OpenL Tablets WebStudio User Guide

OpenL Tablets 5.14

OpenL Tablets BRMS

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1 Preface

This preface is an introduction to the ***OpenL Tablets WebStudio User Guide***. The following topics are included in this preface:

1.1 Audience

This guide is intended for the following users:

Audience		
User type	**Purpose**	**Required knowledge**
Business users	View and modify company business rules stored in tables.	Knowledge of decision tables is required.
Developers	• Manage technical details of rule tables. • Organize and deploy rule projects.	Knowledge of OpenL Tablets technology is required.

1.2 Related Information

OpenL Tablets WebStudio is a tool of the OpenL Tablets product. For information on OpenL Tablets Rules, see ***[OpenL Tablets Reference Guide]***.

1.3 Typographic Conventions

The following styles and conventions are used in this guide:

Typographic styles and conventions	
Convention	**Description**
Bold	• Represents user interface items such as check boxes, command buttons, dialog boxes, drop-down list values, field names, menu commands, menus, option buttons, perspectives, tabs, tooltip labels, tree elements, views, and windows. • Represents keys, such as **F9** or **CTRL+A.** • Represents a term the first time it is defined.
`Courier`	Represents file and directory names, code, system messages, and command-line commands.
`Courier Bold`	Represents emphasized text in code.
Select **File > Save As**	Represents a command to perform, such as opening the **File** menu and selecting **Save As.**
Italic	• Represents any information to be entered in a field. • Represents documentation titles.
< >	Represents placeholder values to be substituted with user specific values.

Typographic styles and conventions	
Convention	**Description**
Hyperlink	Represents a hyperlink. Clicking a hyperlink displays the information topic or external source.
[name of guide]	Reference to another guide that contains additional information on a specific feature.

2 Introducing OpenL Tablets WebStudio

This section introduces main OpenL Tablets WebStudio concepts. The following topics are included in this section:

2.1 What Is OpenL Tablets WebStudio?

OpenL Tablets WebStudio (further also referred as **WebStudio**) is a web application employed by business users and developers to view, edit, and manage business rules and rule projects created using OpenL Tablets technology. For more information on OpenL Tablets, see ***[OpenL Tablets Reference Guide]***.

By using OpenL Tablets WebStudio, users can modify rules directly in a web browser without installing additional tools. OpenL Tablets WebStudio provides an advanced functionality for creating and modifying rules, viewing errors, and executing tests.

2.2 Working with Projects in OpenL Tablets WebStudio

OpenL Tablets WebStudio is intended for a multi-user environment. It provides a centralized storage of rule projects called **Design repository.** Design repository is stored on the OpenL Tablets WebStudio server and can be accessed by any user. However, users cannot modify projects directly in Design repository. Instead, to make modifications to a project, users must execute the following procedure:

Procedure for modifying a project		
Step	**Action**	**Description**
1	Open a project for editing.	When a project is opened for editing, its status is set to **In Editing**, and a copy of it is created in the user's workspace, a specific location on the OpenL Tablets WebStudio server. Work copies of projects made editable by a particular user are stored there. Users can only access their personal workspaces. A project in the **In Editing** status is locked in Design repository to avoid loss of information. Other users cannot edit it until the project is saved. Other users can only open the project in read-only mode, with the **Viewing** status.
2	Modify a project.	Modifications to a project in the **Editing** status are performed on the working copy stored in the user's workspace. Modifications do not become immediately visible to other users.
3	Save a project.	Saving a project copies the modified copy of the project from the user's workspace to Design repository. A new revision of the project is created in Design repository. A project can be restored to any of its previous revisions. From this moment, changes are visible to other users and the project is available for editing.

In addition to opening projects for editing and saving them, users can also open projects for viewing, when the project is assigned the **Viewing** status, and close projects. A project opened for viewing is copied from Design repository to the user's workspace, but the user cannot modify project contents. For simply viewing the project, use the view mode instead of opening the project for editing, as the project in the **In Editing** status is locked for editing by other users.

Closing a project deletes it from the user's workspace without saving changes and does not affect the revision in Design repository. Closed projects can be browsed in repository editor but are not available in Rules Editor.

2.3 OpenL Tablets WebStudio Components

OpenL Tablets WebStudio consists of the following main components:

OpenL Tablets WebStudio components	
Component	**Description**
Rules Editor	Graphic user interface running in a web browser allowing users to browse rule modules, modify table data, and run tests. Rule project configurations are browsed and updated there as well. Rules Editor is the default user interface displayed when a user opens OpenL Tablets WebStudio. Rules Editor does not display all rule module files but provides a logical view of rules stored in a module. This view is convenient for users who modify business rules. Rules Editor displays only modules available in projects stored in the user's workspace. To retrieve a project to the user's workspace, open the project in the **Viewing** or **Editing** status as described in Working with Projects in OpenL Tablets WebStudio. For more information on using Rules Editor, see Using Rules Editor.
Repository editor	Graphic user interface running in a web browser allowing users to browse and manage projects in Design repository. Unlike Rules Editor, repository editor displays physical contents of rule projects. Users can easily switch between Rules Editor and repository editor in user interface. Repository editor provides the following main functions: • uploading projects from the file system to Design repository • editing, saving, opening, and closing projects • modifying project structure and properties • managing project revisions • copying and deleting projects in Design repository • managing and tracing deploy configurations For more information on using repository editor, see Using Repository Editor.
Design repository	Centralized storage of rule projects accessible by all OpenL Tablets WebStudio users. Projects uploaded to Design repository are visible to other users. Design repository creates a separate project revision each time a project is saved. Any project revision can be opened.

OpenL Tablets WebStudio components	
Component	**Description**
Deploy Configurations repository	Centralized storage of final rule projects to be delivered to the production environment where solution applications use them. Projects can be deployed to production repository from Design repository using deploy configurations. **Deploy configuration** is a specific OpenL Tablets WebStudio project type. It identifies rule projects and project revisions to be deployed to production repository. Deploy configurations are saved and versioned so that developers can identify which specific rule project revisions are deployed.
Production repositories	Production storages of deployed rule projects where solution applications use them.
User workspace	Project storage on the server containing projects edited by users. Each user has a personal workspace unavailable to other users.

2.4 Security Overview

OpenL Tablets WebStudio supports the following user modes:

OpenL Tablets WebStudio user modes	
Mode	**Description**
Single user mode	In this mode, only one user who is currently logged in on the computer can work in OpenL Tablets WebStudio. This mode is selected when WebStudio is installed on the local machine. All user projects are located in the root of the `user-workspace` directory. Single user mode is set by default and does not require additional settings, including logon to the system. Moreover, the system works faster in this mode but neither user management nor access control is provided.
Multi user mode	This mode enables multiple users to work in OpenL Tablets WebStudio and supports a security mechanism restricting access to certain product functions based on user access rights. Each OpenL Tablets WebStudio user is identified by a unique name. When a user opens OpenL Tablets WebStudio in a web browser, he or she must log into the system. Users can have varied levels of access in OpenL Tablets WebStudio. For example, system administrators usually have full access to all OpenL Tablets WebStudio functions, whereas other users may only have access rights to view or modify business rules. In this mode, user's projects are located in the `user-workspace\<user name>` directory.

3 Getting Started

This section explains logging into OpenL Tablets WebStudio and briefly introduces the user interface. The following topics are included in this section:

3.1 Signing In to OpenL Tablets WebStudio

To sign in to OpenL Tablets WebStudio, proceed as follows:

1. In the web browser address bar, enter the OpenL Tablets WebStudio URL provided by the system administrator.

   The OpenL Tablets WebStudio URL has the following pattern:

   `http://<server>:<port>/webstudio`

   In the single user mode, users are automatically signed in using the Windows account. In the multi-user mode, the following form appears.

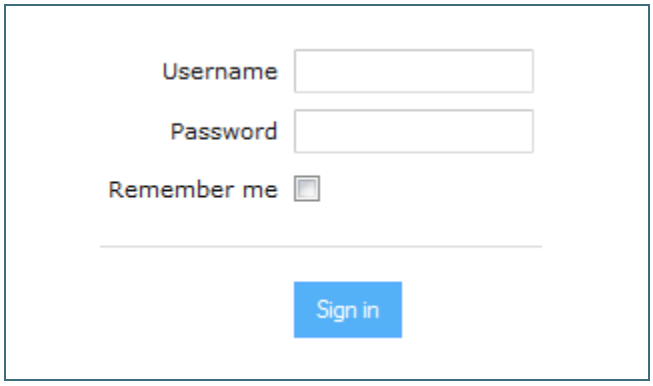


Figure 1: Login window

2. Enter the user name and password provided by the system administrator and click **Sign in.**

For more information on OpenL Tablets WebStudio UI, see Introducing Rules Editor and Introducing Repository Editor. For more information on the single and multi-user modes, see Security Overview.

3.2 Modifying User Details

To manage user details, proceed as follows:

1. In OpenL Tablets WebStudio, in the top-right corner of the window, click an arrow icon next to the username.
2. In the actions list, click **User Details.**

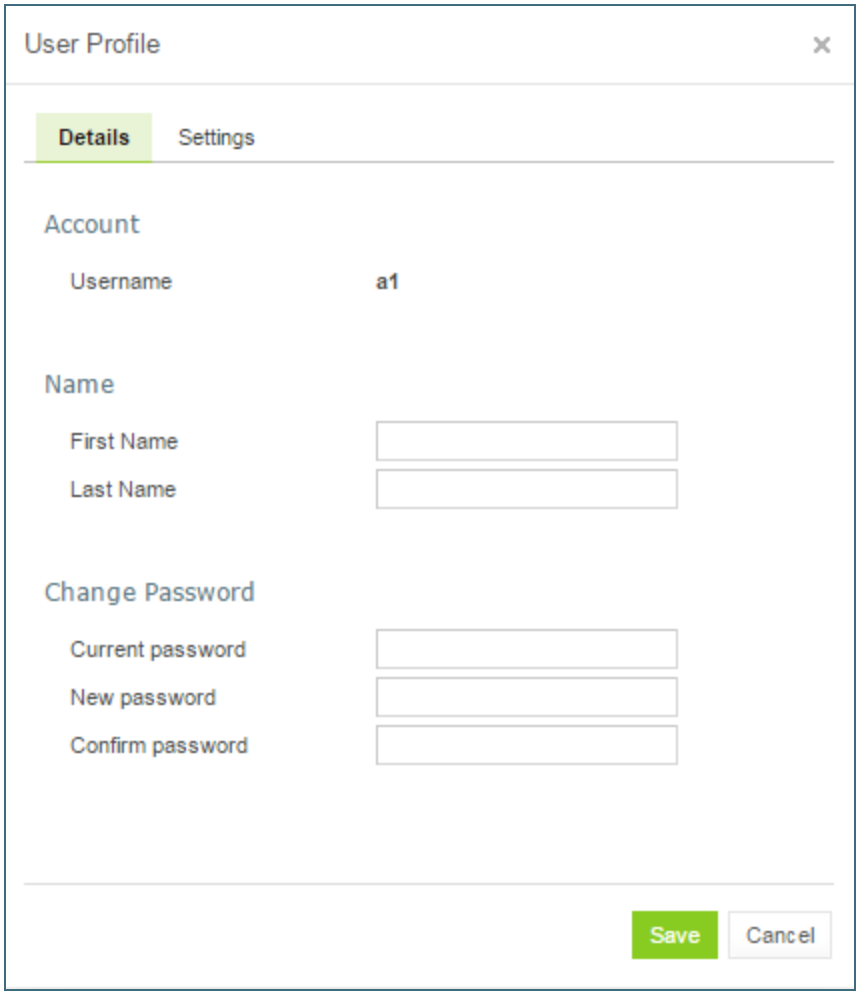


Figure 2: Viewing user details

3. To update user's first or last name, in the **Name** section, modify values as required.
4. To update the password, in the **Change Password** section, enter the current and new password values.

3.3 Modifying User Settings

To manage user settings, proceed as follows:

1. In OpenL Tablets WebStudio, in the top-right corner of the window, click an arrow icon next to the username.
2. In the actions list, click **User Settings.**

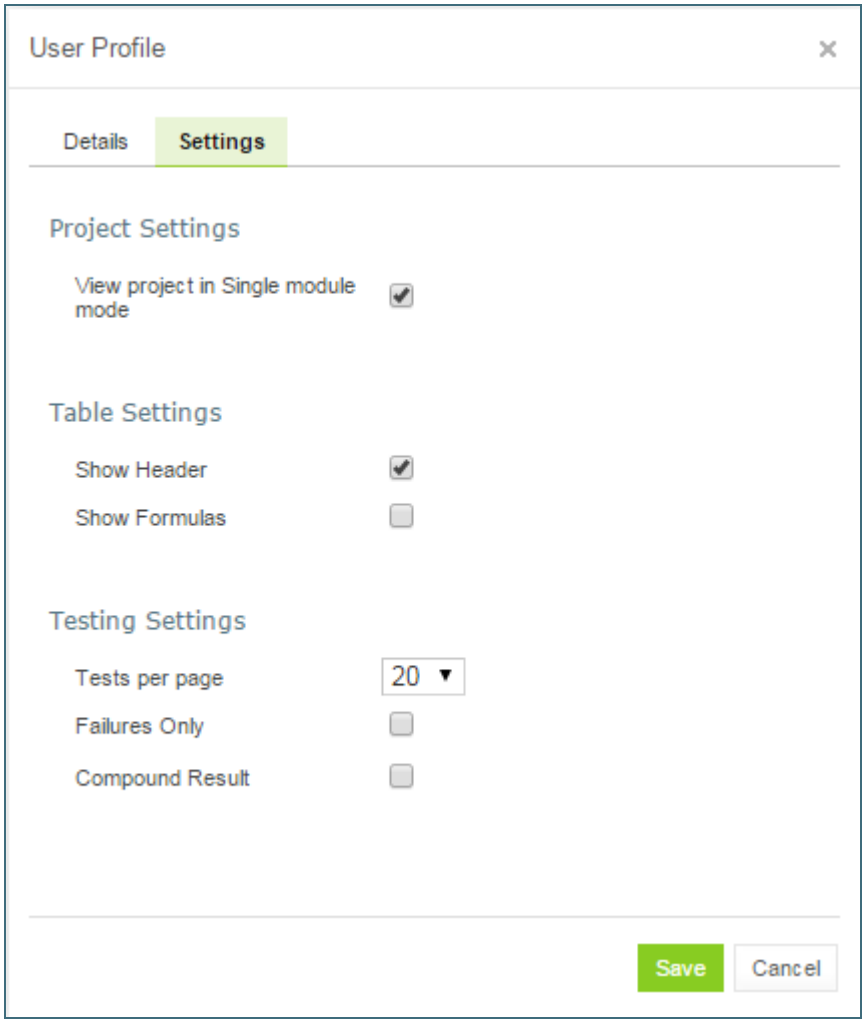


Figure 3: Viewing user settings

3. To enable opening the project in the single module mode, in the **Project Settings** section, select the **Open project…** check box.
4. In the **Table Settings** section, identify whether table header and formulas must be displayed.
5. In the **Testing settings,** select values for displaying rule test results.

   By default, all test results are displayed with five test tables, or unit tests, and compound result is not displayed. For more information on testing settings, see Run Tests.

3.4 Displaying the OpenL Tablets WebStudio Help

To display the OpenL Tablets WebStudio help topics, in OpenL Tablets WebStudio, in the top-right corner of the window, click an arrow icon next to the username and select **Help.**

3.5 Signing Out of OpenL Tablets WebStudio

To sign out of OpenL Tablets WebStudio, proceed as follows:

1. In OpenL Tablets WebStudio, in the top-right corner of the window, click an arrow icon next to the username.
2. In the actions list, click **Sign out.**

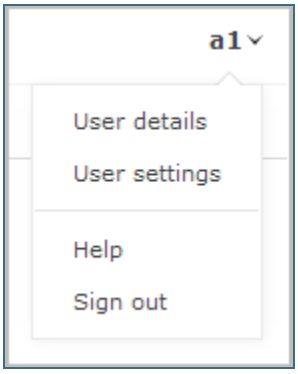


Figure 4: Signing out of OpenL Tablets WebStudio

3.6 Introducing Rules Editor

This section briefly introduces Rules Editor and includes the following topics:

- Rules Editor Overview
- View Modes

For more information on tasks that can be performed in Rules Editor, see Using Rules Editor.

Rules Editor Overview

Rules Editor enables users to browse rule modules and modify table data. This is the default editor opened when a user logs in. Rules Editor resembles the following:

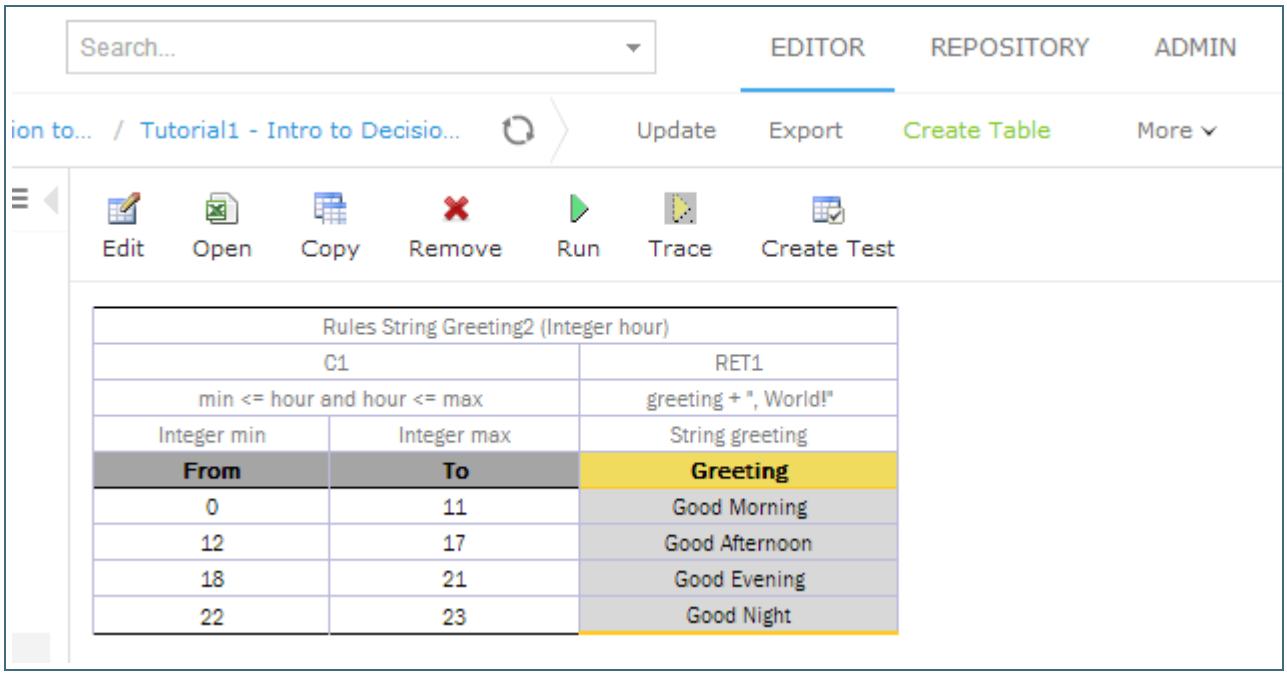


Figure 5: OpenL Tablets WebStudio Rules Editor

Rules Editor displays one module at a time. To switch between modules, select a module in the **Projects** tree or use breadcrumb navigation for quick switching between projects or modules of the current project.

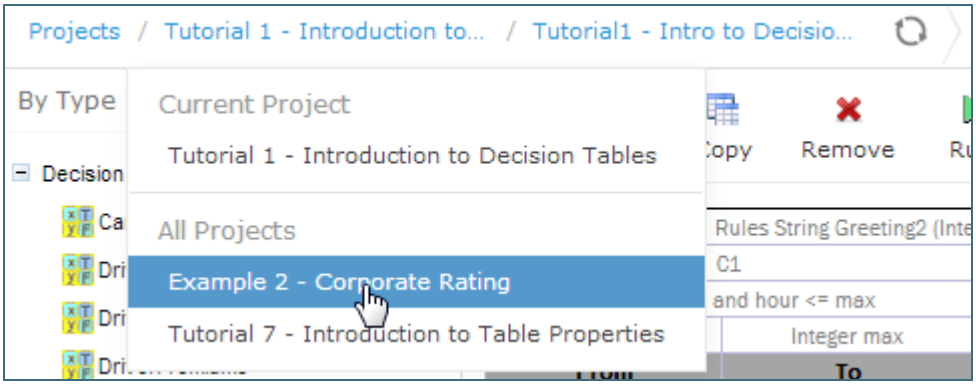


Figure 6: Rules Editor breadcrumb navigation

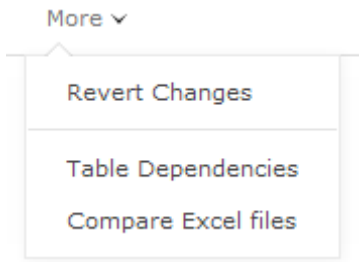
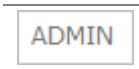
One rule project can contain several modules.

The following table describes Rules Editor organization:

Rules Editor organization	
Pane	**Description**
Left pane	Displays the module tree providing a list of elements in the currently displayed rule module.
Middle pane	Displays contents of the table selected in the left pane and provides controls for modifying table data, running tests, and checking test results.
Right pane	Displays properties of the currently displayed table.

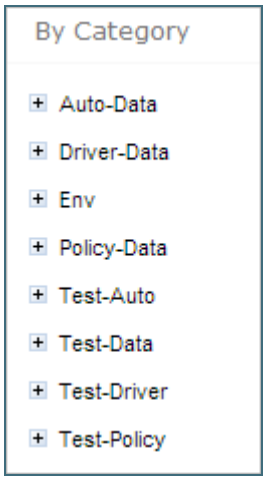
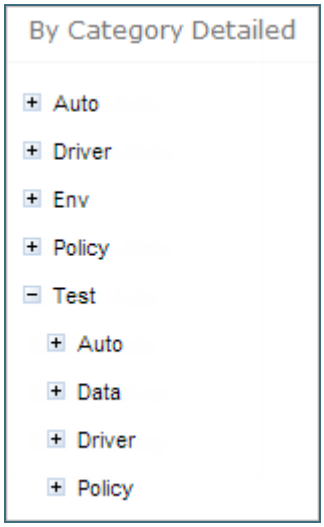
Rules Editor organization	
Pane	**Description**
Upper part of the window	Contains toolbars with controls as described further in this section.

The following table describes the Rules Editor toolbar controls:

Rules Editor toolbar controls	
Control	**Description**
	The following table describes the available options: **Option** / **Description** **Revert Changes** — Opens a page for reverting module changes. **Table Dependencies** — Opens a graph displaying dependencies among tables of the module. **Compare Excel files** — Initiates a dialog for comparing Excel files.
	Runs a simple search. For more information on performing searches, see Performing a Search.
	Switches the opening mode for a current module. For more information on module opening modes, see Viewing a Module.
	Refreshes OpenL Tablets WebStudio with the latest changes in Excel files.
	Initiates the table creation wizard.
	Displays recently viewed tables instead of the module tree.
	Returns to the module tree view.
	Sets the project status to **Editing** or **Viewing.**
	Updates the current module or project with uploaded file or zip file. Exports the current version of module or project.
	Switches user interface to repository editor. For more information on repository editor, see Repository Editor.
	Switches user interface to Rules Editor. For more information on Rules Editor, see Rules Editor.
	Switches user interface to the Administration mode. For more information on administrative functions, see Administration.

View Modes

OpenL Tablets WebStudio provides the following modes for displaying rule elements:

Project display modes in Rules Editor	
Mode	**Description**
Simple view	Project view is more business-oriented and displays only project elements relevant to the current business user. The tree structure is rather logical than physical. Rule tables are organized into categories based on the **Category** table property or, if the property is not defined, based on the Excel table sheet names. An example of a module tree displayed in a simple view sorted by the **Category** parameter is as follows:  *Figure 7: Module tree sorted by category* The **By Category Detailed** view displays modules sorted by the first value of the **Category** property. In the following example, the same module tree is sorted by **Category Detailed.** The modules that have the **Auto-Data** category are displayed in the **Auto** node and **Data** sub-node. The modules with, for example, Calculation category value, are displayed in the **Calculation** node, **Calculation** sub-node as follows:  *Figure 8:Module tree sorted by Category Detailed* The following example provides the module tree sorted by **Category Inversed** where the modules are sorted by the second value of the **Category** property:

Project display modes in Rules Editor	
Mode	**Description**

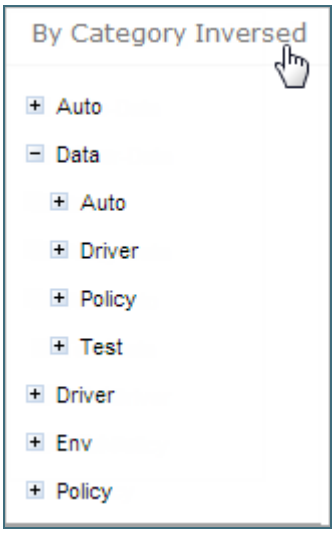


Figure 9:Module tree sorted by Category Inversed

Note that if the scope in a **Properties** table is defined as **Module,** in the **By Category** view, this table is displayed in the **Module Properties** sub-node as in the last example. If the scope is defined as **Category,** the table is displayed in the Category **Properties** sub-node.

OpenL Tablets WebStudio hides various technical table details when a table is opened in a simple view. An example of a table opened in a simple view is as follows:

Vehicle Age	Premium Increase
<1	$400
1-4	$300
5-10	$250
	$0

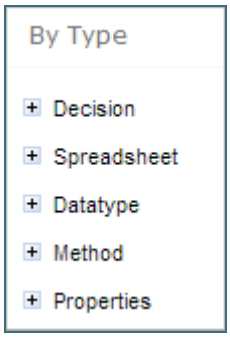
Figure 10: Rule table in a simple view

A user can switch to the simple view by clearing the **Show Header** check box in **User settings.**

Extended view

Extended view displays a project in a way convenient to experienced users, with module tree elements organized by type rather than logically.

An example of a module tree displayed in the extended view and sorted by type is as follows:



Project display modes in Rules Editor	
Mode	**Description**

Figure 11: Module tree sorted by type

The following module tree is sorted **By File** and by spreadsheets within the file:

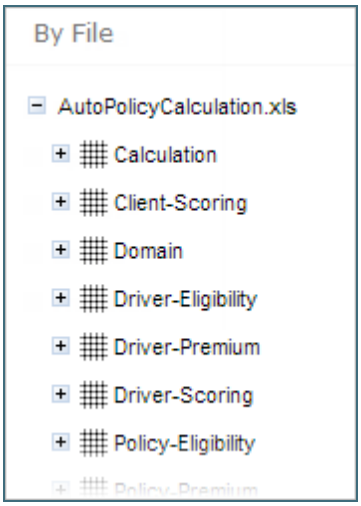


Figure 12: Module tree sorted by file

OpenL Tablets WebStudio displays various technical table details important for integration with code when a table is opened in the extended view. The following is an example of a table opened in the extended view:

SimpleRules DoubleValue AgeSurcharge (Integer vehicleAge)	
Vehicle Age	**Premium Increase**
<1	$400
1-4	$300
5-10	$250
	$0

Figure 13: Rule table in the extended view

A user can switch to the extended view by selecting the **Show Header** check box in **User settings.**

3.7 Introducing Repository Editor

Repository editor provides controls for browsing and managing Design repository. A user can switch to repository editor by clicking the **Repository** control. Repository editor resembles the following:

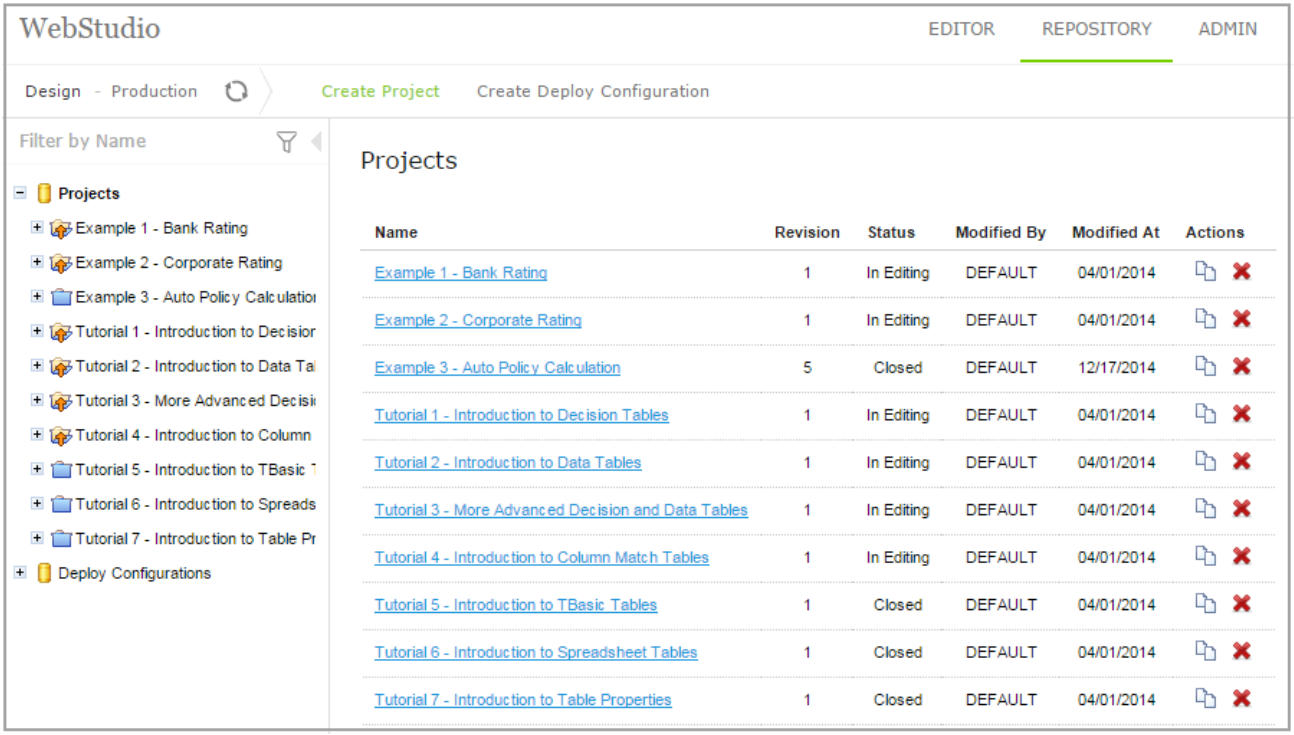


Figure 14: OpenL Tablets WebStudio repository editor

The following table describes repository editor organization:

Repository editor organization	
Pane	**Description**
Left pane	Contains a tree of projects stored in Design repository and user's workspace. Unlike Rules Editor, repository editor displays physical project contents in terms of files and folders.
Middle pane	Displays content for the element selected in the tree.

The user can switch to Rules Editor by clicking the **Rules Editor** control.

For detailed information on tasks that can be performed in repository editor, see Using Repository Editor.

4 Using Rules Editor

This section describes the basic tasks that can be performed in Rules Editor. For more information on Rules Editor, see Rules Editor.

The following topics are included in this section:

4.1 Filtering Projects

To limit a list of projects displayed in the **Projects** list, start typing a project name in the field located above the list of projects.

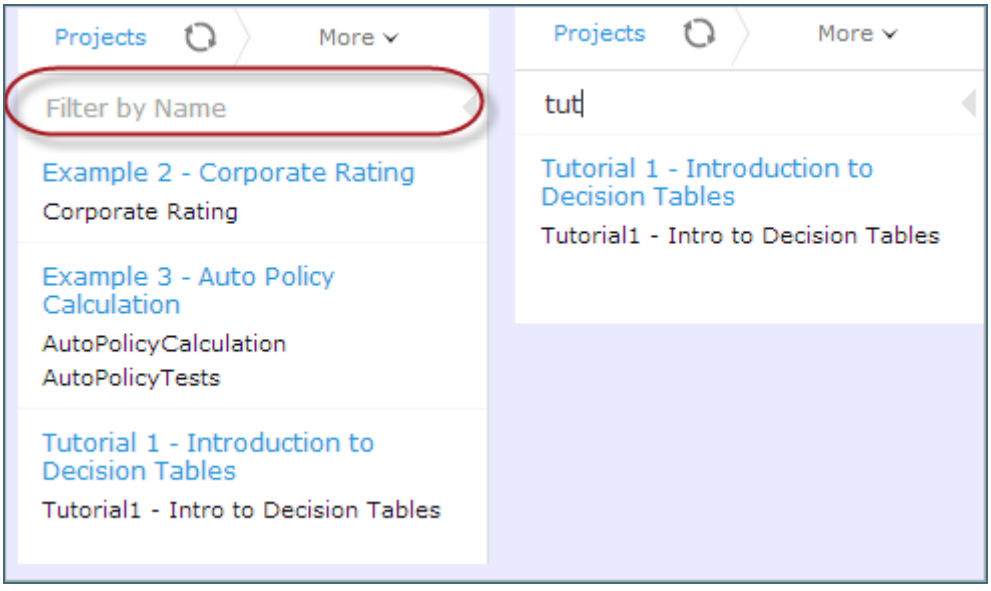


Figure 15: Filtering projects by Name

To get a full list of projects, delete filter text value in the field.

4.2 Viewing a Project

Rules Editor allows a user to work with one project at a time. To select a project, in the **Projects** tree, select the blue hyperlink of the required project name. The project page with general information about the project and configuration details appears in the middle pane of the editor.

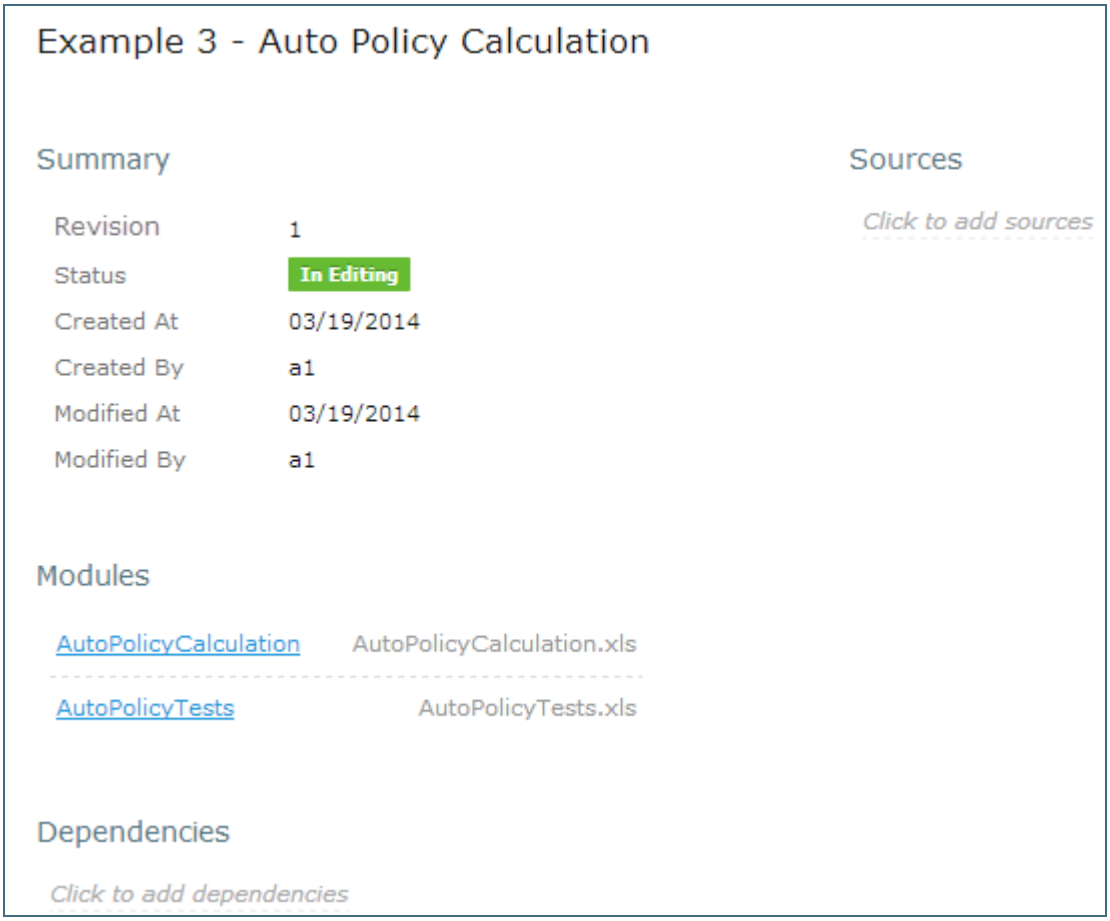


Figure 16: A project page in Rules Editor

If a particular project is not available, it must be opened as described in Opening a Project.

4.3 Viewing a Module

Rules Editor allows a user to work with one module at a time. To select a module, in the **Projects** tree, select the black hyperlink of the module name. The following module information is displayed:

- tree in the left pane displaying module tables
- general module information displayed in the middle pane, including project and module names, associated Excel file, number of tables, and module dependencies

If a particular module is not available, the project in which it is defined must be opened as described in Opening a Project.

To support convenient work with dependencies, the following modes for opening and viewing a module are available in OpenL Tablets WebStudio:

OpenL Tablets WebStudio mode opening and viewing modes	
Mode	**Description**
Single-module mode	Displays the module considering only the module dependencies defined in the **Environment** table of the module and skipping any other modules of the current project and project dependencies. That is, the **All Modules** option is ignored.
Multi-module mode	Displays all modules of the current project with all their dependencies, that is, modules of projects defined as the project dependencies. In other words, the whole project with its infrastructure is opened. Note that the module tree in the left pane displays the tables of a current module only, but, actually, tables of other project modules and project dependency modules can be accessed from any rule or test of the current module as well.

For more information on project and module dependencies, see the *Project and Module dependencies* section in ***[OpenL Tablets Reference Guide]*.**

By default, modules of a project are opened in the multi-module mode. This is a common production mode.

To open a single module without complete project infrastructure, such as other project modules and project dependencies, to simplify or speed up rules development, for instance, change the project opening settings for each user individually in the user profile by selecting the **Open project in Single module mode** check box as described in Introducing Rules Editor.

To change the mode for a currently viewed module without updating user settings, select the required mode in the top line menu, in the module mode drop-down list.

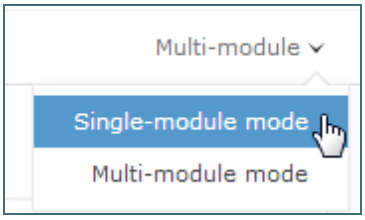


Figure 17: Modes of opening and viewing a module in OpenL Tablets WebStudio

4.4 Managing Projects and Modules

This section explains the following tasks that can be performed on projects in Rules Editor:

- Editing and Saving a Project
- Updating and Exporting a Project
- Exporting, Updating, and Editing a Module
- Reverting Module Changes
- Copying a Module

Editing and Saving a Project

A project can be opened for editing and saved directly in Rules Editor. Proceed as follows:

1. To open a project in the **Editing** status, in the top menu, click **Edit**  .

Note: If a project is in the **Local** status, this option is not available in Rules Editor.

2. To save the edited project, click **Save**  .

Note: If a project is in the **Local** status, this option is not available in Rules Editor.

3. To modify the project in the Editing status, in the **Project** page, modify the values as described in the following table:

Editable project settings	
Project details	**Available actions**
General project information and configuration, such as OpenL version compatibility, project name, description, and custom file name processor.	Put the mouse cursor over the project name and click **Edit**  . For more information on OpenL version compatibility, see the **Saving project for backward compatibility** section For more information on properties pattern for the file name, see the **Properties from File Name** section of ***[OpenL Tablets Reference Guide]***.
Project sources	Put the mouse cursor over the **Sources** label and click **Manage Sources**  .
Modules configuration	Put the mouse cursor over the **Modules** label or a particular module name and click **Add Module**  or **Edit Module**  or **Remove Module**  .
Project dependencies	Manage dependencies as described in Defining Project Dependencies.

All changes are saved in the project `rules.xml` file. For more information on this XML file, see ***[OpenL Tablets Developer Guide]***.

Saving project for backward compatibility

For backward compatibility user has possibility to save project in earlier OpenL versions (5.11.0 and 5.12.0) via selecting appropriate OpenL version. Structure of rules.xml changes after saving this setting, either some parts of UI can disappear.

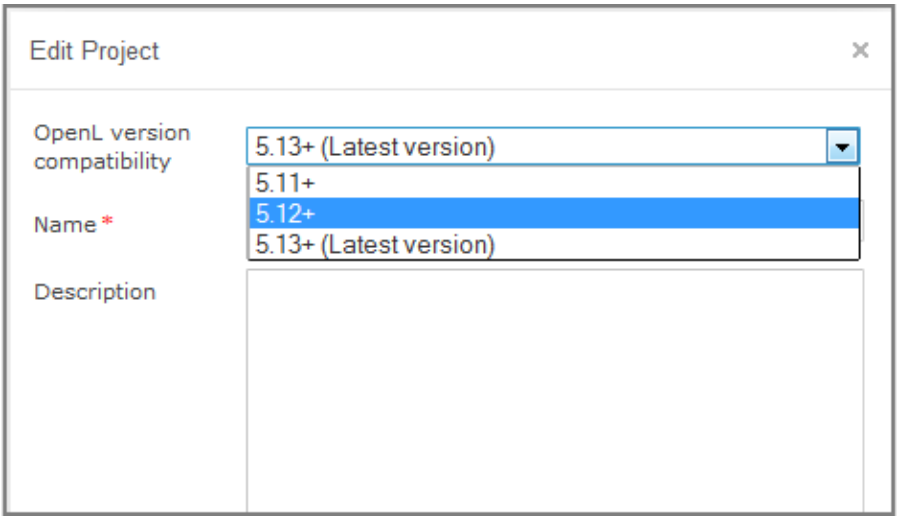


Figure 18: Choosing appropriate version for backward compatibility

Note: setting up of OpenL version compatibility setting change only rules.xml file. In case a project has also rules-deploy file inside, it will leave without changes.

Updating and Exporting a Project

A user can

1. To update a project directly in Rules Editor. The **Update** button is available for a project in the **In Editing** status in the top line menu.
2. To export the project to the user's local machine, for a project, in the top line menu, click **Export.** Exported project is downloaded as .zip archive.

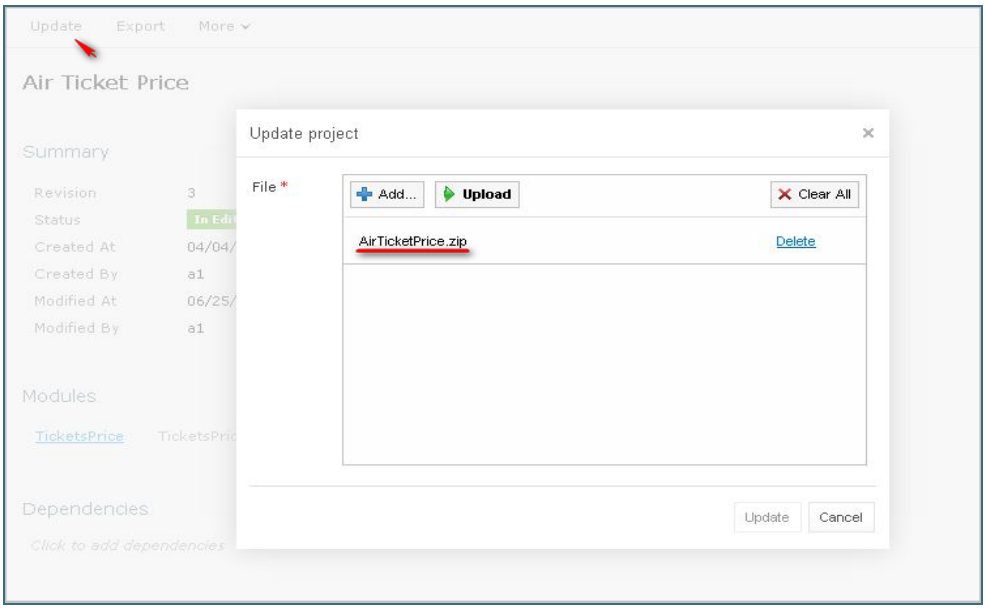


Figure 19: Importing and updating the project from .zip file

Exporting, Updating, and Editing a Module

A user can export, update, or edit a module directly in Rules Editor. Proceed as follows:

1. To upload a changed module file , for a module, in the top line menu, click **Upload.**
2. To export the module to the user's local machine, for a module, in the top line menu, click **Export.**

Note: Modules can be exported only for the projects in the **In Editing** status.

3. To modify module configuration, such as module name, path, and included or excluded methods, in the module page, put the mouse cursor over the module name and click **Edit** .

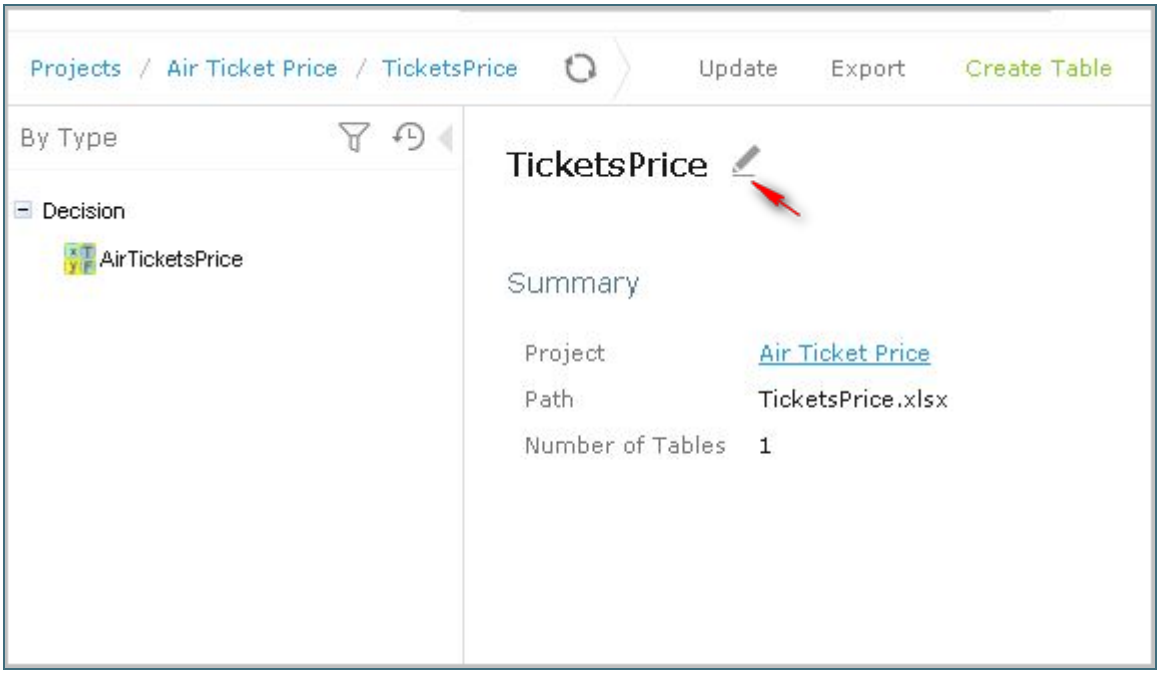


Figure 2019: Initiating module editing

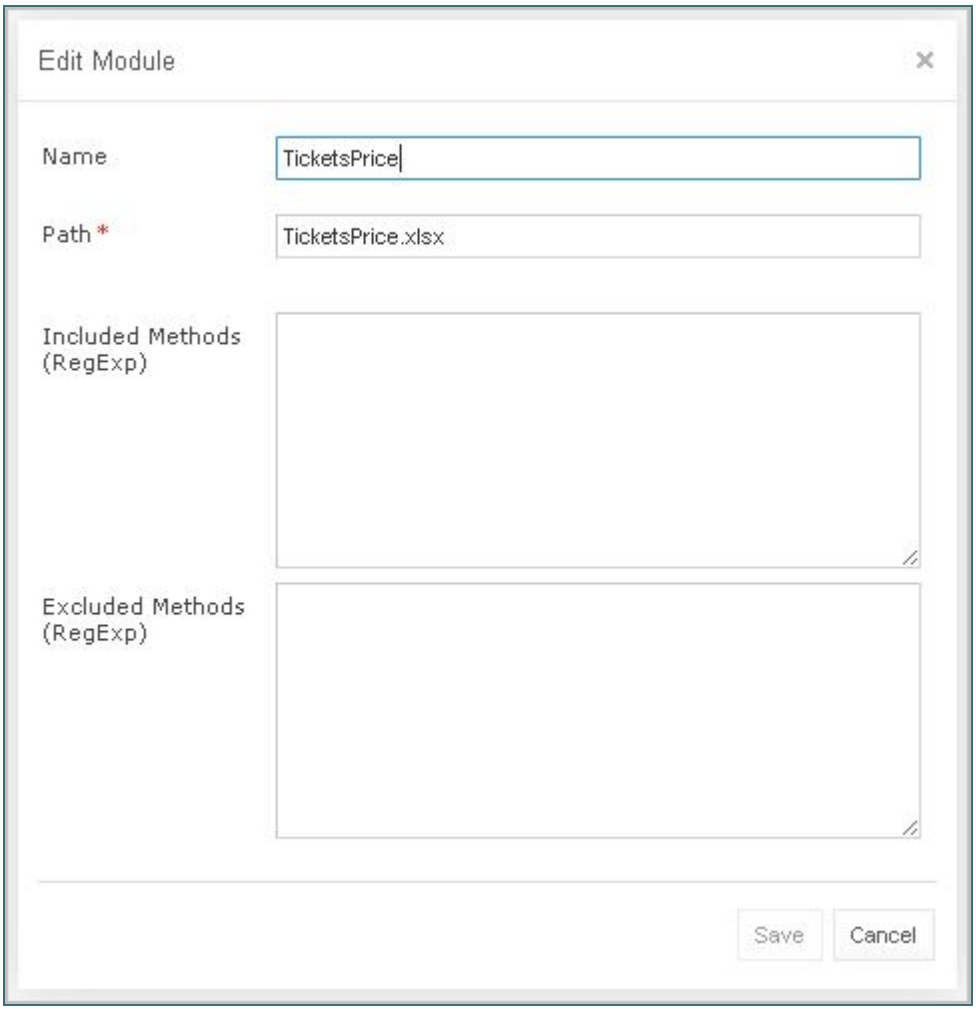


Figure 21~~20~~: Editing module information

4. To save the changes, click **Save** Save.

Reverting Module Changes

OpenL Tablets WebStudio allows comparing module versions and rolling back module changes against the specific date. Proceed as follows:

To compare module versions, select the desired module in the **Projects** tree and follow the steps below.

1. In the **Projects** tree, select the module.
2. In the top line menu, select **More** > **Revert Changes.**

   The **Revert Changes** page appears displaying all module versions.

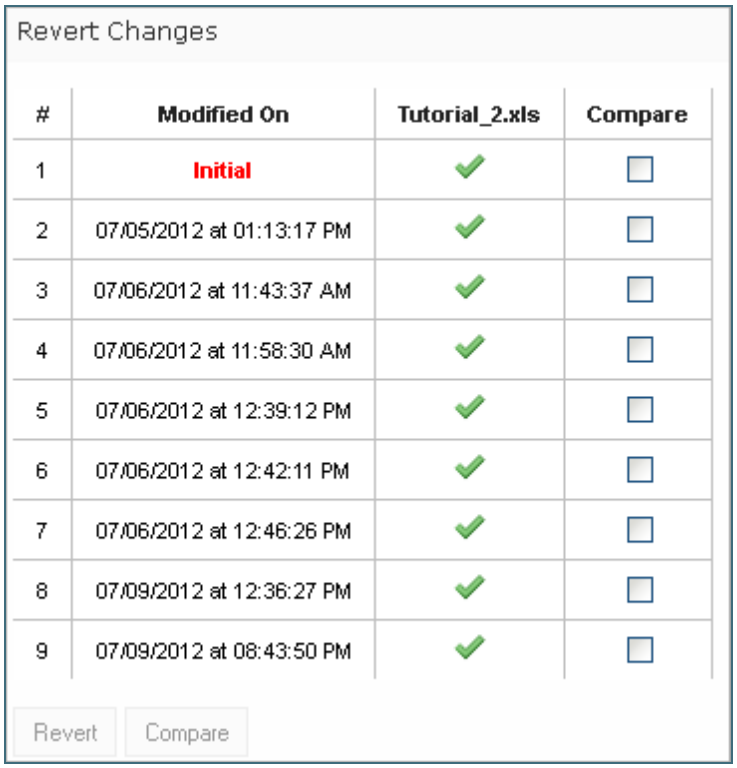


Figure 2221: Displaying module versions

3. To compare the changes, select check boxes for the required dates and click **Compare**.

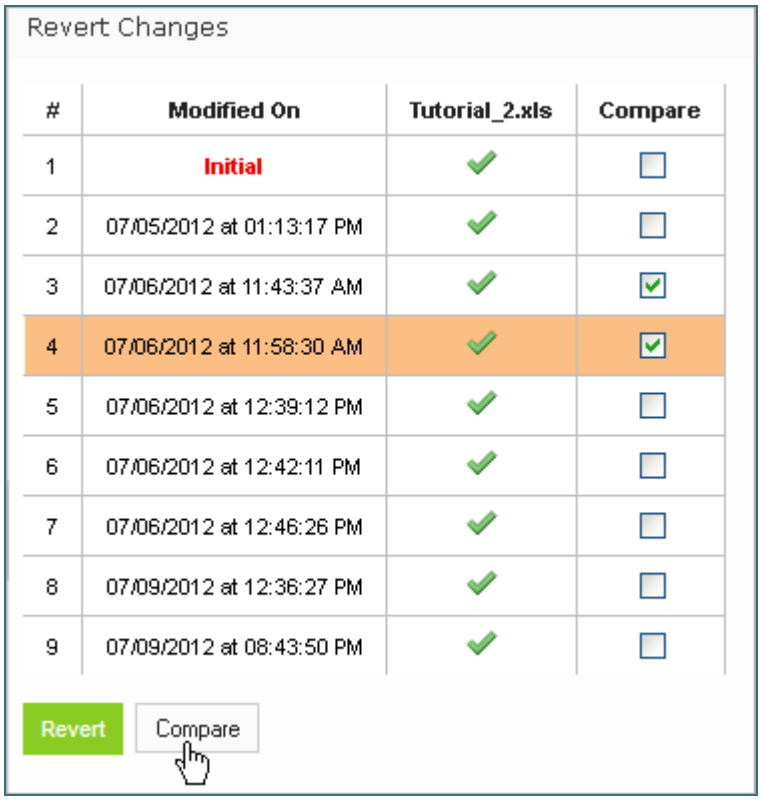


Figure 2322: Comparing module versions

The system displays the module in a separate browser window where changed tables are marked as displayed in the following example.

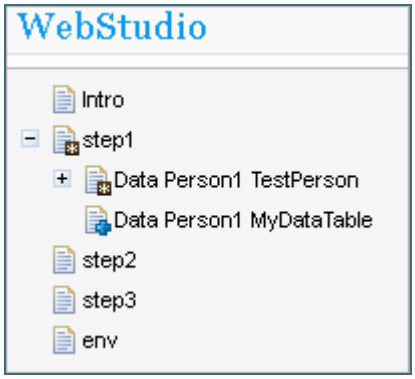


Figure 2423: Tables with changes

4. To view the changes, click the required table.

   The result of the comparison is displayed in the bottom of the window.

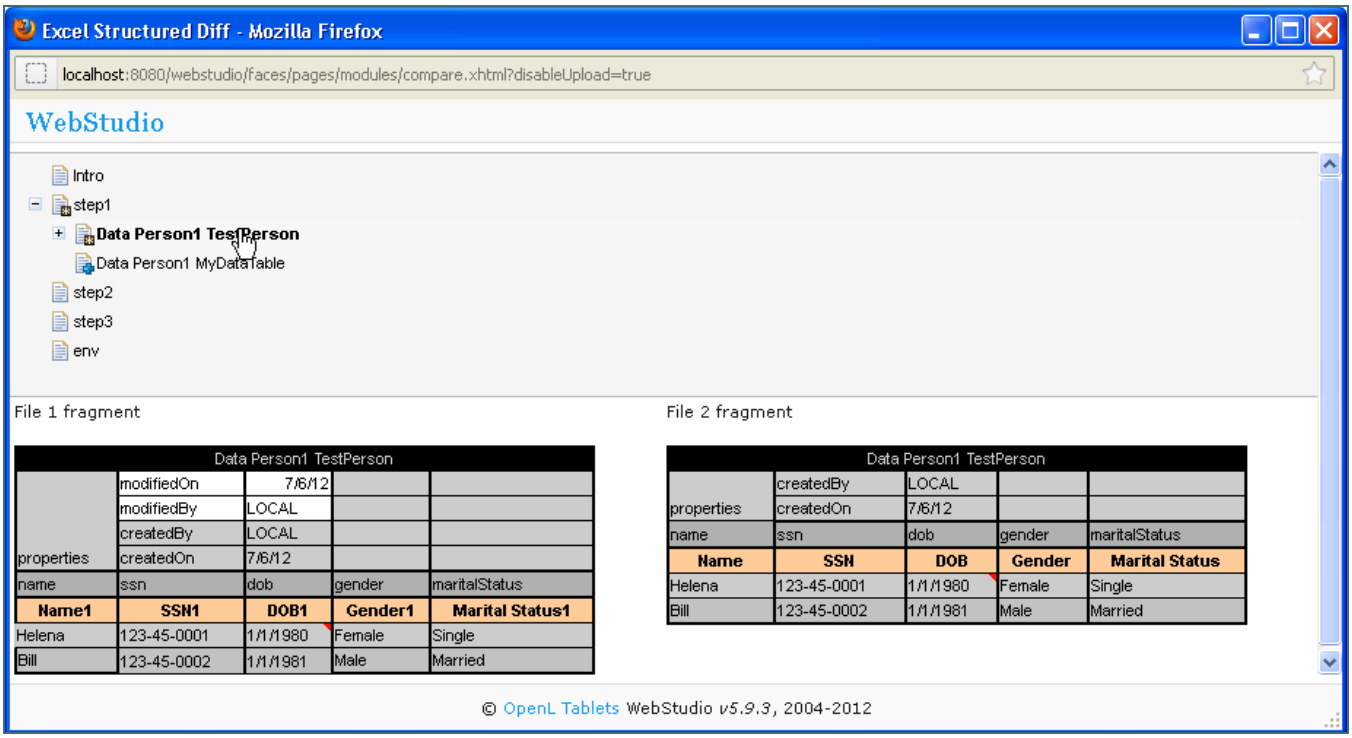


Figure 25~~24~~: The result of the module version comparison

5. To revert module changes, in the top line menu, select **More** > **Revert Changes.**
6. Select the version the current version must be reverted with, click **Revert,** and confirm the changes.

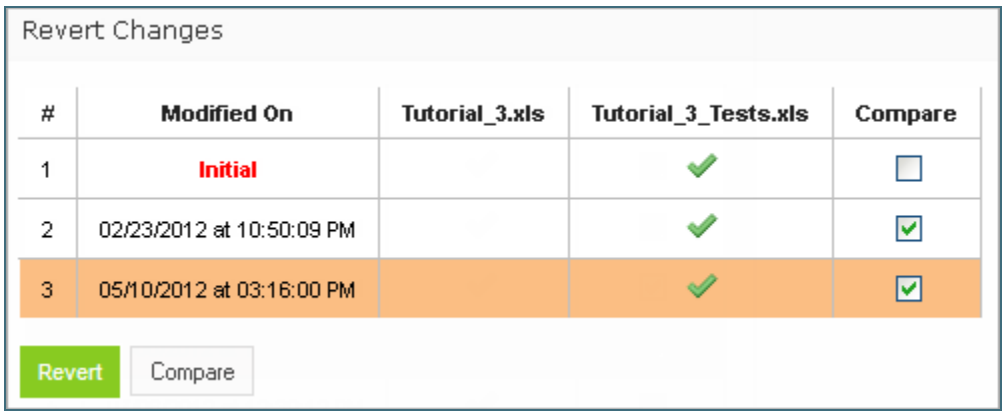


Figure 26~~25~~: Reverting project changes

Copying a Module

OpenL Tablets WebStudio allows creating a copy of the module from the existing module. User can create a copy of the module in Editor by two ways:

- On the Project page
- On the Module page

To create a copy of module, follow the steps below:

1. Select the project whose module needs to be copied.
2. Put the mouse cursor over the selected module name in the Modules list and click **Copy Module**
3. In the appeared window, enter the **New Module Name**.

Note: The **Copy** button is enabled, only after **New Module Name** is specified.

4. Click **Copy**. New simple module will be displayed in the Modules list.

Note: To copy a module to a folder, click the file name in the **New File Name** field and specify the folder name like this: folder1/Bank Rating ver2.xlsx

Note: **New Module Name** and **New File Name** can be different. But it is impossible to specify another path to the copied module.

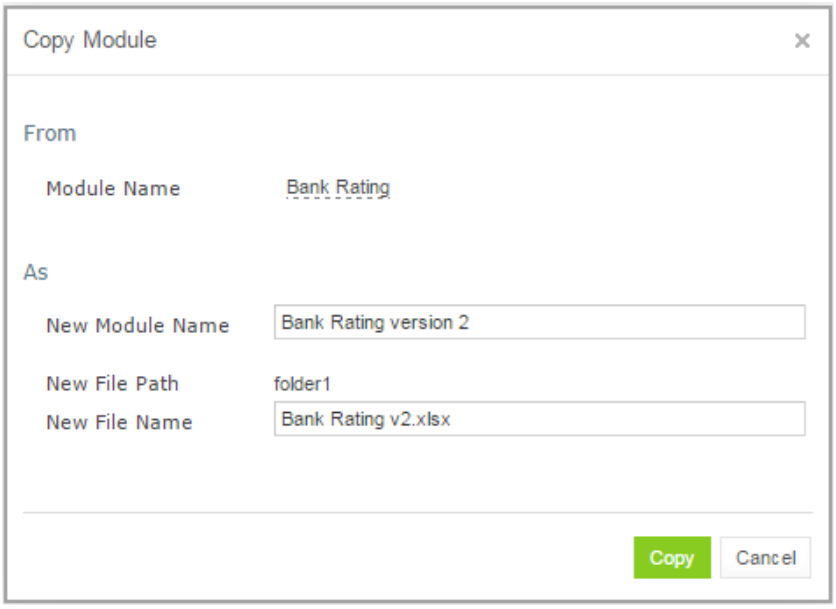


Figure 27~~26~~: Copying the module from the existing one simple module

To create a copy of the module from the existing one which defined via File Path Pattern, follow the steps below:

1. Put the mouse cursor over the Multiple modules and click **Copy Module** .
2. Click **Select module** and select the module name which needs to be copied from the **File Path** drop down list.
3. Enter the **New Module Name**.
4. Click **Copy**. New Module will be displayed in the Modules list.

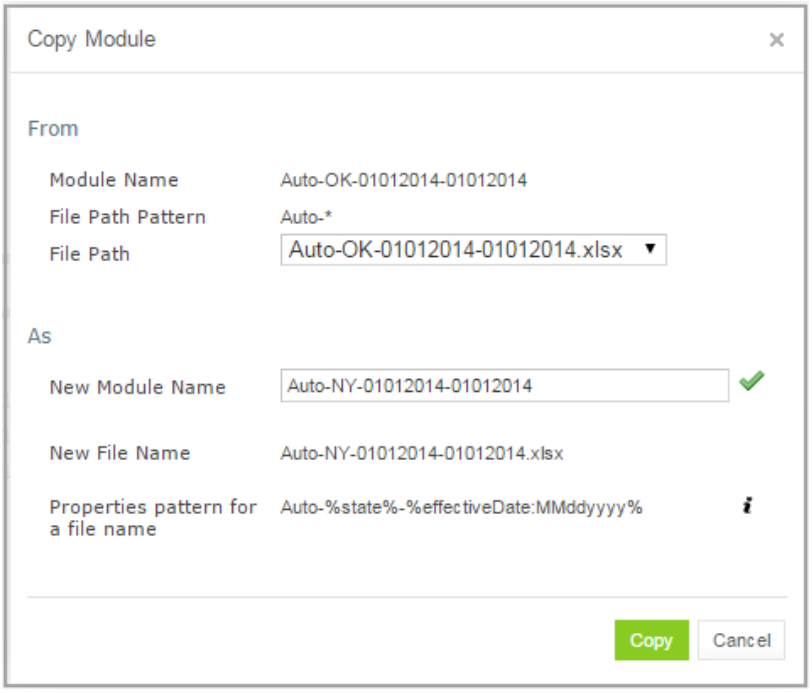


Figure 28~~27~~: Copying the module with defined File Path Pattern and Properties pattern

Note: User is able to create a new copied module which matches to Properties Pattern for a file name. In case module name doesn't match pattern – no business dimension properties will be applied to rules inside module.

4.5 Defining Project Dependencies

A project dependency can be defined when a particular rule project, or **root project,** depends on contents of another project, or **dependency project**. Project dependencies are checked when projects are deployed to the production repository. OpenL Tablets WebStudio displays warning messages when a user deploys projects with conflicting dependencies.

To define a dependency on another project, proceed as follows:

1. In Rules Editor, in the project tree, select a project name.
2. If the project is not editable, make it editable as described in Editing and Saving a Project.
3. Put the mouse cursor over the **Dependencies** label and click **Manage Dependencies** .
4. In the window that appears, update information as required and click **Save.**

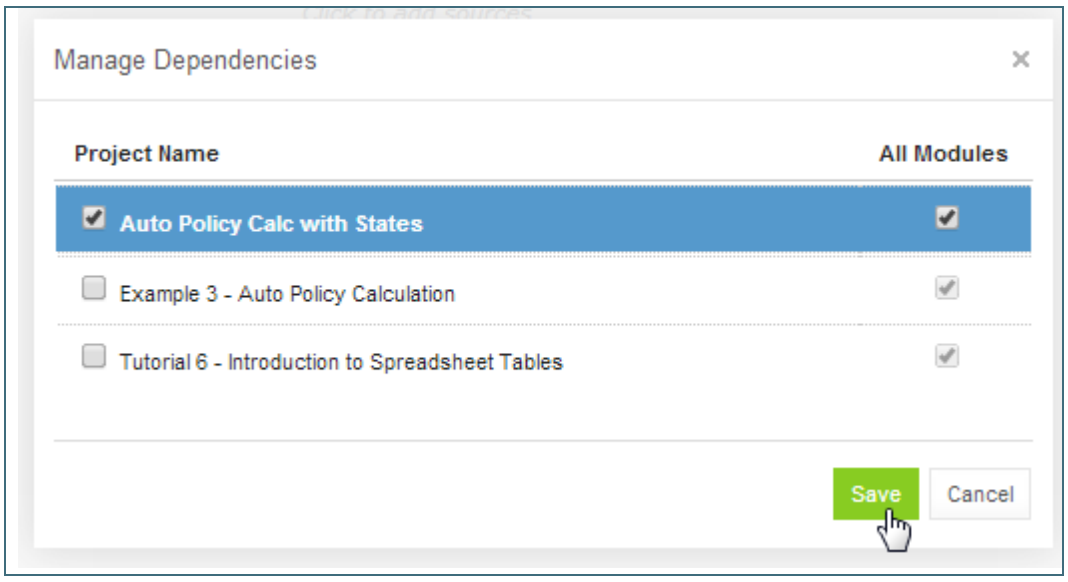


Figure 29: Managing project dependencies

If the **All Modules** option is selected in the multi-module mode, tables of all modules of the dependency project are accessible from any module of the root project.

If the **All Modules** option is cleared or the single module mode is selected, the root project module has access to the particular module of the dependency project only if an appropriate dependency is added in the **Environment** table of the root module.

Note: Module names of the root and dependency projects must be unique.

Note: Dependency projects must be available in Rules Editor to make dependency work.

For more information on project and module dependencies, see the **Project and Module dependencies** section in ***[OpenL Tablets Reference Guide]***.

4.6 Viewing Tables

OpenL Tablets module tables are listed in the module tree. Table types are represented by different icons in Rules Editor. The following table describes table type icons:

Table type icons	
Icon	**Table type**
	Decision table.
	Decision table with unit tests.
	Column match table.
	Column match table with unit tests.
	Tbasic table.

Table type icons	
Icon	**Table type**
	Tbasic table with unit tests.
	Data table.
	Datatype table.
	Method table.
	Unit test table.
	Run method table.
	Environment table.
	Property table.
	Table not corresponding to any preceding types. Such tables are considered comments.
	Spreadsheet table.

For more information on table types, see ***[OpenL Tablets Reference Guide]***. If a table contains an error, a small red cross is displayed in the corner of the icon.

To view contents of a particular table, in the module tree, select the table. The table is displayed in the middle pane. If the project is not in the **In Editing** status, the table can be viewed but cannot be modified.

4.7 Modifying Tables

OpenL Tablets WebStudio provides embedded tools for modifying table data directly in the web browser. To modify a table, proceed as follows:

1. Ensure that the project is in the **In Editing** status as described in Editing and Saving a Project
2. In the module tree, select the required table.

   The selected table is displayed in the middle pane in the read mode.

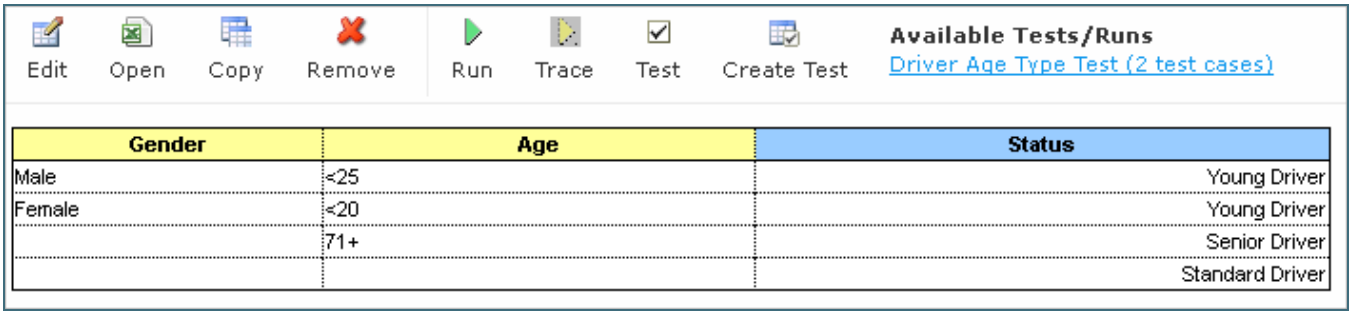


Figure 30: Table opened in OpenL Tablets WebStudio

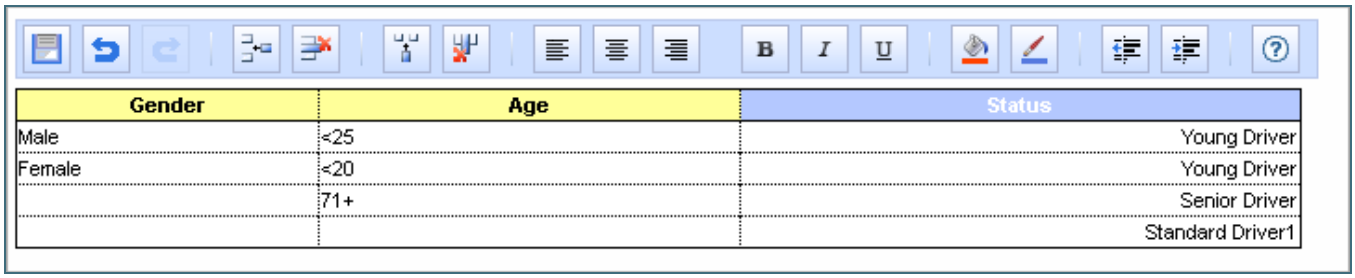
3. To switch between simple and extended view, in **User settings,** select or clear the **Show Header** and **Show Formula** options as required.
4. To switch the table to the edit mode, perform one of the following steps:

- Above the table, click **Edit.**
- Right-click anywhere in the table and click **Edit.**
- Double click the cell to edit.

Note: The table cannot be switched to the edit mode if the project is not in the **In Editing** status.

Alternatively, the file can be edited in Excel. In the local mode, the rule file is opened in Excel, and changes become available in OpenL Tablets WebStudio upon Excel file saving. In the remote mode, the file must be saved locally and after modifying, uploaded directly in Rules Editor as described in Exporting, Updating, and Editing a Module or via the repository.

The following table is switched to the edit mode.



Gender	Age	Status
Male	<25	Young Driver
Female	<20	Young Driver
	71+	Senior Driver
		Standard Driver1

Figure 31: Table in the edit mode

The edit mode provides the following functional buttons:

Table editing buttons	
Button	**Description**
	Saves changes in table.
	Reverses last changes.
	Reapplies reversed changes.
	Inserts a row.
	Deletes a row.
	Inserts a column.
	Deletes a column.
	Aligns text in currently selected cell with left edge.
	Centers text in currently selected cell.
	Aligns text in currently selected cell with right edge.
B	Make the text font **bold.**
I	Applies *italics* to the cell text.
U	Underlines the cell text.

Table editing buttons	
Button	**Description**
	Sets the fill color.
	Sets the font color.
	Decreases indent.
	Increases indent.
	Opens help.

5. To modify cell value, double click it or press **Enter** while the cell is selected.
6. To save changes, click **Save**  .

4.8 Referring to tables

WebStudio allows referring from one table to other table. A user can link from one table to other table which is located:

- In the same module with the first one
- In the different module of the same project(between depended modules)

Links to the following tables are allowed:

- Data table
- Datatype table
- Decision table
- Spreadsheet table

Links to all Decision and Spreadsheet tables are underline and marked with blue. After navigation on appropriate link a tool tip appears which contains method name and description of input parameters with its type:

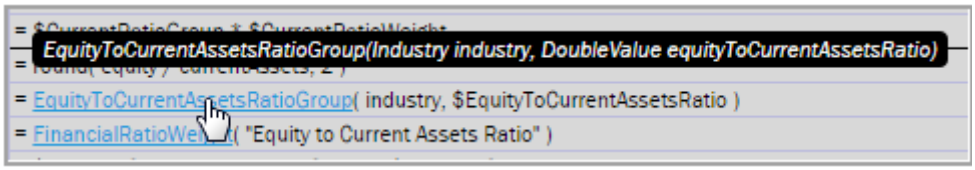


Figure 32: Linked method to decision table with tool tip

All links to datatypes are underlined with dotted line and has appropriate tool tip with description.

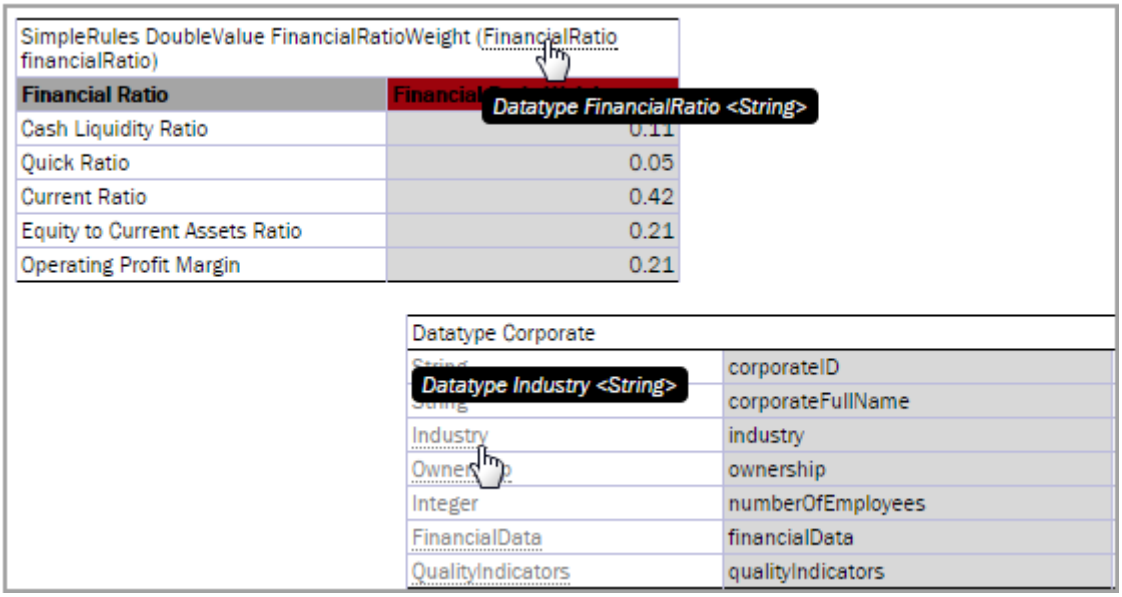


Figure 33: Links to Datatype tables from Decision and Datatype table

Note: all fields of Datatype tables are also linked and contained tool tip.

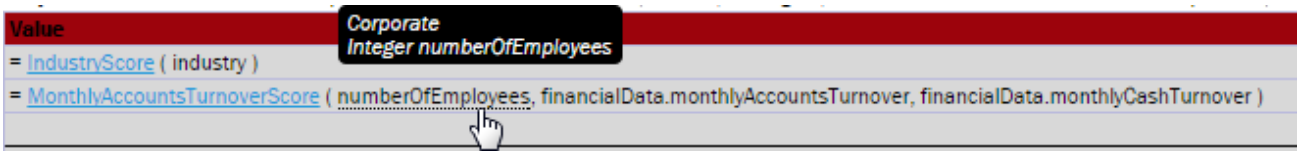


Figure 34: Link to field of Corporate Datatype table.

4.9 Managing Range Data Types

OpenL Tablets WebStudio provides a special tool, **Range Editor**, for adding and editing range data types, such as IntRange and DoubleRange, in rule tables and test tables.

This section briefly introduces Range Editor and provides examples of its functionality.

The main Range Editor goal is to move to a single range format in OpenL rules, namely, the '..' format. For more information on ranges on OpenL Tablets, see the **Range types in Openl** section in ***[OpenL Tablets Reference Guide]***.

Consider the following principles while working with Range Editor:

- The default range format is set to '..' in OpenL Tablets WebStudio.
- When a new range is created, the '..' format is used.
- When a range format other that '..' is edited, if only range values are edited, the format remains the same. If any editor control is used, for example, a check box or the **Done** button, the range format is set to '..'.

The following example displays the decision table with data represented as a range.

Rules String Greeting3 (Integer hour)	
C1	RET1
hour	greeting + ", World!"
IntRange	String greeting
Hour	**Greeting**
0 - 11	Good Morning
12 - 17	Good Afternoon
18 - 21	Good Evening
	Good Night

Figure 35: Decision table with a range data type

In this table, the **Hour** column contains hours with the IntRange Data type. All range sells are filled except for the last one. This example is used further in this section to demonstrate how Range Editor works.

The following controls are available in the Range Editor:

- **From** — indicates the left border of the range
- **To** — indicates the right border of the range
- **Include** — indicates whether the border is included in the range
- **'>'** — indicates values greater than the specified border
- **'<'** — indicates values smaller than the specified border
- **'='** — indicates a constant
- **'-'** — indicates a range

To create a new range, proceed as follows:

1. Double click the cell to be edited.

   For example, edit the cell containing 18-21. The table is extended by the popup with a set of controls for editing the range.

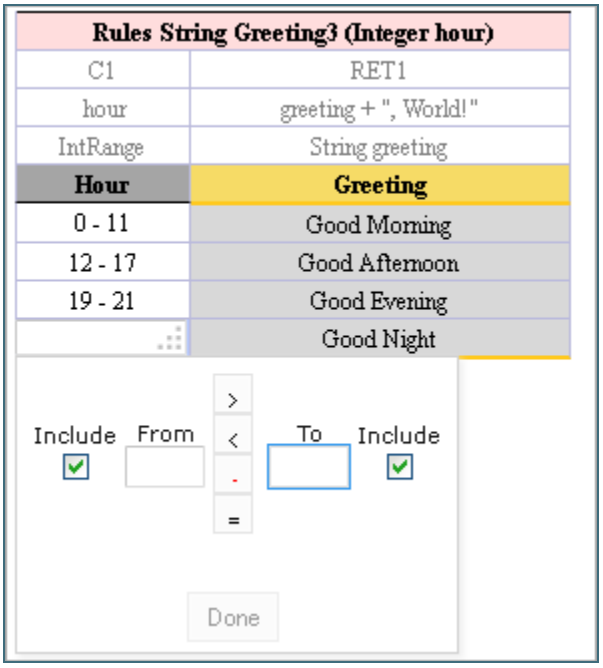


Figure 36: Creating a range in Range Editor – step 1

2. In the **From** field, enter the left border of the range, which is 22 for the example described in this section.
3. In the **To** field**,** enter the right border of the range.

   In this example, the **To** value must be 24, but an erroneous value 23 is entered for further editing of this border.
4. Clear the **Include** check box.

   The result resembles the following.

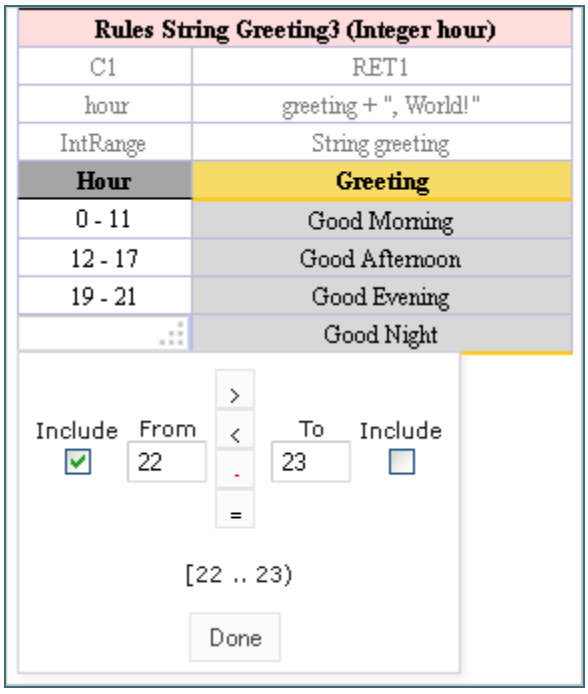


Figure 37: Creating a range in Range Editor – step 2

5. Click **Done** to complete.

   The last cell in the **Hour** column is filled as follows.

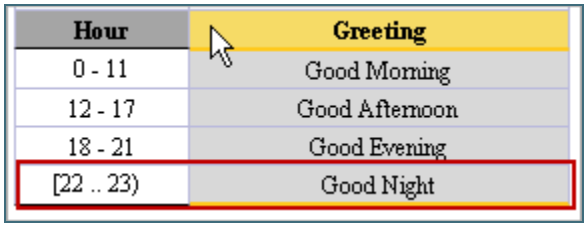


Figure 38~~39~~: New range created in Range Editor

6. To modify the range in Range Editor, double click the cell with the [22-23) range.

   The table resembles the following.

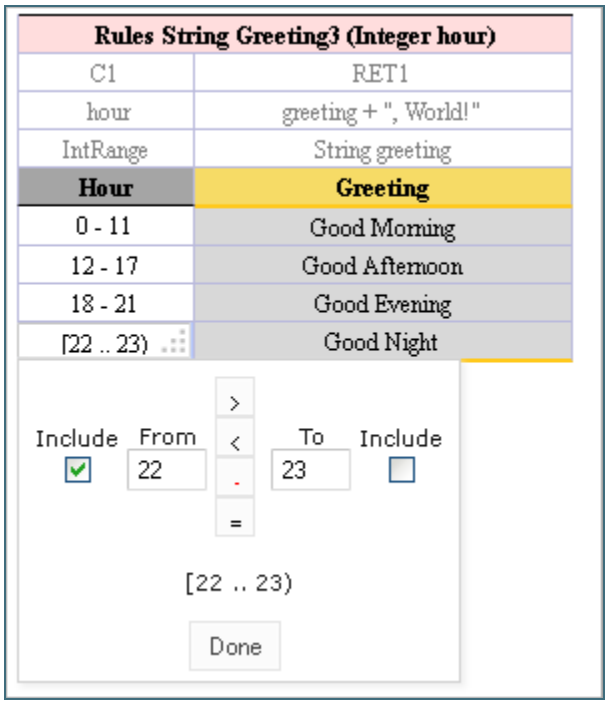


Figure 3940: Editing a range in Range Editor

7. Select the **To** field, set the right border to 24, and select **Include**.
8. Click **Done** to save your work.

   The range resembles the following.

Hour	Greeting
0 - 11	Good Morning
12 - 17	Good Afternoon
18 - 21	Good Evening
22 .. 24	Good Night

Figure 4041: The range edited in Range Editor

A range can also be modified using '>', '<' and '=' controls as described in the beginning of this section.

4.10 Creating Tables by Copying

A table can be created based on another table using one of the following methods:

- Copying the Existing Table
- Creating a New Version of the Table
- Creating a Table as a New Business Dimension Version

Copying the Existing Table

To create a table as a copy of the existing table, proceed as follows:

1. In the module list, select a table to copy.
2. Click the **Copy Table** icon  .

   The system displays the **Copy Table** form with **New Table** selected by default:

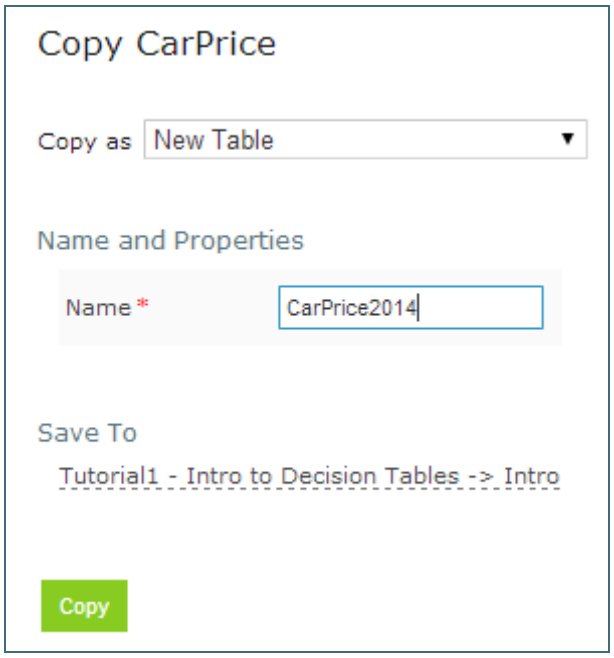


Figure 4142: Copying the existing table

3. If necessary, modify the **Name** field value.
4. To change the workbook and worksheet where the copy will be saved, click the link in the **Save To** area and in the corresponding drop-down list, select the required module and category.
5. To save the copied table in a new category, use the **New** option.
6. Click **Copy** to save your changes.

   The table appears in the module list.

Creating a New Version of the Table

To create a new version of the existing table, proceed as described in Copy as New Version. In that case, dimensional properties of a new version are exactly the same as for the original one. OpenL Tablets allows creating an overloaded table from an existing one.

Creating a Table as a New Business Dimension Version

To create a table as a new business dimension version, proceed as follows:

1. In the module list, select a table and click the **Copy Table** icon.
2. In the **Copy as** list, select **New Business Dimension Version.**
3. Specify business dimension properties as required.
4. If necessary, modify the workbook and worksheet values in the **Save as** area.

5. Click **Copy** to save the table.

4.11 Performing a Search

OpenL Tablets WebStudio provides search functionality to look through all module tables data for a particular project. The following topics describe search modes in WebStudio:

- Performing a Simple Search
- Performing an Advanced Search

Performing a Simple Search

In the **simple search** mode, the system looks for a particular word or phrase in all tables within the given module.

To perform a simple search, in the **Search** field, enter a word or phrase and press **Enter.**

Figure 4243: Starting a simple search

OpenL Tablets WebStudio displays all tables containing the entered text. Above each table, there is the **Open Table in Excel** link redirecting to the Excel file containing the entered text. The **Edit Table** link opens the table in Rules Editor in the editing mode.

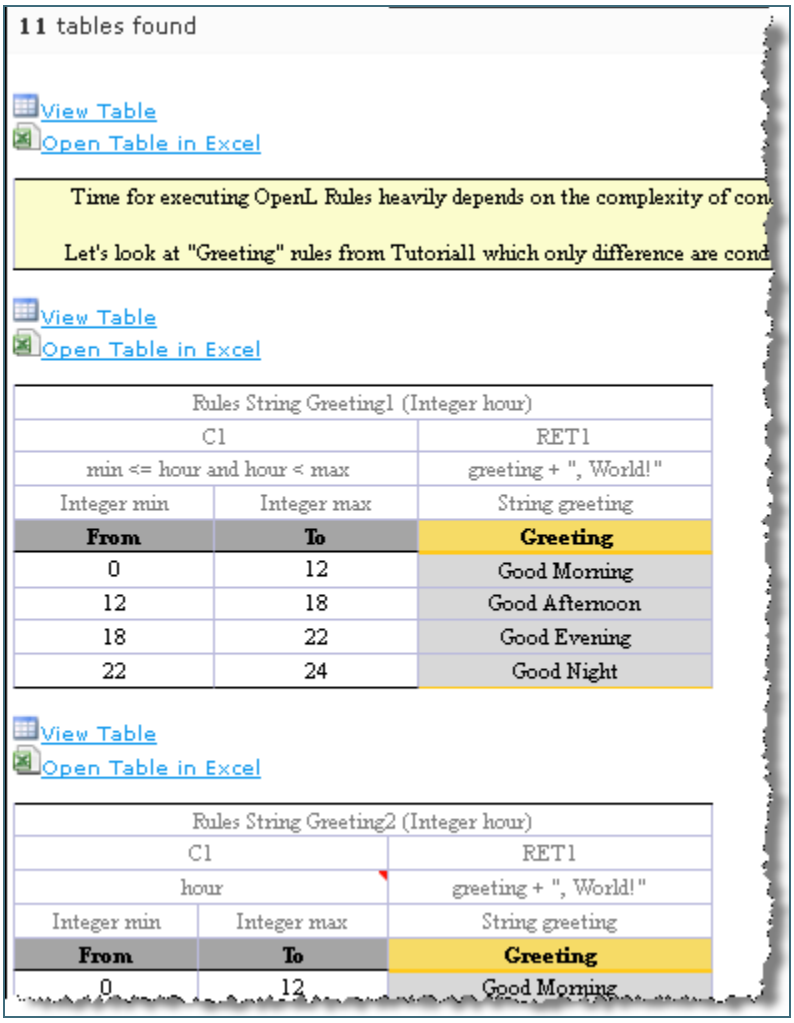


Figure 4344: Search results

To search for any cell contents, right click the cell and in the context menu, select **Search.** The table must be opened in the read mode.

Performing an Advanced Search

Advanced search allows the user to narrow the search by specifying criteria for tables where the search is to be performed. To limit the search, specify one or several table types, text from the table header, and table properties as described further in this section.

1. To start an advanced search, click the arrow to the right of search window.

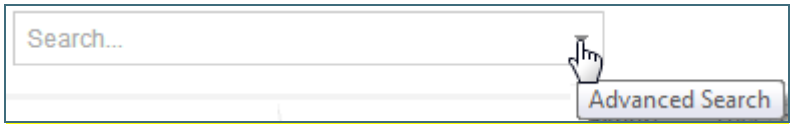


Figure 4445: Initiating the advanced search

2. In the filter form, click the **Table Types** field and select the required table type or select **Select All** to search in all table types.
3. In the **Header contains** field, enter the word or phrase to search for.
4. Expand the **Table Properties** list, select the required table property, and then click the **Add** button on the right.

   The text field for entering the property name appears.
5. Enter the property name.
6. In the similar way, add as many table properties as required.
7. To remove a property, click the cross icon to the right of the property.

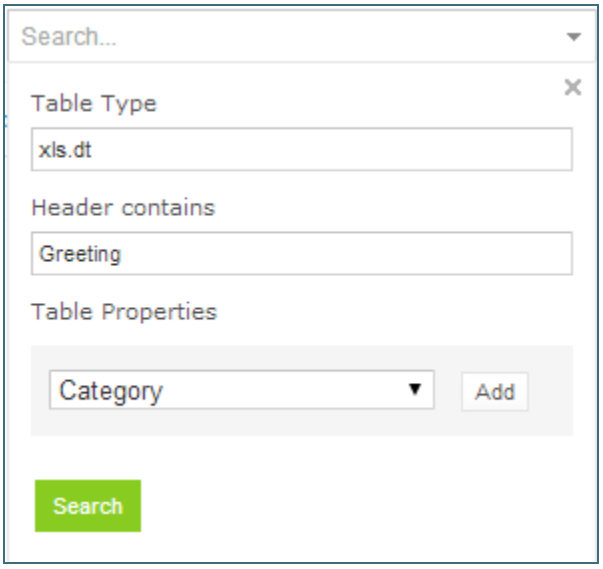
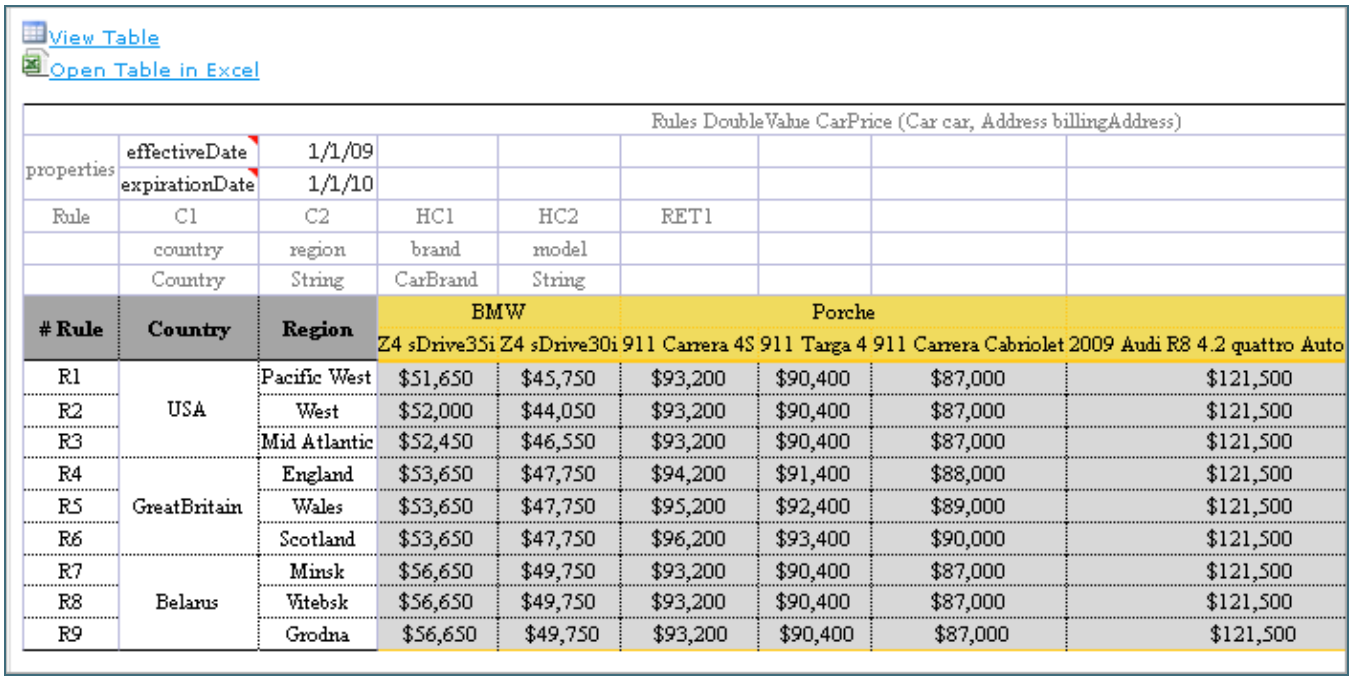


Figure 4546: A filled form for advanced search

8. Click **Search** to run the search.

As a result, the system displays the tables matching the search criteria along with links to the relevant Excel files and the **Edit Table** links leading to the table editing page.



View Table
Open Table in Excel

Rules DoubleValue CarPrice (Car car, Address billingAddress)

properties	effectiveDate	1/1/09						
	expirationDate	1/1/10						
Rule	C1	C2	HC1	HC2	RET1			
	country	region	brand	model				
	Country	String	CarBrand	String				

# Rule	Country	Region	BMW		Porche			
			Z4 sDrive35i	Z4 sDrive30i	911 Carrera 4S	911 Targa 4	911 Carrera Cabriolet	2009 Audi R8 4.2 quattro Auto
R1	USA	Pacific West	$51,650	$45,750	$93,200	$90,400	$87,000	$121,500
R2		West	$52,000	$44,050	$93,200	$90,400	$87,000	$121,500
R3		Mid Atlantic	$52,450	$46,550	$93,200	$90,400	$87,000	$121,500
R4	GreatBritain	England	$53,650	$47,750	$94,200	$91,400	$88,000	$121,500
R5		Wales	$53,650	$47,750	$95,200	$92,400	$89,000	$121,500
R6		Scotland	$53,650	$47,750	$96,200	$93,400	$90,000	$121,500
R7	Belarus	Minsk	$56,650	$49,750	$93,200	$90,400	$87,000	$121,500
R8		Vitebsk	$56,650	$49,750	$93,200	$90,400	$87,000	$121,500
R9		Grodna	$56,650	$49,750	$93,200	$90,400	$87,000	$121,500

Figure 4647: Advanced search result

4.12 Creating Tables

OpenL Tablets WebStudio allows creating tables of the following types:

- Datatype table
- Datatype Alias table
- Data table
- Test table
- Properties table
- Simple rules table

Tables are created via the wizard initiated by clicking the **Create Table** button 

. The wizard creates a table for the current module. The table is available for all included modules and modules linked by dependencies. For more information on dependencies, see the **Project and Module dependencies** section in ***[OpenL Tablets Reference Guide].***

The following topics are included in this section:

- Creating a Datatype Table
- Creating a Data Table
- Creating a Simple Rules Table

Creating a Datatype Table

To create a Datatype table, proceed as follows:

1. In WebStudio, click **Create Table**.
2. In the list of table types, select **Datatype Table** and click **Next.**

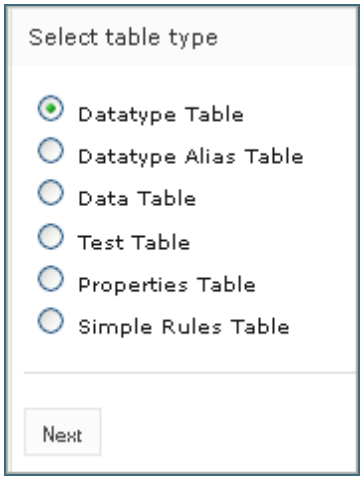


Figure 4748: Creating a Datatype table

3. Enter the data type name and if necessary, select the existing data type as a parent.

   If a parent data type value is specified, the newly created data type will have access to all fields defined in the parent data type as described in the **Inheritance in Data types** section in ***[OpenL Tablets Reference Guide]*.**

   This option is unavailable if no custom data types are created in the module.

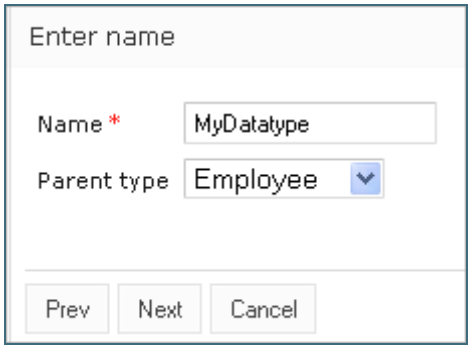


Figure 4849: Specifying the data type name and parent type

4. To define data type fields, click **Add parameter,** specify values as required, and then click **Next**.

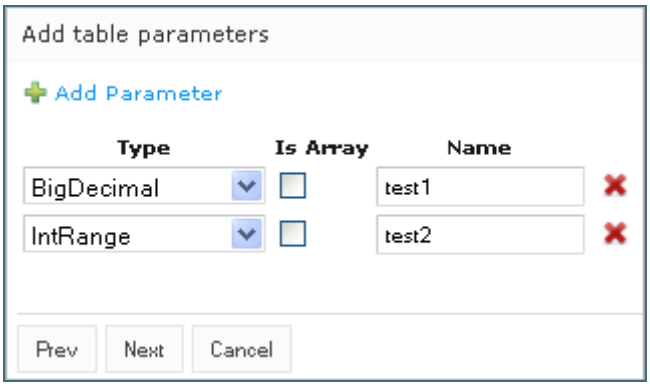


Figure 4950: Defining data type fields

5. To indicate new Datatype table location, in the **Select destination** window, specify the **Category** to which the table will belong.

   The **Module** can't be changed, all create tables goes to current module. In the **Category** section, select an existing sheet or in the **New** field, enter new sheet name.

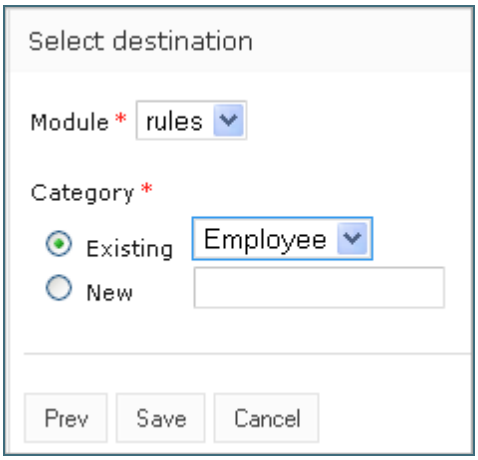


Figure 5051: Specifying table location

6. Click **Save** to complete table creation.

   The Datatype table is created and becomes available in OpenL Tablets WebStudio.

Creating a Data Table

Creating a data table resembles creating a Datatype table described in Creating a Datatype Table. Proceed as follows:

1. In WebStudio, click **Create Table**.
2. Select the **Data Table** item in and click **Next.**

Figure 5152: Initiating data table creation

3. Select the table type, enter the table name, and click **Next.**

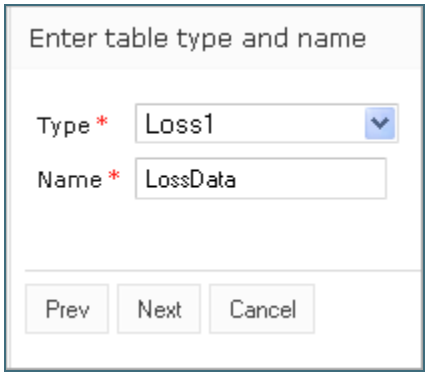


Figure 5253: Defining table type and name

4. Define the table columns configuration.

   For the **Loss1** type selected in the previous window, column configuration resembles the following.

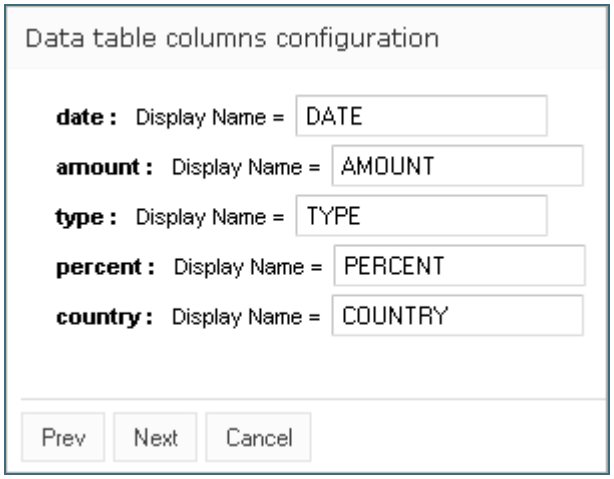


Figure 5354: Defining column configuration

5. To indicate new data table location, in the **Select destination** window, specify the module to which the table will belong.

   The **Module** can't be changed, all create tables goes to current module. In the **Category** section, select an existing sheet or in the **New** field, enter new sheet name.

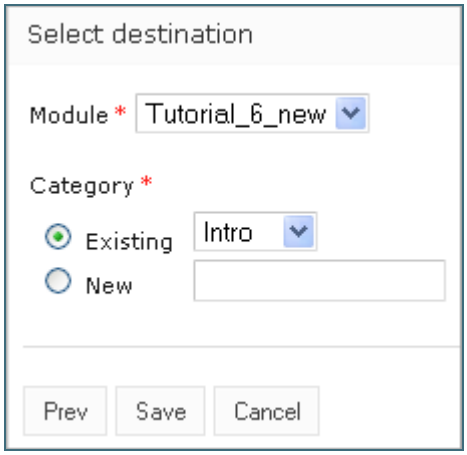


Figure 5455: Specifying table location

6. Click **Save** to complete table creation.

The new Data table is created and can be modified as needed.

Creating a Simple Rules Table

This section describes how to create a new simple rules table in OpenL Tablets WebStudio.

1. In WebStudio, click **Create Table.**
2. Select **Simple Rules Table** and click **Next**.

Figure 5556: Initiating table creation

3. Enter table name and select the required data type to return.
4. Click **Add Input Parameters** and specify values as required.

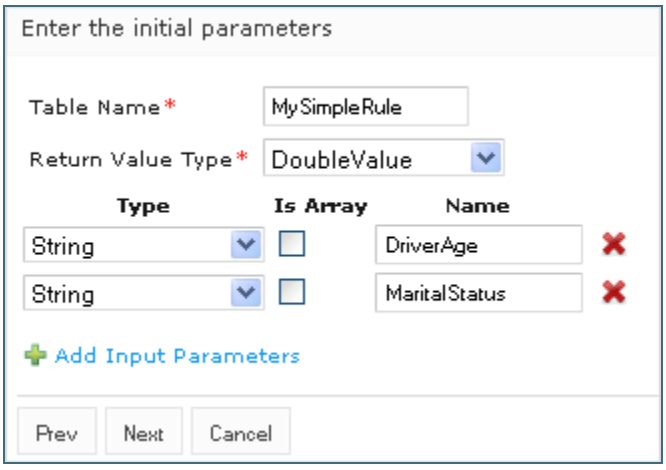


Figure 5657: Specifying table parameters

5. When finished, click **Next.**

   In the **Construct a table** window that appears, a blank simple rules table with the header constructed based on the previously entered values appears.

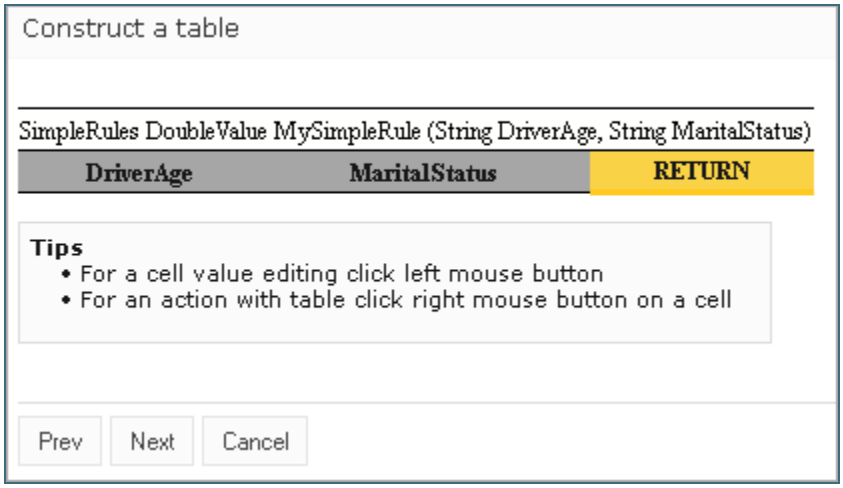


Figure 5758: Adding data to a table

Now the table can be filled with data.

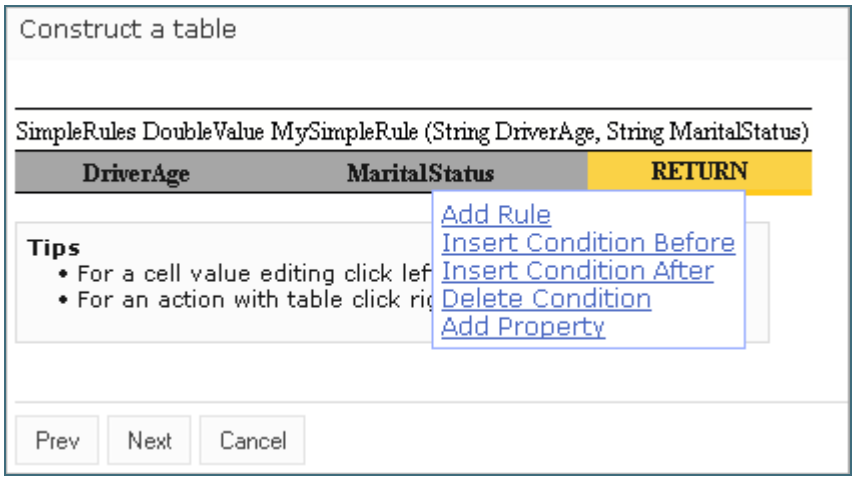


Figure 58~~59~~: Selecting an action from the context menu

6. Right click any cell and select one of the following actions:

Actions available for simple rules table	
Action	**Description**
Add Property	Appears after selecting a property in the drop-down list and indicating its value.
Add Rule	Allows entering data. An example is as follows: SimpleRules DoubleValue MySimpleRule (String DriverAge, String MaritalStatus) DriverAge | MaritalStatus | RETURN Young Driver | Married | 200 *Figure 59~~60~~: Entering table data* This action can be repeated as many times as required.
Insert Condition Before / Insert Condition After	Adds a condition column to the specified position. An example of the added **DriverOccupation** condition column is as follows: SimpleRules DoubleValue MySimpleRule (String occupation, String DriverAge, String MaritalStatus) DriverOccupation | DriverAge | MaritalStatus | RETURN Teacher | YoungDriver | Married | 200 IT | SeniorDriver | Single | 220 *Figure 60~~61~~: Adding a condition column*
Delete Condition / Delete Rule	Removes a condition or rule.

7. When finished, click **Next.**
8. To indicate new table location, in the **Select destination** window, specify the module to which the table will belong.

The **Module** can't be changed, all create tables goes to current module. In the **Category** section, select an existing sheet or in the **New** field, enter new sheet name.

9. Click **Save** to save the changes.

   The new simple rules table is created and appears in the project.

5 Editing and Testing Functionality

This section describes advanced OpenL Tablets WebStudio functions, such as table editing, performing unit tests, rule tracing, and benchmarking, and includes the following topics:

- Editing Tables
- Using Table Versioning
- Performing Unit Tests
- Tracing Rules
- Using Benchmarking Tools

5.1 Editing Tables

This section describes table editing and includes the following topics:

- Editing a Comma Separated Array of Values
- Editing Default Table Properties
- Editing Inherited Table Properties

Editing a Comma Separated Array of Values

WebStudio allows editing comma separated arrays of values. A multi selection window displaying all values appears enabling the user to select the required values.

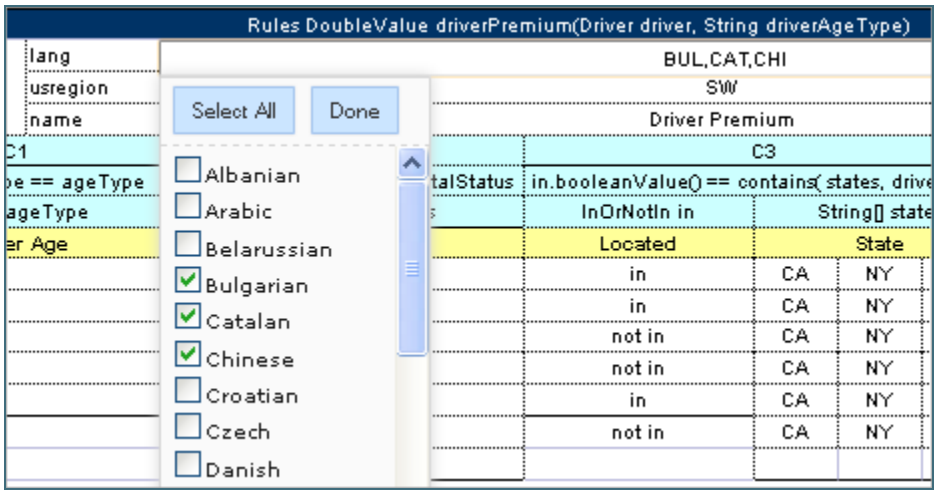


Figure 6162: Editing comma separated arrays

Editing Default Table Properties

This section describes table properties available in OpenL Tablets WebStudio. For detailed information on table properties, refer to ***[***OpenL Tablets Reference Guide***],*** section *Table Properties*.

If default property values are defined for a table, they appear only in the right hand **Properties** section, but not in the table. In the example below, there are **Active = true** and **Fail On Miss = false** default properties.

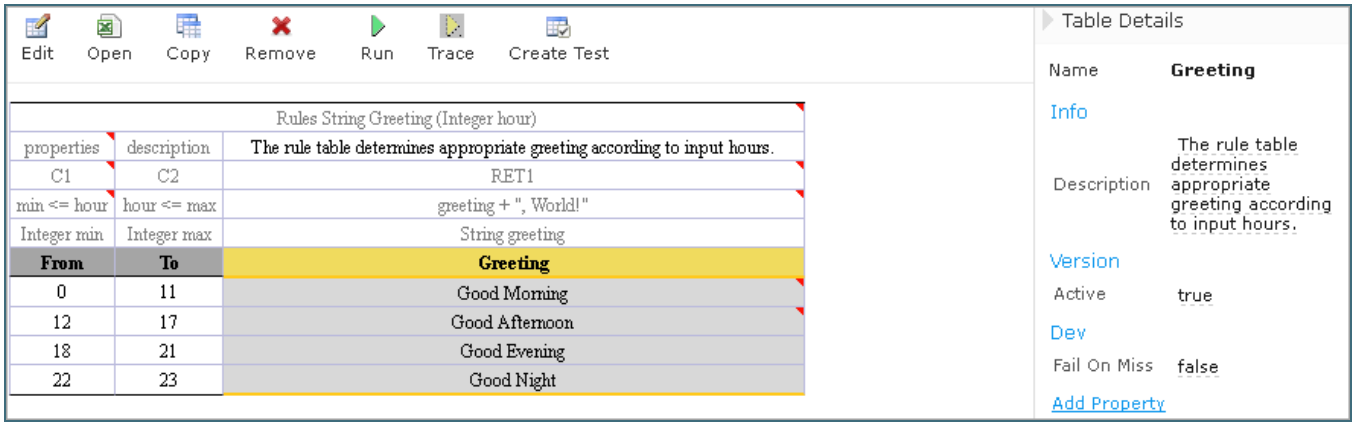


Figure 6263: Default table properties example

Default properties can be overridden at the table level; in the other words, they can be changed as follows:

1. In the **Properties** section, click the default property to be changed.

   Instead of the property value, a checkbox appears:

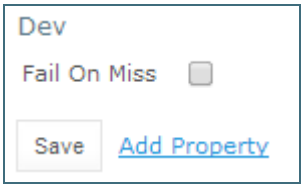


Figure 6364: Updating a default property

2. Select or deselect the checkbox as needed and click the **Save** button.

   The property appears in the table with its new value:

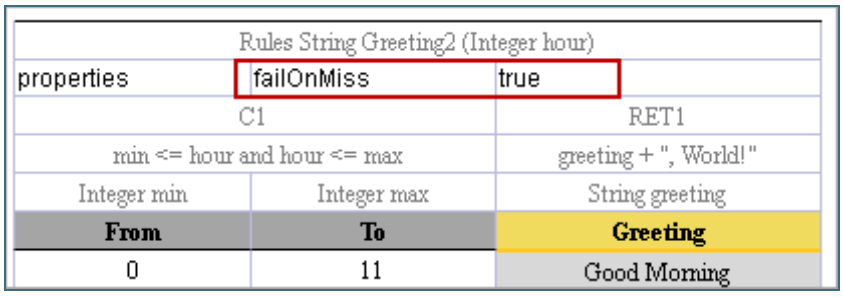


Figure 6465: Default property was updated by a user

Editing Inherited Table Properties

Module or category level properties are those inherited from a **Properties** table as described in ***[***OpenL Tablets Reference Guide***]***, section *Properties Table*. In the **Properties** section of the given table, inherited properties appear in a different color and are accompanied with a link to the **Properties** table where they are defined. The values of the inherited properties are not stored in the table, they are displayed in the **Properties** section, since

they are inherited and applied to this table. Inherited properties can be overridden at a Table level, i.e. they can be changed.

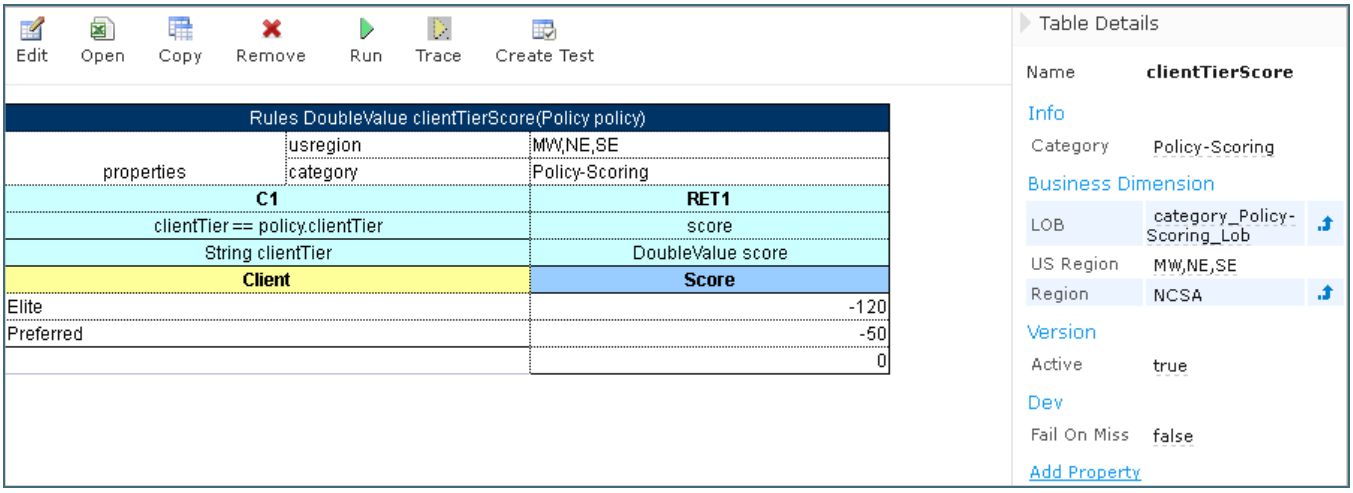


Figure 65~~66~~: An example of inherited category-level properties

To change an inherited property, perform the following steps:

1. In the **Properties** section, click the inherited property to be changed.
2. Enter or select from the drop down list the desired values and click **Save.**

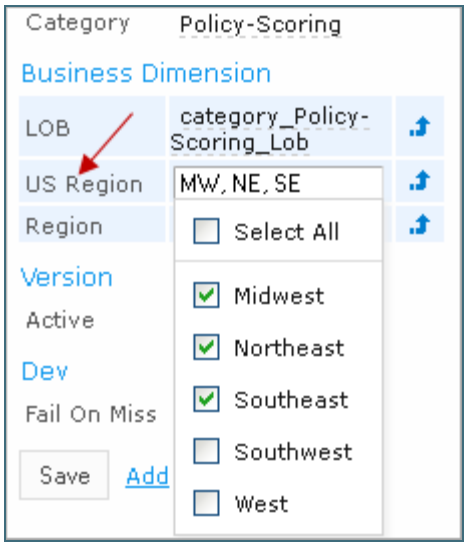


Figure 66~~67~~: Updating an inherited property

The system displays the property in the table:

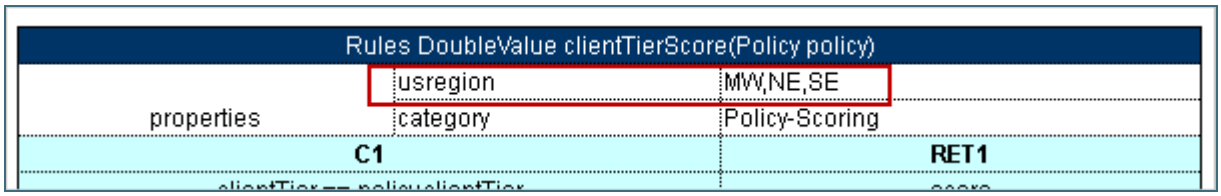


Figure 6768: Inherited category-level property updated by a user

The following topics are included in this section:

- Editing System Properties
- Editing Properties for a Particular Table Type

Editing System Properties

By default, OpenL Tablets WebStudio applies system properties to each created or edited table. For information how to switch off this option, please refer to Common Settings. The values of the System properties are provided in the table and in the Properties section.

The **modifiedBy** property value is set using the name of the currently logged in user. The "modifiedOn" property is set according to the current date. These properties are applied upon each save and cannot be edited in the UI.

The "createdBy" property value is set using the name of the currently logged in user. The "createdOn" property is set according to the current date. These properties are only applied in the Multi mode, as described in Security Overview, on the first save only while creating or copying a table in OpenL Tablets WebStudio. The WebStudio users can delete those properties if required.

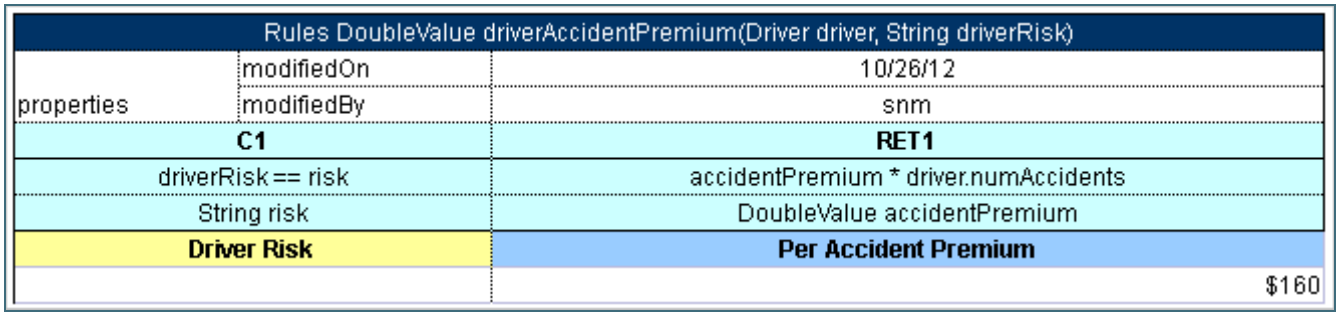


Figure 6869: An example of system properties

Editing Properties for a Particular Table Type

Some properties are only applicable to particular types of tables. When opening a table in OpenL Tablets WebStudio, the properties section displays properties depending on the type of the table.

For example, such properties as **Validate DT** or **Fail On Miss** are available for Decision Tables. That means they can be selected from the drop down list after clicking the **Add** link at the bottom of the **Properties** section. The Figure below shows that properties applied to a Decision Table.

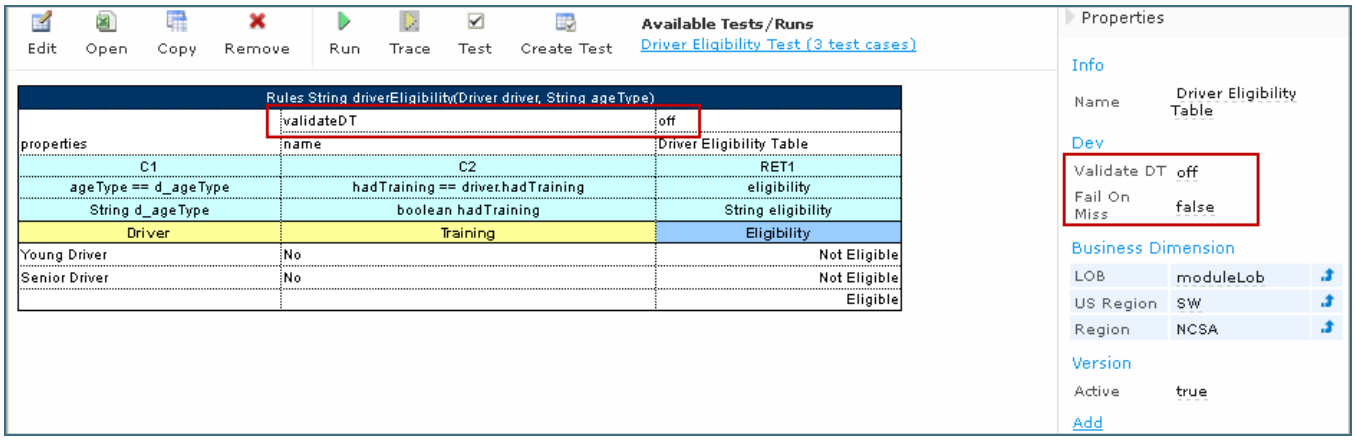


Figure 69~~70~~: Properties for the Decision table type

When opening a Data Table in the same project, these properties are not available for selecting from the drop down list in the **Properties** section.

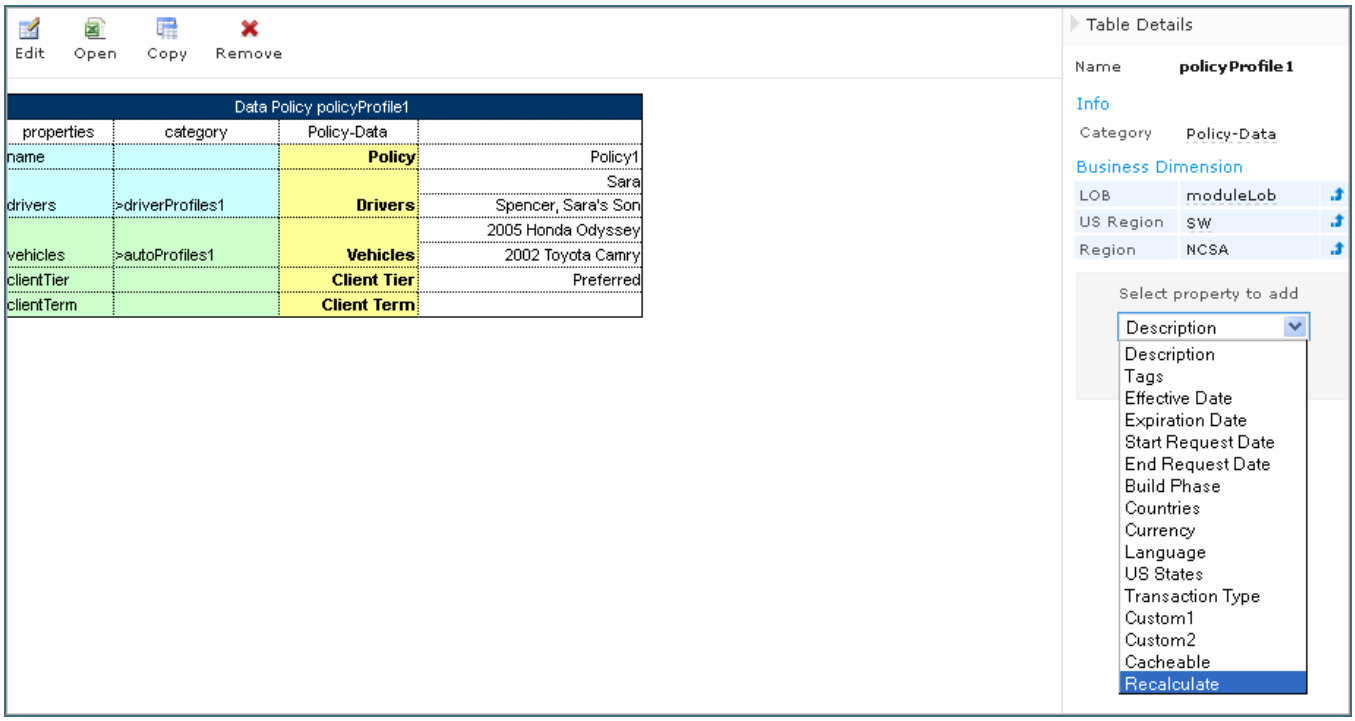


Figure 70~~71~~: The Decision table properties that are not available for a Data table

When performing the “Copy” action, properties not suitable for the current table type, do not appear in the wizard.

To add a new property for the selected table, perform the following steps:

1. In the **Properties** pane, click the **Add** link.

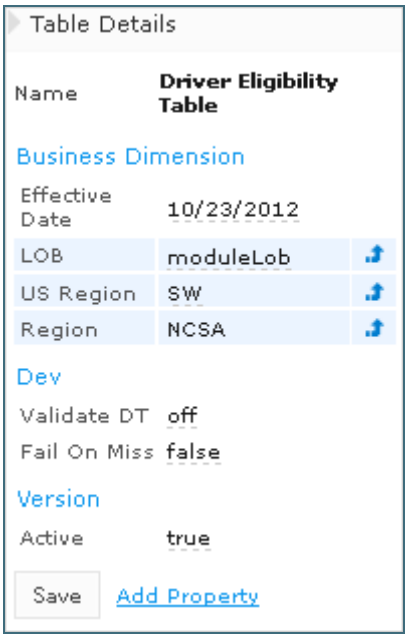


Figure 7172: Add new property for the current table

2. Enter the desired property or select it from the drop down list and click the **Add** button.

Figure 7273: Selected table property to be added

3. Specify the property value, and then click the **Save** button to complete.

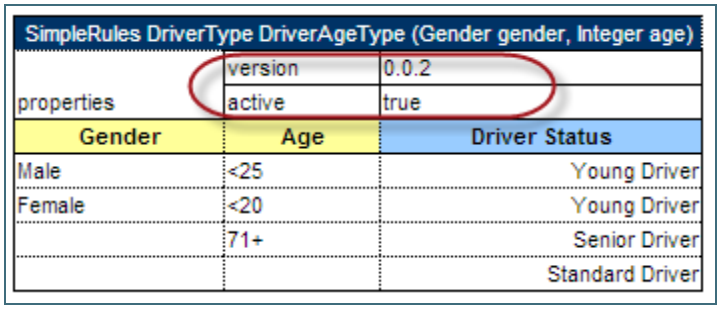
   All steps are collected in the Figure below.

Figure 7374: Saving a new property for the current table

5.2 Using Table Versioning

The table versioning mechanism is based on copying the existing table and is initiated in OpenL Tablets WebStudio by clicking the **Copy** button. Then select **New Version** in the **Copy as** list, enter the data as needed and click **Copy** to save .

A new table version has the same identity, that is, signature and dimensional properties of the previous version. When a new table version is created, the previous version becomes inactive since only one table version can be active at a time. By default, all tables are active. Below is an example of an inactive table version.



SimpleRules DriverType DriverAgeType (Gender gender, Integer age)		
properties	version	0.0.2
	active	true
Gender	**Age**	**Driver Status**
Male	<25	Young Driver
Female	<20	Young Driver
	71+	Senior Driver
		Standard Driver

Figure 7475: An inactive table version

Versions of the same table are grouped in the module tree under the table name. Clicking the table name displays the active version. If all tables are set to inactive, the latest created version is displayed.

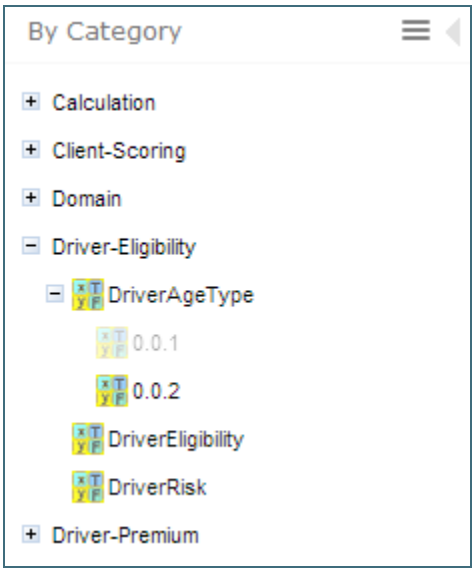


Figure 7576: Displaying table versions in the module tree

The table version is defined in a three digit format, such as 4.0.1. Table versions must be set in an increasing order.

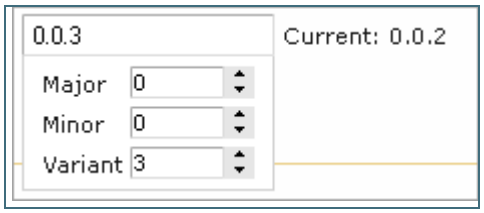
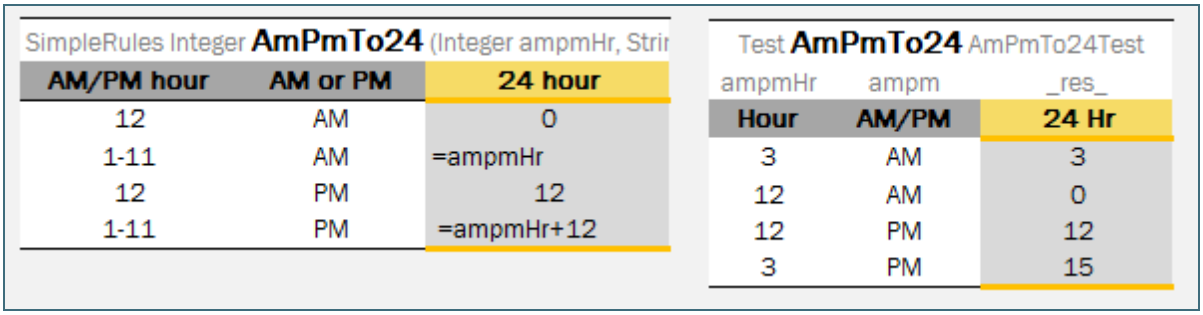


Figure 7677: Entering a new version number

5.3 Performing Unit Tests

Unit tests are used in OpenL Tablets to validate data accuracy. OpenL Test tables with predefined input data call appropriate rule tables and compare actual test results with predefined expected results.

For example, in the following diagram, the table on the left is a decision table but the table on the right is a unit test table that tests data of the decision table:



SimpleRules Integer **AmPmTo24** (Integer ampmHr, Strir

AM/PM hour	AM or PM	24 hour
12	AM	0
1-11	AM	=ampmHr
12	PM	12
1-11	PM	=ampmHr+12

Test **AmPmTo24** AmPmTo24Test

ampmHr	ampm	_res_
Hour	**AM/PM**	**24 Hr**
3	AM	3
12	AM	0
12	PM	12
3	PM	15

Figure 7778: Decision table and its test table

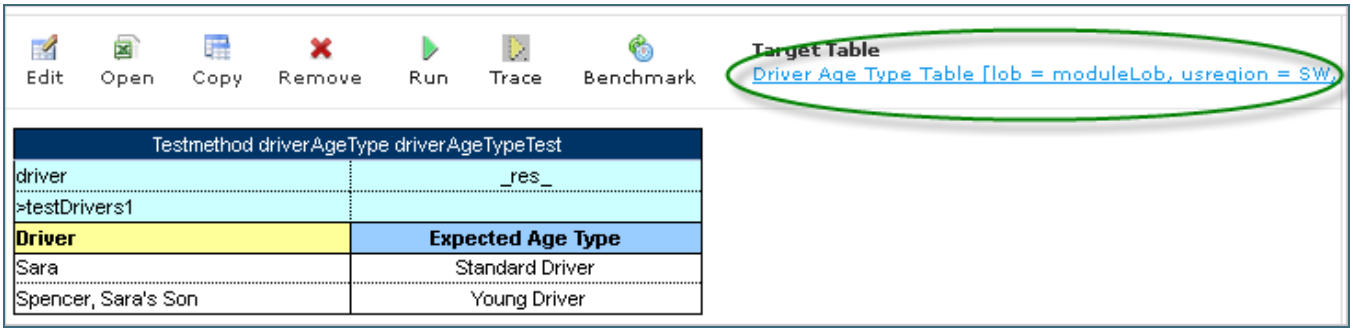
OpenL Tablets WebStudio supports visual controls for creating and running project tests. Test tables can be modified like all other tables in OpenL Tablets WebStudio. For information on modifying a table, see Modifying Tables. Test results are displayed in a simple format directly in the user interface.

The following topics are included:

- Adding Navigation to a Table
- Running Unit Tests
- Creating a Test

Adding Navigation to a Table

WebStudio adds to table view navigation link to appropriate test table and vice versa. See below.



Testmethod driverAgeType driverAgeTypeTest	
driver	_res_
>testDrivers1	
Driver	**Expected Age Type**
Sara	Standard Driver
Spencer, Sara's Son	Young Driver

Figure 7879: Navigation link to target table

Running Unit Tests

This section provides the methods used to run unit tests.

The following topics are included:

- Executing All Module Tests at Once
- Executing Tests for a Single Table
- Displaying Failures Only
- Displaying Compound Result

Executing All Module Tests at Once

The system automatically executes all test runs, test cases, in every unit test in a module, including tests in module dependencies, and displays a summary of results.

Note: If all tests are run in Multi-module mode, then the system executes all tests of the project, including project dependencies.

To run all module tests, click the **Run Tests** 

icon in the top line menu of Rules Editor.

Test results display resembles the following sample:

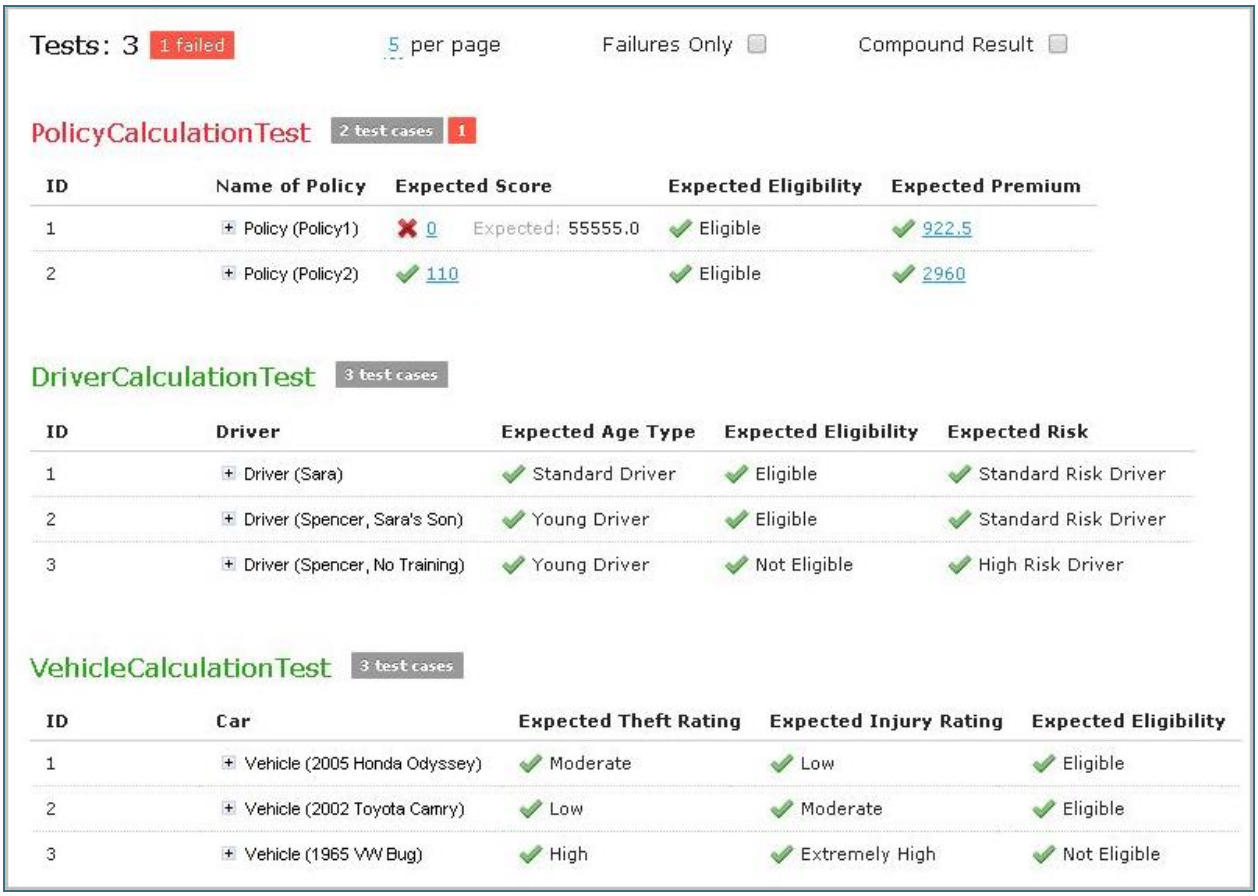


Figure 7980: Results of running all project tests

Failed test cases are represented by ✖ mark. Passed tests are represented by ✔ mark.

On the example above test results are displayed with five test tables, unit tests, per page. This setting is configured for each user individually in User Profile as "**Tests per page**" setting.

To change the setting for a particular test run without updating user settings, click the arrow to the right of the **Run Tests** ☑ ▾ and choose a desired number of "**Tests per page**". There is an alternative way: the same setting options are displayed on the top of the window after executing all tests. The picture below provides an illustration:

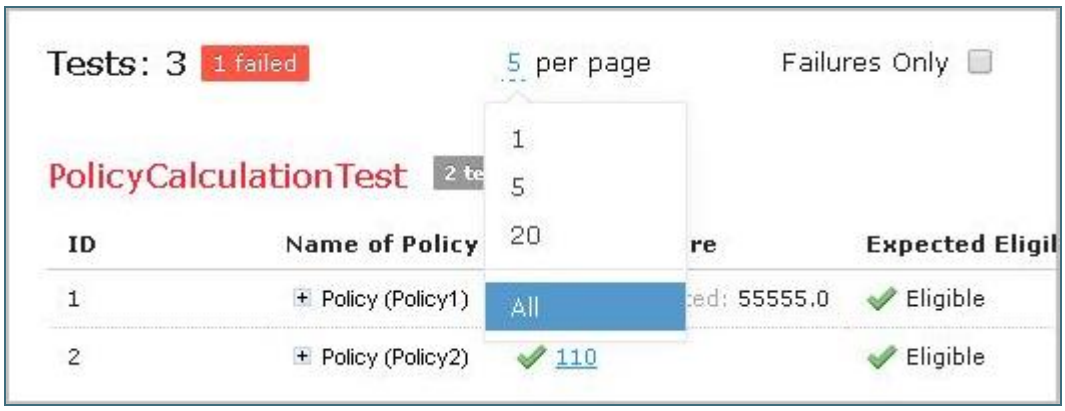


Figure 8081: Number of tests per page setting

Executing Tests for a Single Table

To execute all test runs for one particular rule table, proceed as follows:

1. in Rules Editor, in the module tree, select the rule table and, in the upper part of the middle pane, click **Test** .

   Test results resemble the following:

Figure 8182: Results of executing all test runs for one rule table

To test a rule table even if no tests have been created for the given table yet, perform the following steps:.

1. Select the desired rule table in the module tree and click the green **Run** arrow above the table.

   The form for entering required values to test rule table appears:

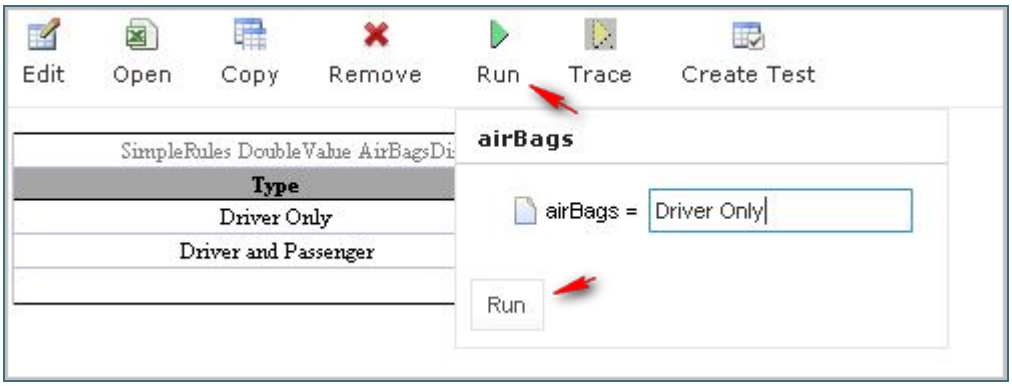


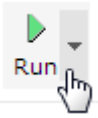
Figure 8283: Testing a rule table without tests

2. In the popup window, click the **Run** button.

   The results of the testing are displayed:

Figure 8384: Result of running virtual test

For Test tables, the system enables to select test cases to be executed. Proceed as follows:

1. Navigate to the **Run** button above the Test table and click the small black arrow 

.
2. The popup appears where users can choose from the test cases and only run necessary tests.

   Select or clear the check-boxes for appropriate ID`s or define your own _id_ column is appropriate Test table, and in case of need to run several particular test cases – define them in field 'Use the Range', as needed:

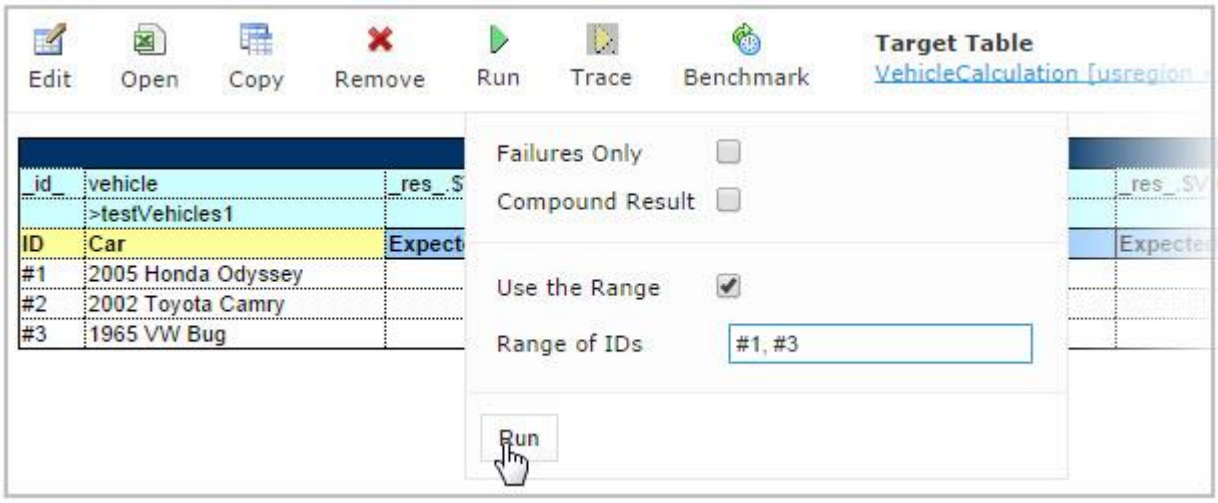


Figure 8485: Select test cases via Range field to be executed

3. Click the **Run** button within the popup.

   Only selected test cases will be executed:

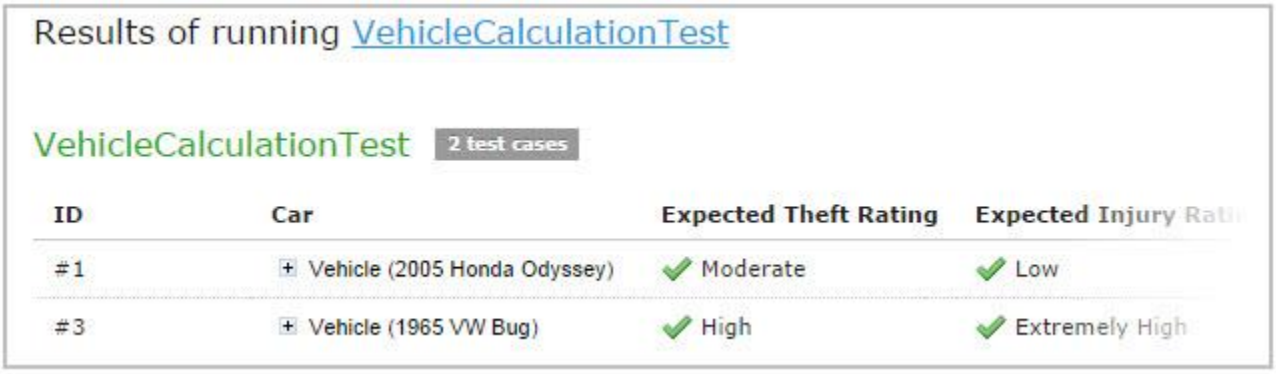


Figure 8586: Result of selective testing

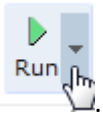
Displaying Failures Only

There are cases when a user wants to examine results of failed test cases only. For example, the project contains a test with more than 50 test cases and the user just needs to know whether project rules are operating correctly, it means all test cases are passed. If a user runs the test, they will get a huge table of results which are difficult to review and find failures to correct the rule or case. For such situations WebStudio provides an option to display failed test cases only.

This option is configured for each user individually in User Profile as "**Failures Only**" setting. To change the setting for a particular test run without updating user settings, there are multiple ways:

1. Click the arrow to the right of the **Run Tests** 

and (un)check "Failures only" in an displayed popup form.

2. Select the Test table and navigate to the **Run** button above the table and click the arrow 

. (Un)check “Failures only” in the displayed popup form.
3. (Un)check “Failures only” setting which appears on the top of the window after executing all tests at once.

See Figure: Number of tests per page setting.

Additionally, the number of failed test cases to be shown for one unit test can be limited. For example, the user is testing rules iteratively – he/she is interested just in the first several failures in order to analyze the first ones, correct and execute tests again, sequentially correcting errors. To do this, change “All” on an appropriate value next to “**Failures per test**” label or “first” label (for way 3). The setting is available only if “Failures only” is checked:

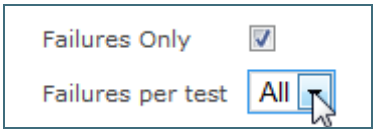


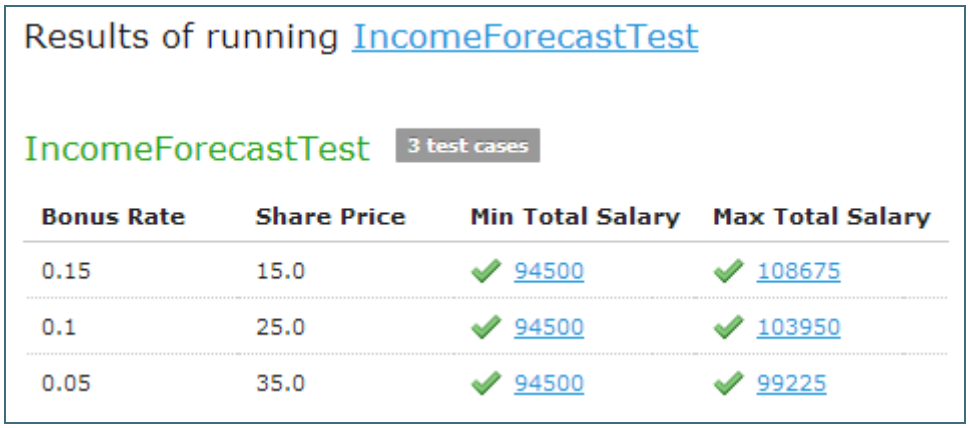
Figure 8687: Settings for displaying failed test cases only

Displaying Compound Result

The result of a rule table execution can be a single value or compound value such as spreadsheet. A test table specifies what is tested, full result or particular parts of it, and their expected results of each test case. For example, *IncomeForecastTest* below is intended to check Minimal and Maximal Total Salary values in the resulting spreadsheet:

	Test IncomeForecast IncomeForecastTest			
	bonusRate	sharePrice	_res_.$TotalAmount$MinSalary	_res_.$TotalAmount$MaxSalary
	Bonus Rate	**Share Price**	**Min Total Salary**	**Max Total Salary**
1	15%	$15	$148,500	$185,775
2	10%	$25	$148,500	$188,350
3	5%	$35	$148,500	$190,925

Figure 8788: Testing tables with compound result on



Results of running IncomeForecastTest

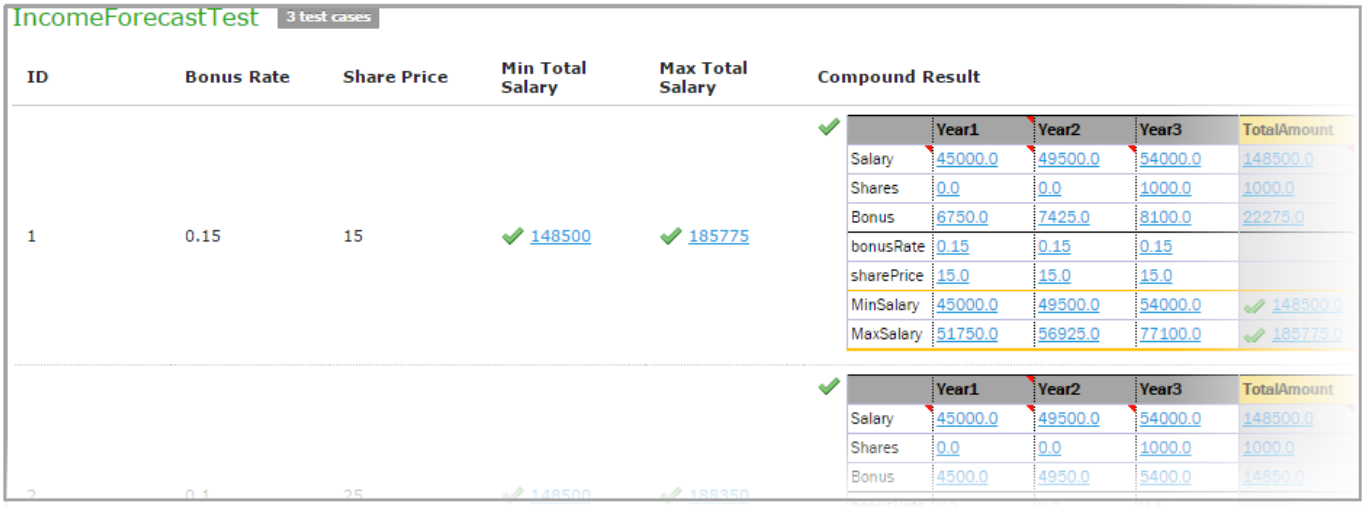
IncomeForecastTest 3 test cases

Bonus Rate	Share Price	Min Total Salary	Max Total Salary
0.15	15.0	94500	108675
0.1	25.0	94500	103950
0.05	35.0	94500	99225

Figure 8889: Testing spreadsheet result

After running the test, OpenL Tablets WebStudio displays each test case with input values and actual results marked as passed or failed.

In cases when test result is complex (compound), there is an option to display the full result of running test cases as well, not only values which are being tested. It is configured for each user individually in User Profile as "**Compound Result**" setting. If the option is switched on, the result of running *IncomeForecastTest* looks as follows:



IncomeForecastTest 3 test cases

ID	Bonus Rate	Share Price	Min Total Salary	Max Total Salary	Compound Result
1	0.15	15	148500	185775	

	Year1	Year2	Year3	TotalAmount
Salary	45000.0	49500.0	54000.0	148500.0
Shares	0.0	0.0	1000.0	1000.0
Bonus	6750.0	7425.0	8100.0	22275.0
bonusRate	0.15	0.15	0.15	
sharePrice	15.0	15.0	15.0	
MinSalary	45000.0	49500.0	54000.0	148500.0
MaxSalary	51750.0	56925.0	77100.0	185775.0

	Year1	Year2	Year3	TotalAmount
Salary	45000.0	49500.0	54000.0	148500.0
Shares	0.0	0.0	1000.0	1000.0
Bonus	4500.0	4950.0	5400.0	14850.0

Figure 8990: Displaying compound result

This setting for a particular test run (without updating user settings) can be changed in the same ways as it is described in Displaying Failures Only.

Creating a Test

WebStudio provides a convenient way to create a new test table.

After an executable table (Decision, Method, Test, Run, Spreadsheet) is created, the **Create Test** item is available.

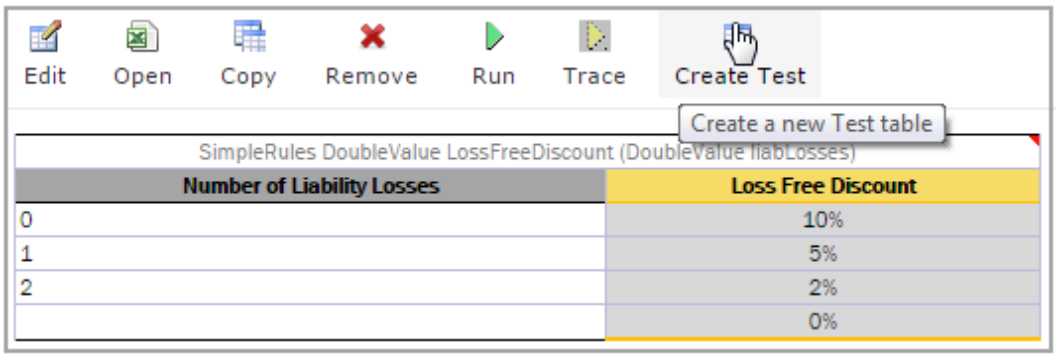


Figure 9091: Create new test table

To create a Test table for the current table, click the **Create Test** button. WebStudio suggests a two step wizard which helps to create an appropriate Test table.

5.4 Tracing Rules

OpenL Tablets WebStudio provides a rule tracing view for all appropriate OpenL Tablets methods. These methods include the following:

- All unit tests
- All Rule tables with the possibility of specifying input parameters and tracing any method
- Run Method tables with preset parameters

Rule tracing enables users to determine how results for complex rules are obtained.

IMPORTANT! Users must make sure their browser does not block pop-up windows. Otherwise, trace results will not be seen. For information how to unblock pop-up windows, refer to the specific browser Help.

Using the tracing functionality, users can check the result of each step of the rule and how the result was obtained without creating test cases. For that, perform the following steps:

1. In Rules editor, open a rule table to be traced and click **Trace**  in the middle pane.
2. Enter parameters to be traced in the popup window:

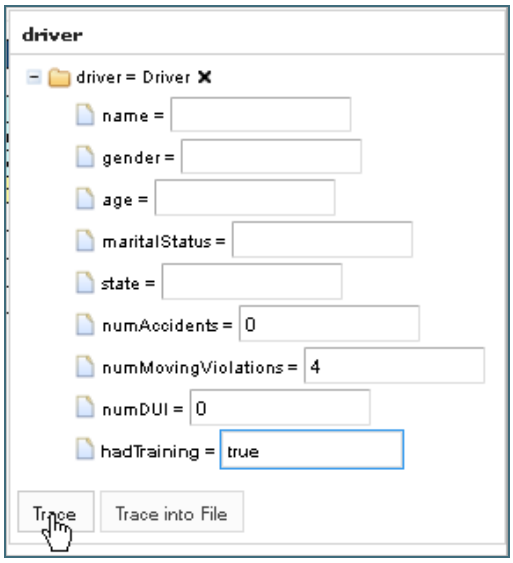


Figure 9192: Tracing a rule for a rule table

3. Click the **Trace** button.

If there is a set of test cases and the result of each step of the rule and how the result was obtained need checking, trace the Test table as follows:

1. Open the desired Test table and hover the mouse pointer over the **Trace** button.
2. To open a popup with test cases to be traced, click the small right-hand black arrow.

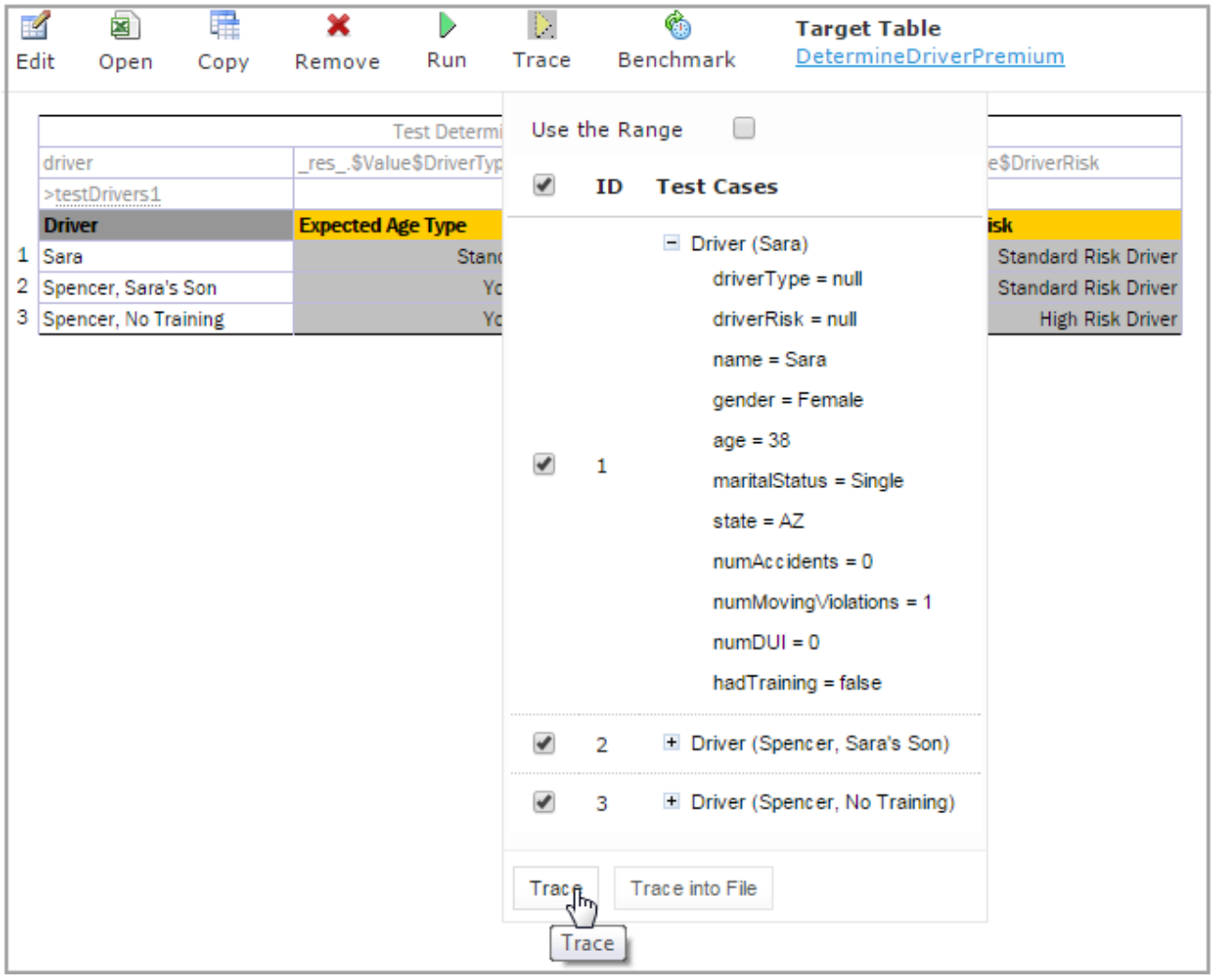


Figure 9293: Run tracing for a Test table

3. In the popup, select or deselect the test cases as needed.

   By default, all cases are selected. All test cases can be checked or unchecked by using the checkbox on the left of **Test Parameter(s)**.

4. Click **Trace** to start the process.

   The system displays the tracing results in a separate browser window as illustrated below.

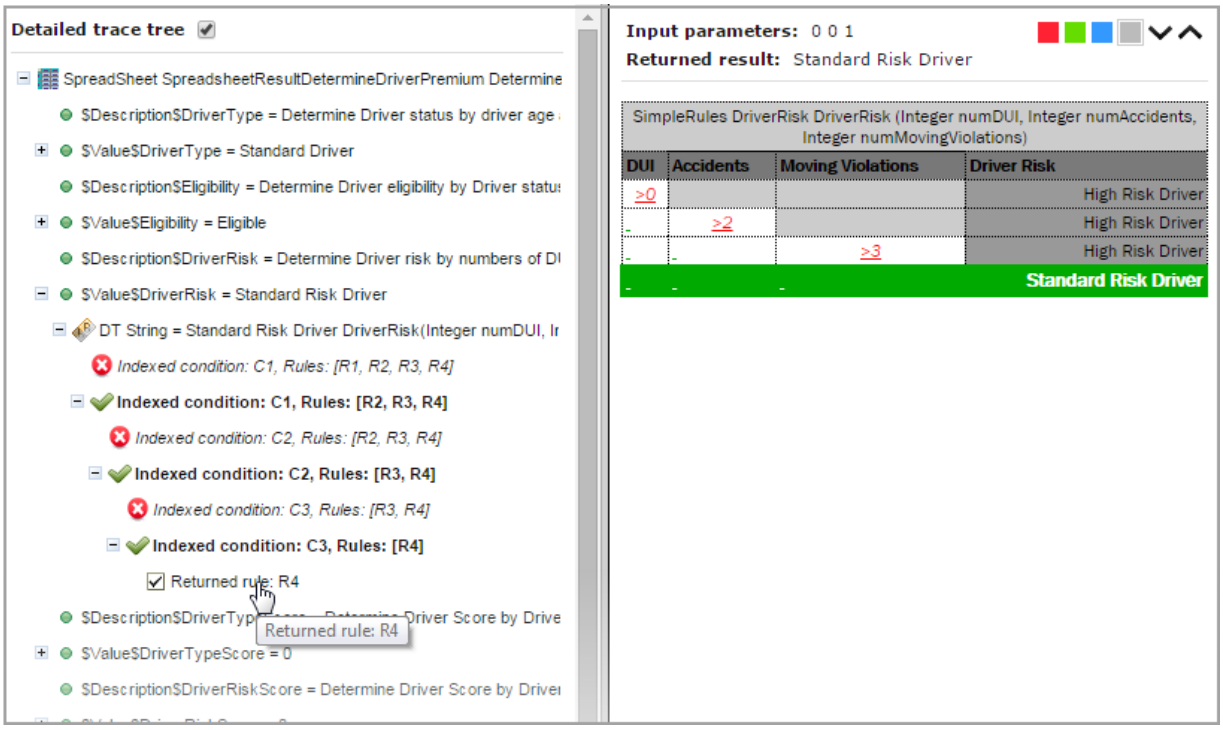


Figure 9394: Tracing results

The left side displays a tree consisting of rule tables as tree nodes and fired rule rows as tree leaves. Selected **Detailed trace tree** option enables to view all rule calls.

- If that option is cleared, only successful calls will be displayed.
  This option can only be used for a Decision table or if a Decision table is used in complex rules.
- If an element in the tree is selected, the corresponding rule table is displayed in the right pane.
  The fired rule rows are highlighted using the specified color. The highlight color and transparency level can be configured by clicking the  buttons above the rule table. Note that the gray button is selected by default.

In addition, the right pane displays the actual parameters used in the particular rule call and the returned result.

The example above demonstrates the results of tracing Decision table. For other rule tables, the picture slightly differs but the meaning is essentially the same.

For a Decision table the tracing results are shown as follows:

- The rules that were traced are not highlighted and appear as white rows.
- Successfully completed or returned rules are boxed with green lines.
- The failed rules are displayed in red.

5.5 Using Benchmarking Tools

OpenL Tablets WebStudio provides benchmarking tools for measuring execution time for all appropriate OpenL Tablets elements. In OpenL Tablets, everything that can be run, can be benchmarked too. Benchmarking is useful for optimizing the rule structure and identifying critical paths in rule calculation.

The benchmarking icon is displayed above the table to be traced.

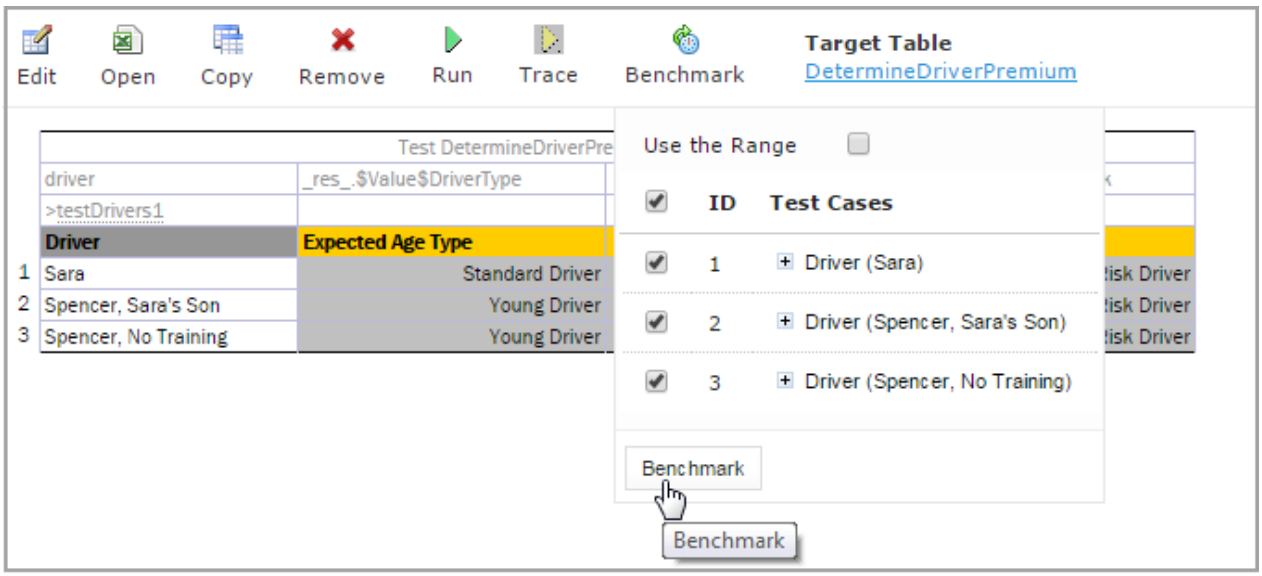


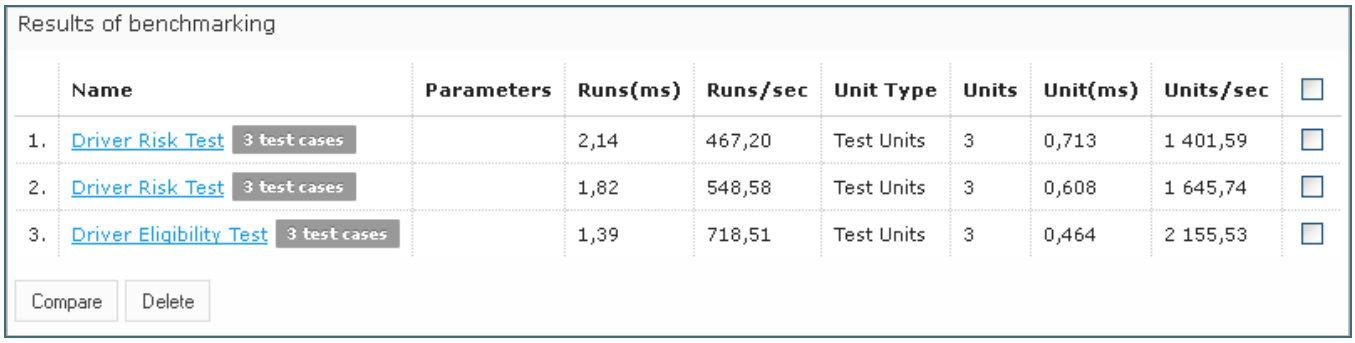
Figure 9495: Controls for measuring performance

For a Test table, select the test cases as follows:

1. Open the desired Test table.
2. Navigate to the **Benchmark** button above the Test table and click the small right-hand black arrow to open a popup with test cases as needed.
3. Select or deselect the test cases as needed.

   By default, all cases are selected. All test cases can be also checked or unchecked by using the checkbox on the left of **Test Parameter(s)**.
4. Click the **Benchmark** button within the popup.

   Clicking the benchmarking icon runs the corresponding method or set of methods and displays the results in a table.


Results of benchmarking

	Name	Parameters	Runs(ms)	Runs/sec	Unit Type	Units	Unit(ms)	Units/sec	
1.	Driver Risk Test 3 test cases		2,14	467,20	Test Units	3	0,713	1 401,59	
2.	Driver Risk Test 3 test cases		1,82	548,58	Test Units	3	0,608	1 645,74	
3.	Driver Eligibility Test 3 test cases		1,39	718,51	Test Units	3	0,464	2 155,53	

Compare Delete

Figure 9596: Benchmarking results

OpenL Tablets WebStudio remembers all benchmarking runs executed within one session. Every time a new benchmark is run, a new row is added to the results table.

Benchmarking results can be compared to identify the most time consuming methods. Select the required check boxes and click **Compare** to compare results in the results table.

Comparison results are displayed below the benchmarking table.

1.	Driver Risk Test	1 401,59	3	1,54
2.	Driver Risk Test	1 645,74	2	1,31
3.	Driver Risk Test	2 155,53	1	1,00

Figure 9697: Comparing benchmarking results

6 Using Repository Editor

This section describes tasks that can be performed in repository editor. For general information on repository editor, see Introducing Repository Editor.

The following topics are included in this section:

6.1 Browsing Design Repository

Repository editor displays all projects in user's workspace and Design Repository. The project tree is organized into the following categories:

Categories in the project tree	
Category	**Description**
Projects	Contains OpenL Tablets rule projects.
Deploy Configurations	Contains deploy configurations for deploying rule projects to Production Repository. For information on using deploy configurations, see Deploying Projects.

The status of each project in the tree is identified by a specific icon. The following table describes the icons in the project tree:

Project icons in repository editor	
Icon	**Description**
	Project is closed. It is available only in Design Repository and must be opened to copy it to user's workspace.
	Project is opened for viewing. It is copied to user's workspace in read-only mode and must be moved to the **Editing** status for modification.

Project icons in repository editor	
Icon	**Description**
	Project is edited by the current user. It is copied to user's workspace and can be modified. Other users cannot edit the project. To save changes, the project must be saved.
	Project is closed by the current user but edited by another user (Closed - Locked). Current user cannot edit the project.
	Project is opened for viewing by the current user but edited by another user (Opened - Locked). Current user cannot edit the project but can browse the project in the Rules Editor.
	Project exists only in user's workspace but not in Design Repository (Local). Other users do not see this project. User can delete the project or import it into Design Repository as described in the Creating Projects in Design Repository.
	Project is marked for deletion. In OpenL Tablets WebStudio, deletion of a project takes place in the following phases:

Phase	Description
Deleting a project	Project is removed from user's workspace and marked for deletion. In this phase, the project can be restored using the undelete function. For information on deleting a project, see Deleting a Project.
Erasing a project	Deleted project is permanently removed from Design Repository. After this phase, the project cannot be restored. For information on erasing a project, see Erasing a Project.

Note: Some projects may have two names displayed in the Project tree: logical name and then physical name in brackets. It happens when name defined in *rules.xml* of the project (logical name) differs from original project name from file system (physical name).

6.2 Filtering the Project Tree

Projects in the Repository editor are filtered the same way as in the Rules Editor. To filter projects by name, enter the name in the filter text box. All projects matching the name are displayed in the **Projects** list.

An advanced filter can be also applied to the project tree so that only files of particular types are displayed.

1. Click the **Advanced Filter** icon to the right of the filter text box**.**
2. In the **Advanced Filter** pop up window, enter a list of file extensions, separated by semicolon as follows: `xls;properties;txt.`
3. Select the **Hide deleted projects** option if required.
4. Click **Apply**.

   The project tree is filtered so that only files of the specified extensions are displayed. Project folders are always displayed.

Note: To reset the filter, clear the previously entered file extensions and click **Apply.**

6.3 Creating Projects in Design Repository

OpenL Tablets WebStudio allows users to create new rule projects in the Design Repository in one of the following ways:

Ways of creating new rule projects	
Way	**Section**
Create an new rule project from template	Creating a Project from Template
Create a rule project from Excel files	Creating a Project from Excel Files
Create a rule project from zip archive	Creating a Project from ZIP Archive
Import a rule project from workspace	Importing a Project from Workspace
Create a custom project template	Creating a Custom Project Template

Whatever the way used, new projects are created in the **Editing** status that means they are open and can be modified.

Creating a Project from Template

This is the easiest way to create a rule project in the Design Repository that must be preferably used for demonstration or introductory purposes.

While creating a project from template, use the following template types:

Template types	
Template type	**Description**
Simple Templates	Include the following: • Sample Project — a very simple project consisting of one rule table and hence, one Excel file. • Empty Project — allows to create a project with an empty Excel file. Open the project and create tables as needed.
Examples	Provide several simple projects demonstrating how OpenL Tablets can be used in various business domains.
Tutorials	A number of projects designed to familiarize users with OpenL Tablets step-by-step, from simple features and concepts to more complex ones.

Projects represented as Examples and Tutorials can be used not only to learn how they are organized and work, but also to create user's own projects from them.

To create a new project from template, proceed as follows:

1. In the top line menu, click **Create Project.**

   The **Create Project from** window appears.
2. Clicks the **Template** tab.

Note: This tab is normally selected by default.

All project templates are organized into three areas: Simple Templates, Examples and Tutorials described above in this topic.

3. Navigate to the desired template and click its name.

   The name appears in the **Project Name** field. An example below demonstrates creating a Simple project.

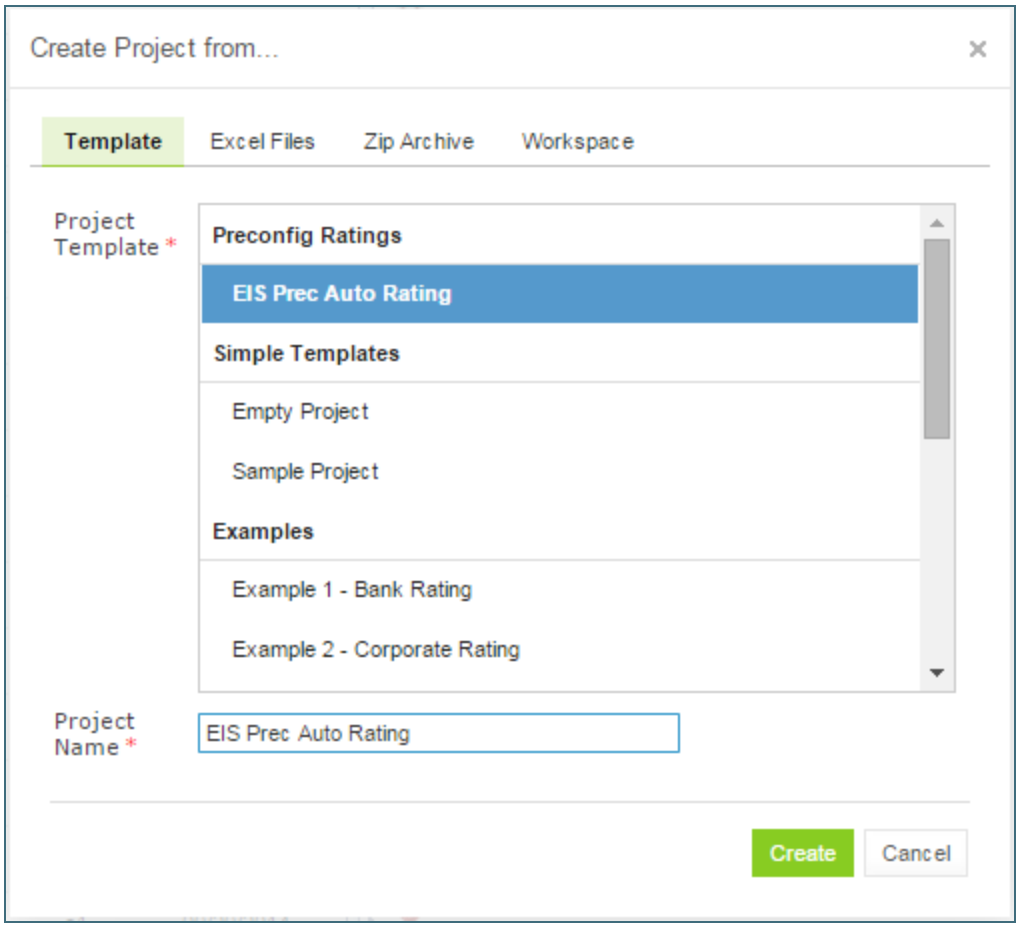


*Figure 9798: Creating Simple project **from t**emplate*

Use the name provided or enter a custom name if needed.

4. Click **Create**.

   A new project is created in Design Repository. Initially, project structure corresponds to the selected project template but can be constructed manually.

5. To construct the project structure, add folders and upload files as described in Modifying Project Contents.

Creating a Project from Excel Files

A rule project in the Design Repository can be created by loading one or more Excel files that contain OpenL rule tables or entire rule projects.

Proceed as follows:

1. Click **Create Project** in the top line menu.
2. In the **Create Project from** dialog, click the **Excel Files** tab.
3. Click the **Add** button, locate the desired Excel file in a file system and click **Open**.
4. If required, repeat the previous step to add more files for the project.

   All files will be listed in the **File** area.

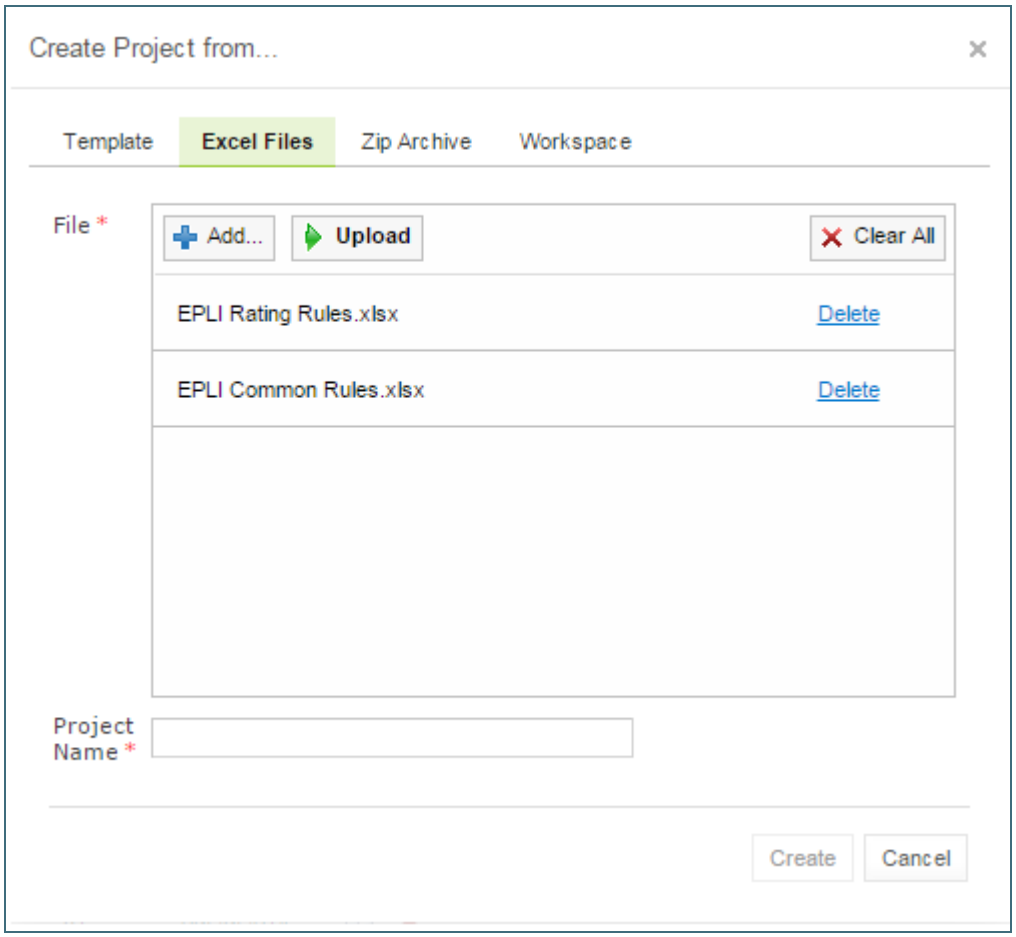


Figure 9899: Creating a project from Excel files

A file can be removed from the list by clicking the corresponding **Delete** link. To delete all files, click **Clear All**.

5. After adding all the required files, click **Upload** to load the files into the repository.

   Each file can be uploaded separately but it is not recommended.
6. In the **Project Name** field, enter the name by which the project must be represented in the Design Repository.
7. Click **Create** to complete.

Creating a Project from ZIP Archive

OpenL Tablets WebStudio provides a control for loading rule projects archived in a ZIP file into Design Repository. The procedure is similar to creating a project from Excel files described above although there are a few differences.

1. Click **Create Project i**n the top line menu.
2. In the **Create Project from** dialog, click the **Zip Archive** tab.
3. Click the **Add** button, locate the desired zip archive and click **Open**.

   The file can be seen in the **File** area.

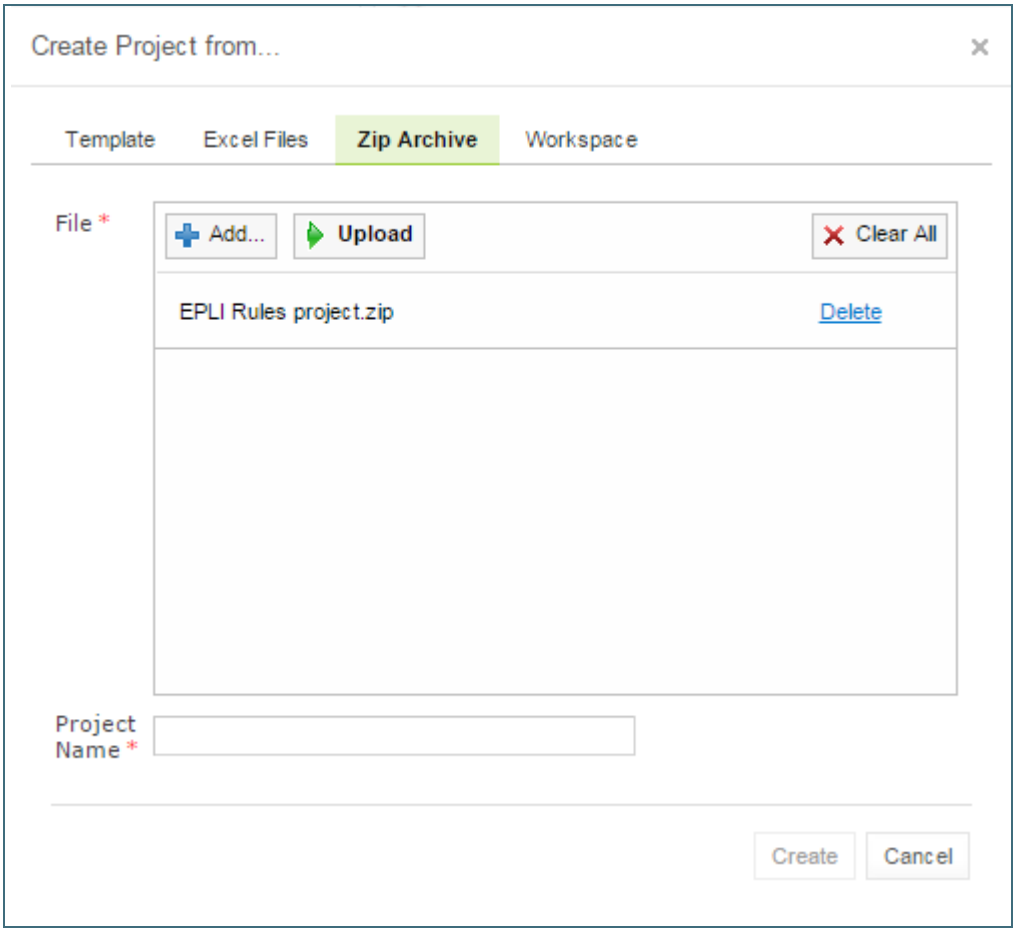


Figure 99~~100~~: Creating a project from ZIP file

4. Click **Upload** to proceed.
5. **Project Name** text box is automatically populated with the project name defined in `rules.xml`, if the uploaded ZIP file contains `rules.xml`, or with the file name.

   The name can be changed and it will be updated in `rules.xml` accordingly.
6. Click **Create** to complete.

Importing a Project from Workspace

A new project can be created in the Design Repository by loading a project with the **Local** status from user workspace.

1. Click **Create Project** in the top line menu.
2. In the **Create Project from** dialog, click the **Workspace** tab.

   The system displays rule projects available in the workspace:

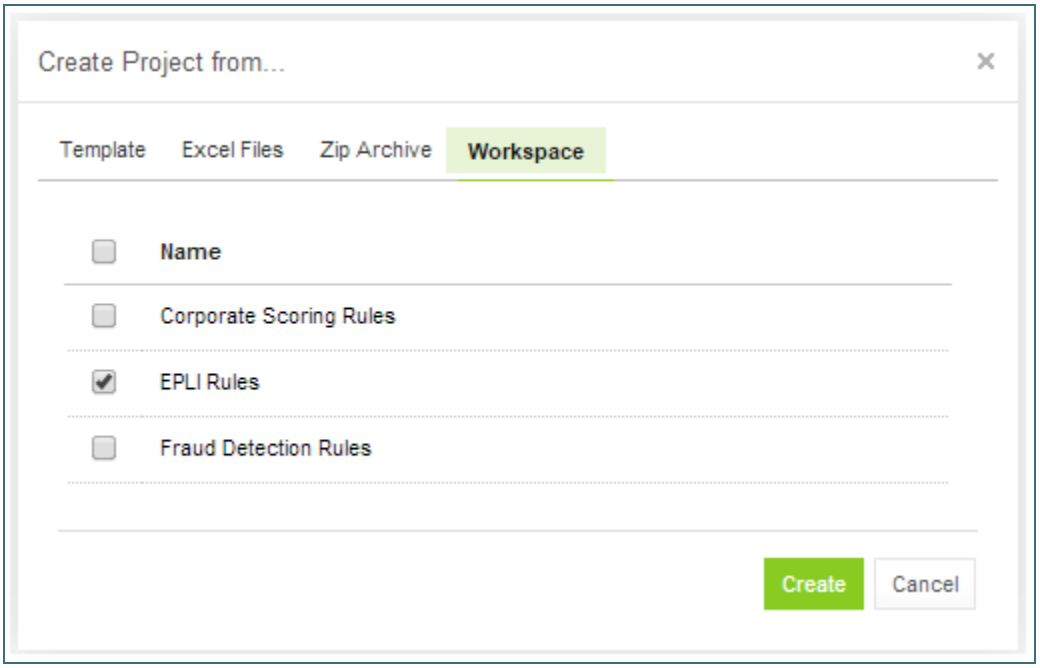


Figure 100~~101~~: Creating a project from Workspace

3. Select checkboxes for projects to be uploaded and click **Create** to complete.

   In case projects are loaded successfully, an appropriate notification displays.

Creating a Custom Project Template

It is possible to create a custom project template that will be used in the future during new projects creation.

To create a new custom project template, proceed as follows:

1. If the webstudio home directory is `c:\openl` create the following directory: `c:\openl\project-templates`.
2. Create a subfolder with a template category name.

   Example: `c:\openl\project-templates\My Custom Templates`.
3. Create subfolders with templates that contain files with templates.

   For example:
   `c:\openl\project-templates\My Custom Templates\Simple Rating Project\rating.xlsx`

will be presented as "Simple Rating Project" inside the category "My Custom Templates" containing the `rating.xlsx` file.

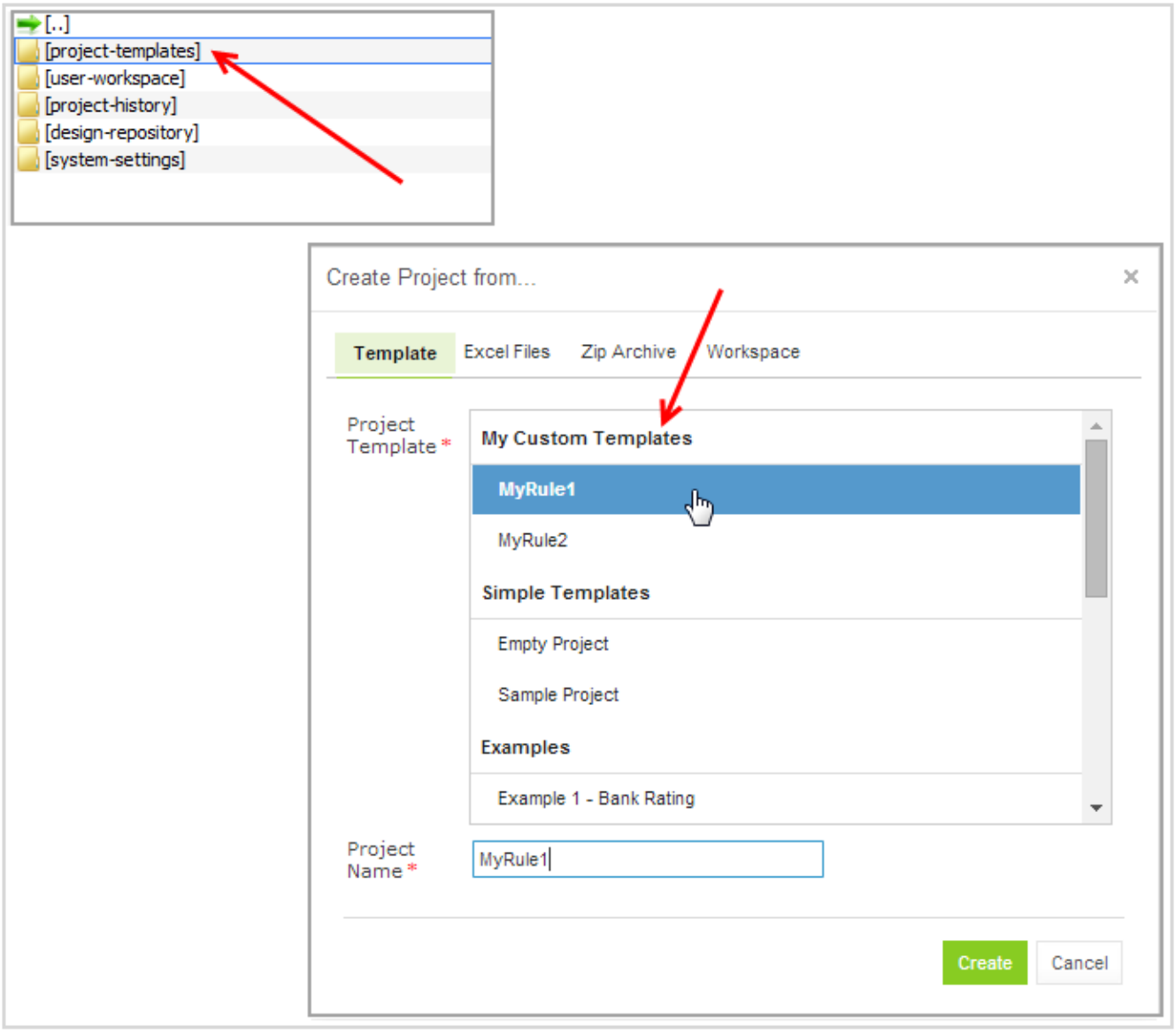


Figure 101~~102~~: Creating custom project template

6.4 Opening a Project

An opened project is copied to user's workspace and becomes available for selection in Rules Editor. The project is opened for viewing and **cannot be modified**, it must become Editable as described in Editing a Project for modification.

To open a project, in the project tree, select the project and, in the right pane, click one of the following buttons as required:

Buttons for opening a project	
Button	**Description**
Open	Opens the latest revision of project.
Open Revision	Displays window where a user can specify which project revision must be opened.

Any project revision can be opened from the **Revisions** tab. For that, select the project in the **Projects** tree and proceed as follows:

1. Click the **Revisions** tab.

   A list of revisions appears.

Revision	Modified By	Modified At	Comment	Action
2	snm	10/18/2012	Effective/Expiration dates added.	
1	snm	10/17/2012		
0	system	10/17/2012		

Figure 102~~103~~: List of project revisions

2. Navigate to the revision that needs to be opened and click the corresponding magnifier icon in the **Action** column.
3. Click **OK** in the information message.

6.5 Closing a Project

Closing a project deletes it from the user's workspace. No changes made to the project will be applied and stored. From that point, the project is not available for selection in the Rules Editor. Users can still browse closed projects in the Repository Editor.

To close a project, in the project tree, select the project and, in the right pane, click **Close.**

6.6 Editing a Project

An editable project, when the project status is **In Editing**, is copied to user's workspace, becomes available for selection in Rules Editor and can be modified. Only editable project can be modified in the Rules Editor. To apply changes made to a project, the project must be saved as described in Saving a Project.

To make a project editable, in the project tree, select the project and, in the right pane, click **In Edit**.

The latest project revision is becomes editable even if the user previously opened an older project revision.

Alternatively, an opened project can be made editable directly from Rules Editor as described in Editing and Saving a Project.

6.7 Saving a Project

A modified project is saved and copied from the user's workspace to Design Repository as a new revision.

To save a project, proceed as follows:

1. In the project tree, select the project, and, in the right pane, click **Save.**
   The **Save changes** window appears.

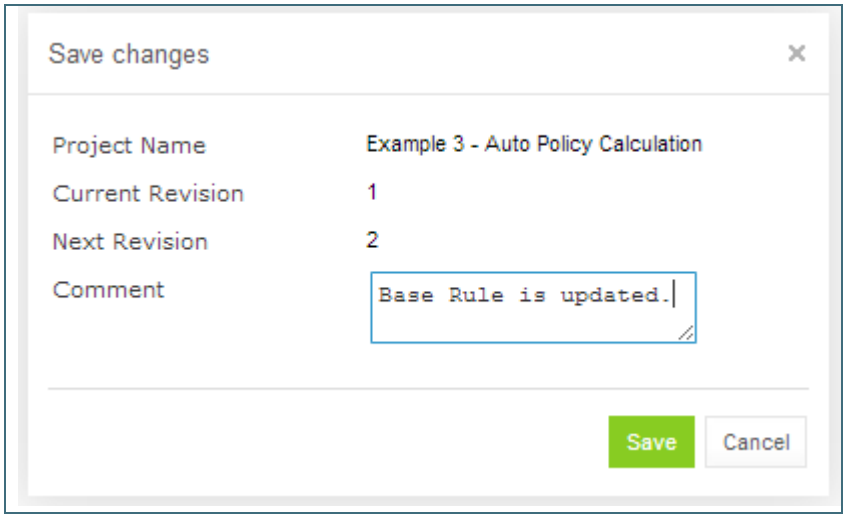


Figure 103~~104~~: Save changes in a project

   The number of a revision is updated automatically and specified in the **Next Revision** field.
2. Enter comments if needed and click **Save.**

An editable project can be saved and closed directly from Rules Editor as described in Editing and Saving a Project.

6.8 Modifying a Project

For an editable project, users can modify the project's properties and content.

The following topics are included in this section:

- Modifying Project Properties
- Modifying Project Contents

Modifying Project Properties

Each rule project has a set of properties displayed in the **Properties** tab when a project is selected.

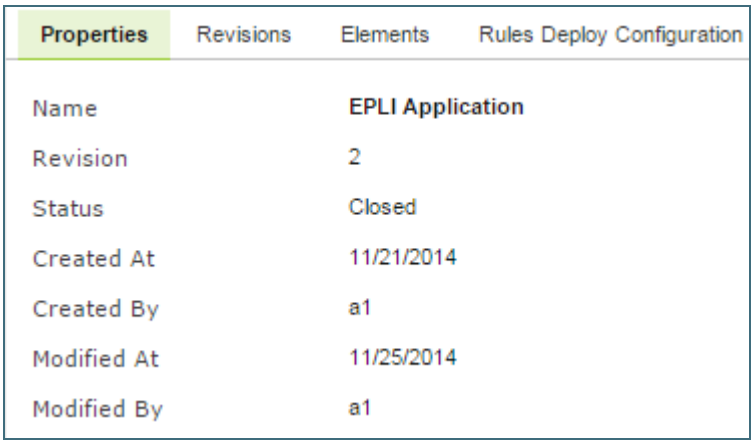


Figure 104~~105~~: Project properties

Some properties such as Name, Crated At / Created By, etc. are updated automatically by the system, and users cannot edit them in the WebStudio UI. The others can be specified for editable projects using the **Add Property** link as described in Adding Business Dimension Properties.

The following topics are included in this section:

- Adding Business Dimension Properties
- Adding Custom Properties

Adding Business Dimension Properties

Users can add *Business Dimension* properties predefined in a drop down list.

To add a Business Dimension property to a project, perform the following steps:

1. Select the project in the **Projects** tree.
2. In the **Properties** tab, click the **Add Property** link.
3. Select the desired property from the drop down list and click **Add**:

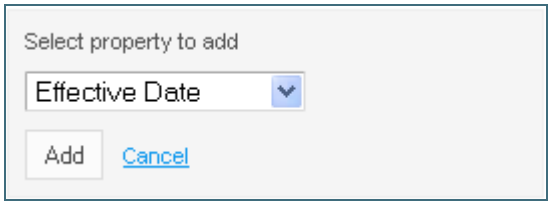


Figure 105~~106~~: Add a project property

4. Specify the value as needed and click the green tick on the right to save changes:

Figure 106~~107~~: Save a new project property

Adding Custom Properties

The list of project properties available in the drop down list can be extended by adding *Custom Properties*.

To add Custom properties, proceed as follows:

1. Open the `<tomcat directory>\webapps\webstudio\WEB-INF\conf\repository-artefact-props.properties` file for editing.
2. Enter the list of attributes to add to UI, delimited by comma, for example:
   `props.use = attribute1, attribute6, attribute7, attribute13`
   The following table describes types of attributes that can be added to UI:

Project properties that can be added to drop down list in UI	
Property	**Description**
attribute 1 - attribute 5	String properties.
attribute 6 - attribute 10	Date properties.
attribute 11 - attribute 15	Number properties.

3. Uncomment the attributes to be added as Custom properties by removing an appropriate '#', and define the properties' names, for example, as shown in the following snippet:

   ```
   props.attribute1 = Additional String Property
   props.attribute7 = Additional End Date
   props.attribute13 = Additional Number
   ```

   If a property name is not defined, the property appears in drop down list and UI with its sequential number, such as **attribute 6.**

   For example, if properties 1, 6, 7 and 13 are added, they appear in the drop down list as follows:

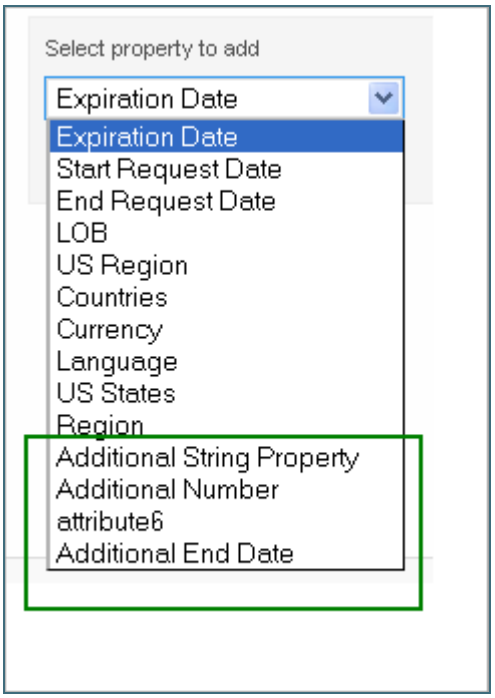


Figure 107~~108~~: Customer properties 1, 6, 7 and 13 are shown in the green box

Add Customer properties in the same way as described in Adding Business Dimension Properties. The next Figure illustrates properties 1, 6, 7 and 13 as they appear in the project UI.

Figure 108~~109~~: Project UI with properties 1, 6, 7 and 13 added

Modifying Project Contents

This section describes modifying the physical structure of the project.

The following topics are included in this section:

Creating a Folder

To create a new folder in the project structure, proceed as follows:

1. If the project is not editable, make it editable as described in Editing a Project.
2. In the project tree, select the parent folder in which the new folder must be created.
   To create a root level folder, the project name must be selected in the project tree.
3. In the right pane, click **Add Folder.**
4. In the **Add Folder** window, enter the folder name and click **Add.**

Uploading a File

To upload a file to a project folder, proceed as follows:

1. If the project is not editable, make it editable as described in Editing a Project.
2. In the project tree, select the folder where the file should be uploaded.
   To upload a file to the root level, the project name must be selected in the project tree.
3. In the right pane, click **Upload File.**
   The **Upload File** window appears.

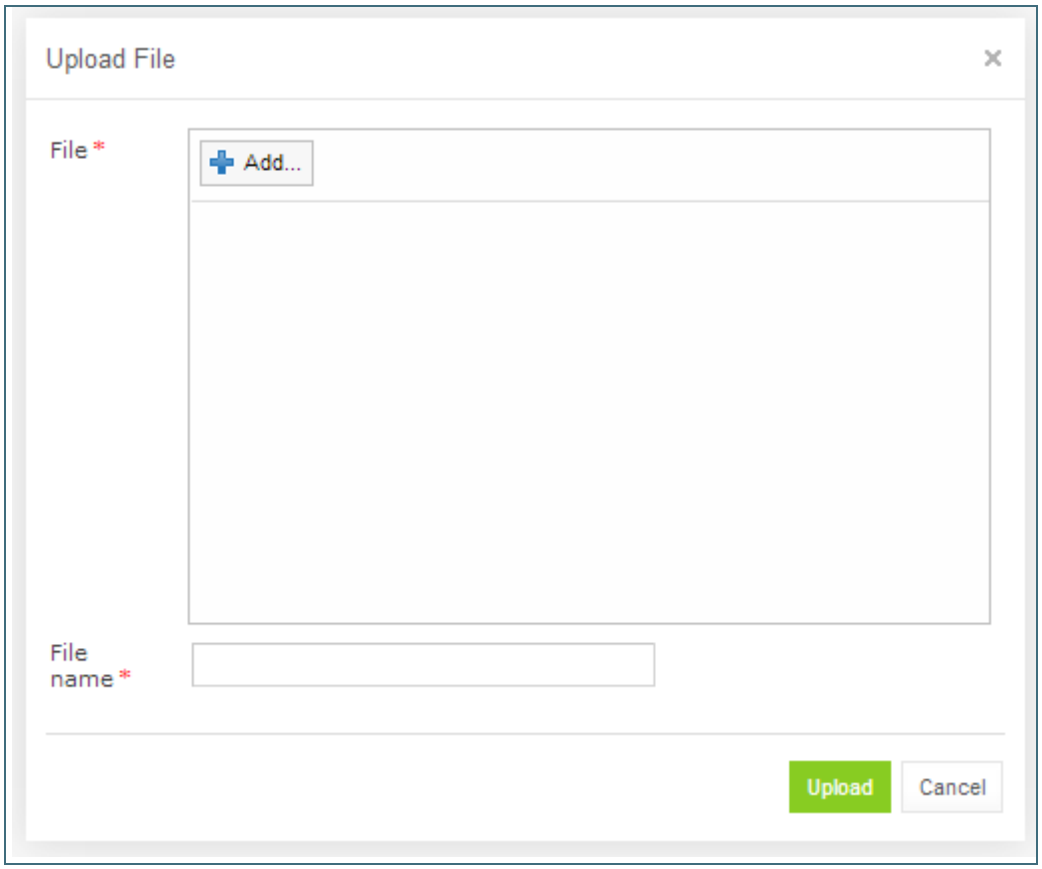


Figure 109~~110~~: Uploading a file

4. Click **Add** in the **File** area and select the file to be uploaded.
5. Click the upper **Upload** button (with a green arrow).
6. In the **File name** field, enter or modify the name of the file to be used in the Design Repository.
7. Click the **Upload** button at the bottom.

Updating a File

To update a file of a project via repository editor, proceed as follows:

1. If the project is not editable, make it editable as described in Editing a Project.
2. In the project tree, select the file to be updated and, in the right pane, click **Update file**.
3. In the window that displays, click **Add** and choose a required file for updating.
4. Click the **Upload** button to load the file.
5. Click **Update** to end the action.

Deleting a Folder or a File

To delete a folder or a file in the project structure, proceed as follows:

1. If the project is not editable, make it editable as described in Editing a Project.
2. Perform one of the following steps as required:

- Expand the project tree, select the folder or file to be deleted and, in the right pane, click **Delete.**

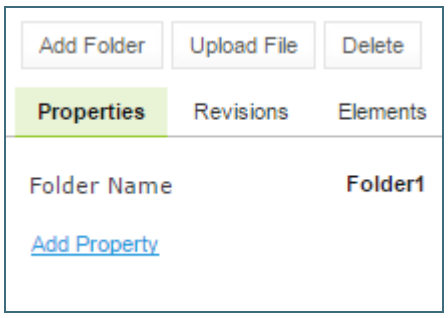


Figure 110~~111~~: Deleting a project element

- To delete an element inside the parent folder, select that folder, click **Elements** to expand the folder and then click **Delete** at the right of the item to be deleted**.**

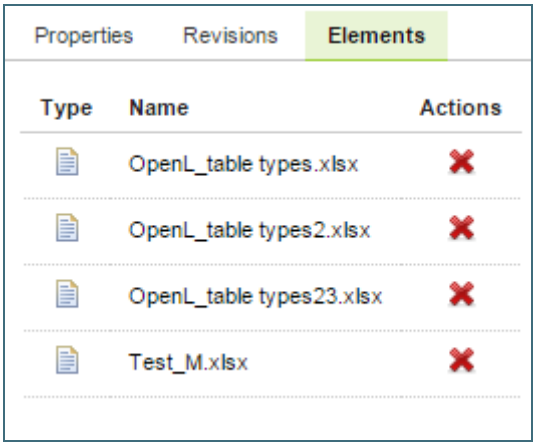
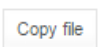


*Figure 111~~112~~: Deleting project elements from the **Elements** tab*

3. Click **OK** In the confirmation window**.**

Copying a File

A user can create a copy of the file in the Repository Editor. A user is able to create a copy of current version of file or choose appropriate saved version from repository. Proceed as follows:

1. Select the project whose file needs to be copied and then select the desired file from the files tree.
2. Click **Copy file**  at the upper left corner of the page.
3. In the appeared window, leave **Current Revision** or uncheck and choose **File Revision** from list
4. Enter the **New File Path**, if it is necessary.
5. Enter **New File Name.**

6. Click **Copy**. New file will be displayed in the file tree.

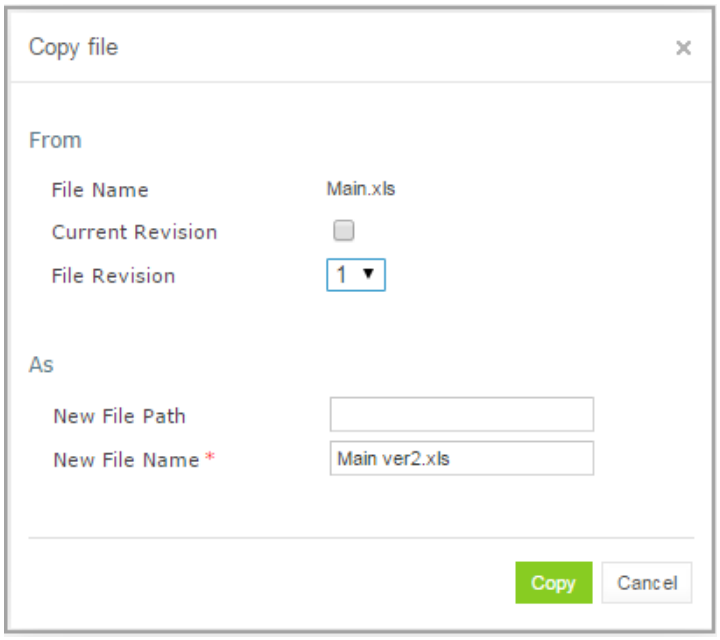


Figure 112~~113~~: Copying the file in Repository Editor

6.9 Copying a Project

Copying a project creates a new project with identical contents and a different name in the Design Repository. This function can be used for copying local projects to the Design Repository with a different name.

To copy a project, proceed as follows:

1. Perform one of the following steps as required:
   - In the **Projects** tree, select the desired project and, in the right pane, click the **Copy** button.
   - Click **Projects** in Navigator to get a list of projects, navigate to the project you want to copy and click the corresponding **Copy** item at the right.
2. In the **Copy Project** window, enter the new project name and click **Copy**.

   New project appears in the list of projects in the **Closed** status.

6.10 Removing a Project

Removing a project is executed in the following phases:

- Deleting a Project
- Erasing a Project

Deleting a Project

A deleted project is removed from user's workspace and marked as deleted in Design Repository. All users can see that a project is deleted. Physically, it still remains in Design Repository.

Note: Projects that were not uploaded to the Design Repository (they have the **Local** status) will be removed physically and cannot be restored.

To delete a project, proceed as follows:

1. Perform one of the following steps as required:
   - In the **Projects** tree, select the project and, in the right pane, click **Delete.**
   - Click **Projects** in Navigator to get a list of projects, navigate to the project you want to remove and click the corresponding **Delete** item  on the right**.**
2. In the confirmation window, click **Delete** or **OK**.

Deleted projects, except for those in the **Local** status, can be restored by using the **Undelete** button.

To make deleted projects visible, uncheck the **Hide deleted projects** checkbox in the filter pop up window which appears after clicking the **Filter** button above the **Projects** tree and click **Apply**.

To restore a deleted project, proceed as follows:

1. Navigate to the deleted project in the **Projects** tree.
2. Click the **Undelete** button in the right pane.
3. Click **Undelete** in the confirmation window.

Erasing a Project

Erasing a project permanently removes it from the Design Repository.

Warning: Erased projects cannot be restored.

To erase a project, proceed as follows:

1. Delete the project as described in Deleting a Project.
2. In the **Projects** tree, select the project and, in the right pane, click **Erase.**
3. In the confirmation window, click **Erase.**

6.11 Deploying Projects

This section describes tasks related to deploying rule projects to Production Repository.

The following topics are included in this section:

- Creating a Deploy Configuration
- Defining Projects to Deploy

Creating a Deploy Configuration

Deployment to Production Repository is performed by using deploy configurations. A Deploy configuration is a list of rule projects and specific project revisions to be deployed together to Production Repository. Deploy configurations are useful for recording the history of project deployments.

Deploy configurations are listed in the **Deploy Configurations** tree. Like rule projects, deploy configurations are stored in Design Repository and can be versioned.

To create a deploy configuration, proceed as follows:

1. Click **Create Deploy Configuration** in the top line menu**.**
2. In the **New Deploy Configuration** window, enter the deploy configuration name and click **Create.**

   The new deploy configuration appears in the **Deploy Configuration** tree.
3. Define deploy configuration projects as described in Defining Projects to Deploy.

Defining Projects to Deploy

A Project to Deploy is a reference to one specific revision of a rule project to be included in the deploy configuration. Project to Deploy must be added to the deploy configuration specifying which rule projects and project revisions are deployed.

To add a new project to deploy to the deploy configuration, proceed as follows:

1. If the deploy configuration is not editable, make it editable as described in Editing a Project.
2. In the **Deploy Configuration** tree, select the deploy configuration and, in the right pane, select the **Projects to Deploy** tab.

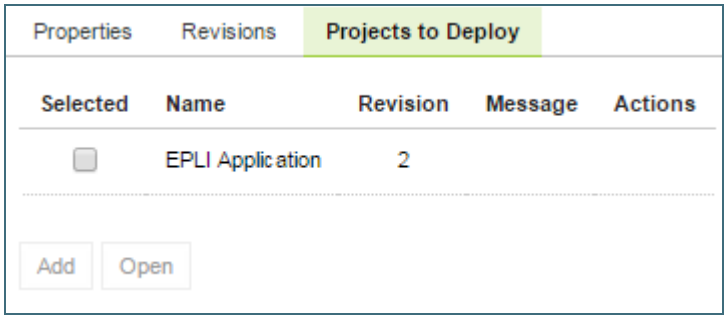


Figure 113~~114~~: Deploy Configuration with projects to deploy

The **Projects to Deploy** tab displays existing projects to deploy of the selected deploy configuration.

3. To add a new project to deploy, click **Add** and specify the project and revision to be included in the deploy configuration.
4. Repeat this procedure to add as many projects as required.

Deploying a Deploy Configuration

To deploy a deploy configuration, save it and click **Deploy.**

Specified projects are deployed to Production Repository and a deployment message is displayed.

Figure 114~~115~~: Deployment message

Note: Deploy Configuration cannot be deployed if any dependency projects are missed in it. Check messages on the **Projects to Deploy** tab.

Opening Deployed Configurations

Deploy configurations provide the means for tracking the deployment history of project revisions. OpenL Tablets WebStudio provides a functionality for quickly opening the deployed configuration revisions. This is especially useful when some time has passed since deployment and a review of files during specific deployments is desired.

To open the specific project revisions included in a deploy configuration, proceed as follows:

1. In the **Deploy Configuration** tree, select the deploy configuration.
2. In the right pane, select the **Projects to Deploy** tab.
3. In the **Selected** column, select the check boxes for projects to be opened.
4. Click **Open.**

The selected project revisions are opened in repository editor.

Redeploying Projects

OpenL Tablets WebStudio provides a function that allows a simple update and redeployment of many related deploy configurations when a particular rule project is modified. This function takes into account the revision of the opened rule project and works correctly, even with older project revisions.

To update related deploy configurations and redeploy a rule project, proceed as follows:

1. In the Projects tree, select the modified rule project.
2. In the right pane, click **Deploy.**

Note: The **Deploy** button is disabled if the selected project has the Local status or if it is edited.

The **Auto Deploy** window appears listing all existing deploy configurations whose latest revision contains a reference to the selected rule project. Deploy configurations marked for deletion are not displayed.

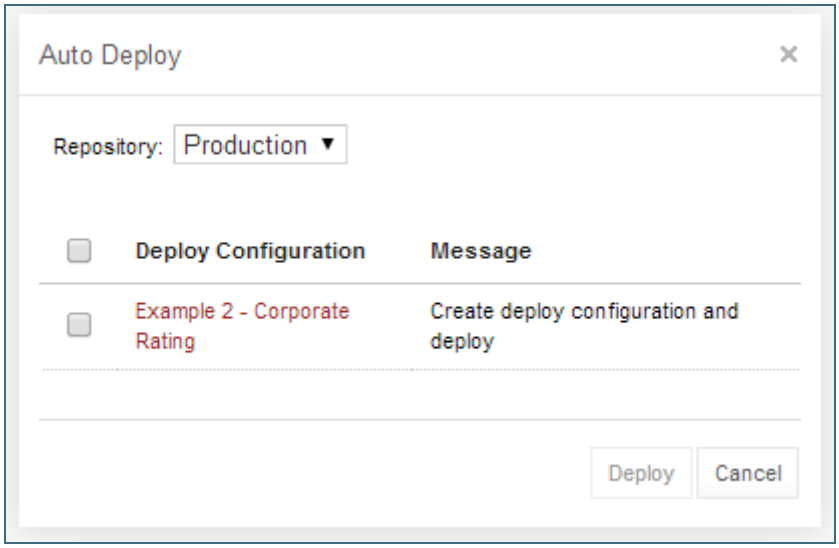


Figure 115~~116~~: Deploying a project

The **Message** column displays the current status of displayed deploy configurations. If a particular deploy configuration cannot be deployed, the check box is gray. Possible reasons for a deploy configuration to be disabled are the following:

- The deploy configuration is saved.
- The deploy configuration is locked by another user and cannot be updated.
- The deploy configuration is up to date and references the selected revision of the rule project.
- The deploy configuration references a revision of the rule project that is higher than the one currently opened.

If the selected rule project is not referenced by any existing deploy configuration, the system offers to create a new deploy configuration containing only the rule project with an identical name.

3. Select check boxes for the deploy configurations that must be updated and deployed.
4. Click **Deploy.**

Update and deployment results are displayed in the user interface.

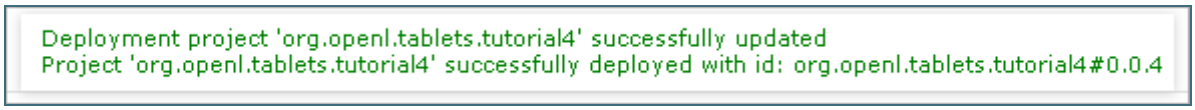


Figure 116~~117~~: Redeployment results

Addition of the Rules Deploy Configuration

Before the deployment of the Project to Production Repository there is ability to add deployment rules.

To do it, proceed as follows:

1. Click **Rules Deploy Configuration** in the top line menu**.**

2. Click **Create rules deploy configuration.**

Note: The **Create rules deploy configuration** function is available only when Project has 'In Editing' Status.

3. In the appeared form enter all necessary information about which rules are needed to be specified:
   - Provide runtime context
   - Provide variations
   - Create services – specify which version of web service should be supported: either SOAP service, RESTful service or both of them
   - Enter Service name
   - Enter Service class
   - Enter URL
   - Add description of the Configuration (XML)
4. Click **Save Configuration**
5. Selected rules will be displayed in the **Rules Deploy Configuration**

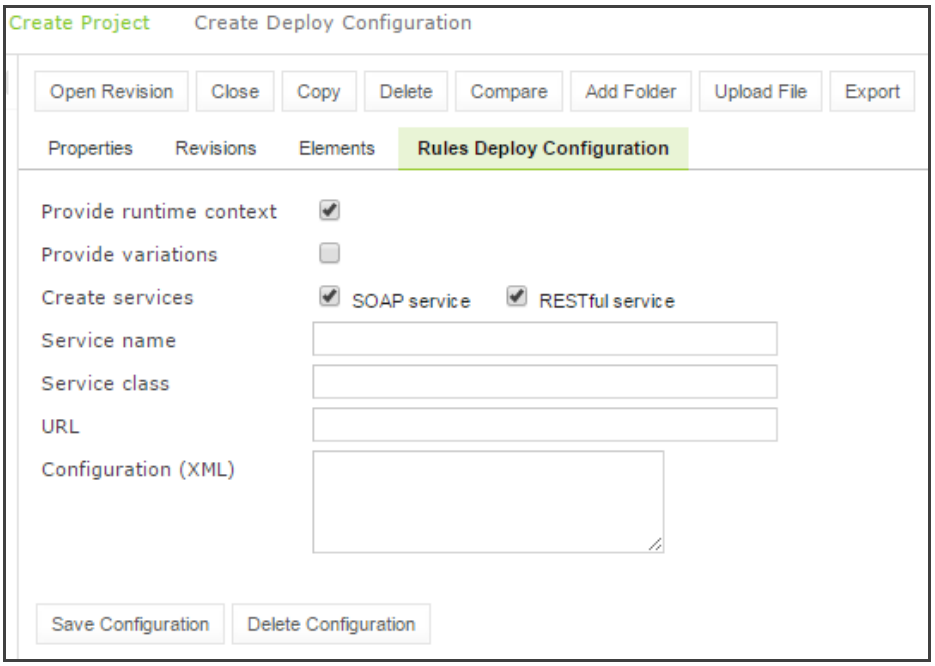


Figure 117~~119~~: Form to add the Rules Deploy Configuration with default settings

6.12 Comparing Project Revisions

OpenL Tablets WebStudio provides a function for comparing files and sheets in Excel files between two project revisions.

To compare contents of the currently opened project revision with any other revision, proceed as follows:

1. In the project tree, select the project.
2. In the right pane, click **Compare.**

A window appears listing contents of the currently opened project version on the left side and contents of another project version on the right side.

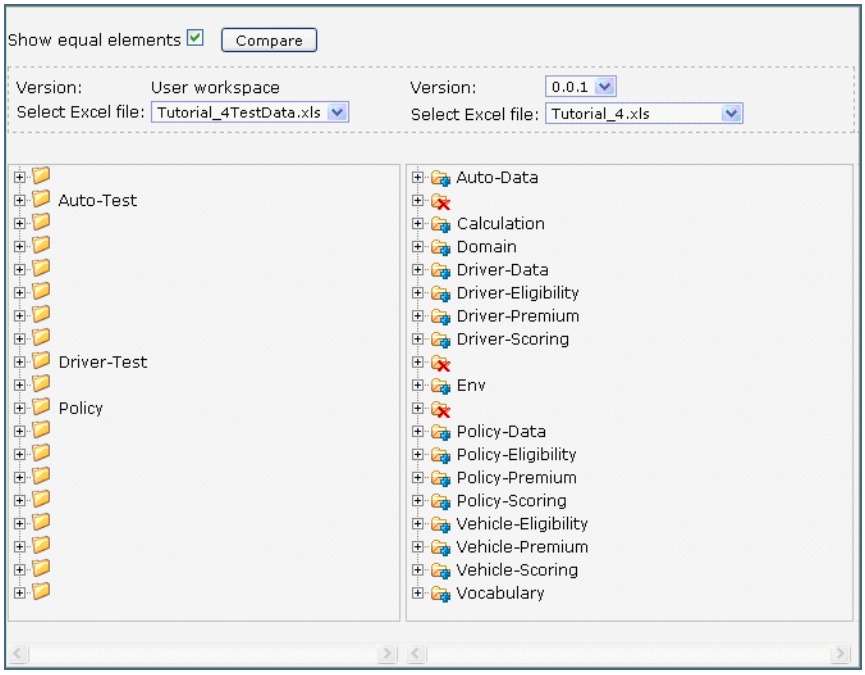


Figure 118~~120~~: Comparing project versions

Green entries indicate new elements and red crosses indicate deleted or nonexistent elements.

3. To compare the current project version with a different version, in the **Version** list box, select the version number.

6.13 Exporting a Project or a File

To export a project from Rules or Repository editor, proceed as follows:

1. In the project tree, select the project.
2. In the right pane, click **Export**.
3. In the displayed window select a required project revision, click **Export** and a full project in the selected revision will be exported.

To export any revision of a file from Repository, proceed as follows:

1. In the project tree, select the project.
2. Expand the project tree and select the file to be exported.
3. In the right pane, click **Export file**.
4. In displayed window select a required file revision and click **Export**.

Note: If the project is in the Local status these options are not available.

6.14 Unlocking a Project

WebStudio provides a function for a user to unlock a project which is edited and, therefore, locked by another user. Be aware that after unlocking, all unsaved changes made by another user will be lost and the project will be closed.

To unlock a project, proceed as follows:

1. Perform one of the following steps as required:
   - In the **Projects** tree, select the project and, in the right pane, click **Unlock.**
   - Click **Projects** in Navigator to get a list of projects, navigate to the project that needs to be removed and click the corresponding **Unlock** item  at the right**.**
2. In the confirmation window, click **OK**.

It is recommended to grant permission to the “Unlock” functionality only for administrators.

6.15 Browsing Production Repository

Production repository is a storage of project deployments where solution applications use them from. WebStudio has a possibility to connect several production repositories. For the information how to configure production repositories, refer to Repository Settings.

To browse a production repository, proceed as follows:

1. Switch from Design repository to Production repositories view by clicking **Production** in the top of the left pane.
2. In the project tree select the production repository to be browsed (repositories are marked by  icon).

   The list of project deployments or deployed configurations - deploy configurations which consist of rule projects and specific project revisions and deployed to the selected production repository, are displayed in the middle pane.
3. If needed, expand the repository tree and browse project deployments.

WebStudio displays only the latest revisions of each deployed configuration in the production repository. By the name of the deployed configuration users can identify which specific deploy configuration revision is deployed as names of deployed configurations in production repositories have the following structure:

```
<deploy configuration name>#<number of a deploy configuration revision>.
```

Also, browsing deployed configurations in the production repository, users can see their content, namely what rules projects and their revisions are deployed.

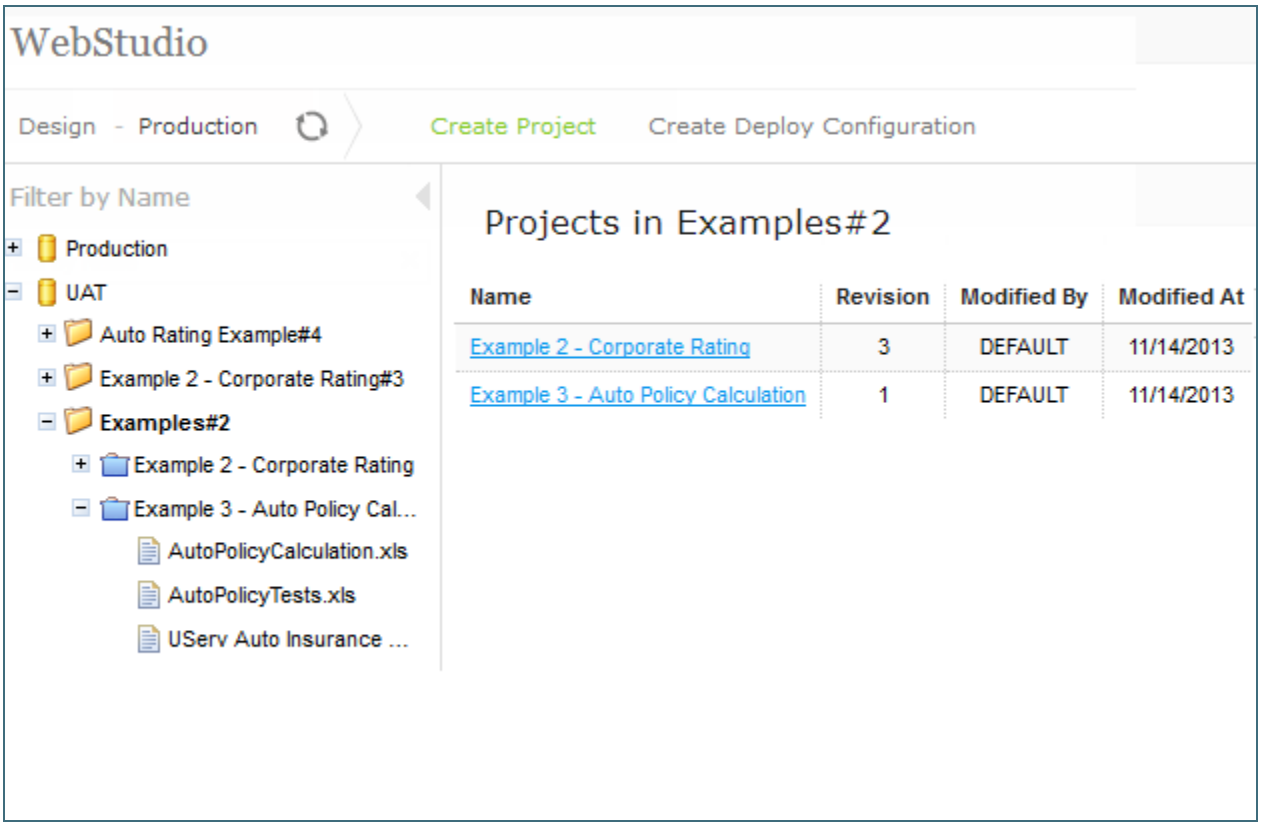


Figure 119~~121~~: Production Repository with deployed projects

On the picture above there are two production repositories: **Production** and **UAT**. The latest revision of deploy configuration **Examples** deployed to **UAT** is 2 and consists of projects **Example 2 - Corporate Rating** of revision 3 and **Example 3 - Auto Policy Calculation** of revision 1.

7 Using Administration Tools

This section explains how to view and control OpenL Tablets WebStudio system settings and also describes the user management procedure in the system. To perform administration tasks, click the Administration item in the top line menu. By default, the System Settings tab is displayed.

The following topics are included:

7.1 Managing System Settings

All System Settings are organized into the following groups: **Common**, **Repository,** and **System**. To open the desired group, click the corresponding icon on the left.

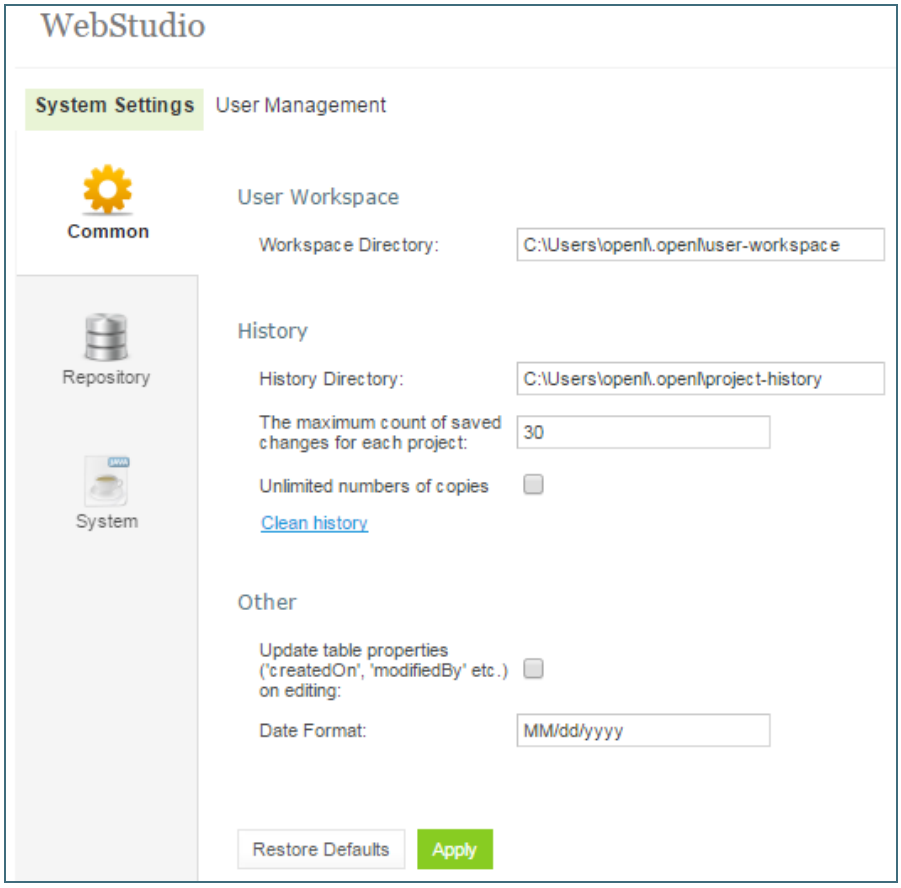


Figure 120~~122~~: OpenL Tablets WebStudio Administration

Normally, the default settings are recommended but users with appropriate permissions can change them as needed. After making changes, click **Apply** and refresh the page. To restore the original settings, click the **Restore Defaults** button.

The following topics are included in this section:

7.2 Common Settings

The **Common** section defines general WebStudio settings described below:

User Workspace

Defines **Workspaces Directory** where the user's projects must be located.

History

History Directory – Shows where user's projects history files are saved. These files are used to track, compare and revert changes made in projects.

Unlimited numbers of copies – If unchecked makes it possible to define the number of history files to be saved for a project.

To specify a number of history files, proceed as follows:

1. Clean the **Unlimited numbers of copies** checkbox.

Note: This checkbox is selected by default.

2. In the **The maximum count of saved changes for each project** field enter the desired number.

Note: By default, this field is set 30.

3. Click **Apply** to save changes.
4. Click **OK** in the confirmation dialog.

To clean all the history files for the project, perform the following steps:

1. Click the **Clean history** link.
2. In the **Clean projects history** form, select checkbox for a particular project, or select the **"Name"** to clear history for all projects.
3. Click **Clean** to complete.

Other

Update table properties… - Indicates whether table properties controlled by the system must be updated and can be viewed in the WebStudio UI. If the option is unchecked, the information about who and when created or modified tables such as **Created By/On**, **Modified By/On** is not added to the tables properties.

Date Format – Enables changing the date format in the WebStudio Interface.

7.3 Repository Settings

The **Repository** section contains connection settings of Design and Production repositories:

- connection **name** displayed as a repository name in repository editor
- connection **type** and repository **directory** path, which define a repository to be used as a data source:

Connection types for setting up design and production repositories	
Type	**Description**
Local	The Repository is located on the local machine as a folder. This folder must be specified in the **Repository Directory** field.
Remote - RMI	The Repository is located on a remote server and can be accessed by the RMI protocol. The **Repository URL** field displays URL for remote access to the repository.
Remote - WebDav	The Repository is located on a remote server and can be accessed via WebDav protocol. The **Repository URL** field displays URL for remote access to the repository.
Database	The Repository is located in a database installed either local or remote. Available only for **production repository**. **Repository URL** field displays URL for access to the database.

For more information on repository settings, refer to ***[***OpenL Tablets Web Services Usage and Customizations Guide***]***, *Data Source Configuration* section.

User can create connection to different data bases such as: MySql, MS SQL, Oracle. See Supported Platforms table for detailed information of supported versions.

Examples of Repository URL production repositories for data bases	
Data base	**Example URl**
MySql	jdbc:mysql://localhost/prodRepository
MS SQL	jdbc:sqlserver://localhost:1433;databaseName= prodRepository;integratedSecurity=false
Oracle	jdbc:oracle:thin:@localhost:1521:prodRepository

- **login** and **password** if the repository is remote, saved in data base and secured.

  To set up a secure connection, select the **Secure connection** checkbox and fill in the login and password fields.

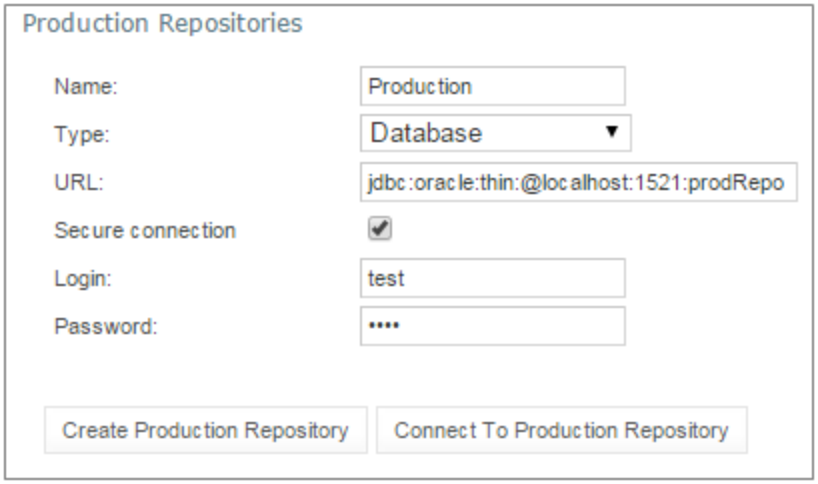


Figure 121~~123~~: Configuring Production Repository settings

For more information on repository security, refer in the ***[***OpenL Tablets Installation Guide***]***, *Configuring Private Key for Repository Security* section.

The settings can be changed by editing on the tab or deleted by clicking the red cross ✖.

Connection to a local production repository is configured by default. To connect more Production repositories, click the Connect To Production Repository button, enter the repository parameters as needed and click Connect.

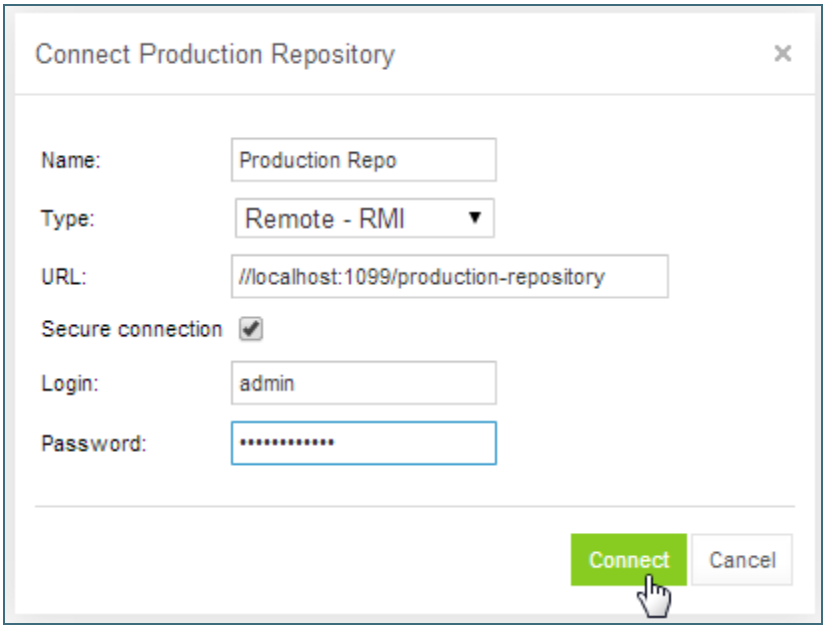


Figure 122~~124~~: Connecting Production Repository

The Repository tab provides an option to create a local production repository: click the Create Production Repository button, in the form enter new repository parameters and click Create.

Do not forget to click **Apply** to save changes and refresh the page.

7.4 System Settings

The **System** tab provides the following options:

- Core
- Project
- Testing

Core

Custom Spreadsheet Type – indicates whether the Custom Spreadsheet Result type feature is turned on or off. By default the feature is turned on. To make the feature inactive, deselect the **Custom Spreadsheet Type** checkbox.

Rules Dispatching Mode – indicates what rule tables dispatching mode is set:

- **Java** – is set by default
- **Decision Table**

Project

The maximum number of cached projects – defines the maximum number of compiled projects that can be cached at the same time during WebStudio run. Five projects are set by default. Value 0 means that the number of projects is unlimited.

The time to store a project in cache (in seconds) – determines how many seconds a compiled project can be stored in cache memory. Default setting is 300. Value 0 means that the time to store is unlimited.

Testing

Run test cases of the test in parallel - if checked, makes it possible to reduce the time spent on executing test cases of a test table by configuring the number of parallel threads in the field below. User can turn off this setting, then all test cases will be executed one by one.

Thread number for tests – by default four threads are set. It means that after clicking **Run** test table, or run all tests, button – up to four test cases will be in progress at the same time. After they are calculated, next four test cases will be performed.

7.5 User Management

This section describes how to control user access in the OpenL Tablets WebStudio application based on users and user groups. All privileges in the system are assigned at a group level and will be granted to a particular user after he or she is included in a particular group.

Users and groups are managed from the **User Management** tab which, in turn, is divided into **Users** and **Groups & Privileges** tabs. Only members of the **Administrators** group have rights to manage users and groups in the WebStudio.

The following topics are included:

Managing Groups

Section explains how to create, modify, and delete a user group with a certain set of privileges. The **Administrators** group cannot be deleted from the system.

The following topics are included in this section:

Viewing a List of Groups

To view a list of groups, proceed as follows:

1. From the **Administration** tab, click **User Management** on the top-left of the screen.
2. Click **Groups & Privileges** at the left.

   The system displays a list of groups similar to the following one:

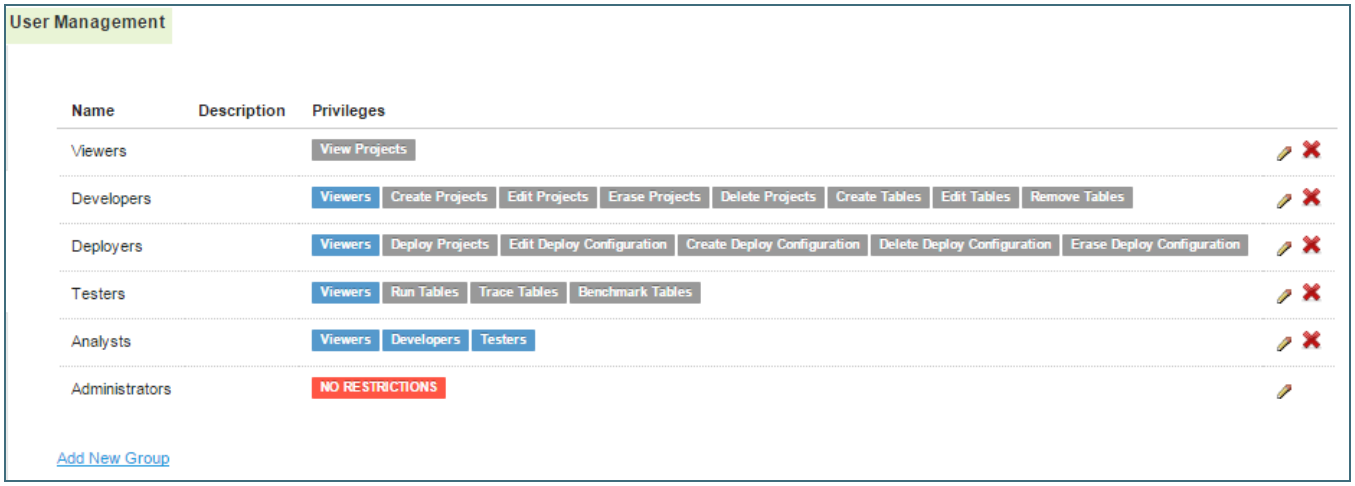


*Figure 123~~125~~: User groups in the **Groups & Privileges** tab*

3. To create a new group, proceed as described in Adding a Group.
4. To edit a group, proceed as described in Editing a Group.

5. To delete an existing group, proceed as described in Deleting a Group.

Adding a Group

To add a new group, proceed as follows:

1. Click the **Add New Group** link.

   The **Add New Group** form appears.
2. Enter the group name in the **Name** field.
3. Enter any useful information in the **Description** text box.

   This step is optional.
4. In the **Privilege** area select the privileges as needed.

   To assign a set of privileges for the group, click the name of the group above the list of privileges: Developers, Deployers, etc. The **Viewers** group is selected for a new user group by default.

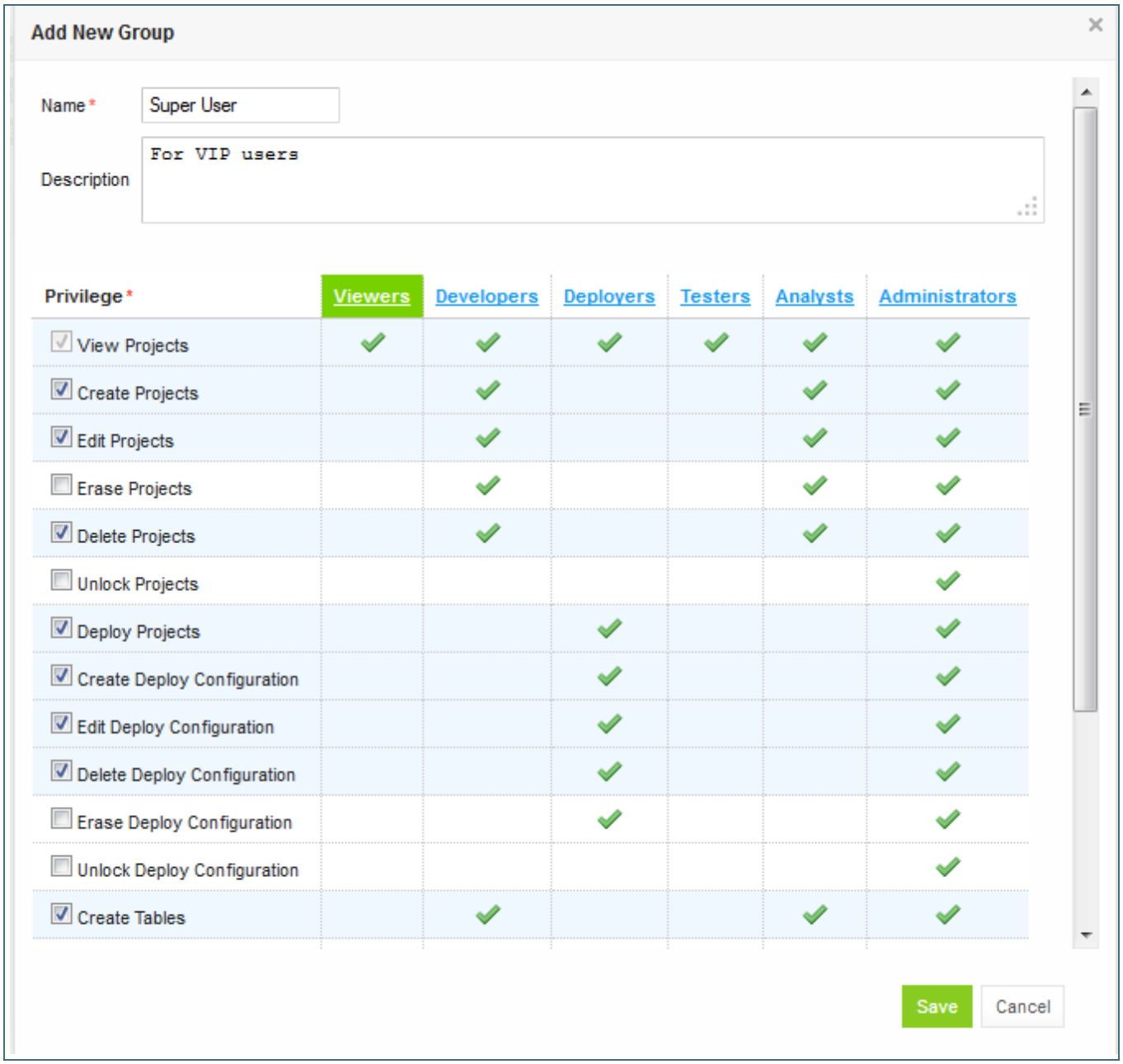


Figure 124~~123~~: Add a new user group with required set of privileges

5. Click **Save**.

Editing a Group

To modify a user group, proceed as follows:

1. In the list of groups, locate the group that needs to be changed and click the **Edit** icon .
2. In the **Edit Group** form, change the group name, add or modify its description and change privileges as needed.
3. Click **Save** to complete.

Deleting a Group

To delete a user group, proceed as follows:

1. Locate the group to be deleted and click the red cross at the right:  .
2. Click **OK** in the confirmation dialog.

Managing Users

Users get access to WebStudio functions by including them in particular groups.

By default, there are the following users in OpenL Tablets WebStudio:

OpenL Tablets WebStudio users		
User name	**User password**	**Groups**
user	user	Viewers
u0	u0	Testers
u1	u1	Developers, Analysts
u2	u2	Viewers
u3	u3	Viewers
u4	u4	Deployers
a1	a1	Administrators

On the first start of the WebStudio, users re provided with `a1/a1` login/password pair that gives users Administrator's permissions. Users can then set up their own users in the WebStudio as needed. For information about the permissions of the groups, refer to Managing Groups.

The following topics are included in this section:

- Viewing a List of Users
- Creating a User
- Editing a User
- Deleting a User

Viewing a List of Users

To view a list of users, proceed as follows:

1. From the **Administration** tab, click **User Management** at the top-left of the screen.
2. Click **Users** at the left.

   The system displays a list of WebStudio users.

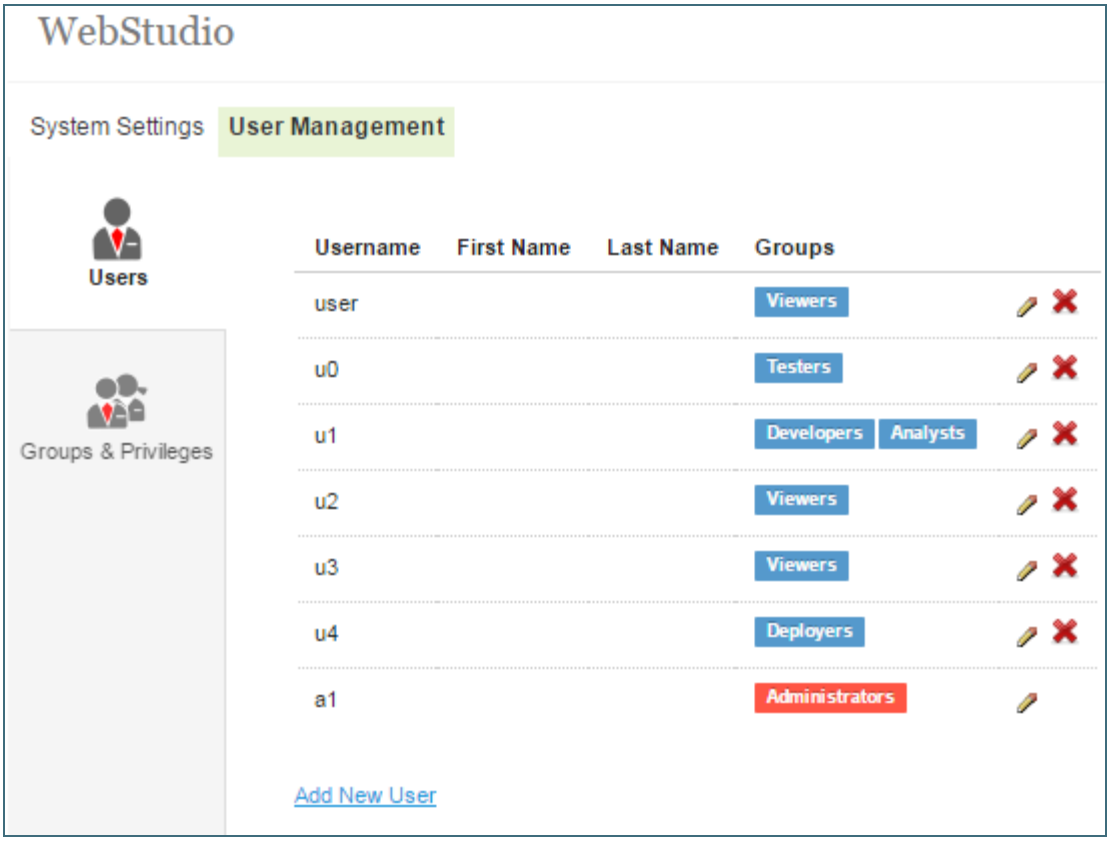


Figure 125~~124~~: List of OpenL Tablets WebStudio Users

3. In the **Users** tab perform either of the following:
   - To create a new user, proceed as described in Creating a User.
   - To edit a user, proceed as described in Editing a User.
   - To delete a user from the system, proceed as described in Deleting a User.

Creating a User

While creating a new user, make sure to include the user in at least one group. Proceed as follows:

To create a new user, proceed as follows:

1. Click the **Add New User** link.

   The system displays the **Add New User** form.

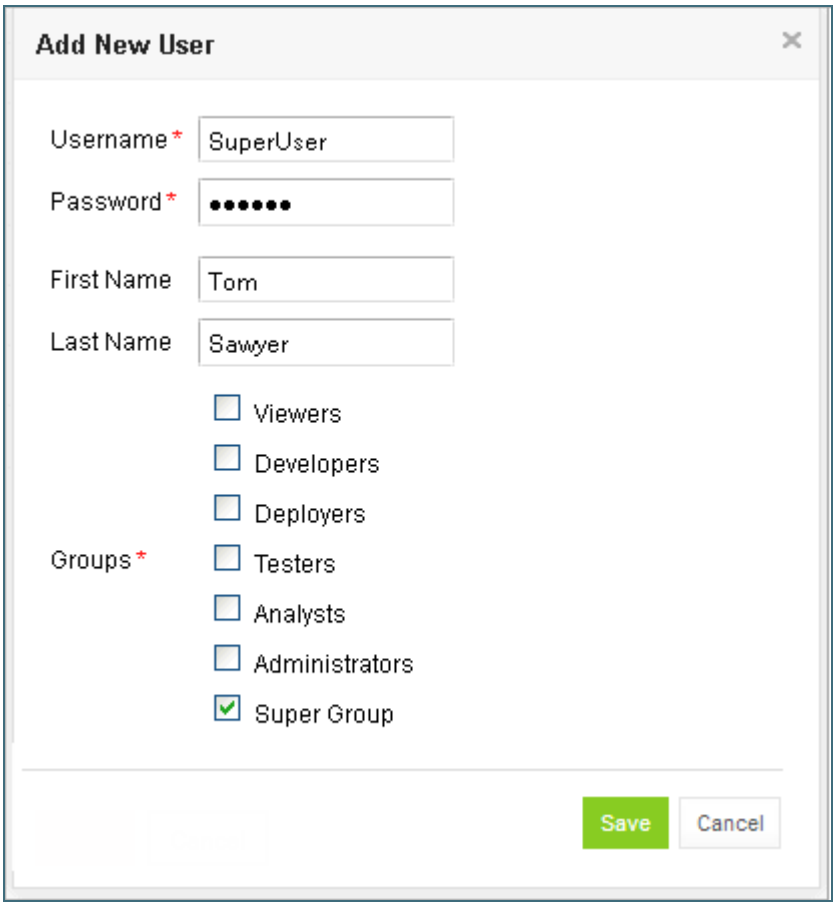


Figure 126~~125~~: Creating a new user

2. Specify the user's login in the **Username** field and enter the password in the **Password** field.
3. Enter the user's first and last name.

   This step is optional.
4. Select one or more groups to assign the user to.
5. Click **Save** to complete.

   The system displays the new user in the **Users** list.

Editing a User

To edit a user, proceed as follows:

1. In the **Users** list, locate the user that needs to be modified and click the **Edit** icon: .
2. In the **Edit User** form, change the user First Name, Last Name, and select or deselect the groups to include the user in.

   Users with the administrator privilege can also reset passwords of other users.
3. Click **Save** to save the changes.

Deleting a User

To delete a user, proceed as follows:

Warning: There must be at least one Administrator as a member of the **Administrators** group in the WebStudio, i.e. the only WebStudio Administrator cannot be deleted.

1. In the **Users** list, locate the user for deletion and click the **Delete** icon:  .
2. Click **OK** in the confirmation dialog.

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