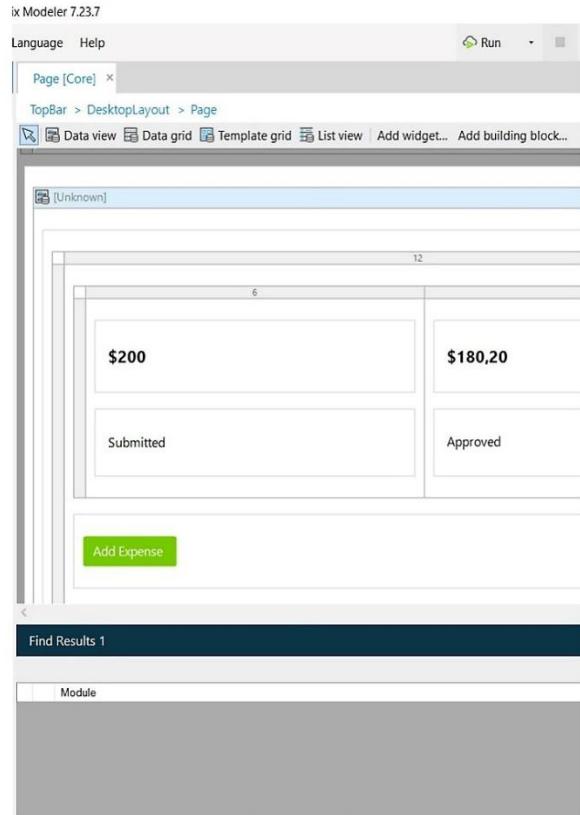


Chapter 01: Introducing Mendix



```
4 <head>
5   <meta http-equiv="content-type" content="text/html; charset=UTF-8" />
6   <meta name="author" content="SemiColonWeb" />
7   <link rel="shortcut icon" type="image/png" href="img/favicon.png" />
8
9
10  <!-- Stylesheets
11  =====
12  <link href="http://fonts.googleapis.com/css?family=Lato:300,400,400i,700|Raleway:300,400,500,700,900|Permanent+Marker" rel="stylesheet" type="text/css" media="screen" />
13  <link rel="stylesheet" href="css/bootstrap.css" type="text/css" media="screen" />
14  <link rel="stylesheet" href="style.css" type="text/css" media="screen" />
15  <link rel="stylesheet" href="css/dark.css" type="text/css" media="screen" />
16  <link rel="stylesheet" href="css/font-icons.css" type="text/css" media="screen" />
17  <link rel="stylesheet" href="css/animate.css" type="text/css" media="screen" />
18  <link rel="stylesheet" href="css/magnific-popup.css" type="text/css" media="screen" />
19
20  <link rel="stylesheet" href="css/responsive.css" type="text/css" media="screen" />
21  <meta name="viewport" content="width=device-width, initial-scale=1.0" />
22
23  <!-- SLIDER REVOLUTION 5.x CSS SETTINGS -->
24  <link rel="stylesheet" type="text/css" href="css/settings.css" media="screen" />
25  <link rel="stylesheet" type="text/css" href="css/layers.css" media="screen" />
26  <link rel="stylesheet" type="text/css" href="css/navigation.css" media="screen" />
27  <link rel="stylesheet" href="one-page/css/element-style.css" type="text/css" media="screen" />
28  <link rel="stylesheet" href="one-page/onepage.css" type="text/css" media="screen" />
29
30
31  <!-- Document Title
```



mendix

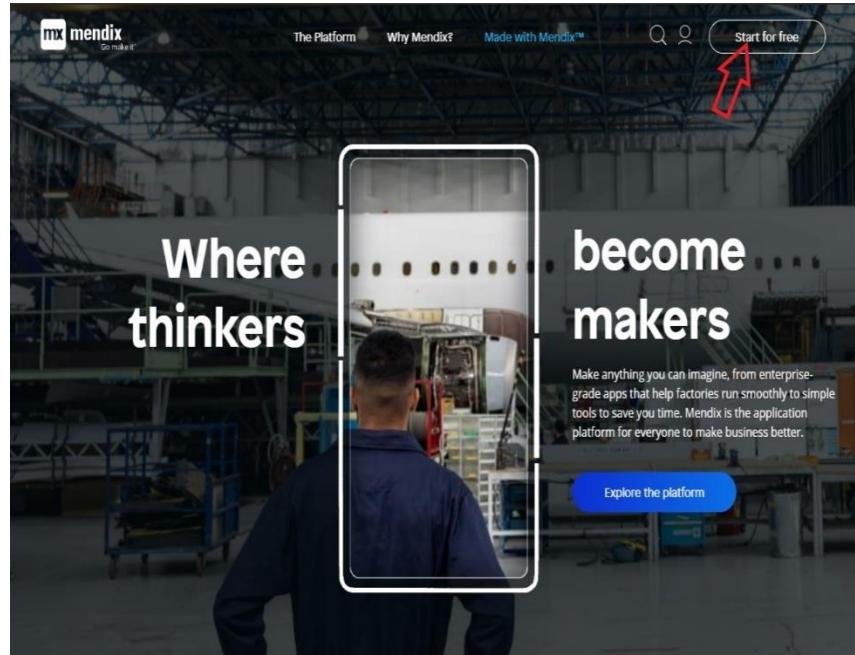




Source: Gartner (July 2020)

© Gartner, Inc

Chapter 02: Getting to know the Mendix Platform



Create your own free app with Mendix

Share your app with unlimited users

Become a Maker.

Become an App Maker. A Difference Maker. A Future Maker.

First Name

Your first name

Last Name

Your last name

Company Email

you@company.com

①

Password

8+ characters



I agree to the [Mendix Privacy Policy](#) and [Terms](#).

Already have an account? [Sign in](#)

[Next](#)

Welcome to Mendix!

Hi Mendix User,

Before you go out and build the next billion-dollar app with Mendix,
please confirm your signup.

Once that's out of the way, we'll take you on a little tour and show you
how to build apps with Mendix.

Confirm Signup



Buzz Apps

People

Community

App Store

Academy

Forum

Docs



1

2

3

4

5

6

Glad you're here

Welcome to Mendix

Developing in Mendix



A yellow rectangular graphic featuring the text "Developing in Mendix" in bold black font. Below the text is a blue circular button with a white play icon. To the right of the button is a small illustration of four people working on a large application interface.

Start developing apps faster than ever

We'll take care of all the boring, repetitive stuff so you can spend your time on what matters. Watch this quick overview to get a sense of how app development in Mendix works.

Step 1: Download Studio Pro

Because every master needs the right tool — and this will be yours (Mac users: you'll just need to run Windows in Parallels or similar software)

[Download Studio Pro](#)

Buzz

Apps

People

Community

App Store

Academy

Forum

Docs

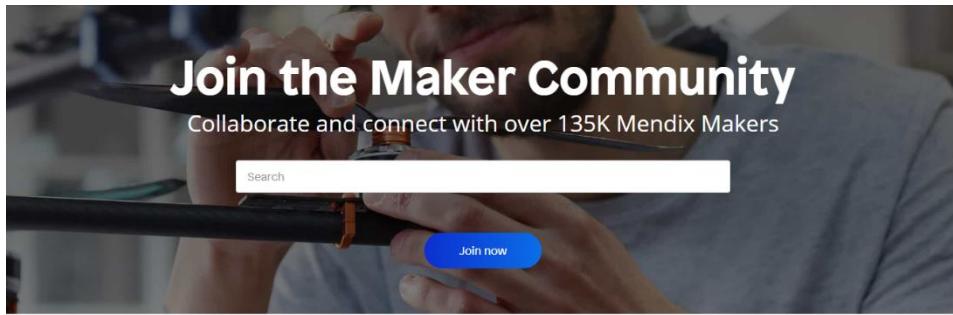


My Apps

My Company's Apps

Nodes

Cluster Manager



135,000+ community members ready to help you

A horizontal navigation bar for the forum section. It includes a "Forum" icon, text indicating "600+ Monthly Questions", "70% answered" with a "30 minute response time", and a "What's new" link.



Buzz

Apps

People

Community

App Store

Academy

Forum

Docs



Connect with people

[Invite Member](#)

Search by name, company name, function, location, etc

Sort by

filter



Buzz

Apps

People

Community

App Store

Academy

Forum

Docs



[Sign In](#)

Questions

Ideas

RSS Feeds

Type to search...

[Login](#)

Questions 26,014

Sort by

Last Updated▼

[Ask a question](#)

Top contributors



Docs

- > Release Notes
- > Studio Pro 8 Guide
- > Studio Pro 8 How-to's
- > Studio 8 Guide
- > Studio 8 How-to's
- > Developer Portal Guide
- > App Store Guide
- > Strategic Partners Guide
- > APIs & SDK
- > Quality Add-ons Guide

- > Mendix 7 Reference Guide
- > Mendix 7 How-to's
- > Mendix 7 Studio Guide
- > Mendix 6 Reference Guide
- > Mendix 6 How-to's

Welcome to Mendix Docs

Search, collaborate & contribute to build better Mendix apps



Search documentation

Latest Releases

- [Studio Pro 8.10.2](#) – June 15th, 2020
- [Studio](#) – June 3rd, 2020
- [Developer Portal](#) – June 15th, 2020
- [Deployment](#) – June 18th, 2020
- [App Store](#) – May 6th, 2020
- [Make It Native App 2.1.0 / 2.1.0](#) – May 15th, 2020
- [Native Builder 3.2.0](#) – Feb 5th, 2019
- [Model SDK 4.35.0](#) – May 26th, 2020
- [Metamodel 8.10.0](#) – May 26th, 2020

Getting Started

- [Introduction to Studio](#)
- [Studio How-to's](#)
- [Studio Pro Overview](#)
- [Studio Pro How-to's](#)
- [Version Control in Mendix](#)
- [Native Mobile](#)
- [App Store Overview](#)

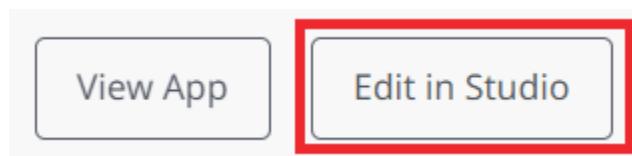
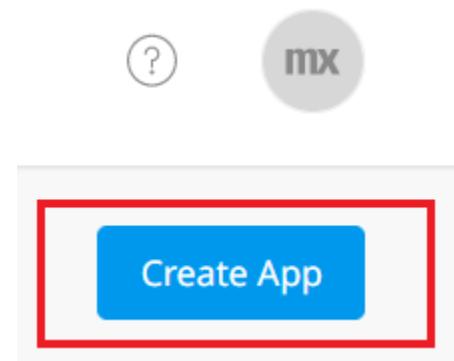
[Apps](#)[Buzz](#)[People](#)[Community](#)[App Store](#)[Academy](#)[Forum](#)[Docs](#) Search[Discover](#)[My Marketplace](#) [Get Studio Pro](#) [Widgets](#) [Connectors](#) [Modules](#) [App Design](#) [Solutions](#)

Tags

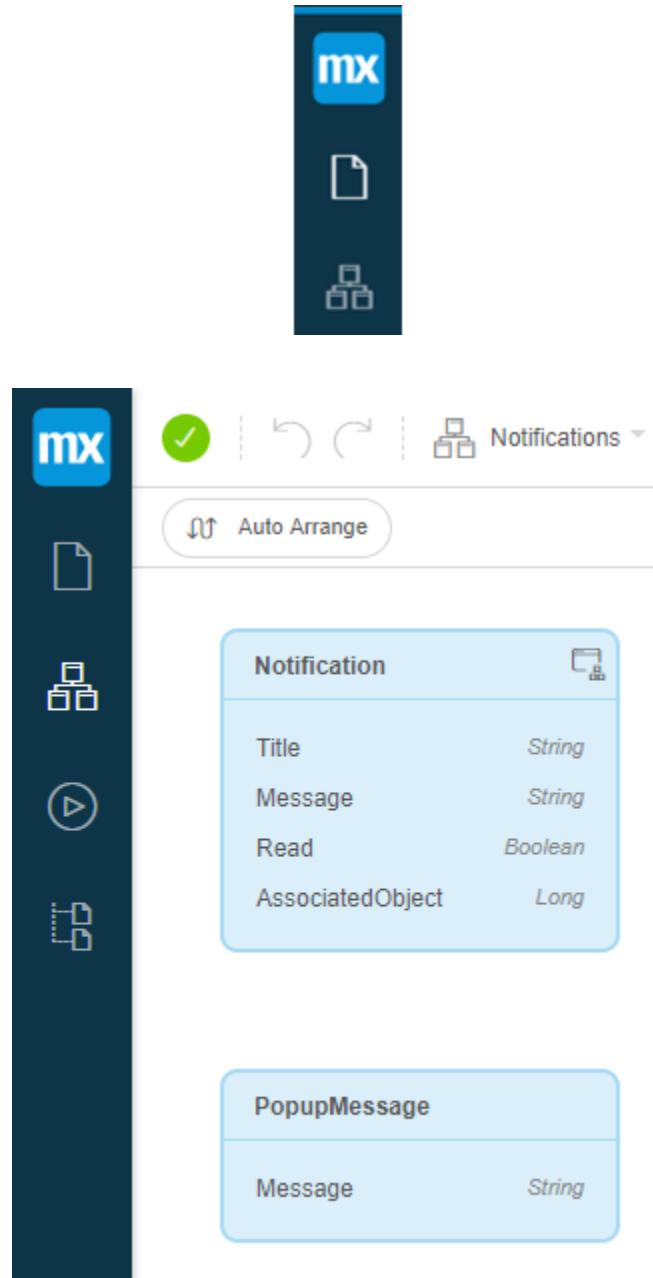
 [Authentication](#) [Buttons](#) [Cognitive Services](#) [Connectors](#) [Data](#)

Featured

Chapter 03: Getting to know Mendix Studio



This screenshot captures the Mendix Studio interface while developing a 'My Timesheets' application. The main workspace displays a dark-themed page titled 'My Timesheets'. On the page, there's a placeholder for a user profile ('{DisplayName}') and a 'Submit Time' button. Below this, a grid lists three tasks, each with a preview image, client information, date, and duration. Each task row includes 'Edit View' and status buttons. The left sidebar contains a 'Menu Bar' with icons for Notifications, Submissions, New, and Signout. The right sidebar contains tabs for 'Toolbox', 'Properties', and 'Buzz' (highlighted with a green border). The top navigation bar includes 'Top Menu Bar' with file icons, 'Device Modes' (highlighted with a red border), and a 'Preview' tab. The bottom navigation bar includes 'Layout' and 'Page' tabs.



mx

Navigation ▾

Preview Publish Checks i

Properties Buzz

MENU ITEM

Events

On Click Action

Nothing Page Microflow More

Action

Sign Out

General

Caption

Signout

Icon

Log out



mx Settings

Roles and Permissions

Widget Overview

Manage Users

Roles and Permissions

Manage app roles and permissions as part of the security settings. [Read more about security](#)

Roles Page Access Microflow Access

Role	Pages	Microflows
Approver	4	10
Requestor	6	7
		...

Search

+ Add Role

MyTimesheetSubmissions

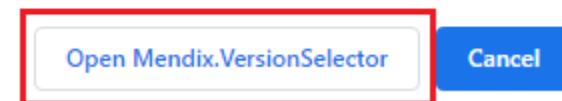
Show:



Chapter 04: Getting to Know Studio Pro

Open Mendix.VersionSelector?

<https://sprintr.home.mendix.com> wants to open this application.



mx Buzz Apps People Community App Store Academy Forum Docs

App Store Type to search... Add content

MY APP STORE
Dashboard

MENDIX STUDIO PRO
All versions

ADD-ONS
Connectors
Internet-of-Things
Machine Learning
Cognitive Services
Data
IBM
SAP

Mobile
Featured
Native Interaction
Connectors

Widgets
Input
Display

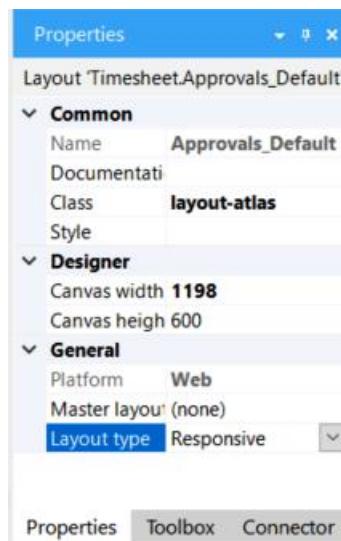
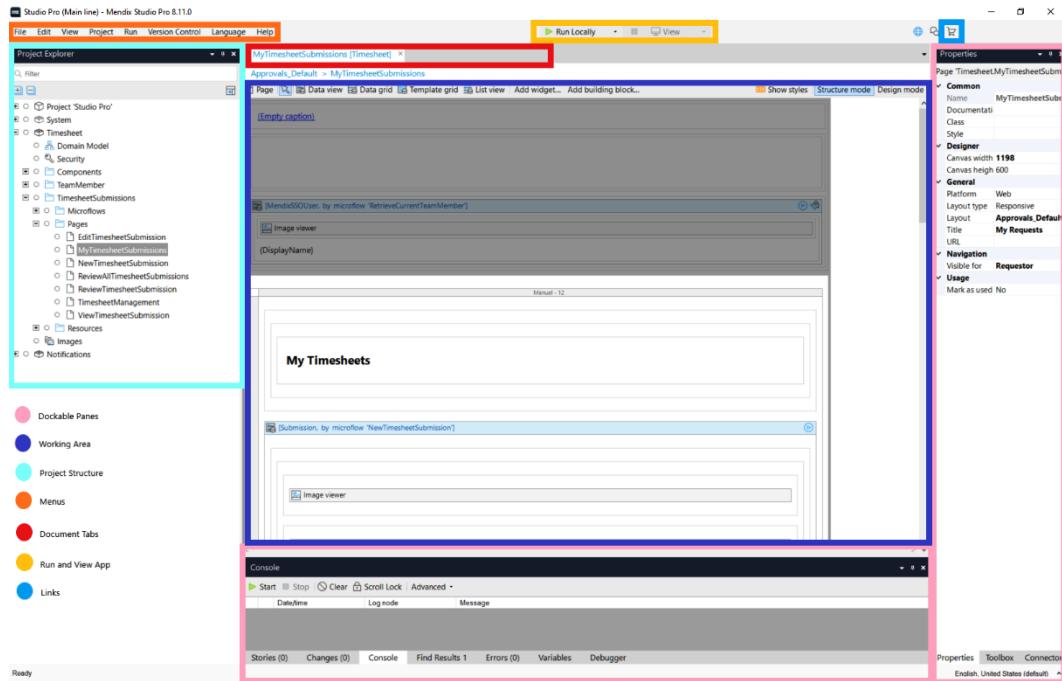
Modules
Authentication
Import/export
Messaging
Scheduling

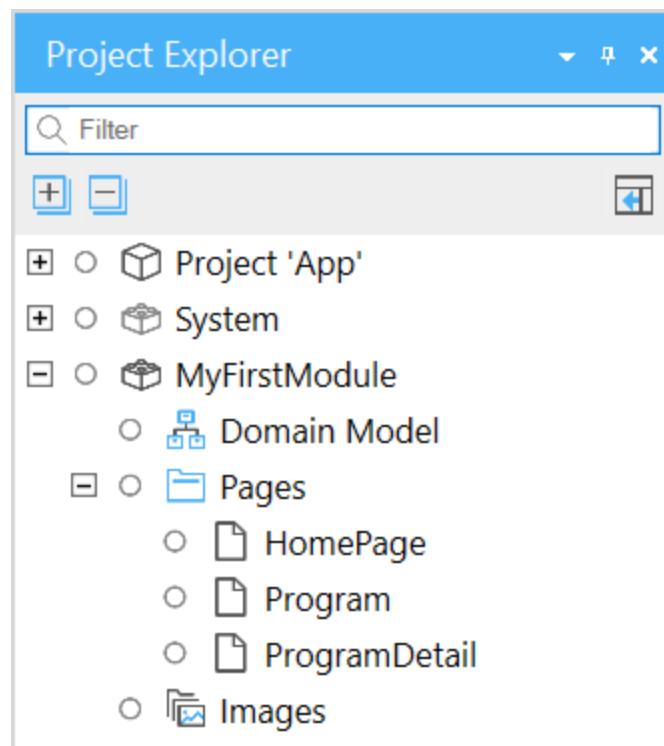
Release: Mendix Studio Pro 8.11.0 [Download](#)

Before installing, please read the [Release Notes](#) to learn about improvements, bug fixes, backwards compatibility breaking changes and known issues.

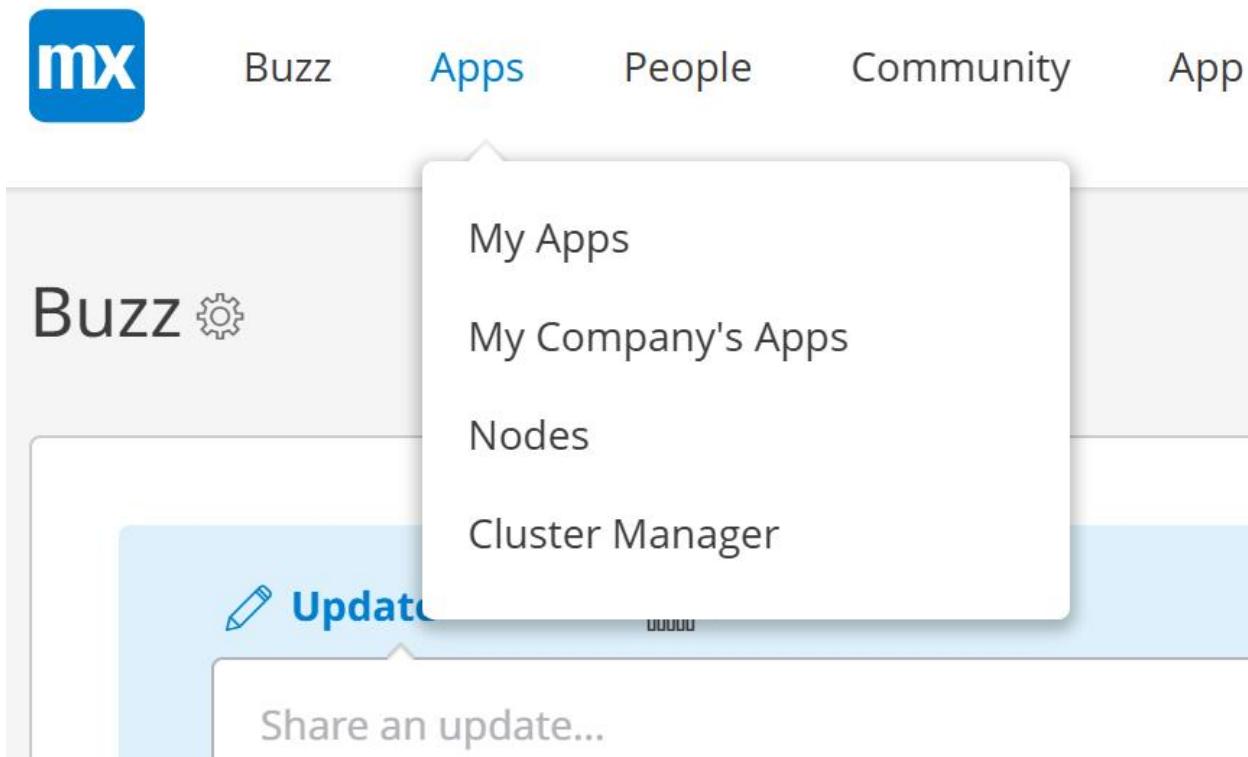
Other releases

Mendix Studio Pro	Release date	Release notes	Related downloads
8.11.0 (build 1311)	July 7, 2020	View	Download
8.10.3 (build 1483)	July 3, 2020	View	Download
8.10.2 (build 394)	June 15, 2020	View	Download
8.10.1 (build 171)	June 9, 2020	View	Download
8.10.0 (build 6992)	May 27, 2020	View	Download
8.9.0 (build 5487)	April 30, 2020	View	Download
8.8.2 (build 7192)	May 29, 2020	View	Download
8.8.1 (build 4465)	April 14, 2020	View	Download
8.8.0 (build 3634)	April 1, 2020	View	Download
8.7.0 (build 1476)	February 27, 2020	View	Download
8.6.4 (build 5823)	May 6, 2020	View	Download



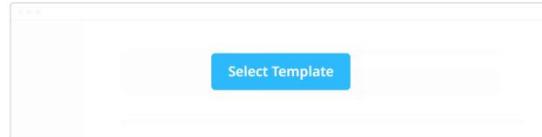


Chapter 05: Getting Started with Your Baseline App



ROLE	▲ PERMISSIONS
Application Operator	<p><i>Can view 'Overview, Capture, Develop, Feedback & Settings'</i></p> <p><i>Can view 'Deploy, Publish and Monitor'</i></p>
Business Engineer	<p><i>Can view 'Overview, Capture, Develop, Feedback & Settings'</i></p> <p><i>Can invite members</i></p> <p><i>Can edit 'Stories, Documents and Feedback'</i></p> <p><i>Can open app in Mendix Studio (Pro)</i></p> <p><i>Can view 'Deploy, Publish and Monitor'</i></p>
Guest	<i>Can view 'Overview, Capture, Develop, Feedback & Settings'</i>
Product Owner	<p><i>Can view 'Overview, Capture, Develop, Feedback & Settings'</i></p> <p><i>Can invite members</i></p> <p><i>Can edit 'Stories, Documents and Feedback'</i></p>
Scrum Master	<p><i>Can view 'Overview, Capture, Develop, Feedback & Settings'</i></p> <p><i>Can edit 'App settings'</i></p> <p><i>Can invite members</i></p> <p><i>Can edit 'Stories, Documents and Feedback'</i></p> <p><i>Can open app in Mendix Studio (Pro)</i></p> <p><i>Can view 'Deploy, Publish and Monitor'</i></p>

Choose a Starting Point



Blank App

Start from scratch

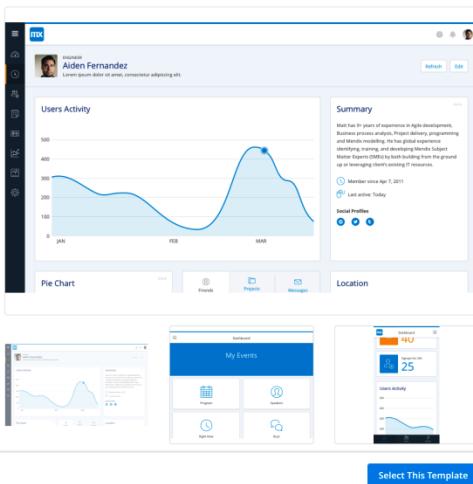
Blank App

[← Go Back](#)

Start building your app using Atlas UI. Use the included theme out-of-the-box, or customize it in the Web Modeler. Drag and drop building blocks onto your pages to quickly create your app.

Template Version: 3.12.4

v8.11.0 Starter Apps



X

Make it Yours!

After you give your app a name, we will make sure it's ready for action.

Choose a Name

Lackluster Video

Choose a Project Icon: (this icon is private and only visible in your project list)

Select a background color and an icon:



Choose for me



Cancel

Create App

The image shows a screenshot of the Mendix platform interface. At the top, there is a navigation bar with links for Buzz, Apps, People, Community, App Store, Academy, Forum, Docs, and a user profile icon. To the right of the navigation bar, large text reads "COLLABORATE" and "Buzz". Below the navigation bar, the "My Apps" section is displayed, featuring a search bar, a "Create App" button, and two app cards: "Lackluster Video" and "Approvals Template Demo". A message indicates "2 result(s) found." Below this, a search bar with placeholder text "Select or type your search text (press Enter to search)" is followed by three buttons: "New Sprint", "New Story", and "More".

Get started
Active sprint | Due 01 Aug

No stories yet! [Add a new story](#) to get started.

Backlog
1 story

3779290 As a Developer, I would like to have access to the Mendix common functions library so that I can easily use standard functions in my app To-do

Below this, another identical section is shown, indicating a duplicate configuration or a second instance of the same feature.

Sprint Status Burndown Chart Release Plan

Get started

Due 01 Aug
0%

To-do
Hooray, there are no unstarted stories

Running

As a Developer, I would like to have access to the Mendix common functions library so that I can easily use standard functions in my app

Done
There are no stories completed yet...

[Mark current sprint as completed](#)

[Details](#)

0%

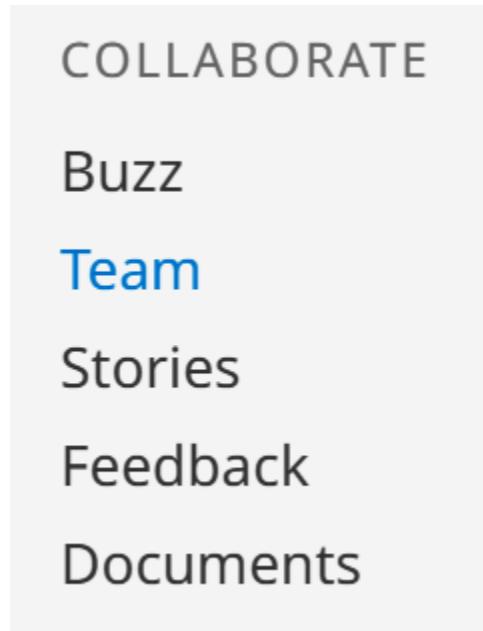
Hooray, there are no unstarted stories

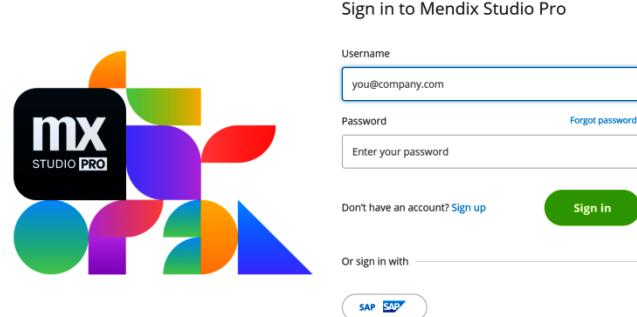
As a Developer, I would like to have access to the Mendix common functions library so that I can easily use standard functions in my app

There are no stories completed yet...

Mark current sprint as completed

Details





Open App

Where is your App stored?

Mendix Team Server Locally on disk

Team Server App

Team Server App

Approvals Template Demo
Lackluster Video

Open App

Where is your App stored?

Mendix Team Server Locally on disk

Team Server App

Development line

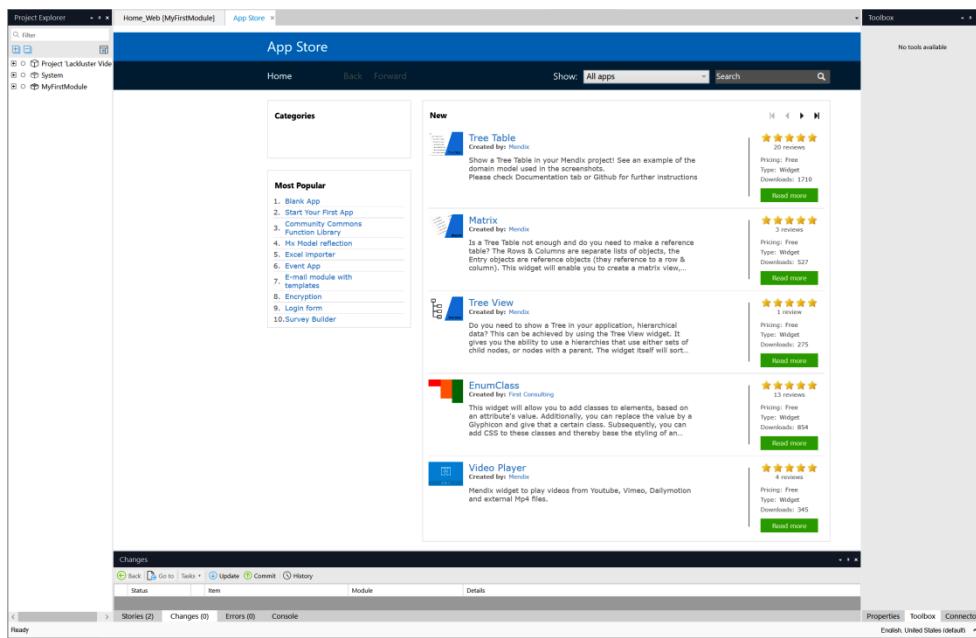
Disk location

You do not have this App on disk yet. Please choose a directory where the App will be downloaded.

Project directory

The project directory is the directory where the project file (.mpr) and related files such as Java actions and widgets are stored.





App Store

Home Back Forward Show: All apps Community commons Search

Download



[Download](#)

App Details

Community Commons Function Library

★★★★★
★★★★★

[Rate](#)

- [Overview](#)
- [Screenshots](#)
- [Documentation](#)
- [Release notes](#)
- [All Versions](#)
- [GitHub](#)

Created by:	Mendix
Release date:	12/20/2019
Type:	Module
Pricing:	Free
Support category:	Extended
Mendix Version:	7.23.6.53654
Categories:	Modules - All, Add-Ons - Modules
Tags:	

This module adds a number reusable Java methods to your project, which can be called from Microflows or custom Java actions. The content of this module is the result of many questions and answers posted at mxforum.mendix.com, and investigating several project.

The module adds functionality for working with Dates, Batches, Strings, Internet, Files, Configuration etc. See the documentation or screenshot for a complete list of functions.

Reviews

reduces the need for common functionalities to be built in almost projects
★★★★★
Posted by: Sairam Tanniru

Almost use it in every project
★★★★★
Posted by: Henriette Gresnich

The most used module, before trying to start creating some custom java action, I will check this one. Most...
★★★★★
Posted by: Hari sanker B

Import Module

Module

Name

Where

IMPORTANT: If you replace a module with a new version, existing user data will be retained based on the names of entities, attributes and associations. If you delete a module and then add a newer version of it, all user data will be lost.

Action Add as a new module Replace existing module

Project Explorer

Filter

[+] [-] [refresh]

- ● Project 'Lackluster Video'
 - 🛡 Settings
 - 🔑 Security
 - 🏠 Navigation
 - 📄 System texts
- ● App Store modules
 - [+] ○ 📦 Administration
 - [+] ○ 📦 Atlas_UI_Resources
 - [+] ○ 📦 CommunityCommons
- [+] ○ 📦 System
- [+] ○ 📦 MyFirstModule

Console		
Restart Stop Clear Scroll Lock Advanced ▾		
Date/time	Log node	Message
2020-07-19 21:20:16.952	Core	Certificates read.
2020-07-19 21:20:16.952	Core	Initializing license...
⚠ 2020-07-19 21:20:17.262	Core	The runtime has been started using a trial license, the framework will be terminated when the maximum time is exceeded!
2020-07-19 21:20:17.262	Core	Initialized license.
2020-07-19 21:20:19.225	Core	Mendix Runtime successfully started, the application is now available.

Changes

[Back](#) |
 [Go to](#) |
 [Tasks](#) ▾ |
 [Update](#) |
 [Commit](#) |
 [History](#)

	Status	Item	Module
✚	Added	CommunityCommons	CommunityCommons
✚	Added	(Domain model)	CommunityCommons
✚	Added	(Security)	CommunityCommons
✚	Added	StringUtil	CommunityCommons
✚	Added	SubstringAfterLast	CommunityCommons
✚	Added	IsStringSimplified	CommunityCommons

[Stories \(2\)](#)
[Changes \(125\)](#)
[Errors \(0\)](#)
[Console](#)

Commit

[Main line](#)

Message

Recent messages

Added Community commons module from the Mendix App Store.

[Related stories](#)
[Changes in model](#)
[Changes on disk](#)

[Refresh](#)

Story	Status
<input checked="" type="checkbox"/> ★ As a Developer, I would like to have access to the Mendix common functions library so that I...	Running

[OK](#)
[Cancel](#)

Commit

Steps

✓	Request changes from Mendix Studio
✓	Check working copy
✓	Update branch
➡	Commit to repository
	Finish commit
	Refresh status information...

Progress

Sending local changes to repository...

Sprint Status Burndown Chart Release Plan

Get started

Due 01 Aug

0%

To-do

Hooray, there are no unstarted stories

Running

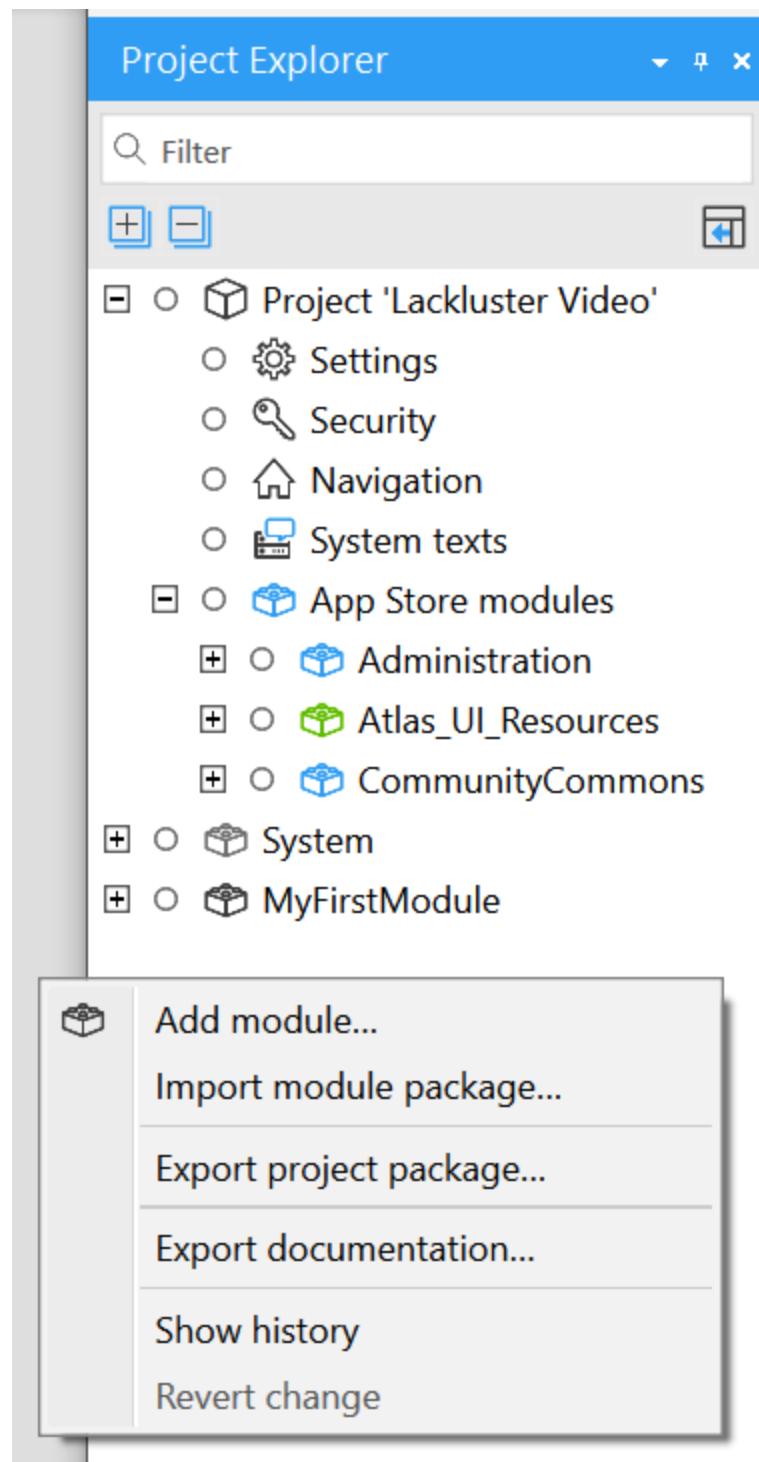
There are no running stories

Done

As a Developer, I would like to have access to the Mendix common functions library so that I can easily use standard functions in my app

[Details](#)

[Mark current sprint as completed](#)



Add module

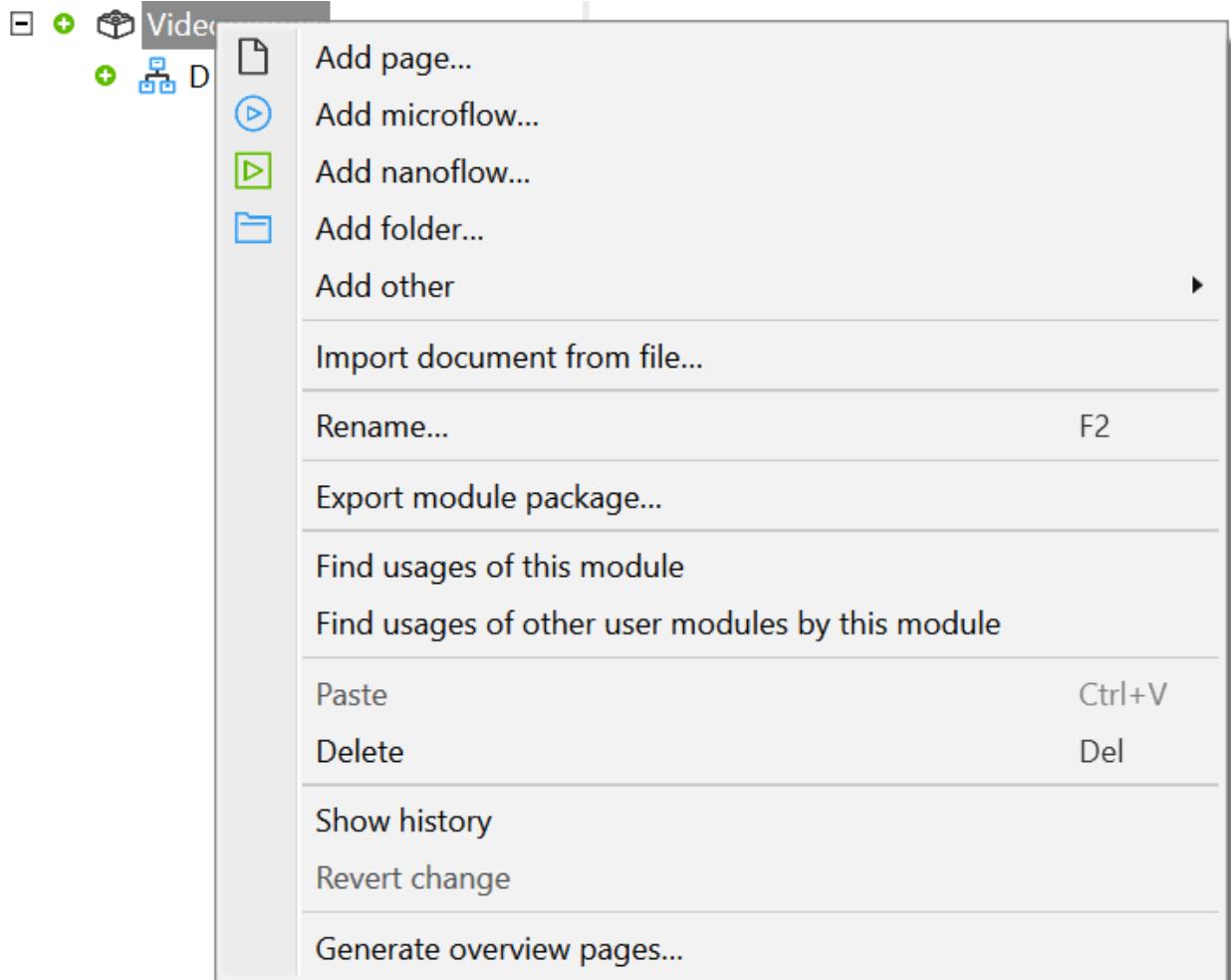
X

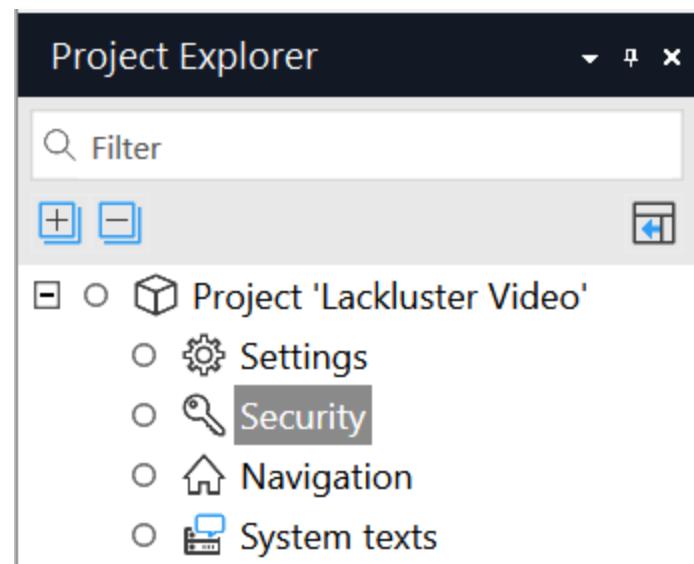
Name

VideoRentals

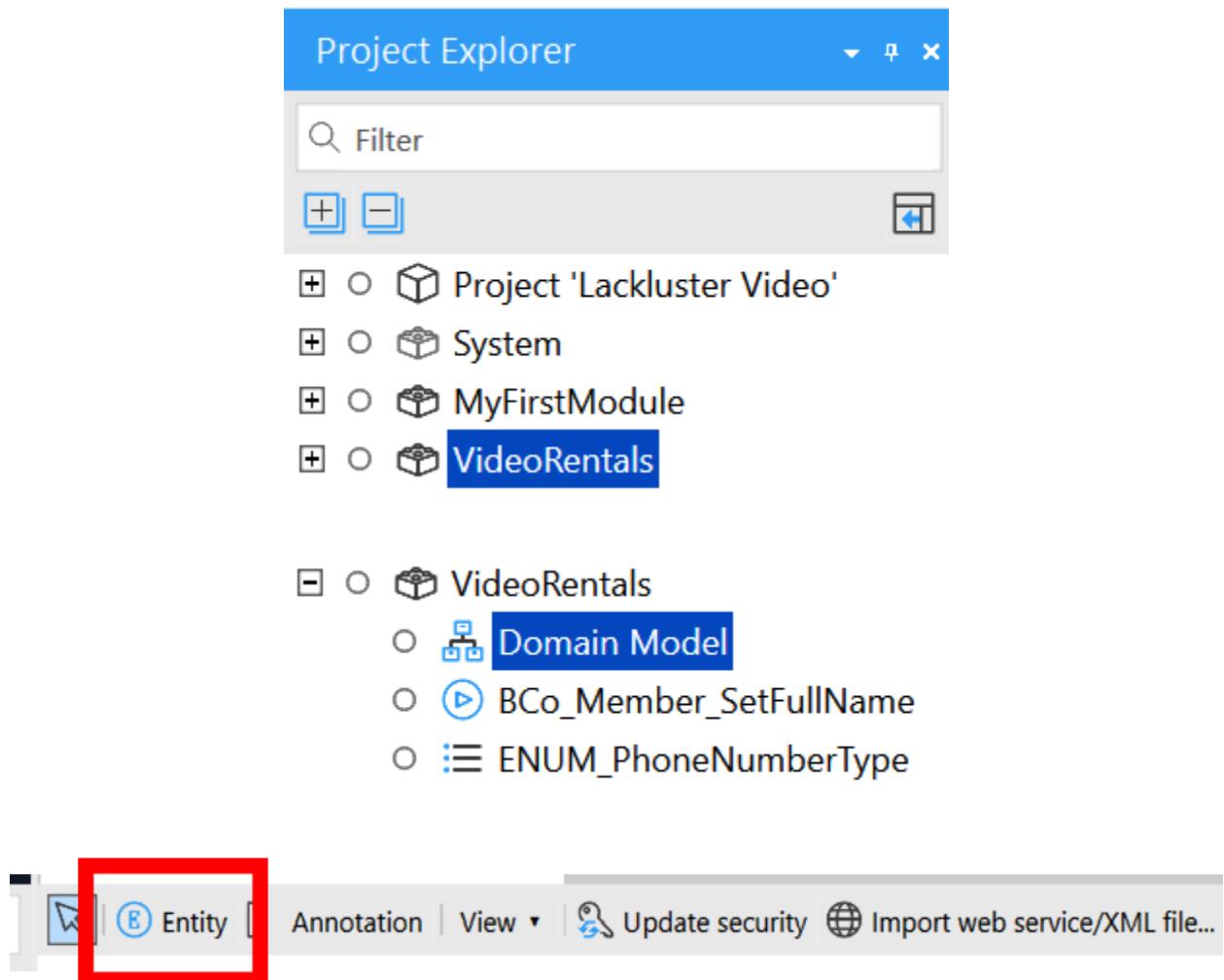
OK

Cancel





Chapter 06: Understanding Domain Model Basics



Properties of Entity 'VideoRentals.Entity'

General

Name	Entity
Generalization	(none) <input type="button" value="Select..."/>
Image	(none) <input type="button" value="Select..."/>
Persistable	<input checked="" type="radio"/> Yes <input type="radio"/> No

Objects of this entity can only be stored in the database if it is persistable.

System members

- Store 'createdDate'
- Store 'changedDate'
- Store 'owner'
- Store 'changedBy'

Documentation

[Attributes](#) [Associations](#) [Validation rules](#) [Event handlers](#) [Indexes](#)

Name	Type	Default value	Microflow

Properties of Entity 'VideoRentals.Entity'

General

Name	Member
Generalization	(none) <input type="button" value="Select..."/>
Image	(none) <input type="button" value="Select..."/>
Persistable	<input checked="" type="radio"/> Yes <input type="radio"/> No

Objects of this entity can only be stored in the database if it is persistable.

System members

- Store 'createdDate'
- Store 'changedDate'
- Store 'owner'
- Store 'changedBy'

Documentation

Entity to hold the member object, a member is a person who can rent videos from the video rental store.

Member

[New App](#)[Open App](#) Search your Apps

Recent Apps

 Lackluster Video
Branch line 'Chapter6' (Team Server) [Project Dashboard](#) [Open](#)

Project Explorer ▼ ▲ ×

Filter

+ - ↶ ↷

- + ○ 📦 Project 'Lackluster Video'
- + ○ 📦 System
- + ○ 📦 MyFirstModule
- ○ 📦 VideoRentals
 - 📦 Domain Model
 - ▶ BC0_Member_SetFullName
 - ☰ ENUM_PhoneNumberType

📄 New 📄 Insert new above selected ✎ Edit ⓧ Delete | ▲ Move up ▼ Move down

Properties of Entity 'VideoRentals.Member'

General

Name: Member
Generalization: (none)
Image: (none)
Persistable: Yes No
Objects of this entity can only be stored in the database if it is persistable.

System members

Store 'createdDate'
 Store 'changedDate'
 Store 'owner'
 Store 'changedBy'

Documentation

Entity to hold the member object, a member is a person who can rent videos from the video rental store.

Attributes | Associations | Validation rules | Event handlers | Indexes

New Insert new above selected Edit Delete ▲ Move up ▼ Move down

Name	Type	Default value	Microflow
MemberId	AutoNumber	1	
FirstName	String (200)		
LastName	String (200)		
FullName	String (200)		
Active	Boolean	true	

Member

MemberId (AutoNumber)
FirstName (String)
LastName (String)
FullName (String)
Active (Boolean)

Edit Attribute

Common

Name

Documentation

Type

Type

A value of type String is a text containing letters, spaces, numbers and other characters.

Length Limited Unlimited

Max length

Value

Value Calculated Stored

Default value



OK

Cancel

Edit Attribute

Common

Name

Documentation

Type

Type

A value of type Enumeration is one of the values of the selected enumeration.

Enumeration

Enumeration values

Value

Value Calculated Stored

Default value



OK

Cancel

Select Enumeration



Filter

Expand All Collapse All

App Store modules

System

MyFirstModule

VideoRentals

ENUM_PhoneNumberType

Select

New

Cancel

Enumeration 'VideoRentals.ENUM_PhoneNumberTYpe'



Common

Name

Enumeration values

New Edit Delete | Move up Move down Find usages

Caption	Name	Image



OK

Cancel

Enumeration 'VideoRentals.ENUM_PhoneNumberType'

— □ ×

Common

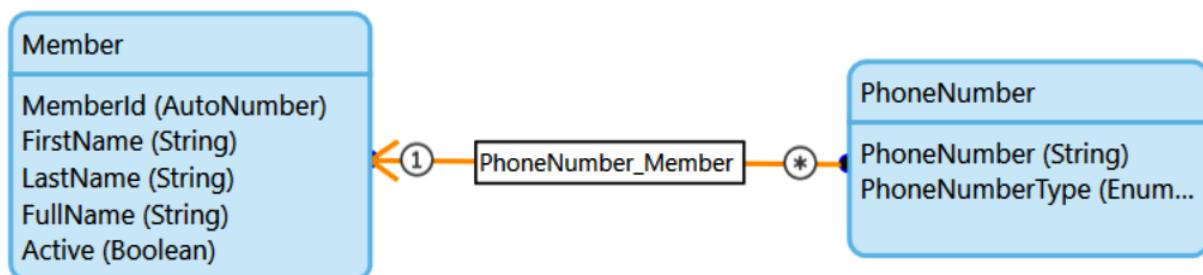
Name	ENUM_PhoneNumberType
------	----------------------

Enumeration values

New Edit Delete | Move up Move down | Find usages

Caption	Name	Image
Home	Home	
Work	Work	
Cell	Cell	

? OK Cancel



Attributes Associations Validation rules Event handlers Indexes

New Edit Delete | Move up Move down

Attribute	Rule	Error message
FirstName	Required	First name is required.

Edit Event Handler

When
Moment <input checked="" type="radio"/> Before <input type="radio"/> After
Event <input type="radio"/> Create <input checked="" type="radio"/> Commit <input type="radio"/> Delete <input type="radio"/> Rollback
What
Pass event object <input checked="" type="radio"/> Yes <input type="radio"/> No
Microflow VideoRentals.BCo_Member_SetFullName <input type="button" value="Select..."/> <input type="button" value="Show"/>
<input checked="" type="checkbox"/> Raise an error when the microflow returns false.
<input type="button" value="OK"/> <input type="button" value="Cancel"/>

Attributes	Associations	Validation rules	Event handlers	Indexes								
			New Edit Delete Go to microflow <table border="1"> <tr> <th>Moment</th> <th>Event</th> <th>Microflow</th> <th>Raises error</th> </tr> <tr> <td>Before</td> <td>Commit</td> <td>VideoRentals.BCo_Member_SetFullName</td> <td><input checked="" type="checkbox"/></td> </tr> </table>	Moment	Event	Microflow	Raises error	Before	Commit	VideoRentals.BCo_Member_SetFullName	<input checked="" type="checkbox"/>	
Moment	Event	Microflow	Raises error									
Before	Commit	VideoRentals.BCo_Member_SetFullName	<input checked="" type="checkbox"/>									



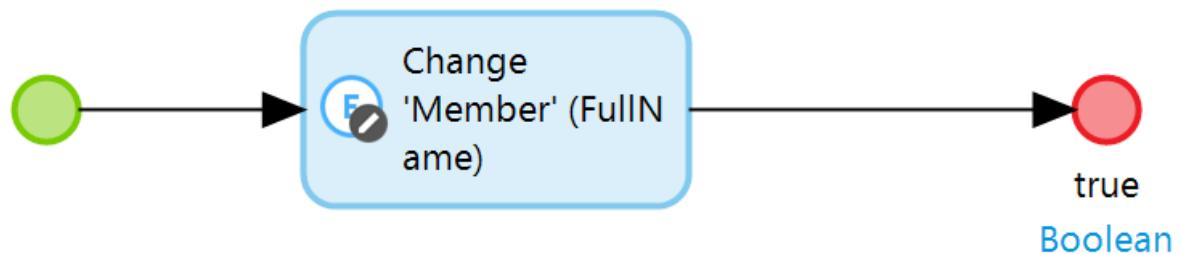
Change Object

Input										
Object Member (VideoRentals.Member)										
Action										
Commit <input type="radio"/> Yes <input type="radio"/> Yes without events <input checked="" type="radio"/> No										
Refresh in client <input type="radio"/> Yes <input checked="" type="radio"/> No										
New Edit Delete Move up Move down										
<table border="1"> <thead> <tr> <th></th> <th>Member</th> <th>Member type</th> <th>Type</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td></td> <td>FullName</td> <td>String (200)</td> <td>Set</td> <td>\$Member/FirstName + ' ' + \$Member/LastName</td> </tr> </tbody> </table>		Member	Member type	Type	Value		FullName	String (200)	Set	\$Member/FirstName + ' ' + \$Member/LastName
	Member	Member type	Type	Value						
	FullName	String (200)	Set	\$Member/FirstName + ' ' + \$Member/LastName						



Member

Member



Properties of Entity 'VideoRentals.Member'

General

Name: Member

Generalization: (none)

Image: (none)

Persistable: Yes

System members:

- Store 'createdDate'
- Store 'changedDate'
- Store 'owner'
- Store 'changedBy'

Documentation:

Entity to hold the member object, a member is a person who can rent videos from the video rental store.

Attributes

Edit Index of Entity 'VideoRentals.Member'

Index Attributes

Attribute: memberId (AutoNumber)

Available attributes:

- FirstName (String (200))
- LastName (String (200))
- FullName (String (200))
- Active (Boolean)
- changedDate (Date and time)
- createdDate (Date and time)

OK Cancel

OK Cancel

Attributes

Associations

Validation rules

Event handlers

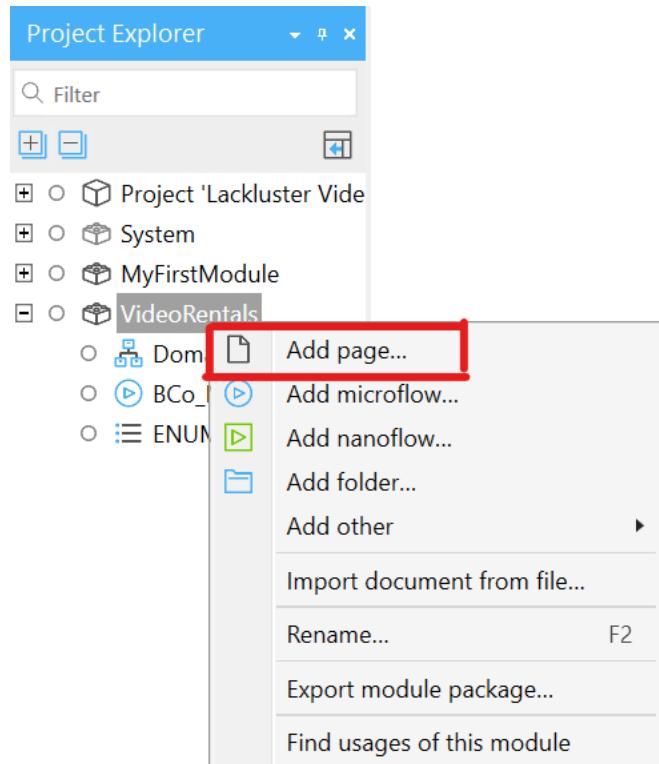
Indexes

New Edit Delete

Attribute

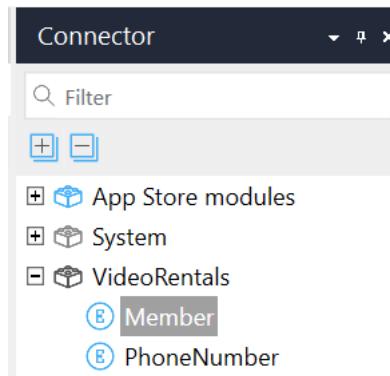
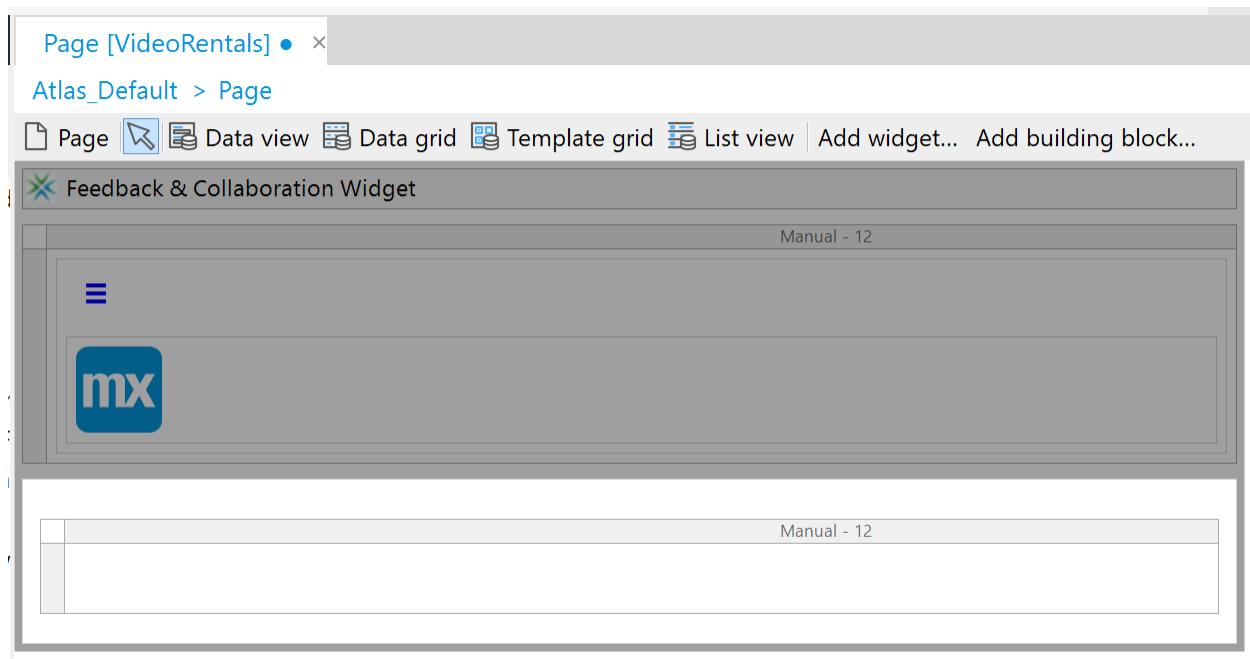
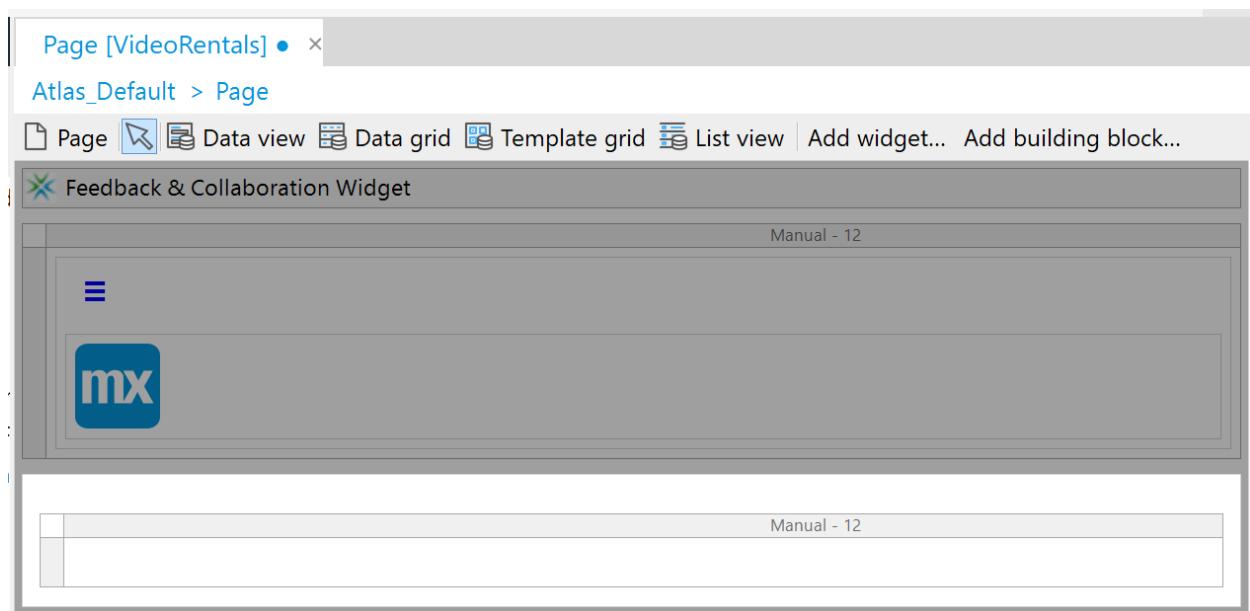
MemberId (AutoNumber) ASC

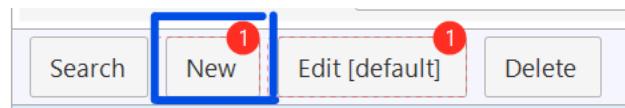
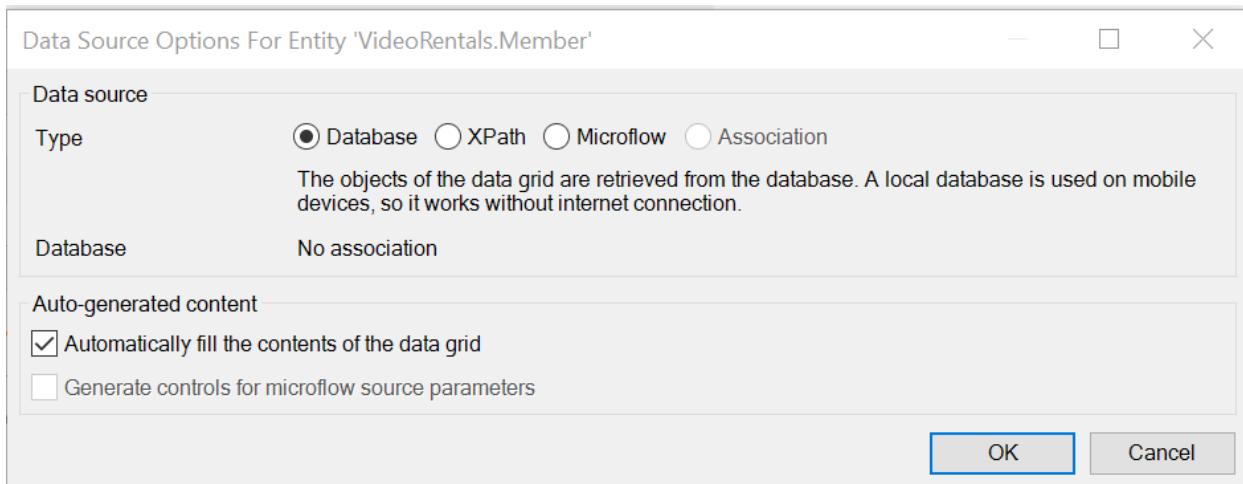
Chapter 07: Understanding the Basics of Page Design



Create Page

Responsive (Web)	Tablet (Web)	Phone (Web)	Native mobile
Page name	Member_Overview	Navigation layout	Atlas_Default (Atlas_UI_Resources)
<ul style="list-style-type: none">DashboardsListsFormsDetail PagesMaster DetailGridsTabsWizardsChatsBlank	<div style="border: 2px solid blue; padding: 10px; text-align: center;">Blank Page Template</div> <p>Blank</p>		
<div style="text-align: right; margin-top: 10px;">OK Cancel</div>			





Member_Overview [VideoRentals] ×

Atlas_Default > Member_Overview

Page Data view Data grid Template grid List view Add widget... Add building block...

Manual - 12

[Member, from database]

Member id = [MemberId] First name ≈ [FirstName] Last name ≈ [LastName]

Feedback & Collaboration Widget

Manual - 12

mx

Hero Header Title

Hero header subtitle or text

[Member, from database]

Member id [MemberId]	First name [FirstName]	Last name [LastName]
Full name [FullName]	Active [Active]	

Search New Edit [default] Delete

Sort order: (default)

Member id [MemberId]	First name [FirstName]	Last name [LastName]	Full name [FullName]	Active [Active]
20%	20%	20%	20%	20%

Manual - 12

Manual - 12



Members

These are all the members of the video rental store.

Project Explorer

Filter

+ -

Project 'Lackluster Video'

- Settings
- Security
- Navigation
- System texts
- App Store modules

Profiles

Navigation profiles can be used to create a different navigation for different devices and screens.

Add navigation profile

Responsive Hybrid phone app online

General

Application title Mendix

Home pages

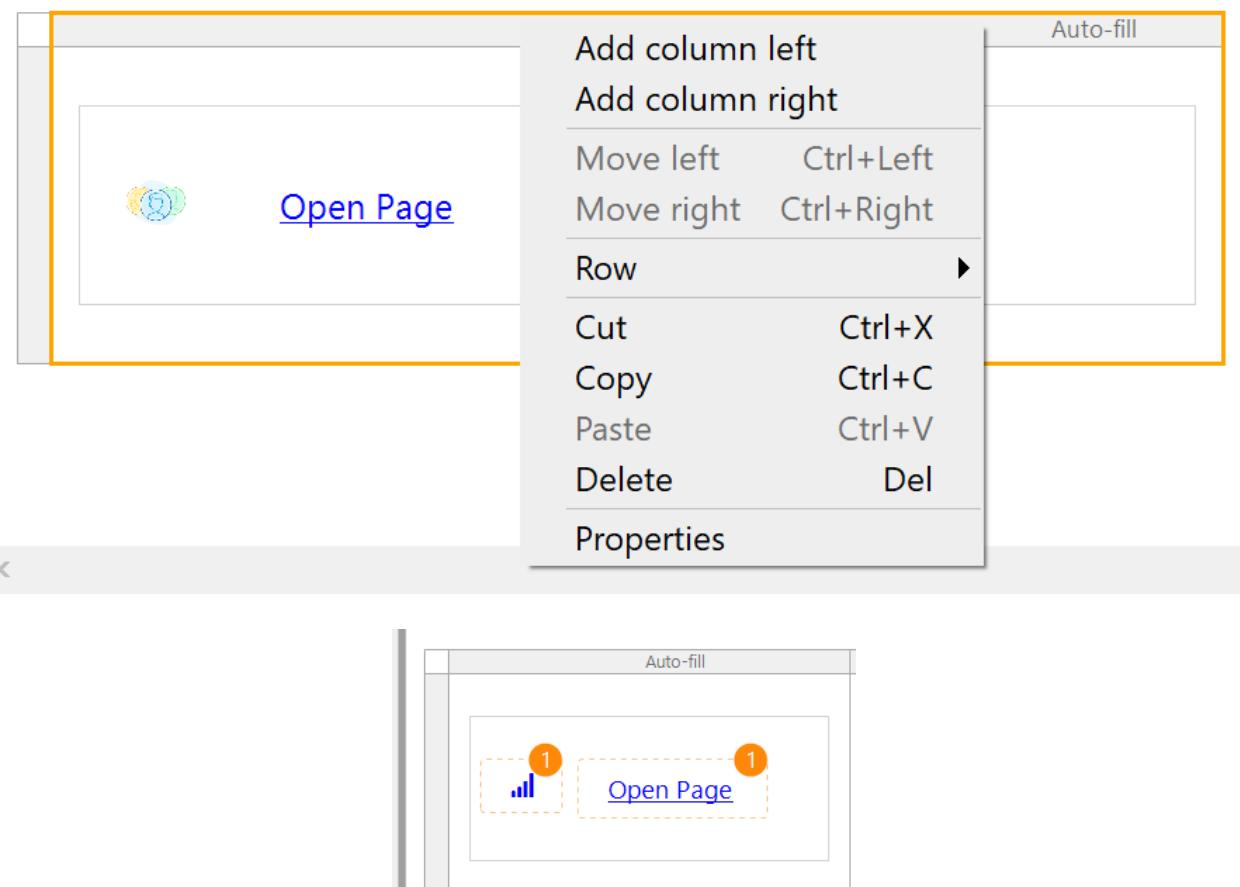
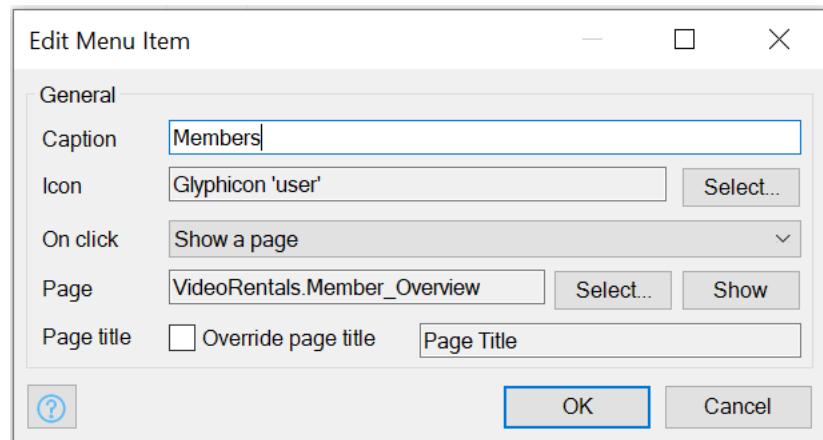
Default home page MyFirstModule.Home_Web

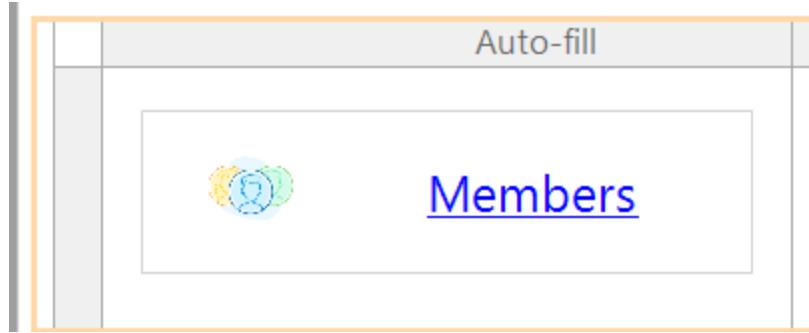
Role-based home pages (none)

Menu

New item (highlighted with red box) New subitem Edit Delete Go to target Expand all Collapse all Role-based view

Caption	Action	User Roles
Home	Open page 'MyFirstModule.Home_Web'	





Atlas_Default > Member_Overview

Page Data view Data grid Template grid List view | Add widget... Add building block...

Auto-fill

[Member, page parameter]

Member id
[MemberId]

First name
[FirstName]

Last name
[LastName]

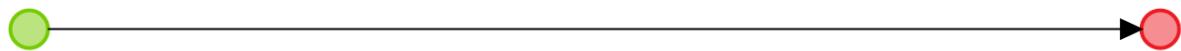
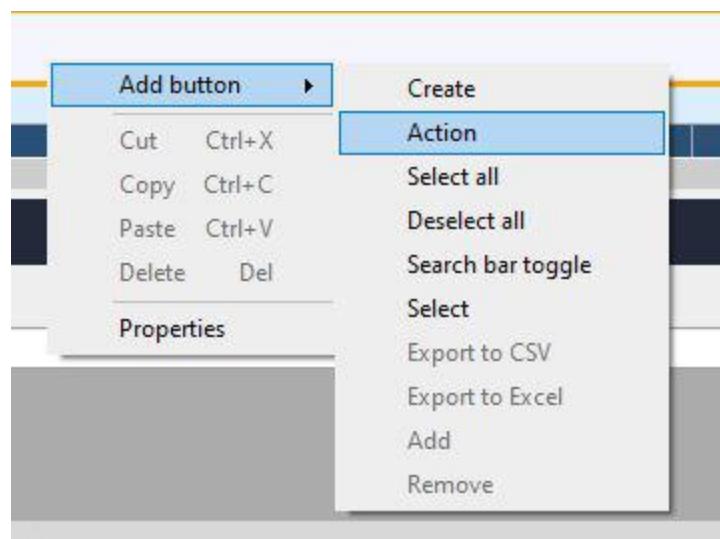
Full name
[FullName]

Active
 Yes No [Active]

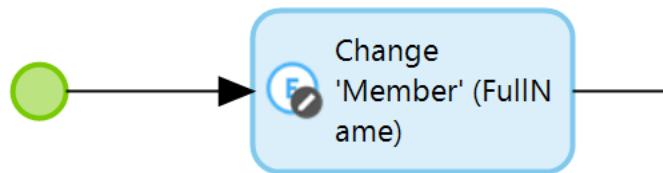
[PhoneNumber, over association 'PhoneNumber_Member']

Phone number type [PhoneNumberType]	Phone number [PhoneNumber]
50%	50%
(10 more rows)	

Save **Cancel**

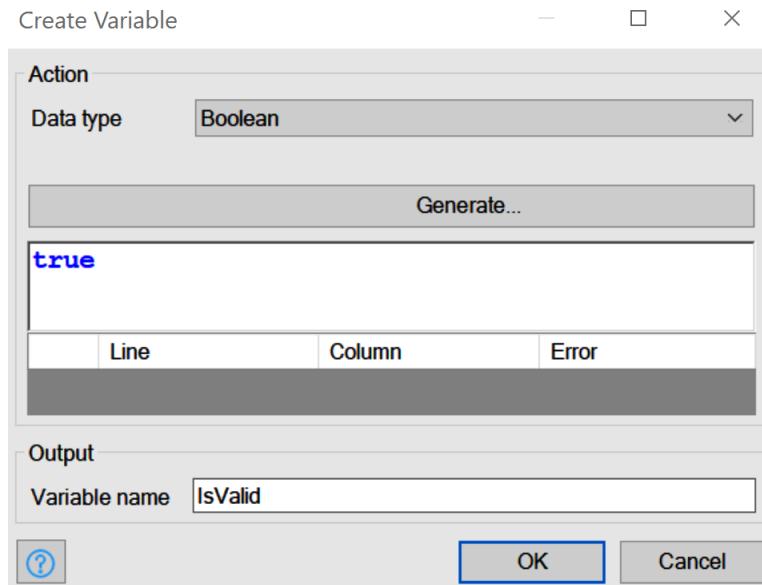
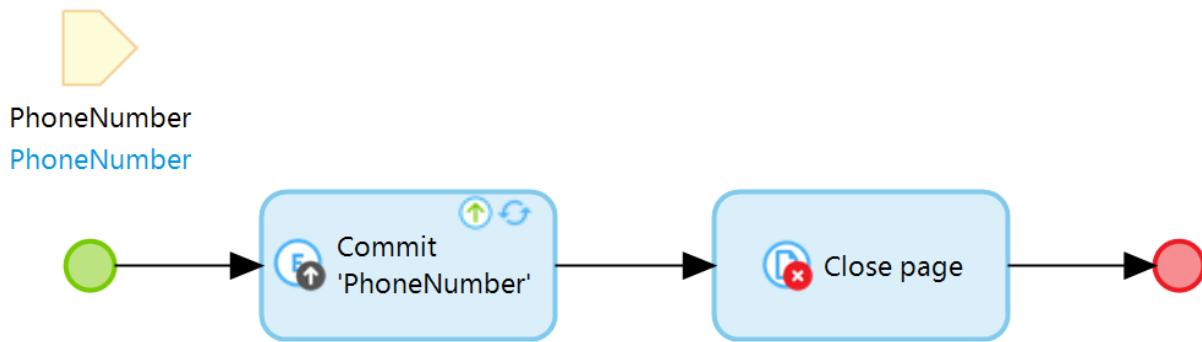
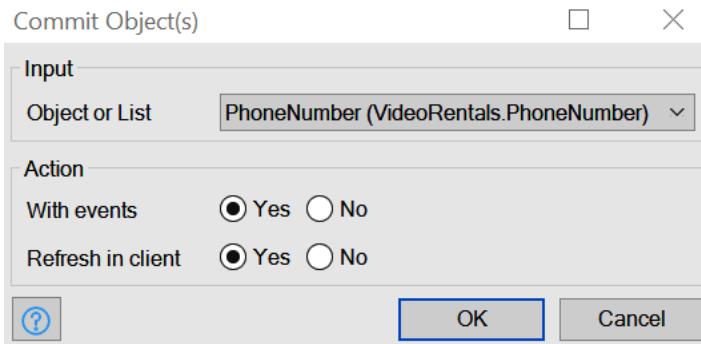


Chapter 08: Getting to Know Microflows



- ⊖ Object
 - ⟳ Cast object
 - ⟲ Change object
 - ⟳↑ Commit object(s)
 - ⟳+ Create object
 - ⟳✖ Delete object(s)
 - ⟳🔍 Retrieve
 - ⟳.Rollback object
- ⊖ List
 - ⟳ Aggregate list
 - ⟲ Change list
 - ⟳+ Create list
 - ⟲ List operation





Decision

Common

Caption **Phone Number Exists?**

Decision Type Expression Rule

Expression **`$PhoneNumber/PhoneNumber!=empty
and
$PhoneNumber/PhoneNumber!=''`**

Line **Column** **Error**

OK **Cancel**

This screenshot shows the 'Decision' dialog box. It has tabs for 'Common' (selected) and 'Expression'. The 'Caption' field contains 'Phone Number Exists?'. The 'Decision Type' section has two radio buttons: 'Expression' (selected) and 'Rule'. The 'Expression' tab displays the expression '\$PhoneNumber/PhoneNumber!=empty and \$PhoneNumber/PhoneNumber!='''. Below the expression are three buttons: 'Line', 'Column', and 'Error'. At the bottom are 'OK' and 'Cancel' buttons.

Validation Feedback

Action

Variable **PhoneNumber (VideoRentals.PhoneNumber)**

Member **PhoneNumber**

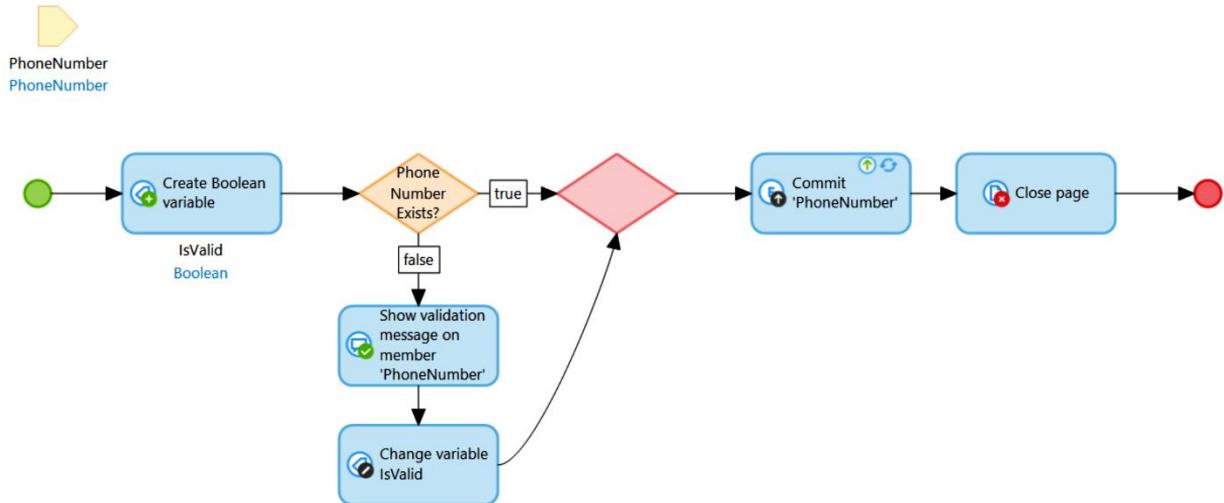
Template ***Required**

Parameters **New** **Edit** **Delete** **Move up** **Move down**

Index **Expression**

OK **Cancel**

This screenshot shows the 'Validation Feedback' dialog box. It has a 'Action' section with 'Variable' set to 'PhoneNumber (VideoRentals.PhoneNumber)', 'Member' set to 'PhoneNumber', and 'Template' set to '*Required'. Below this is a 'Parameters' section with buttons for 'New', 'Edit', 'Delete', 'Move up', and 'Move down'. At the bottom are 'Index' and 'Expression' buttons. At the very bottom are 'OK' and 'Cancel' buttons.



Decision

Common

Caption	Phone Number Type Selected
---------	----------------------------

Decision Type Expression Rule

Expression

```
$PhoneNumber/PhoneNumberType !=empty
```

	Line	Column	Error

Validation Feedback

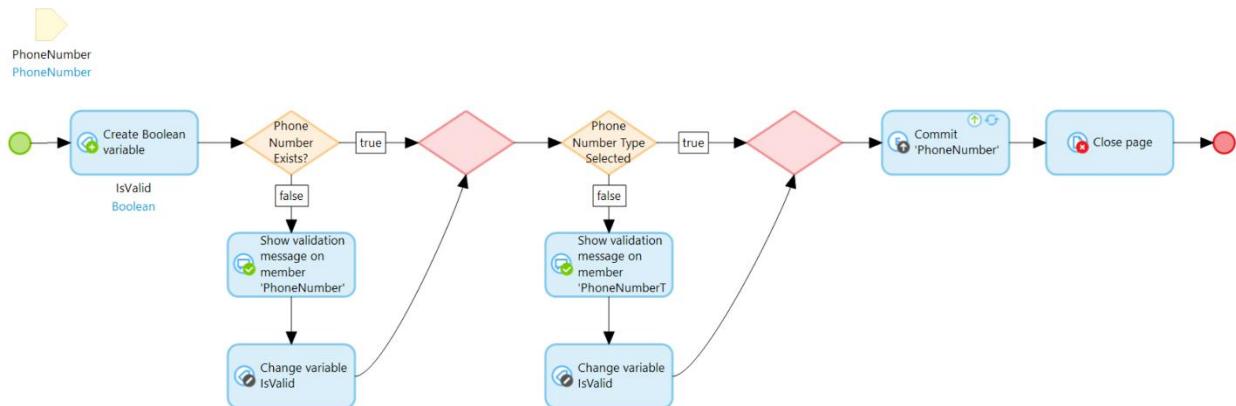
Action

Variable	PhoneNumber (VideoRentals.PhoneNumber)
Member	PhoneNumberType
Template	*Required

Parameters

New	Edit	Delete	Move up	Move down
Index	Expression			

? OK Cancel



Decision

Common

Caption	IsValid?
---------	----------

Decision Type Expression Rule

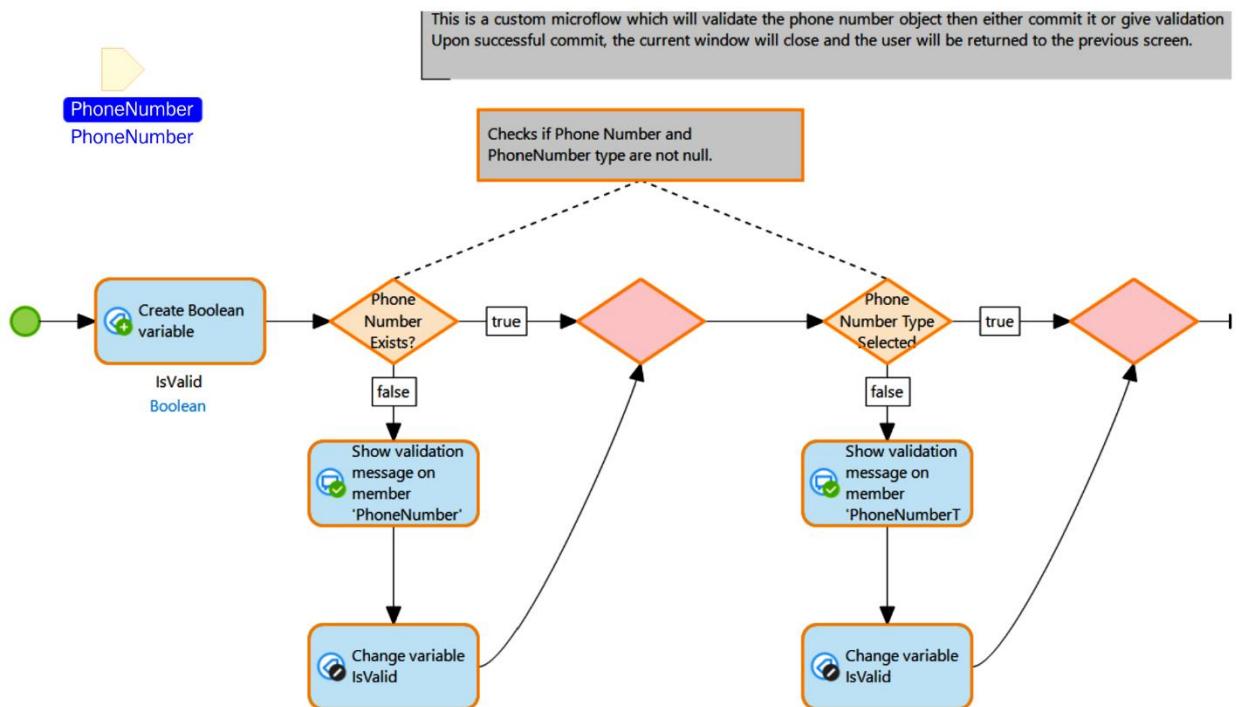
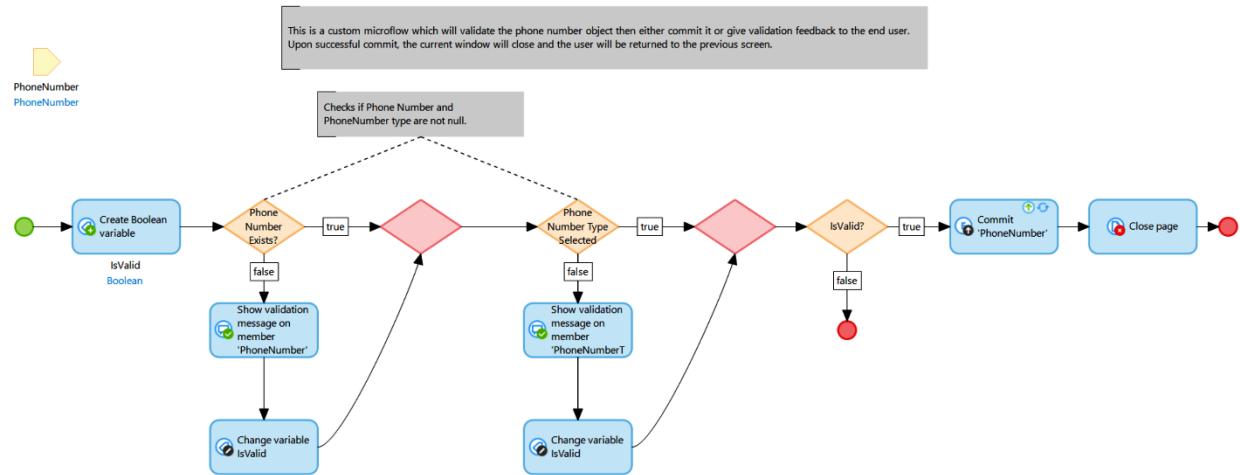
Expression

Expression wizard...

\$IsValid

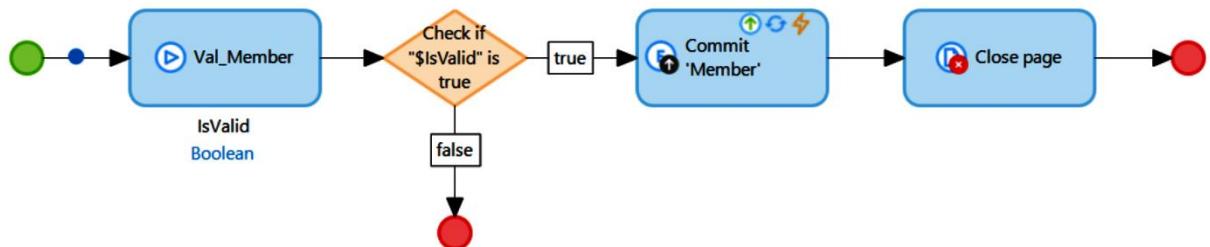
	Line	Column	Error

? OK Cancel

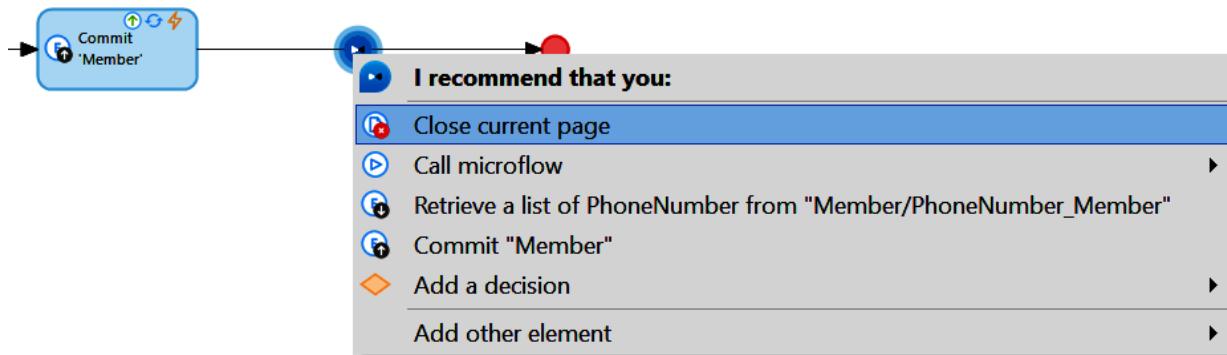
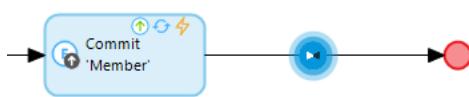
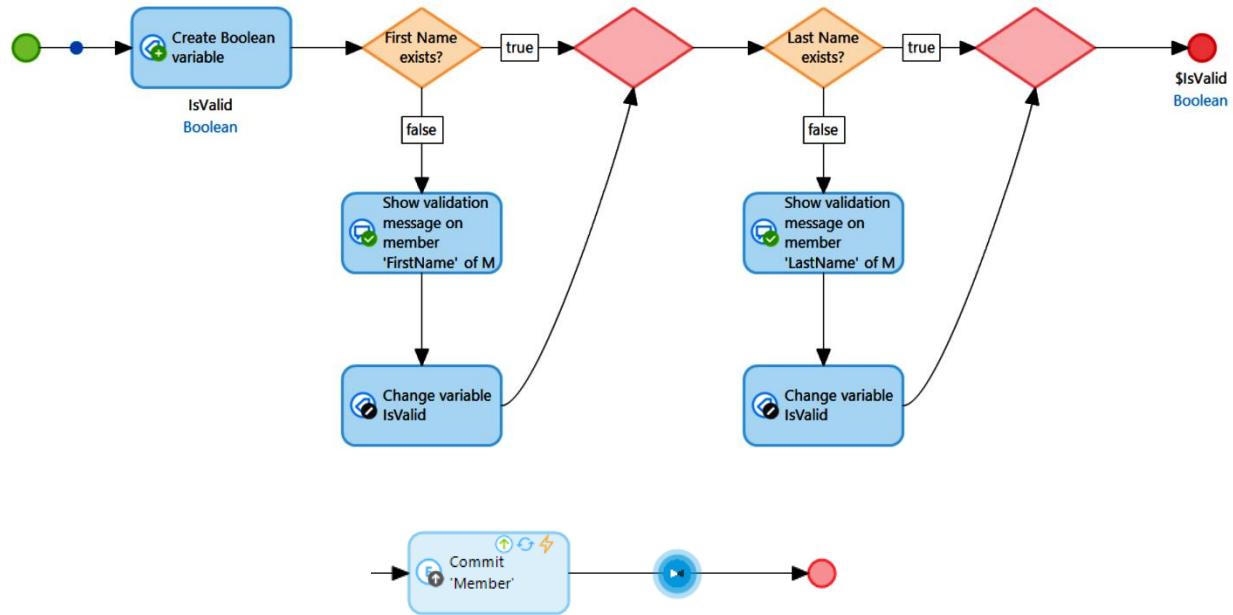




Member
Member



Member
Member



Chapter 09: Customizing your App

Example	Returns
<code>toLowerCase('hereIsaRANDOMString')</code>	hereisarandomstring
<code>toUpperCase('hereIsaRANDOMString')</code>	HEREISARANDOMSTRING

Example	Returns
<code>length('hereIsaRANDOMString')</code>	19

Example	Returns
<code>substring('Hello World',3)</code>	'lo World'
<code>substring('Hello World',7)</code>	'orld'
<code>substring('Hello World',0,5)</code>	'Hello'
<code>substring('Hello World',6,2)</code>	'Wo'
<code>substring('Hello World',27)</code>	ERROR

Example	Returns
<code>find('Hello World', 'World')</code>	6
<code>find('Hello World', 'Goodbye')</code>	-1
<code>find('Hello World', 'o', 6)</code>	7

Example	Returns
<code>contains('Hello World', 'World')</code>	true
<code>contains('Hello World', 'world')</code>	false
<code>contains('Hello World', 'o')</code>	true

Example	Returns
<code>replaceAll('Hello World', 'World', 'Galaxy')</code>	'Hello Galaxy'
<code>replaceAll('Hello World', 'world', 'Galaxy')</code>	'Hello World'
<code>replaceAll('Hello World', 'Hello', "")</code>	' World'
<code>replaceAll('Hello World', 'I', "")</code>	'Heo Word'

Example	Returns
<code>'Hello' + 'World'</code>	'HelloWorld'
<code>'Hello' + '' + 'World'</code>	'Hello World'
<code>'Hello' + ' Big ' + 'World'</code>	'Hello Big World'

Example	Returns
<code>urlEncode('Hello World')</code>	'Hello+World'
<code>urlEncode('Hello, World!')</code>	'Hello%2C+World%21'
<code>urlDecode('Hello%2C+World%21')</code>	'Hello, World!'

Example	Returns
<code>parseInteger('100')</code>	100
<code>parseInteger('100S')</code>	<i>error</i>

Example	Returns
<code>trim(' Hello World ')</code>	'Hello World'
<code>trim(' ')</code>	"

Example	Returns
$3 + 5$	8
$10 - 4$	6
$3 * 4$	12
$12 \text{ div } 4$ OR $12 : 4$	3
$20 + 5 : 5$	21
$(20 + 5) : 5$	5

Example	Returns
$\max(1, 2, 5.9, 2, 7.3)$	7.3
$\min(3, 6, 1, 7, 3)$	1

Example	Returns
$\text{round}(2.2)$	2
$\text{round}(2.5)$	3
$\text{round}(4.67643, 2)$	4.68
$\text{ceil}(3.11)$	4
$\text{floor}(7.99999)$	7

Example	Returns
<code>toString(1)</code>	'1'

Example	Returns
<code>addDays(dateTime(2020, 1, 3), 4)</code>	2020-01-07
<code>addDays(dateTime(2020, 1, 3), -4)</code>	2019-12-30
<code>addYears(dateTime(2020, 1, 3), 2)</code>	2022-01-03

Example	Returns
<code>daysBetween(dateTime(2020, 1, 3),dateTime(2020, 1, 7))</code>	4
<code>daysBetween(dateTime(2003, 1, 3),[%CurrentDateTime%])</code>	Varies but at the time of writing this 6395.938025

Enumeration 'LacklusterVideo.ENU_Example'

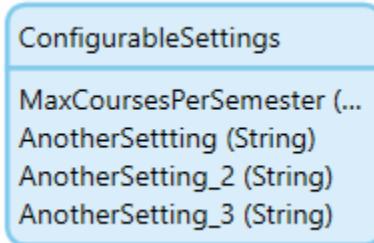
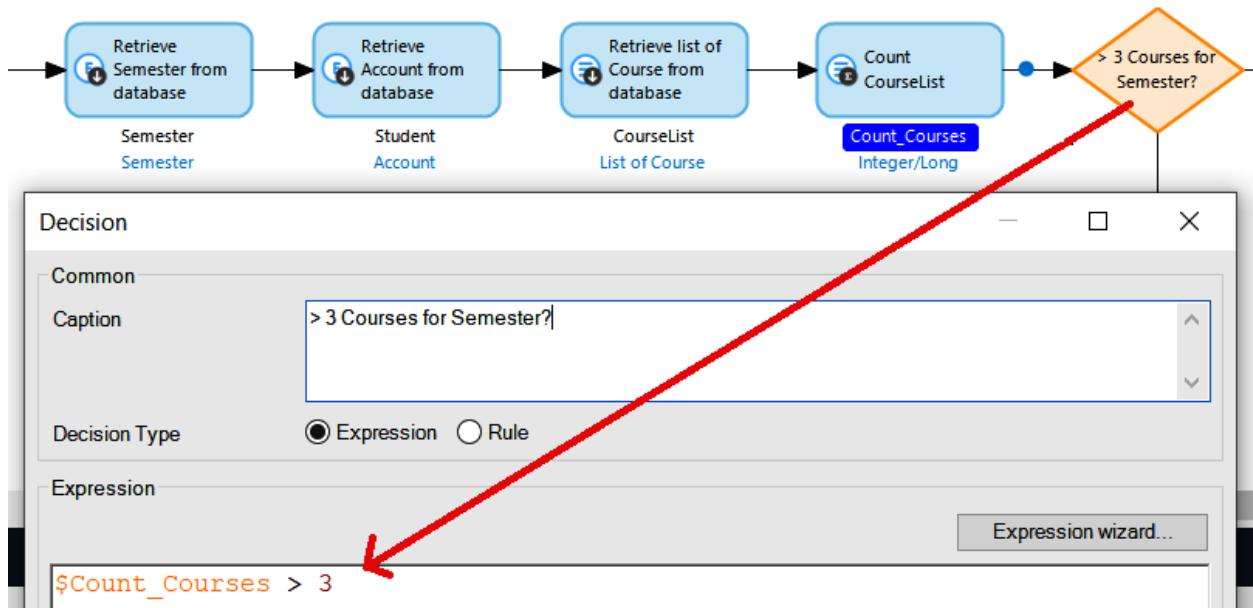
Common

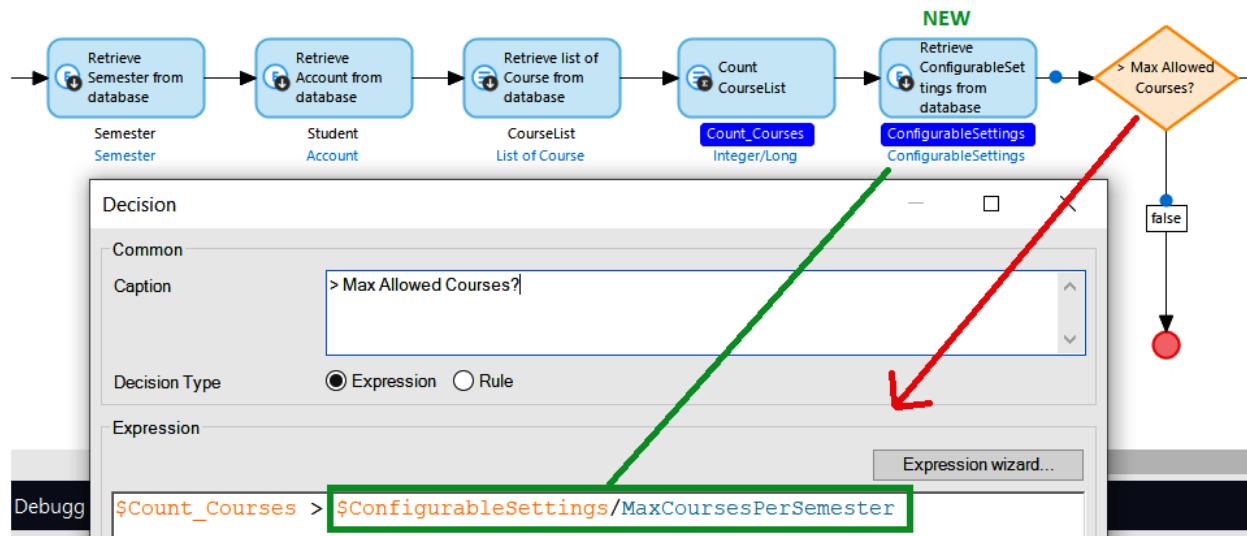
Name	ENU_Example
------	-------------

Enumeration values

New Delete Move down		
Caption	Name	Image
This is choice 1	This_is_choice_1	
This is another choice	This_is_another_choice	
This is your last choice	This_is_your_last_choice	

Example	Returns
<code>dateTime(2003, 1, 3) < dateTime(2003, 1, 5)</code>	True
<code>'MyString' = 'MyString'</code>	True
<code>4 != 5</code>	True





Application Settings

Max courses per semester

4

Another setting

Another setting 2

Another setting 3

Save



Community Commons Function Library

Created by: Mendix



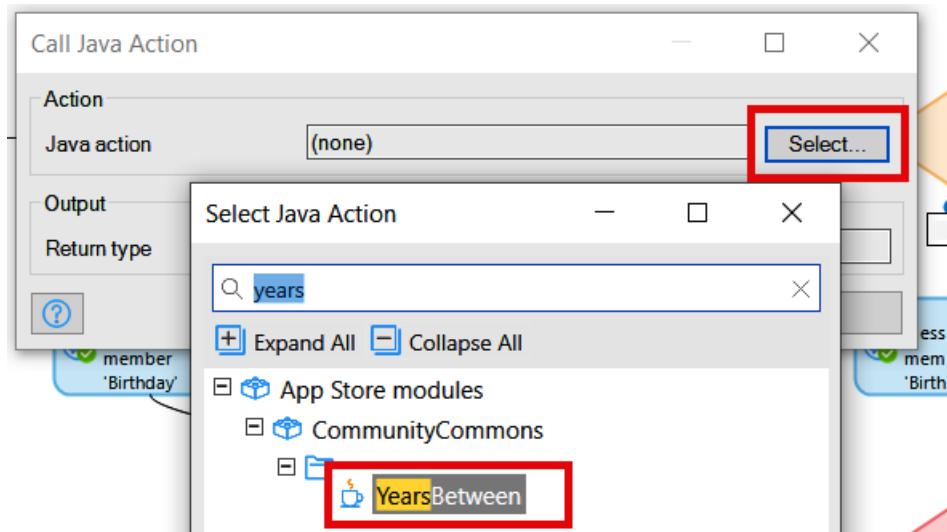
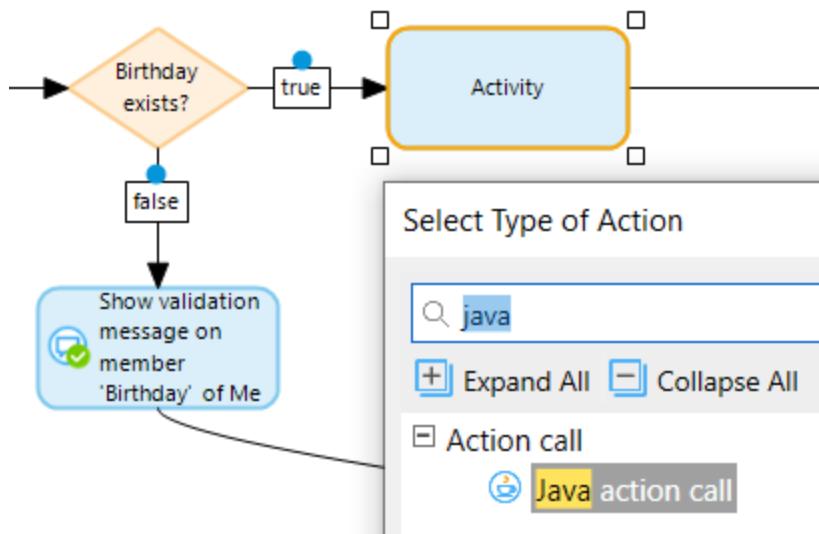
ObjectHandling

Created by: Mendix



FileHandling

Created by: Mendix



Years Between



Input

Date time

Expression: \$Member/Birthday

[Edit...](#)

Start date

Compare date

CurrentDateTime

[Edit...](#)

Comparison date

Output

Return type

Integer/Long

Use return value

Yes No

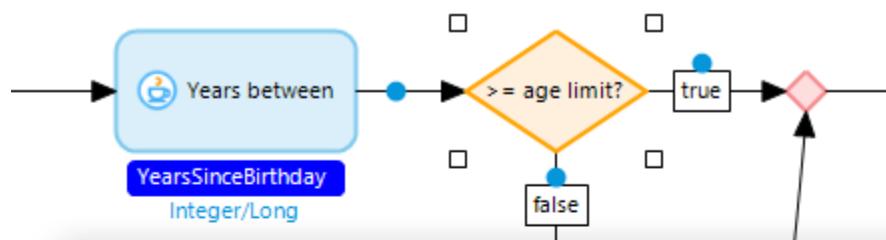
Variable name

YearsSinceBirthday



[OK](#)

[Cancel](#)



Decision

Common

Caption

>= age limit?

Decision Type

Expression Rule

Expression

\$YearsSinceBirthday >= 18

Birthday

9/24/2017



*Member does not meet minimum age requirement

Add module

X

Name

Configuration

OK

Cancel

Properties of Entity 'Configuration.Configuration'

General

Name

Configuration

Generalization

(none)

Select...

Image

(none)

Select...

Persistable

Yes No

Objects of this entity can only be stored in the database if it is persistable.

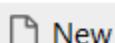
Attributes

Associations

Validation rules

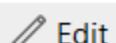
Event handlers

Indexes

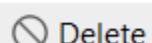


New

Insert new above selected



Edit



Delete



Name

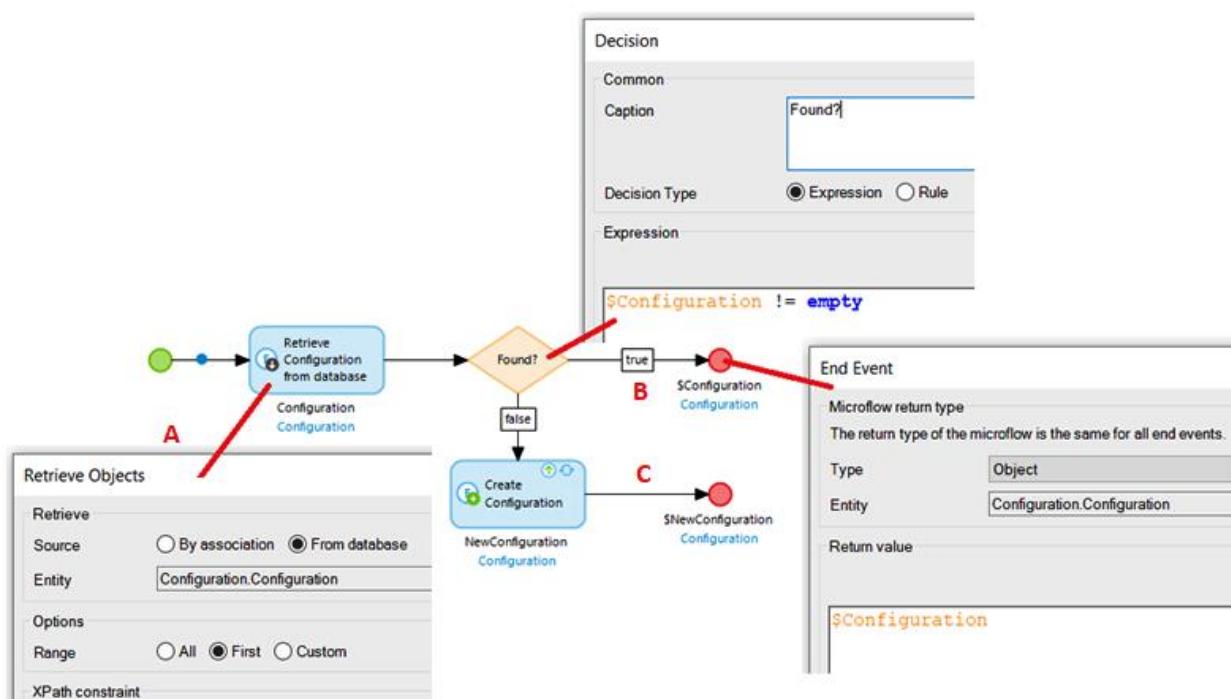
Type

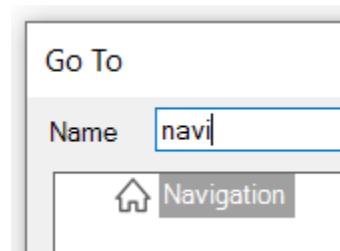
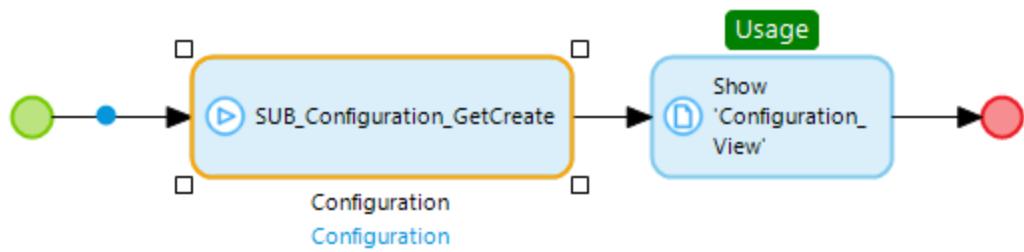
MemberMinimumAge

Integer

<p style="text-align: center;">Auto-fit content</p> <h2 style="margin: 0;">System Configuration</h2> <p style="margin: 0;">Control application level configurations from this page</p>	<p style="text-align: center;">Auto-fill</p>
--	--

<p style="text-align: right;">Auto-fit content</p> <p>[Configuration, page parameter]</p> <p>Minimum age [MinimumAge]</p> <p style="text-align: center;">Save Cancel</p>	<p style="text-align: center;">Auto-fill</p>
--	--

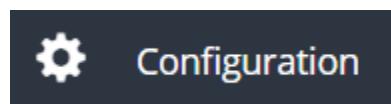




Edit Menu Item

General

Caption	<input type="text" value="Configuration"/>
Icon	<input type="text" value="glyphicon 'cog'"/> <input type="button" value="Select..."/>
On click	<input type="button" value="Call a microflow"/>
Microflow	<input type="text" value="Configuration.ACT_Configuration_View"/> <input type="button" value="Select..."/> <input type="button" value="Show"/>
Microflow settings	<input type="button" value="Edit..."/>



System Configuration

X

System Configuration

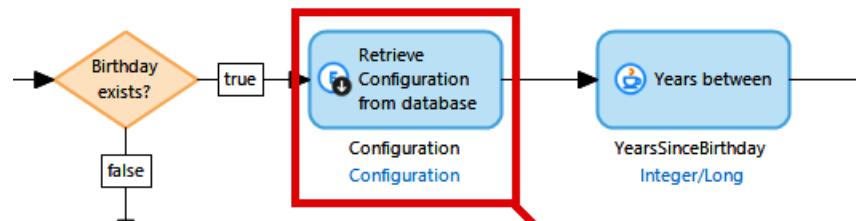
Control application level configurations from this page

Member
minimum age

16

Save

Cancel



Retrieve Objects

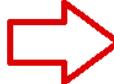
Retrieve	<input type="radio"/> By association <input checked="" type="radio"/> From database
Source	Configuration.Configuration
Entity	
Options	
Range	<input type="radio"/> All <input checked="" type="radio"/> First <input type="radio"/> Custom
XPath constraint	

Decision

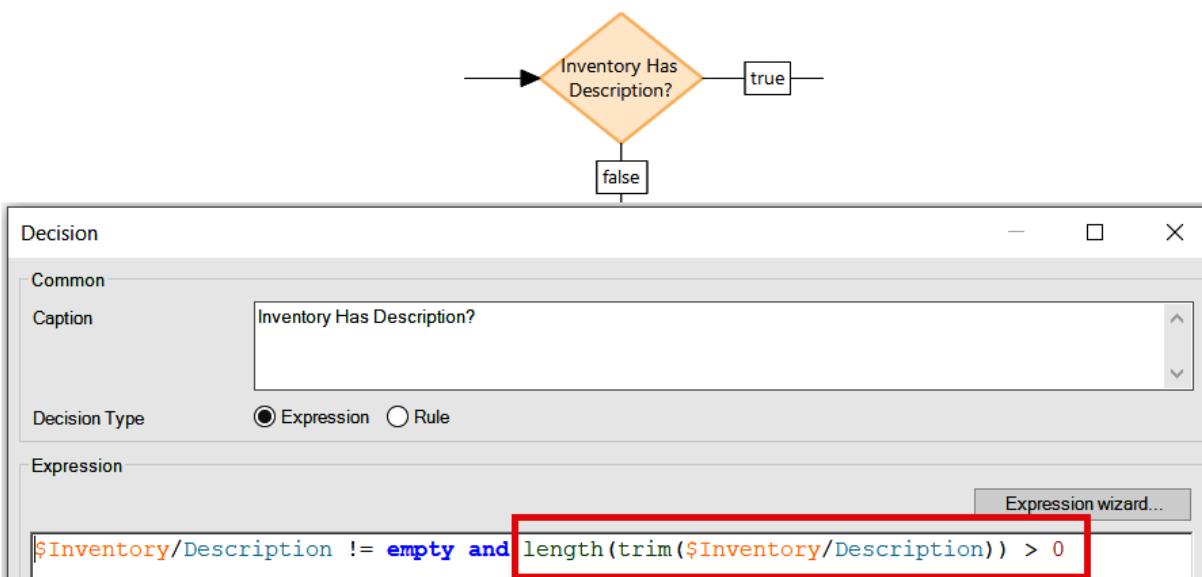
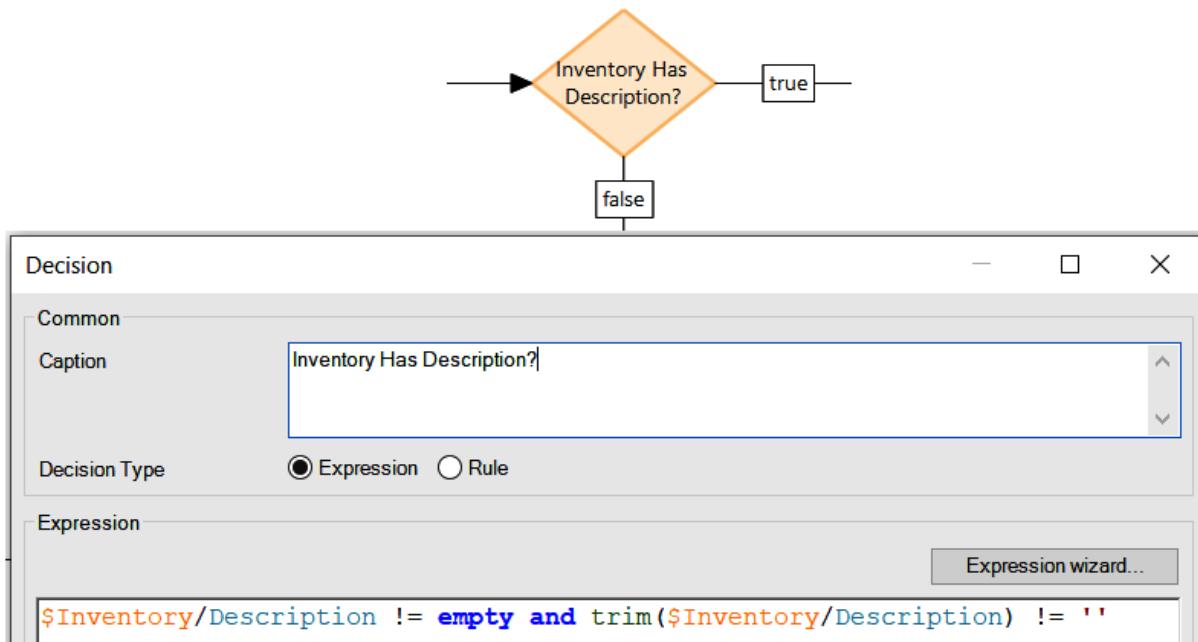
Common	>= age limit?
Caption	
Decision Type	<input checked="" type="radio"/> Expression <input type="radio"/> Rule
Expression	<pre>\$YearsSinceBirthday >= 18</pre>

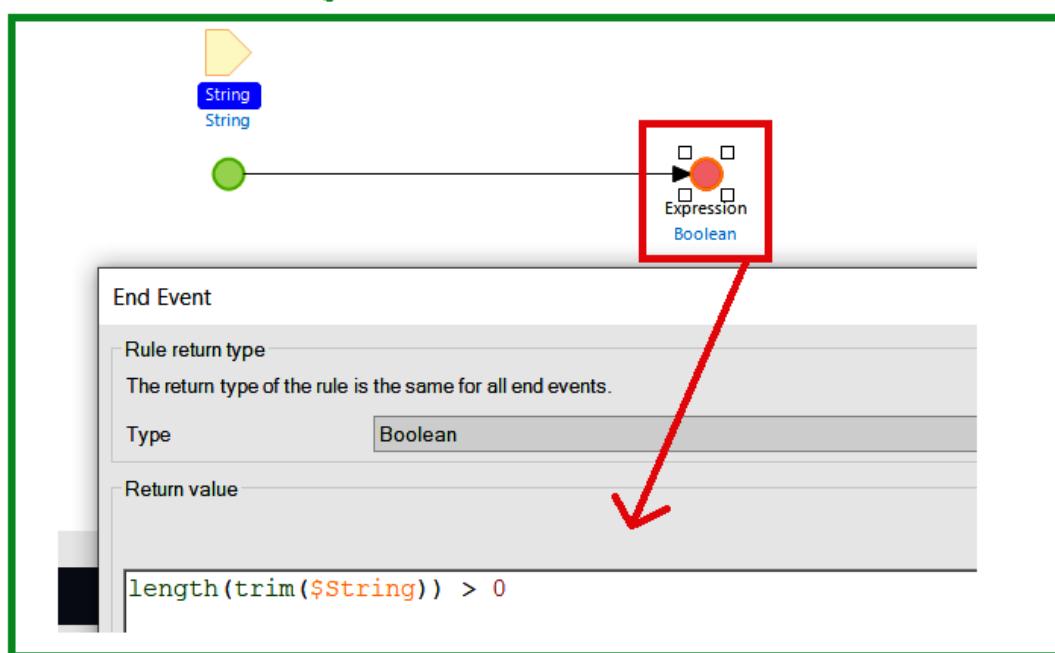
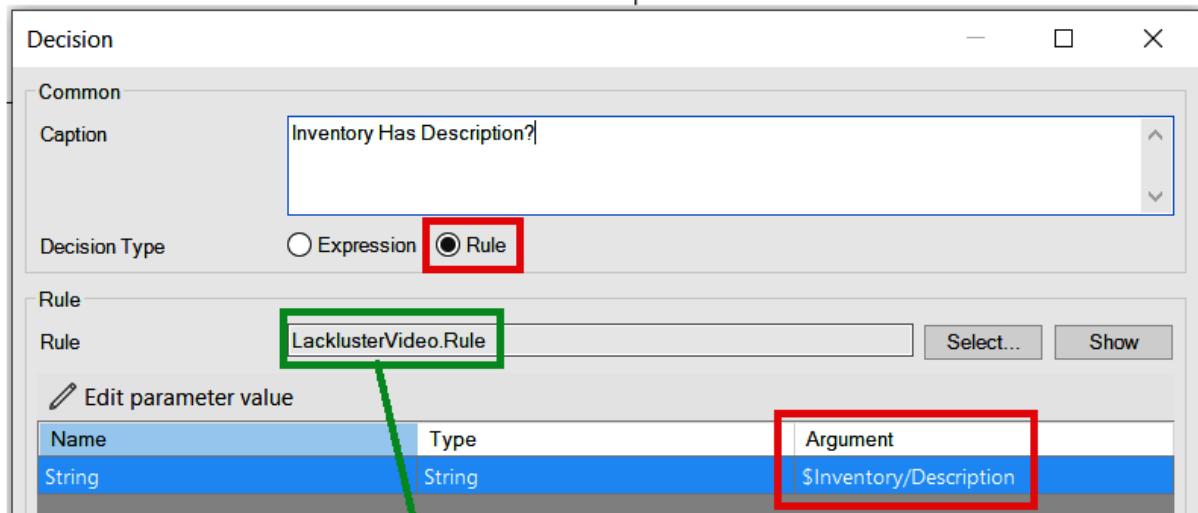
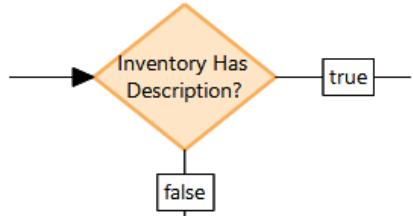
Decision

Common	>= age limit?
Caption	
Decision Type	<input checked="" type="radio"/> Expression <input type="radio"/> Rule
Expression	<pre>\$YearsSinceBirthday >= \$Configuration/MemberMinimumAge</pre>



Chapter 10: Error Handling and Troubleshooting





Create Object

Action

Entity

Commit Yes Yes without events No

Refresh in client Yes No

New Edit Delete | ▲ Move up ▼ Move down

	Member	Member type	Type	Value
Edit Change Item				
Member	Rating (Enumeration 'ENUM_Rating')			
Type	<input checked="" type="radio"/> Set <input type="radio"/> Add <input type="radio"/> Remove			
Value	<pre>if \$ImportedMovie/Rating = 'G' then VideoRentals.ENUM_Rating.G else if \$ImportedMovie/Rating = 'PG' then VideoRentals.ENUM_Rating.PG else if \$ImportedMovie/Rating = 'PG-13' then VideoRentals.ENUM_Rating.PG_13 else VideoRentals.ENUM_Rating.R</pre>			
Output				
Object name				

Create Object

Action

Entity Select...

Commit Yes Yes without events No

Refresh in client Yes No

 New  Edit  Delete | ▲ Move up ▼ Move down

	Member	Member type	Type	Value
--	--------	-------------	------	-------

Edit Change Item

Member

Type

Set Add Remove

Value

```
if $ImportedMovie/Rating = 'G'
    then VideoRentals.ENUM_Rating.G
else if $ImportedMovie/Rating = 'PG'
    then VideoRentals.ENUM_Rating.PG
else if $ImportedMovie/Rating = 'PG-13'
    then VideoRentals.ENUM_Rating.PG_13
else if $ImportedMovie/Rating = 'R'
    then VideoRentals.ENUM_Rating.R
else empty
```

Output

Object name



usage

Module

Create Object

Action

Entity

Commit Yes Yes without events No

Refresh in client Yes No

Member	Member type	Type	Value
Edit Change Item			
Member			
Rating (Enumeration 'ENUM_Rating')			
Type			
<input checked="" type="radio"/> Set <input type="radio"/> Add <input type="radio"/> Remove			
Value			
<pre>if \$ImportedMovie/Rating = 'G' then VideoRentals.ENUM_Rating.G else if \$ImportedMovie/Rating = 'PG' then VideoRentals.ENUM_Rating.PG else if \$ImportedMovie/Rating = 'PG-13' then VideoRentals.ENUM_Rating.PG_13 else if \$ImportedMovie/Rating = 'R' then VideoRentals.ENUM_Rating.R else if \$ImportedMovie/Rating = empty or trim(\$ImportedMovie/Rating) = '' then VideoRentals.ENUM_Rating.Not_Specified else VideoRentals.ENUM_Rating.Not_Mapped</pre>			

Output

Object name

Found 0 usage(
 Module



UnitTesting

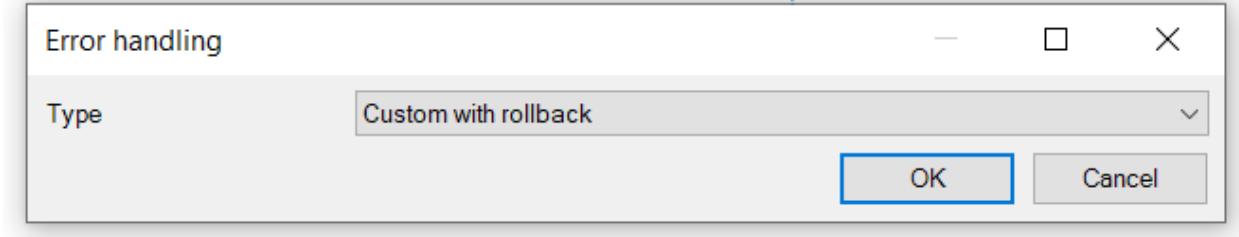
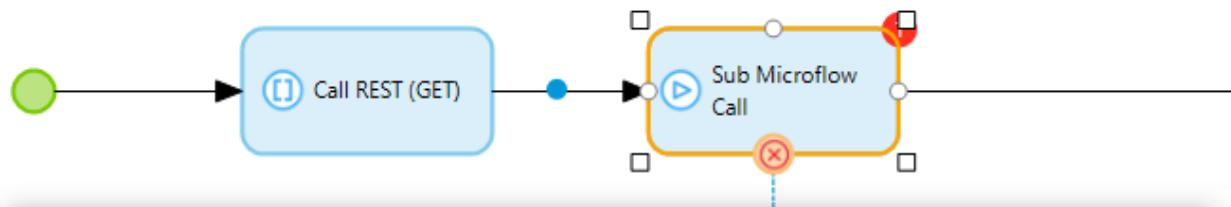
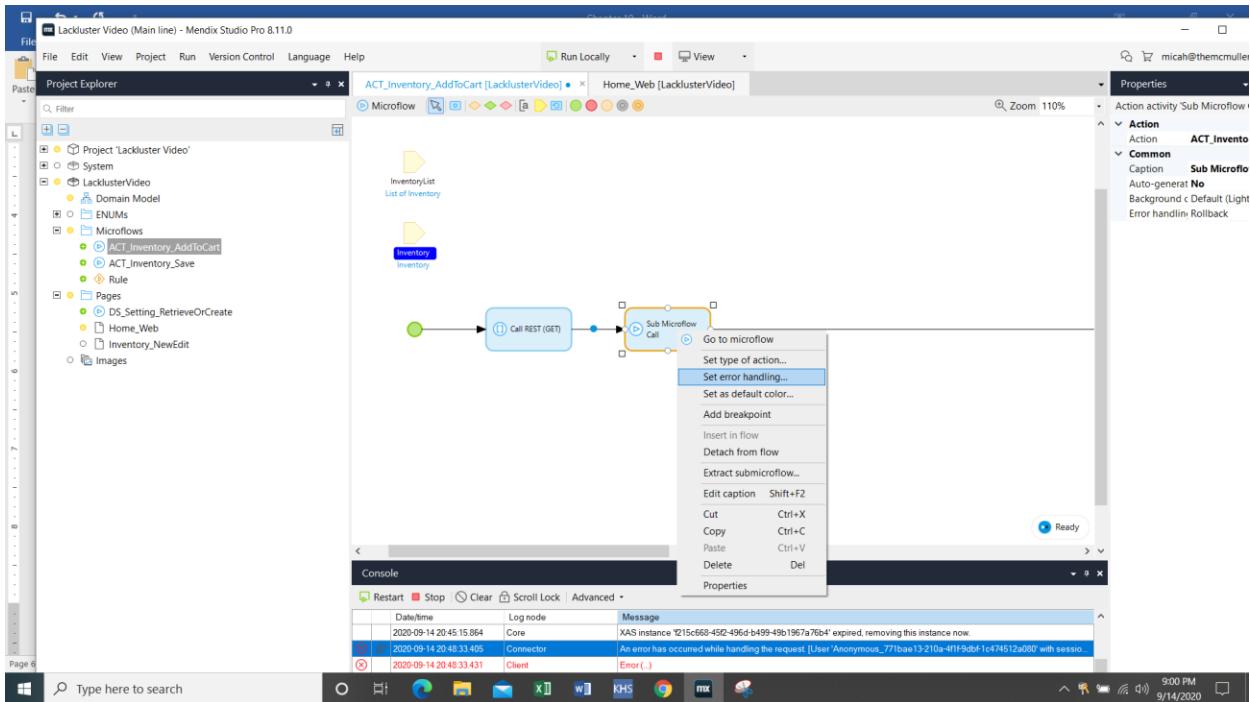
Created by: Mendix

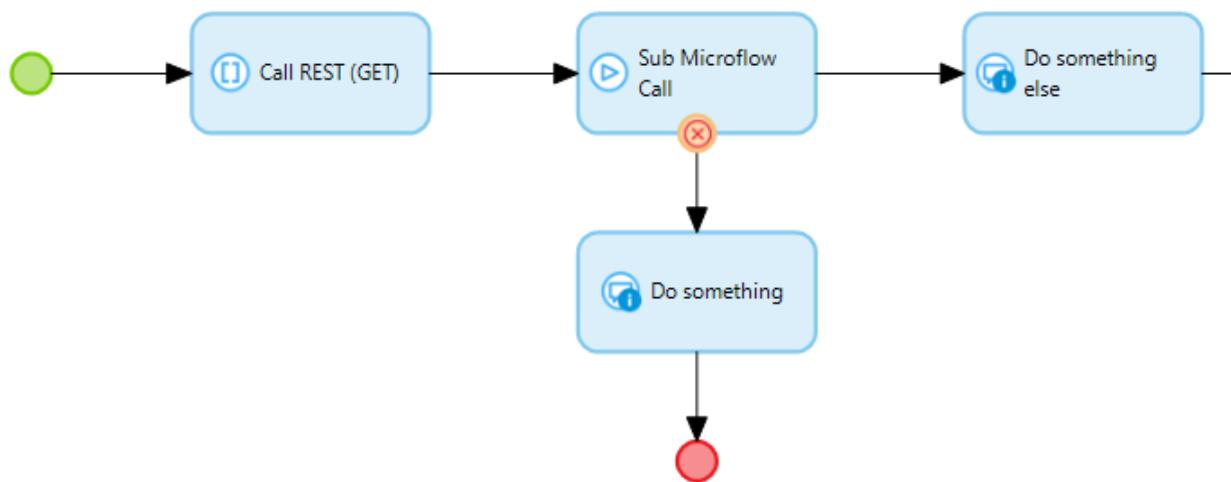
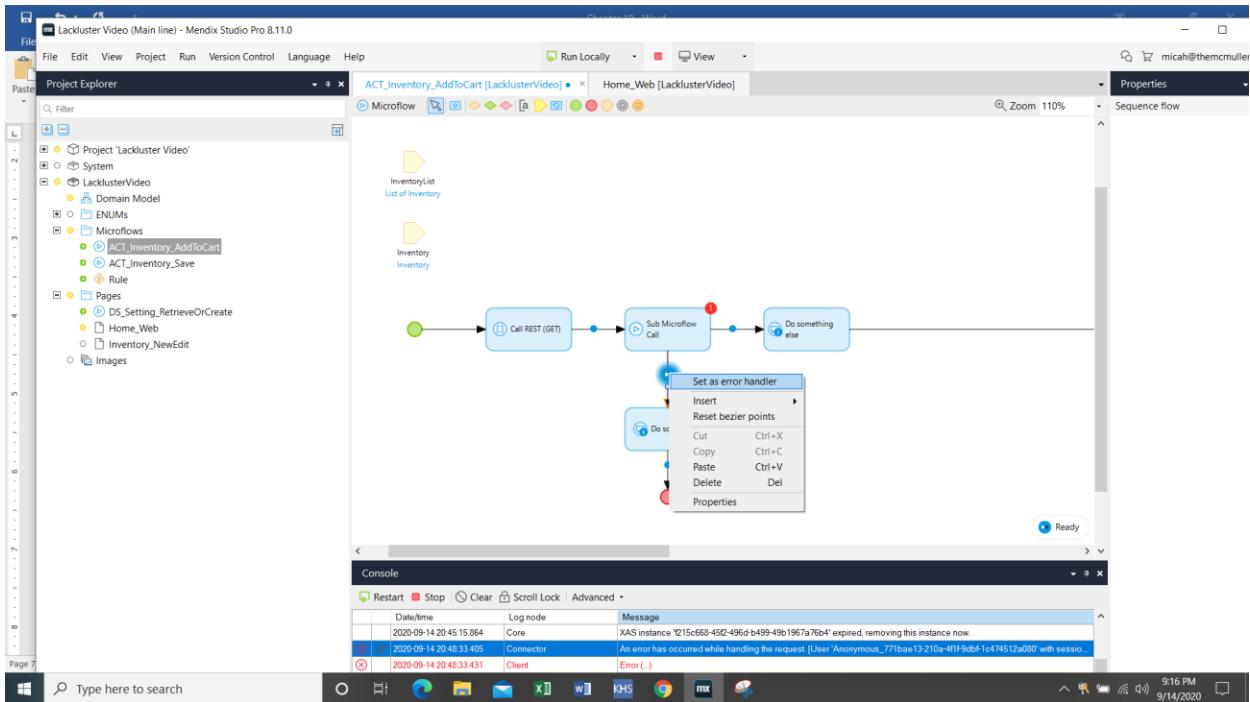
Error

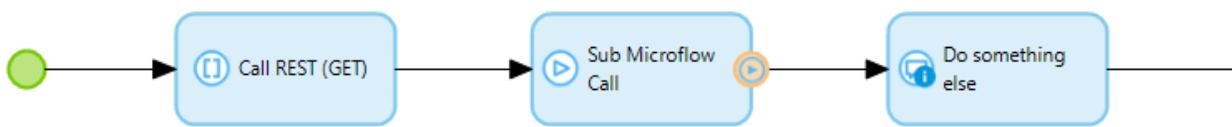
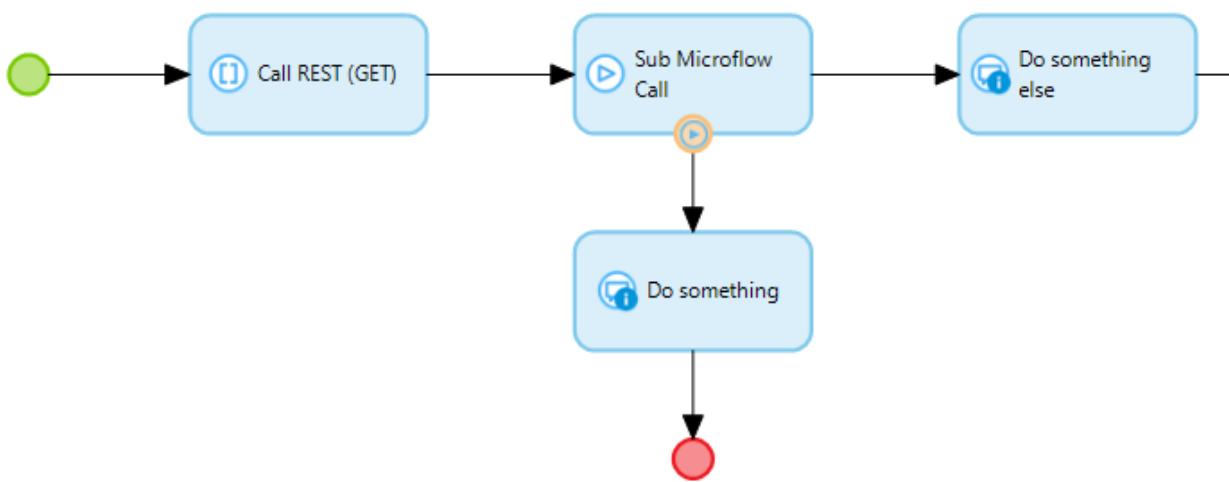


An error occurred, please contact your system administrator.

OK







Console

Restart Stop | Clear Scroll Lock | Advanced ▾

	Date/time	Log node	Message
	2020-09-20 21:08:01.333	Core	Initialized license.
	2020-09-20 21:08:03.871	Core	Mendix Runtime successfully started, the application is now available.
	2020-09-20 21:08:14.290	Log Node Testing	This is a log message

Stories (0) Changes (7) Errors (0) Console Find Results 1

Console

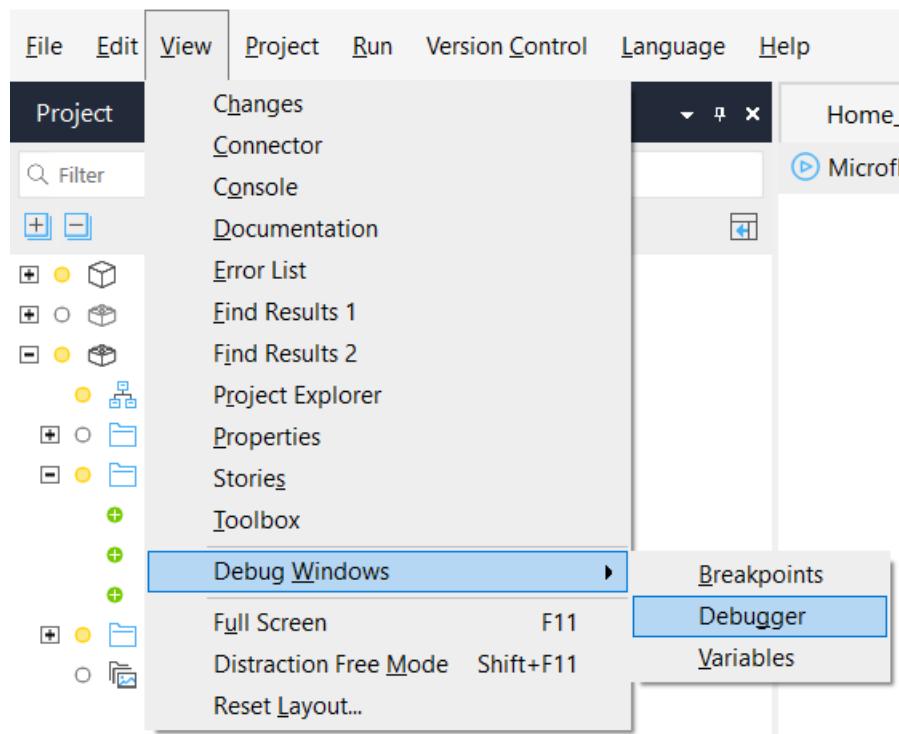
Restart Stop | Clear Scroll Lock | Advanced ▾

	Date/time	Log node	Message
	2020-09-20 21:09:53.026	Core	Updating application model...
	2020-09-20 21:09:53.158	Core	Application model has been updated, application is now available.
✖	2020-09-20 21:10:05.326	Log Node Testing	This is a log message

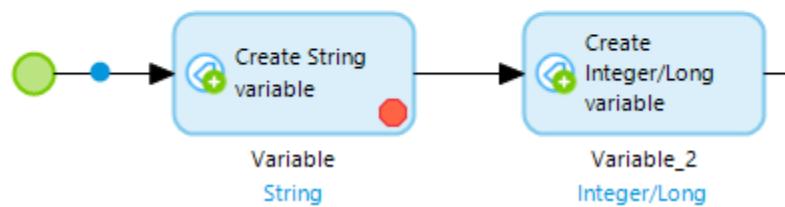
Stories (0) Changes (7) Errors (0) Console Find Results 1

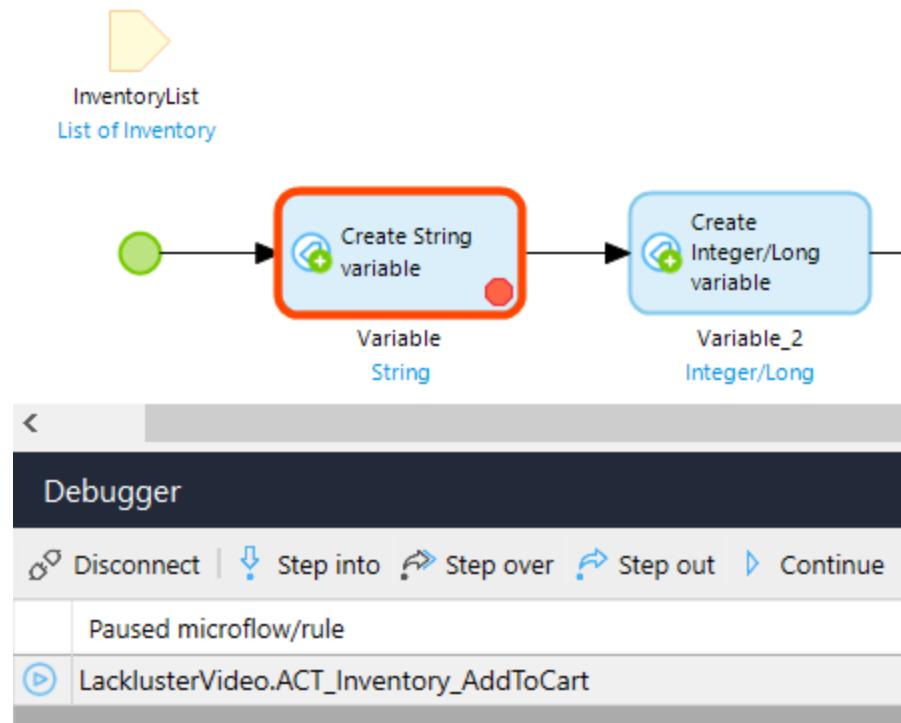
Console			
	Date/time	Log node	Message
	2020-09-20 21:10:41.683	Core	Updating application model...
	2020-09-20 21:10:41.899	Core	Application model has been updated, application is now available.
Info	2020-09-20 21:10:45.179	Log Node Testing	This is a log message

Stories (0) Changes (7) Errors (0) Console Find Results 1

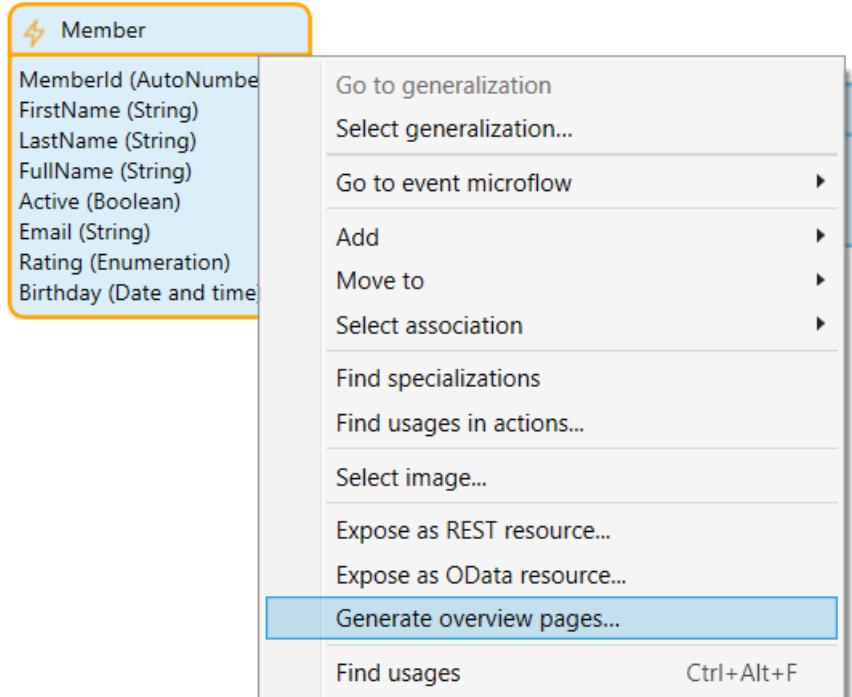


InventoryList
List of Inventory





Variables		
Name	Type	Value
currentDeviceType	Enumeration 'System.Device...	Desktop
currentSession	System.Session	(id: 6473924464346189, state: normal)
currentUser	System.User	(id: 281474976711757, state: normal)
InventoryList	List	(size: 1)
TestVariable	String	'This is a variable'
TestVariableLength	Long	18



Generate pages



Entities

Select one or more entities for which to generate overview pages.

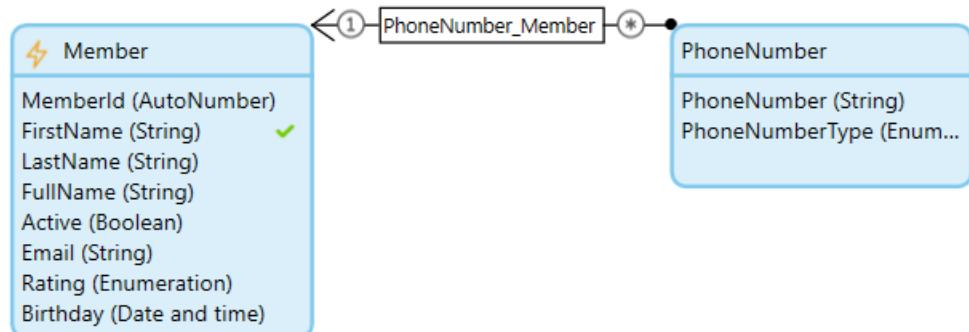
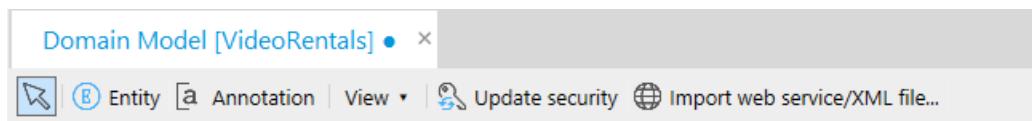
Entity
<input checked="" type="checkbox"/> Member
<input type="checkbox"/> PhoneNumber

Project Explorer

Filter



- Project 'Lackluster Video'
- System
- MyFirstModule
- VideoRentals
 - Domain Model
 - OverviewPages
 - Member_NewEdit
 - Member_Overview



Properties of Entity 'VideoRentals.Member'

General

Name	Member
Generalization	(none) <input type="button" value="Select..."/>
Image	(none) <input type="button" value="Select..."/>
Persistable	<input checked="" type="radio"/> Yes <input type="radio"/> No Objects of this entity can only be stored in the database if it is persistable.

System members

- Store 'createdDate'
- Store 'changedDate'
- Store 'owner'
- Store 'changedBy'

Documentation

Entity to hold the member object, a member is a person who can rent videos from the video rental store.

Attributes Associations Validation rules Event handlers Indexes

New Edit Move up Move down

Attribute	Rule	Error message
FirstName	Required	First name is required.

Properties of Entity 'VideoRentals.Member'

General

Name	Member
Generalization	(none) <input type="button" value="Select..."/>
Image	(none) <input type="button" value="Select..."/>
Persistable	<input checked="" type="radio"/> Yes <input type="radio"/> No Objects of this entity can only be stored in the database if it is persistable.

System members

- Store 'createdDate'
- Store 'changedDate'
- Store 'owner'
- Store 'changedBy'

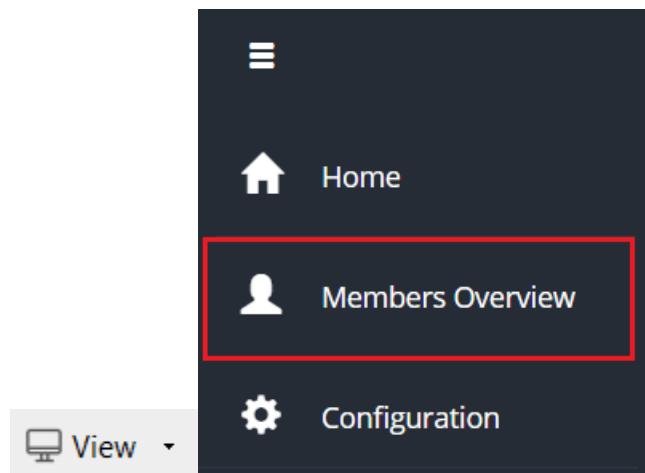
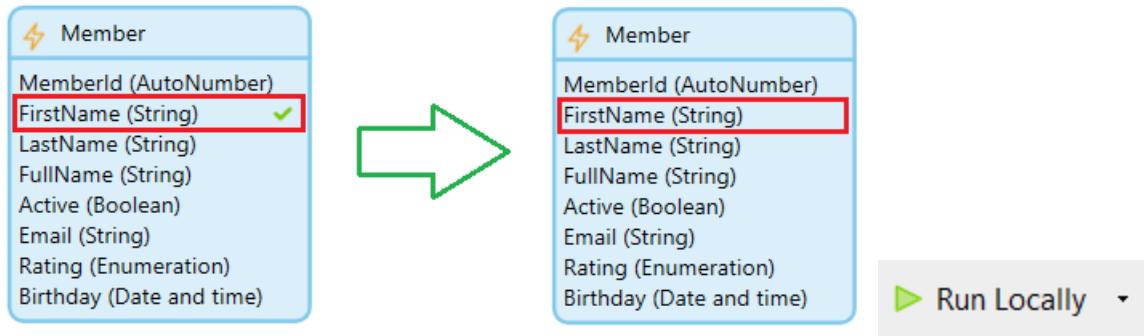
Documentation

Entity to hold the member object, a member is a person who can rent videos from the video rental store.

Attributes Associations Validation rules Event handlers Indexes

New Edit Move up Move down

Attribute	Rule	Error message
FirstName	Required	First name is required.



Edit Member

X

Member id

15

First name

Last name

Email

email@email.com

Rating

Gold



Birthday

10/17/1995



Full name

Active

Yes No

Save

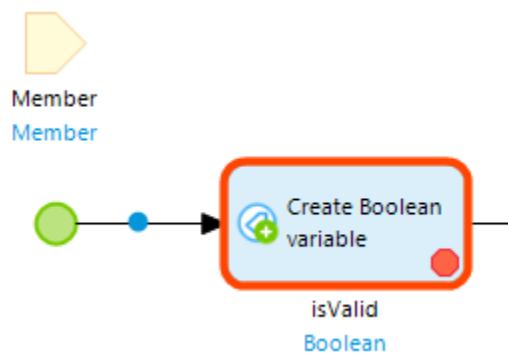
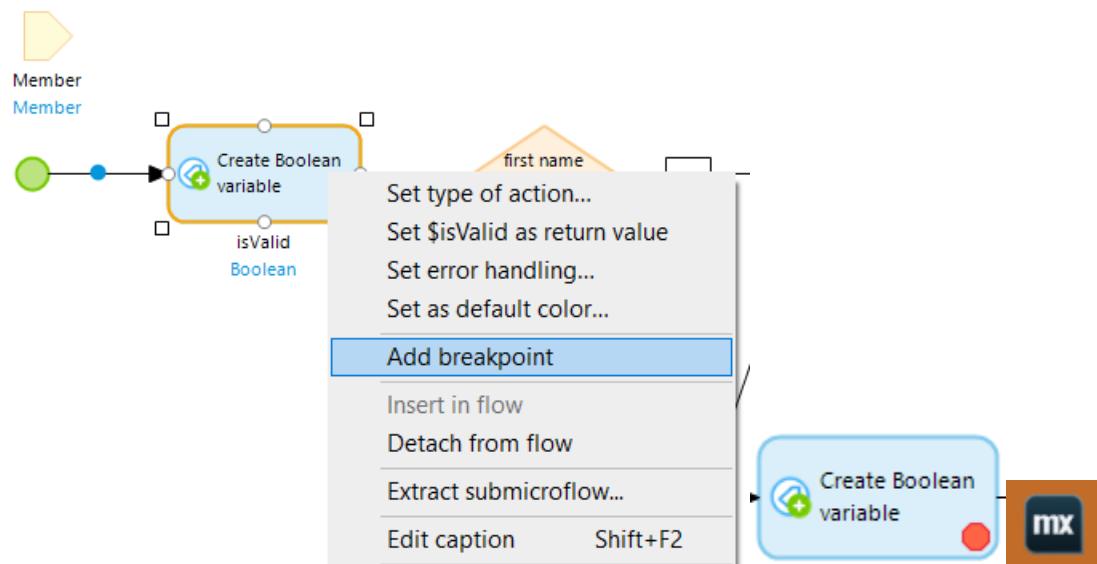
[Cancel](#)

Member id	First name	Last name	Full name	Email	Rating	Active	Birthday
15				email@email.com	Gold	Yes	10/17/1995

Go To

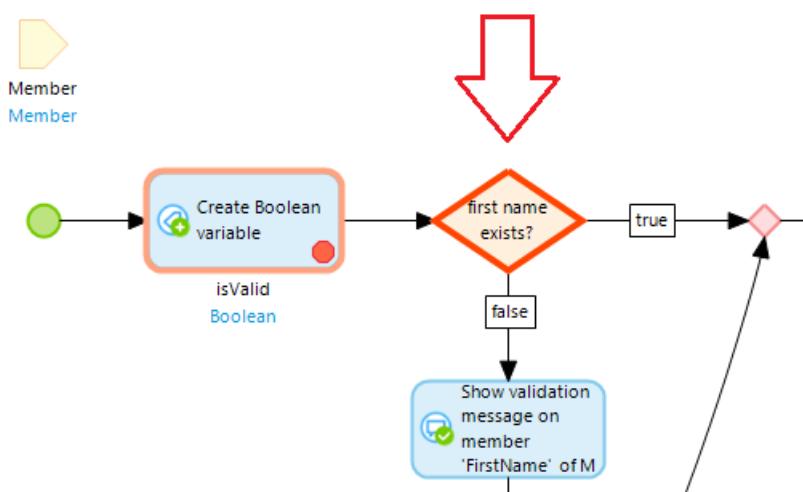
Name

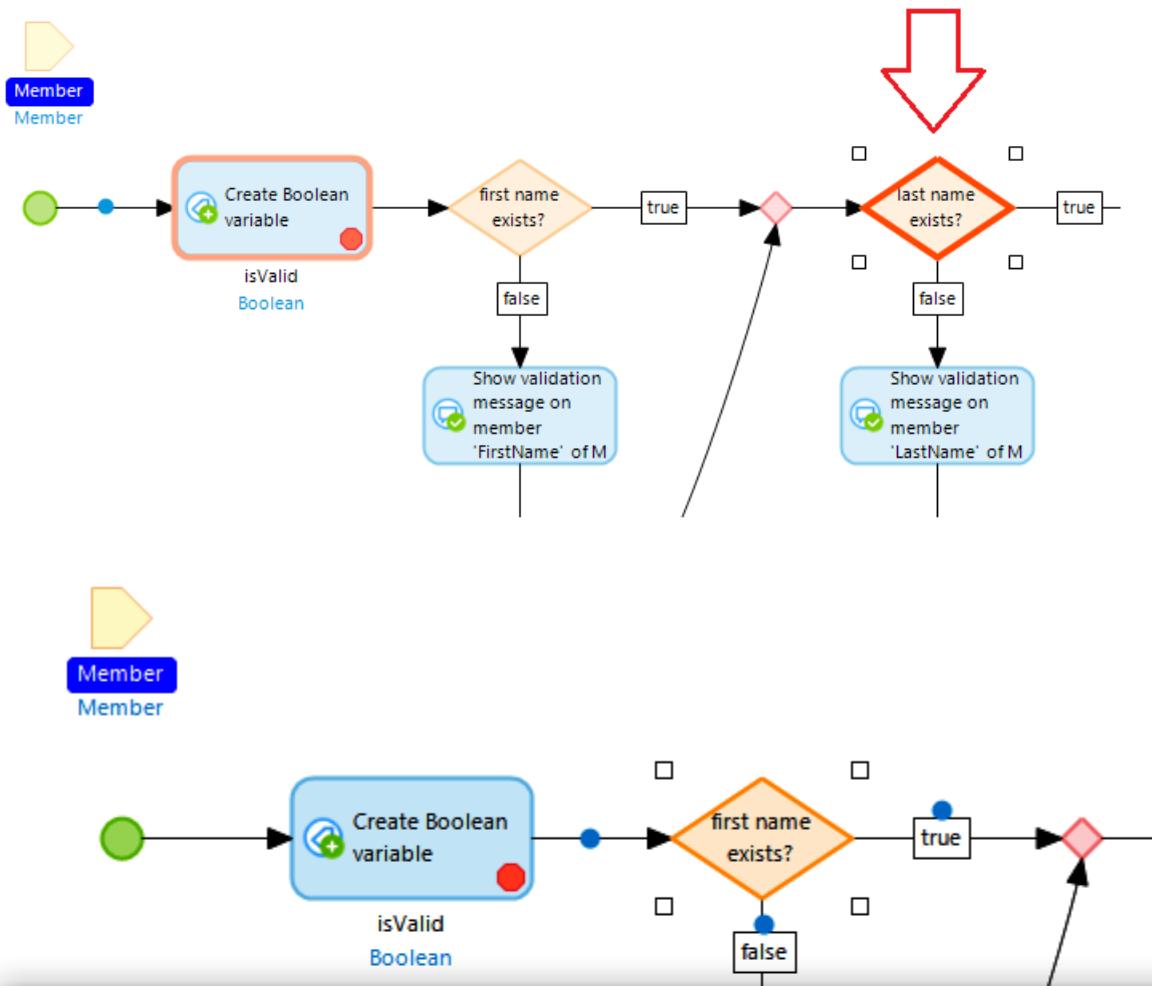
Val_Member [VideoRentals]



Variables		
Name	Type	Value
currentDeviceType	Enumeration 'System.Device...	Desktop
currentSession	System.Session	(id: 6755399441056445, state: normal)
currentUser	System.User	(id: 281474976711357, state: normal)
Member	VideoRentals.Member	(id: 3659174697239031, state: instantiated)
id	Long	3659174697239031
Active	Boolean	true
Birthday	Date and Time	UTC time: 1955-07-08 00:00:00.000 Session time: 1955-07-...
changedDate	Date and Time	UTC time: 2020-10-15 01:30:11.868 Session time: 2020-10-...
createdDate	Date and Time	UTC time: 2020-10-15 01:29:58.715 Session time: 2020-10-...
Email	String	'email@email.org'
FirstName	String	''
FullName	String	(empty)
LastName	String	''
MemberId	AutoNumber	17
Rating	Enumeration 'VideoRentals.E...	Platinum
System.changed...	Reference	System.User (ID: 281474976711357)
System.owner	Reference	System.User (ID: 281474976711357)

Debugger	
Disconnect	Step into
Paused microflow/rule	Step over
VideoRentals.Val_Member	Decision 'first name exists?'
Stories (1)	Changes (3)
Errors (0)	Console
Find Results 1	Debugger
Variables	





Decision

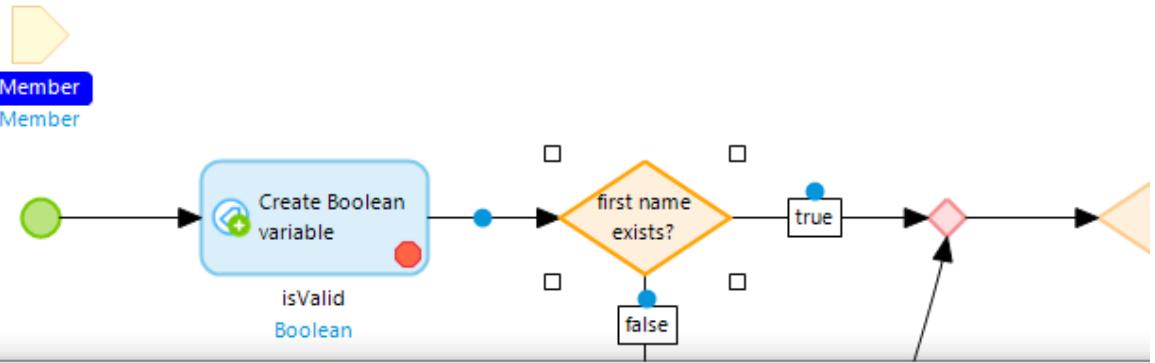
Common

Caption

Decision Type Expression Rule

Expression

```
$Member/FirstName != empty and $Member/FirstName != ''
```



Decision

Common

Caption

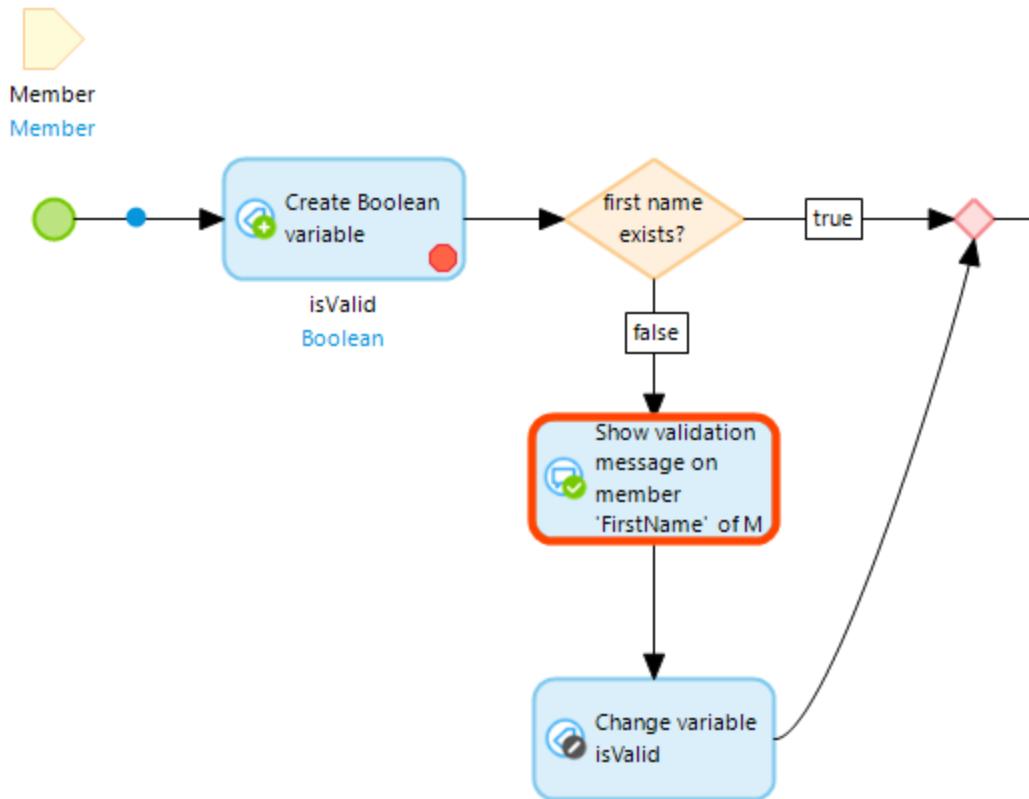
first name exists?

Decision Type

Expression Rule

Expression

```
$Member/FirstName != empty and trim($Member/FirstName) != ''
```



Edit Member

Member id

6

First name

*Required

Last name

Edit Member

X

Member id

7

First name

*Required

Last name

*Required

Email

email@email.com

Rating

Platinum



Decision



Common

Caption

first name exists?

Decision Type

Expression

Rule

Rule

(none)

Select...

Edit parameter value

Name

Type

Argument

Select Rule

- □ ×

Filter

[+] Expand All [−] Collapse All[+] App Store modules

System

MyFirstModule

VideoRentals

[+] Configuration

Select

New

None

Cancel

Decision

- □ ×

Common

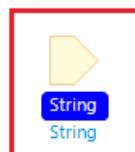
Caption

first name exists?

Decision Type

 Expression Rule

Rule

Rule Select... ShowSelect... Show

End Event

Rule return type

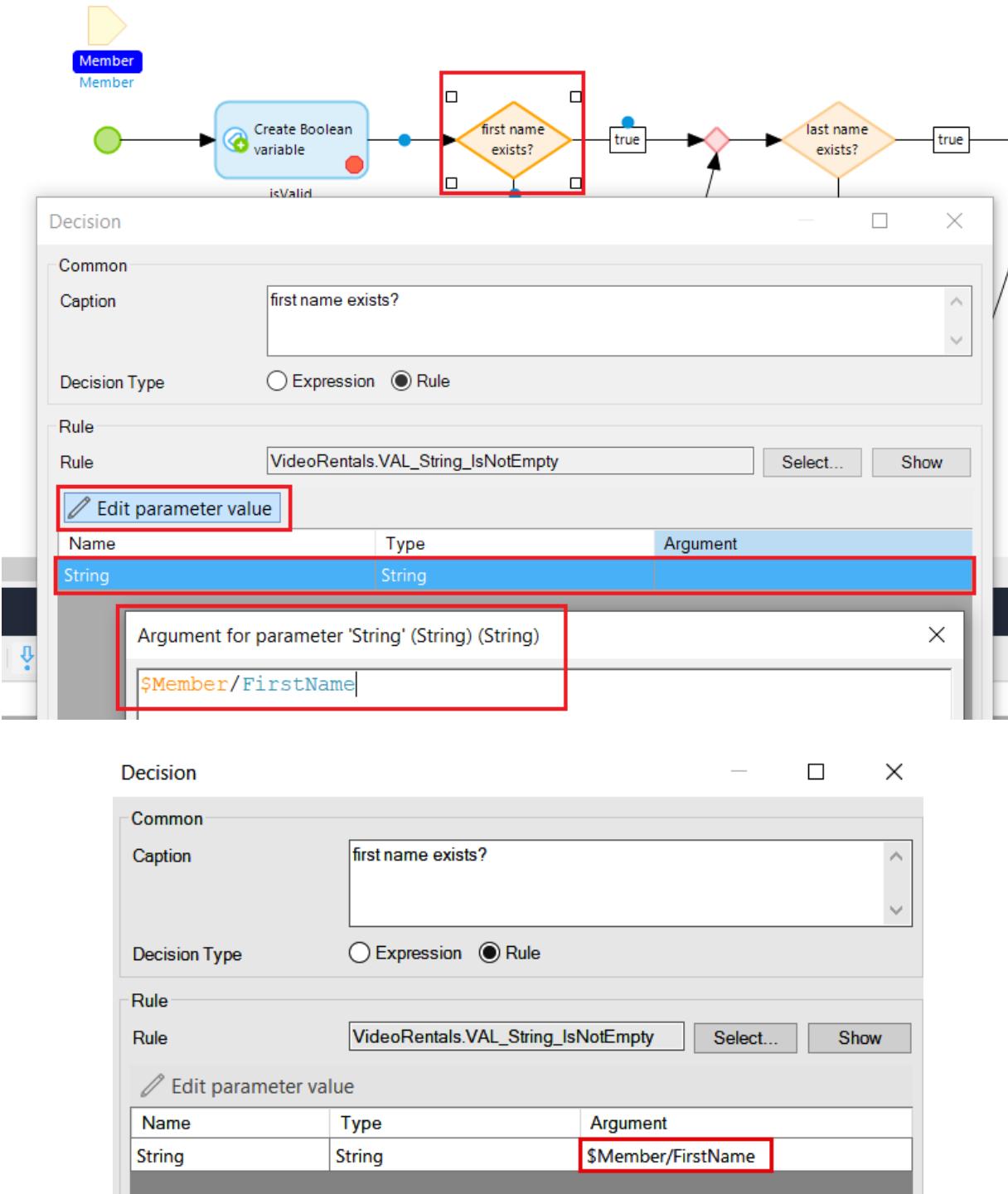
The return type of the rule is the same for all end events.

Type

Boolean

Return value

\$string != empty and trim(\$String) != ''



Select Rule

Filter

Expand All Collapse All

-  App Store modules
 - System
 - MyFirstModule
-  VideoRentals
 -  VAL_String_IsNotEmpty
-  Configuration

Decision

Common

Caption

Decision Type Expression Rule

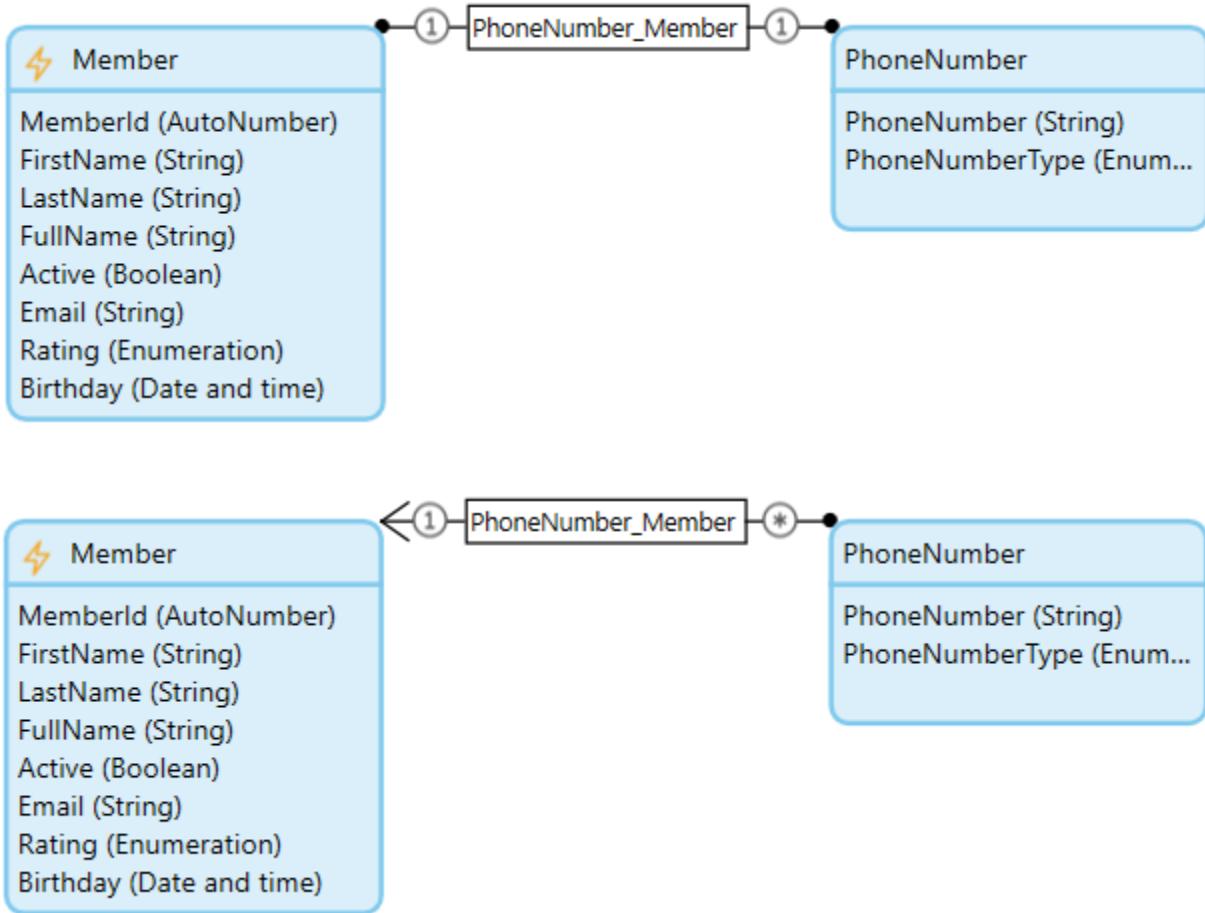
Rule

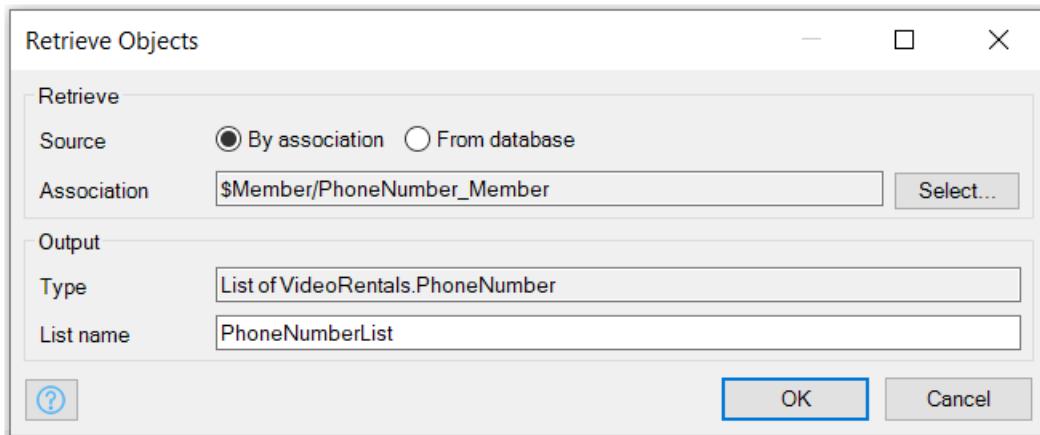
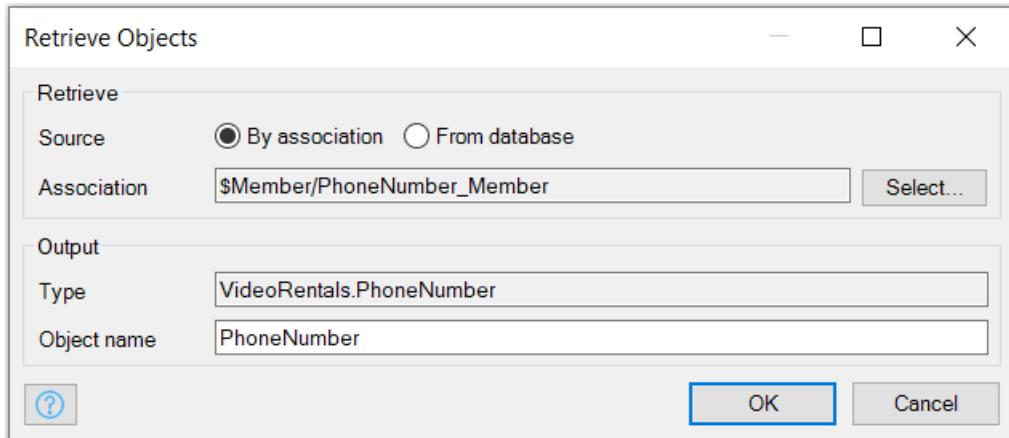
Rule

 Edit parameter value

Name	Type	Argument
String	String	\$Member/LastName

Chapter 11: Storing Data





Properties of Entity 'Inventory.Rental'

General		System members	
Name	Rental	<input type="checkbox"/> Store 'createdDate'	
Generalization	(none)	<input type="checkbox"/> Store 'changedDate'	
Image	(none)	<input type="checkbox"/> Store 'owner'	
Persistable	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input type="checkbox"/> Store 'changedBy'	
Objects of this entity can only be stored in the database if it is persistable.			
<input type="button" value="Attributes"/> <input type="button" value="Associations"/> <input type="button" value="Validation rules"/> <input type="button" value="Event handlers"/> <input type="button" value="Indexes"/> <input type="button" value="Access rules"/>			
<input type="button" value="New"/> <input type="button" value="Edit"/> <input type="button" value="Delete"/>			

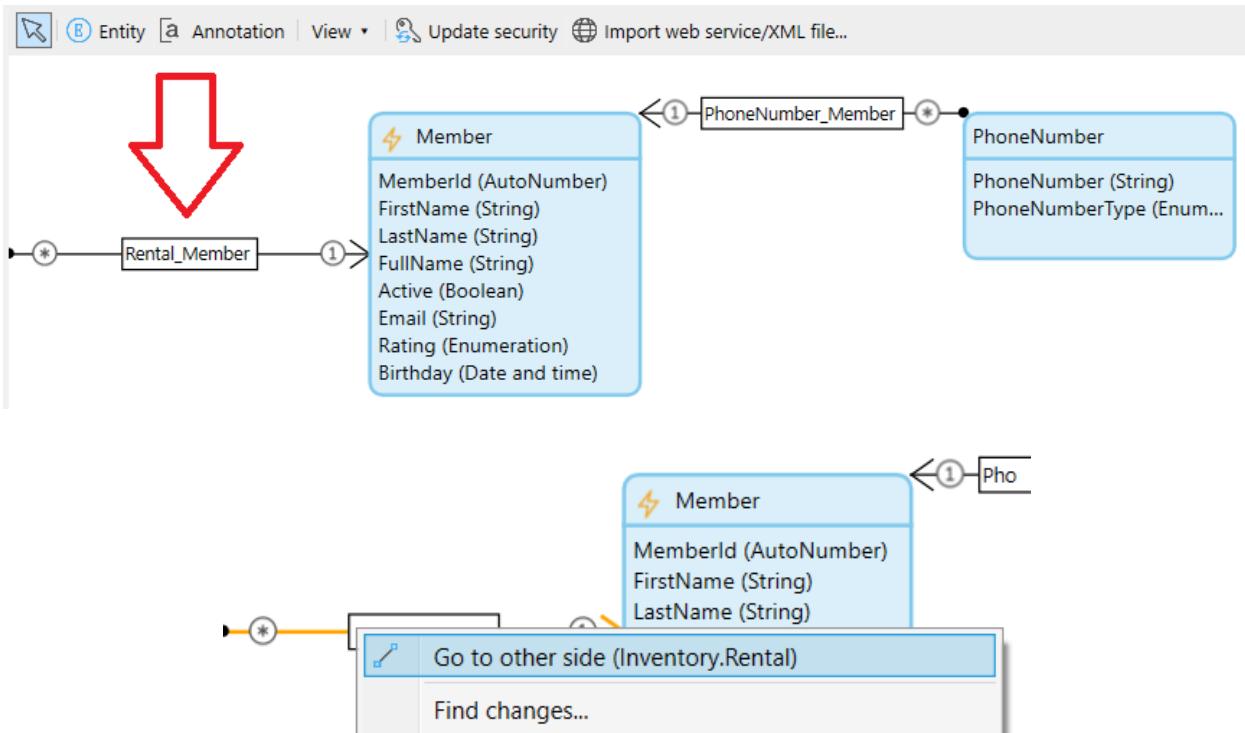
Select Entity

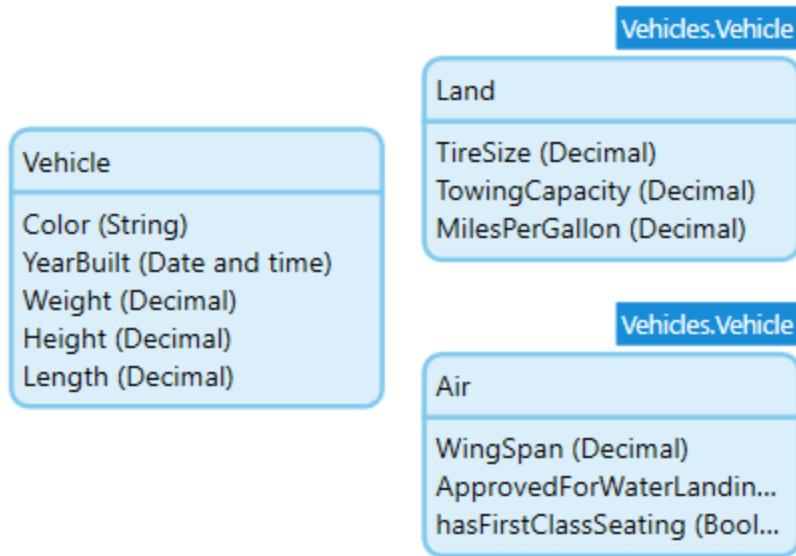
Filter

- App Store modules
- System
- VideoRentals
 - Member
 - PhoneNumber

Properties of Entity 'Inventory.Rental'

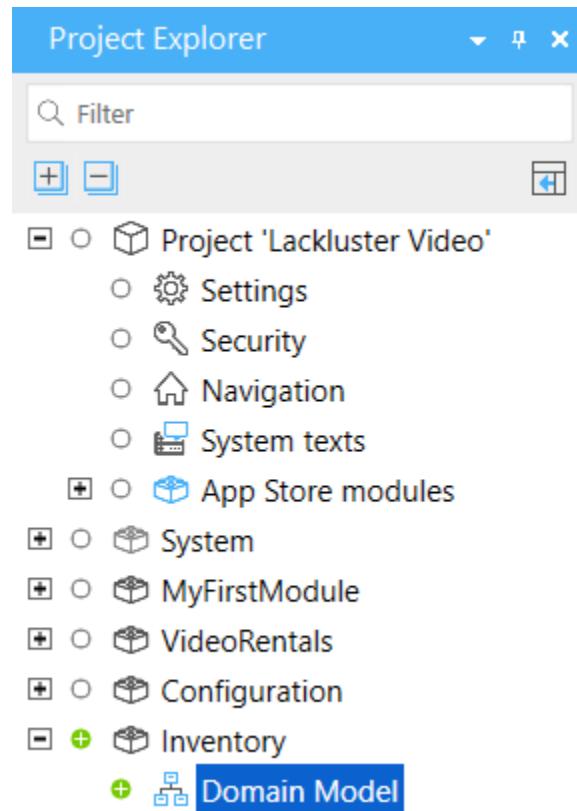
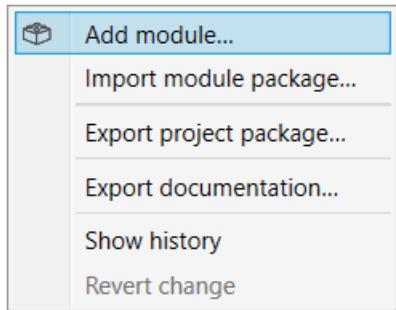
General		System members		Documentation
Name	Rental	<input type="checkbox"/> Store 'createdDate'	<input type="checkbox"/> Store 'changedDate'	
Generalization	(none)	<input type="checkbox"/> Store 'owner'	<input type="checkbox"/> Store 'changedBy'	
Image	(none)			
Persistable	<input checked="" type="radio"/> Yes <input type="radio"/> No			
Objects of this entity can only be stored in the database if it is persistable.				
<input type="button" value="Attributes"/> <input type="button" value="Associations"/> <input type="button" value="Validation rules"/> <input type="button" value="Event handlers"/> <input type="button" value="Indexes"/> <input type="button" value="Access rules"/>				
<input type="button" value="New"/> <input type="button" value="Edit"/> <input type="button" value="Delete"/>				
Name	Type	Owner	Parent	Child
Rental_Member	Reference	Default	Inventory.Rental	VideoRentals.Member

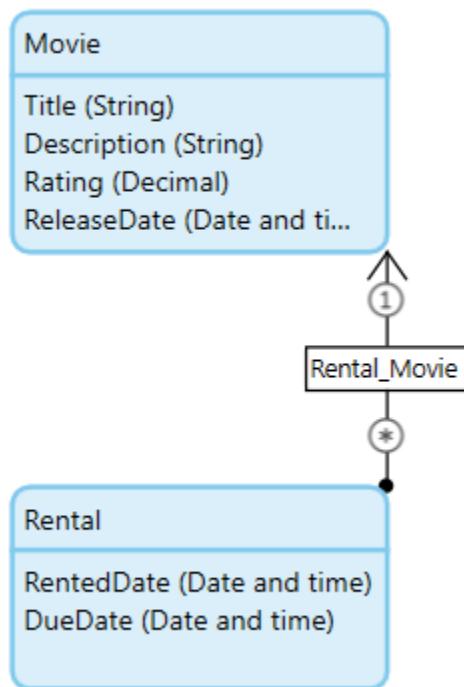
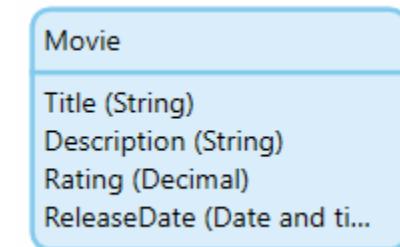
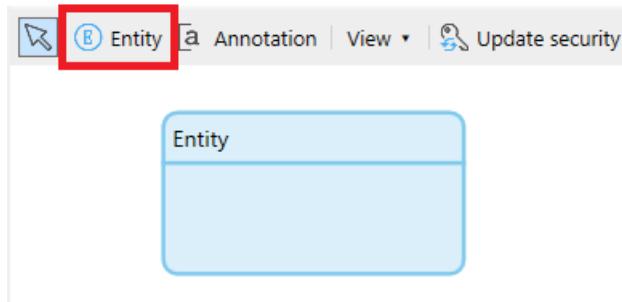


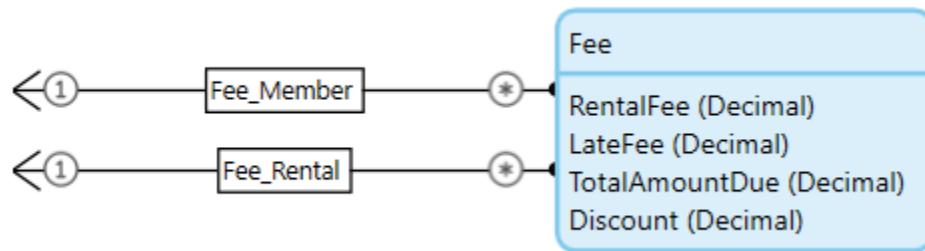
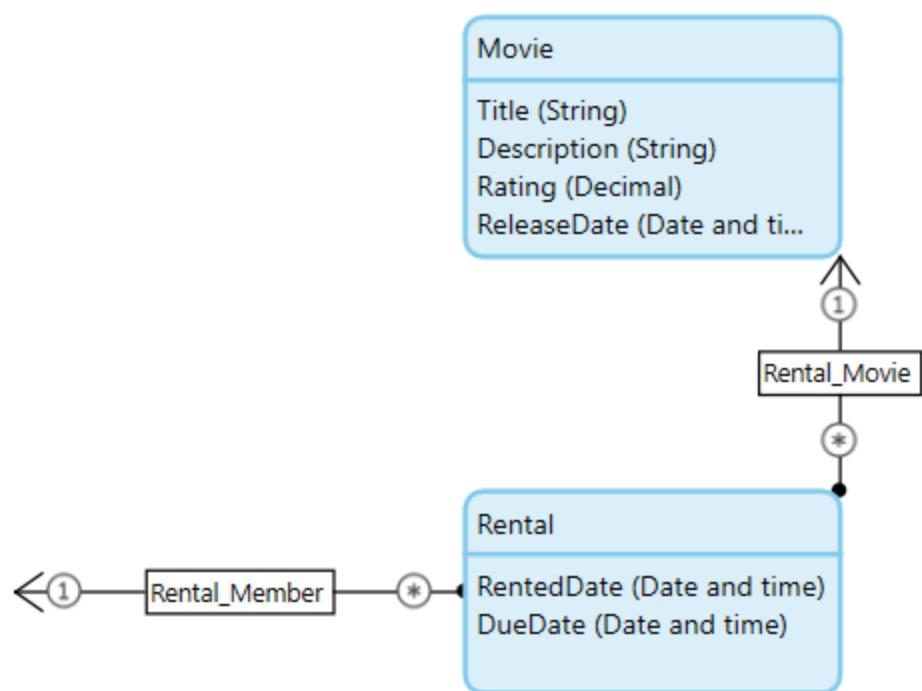


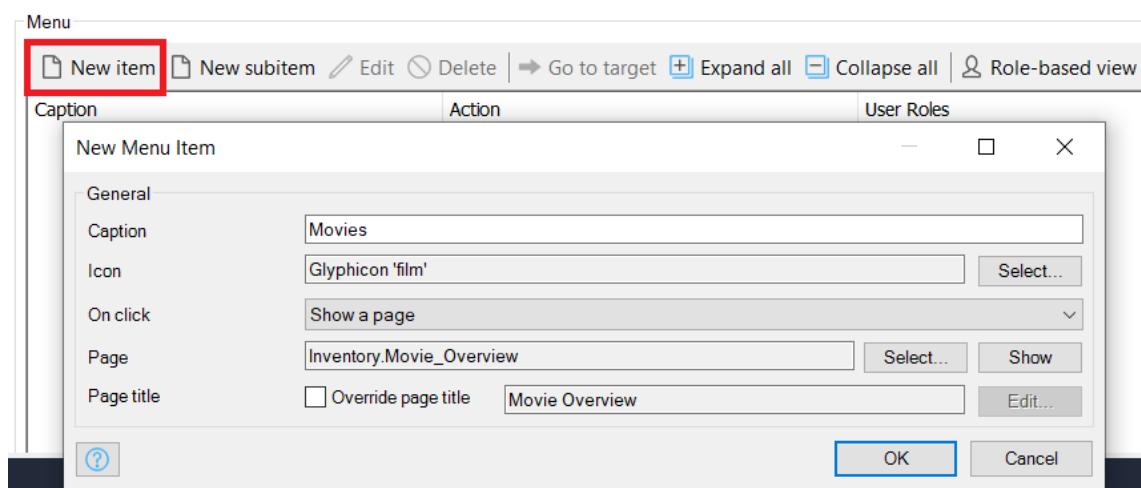
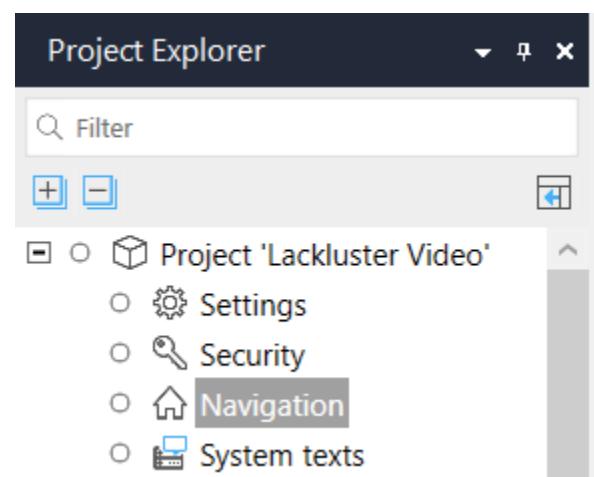
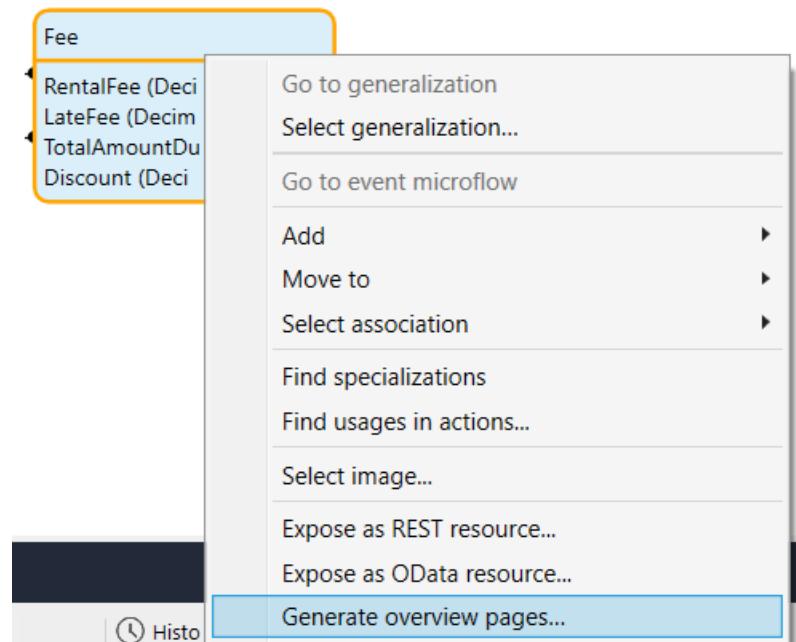
Properties of Entity 'Vehicles.Land'

The screenshot shows the Entity Properties dialog for 'Vehicles.Land'. The General tab is selected, displaying the entity's name as 'Land' and its generalization as 'Vehicles.Vehicle'. A red box highlights the 'Select...' button next to the generalization dropdown. The Persistable field is set to 'Yes'. On the right, a 'System members' section lists checkboxes for 'Store 'createdDate'', 'Store 'changedDate'', 'Store 'owner'', and 'Store 'changedBy''. The Attributes tab is active, showing attributes: Name, TireSize, TowingCapacity, and MilesPerGallon. The 'TireSize' attribute is currently selected. A modal window titled 'Select Entity' is open, showing a tree view of available entities: App Store modules, System, and Vehicles (which further branches into Air, Land, and Vehicle). The 'Vehicle' node under 'Vehicles' is highlighted.









Edit Menu Item

General

Caption	Rentals		
Icon	glyphicon 'briefcase'		
On click	Show a page		
Page	Inventory.Rental_Overview	Select...	Show
Page title	<input type="checkbox"/> Override page title	Rental Overview	Edit...

? OK Cancel

Edit Menu Item

General

Caption	Fees		
Icon	glyphicon 'usd'		
On click	Show a page		
Page	PaymentFee_Overview	Select...	Show
Page title	<input type="checkbox"/> Override page title	Fee Overview	Edit...

? OK Cancel

Edit Rental

X

Rented date

10/28/2020



Due date

11/6/2020



Movie

Office Space



Member

Tim



Save

[Cancel](#)

Chapter 12: Getting some REST

The screenshot shows the TMDB API settings page. On the left, there's a sidebar with links: Edit Profile, Account Settings, Streaming Services, Notification Settings, Blocked Users, Import List, Sharing Settings, Social Settings, Sessions, API (which is selected), and Delete Account. The main content area has tabs for API, Overview, Details, Directory, Sessions, and Stats. The API tab is active. It contains information about the API service being free to use, a link to attribution logos, documentation at developers.themoviedb.org, support forums, API details (with a link to edit), an app directory (with a note to add it), and an API key section showing the value 70964572a964fa9f5b2 [REDACTED].

Query String

api_key	string	default: <>api_key>>	required
language	string	Pass a ISO 639-1 value to display translated data for the fields that support it. minLength: 2 pattern: ([a-z]{2})-([A-Z]{2}) default: en-US	optional
query	string	Pass a text query to search. This value should be URI encoded. minLength: 1	required
page	integer	Specify which page to query. minimum: 1 maximum: 1000 default: 1	optional
include_adult	boolean	Choose whether to include adult (pornography) content in the results. default	optional
region	string	Specify a ISO 3166-1 code to filter release dates. Must be uppercase. pattern: ^[A-Z]{2}\$	optional
year	integer		optional
primary_release_year	integer		optional

Search Movies

GET /search/movie

Search for movies.

Definition

Try it out

Variables

api_key	45bb0c1f19a090e08503 [REDACTED]	optional
---------	---------------------------------	----------

Query String

api_key	45bb0c1f19a090e08503 [REDACTED]	required
language	en-US	optional
query	Mission Impossible	required
page	1	optional
include_adult	false	optional
region	String	optional
year	Integer	optional
primary_release_year	Integer	optional

SEND REQUEST

[https://api.themoviedb.org/3/search/movie?api_key=45bb0c1f19a090e08503 \[REDACTED\] &language=en-US&query=Mission%20Impossible&page=1&include_adult=false](https://api.themoviedb.org/3/search/movie?api_key=45bb0c1f19a090e08503 [REDACTED] &language=en-US&query=Mission%20Impossible&page=1&include_adult=false)

Response 200

Body 17 Headers 0 Cookies

Pretty JSON Explorer Raw

```
1  {
2      "page": 1,
3      "total_results": 21,
4      "total_pages": 2,
5      "results": [
6          {
7              "popularity": 83.214,
8              "vote_count": 5400,
9              "video": false,
10             "poster_path": "/AkJQpZp9WoNdj7pLYSj1L0RcMMN.jpg",
11             "id": 353081,
12             "adult": false,
13             "backdrop_path": "/aw4FOsWr2FY373nKSxbpNi3fz4F.jpg",
14             "original_language": "en",
15             "original_title": "Mission: Impossible - Fallout",
16             "genre_ids": [
17                 28,
18                 12
19             ],
20             "title": "Mission: Impossible - Fallout",
21             "vote_average": 7.4,
22             "overview": "When an IMF mission ends badly, the world is faced with dire consequences. As Ethan Hunt and his team race against time to prevent a global catastrophe, they must rely on their wits and skills to survive and succeed.",
23             "release_date": "2018-07-13"
24         },
25         {
26             "popularity": 35.285,
27             "id": 954,
```

GET <https://api.themoviedb.org/3/search/movie> X

+ ...

▶ <https://api.themoviedb.org/3/search/movie>

GET

▼

<https://api.themoviedb.org/3/search/movie>

GET https://api.themoviedb.org/3/search/movie

https://api.themoviedb.org/3/search/movie?api_key=45bb0c1f19a090e[REDACTED]&query=Mission Impossible&page=1

Params ● Authorization Headers (2) Body Pre-request Script Tests

KEY	VALUE	DESCRIPTION
api_key	45bb0c1f19a090e[REDACTED]	
query	Mission Impossible	
page	1	
Key	Value	Description

Params ● Authorization Headers Body

TYPE

No Auth

Body Cookies Headers (15) Test Results

Pretty Raw Preview JSON ▾

```
1 {  
2   "page": 1,  
3   "total_results": 21,  
4   "total_pages": 2,  
5   "results": [  
6     {  
7       "popularity": 83.214,  
8       "vote_count": 5400,  
9       "video": false,  
10      "poster_path": "/AkJQpZp9WoNdj7pLYSj1L0RcMMN.jpg",  
11      "id": 353081,  
12      "adult": false,  
13      "backdrop_path": "/aw4FOsWr2FY373nKSxbpNi3fz4F.jpg",  
14      "original_language": "en",  
15      "original_title": "Mission: Impossible - Fallout",  
16      "genre_ids": [  
17        28,  
18        12
```

JSON Structure 'TheMovieDBJSON_Example'

General Documentation

JSON snippet 

Format

```
[
  {
    "firstname": "Michael",
    "lastname": "Jordan",
    "age": 35,
    "friends": [
      "Scottie",
      "Dennis",
      "Steve"
    ]
  }
]
```

Structure 

Filter

Expand all **Collapse all** **Refresh**

Name	Value	Primitive Type	Occurrence	Nillable	Custom Name
(Array)			1	<input checked="" type="checkbox"/>	Root
(Object)			0..*	<input checked="" type="checkbox"/>	JsonObject
firstname	"Michael"	String	0..1	<input checked="" type="checkbox"/>	Firstname
lastname	"Jordan"	String	0..1	<input checked="" type="checkbox"/>	Lastname
age	35	Integer	0..1	<input checked="" type="checkbox"/>	Age
friends			0..1	<input checked="" type="checkbox"/>	Friends
(Wrapper)			0..*	<input checked="" type="checkbox"/>	Wrapper
(Value)	"Scottie"	String	0..1	<input checked="" type="checkbox"/>	Value

OK Cancel

Select schema elements for import mapping 'ImM_Example'

Schema source 

XML schema Start at

Web service operation

JSON structure TheMovieDB.JSON_Example

Message definition

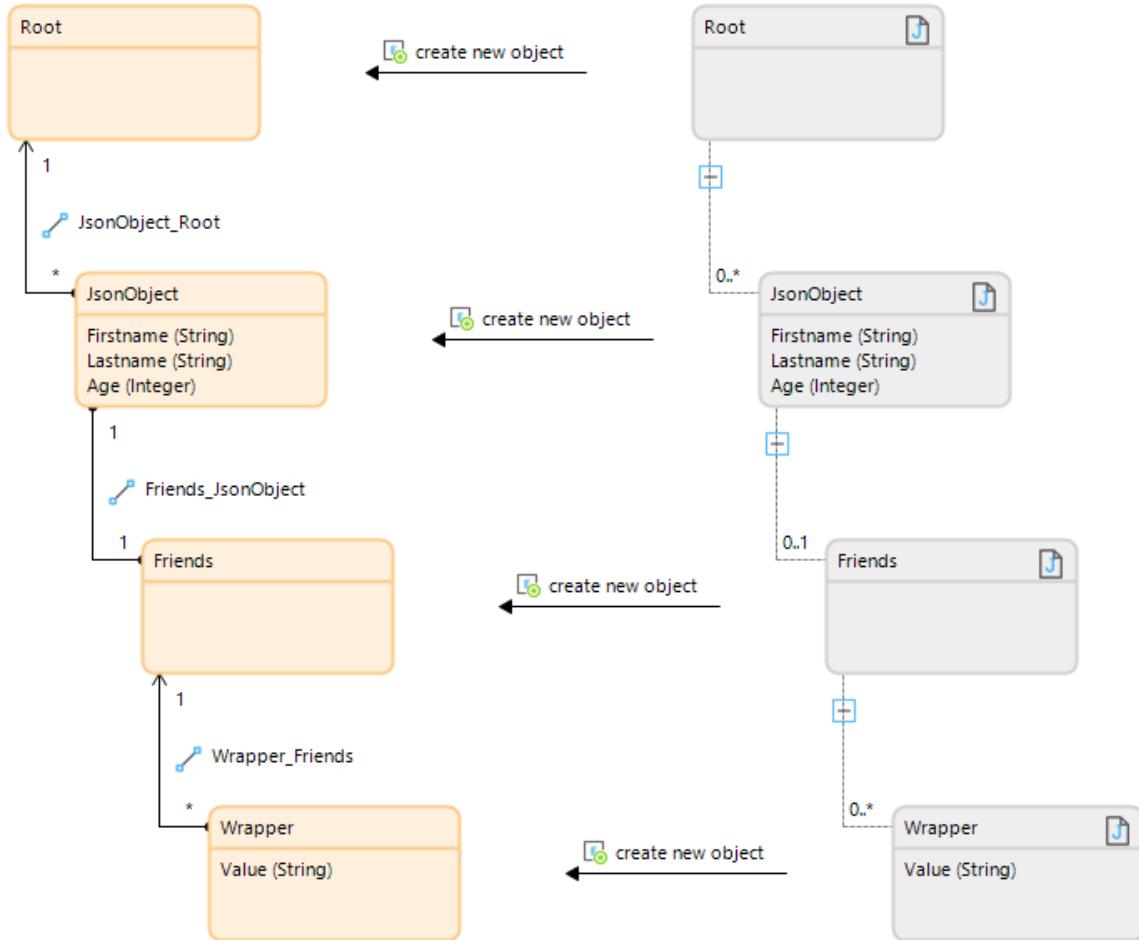
Schema elements 

Filter

Expand all Collapse all Check all Uncheck all

Name	Primitive Type	Occurrence	Nillable	Custom Name
<input checked="" type="checkbox"/>  (Array)		1	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>  (Object)		0..*	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>  firstname	String	0..1	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>  lastname	String	0..1	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>  age	Integer	0..1	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>  friends		0..1	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>  (Wrapper)		0..*	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>  (Value)	String	0..1	<input checked="" type="checkbox"/>	

Click or drag a parameter entity here
(optional)



Message Definition in 'TheMovieDB.MD_Example'

General Documentation

General

Name	Person
Entity	TheMovieDB.Root

Structure

Filter:

[+] Expand all [-] Collapse all [Check all] [Uncheck all] [Refresh]

Name	Type	Occurrence	External Name	External Single Item Name
Root	TheMovieDB.Root	0..*	Roots	Root
JsonObject_Root	TheMovieDB.JsonO...	0..*	JsonObjects	JsonObject
Firstname	String	0..1	Firstname	
Lastname	String	0..1	Lastname	
Age	Integer	0..1	Age	
JsonObject_Root	TheMovieDB.Root	0..1	Root	
Friends_JsonObject	TheMovieDB.Friend...	0..1	Friends	
Friends_JsonObject	TheMovieDB.JsonO...	0..1	JsonObject	
Wrapper_Friends	TheMovieDB.Wrapper	0..*	Wrappers	Wrapper

[?] OK Cancel

Select schema elements for import mapping 'ImM_Example'

Schema source

XML schema

Web service operation

JSON structure

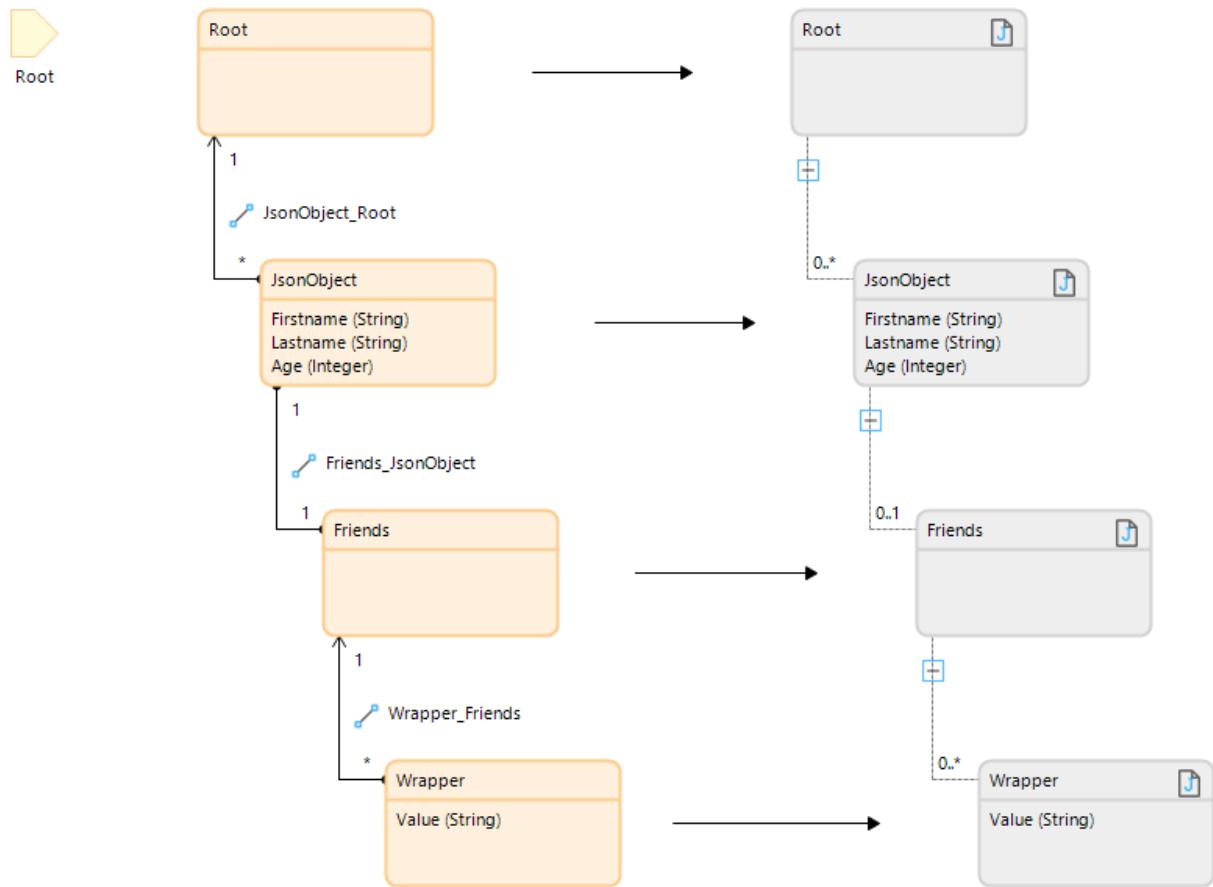
Message definition

Schema elements

Filter:

[+] Expand all [-] Collapse all [Check all] [Uncheck all]

Name	Primitive Type	Occurrence	Nullable	Namespace
Root		0..*	<input checked="" type="checkbox"/>	
JsonObject		0..*	<input checked="" type="checkbox"/>	
Firstname	String	0..1	<input checked="" type="checkbox"/>	
Lastname	String	0..1	<input checked="" type="checkbox"/>	
Age	Integer	0..1	<input checked="" type="checkbox"/>	
Friends		0..1	<input checked="" type="checkbox"/>	
Wrapper		0..*	<input checked="" type="checkbox"/>	
Value	String	0..1	<input checked="" type="checkbox"/>	



General

<u>Service name</u>	ExampleRestService
<u>Version</u>	1.0.0
<u>Location</u>	http://localhost8081/rest/examplerestservice/v1

Resources		Operations for resource 'Course'	
		<u>Add</u> <u>Edit</u> <u>Delete</u> <u>Move up</u> <u>Move down</u>	
Name	Documentation	Operation	Microflow
Course		GET /Course/{Name}	TheMovieDB.PRS_Course_By Name

Operation 'GET /Course/{Name}' in 'TheMovieDB.ExampleRestService'

General Public documentation

Method	GET
Operation path	{Name}
Example location	http://localhost:8081/rest/examplerestservice/v1/Course/{Name}
Microflow	TheMovieDB.PRS_Course_ByName
Deprecated	<input type="checkbox"/>

Parameters

Add	Edit	Delete	Move up	Move down
Parameter type	Name	Data type	Microflow parameter	
Path	Name	String	Name	

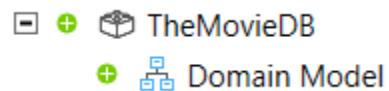
Response

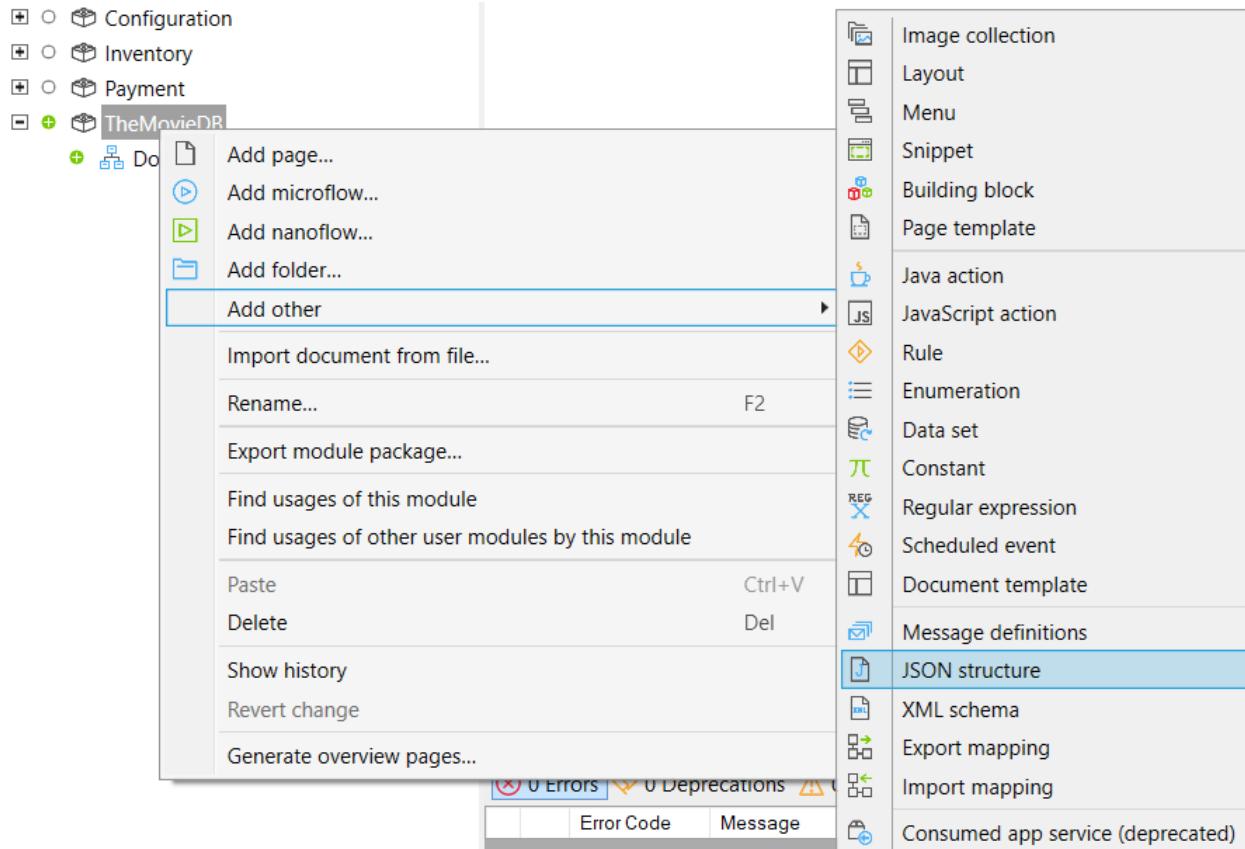
Type	System.HttpResponse
Export mapping	TheMovieDB.ExM_Example

OK Cancel

Security

Requires authentication	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Authentication methods	<input checked="" type="checkbox"/> Username and password	<input type="checkbox"/> Active session	<input type="checkbox"/> Custom
Allowed roles			





Body Cookies Headers (15) Test Results

Pretty

Raw

Preview

JSON ▾



```
1 {  
2     "page": 1,  
3     "total_results": 21,  
4     "total_pages": 2,  
5     "results": [  
6         {  
7             "popularity": 68.902,  
8             "vote_count": 5400,  
9             "video": false,  
10            "poster_path": "/AkJQpZp9WoNdj7pLYSj1L0RcMMN.jpg",  
11            "id": 353081,  
12            "adult": false,  
13            "backdrop_path": "/aw4F0sWr2FY373nKSxbpNi3fz4F.jpg",  
14            "original_language": "en",  
15            "original_title": "Mission: Impossible - Fallout",  
16            "genre_ids": [  
17                28,  
18                12  
1 ]
```

General Documentation

JSON snippet

Format

⚠ The structure is not consistent with the snippet. Please click 'Refresh' in the structure tree.

```
technology equipment. The new blood agents struggle in the rough and tough mission without ^  
the knowledge of how to use the equipment and that leads to the failure of their mission. Are  
they gonna make it while they have to do housework and the mission in the same time?",  
    "poster_path": "/2HgNFsc2WMBKG1Y8oks0xtgtsRf.jpg" }, {  
    "popularity": 4.398,           "vote_count": 0,           "video": false,  
    "poster_path": "/hn7NiCXsqy3mqvX2AKX1oF1tttw.jpg",           "id": 608386,  
    "adult": false,           "backdrop_path": "/opAsWjxRIOjZxwpw0otOWLWV3n.jpg",  
    "original_language": "en",           "original_title": "The Vibe",           "genre_ids": [  
        9648,           53           ],           "title": "The Vibe",  
        "vote_average": 0,           "overview": "A poison killer woman in a search and destroy  
mission against a strange spiritual leader.",           "release_date": "2020-09-23"  
    } ]}
```

General Documentation

JSON snippet

Format

! The structure is not consistent with the snippet. Please click 'Refresh' in the structure tree.

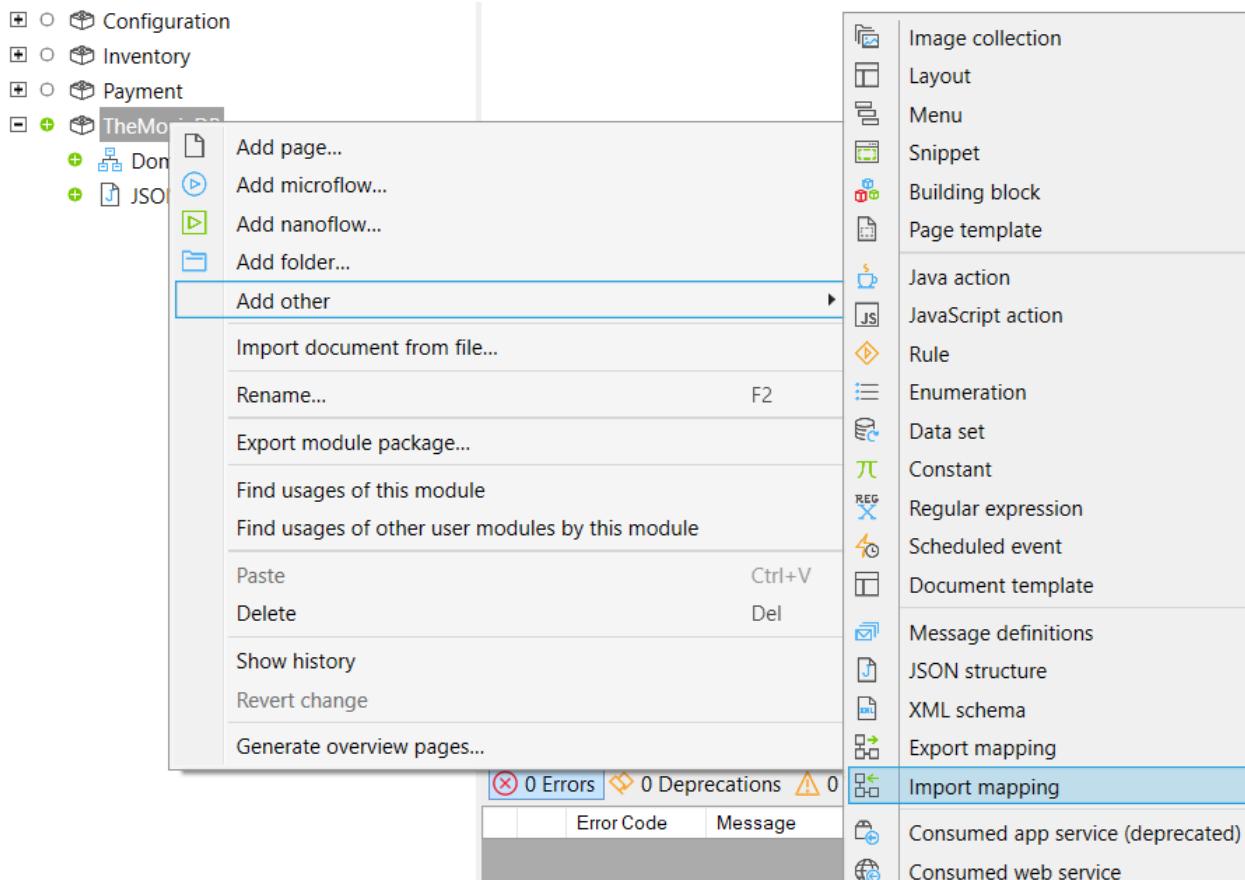
```
{  
    "page": 1,  
    "total_results": 21,  
    "total_pages": 2,  
    "results": [  
        {  
            "popularity": 68.902,  
            "vote_count": 5400,  
            "video": false,  
            "poster_path": "/AkJQpZp9WoNdj7pLYSj1L0RcMMN.jpg",  
            "id": 353081,  
            "adult": false,  
            "backdrop_path": "/aw4FOsWr2FY373nKSxbpNi3fz4F.jpg",  
            "original_language": "en",  
            "original_title": "Mission: Impossible - Fallout",  
            "genre_ids": [  
                28,  
                12  
            ],  
            "title": "Mission: Impossible - Fallout",  
            "vote_average": 7.1  
        }  
    ]  
}
```

Structure

Filter

+ Expand all - Collapse all ↻ Refresh

Name	Value	Primitive Type	Occurrence	Nillable	Custom Name
- (Object)			1	<input checked="" type="checkbox"/>	Root
- page	1	Integer	0..1	<input checked="" type="checkbox"/>	Page
- total_results	1	Integer	0..1	<input checked="" type="checkbox"/>	Total_results
- total_pages	1	Integer	0..1	<input checked="" type="checkbox"/>	Total_pages
- results			0..1	<input checked="" type="checkbox"/>	Results
- (Object)			0..*	<input checked="" type="checkbox"/>	JsonObject
- popularity	1.0	Decimal	0..1	<input checked="" type="checkbox"/>	Popularity
- vote_count	1	Integer	0..1	<input checked="" type="checkbox"/>	Vote_count
- video	false	Boolean	0..1	<input checked="" type="checkbox"/>	Video
- poster_path	""	String	0..1	<input checked="" type="checkbox"/>	Poster_path



Select schema elements for import mapping 'Import mapping'.

Schema source

XML schema Web service operation JSON structure Message definition

(0 Errors | 0 Deprecations | 0 Warnings)

Error Code	Message

Schema elements

Filter:

Expand all Collapse all Check all

Select JSON Structure

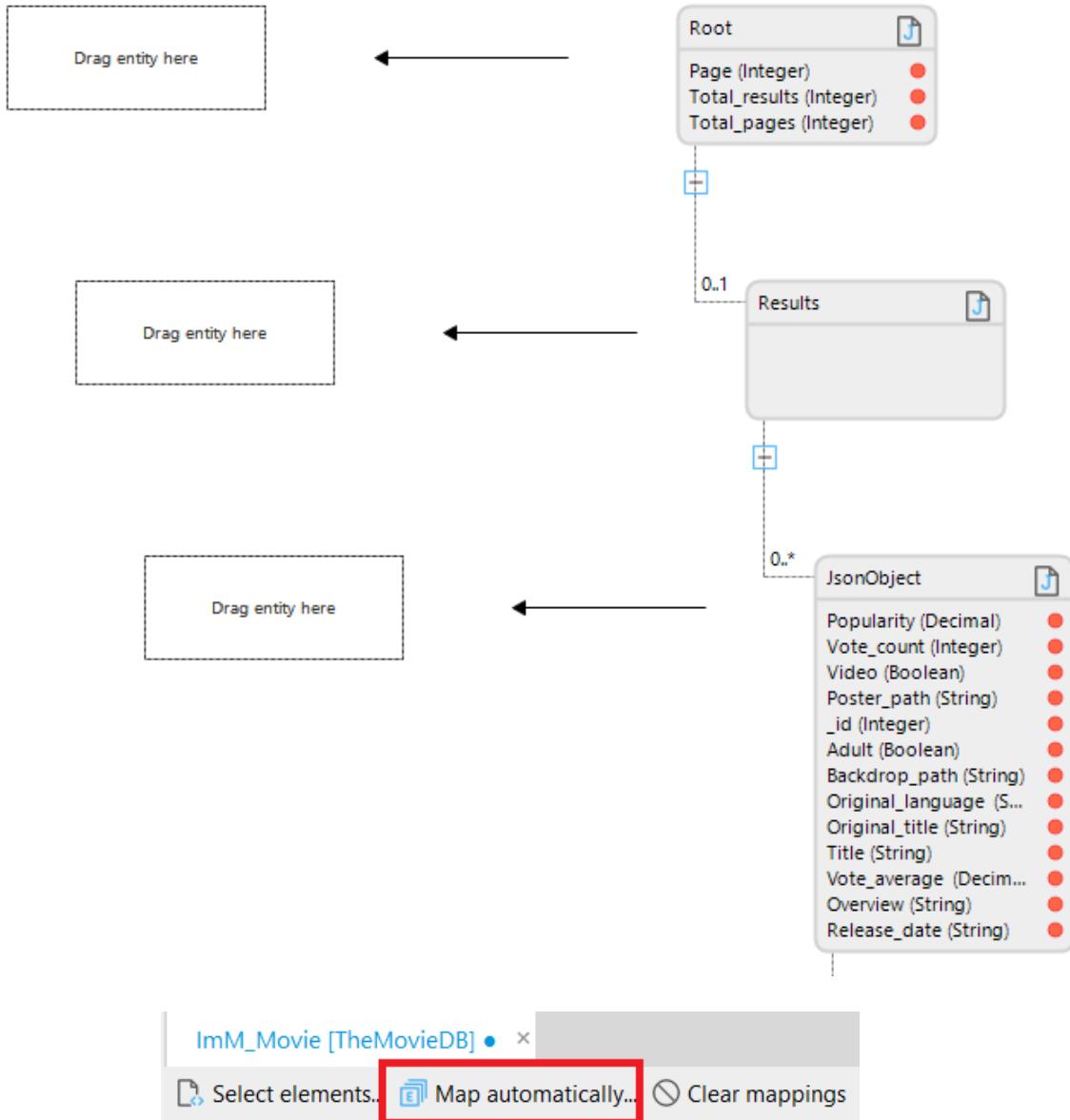
Filter:

Expand All Collapse All

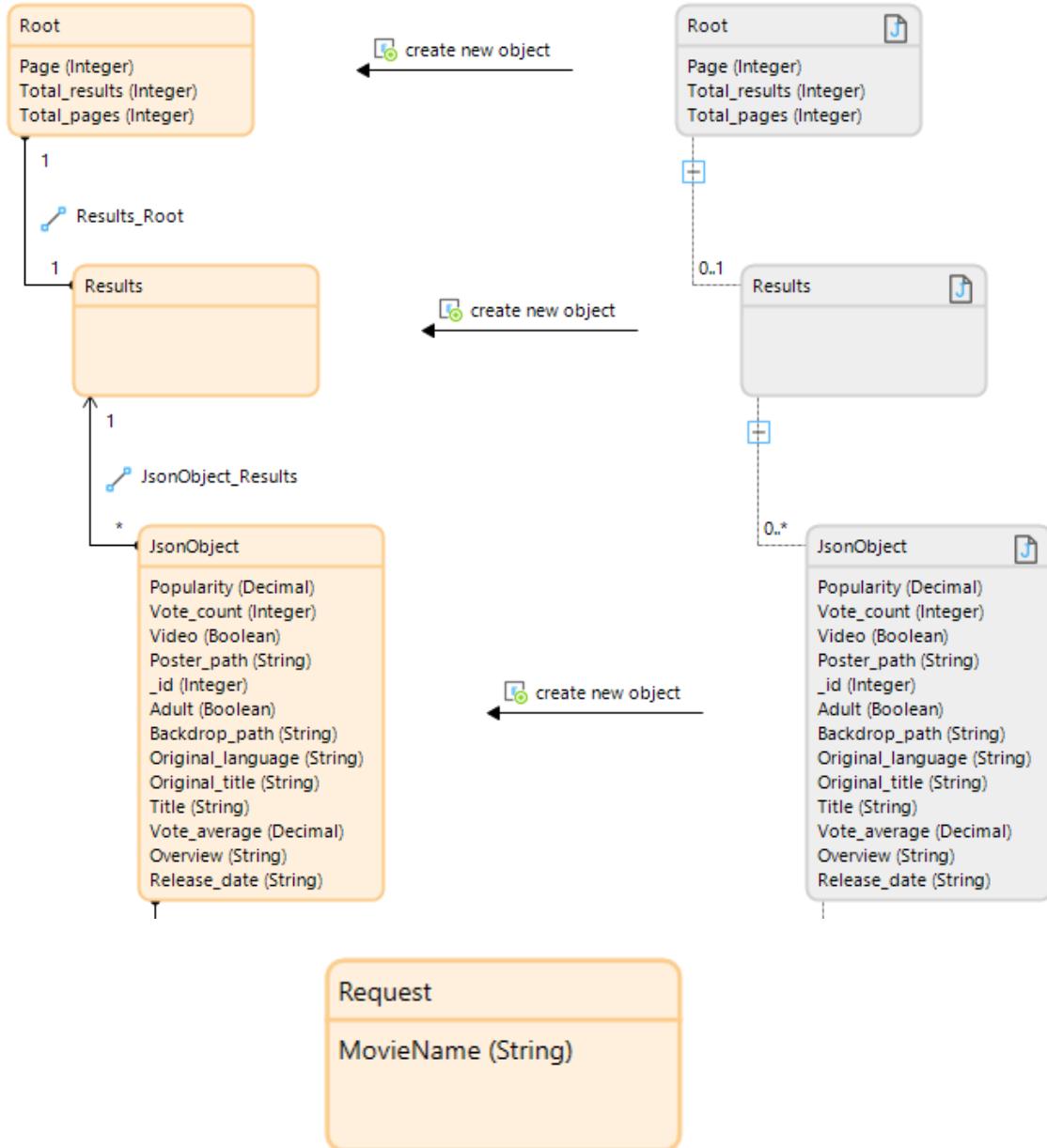
- App Store modules
 - System
 - MyFirstModule
 - VideoRentals
- Configuration
- Inventory
- Payment
- TheMovieDB
 - JSON_Movie

Schema elements					
<input type="text"/> Filter Expand all Collapse all Check all Uncheck all 					
Name	Primitive Type	Occurrence	Nillable	Custom Name	
Object		1	<input checked="" type="checkbox"/>		
page	Integer	0..1	<input checked="" type="checkbox"/>		
total_results	Integer	0..1	<input checked="" type="checkbox"/>		
total_pages	Integer	0..1	<input checked="" type="checkbox"/>		
results		0..1	<input checked="" type="checkbox"/>		
Object		0..*	<input checked="" type="checkbox"/>		
popularity	Decimal	0..1	<input checked="" type="checkbox"/>		
vote_count	Integer	0..1	<input checked="" type="checkbox"/>		
video	Boolean	0..1	<input checked="" type="checkbox"/>		
poster_path	String	0..1	<input checked="" type="checkbox"/>		
id	Integer	0..1	<input checked="" type="checkbox"/>		
adult	Boolean	0..1	<input checked="" type="checkbox"/>		
backdrop_path	String	0..1	<input checked="" type="checkbox"/>		
original_language	String	0..1	<input checked="" type="checkbox"/>		
original_title	String	0..1	<input checked="" type="checkbox"/>		
genre_ids		0..1	<input checked="" type="checkbox"/>		
Wrapper		0..*	<input checked="" type="checkbox"/>		

Click or drag a parameter entity
here
(optional)



Click or drag a parameter entity here
(optional)



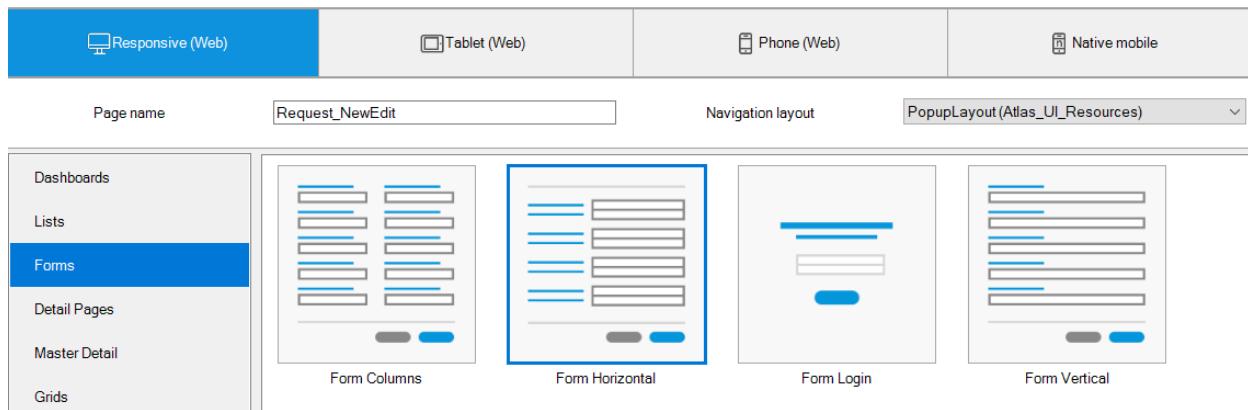
Create Page

Responsive (Web) Tablet (Web) Phone (Web) Native mobile

Page name: Request_NewEdit Navigation layout: PopupLayout(Atlas_UL_Resources)

Forms

Form Columns Form Horizontal Form Login Form Vertical



Page | Data view | Data grid | Template grid | List view | Add widget... | Add building block...

Edit Data View 'dataView5'

General Appearance

General

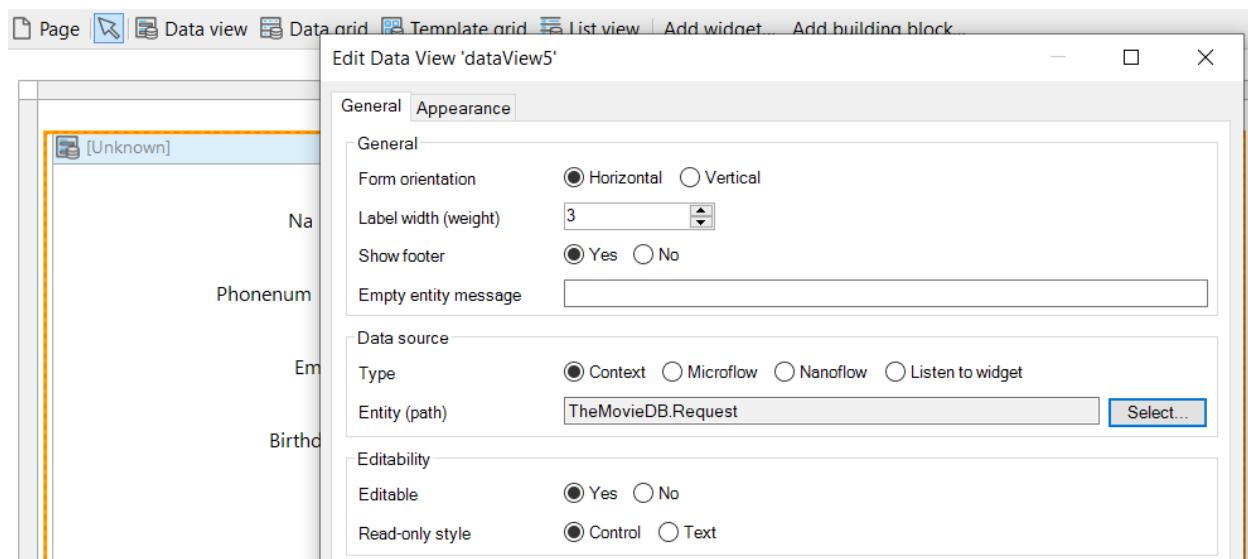
Form orientation: Horizontal Vertical
Label width (weight): 3
Show footer: Yes No
Empty entity message:

Data source

Type: Context Microflow Nanoflow Listen to widget
Entity (path): TheMovieDB.Request

>Editability

Editable: Yes No
Read-only style: Control Text



Question



Do you want to automatically fill the contents of the data view?

Yes

No

Auto-fill

[Request, page parameter]

Movie name [MovieName]

Save Cancel

Show Page

Input

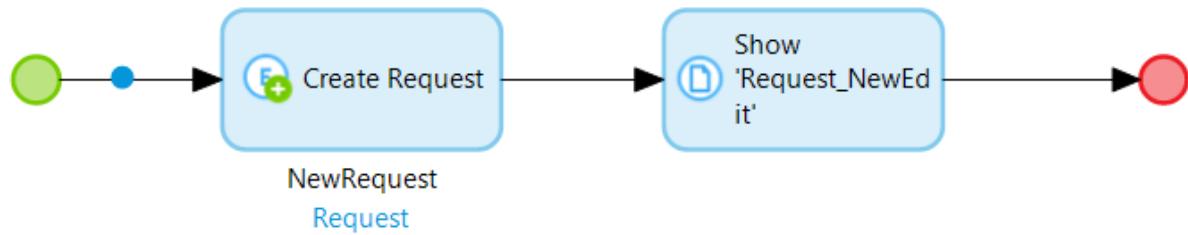
Object to pass NewRequest (TheMovieDB.Request)

Action

Page TheMovieDB.Request_NewEdit Select... Show

Page title Override page title Page Title Edit...

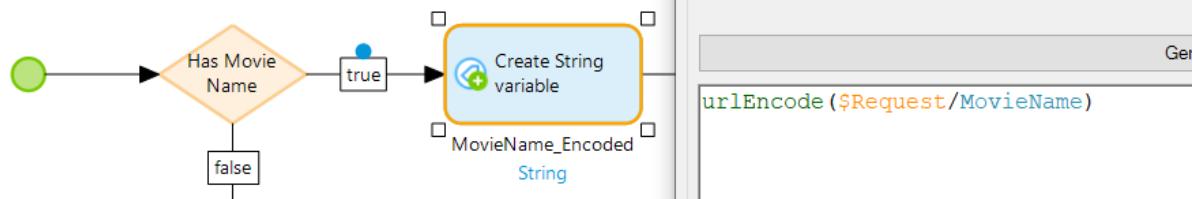
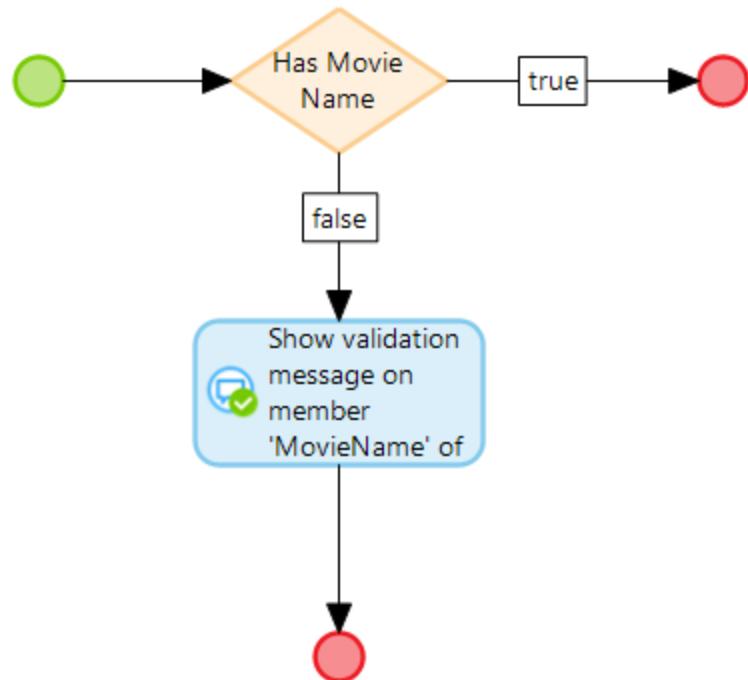
OK Cancel



- + ○ 📦 Configuration
- + ○ 📦 Inventory
- + ○ 📦 Payment
- + 📦 TheMovieDB
 - + 📂 Domain Model
 - + ⏪ ACT_Request_New
 - + ⏪ ACT_TheMovieDB_GetMoviesByName
 - + 🔳 APIKey
 - + 📂 ImM_Movie
 - + 📄 JSON_Movie
 - + 📄 Request_NewEdit

Constant 'TheMovieDB.APIKey'

Common	
Name	APIKey
Documentation	
Type	
Type	String
Value	
Default value	XXXXXXXXXX
Exposed to client	<input type="radio"/> Yes <input checked="" type="radio"/> No



Select Type of Action

Filter

+ Expand All - Collapse All

Integration

- Call REST service
- Call web service
- Export with mapping
- Import with mapping

Logging

- Log message

Document generation

Activity

Call REST

General HTTP Headers Request Response

Location

Location https://api.themoviedb.org/3/search/movie?api_key={1}&query={2} Edit...

HTTP method GET

Template

https://api.themoviedb.org/3/search/movie?api_key={1}&query={2}

Parameters

New Edit Delete ▲ Move up ▼ Move down

Index	Expression
{1}	@TheMovieDB.APIKey
{2}	\$MovieName_Encoded

OK Cancel

```
graph LR; Start(( )) --> Activity[Activity]; Activity --> End((( )))
```

```
graph TD; Start(( )) --> CallREST[Call REST]; CallREST --> End((( )))
```

```
CallREST[Call REST] --- Location[Location]
CallREST[Call REST] --- Method[HTTP method]
```

```
Location[Location] --- Template[Template]
Location[Location] --- Parameters[Parameters]
```

Index	Expression
{1}	@TheMovieDB.APIKey
{2}	\$MovieName_Encoded

Call REST

General HTTP Headers Request Response

Response handling Store in an HTTP response

Output

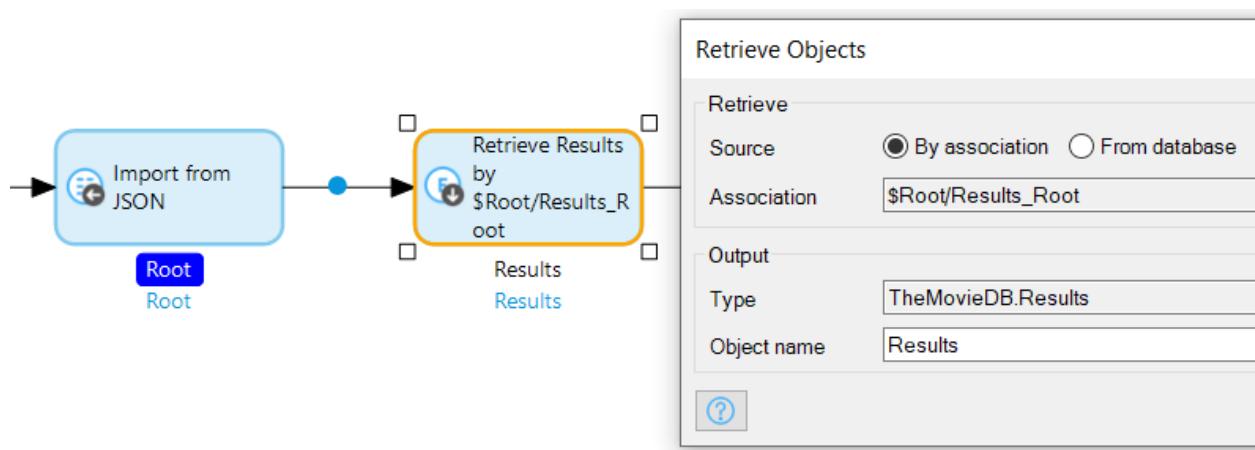
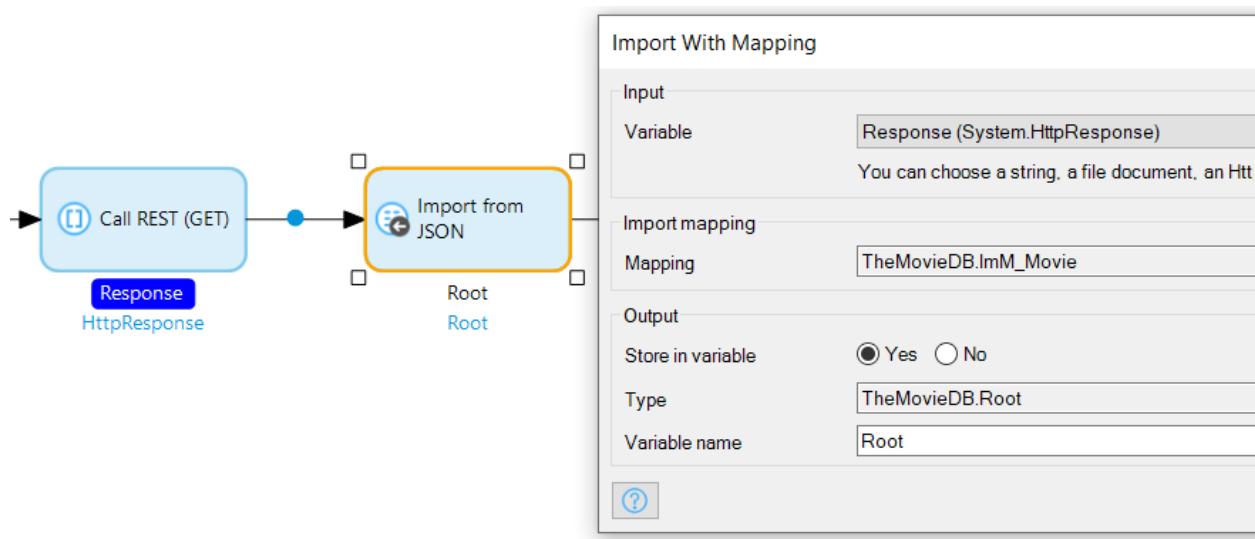
Store in variable Yes No

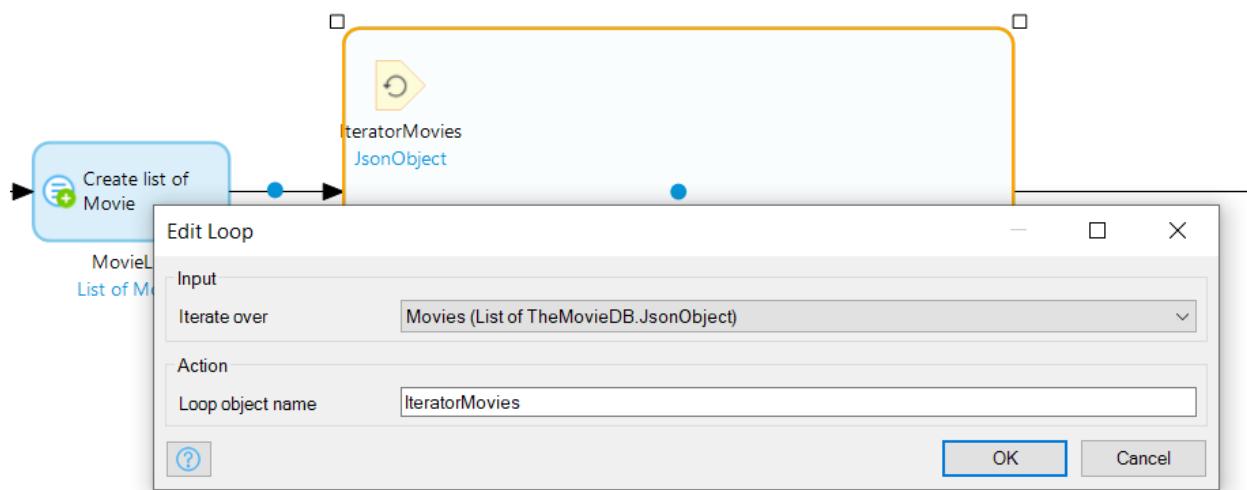
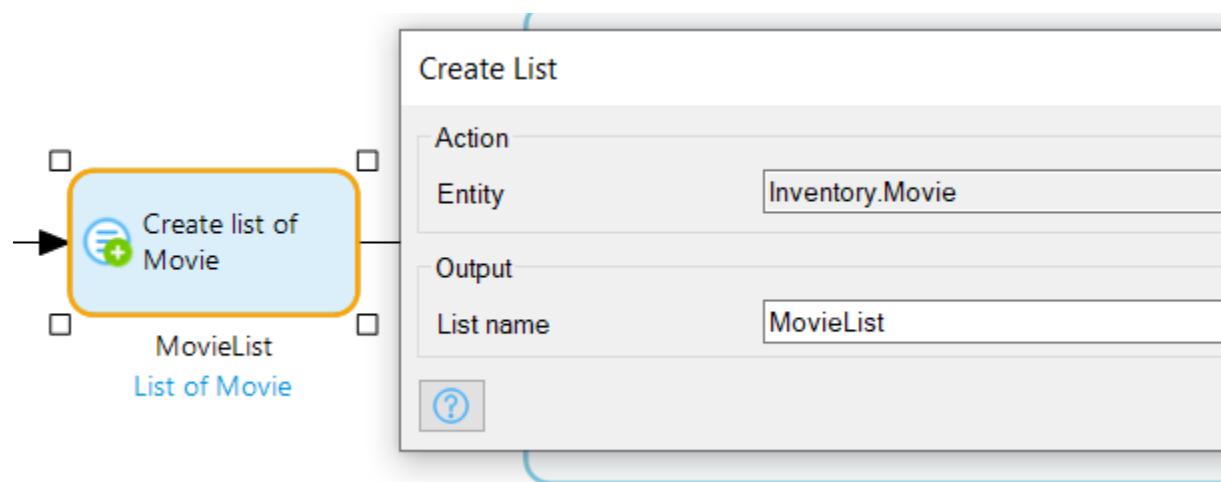
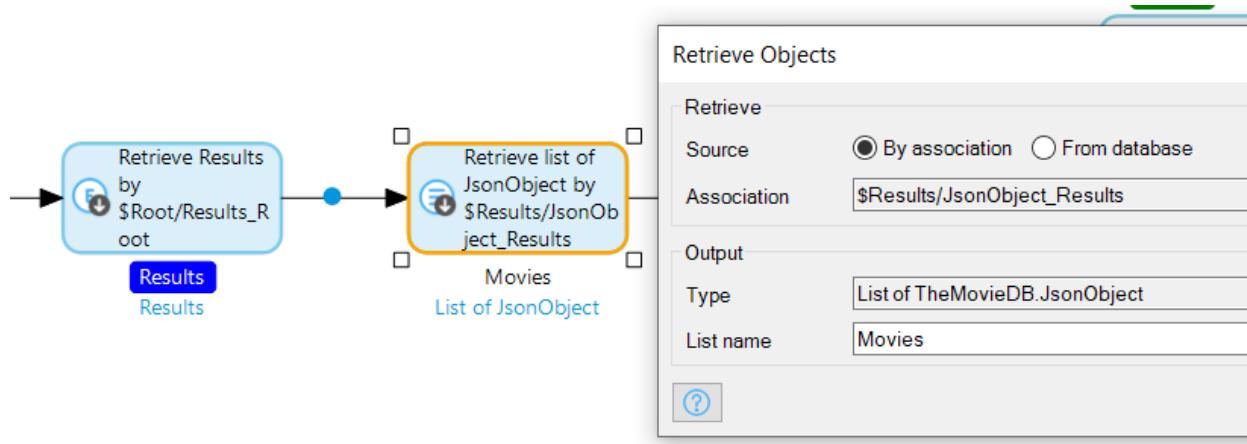
Type System.HttpResponse

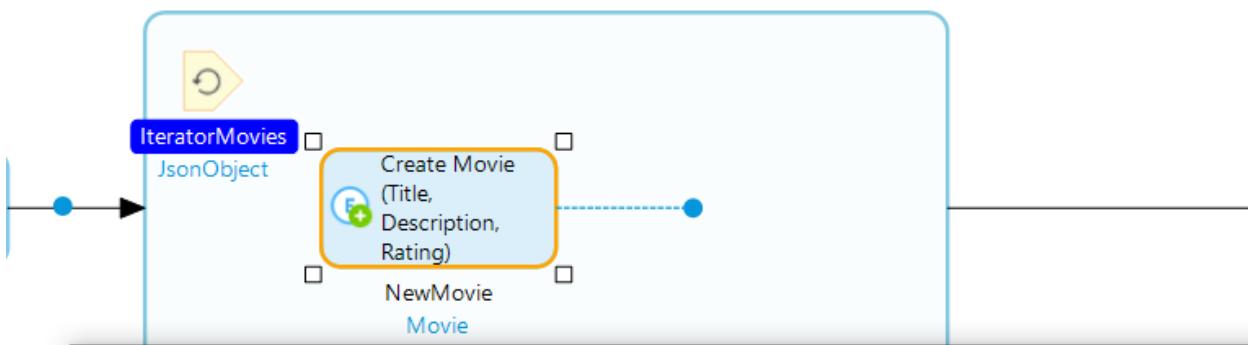
Variable name Response

Error handling

Store message body in \$latestHttpResponse variable.







Create Object

Action

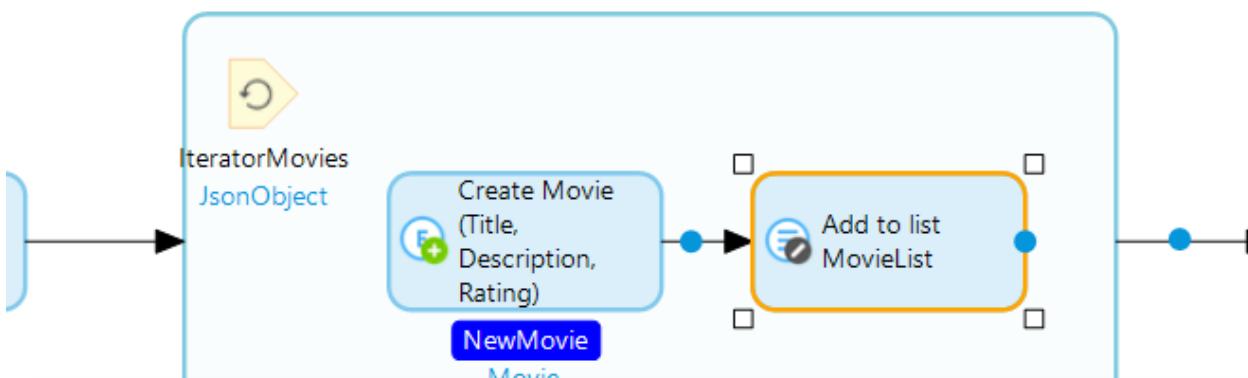
Entity

Commit Yes Yes without events No

Refresh in client Yes No

New Edit Delete | Move up Move down

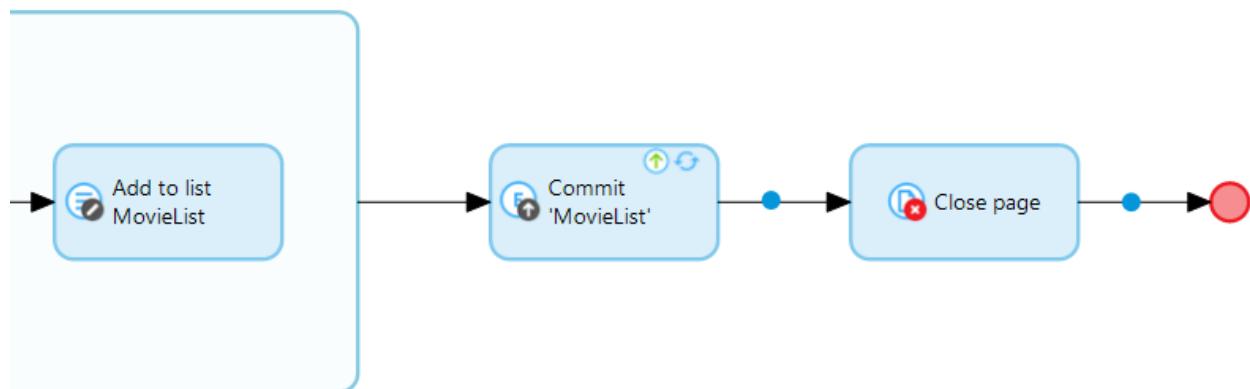
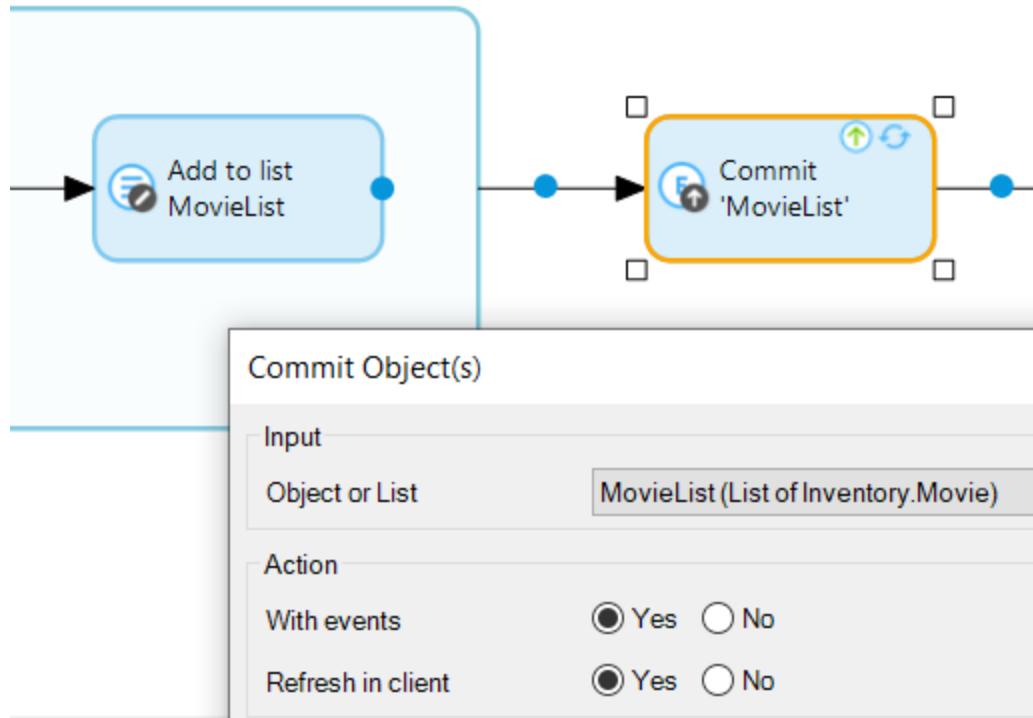
Member	Member type	Type	Value
Title	String (200)	Set	\$IteratorMovies/Title
Description	String (1000)	Set	\$IteratorMovies/Overview
Rating	Decimal	Set	\$IteratorMovies/Vote_average



Change List

Input List Type Add Remove

Value



Edit Attribute

Common

Name	Description
Documentation	

Type

Type	String
A value of type String is a text containing	
<input checked="" type="radio"/> Limited <input type="radio"/> Unlimited	
Length	
Max length	1000

Value

Value	<input type="radio"/> Calculated <input checked="" type="radio"/> Stored
Default value	

```

classDiagram
    class Movie {
        Title (String)
        Description (String)
        Rating (Decimal)
        ReleaseDate (Date and ti...)
    }
    class Rental_Movie {
        * 
    }
    Movie "1" -- "*" Rental_Movie
  
```

Edit Action Button 'actionButton1'

General **Appearance**

General	Caption: Save	Icon: (none)	Render mode: Button	Button style: Success
Visibility	Visible: Default			
Events	On click: Call a microflow	Microflow: TheMovieDB.ACT_TheMovieDB_GetMoviesByName	Select...	Show
Microflow settings: (progress bar)				
Disabled during action: <input checked="" type="radio"/> Yes <input type="radio"/> No				
Common				
Name: actionBar1				
Tab index: 0				

Debugger

Connect... | Step into | Step over

Events

On click Call a microflow

Microflow TheMovieDB.ACT_TheMovieDB_GetMoviesByName Select... Show

Microflow settings (progress bar) Edit...

Microflow Settings

Microflow TheMovieDB.ACT_TheMovieDB_GetMoviesByName Select... Show

Microflow arguments Request Object of dataView5 (TheMovieDB.Request).

Execution

Microflow call type Synchronous Asynchronous

Show progress bar None Non-blocking Blocking

Progress message One moment...

Movie

[Movie, from database]

Title	Description
[Title]	[Description]
Release year	[ReleaseDate]

Search New Edit [default] Select all Delete Add button ▾ Create

Cut Ctrl+X Copy Ctrl+C Paste Ctrl+V Action Select all Deselect all

Sort order: (default)

Title	Description
[Title]	[Description]

Edit Action Button 'actionButton3' of Data Grid 'grid1'



General Appearance

General

Caption

Tooltip

Icon

Button style

Is default button Yes No

Visibility

Visible

Events

On click

Microflow

Microflow settings

Disabled during action Yes No

Common

Name

Movie

Title	Description
Movie A	Movie A Description
Movie B	Movie B Description
Movie C	Movie C Description

Page Title

X

Movie name

Mission Impossible

Save

Cancel

One moment...

Mission Impossible

Movie

Search

New

Edit

Select all

Delete

Add Inventory

Title	Description	Rating
Mission: Impossible - Fallout	When an IMF mission ends badly, the world is faced with dire consequences. As Ethan ...	7.40
Mission: Impossible	When Ethan Hunt, the leader of a crack espionage team whose perilous operation has ...	6.90
Mission: Impossible - Ghost Protocol	Ethan Hunt and his team are racing against time to track down a dangerous terrorist n...	7.00
Mission: Impossible - Rogue Nation	Ethan and team take on their most impossible mission yet—eradicating 'The Syndicate...	7.20
Mission: Impossible III	Retired from active duty to train new IMF agents, Ethan Hunt is called back into action ...	6.70
Mission: Impossible II	With computer genius Luther Stickell at his side and a beautiful thief on his mind, agen...	6.10