Generating Web Service Manually for a Rules Project using Java

Applies to

SAP NetWeaver Composition Environment 7.1.1

Summary

The business rules created using the rules composer of NWDS can be invoked either by coding the invocation logic directly in the application or by exposing the rules as a web service and using this web service in any application as required.

This article will help you in manually generating a web service for a rules project using java class as its business object.

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Introduction

Business rules describe the operations and constraints that are applicable to an organization and thus help in guiding the business processes. NetWeaver allows you to cumulate these sets of business rules by making use of the rules composer DC.

Once the policies of an organization has been captured in the form of business rules using the BRM tool of the NWDS, we now have to decide on how these rules can be used in our application. BRM allows you to either invoke the rule set directly in your application by coding the invocation logic directly in the application or allows you to expose these rules as a web service, which can be later used in any application as required.

Rules can be written using either XML Schema or Java classes as its business object.

This article helps you in generate a web service manually for a rules project using java class as its business object. To do this we make use of the web service generator tool provided with the NWDS.

Creating the DCs

The following are the steps to be performed to create a web service–

1. Open your *NWDS*.
2. Create a new Development Component project of type *J2EE > Web Module.*
3. Create a new Development Component of type *J2EE > Enterprise Application*. Associate it to the web module DC created previously.
4. Add the following dependencies to both the web module DC as well as to the Enterprise Application DC.
    a. BRMS façade
    b. Engine façade
    c. Logging – tc/bl/logging/api
    d. The DC which contains the Java resource used by the Rules project.
5. Create a new Java class in the source folder of the Web Module DC.

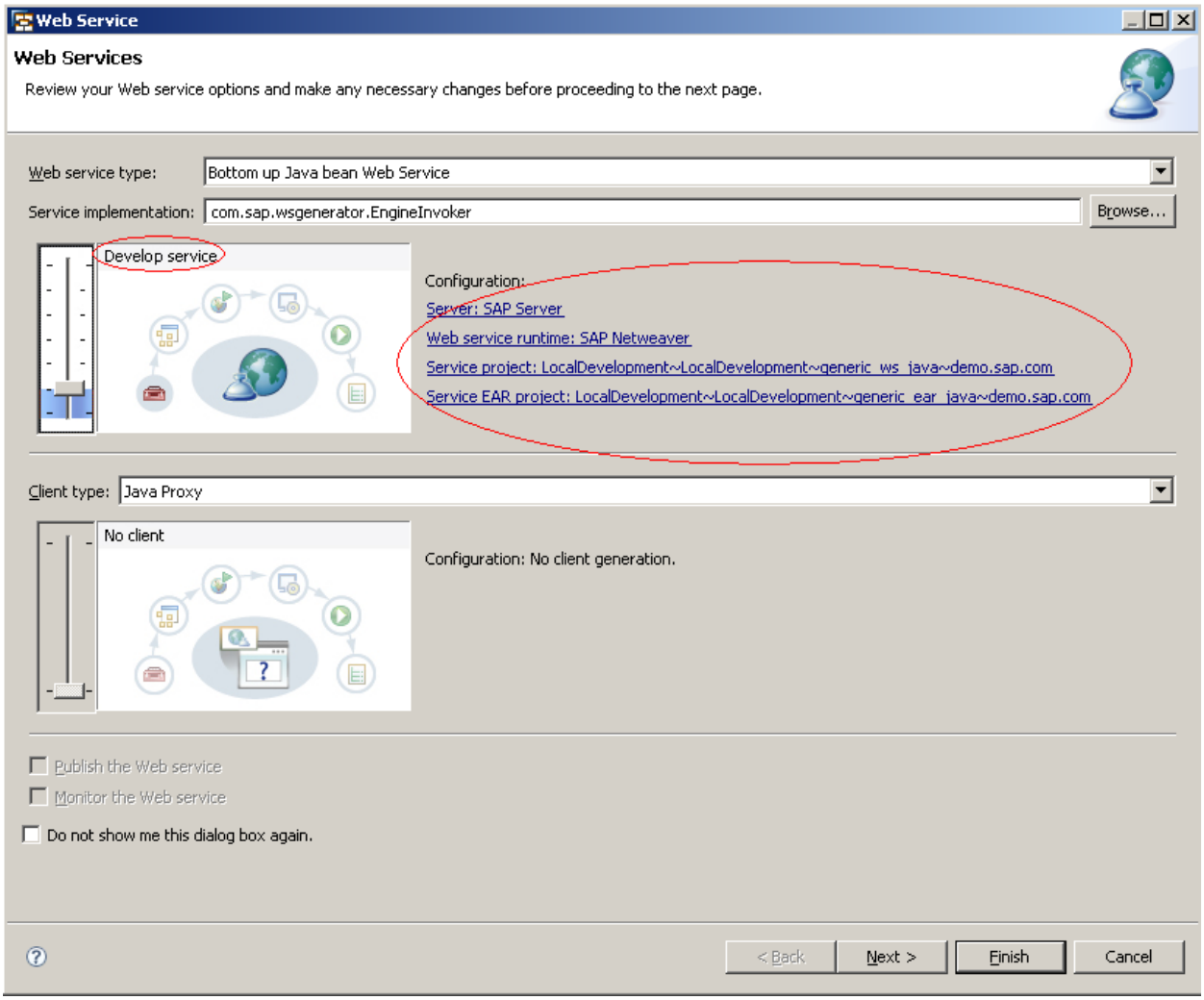
An example of the Java class to be created –

```
package com.sap.helper;

public class EngineInvoker {

	private static String jndiName = “com.sap.brms.RuleEngine”;
	private static String projectName = “<Project Name>”;
	private static String rsName = “<Ruleset Name>”;

	public EngineInvoker() {
	}

	public static RuleEngine getRuleEngine() throws Exception {
	    InitialContext context = new InitialContext();
	    Object obj = context.lookup(jndiName);

	    RuleEngineHome home = (RuleEngineHome) PortableRemoteObject.narrow(obj,
	                    RuleEngineHome.class);
	    return (RuleEngine) home.create();

	}

	public static List invokeRuleset(<arguments to be passed into the ruleset for invocation>)
	{
	    List input = createInputList(<arguments>);
	    List output = new ArrayList();
	    RuleEngine ruleEngine;

	    if (projectName == null || rsName == null || input == null) {
	            output.add(“Project Name or Ruleset Name or Payload should not be NULL”);
	    }

	    try
	    {
	            ruleEngine = getRuleEngine();
	            output = ruleEngine.invokeRuleset(projectName, rsName, input);
	    }
	    catch (Exception e)
	    {
	            output.add(e.getMessage());
	    }
	    return output;
	}

	private static List createInputList(<arguments to be passed to the ruleset for invocation>)
	{
	    List input = new ArrayList();
	    // Create the business object of the required type by using the arguments passed.
	    Input.add(<business object>);
	    return input;
	}
}
```

Creating Web Service

1. Now that the java class has been created, we need to generate a web service. To do this we make use of the web service generator tool in NWDS.
2. In the context menu of the java class created select *Web Services* > *Create Web Service*

3. In the web services window which appears, make the required configuration changes. The window displayed will be –

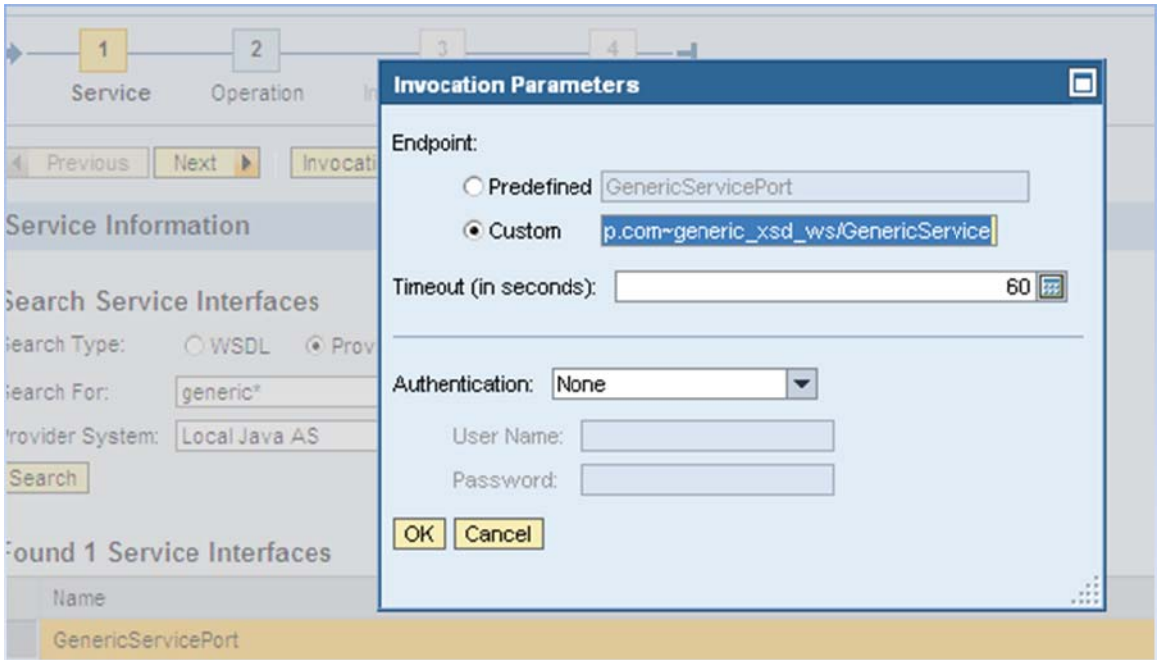


4. After the changes to the configuration has been made as required, select *Finish*. This will generate a web service
5. The web service generated needs to be build and deployed on to the Application Server. To do this –
    a. First, we need to Build the web module DC
    b. Then Build and Deploy the enterprise application DC.

Getting the WSDL from the WS Navigator

To get the wsdl of the webservice deployed into the Application Server–

a. Access the **wsnavigator** of the portal – **http://<Application Server URL>: <port number>/wsnavigator**
b. Selec t the **Provider System** radio button.
c. Search for the service port name set in the java class.
d. Select the Invocation Parameters of the service interface. Copy the url associated with the custom endpoint of the invocation parameters.



e. Choose *Cancel*.
f. Open the browser and use the link followed by *?wsdl* to access the WSDL file.

Example

An example for doing the same has been provided in SDN. Download the zip file from this location – https://www.sdn.sap.com/irj/sdn/go/portal/prtroot/docs/library/uuid/2016a80c-a972-2b10-24bf-fcc87c9e653d This zip contains a rules project and the DCs created to generate the web service – a web module DC and an enterprise application DC.

Generating Web Service DCs

1. Extract the DCs – **loan_emi** (rules DC); **generic_ws_java** (a WebModule DC) and **generic_ear_java** (an Enterprise Application DC) from the zip file.
2. Copy these DCs into the Workspace's DC folder i.e into - *<Workspace>.jdi\LocalDevelopment\DCs\demo.sap.com*
3. Open your Workspace in NWDS.
4. Open *Development Infrastructure Perspective* in the Development Studio by *selecting Window > Open Perspective > Other > Development Infrastructure.*
5. In the *Component Browser View* you should be able to see the three DCs copied into the Workspace's DC previously.

Note: Refresh the folder if you cannot see the DCs.

6. Select the DCs. From the context menu of the DC *Sync/Create Project > Create Project*
7. In the window opened to *Sync Sources and Used DCs* click on *OK***.**
8. In *Confirm Perspective Switch* dialog box select *Yes*

Customizing the DCs

Changes are to be made in the files provided to create a web service. Below is the list of modifications to be made -

1. Open the Web Module DC - **generic_ws _java.**
2. A class - **EngineInvoker.java** – has been created in this DC.
   a. The web service provider information has been defined in the class. If required, changes can be made to the following parameters – *name, serviceName, portName and targetNamespace*

```
@WebService(name="RulesetInvoker", portName="RulesetInvokerPort", serviceName="RulesetInvokerService", targetNamespace="http://sap.com/ruleset/")
public class EngineInvoker {
```

   b. Open this class and make changes to the *projectname* and the *rulesetname* defined in the project.

```
private static String jndiName = "com.sap.brms.RuleEngine";
private static String projectName = "<Project Name>";
private static String rsName = "<Ruleset Name>";
```

3. Build the Web Module DC.
4. Build and Deploy the Enterprise Application DC.
5. You can get the wsdl by following the steps mentioned in the section before (Getting the WSDL from the WS Navigator)

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