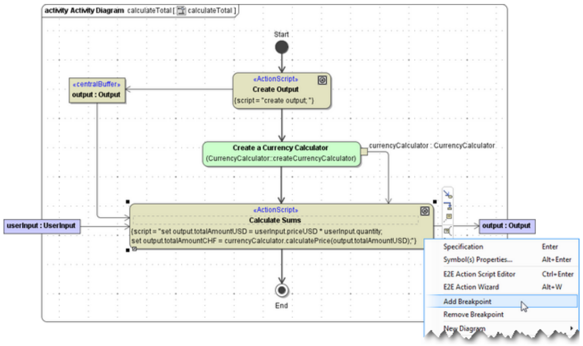
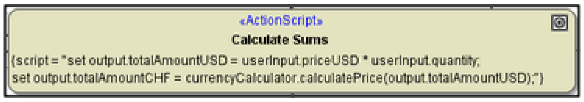
Managing Breakpoints and Exceptions

Having navigated to the action that is to be inspected, open the context menu of the concerning action.

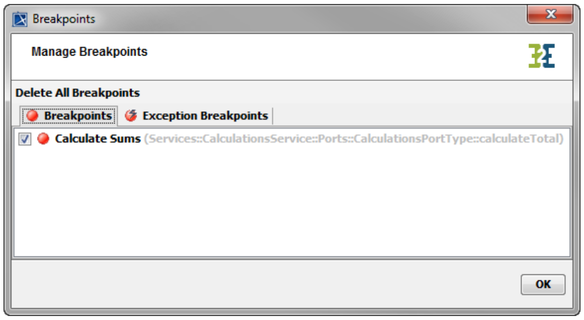
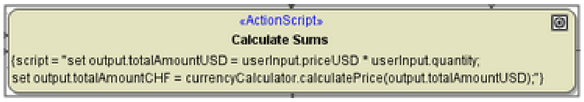
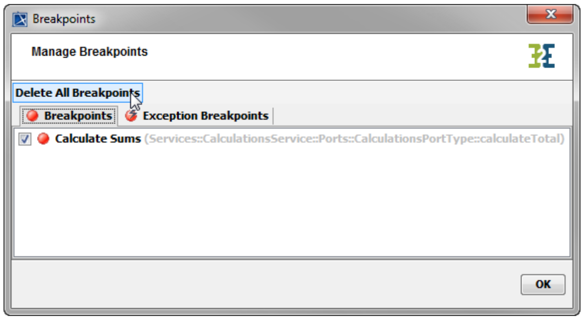

activity Activity Diagram calculateTotal [calculateTotal]
Start
«centralBuffer»
output : Output
«ActionScript»
Create Output
{script = "create output; "}
Create a Currency Calculator
(CurrencyCalculator::createCurrencyCalculator)
currencyCalculator : CurrencyCalculator
userInput : UserInput
«ActionScript»
Calculate Sums
{script = "set output.totalAmountUSD = userInput.priceUSD * userInput.quantity;
set output.totalAmountCHF = currencyCalculator.calculatePrice(output.totalAmountUSD);"}
output : Output
End
Specification Enter
Symbol(s) Properties... Alt+Enter
E2E Action Script Editor Ctrl+Enter
E2E Action Wizard Alt+W
Add Breakpoint
Remove Breakpoint
New Diagram

Select **Add Breakpoint** to add a breakpoint and **Remove Breakpoint** to remove one.

> To set a breakpoints it is not relevant whether the service is running or not.

 «ActionScript» Calculate Sums {script = "set output.totalAmountUSD = userInput.priceUSD * userInput.quantity; set output.totalAmountCHF = currencyCalculator.calculatePrice(output.totalAmountUSD);"}	The action node of an action having an active breakpoint is surrounded by a dark frame to indicate the breakpoint.

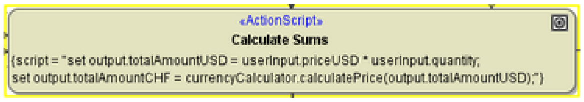
To get an overview on all breakpoints defined open the Breakpoint Manager window by clicking in the Debug tab.

 Breakpoints Manage Breakpoints Delete All Breakpoints Breakpoints | Exception Breakpoints ☑ ● Calculate Sums (Services::CalculationsService::Ports::CalculationsPortType::calculateTotal) OK	All breakpoints of the UML model are listed and can be deactivated or reactivated by selecting the corresponding checkbox. Click **OK** to close the dialog.
 «ActionScript» Calculate Sums {script = "set output.totalAmountUSD = userInput.priceUSD * userInput.quantity; set output.totalAmountCHF = currencyCalculator.calculatePrice(output.totalAmountUSD);"}	The action node of an action having an inactive breakpoint is surrounded by a light frame to indicate that the breakpoint is deselected.
 Breakpoints Manage Breakpoints Delete All Breakpoints Breakpoints | Exception Breakpoints ☑ ● Calculate Sums (Services::CalculationsService::Ports::CalculationsPortType::calculateTotal) OK	To delete all breakpoints of the UML model select **Delete All Breakpoints**.

On this Page:

Related Pages:

- Using the Debug View
- Inspecting the Callstack
- xUML Service Dump

 «ActionScript» Calculate Sums {script = "set output.totalAmountUSD = userInput.priceUSD * userInput.quantity; set output.totalAmountCHF = currencyCalculator.calculatePrice(output.totalAmountUSD);"}	If the **xUML Runtime** stopped service execution on a breakpoint the corresponding activity diagram opens and the breakpoint halted on is indicated by a yellow frame. If the UML model of the service is not open in MagicDraw, the corresponding XML file will be opened as well.

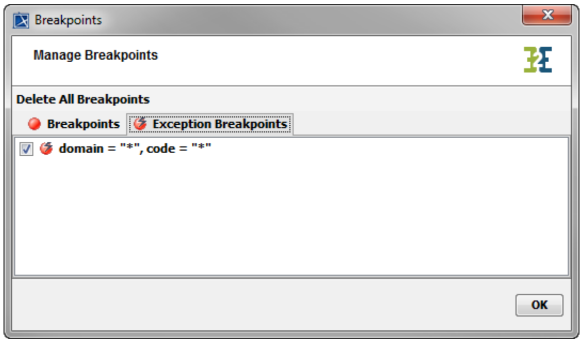
Breakpoints may be set on all executable UML elements (such as action nodes, guards, call operation actions, ...) and on initial nodes. Breakpoints may not be set on parameters and objects, action flows, ... and on final nodes.

Example File (Builder project Testing Concepts):

⤓	<your example path>\Testing Concepts\uml\priceCalculation.xml

Exception Breakpoints

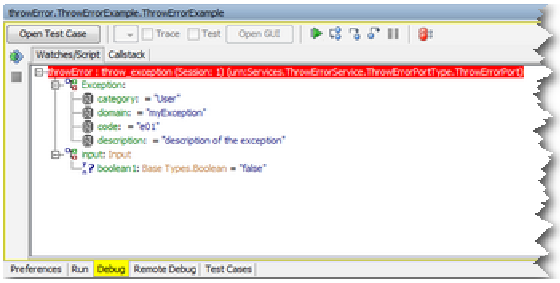
The Breakpoint Manager contains an additional tab to manage exception breakpoints. In the **Exception Breakpoints** tab, a default exception breakpoint is set:

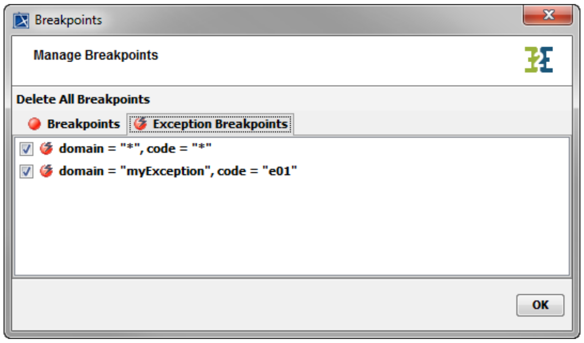
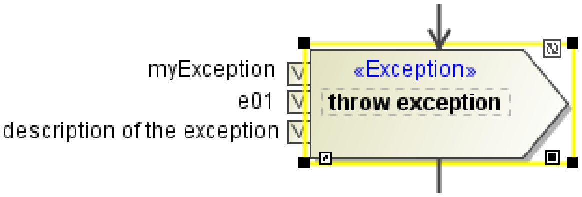


☑ domain = "*", code = "*"

Disable the checkbox if you want to deactivate the default exception breakpoint.

If an exceptions is thrown during model execution in debug mode, the **Interactive Debugger** stops at that point and creates an exception breakpoint.

 throwError.ThrowErrorExample.ThrowErrorExample throwError : throw_exception (Session: 1) (urn:Services.ThrowErrorService.ThrowErrorPortType.ThrowErrorPort) Exception: category: = "User" domain: = "myException" code: = "e01" description: = "description of the exception" input: Input boolean1: Base Types.Boolean = "false"	The topmost tree node shaded in red indicates, that the Interactive Debugger stopped on an exception. The exception details are displayed.

 Breakpoints Manage Breakpoints Delete All Breakpoints Breakpoints | Exception Breakpoints ☑ domain = "*", code = "*" ☑ domain = "myException", code = "e01" OK	The automatically created exception breakpoint can be viewed in the **Exception Breakpoints** tab of the Breakpoint Manager.
 myException e01 description of the exception «Exception» throw exception	Next time this exception occurs, the Interactive Debugger will indicate the UML element that caused the exception (which is in this example a manually thrown exception). To proceed with model execution click ▶ in the Debug tab.

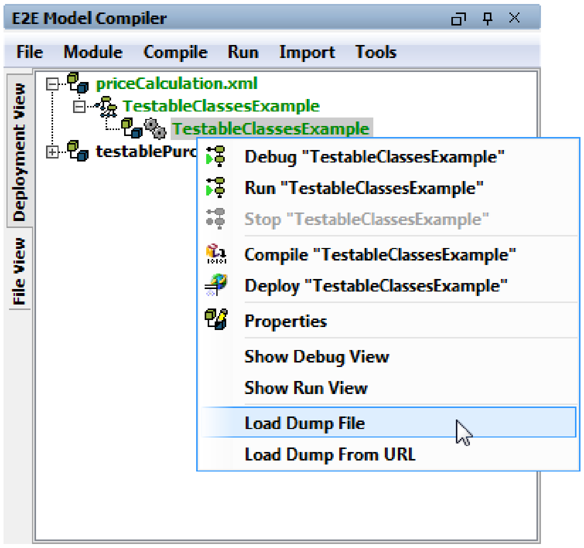
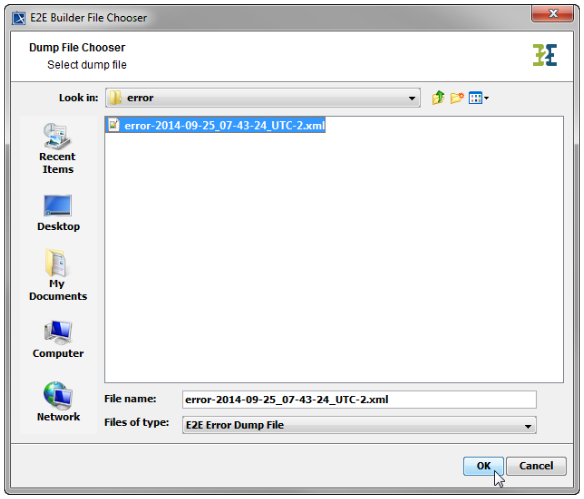
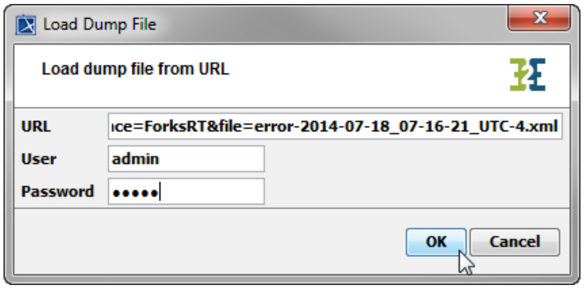
Example File (Builder project Basic Modeling/ErrorHandling):

	<your example path>\Basic Modeling\ErrorHandling\uml\throwError.xml

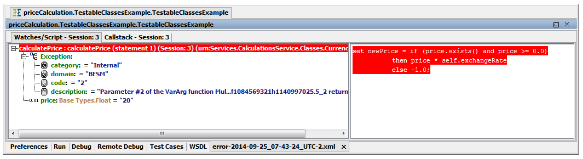
View Dump File

In the service preferences of xUML services running on the Bridge, it is possible to set the flag Dump Context on Error. Each time the xUML service throws an exception, actual call stack and data is logged in a trace file.

These dump information can be viewed with the Interactive Debugger as a sort of exception breakpoint snapshot.

 E2E Model Compiler File Module Compile Run Import Tools Deployment View File View priceCalculation.xml TestableClassesExample TestableClassesExample testablePurc Debug "TestableClassesExample" Run "TestableClassesExample" Stop "TestableClassesExample" Compile "TestableClassesExample" Deploy "TestableClassesExample" Properties Show Debug View Show Run View Load Dump File Load Dump From URL	Select **Load Dump File** or **Load Dump File from URL** from the context menu of the service deployment.
 E2E Builder File Chooser Dump File Chooser Select dump file Look in: Recent Items Desktop My Documents Computer Network File name: Files of type: OK Cancel Look in: error error-2014-09-25_07-43-24_UTC-2.xml File name: error-2014-09-25_07-43-24_UTC-2.xml Files of type: E2E Error Dump File	Select the error dump file to display from the Bridge data directory and click **OK** ...
 URL ıce=ForksRT&file=error-2014-07-18_07-16-21_UTC-4.xml User admin Password ●●●●●	... or copy the dump file URL from the Bridge, provide your credentials and click **OK**. For more information on where to find the error dumps on a Bridge, refer to xUML Service Dump.

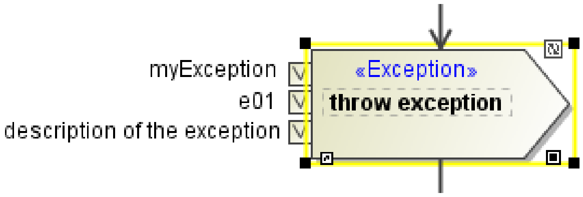
The Embedded xUML Runtime window opens and shows an additional tab displaying the error dump information. The exception details can be inspected as described in section Exception Breakpoints and in Inspecting the Callstack. The erroneous action script statement is marked in red.


priceCalculation.TestableClassesExample.TestableClassesExample
priceCalculation.TestableClassesExample.TestableClassesExample
Watches/Script - Session: 3
Callstack - Session: 3
Preferences
Run
Debug
Remote Debug
Test Cases
WSDL
error-2014-09-25_07-43-24_UTC-2.xml

```
calculatePrice : calculatePrice (statement 1) (Session: 3) (urn:Services.CalculationsService.Classes.Currenc
  Exception:
    category: = "Internal"
    domain: = "BESM"
    code: = "2"
    description: = "Parameter #2 of the VarArg function Mul...f1084569321h1140997025.5_2 return
  price: Base Types.Float = "20"
```

```
set newPrice = if (price.exists() and price >= 0.0)
        then price * self.exchangeRate
        else -1.0;
```

Additionally, the Debugger shows the UML element where the error occurred:


myException
e01
description of the exception
«Exception»
throw exception