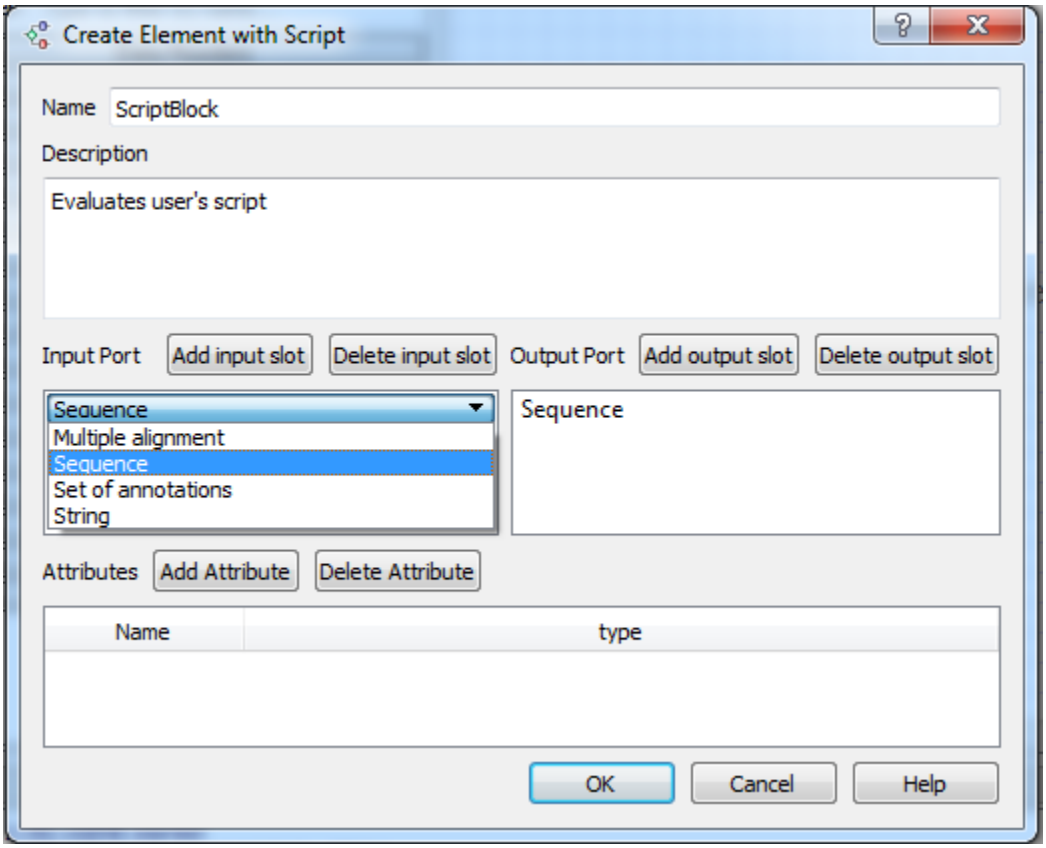
Custom Elements with Scripts

It is possible to create custom algorithmic blocks using scripts in the Workflow Designer.

To create an element either select *Actions* → *Create Script Object* in the main menu, select *Create element with script* in the context menu or click on the following button on the toolbar:

The *Create Element with Script* dialog will appear:



Here you should set the name of the element, its description and input / output ports of the element. It is possible to create a port with several input / output slots.

There are 4 types of data for a slot available:

- Multiple alignment
- Sequence
- Set of annotations
- Files

You can also add an attribute. The following types are supported for attributes:

- String
- Number
- Boolean

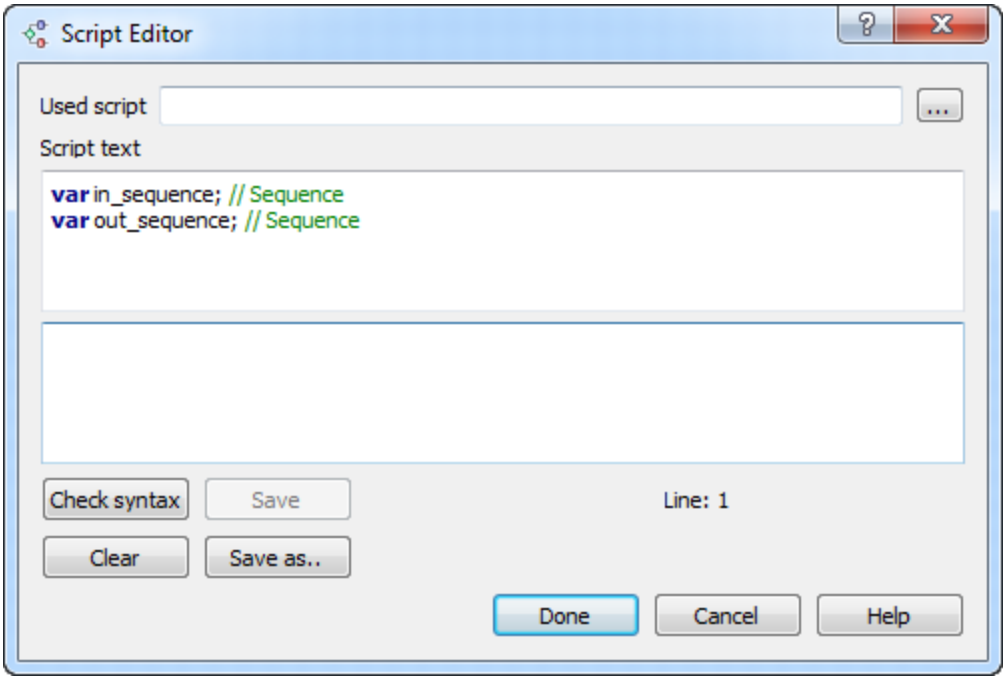
The element created is stored in a directory that can be set in the *Application Settings* dialog.

The element also becomes available in the *Custom Elements with Scripts* group on the *Palette*.

It is required to write a script for the element. Supported languages for the script are languages based on the ECMAScript (Javascript, QtScript).

To edit the script select the element on the *Scene* and either select *Actions* → *Edit script of the element* in the main menu, use the *Edit script of the element* it em in the context menu or click on the following button on the toolbar:

The *Script editor* dialog will appear:



As you can see there are predefined variables for the ports and the attributes in the script. The variables for the input slots begin with the “in_” prefix, variables for the output slots begin with the “out_” prefix. It is possible to load a script from a file (use the *Used script* field to do it).

For each supported data type UGENE provides a number of functions that can be used in the scripts.

- Functions Supported for Multiple Alignment Data
- Functions Supported for Sequence Data
- Functions Supported for Set of Annotations Data
- Functions Supported for Files
- Common Function