

# Access Object Hierarchy

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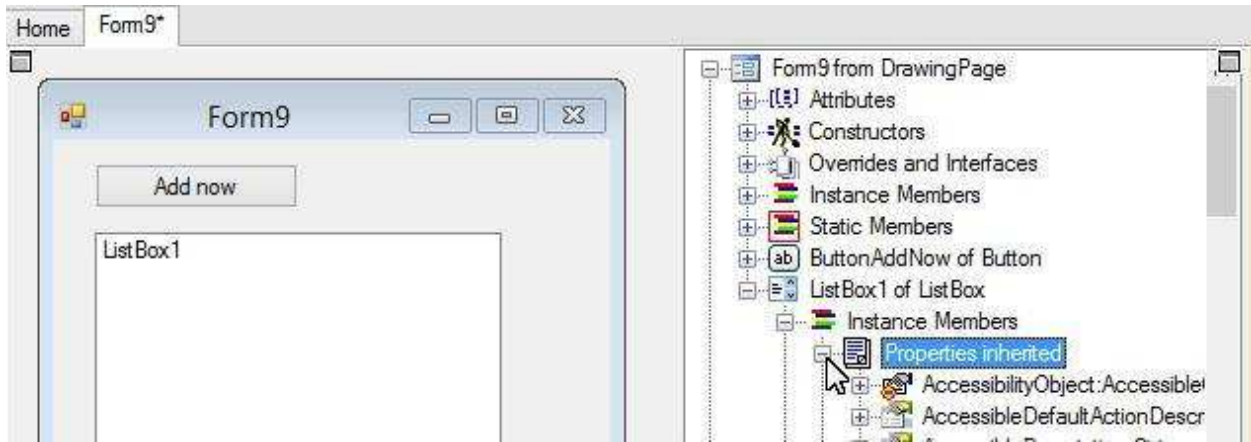
## Introduction

An object has methods, events and properties. Each property is also an object, which also has methods, events and properties. Thus it forms a tree-structure of object hierarchy. When you right-click an object, the context menu only allows you to access the object's methods, events and properties, not the methods, events and properties of deeper hierarchy. This document uses samples to show how to access object members of deeper hierarchy. One common scenario is to create an action to add an item to a list box. This has to be done using the Add method of the Items property of the list box.

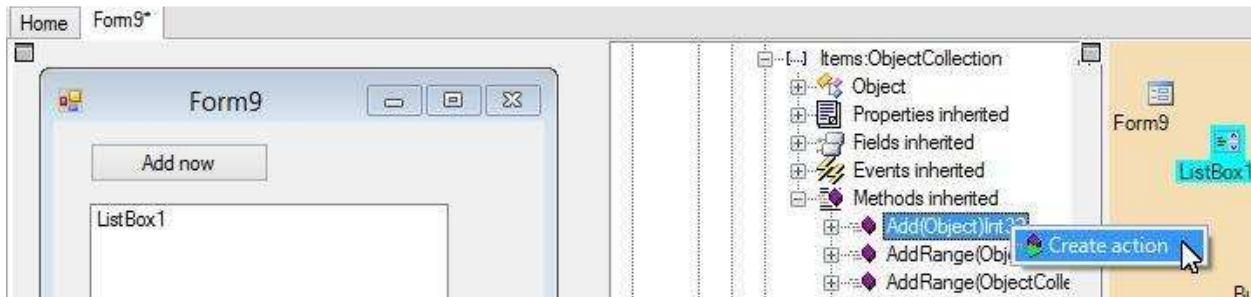
## Create action outside of a method

### Create action

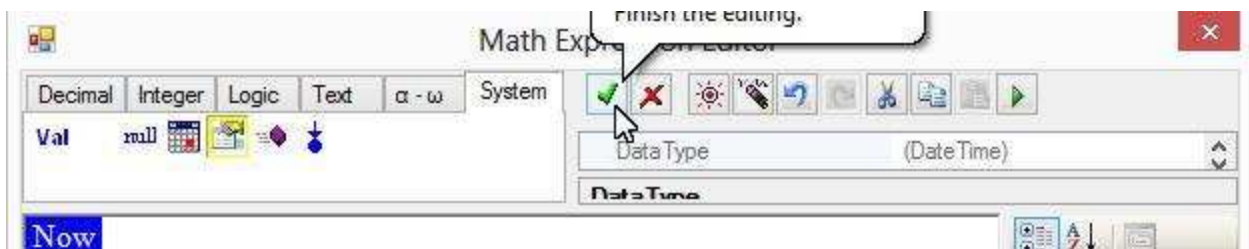
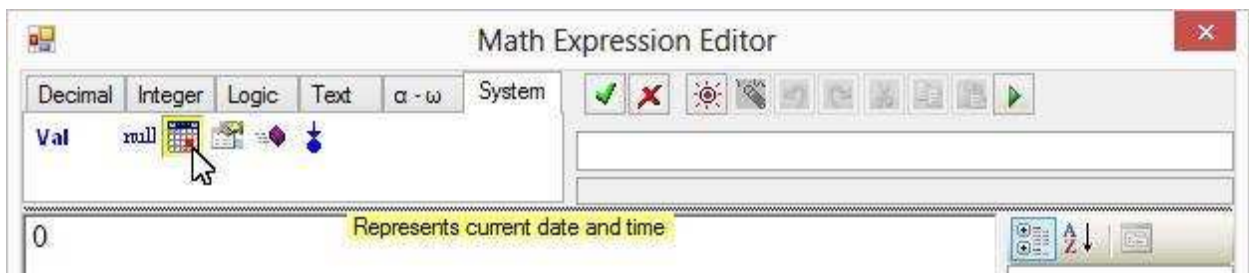
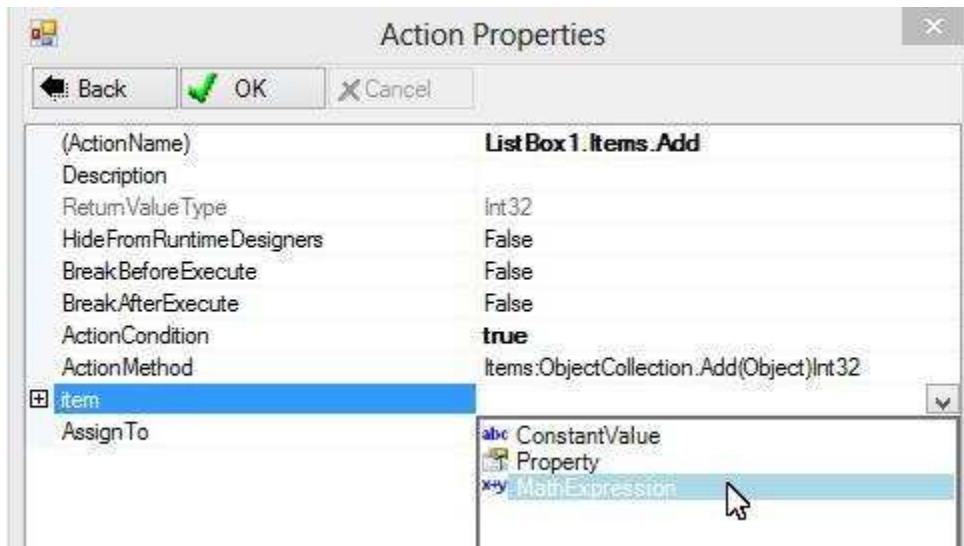
Suppose we want to create an action using the Add method of the Items property of a list box. In the Object Explorer, find the Items property of the list box:



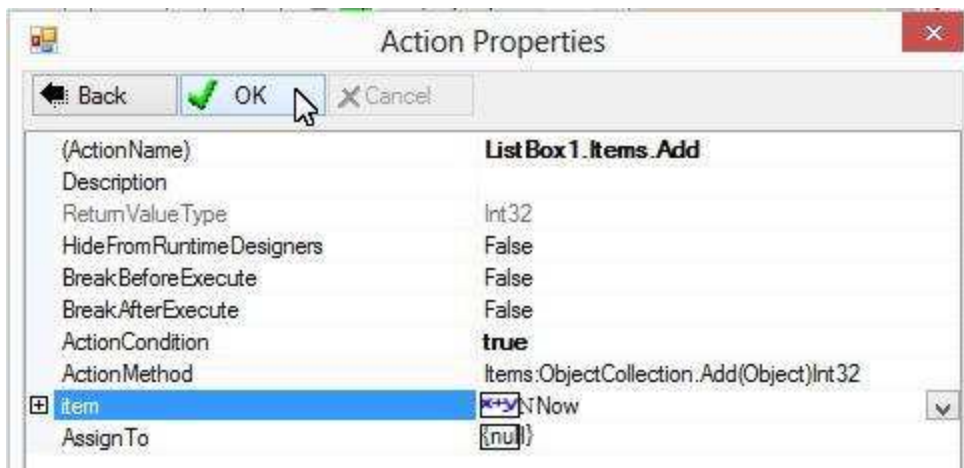
Right-click the Add method, choose “Create action”:



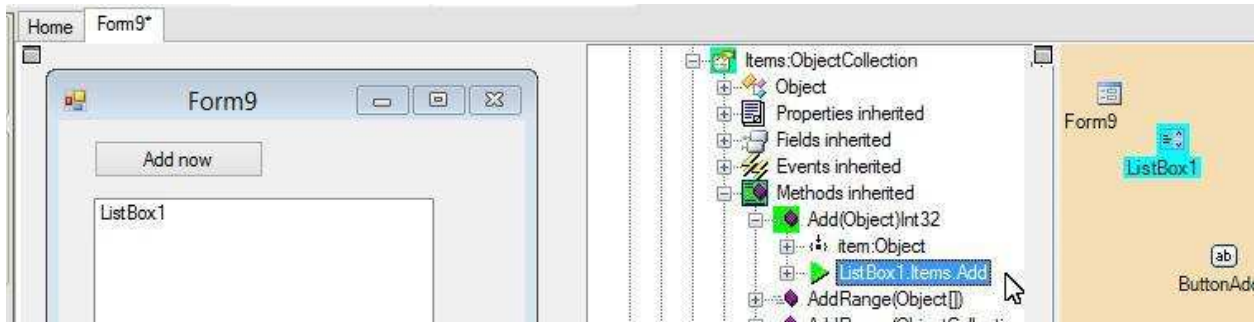
The “item” parameter of the Add action is the item to be added to the list box. For this sample, we add current date time:



Click OK to finish creating the action:



The new action appears under the Add method:

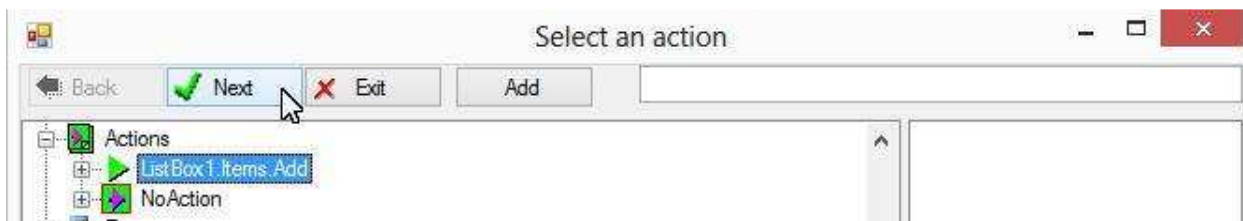
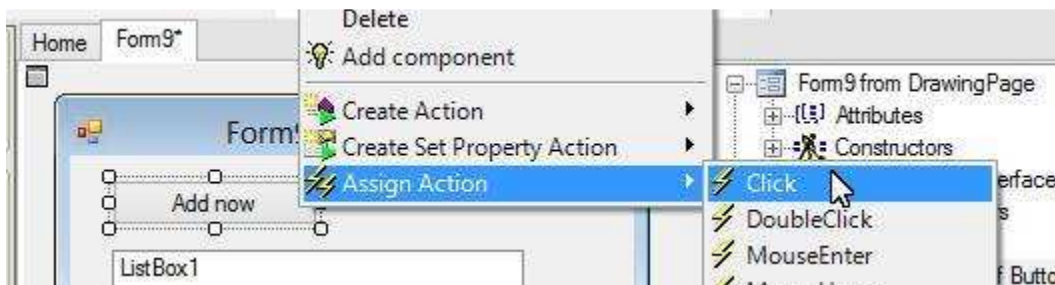


It also appears under "Actions":

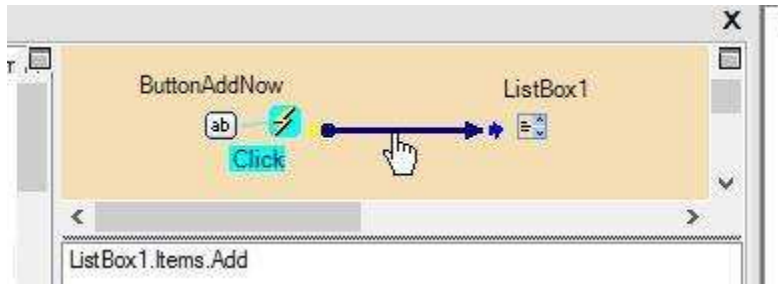


## Use action

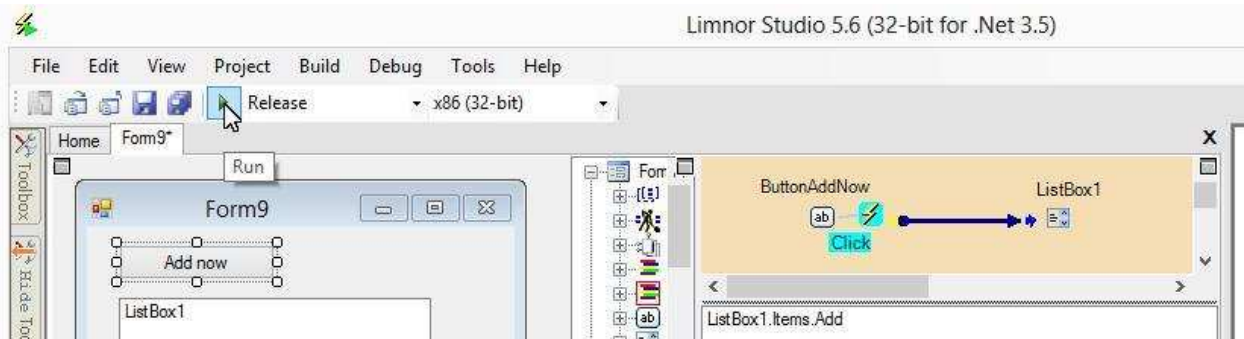
Let's assign the action to a button's Click event:



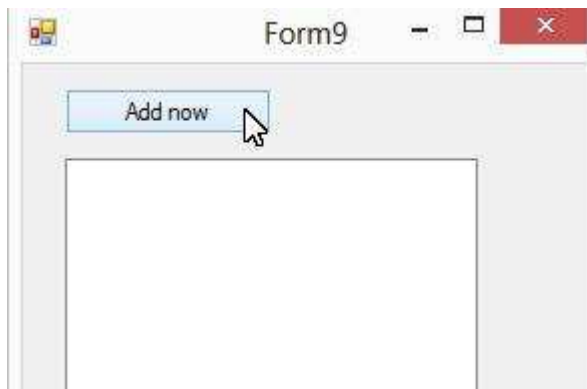
The action is assigned to the button:



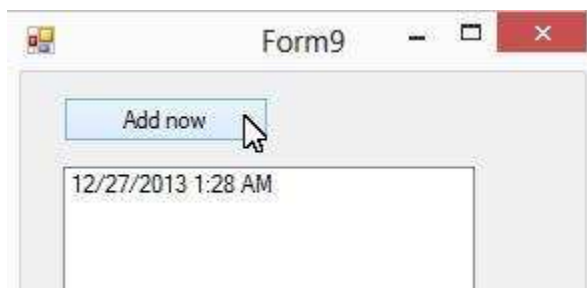
We may test the project:



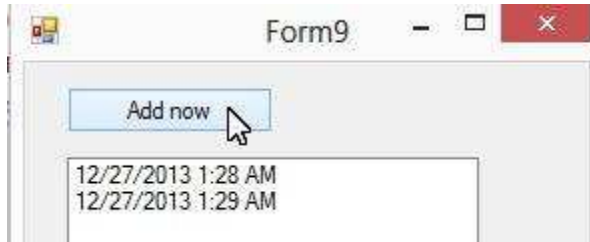
The form appears:



Click the button, current date and time appears in the list box:



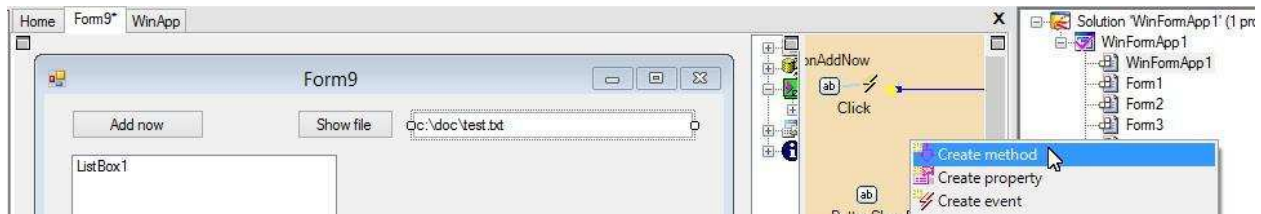
Click the button again, another time appears:



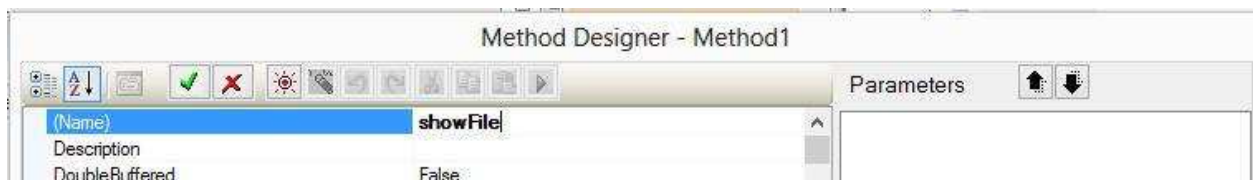
## Create action within a method

### Create method

Suppose we want to show a text file in a list box, each line of the text file is one item of the list box. Let's create a method to do it. Right-click the Event Map; choose "Create method":

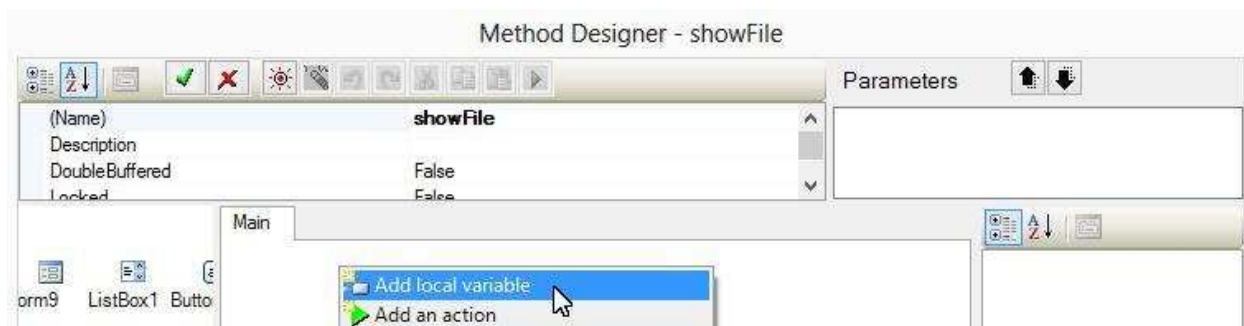


Rename the new method to "showFile":

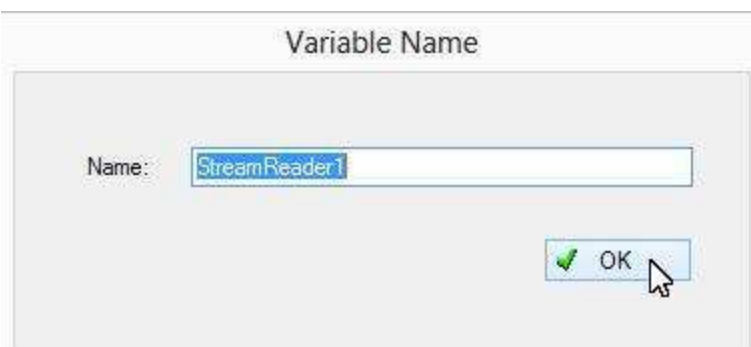


### Create stream reader

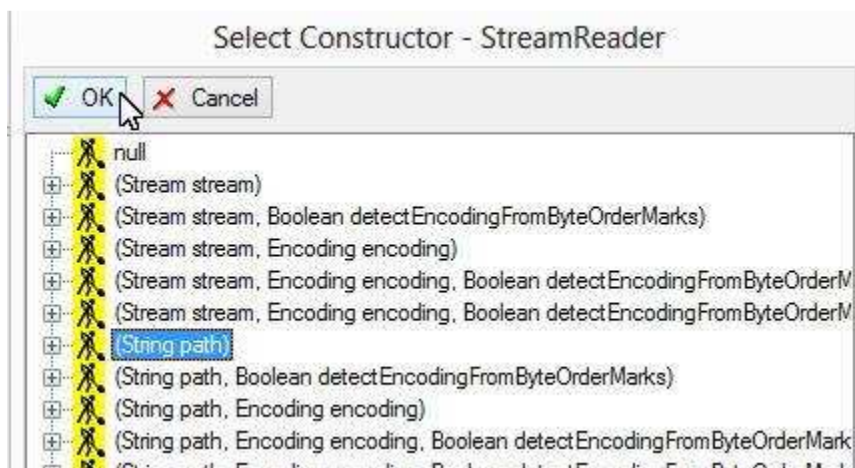
Create a StreamReader variable to read a text file:





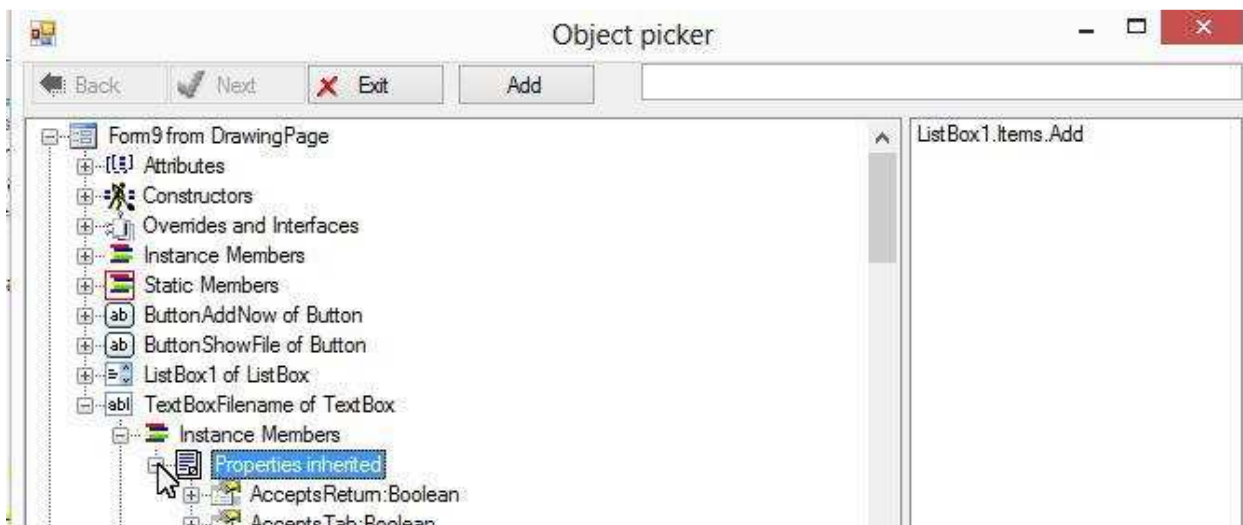
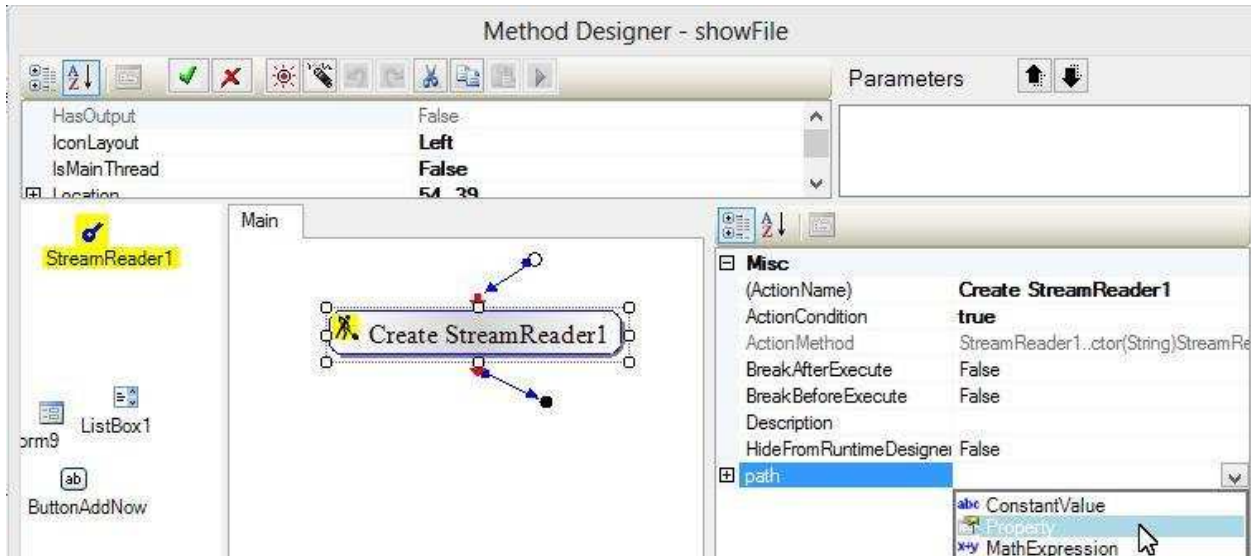


Choose a constructor for file path:



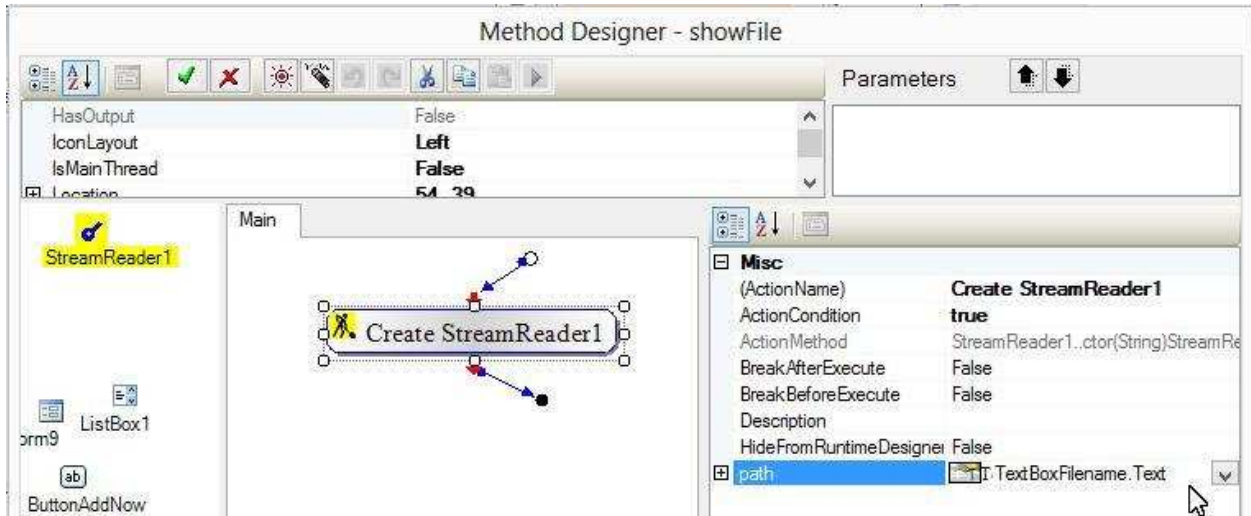
Note that this simple constructor does not take care of text encoding. If you want to use specific text encoding then you need to select a constructor which includes a parameter for encoding. See <http://www.limnor.com/support/ReadNonAsciiTextFile.pdf>.

A variable, StreamReader1, appears in the Variable Pane. An action for creating an instance of StreamReader1 appears in the Action Pane; the action needs a “path” parameter for specifying the file path. In this sample, we use text box for specifying text file path. So, we give the Text property of the text box to the “path” parameter:



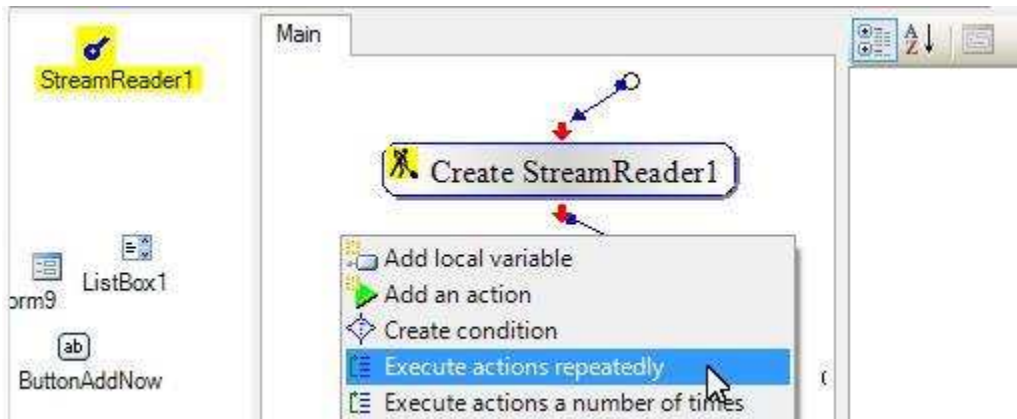


We thus created the stream reader.

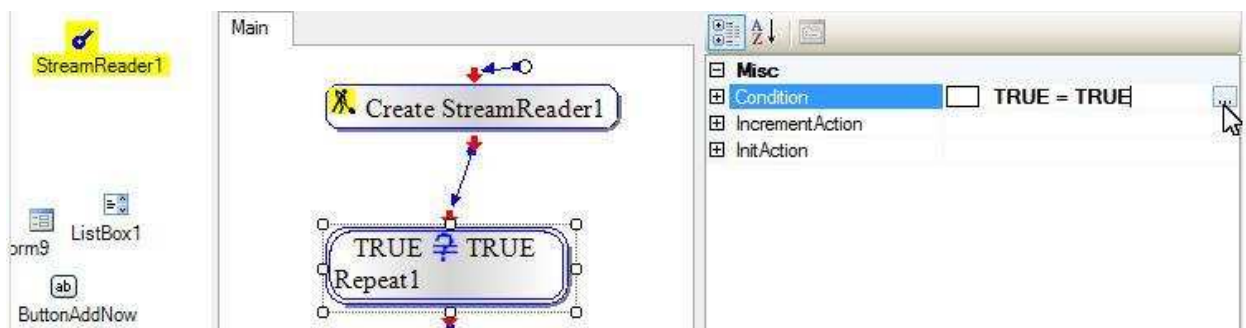


### Create loop action

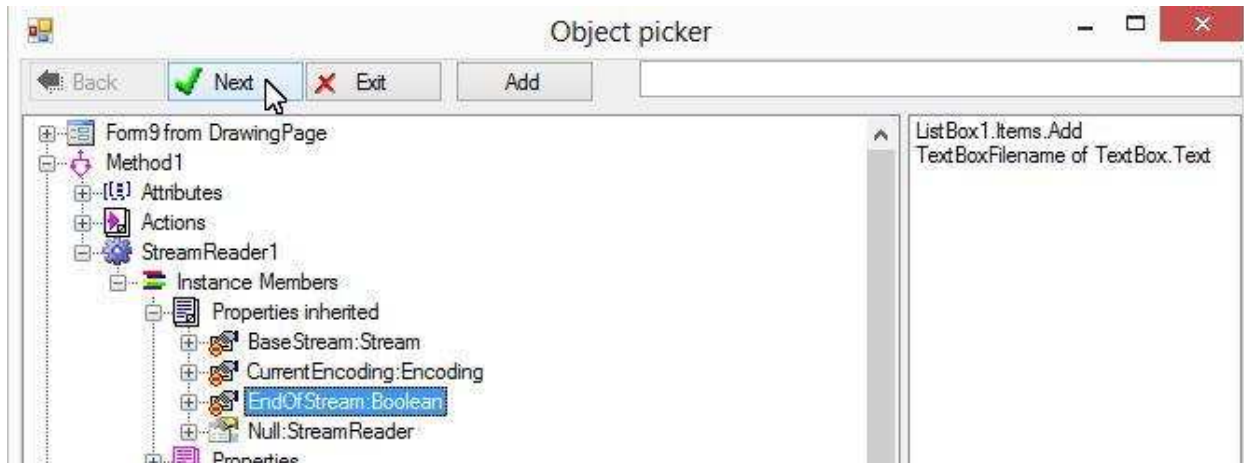
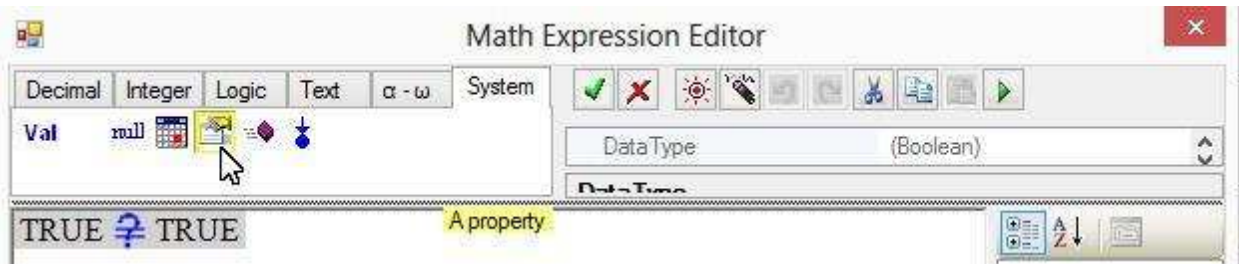
The StreamReader has a ReadLine method for reading a line. We may add each line to the list box using the Add method of the Items property of the list box. We may use a loop action to do it repeatedly until the end of the file. To create a loop action, right-click the Action Pane; choose "Execute actions repeatedly":



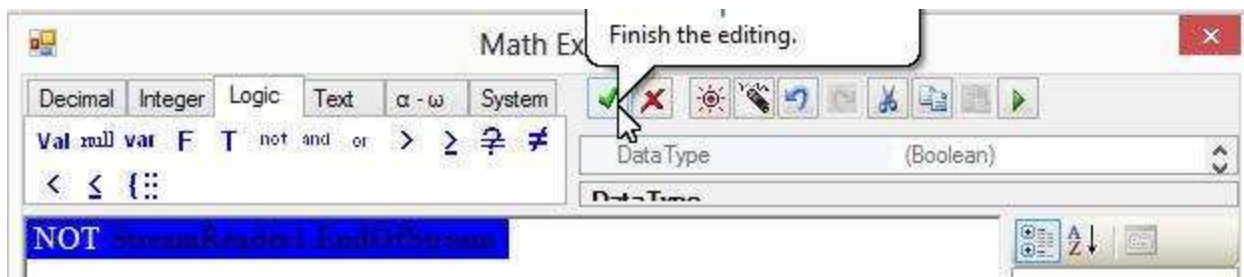
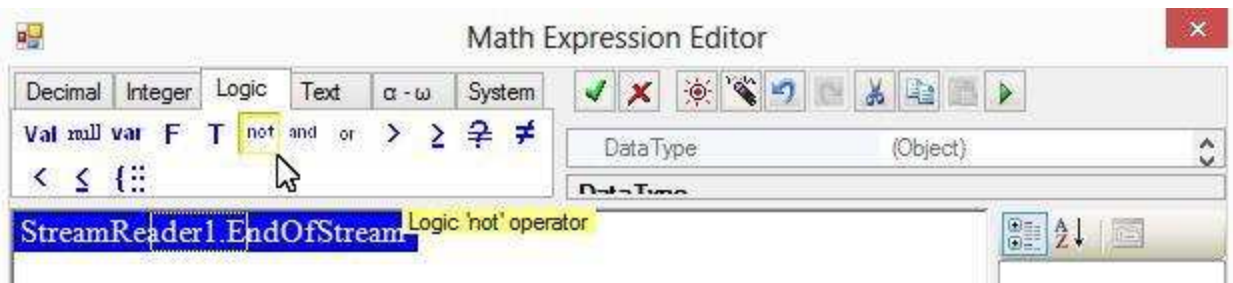
Link the loop action to the last action. Set its Condition to "not end of stream":



Choose property EndOfStream of StreamReader1:

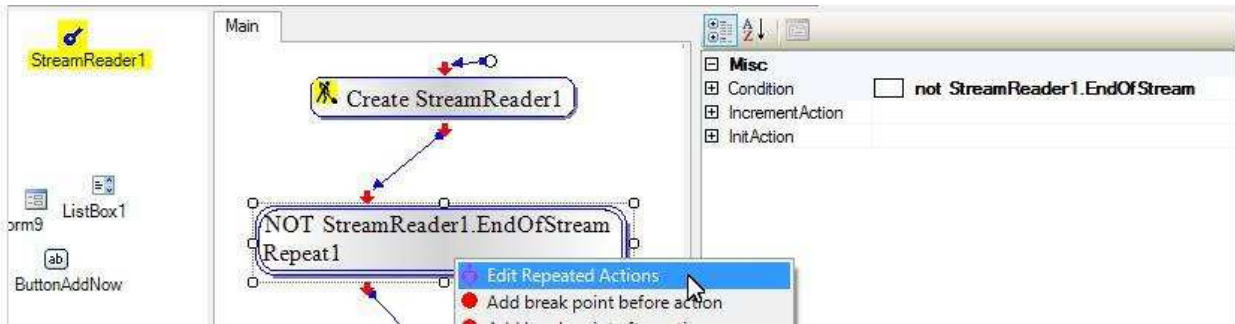


Click "Not" operator:

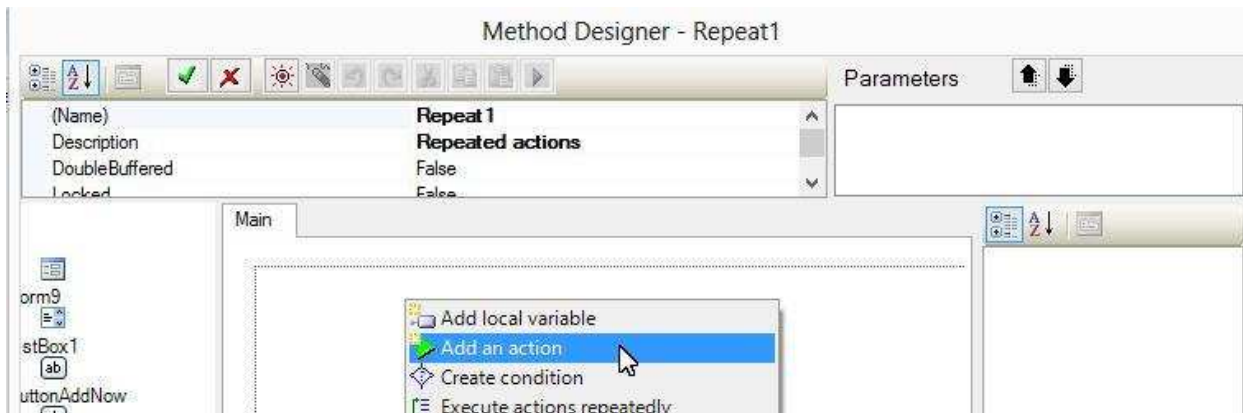


### Add list box item

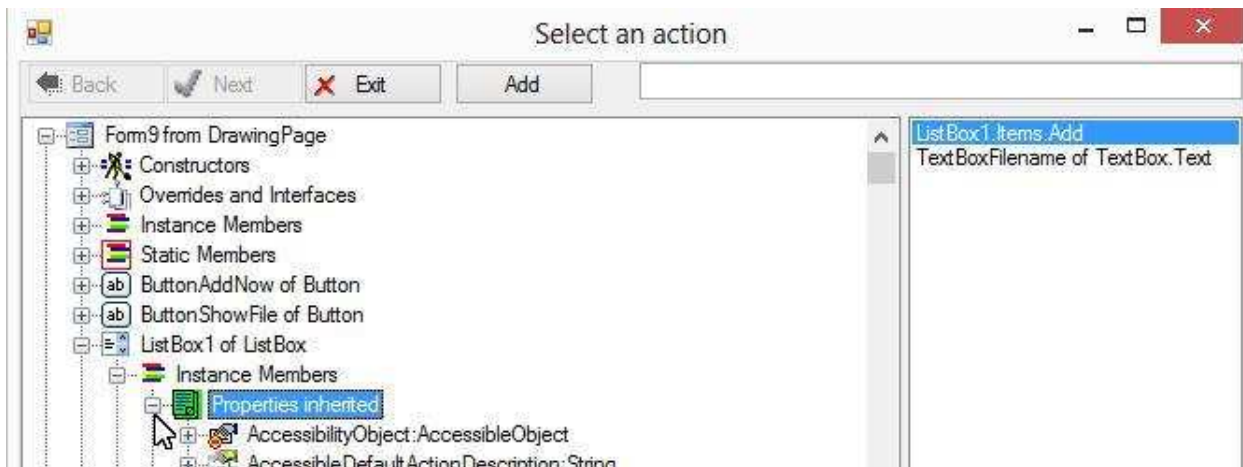
Right-click the loop action; choose "Edit Repeated Actions" to create actions to be executed repeatedly:

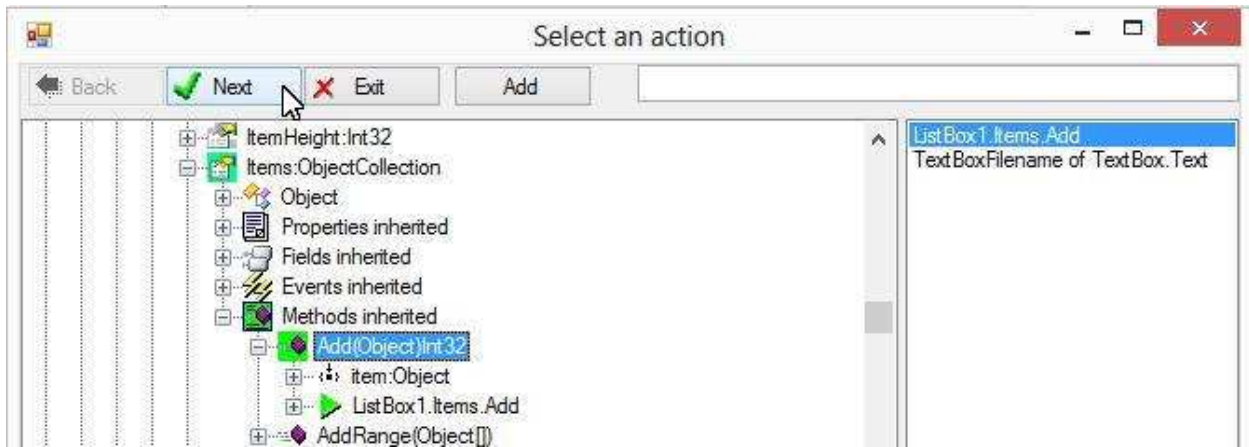


A new method editor appears. Right-click its Action Pane; choose “Add an action”:

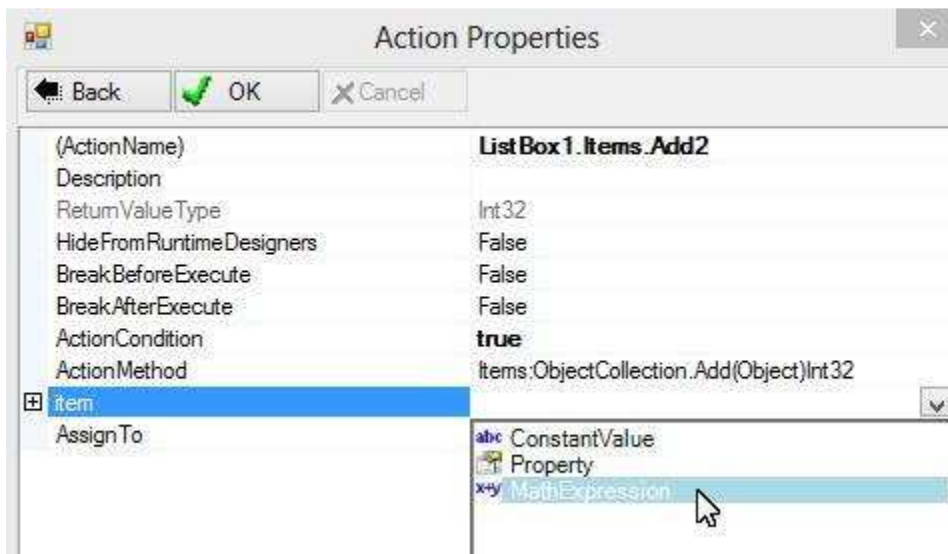


Choose “Add” method of the Items property of the list box:

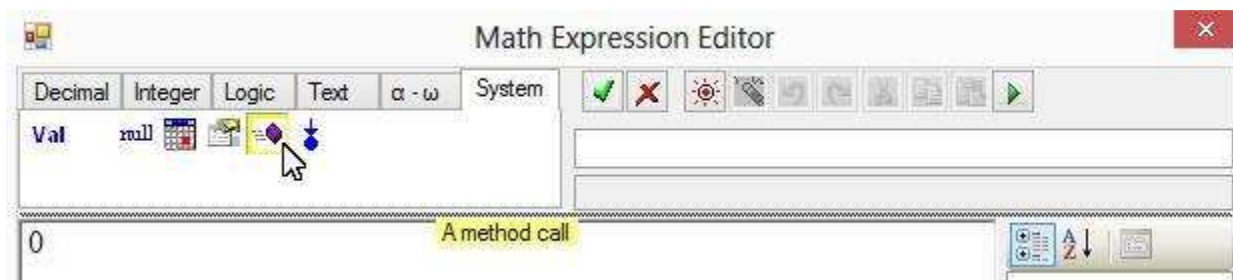




The “item” parameter represents the item to be added to the list box. We want to read a line from the text file. So, choose “Math Expression” to execute ReadLine method of StreamReader:

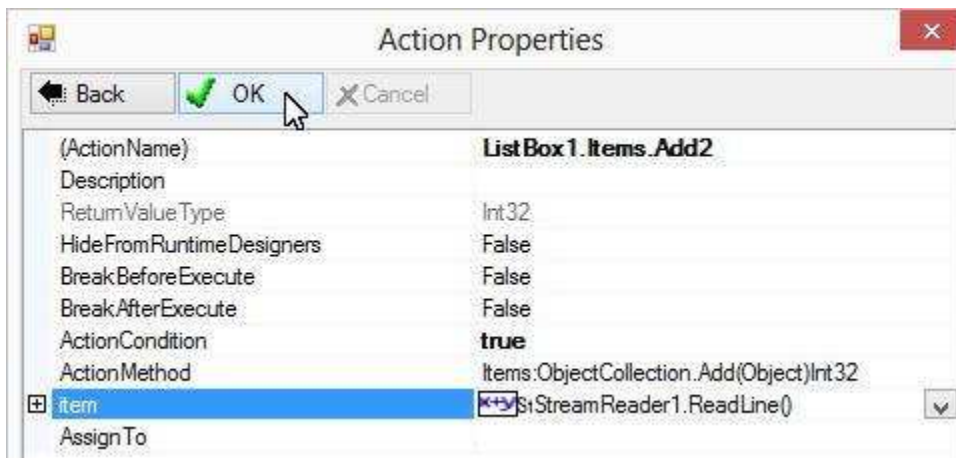
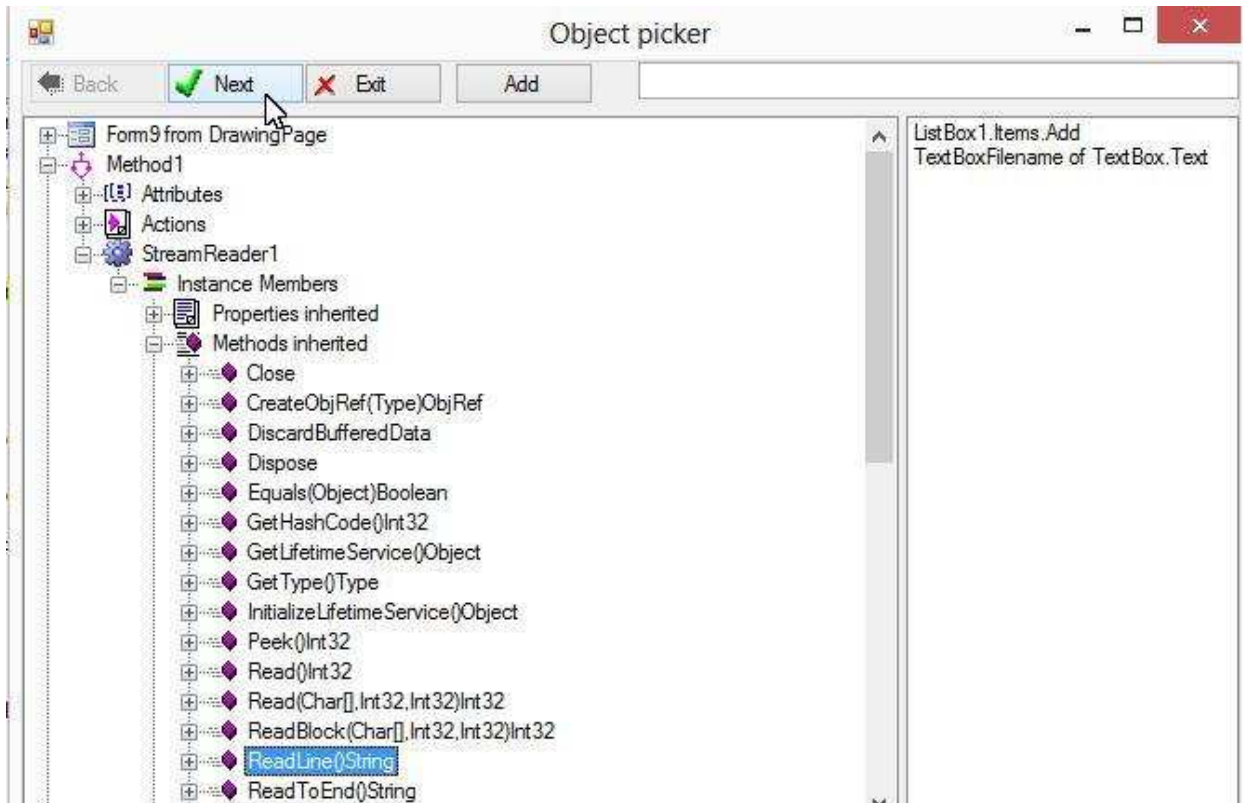


Click the method icon:



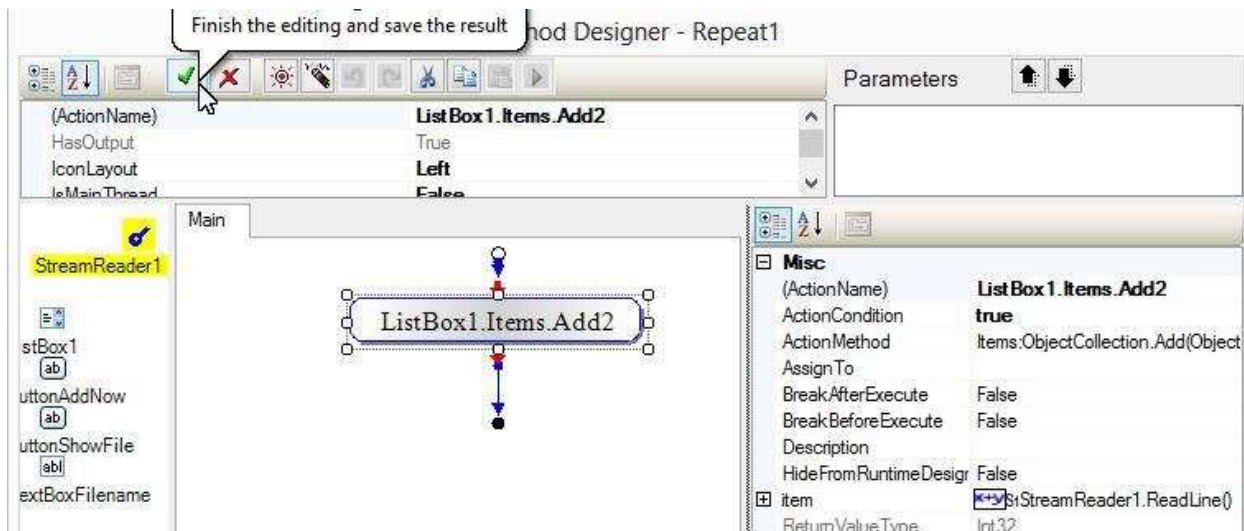
Choose “ReadLine” method of StreamReader1:



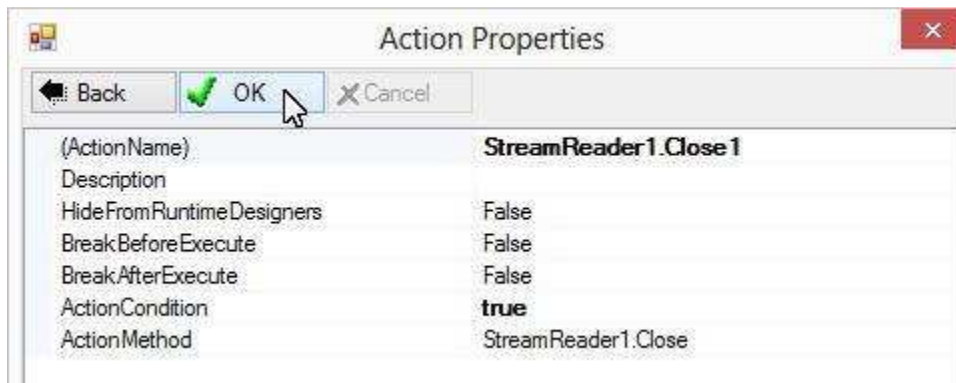
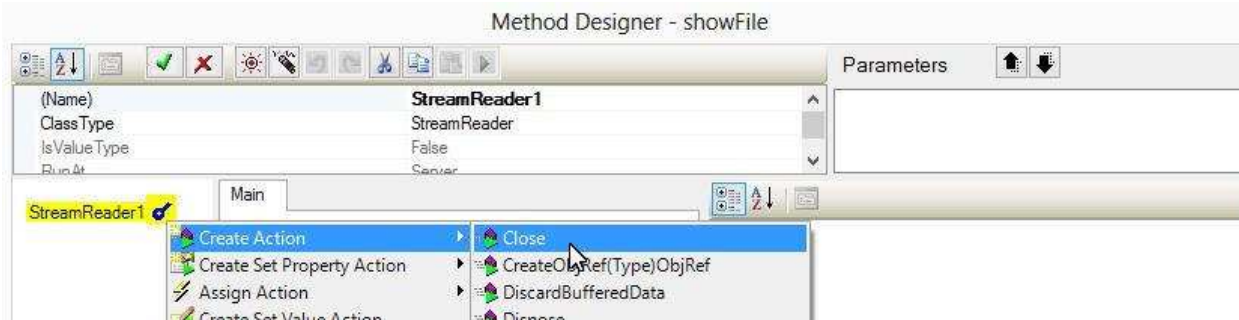


For this sample, that is all we need:

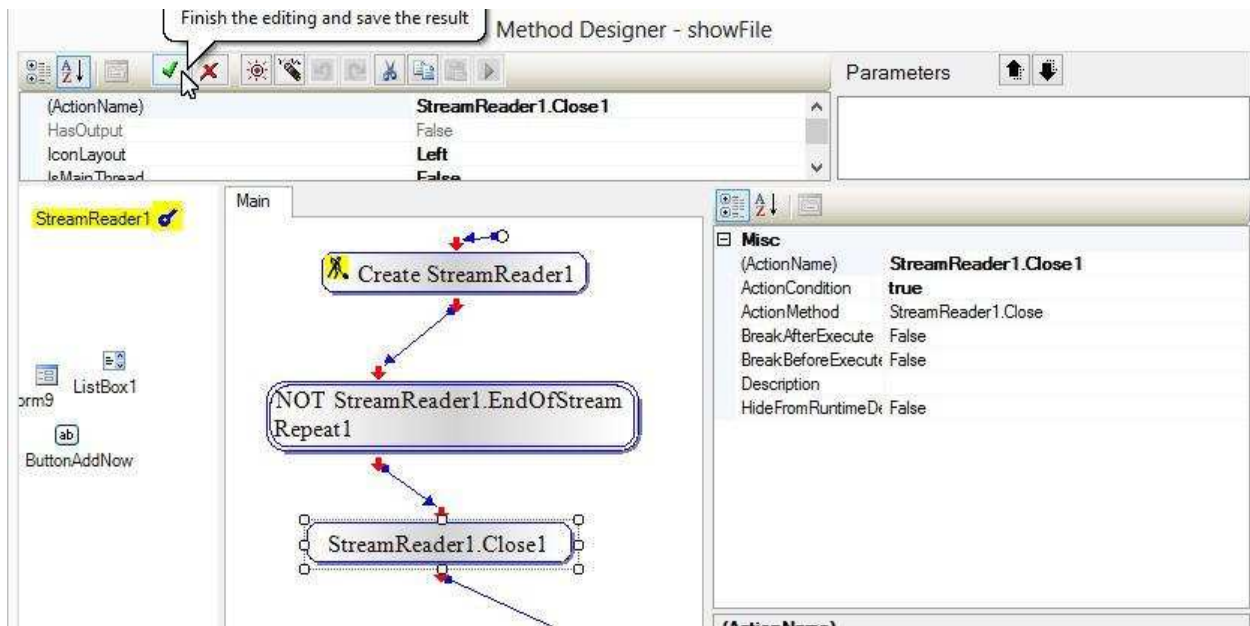




We may close the stream reader after using it:

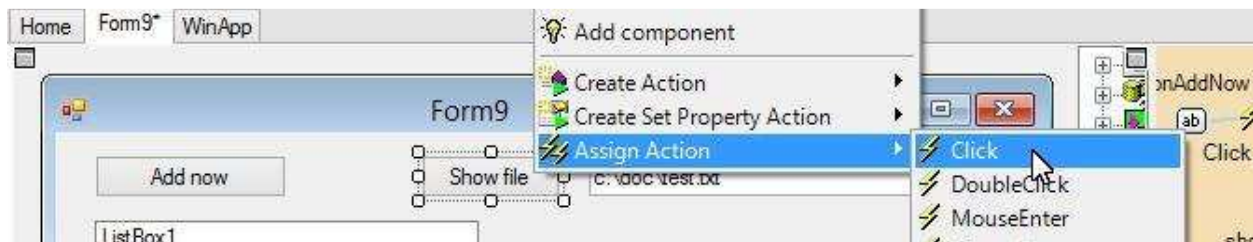


Link it to the last action. That is all:



## Execute method

We use a button to execute the method:



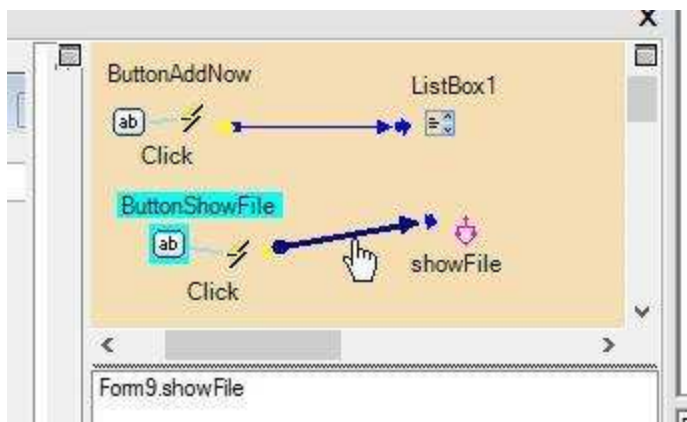
Select method "showFile":



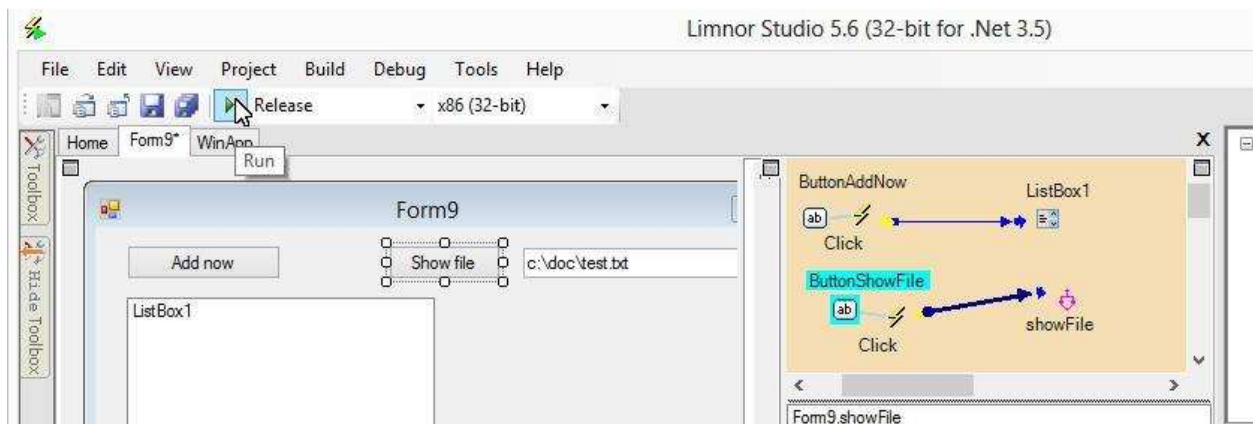
Click OK:



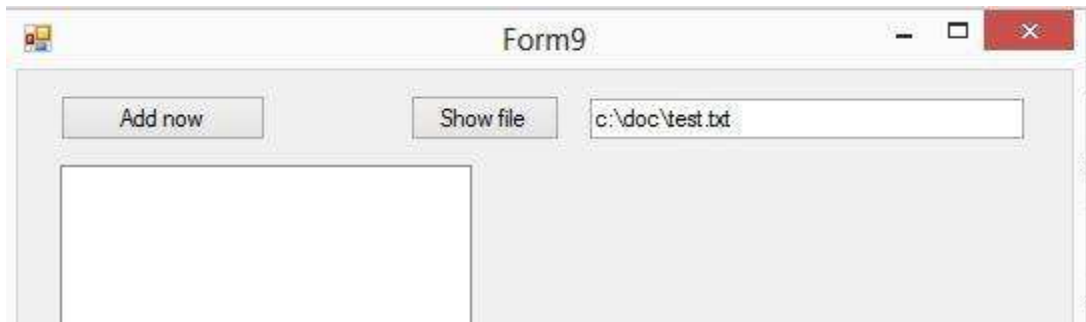
An action is created and assigned to the button:



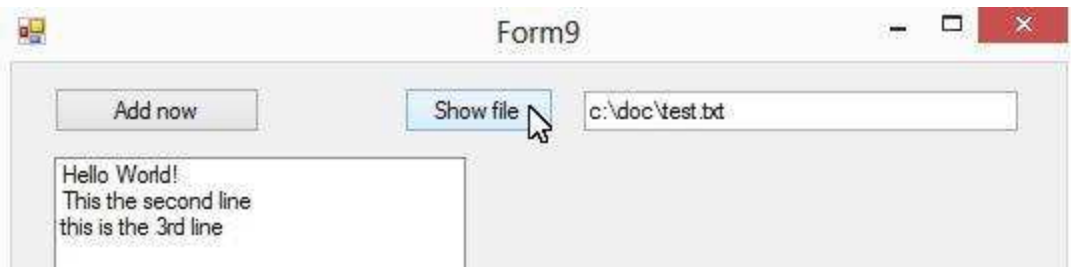
We may test the project:



The form appears:



Click "Show file" button. The contents of the file appear in the list box:



## Feedback

Please send your feedback to [support@limnor.com](mailto:support@limnor.com)