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Actions and Exception Handling

Topics

- Actions: Code Reusability
- Action Flows
  - Assign
  - If
  - Switch
  - For Each
  - Ad-hoc loops
- Exception Handling
  - Handler Flows
  - Raising Exceptions
  - Global Exception Handler

Actions: Code Reusability

Provided through Actions

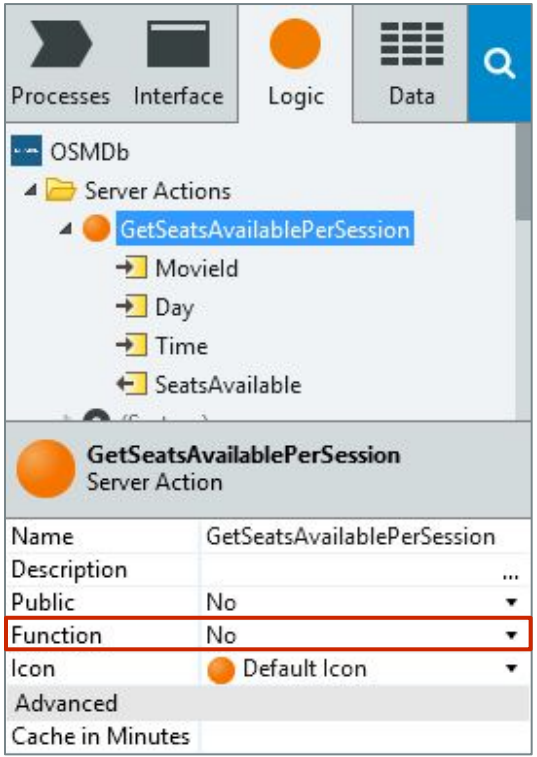
- **Screen Actions** can only be bound to Widgets on a Screen
- **Server Actions** can be called in any flow

Server Actions can have multiple Input and Output Parameters and Local Variables

- Screen Actions do not have Output Parameters
- Preparation does not have Parameters or Variables

Server Actions can be set as a **Function**

- Restricted to one Output Parameter
- Available in Expressions



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Action Flows

An Action flow is where a piece of logic is defined

It can only have **one Start node**

Every Action flow can end with multiple:

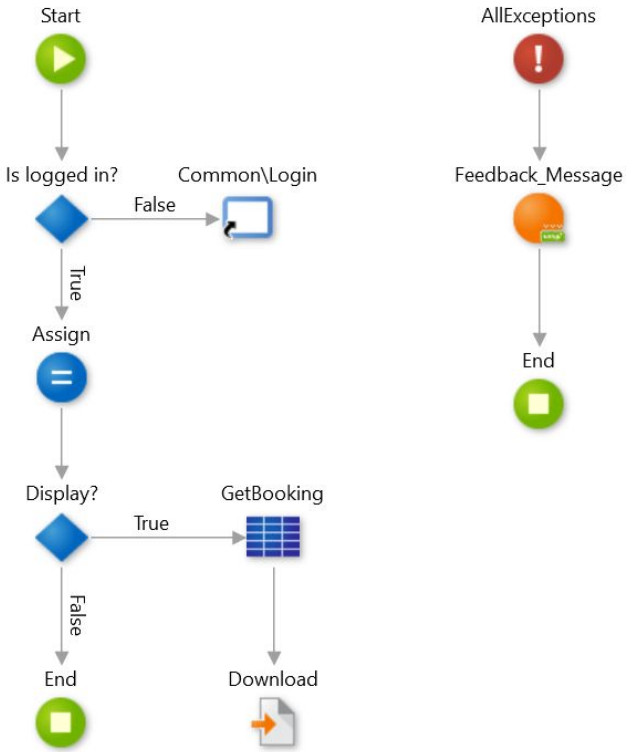
- End nodes
- Raise Exception

Screen Actions and Preparation can also end with:

- Destination nodes
- Download

A flow can have multiple exception handlers

- Action and Exception flows cannot intersect



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Assign Statement

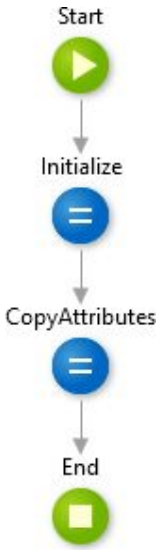
Allows setting values to variables (or parameters)

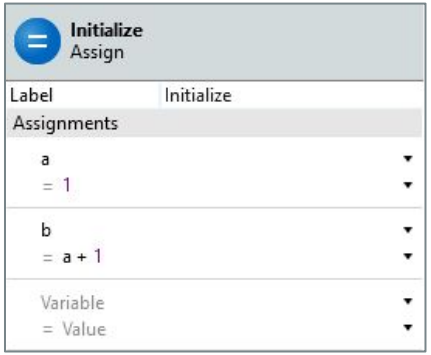
A single **Assign** can define more than one assignment

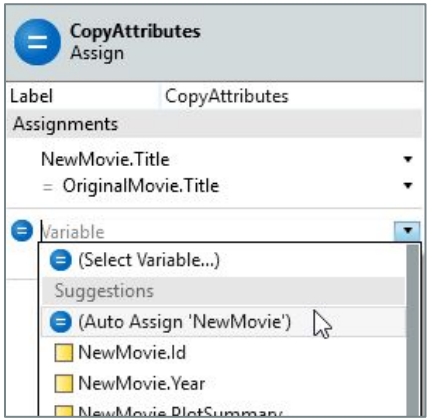
- Values are assigned top to bottom
- Changes occur immediately

Service Studio provides some accelerators

- Auto-assign of remaining Attributes
- Standard type-matching values suggestion







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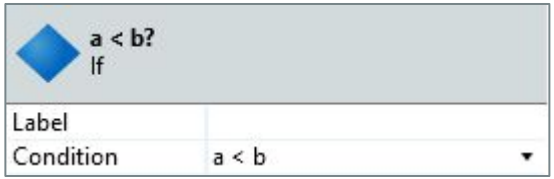
If Statement

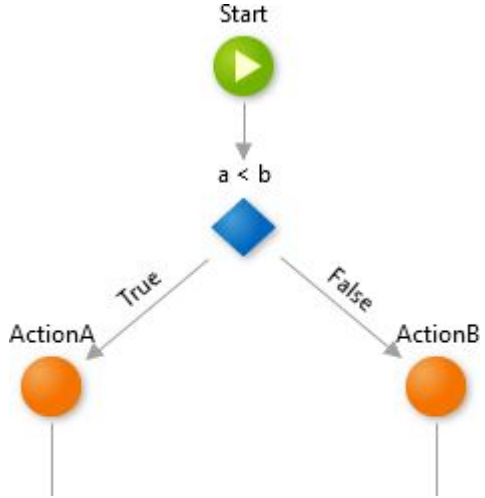
Creates a conditional branch in an Action flow

- The If condition is evaluated
- Only the corresponding branch is followed depending on the outcome

Same as:

```
if a < b
    ActionA
else
    ActionB
```





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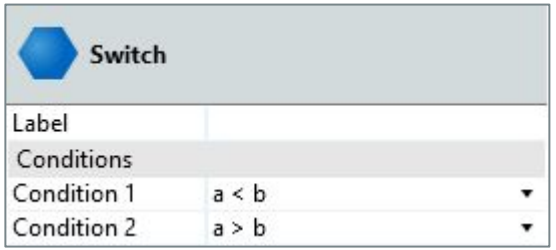
Switch Statement

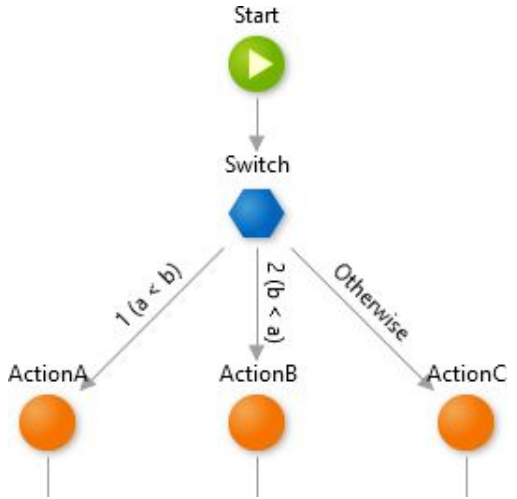
Creates conditional branching with multiple branches

- Conditions are evaluated from first to last
- **Only** the first branch that evaluates to True is executed, or the Otherwise branch
- Otherwise branch is mandatory



Same as

```
if a < b
    ActionA
else if a > b
    ActionB
else
    ActionC
```



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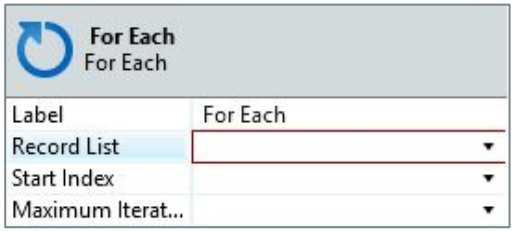
For Each Statement

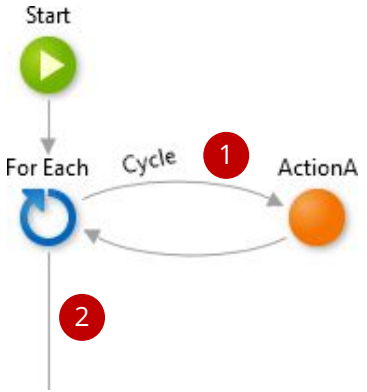
Allows iterating through a **Record List**

In the Action flow

1. *Cycle* branch is followed for each record in the List
   - The branch must return to the For Each to continue the loop
   - The branch can create other conditional / alternative branches
2. Branch followed after cycle completes

RecordList.Current gets the record being iterated within the loop





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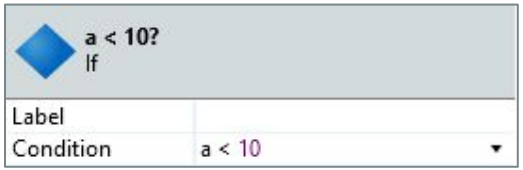
Implementing an Ad-hoc Loop

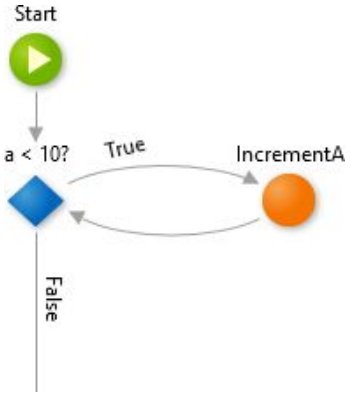
Use the **If** to evaluate a loop condition

- Follow a cyclic branch when condition is true
- Exit loop when condition is false



In the cyclic branch

- The branch must return to the If to continue the loop
- The branch can create other conditional / alternative branches
- Be careful with infinite loops!



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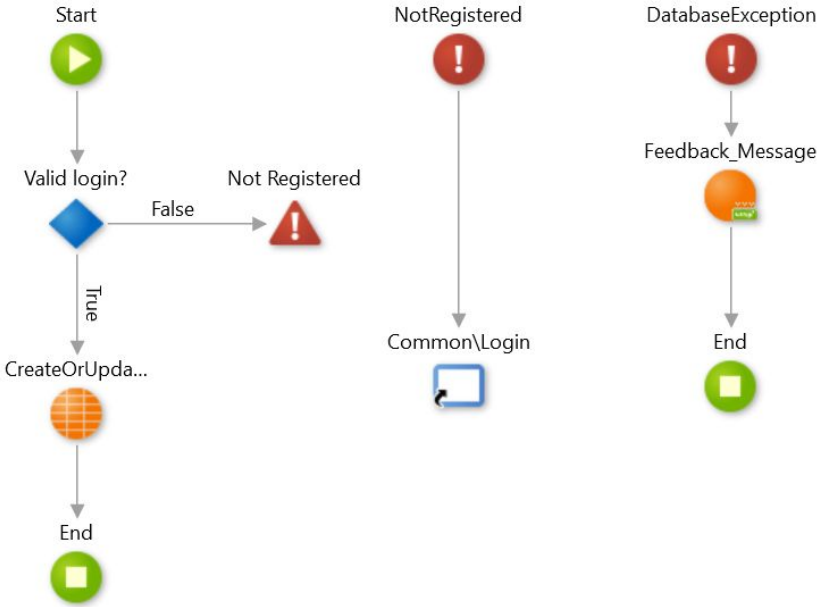
Exception Handler Flows

An **Exception** is thrown when an operation fails unexpectedly at runtime

- Execution is moved to an Exception Handler flow

An Action can have several exception handler flows

- Database Exceptions
- Security Exceptions
- Custom User Exceptions



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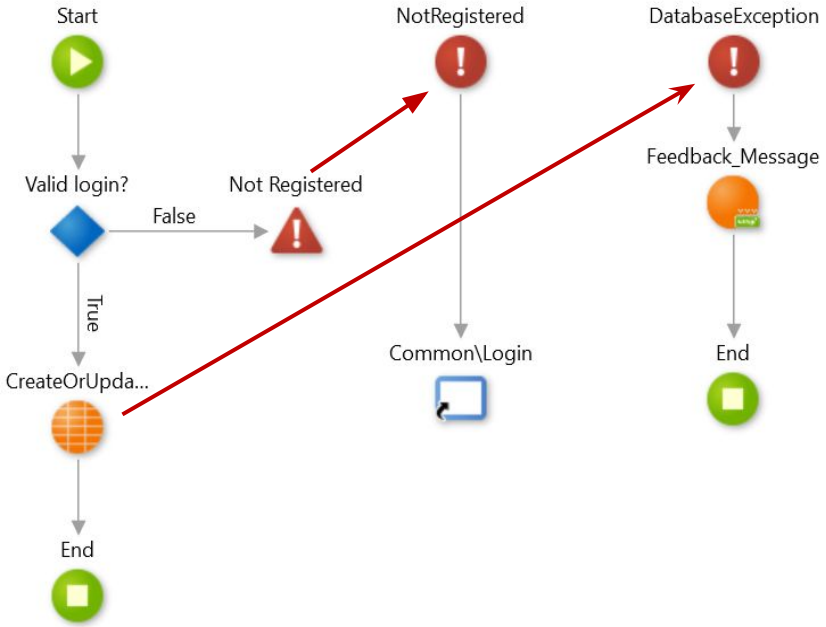
Raising Exceptions

An Exception can be raised:

- Automatically (e.g. Database Exception)
- Raise Exception

When an Exception is raised:

- Execution is moved to the handler **most specific to the Exception** thrown.
- Execution continues through that handler flow



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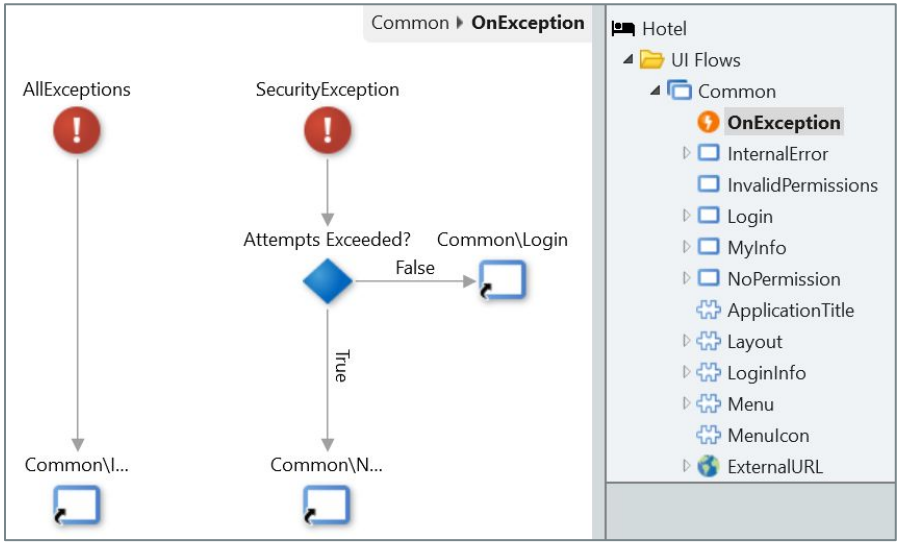
Global Exception Handler

If a handler doesn't exist in the current execution context:

- Server *bubbles-up* to check any outer contexts until a matching handler is found

Module Global Exception Handler

- Located in the Common Flow (default)
- At most one per module
- Highest possible level to bubble-up
- **Should handle all exceptions**



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Summary

- Actions: Code Reusability
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  - If
  - Switch
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  - Ad-hoc loops
- Exception Handling
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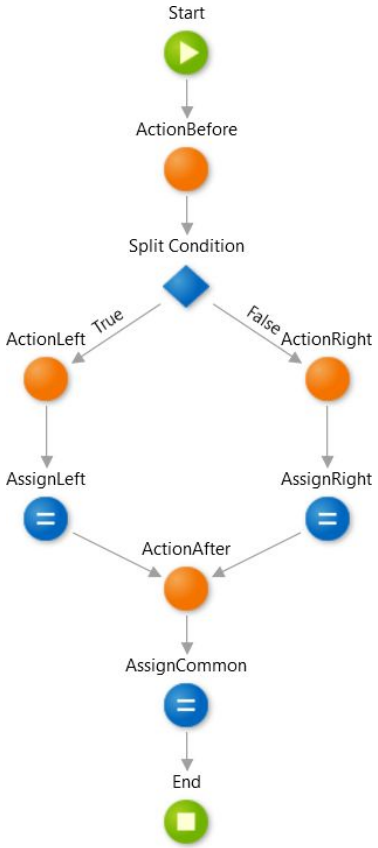
Actions and
Exception Handling
Thank You!

Outputs Scope

Outputs inside a branch are **only visible while in that code branch…**



…so

ActionLeft.Out is *not* visible in AssignRight or AssignCommon

ActionRight.Out is *not* visible in AssignLeft or AssignCommon

ActionBefore.Out is visible in *all* Assignments

ActionAfter.Out is *only* visible in AssignCommon

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Modeling Business Processes

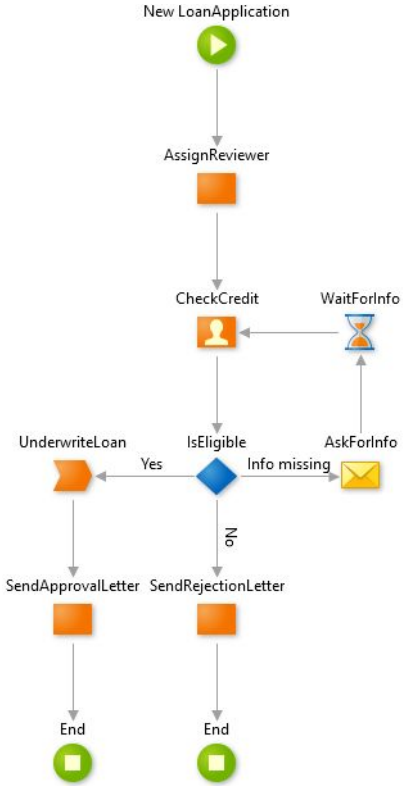
OutSystems includes Business Process Technology (**BPT**) out-of-the-box

BPT enables

- Designing
- Executing
- Managing

high level business processes and workflows

To learn more about **BPT**, check out the online course at http://www.outsystems.com/goto/Modeling-Business-Processes



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