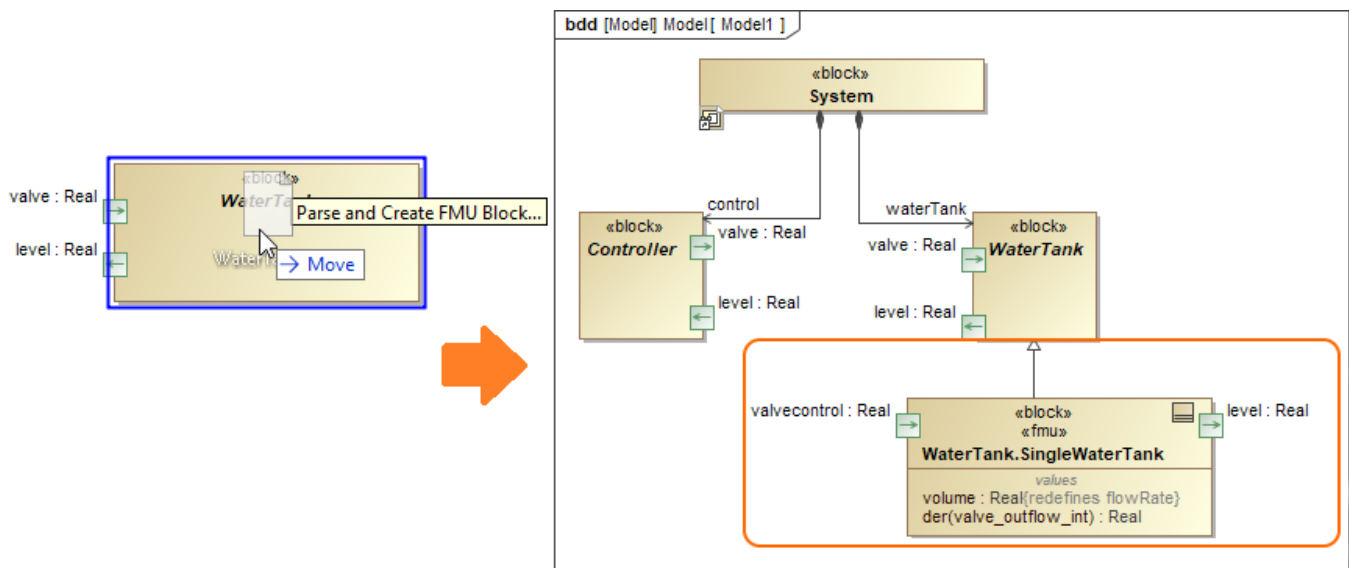
## Dragging and dropping FMU on existing Block

You can drag and drop the FMU file directly onto the Block as implementation as well. Once the FMU file is dropped, the **FMU Import Options** dialog that allows redefining value and part properties of the Block opens.



Redefining properties using FMU Import Options dialog

In this case, a new Block is created as a subtype of the existing Block together with the **Generalization** relationship.



Dropping FMU on an existing Block

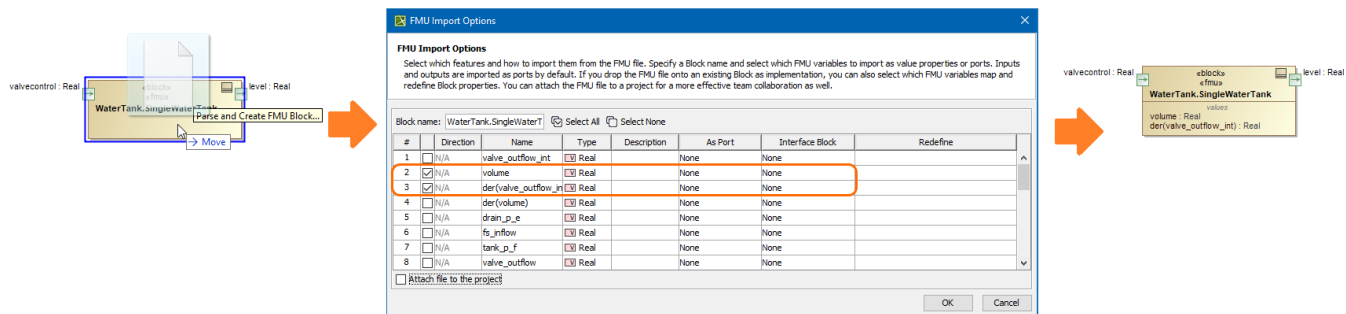
**In/Out properties** in the **FMU Import Options** dialog are by default imported into the model as ports of a Flow type.

## Updating existing FMU Block

An existing FMU Block can be updated by dragging and dropping a FMU file directly on it. This is useful in those cases when there is a need to quickly import properties that were, initially, left out.

To update a FMU Block

1. Locate the FMU file on your file system.
2. Drag and drop it on the shape of your FMU Block.
3. In the opened **FMU Import Options** dialog, select the properties to update the FMU Block with.
4. Click **OK**.



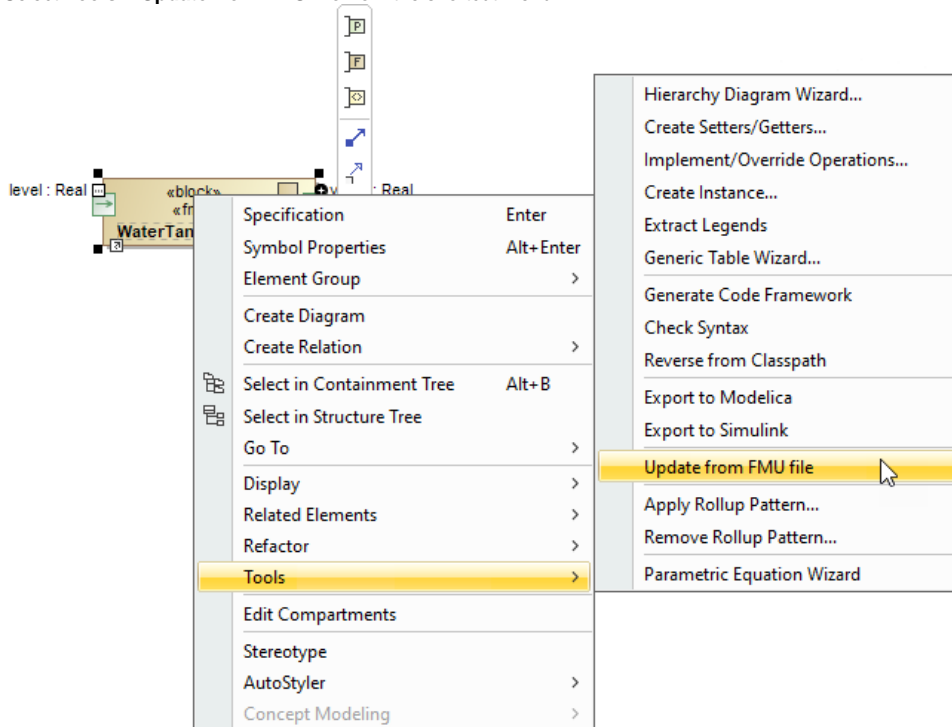
Dragging and dropping FMU on the existing FMU Block

Alternatively, you can update the FMU Block directly from the shortcut menu.

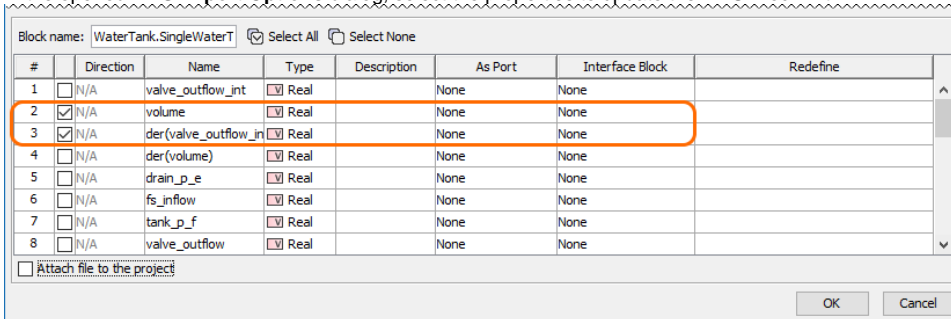
To update a FMU Block from the shortcut menu

1. Right-click the Simulink Block.

2. Select **Tools > Update from FMU file** from the shortcut menu.



3. In the opened **FMU Import Options** dialog, select the properties to update the FMU Block with.



4. Click **OK**.

Already imported properties are grayed out and cannot be edited in the **FMU Import Options** dialog.

If the **Attach file to the project** is checked in the **FMU Import Options** dialog, a previous version of the attached file is replaced with a new one upon

