

Maven Plugin Guide OpenL Tablets BRMS Release 5.16



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Maven Plugin Guide Preface

1 Preface

This preface is an introduction to the OpenL Tablets Maven Plugin Guide.

The following topics are included in this preface:

- Related Information
- Typographic Conventions

1.1 Related Information

The following table lists sources of information related to contents of this guide:

Related information		
Title	Description	
http://openl-tablets.org/	OpenL Tablets home page.	

1.2 Typographic Conventions

The following styles and conventions are used in this guide:

Typographic styles and	d 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.					
<u>Hyperlink</u>	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.					

Maven Plugin Guide Introduction

2 Introduction

Access to rules and data in Excel tables is realized through OpenL Tablets API. OpenL Tablets provides wrappers to developers to facilitate easier usage.

This plugin is used to generate interface to access the rules, to validate rules during compilation phase, and to run OpenL Tablets tests.

The following topics are included in this section:

- Goals Overview
- Usage Overview

To acquire a better understanding of plugin name usage, see the following examples:

- Configuration with all OpenL Maven Plugin Goals
- Creating a Project with a Working Example of OpenL Maven Plugin Usage

2.1 Goals Overview

General information about the goals is as follows:

General information about the goals				
Link to the goal section	Description			
openl:generate	Generates OpenL Tablets interface, domain classes, and project descriptor.			
openl:compile	Compiles the OpenL Tablets project.			
openl:test	Runs OpenL Tablets tests.			
openl:help	Displays help information on openl-maven-plugin.			

2.2 Usage Overview

General instructions on how to use the plugin name can be found in <u>Usage</u>. This section provides specific configuration example.

Specify the version in the project plugin configuration as follows:

Maven Plugin Guide Introduction

3 Goals

This section includes the following topics:

- openl:generate
- openl:compile
- openl:test
- openl:help

3.1 openl:generate

Full name:

org.openl.rules:openl-maven-plugin:5.X.X:generate

Description:

Generates OpenL Tablets interface, domain classes, project descriptor, and unit tests.

Attributes:

Requires a Maven project to be executed.

By default, binds to the **generate-sources** lifecycle phase.

Required Parameters

Required parameters for openl:generate						
Name	Туре	Since	Description			
generateInterfaces	JavaAntTask[]	-	Tasks that will Object Proper	•	classes.	
			Name	Туре	Required	Description
			srcFile	String	true	Reference to the Excel file for which an interface class must be generated.
			targetClass	String	true	Full name of the interface class to be generated.
						OpenL Tablets WebStudio recognizes modules in projects by interface classes and uses their names in UI.
						If there are multiple wrappers with identical names, only one of them is recognized as a module in OpenL Tablets WebStudio.

Required para	ameters for openl:	generate				
Name	Туре	Since	Description			
			displayNa me	String	false	End user oriented title of the file that appears in OpenL Tablets WebStudio. Default value: the Excel file name without extension.
			targetSrcDi r	String	false	Folder where the generated interface class must be placed. An example is src/main/java. Default value: \${project.build.sourceDirectory}.
			openIName	String	false	OpenL configuration to be used. For OpenL Tablets, the org.openl.xls value must always be used. Default value: org.openl.xls.
			userHome	String	false	Location of user-defined resources relative to the current OpenL Tablets project. Default value: . The dot stands for the current folder.
			userClassP ath	String	false	Reference to the folder with additional compiled classes imported by the module when the interface is generated. Default value: null.
			ignoreTest Methods	boolean	false	Parameter which denotes, if set to true, that test methods must not be added to the interface class. It is used only in JavaInterfaceAntTask. Default value: true.
			generateU nitTests	boolean	false	Parameter that overwrites the base generateUnitTests value.
			unitTestTe mplatePath	String	false	Parameter that overwrites the base unitTestTemplatePath value.
			overwriteU nitTests	boolean	false	Parameter that overwrites the base overwriteUnitTests value.

Optional Parameters

Optional parameters for	r openl:gen	erate				
Name	Туре	Since	Description			
classpaths	String[]	-	Default classpath entries i	n rules.xml.		
			Default value:			
			•			
			The dot stands for the cur			
				rojectDescriptor == true.		
createProjectDescripto r	boolean	-	if it does not exist.	, if set to true, that rules.xml will be generated		
			Default value: true.			
generateUnitTests	Boolean	_	Parameter which denotes,	, if set to true, that JUnit tests for OpenL Tablets		
			Test tables will be generat			
			Default value: false.			
openlOutputDirectory	String	-		ompile rules. An example is		
			\${project.build.dire			
D	Chaire -			t.build.directory}/openl.		
openlResourcesDirecto ry	String	-	and project descriptor. An	penL-related resources, such as OpenL Tablets rules example is		
• •			\${project.basedir}/s	•		
			Default value: \${project	t.basedir}/src/main/openl.		
overwriteProjectDescri	boolean	-	Parameter which denotes, if set to true, that rules.xml will be overwrit			
ptor				<pre>only if createProjectDescriptor == true.</pre>		
	D I		Default value: true.	Mark has a shake a stable of the take a second by		
overwriteUnitTests	Boolean			, if set to true, that existing JUnit tests will be se, only absent tests will be generated, and others		
			will be skipped.			
			Default value: false.			
projectName	String	-		ales.xml. If omitted, the name of the first module		
			<pre>in the project is used. The createProjectDescrip</pre>			
unitTestTemplatePath	String	-	Path to the Velocity templ	ate for generated unit tests. If omitted, default		
			Name	lable in the following template variables: Description		
			openlInterfacePackage	Package of generated interface class.		
			openlinterfaceClass	Generated interface class name.		
			testMethodNames	Available test method names.		
				Root directory of OpenL project.		
			projectRoot			
			srcFile	Reference to the Excel file for which an interface class must be generated.		
			StringUtils	Apache commons utility class.		
			Default value: org/open	l/rules/maven/JUnitTestTemplate.vm.		

Parameter Details

classpaths:

Default classpath entries in rules.xml. The default value is an array containing one string with a dot . where the dot stands for the current folder. It is used only if createProjectDescriptor == true.

• **Type:** java.lang.String[]

• Required: No

createProjectDescriptor:

Parameter which denotes, if set to true, that rules.xml will be generated if it does not exist. The default value is true.

Type: booleanRequired: NoDefault: true

generateInterfaces:

Tasks that generates classes.

Object Properties

Object properties			
Name	Туре	Required	Description
srcFile	String	true	Reference to the Excel file for which an interface class must be generated.
targetClass	String	true	Full name of the interface class to be generated. OpenL Tablets WebStudio recognizes modules in projects by interface classes and uses their names in the user interface. If there are multiple wrappers with identical names, only one of them is recognized as a module in OpenL Tablets WebStudio.
displayName	String	false	End user oriented title of the file that appears in OpenL Tablets WebStudio.
			Default value: the Excel file name without extension.
targetSrcDir	String	false	Folder where the generated interface class must be placed. An example is <pre>src/main/java.</pre>
			<pre>Default value: \${project.build.sourceDirectory}.</pre>
openIName	String	false	OpenL configuration to be used. For OpenL Tablets, the org.openl.xls value must always be used.
			Default value: org.openl.xls.
userHome	String	false	Location of user-defined resources relative to the current OpenL Tablets project.
			Default value:
			The dot stands for the current folder.
userClassPath	String	false	Reference to the folder with additional compiled classes imported by the module when the interface is generated.
			Default value: null.

Object properties	Object properties					
Name	Type Required		Description			
ignoreTestMethods	boolean	false	Parameter which denotes, if set to true, that test methods will not be added to interface class. It is used only in JavaInterfaceAntTask. Default value: true.			
generateUnitTests	boolean	false	Parameter that overwrites the base generateUnitTests value.			
unitTestTemplatePath	String	false	Parameter that overwrites the base unitTestTemplatePath value.			
overwriteUnitTests	boolean	false	Parameter that overwrites the base overwriteUnitTests value.			

Type: org.openl.conf.ant.JavaAntTask[]

Required: Yes

generateUnitTests:

If set to true, JUnit tests for OpenL Tablets Test tables will be generated. The default value is false.

• Type: java.lang.Boolean

Required: NoDefault: false

openIOutputDirectory:

Folder used by OpenL to compile rules. An example is \${project.build.directory}/openl.

• Type: java.lang.String

• Required: No

• **Default**: \${project.build.directory}/openl

openIResourcesDirectory:

Folder that contains all OpenL Tablets-related resources, such as OpenL Tablets rules and project descriptor. An example is \${project.basedir}/src/main/openl.

• **Type**: java.lang.String

• Required: No

• **Default**: \${project.basedir}/src/main/openl

overwriteProjectDescriptor:

If set to true, rules.xml will be overwritten on each run. If set to false, rules.xml generation will be skipped if it exists. Makes sense only if createProjectDescriptor == true. The default value is "true".

Type: booleanRequired: NoDefault: true

overwriteUnitTests:

If set to true, existing JUnit tests will be overwritten. If set to false, only absent tests will be generated, and others will be skipped.

• Type: java.lang.Boolean

Required: NoDefault: false

projectName:

Default project name in rules.xml. If omitted, the name of the first module in the project is used. The parameter is used only if createProjectDescriptor == true.

• Type: java.lang.String

Required: No

unitTestTemplatePath:

Path to Velocity template for generated unit tests. If omitted, a default template will be used. The parameter is available in template variables:

Variables						
Name	Description					
openlInterfacePackage	Package of generated interface class.					
openlInterfaceClass	Generated interface class name.					
testMethodNames	Available test method names.					
projectRoot	Root directory of OpenL project.					
srcFile	Reference to the Excel file for which an interface class must be generated.					
StringUtils	Apache commons utility class.					

• Type: java.lang.String

• Required: No

• **Default**: org/openl/rules/maven/JUnitTestTemplate.vm

3.2 openl:compile

Full name:

org.openl.rules:openl-maven-plugin:5.13.0:compile

Description:

Compiles and validates OpenL Tablets project.

Attributes:

- Requires a Maven project to be executed.
- Binds by default to the compile lifecycle phase.

Optional Parameters

Optional parameters for openI:compile					
Name Type Sin		Since	Description		
openlOutputDirectory	String	-	Folder used by OpenL Tablets to compile rules. An example is \$\{\text{project.build.directory}\}/\text{openl.}		
			Default value: \${project.build.directory}/openl.		
openIResourcesDirectory	String	-	Folder that contains all OpenL Tablets-related resources, such as OpenL Tablets rules and project descriptor. An example is \${project.basedir}/src/main/openl.		
			Default value: \${project.basedir}/src/main/openl.		

Parameter Details

openIOutputDirectory:

Folder used by OpenL to compile rules. An example is \${project.build.directory}/openl.

• Type: java.lang.String

Required: No

• **Default**: \${project.build.directory}/openl

openIResourcesDirectory:

Folder that contains all OpenL Tablets-related resources, such as OpenL Tablets rules and project descriptor. An example is \${project.basedir}/src/main/openl.

• Type: java.lang.String

Required: No

• **Default**: \${project.basedir}/src/main/openl

3.3 openl:test

Full name:

org.openl.rules:openl-maven-plugin:5.13.0:test

Description:

Runs OpenL tests.

Attributes:

- Requires a Maven project to be executed.
- Binds by default to the **test** lifecycle phase.

Optional Parameters

Optional parameters for openl:test				
Name	Туре	Since	Description	
openlOutputDirectory	String	Folder used by OpenL Tablets to compile rules. An example \$\{\text{project.build.directory}}/\text{openl}\].		
			Default value: \${project.build.directory}/openl.	
openlResourcesDirectory	String	-	Folder that contains all OpenL Tablets-related resources, such as OpenL Tablets rules and project descriptor. An example is "\${project.basedir}/src/main/openl". Default value: \${project.basedir}/src/main/openl.	
skipTests	boolean		Parameter which denotes, if set to true, to skip running OpenL Tablets tests.	
			User property: skipTests.	

Parameter Details

openIOutputDirectory:

Folder used by OpenL Tablets to compile rules. An example is \${project.build.directory}/openl.

• Type: java.lang.String

Required: No

• **Default**: \${project.build.directory}/openl

openIResourcesDirectory:

Folder that contains all OpenL Tablets-related resources, such as OpenL Tablets rules and project descriptor. An example is \${project.basedir}/src/main/openl.

• Type: java.lang.String

• Required: No

• **Default**: \${project.basedir}/src/main/openl

skipTests:

Parameter which denotes, if set to true, to skip running OpenL Tablets tests.

Type: booleanRequired: No

• User Property: skipTests

3.4 openl:help

Full name:

org.openl.rules:openl-maven-plugin:5.13.0:help

Description:

Displays help information on openl-maven-plugin.

Calls mvn open1:help -Ddetail=true -Dgoal=<goal-name> to display parameter details.

Attributes:

• The goal is thread-safe and supports parallel builds.

Optional Parameters

Optional parameters for openl:help			
Name	Туре	Since	Description
detail	boolean	-	Parameter which denotes, if set to true, to display all settable properties for each goal.
			Default value: false.
			User property: detail.
goal	String	-	Name of the goal for which to display help. If left unspecified, all goals are displayed.
			User property: goal.
indentSize	int	-	Number of spaces per indentation level. The value must be positive.
			Default value: 2.
			User property: indentSize.
lineLength	int	-	Maximum length of a display line. The value must be positive.

Optional parameters for openI:help					
Name	Туре	Since	Description		
			Default value: 80.		
			User property: lineLength.		

Parameter Details

detail:

Parameter which denotes, if set to true, to display all settable properties for each goal.

Type: booleanRequired: No

• User Property: detail

Default: false

goal:

The name of the goal for which help must be displayed. If left unspecified, all goals are displayed.

• **Type:** java.lang.String

Required: NoUser Property: goal

indentSize:

The number of spaces per indentation level. The value must be positive.

Type: intRequired: No

User Property: indentSize

• Default: 2

lineLength:

The maximum length of a display line. The value must be positive.

Type: intRequired: No

User Property: lineLength

• Default: 80

4 Usage

This section includes the following topics:

- Directory Structure
- Configure Interface, Domain Classes and Project Descriptor Generation
- Configure OpenL Project Compilation and Validation
- Configure OpenL Project Testing

4.1 Directory Structure

OpenL Maven Plugin expects the following directory structure:

```
Project root folder
| |- pom.xml
                             Maven project file
1 1
| |- src/
1 1
| | |- main/
1 1 1
Contains Java sources
                             Contains Java resources
 | | |- resources/
 Contains all OpenL Tablets-related resources (rules, xml)
OpenL Tablets project descriptor (for OpenL Tablets only)
| | | | - rules/
| | | | | - TemplateRules.xls
                             File with rules
```

Note that OpenL Tablets-related resources are located in the src/main/openl directory. It can be changed to fit user needs by modifying the openlResourcesDirectory parameter in Maven plugin configuration.

Note: It is not recommended to put OpenL Tablets-related resources to the src/main/resources folder. In this case,
 OpenL Tablets resources will be inside the JAR file alongside with the compiled Java classes, which most probably is
 not what was expected to do in production.

4.2 Configure Interface, Domain Classes and Project Descriptor Generation

The simplest way to generate interface for rules is defined in the TemplateRules.xls file as follows:

```
<srcFile>src/main/openl/rules/TemplateRules.xls</srcFile>
                      <targetClass>org.company.gen.TemplateRulesInterface</targetClass>
                  </generateInterface>
              </generateInterfaces>
          </configuration>
          <executions>
              <execution>
                  <goals>
                      <goal>generate</goal>
                  </goals>
              </execution>
          </executions>
      </plugin>
  </plugins>
  [...]
</build>
```

In this case, classes and rules.xml are generated on each Maven run during the generate-sources phase.

To invoke class generation manually, remove the executions node and run in the console when needed:

```
mvn openl:generate
```

For more information on configuration options, see openl:generate.

4.3 Configure OpenL Project Compilation and Validation

```
<build>
  [...]
  <plugins>
      [...]
      <plugin>
          <groupId>org.openl.rules</groupId>
          <artifactId>openl-maven-plugin</artifactId>
          <version>${openl.rules.version}</version>
          <executions>
              <execution>
                  <qoals>
                      <goal>compile</goal>
                  </goals>
              </execution>
          </executions>
      </plugin>
  </plugins>
  [...]
</build>
```

For more information on configuration options, see openl:compile.

4.4 Configure OpenL Project Testing

The simplest way to invoke the OpenL Tablets test is as follows:

```
<build>
[...]
  <plugins>
   [...]
   <plugin>
```

For more information on configuration options, see openl:test.

To gain more control over tests and invoke and debug them from the Java code, generate JUnit tests. Do not use the test goal. Instead, configure the generate goal as follows:

```
<build>
  [...]
  <plugins>
      [...]
      <plugin>
          <groupId>org.openl.rules</groupId>
          <artifactId>openl-maven-plugin</artifactId>
          <version>${openl.rules.version}</version>
          <configuration>
              <generateUnitTests>true</generateUnitTests>
              <generateInterfaces>
                 [...]
              </generateInterfaces>
          </configuration>
          <executions>
              <execution>
                  <goals>
                       <goal>generate</goal>
                  </goals>
              </execution>
          </executions>
      </plugin>
  </plugins>
  [...]
</build>
```

To define a user custom template for JUnits tests, set the unitTestTemplatePath parameter with a path to the user's custom Velocity template. For example, consider

 $\verb| <unitTestTemplatePath>| src/test/resources/MyTemplate.vm</unitTestTemplatePath>|. An example of such template is as follows: \\$

```
#if ($openlInterfacePackage)
package $openlInterfacePackage;
#end
import org.junit.Before;
import org.junit.Test;
import org.openl.rules.runtime.RulesEngineFactory;
import org.openl.rules.testmethod.TestUnitsResults;
import java.io.File;
```

```
import static org.junit.Assert.assertTrue;
#set( $openlInterfaceClassWithTests = "${openlInterfaceClass}WithTests" )
public class ${openlInterfaceClass}Test {
   private static interface $openlInterfaceClassWithTests extends $openlInterfaceClass {
#foreach( $testMethodName in $testMethodNames )
        TestUnitsResults $testMethodName();
#end
   private $openlInterfaceClassWithTests instance;
    @Before
   public void setUp() throws Exception {
        File xlsFile = new File("$projectRoot", "$srcFile");
        instance = new RulesEngineFactory<$openlInterfaceClassWithTests>(
            xlsFile,
            ${openlInterfaceClassWithTests}.class
        ).newEngineInstance();
    }
#foreach( $testMethodName in $testMethodNames )
    public void test$StringUtils.capitalize($testMethodName)() throws Exception {
        TestUnitsResults results = instance.$testMethodName();
        assertTrue(results.toString(), results.getNumberOfFailures() == 0);
#end
```

Maven Plugin Guide Examples

5 Examples

To acquire a better understanding of Plugin Name usage, see the following examples:

- Configuration with all OpenL Maven Plugin Goals
- Creating a Project with a Working Example of OpenL Maven Plugin Usage

5.1 Configuration with all OpenL Maven Plugin Goals

To configure rules.xml generation, set its project ID, project name, and classpath values. An example is as follows:

```
<build>
  [...]
  <plugins>
      [\ldots]
      <plugin>
          <groupId>org.openl.rules</groupId>
          <artifactId>openl-maven-plugin</artifactId>
          <version>${openl.rules.version}</version>
          <configuration>
              <!-- Project name. -->
              projectName>OpenL Rules Simple Project</projectName>
              <!-- Project's classpath. -->
              <classpaths>
                <param>.</param>
              </classpaths>
              <!-- OpenL project includes one or more modules. -->
              <generateInterfaces>
                  <generateInterface>
                      <displayName>Template Rules</displayName>
                      <targetClass>template.Wrapper</targetClass>
                      <!-- Rules root document. Usually excel file on file system. -->
                      <srcFile>src/main/openl/rules/TemplateRules.xls</srcFile>
                  </generateInterface>
              </generateInterfaces>
          </configuration>
          <executions>
              <execution>
                  <goals>
                      <goal>generate</goal>
                      <goal>compile</goal>
                      <goal>test</goal>
                  </goals>
              </execution>
          </executions>
      </plugin>
  </plugins>
  [...]
</build>
```

For more information on configuration options, see openl:generate.

Maven Plugin Guide Examples

5.2 Creating a Project with a Working Example of OpenL Maven Plugin Usage

OpenL Tablets has an archetype which can be used to create a simple OpenL Rules project containing an example of OpenL Maven Plugin usage. Proceed as follows:

1. Execute the following command in the command line:

mvn archetype:generate

Maven runs an archetype console wizard.

- 2. Select the open1-simple-project-archetype menu item.
- 3. Follow the wizard instructions to complete project creation.

When the creation is completed, a new Maven-based project appears in the file system. It is an OpenL Tablets Rules project which has one module with simple rules.

4. To compile the project, in the command line, execute the following command from the root of the project folder:

mvn install

After that, the following objects can be found in the target folder:

- A ZIP file with "-deployable" suffix, for importing a project to WebStudio.
 For more information, see [EIS_Suite_OpenL_Tablets_WebStudio_(UG)].
- A ZIP file with "-runnable" suffix that can be executed after unpacking.
 It demonstrates how OpenL Tablets rules can be invoked from the Java code.
- A JAR file that contains only compiled Java classes.