SupportPac LA71: IBM Operational Decision Manager Integration for WebSphere Process Server

Getting started with
IBM Business Process Manager

Task 3 - Business Process Author re-uses an HTDS Managed Decision as part of a BPMN Process

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Overview

In this task, the Business Process Author uses the HTDS Managed Decision service as part of their process. This allows them to run a process using the rules in the managed decision rather defining their own embedded rules. In this task you will use the Eligibility Managed Decision Service.

Readers who want to skip the exercise should import the solution as a Snapshot from **[SupportPac LA71 Path]\BPMTutorial\task3\Insurance_Sample_-_HTDS_Reuse - Completed.twx** and continue at Step 6 to test the HTDS service in the process.

Step 1.   Create a Process Application to host the HTDS Decision Service

This task starts by creating a new Process Application to host the HTDS Decision Service.

Open Process Designer and login.
For **User Name** type **admin**
For **Password** type **admin**.

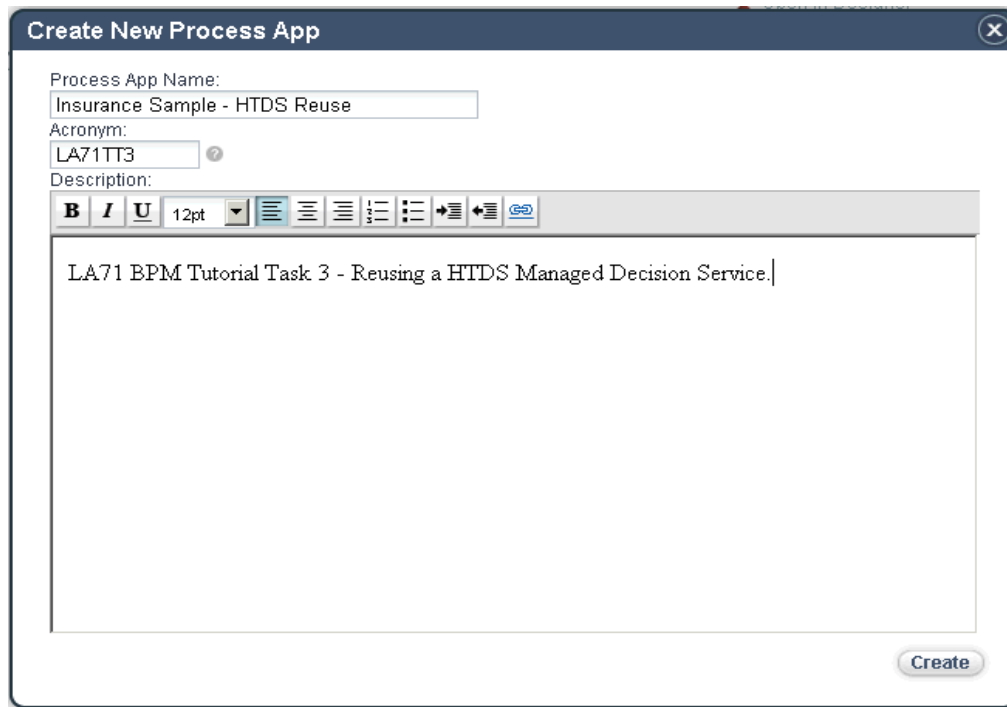Click the Process Center icon.
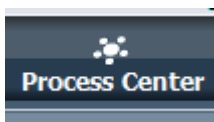
Click Create New Process App.
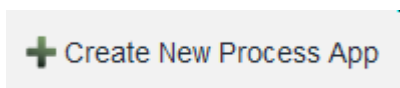
Fill in the Process App details as shown below.

For **Process App Name** type **Insurance Sample – HTDS Reuse**
For the **Acronym** type **LA71TT3**
Note: If you have already imported the completed Task 3 you will have to either rename the imported Process App or give this one a different acronym.
For the **Description** provide details as shown below.

Create New Process App

Process App Name:
Insurance Sample - HTDS Reuse

Acronym:
LA71TT3

Description:

B *I* U 12pt

LA71 BPM Tutorial Task 3 - Reusing a HTDS Managed Decision Service.

Create

Click **Create**.

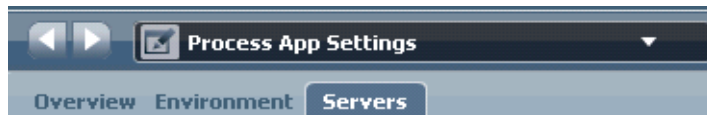In the list of Process Apps, in the entry for **LA71TT3** click the **Open in Designer** link.
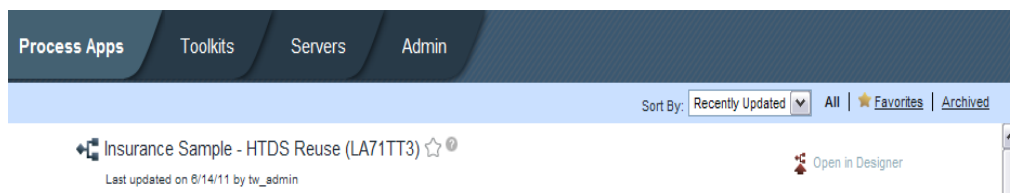
Process Designer opens on the newly created Process App.

Step 2.   Register the Rule Execution Server

In order to access the rule applications you must register the rule application server hosting your HTDS Managed Decisions.

Select **Process App Settings** Screen.

On the **Servers** tab click the **Add** button
Set the **Name** to **BPMRES**.
Set the **Type** to **ILOG Rules Server** by selecting from the pulldown list.
Set the **Default** URL to http://localhost:9080 or the port on which the Rule Execution Server is available.
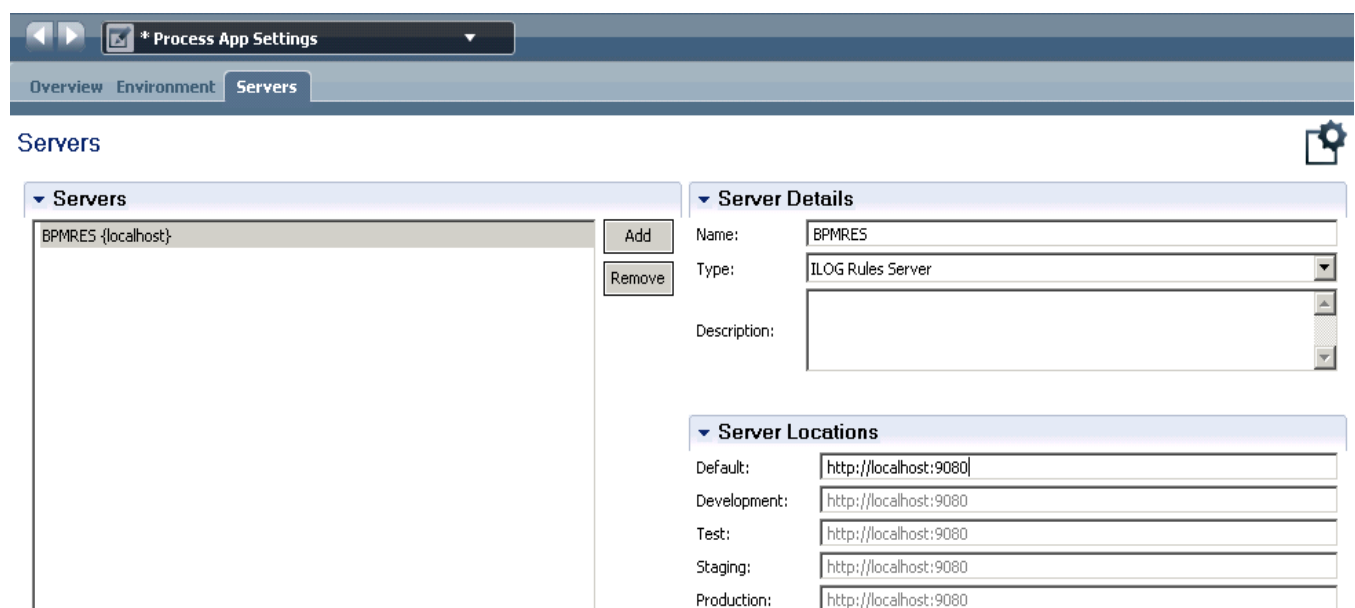
Use the menu option **File > Save All** to save your changes.

Step 3.   Create the Decision Service for the Eligibility Managed Decision.

Hover your mouse over the Decisions icon and click the '+' sign that appears to its right to create a new Decision Service.

Click **Decision Service.**

In the Name field type **Eligibility_ManagedDecision** and click **Finish**.
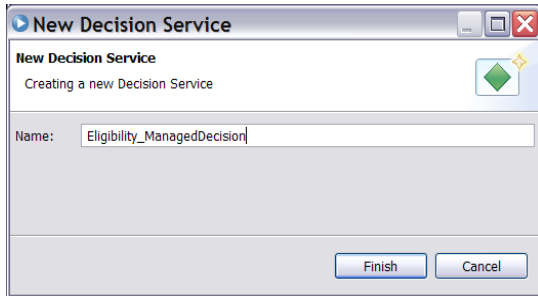
Open the Diagram tab of the **Eligibility_ManagedDecision** Decision Service.
Drag a **JRules Decision Service** onto the Canvas from the list of Common elements on the right-hand side, and rename it **Eligibility**.
Select the **Sequence Flow** icon.

Connect the **Start** node to the **Eligibility** node.
Connect the **Eligibility** node to the **End** node.
Reselect the **Selection Flow** icon,

Click in the canvas – right click and select **Tidy Layout**.

Use the menu option **File > Save All** to save your changes.

The new decision service should look as below.
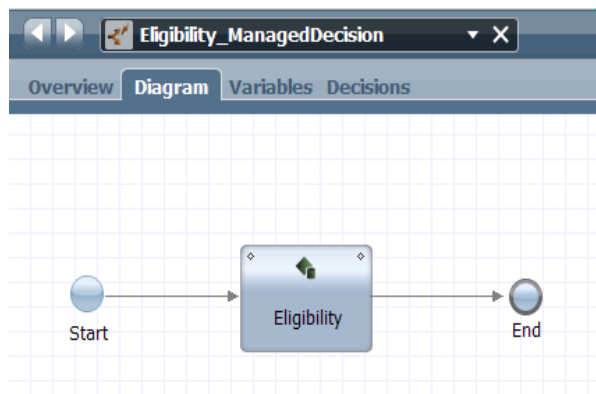
Step 4.   Bind the Decision Services to the Hosted Transparent Decision Services from ODM.

Open the **Eligibility_ManagedDecision** Diagram.
Select the **Eligibility** node and in the **Properties** panel select the **Implementation** Tab.
In the **Discovery** panel you define the the Rule Execution Server hosting the HTDS Decisions.
In the **Server** Field select the **BPMRES** server you defined earlier.
Type **admin** in both **Username** field and **Password** field.

Click **Connect**.

In the adjacent Rules Panel, the available Rule Apps and Rules are then displayed.
From the **Rule App** pulldown select **InsuranceSampleRuleApp.**
From the **Ruleset** pulldown select **Eligibility**.
Leave the **Version** fields at **Latest**. This means that the most recent versions of the managed decisions will always be used.

Now we will import the information models used by the rules.

Click **Generate Types...**

In the screen that results leave all options deselected as we only need the minimum of new types.

Click **Next >**.
The Mapping Types generation screen shows the types generated and any naming conflicts.

Click **Next >**.
The **Type Generation Summary** screen shows the types generated.

Note:
The duplicated **AutoQuoteRequest** in the
www.ibm.com/rules/decisionservice/InsuranceSampleRuleApp/Eligibility/param namespace is mapped to
AutoQuoteRequest_1.
The duplicated **EligibilityResponse** in the
www.ibm.com/rules/decisionservice/InsuranceSampleRuleApp/Eligibility/param namespace is mapped to
EligibilityResponse_1.

Click **Finish** to exit the wizard.
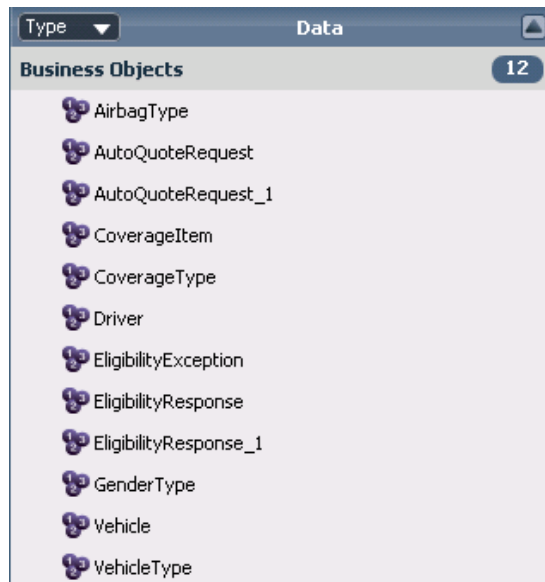
Click on the **Data** icon where you will see the list of Business Objects that have been created.

Examine the Business Objects to check that the information model has been correctly retained.

Double Click **AutoQuoteRequest_1** and examine it in the Business Object Editor.
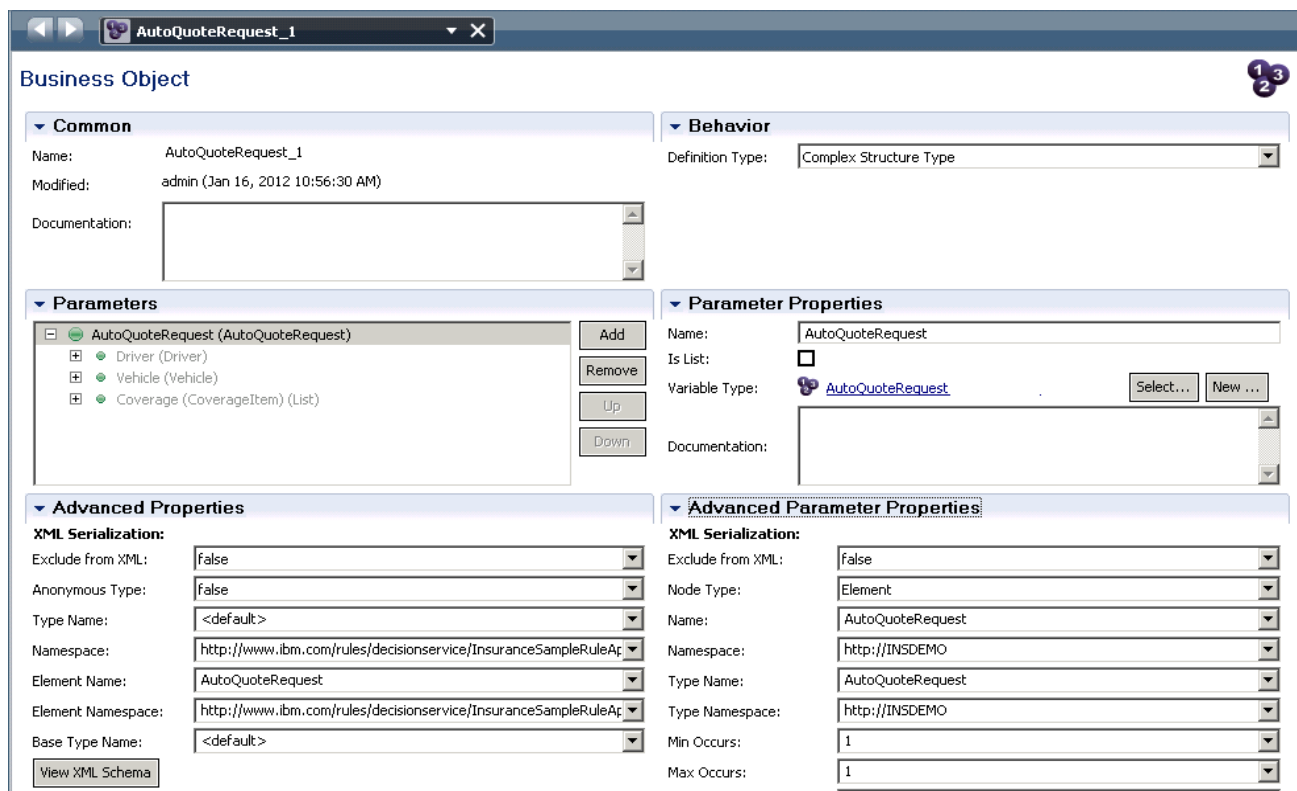
Step 5.   Mapping decision service variables manually.

Because the HTDS managed decision services use wrapper types, we need to map these HTDS parameters to decision service variables that only use the INSDEMO business objects.

First you need to define the private variables that will be used to invoke the decision service. These variables use the wrapper types from the decision service.

Click on the **Decisions** icon and then double-click on **Eligibility_ManagedDecision**.
In the Variables tab click **Add Private**.
In the **Name:** field, type a**utoQuoteRequest.**
In the **Variable Type:** field, click **Select...** and select the **AutoQuoteRequest_1** Business Object.
Select the **Has Default** checkbox.
In the Default Value property list, expand **Driver** and find the **NumberOfAccidents** field, and set the value to **5.**

In the Variables tab click **Add Private**.
In the **Name:** field, type **eligibilityResponse**
In the **Variable Type:** field, click **Select...** and select the **EligibilityResponse_1** Business Object.
Select the **Has Default** checkbox.
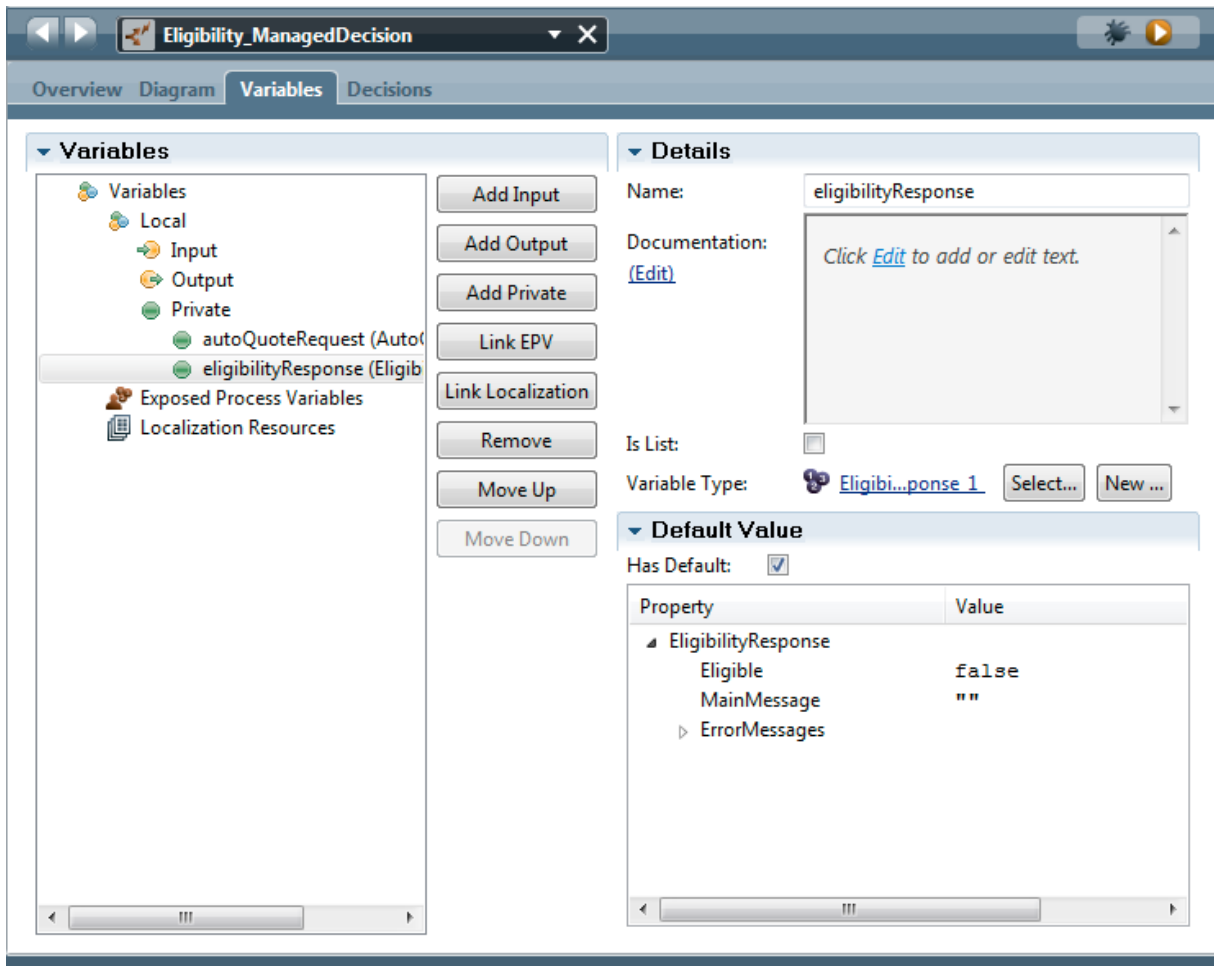
In the Variables Screen click **Add Private**.
In the **Name:** field, type **decisionID**
In the **Variable Type:** field, leave the selection as **String**.
Select the **Has Default** checkbox.
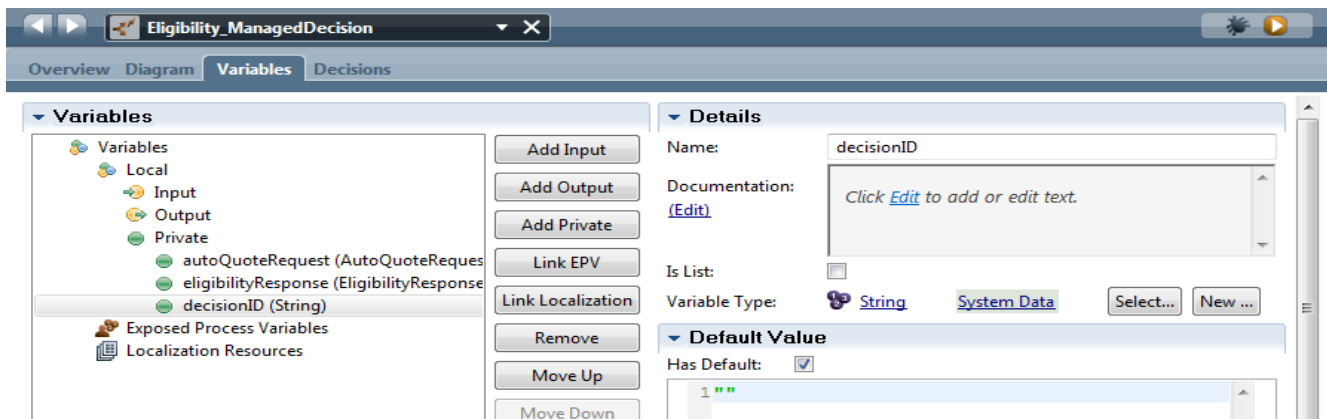
Having created the variables these now need to be mapped to the decision service.

Return to the Diagram tab. Select the **Eligibility** node and open the **Properties** screen.
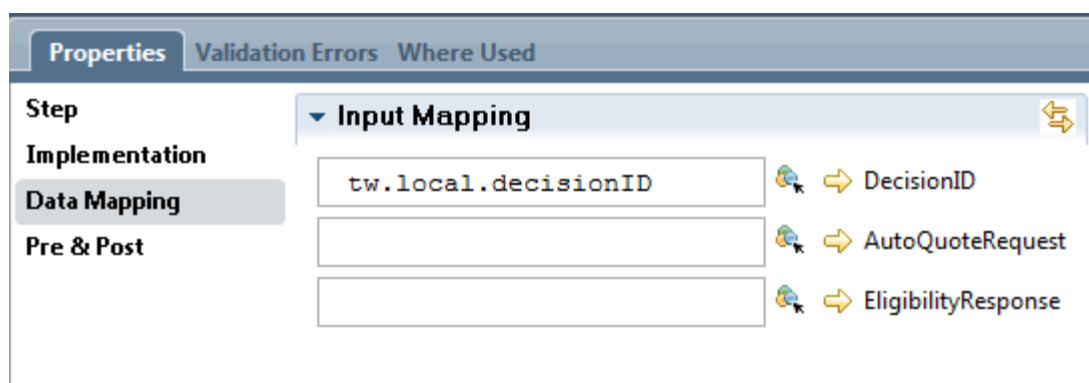
Select the **Data Mapping** tab.

On the **Input Mapping** panel click the mapping icon associated with the **DecisionID** parameter.
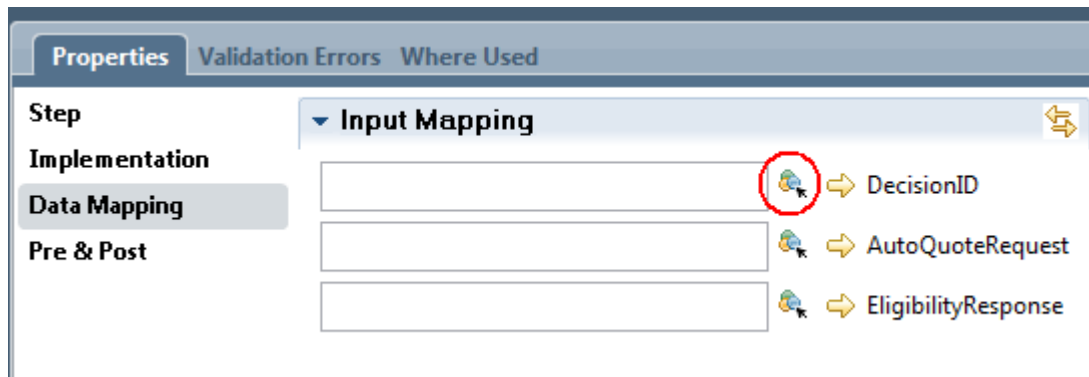
In the pop-up select the **decisionID** private variable that you have just created.
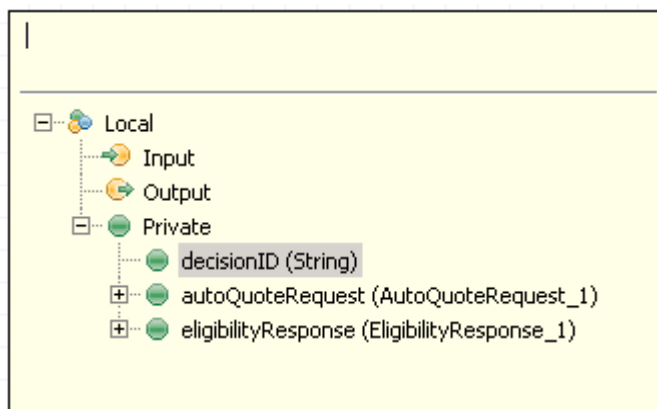
This should then select this variable to be mapped to the parameter.

Repeat this to map the **autoQuoteRequest** private variable to the **AutoQuoteRequest** input parameter, and the **eligibilityResponse** private variable to the **EligibilityResponse** input parameter.
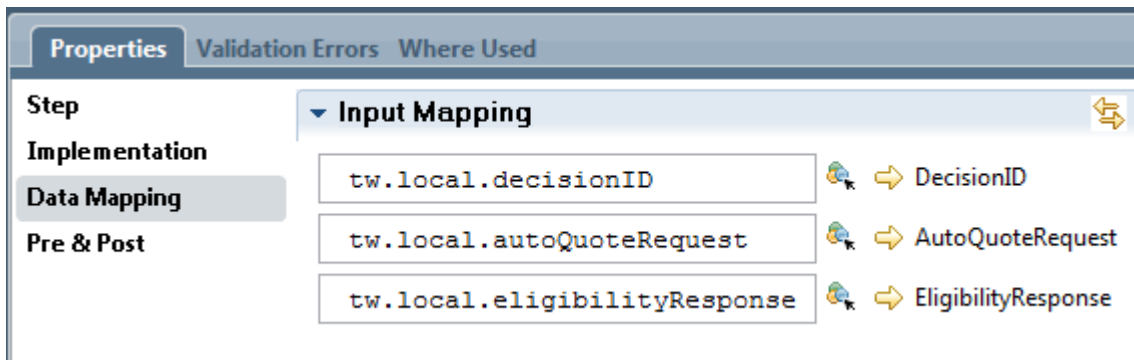
On the **Output Mapping** panel repeat the steps above to map the output parameters as shown.
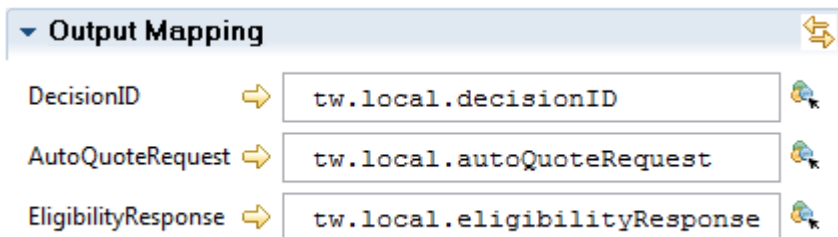
You have now mapped the private variables to the ODM HTDS decision service call.

Step 6.   Mapping decision service variables using AutoMapping.

There is an automatic mapping feature provided in Process Designer that can be used as described below. It is an alternative to step 5.
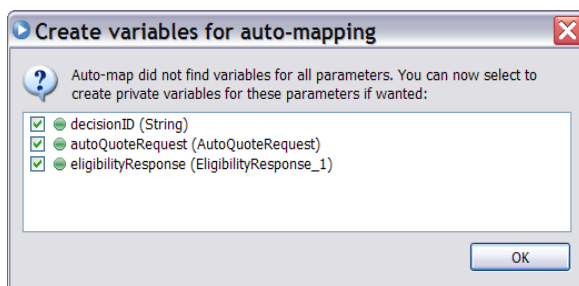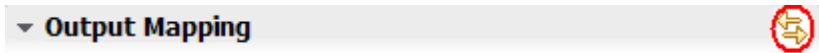Open the **Eligibility_ManagedDecision** Diagram.
Select the **Eligibility** node and open the **Properties** screen.
Select the **Data Mapping** tab.

On the **Input Mapping** panel click the Auto-map icon.
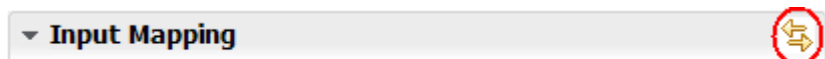
Select all three of the parameters to map.

Click **OK**.

On the **Output Mapping** panel click the Auto-map icon.

Selecting the Variables tab shows all the local variables that have been created from the imported Business Objects.

You still have to set the default value for local variables manually as described in step 5.

## Step 7. Creating the Decision inputs and outputs.

Now you need to create the input and output parameters to the **Eligibility_ManagedDecision** decision service using the shared business objects and map them to the private wrapper variables used to invoke the ODM service.

Click on the **Decisions** icon and then double-click on **Eligibility_ManagedDecision**.
In the Variables tab click **Add Input**.
In the **Name:** field, type **AutoQuoteRequest_In.**

In the **Variable Type:** field, click **Select...** and select the **AutoQuoteRequest** Business Object.
Select the **Has Default** checkbox.
In the Default Value property list find the **NumberOfAccidents** field under Driver, and set the value to **5.**
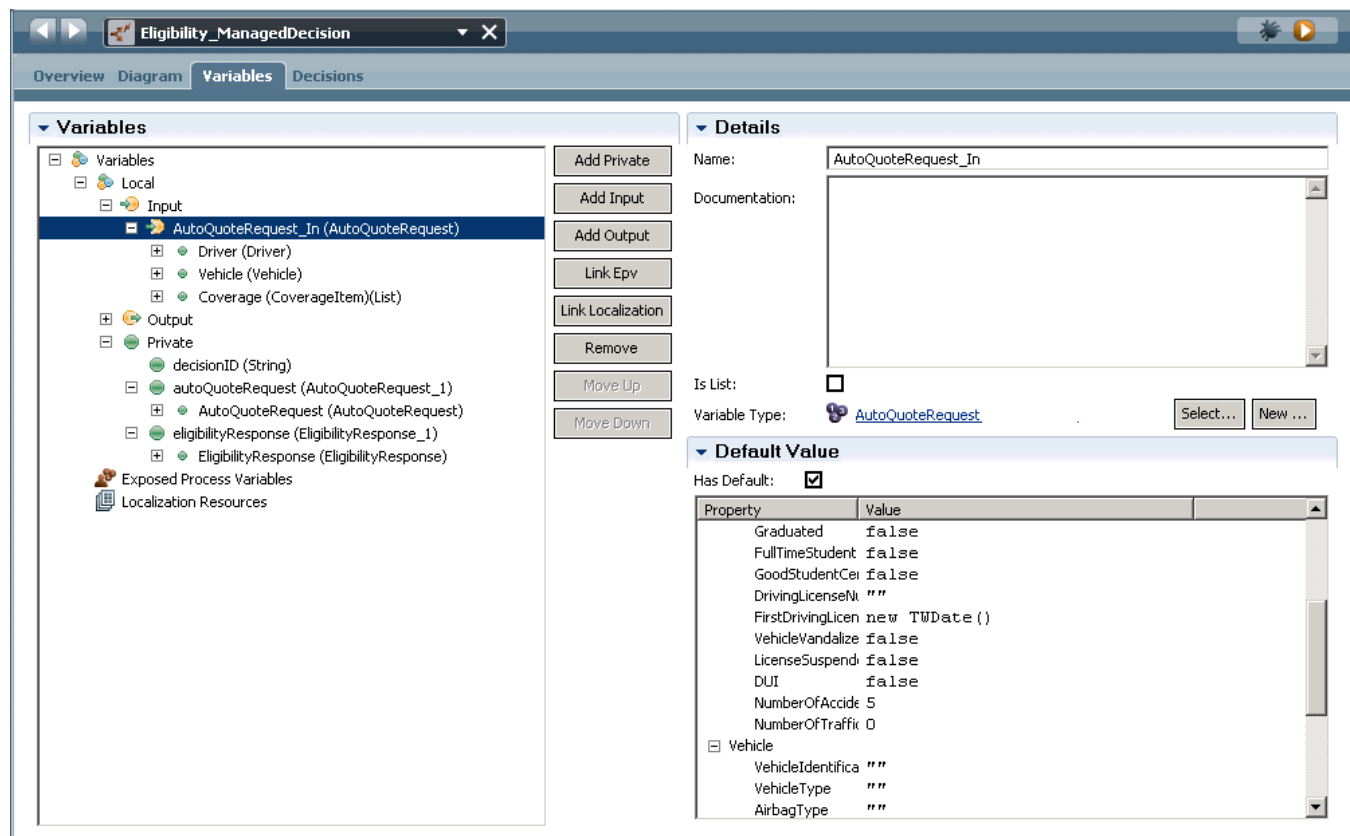
In the Variables tab click **Add Output**.
In the **Name:** field type **EligibilityResponse_Out**.
In the **Variable Type:** field click **Select...** and select the **EligibilityResponse** Business Object.

Use the menu **option File > Save All** to save your changes.
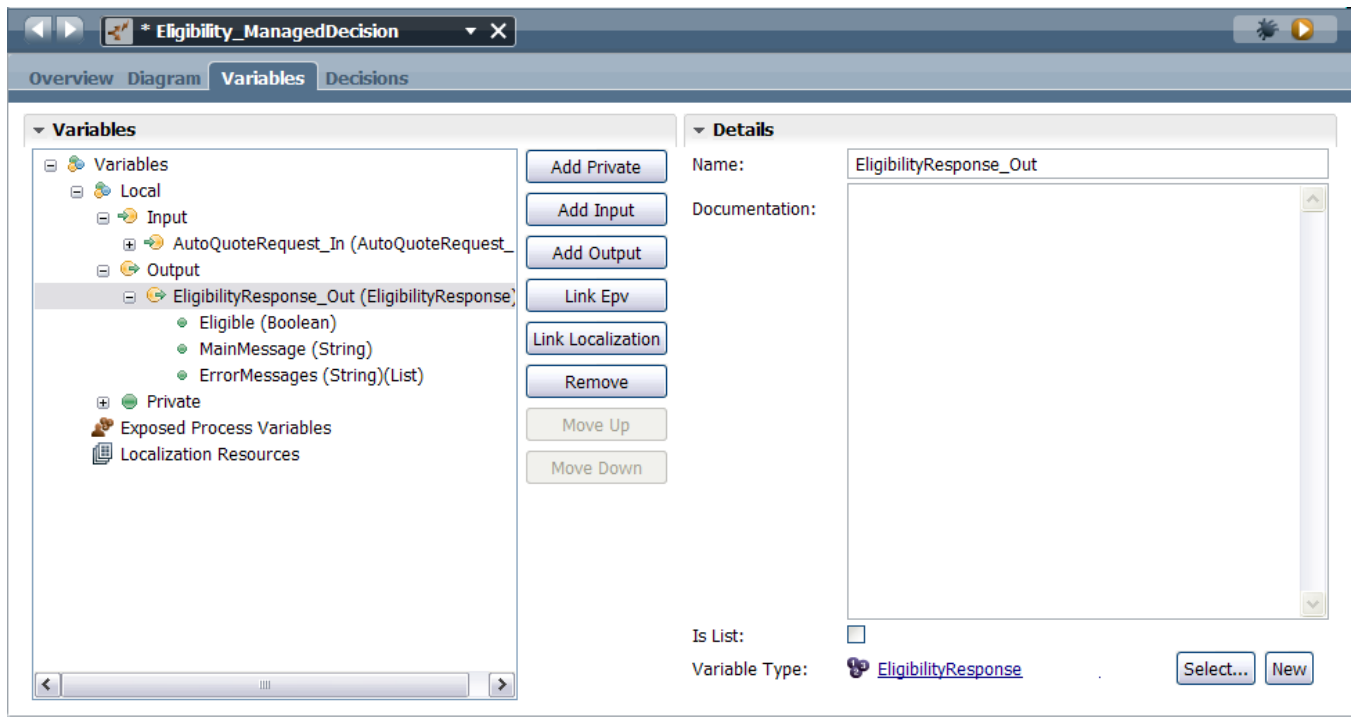
Finally you need to map between these input and output parameters and the private variables.
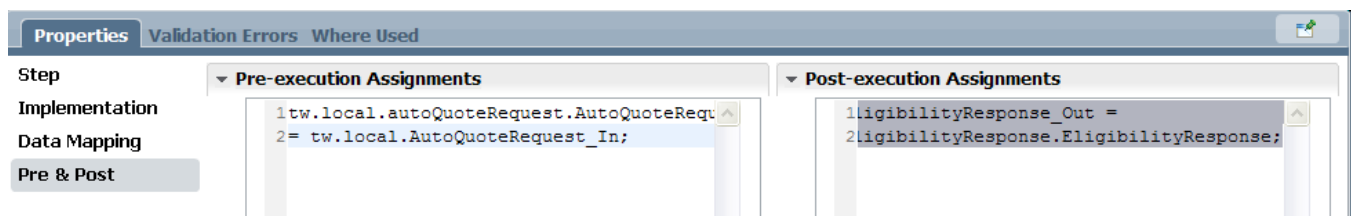
In the Diagram tab select the **Eligibility** Node and in the **Properties** screen select the **Pre & Post** Tab.

In the **Pre-execution Assignments** panel type:
```
tw.local.autoQuoteRequest.AutoQuoteRequest = tw.local.AutoQuoteRequest_In;
```

In the **Post-execution Assignments** panel type:
```
tw.local.EligibilityResponse_Out = tw.local.eligibilityResponse.EligibilityResponse;
```
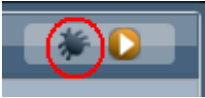

Use the menu option **File > Save All** to save your changes.
You have now completed the variable mapping.

Step 8.   Test the Decision Service.

You can now test the decision service in isolation.

Open the **Diagram** tab for the **Eligibility_ManagedDecision** and click the Debug icon.

A browser opens showing the node and variable values.
Navigate down the variables to check that the NumberOfAccidents field has been correctly set.

Click **Step** to invoke the HTDS service.

The browser will be updated to show the result of invoking the HTDS decision service.

Scroll down to the **EligibilityResponse_Out** variable to observe the Rules response.

You have now successfully tested the decision service.

## Step 9. Using the Managed Decision Service in a Process.

This final steps are optional and involves developing a Human process that invokes the managed decision.

Hover your mouse over the **User Interface** icon and click the '+' sign that appears to its right to create a new Human Service.
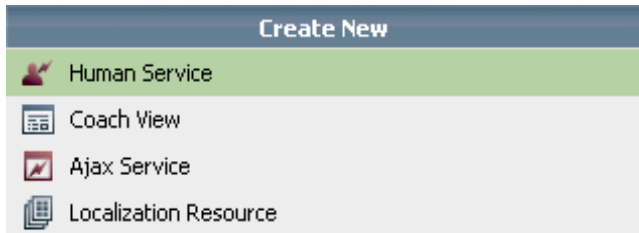

Give it the name **Insurance Eligibility**.
Go to the Diagram tab and create the following structure in the canvas.
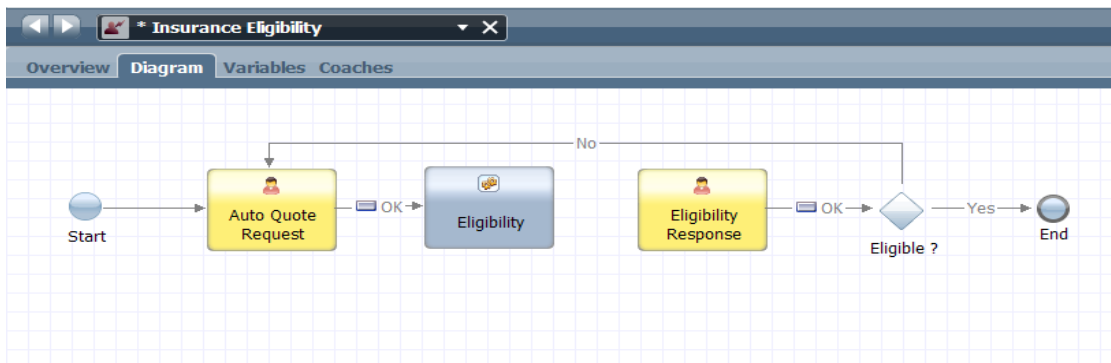
The yellow boxes are **Heritage Coaches** (different from Coaches), the diamond is a **Decision Gateway**, and the gray box is a **Nested Service**.

After dragging those diagram elements from the Common palette onto the canvas, go to the Coaches tab and create a button in each of the Coaches with the label **OK**.
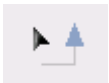

You can then connect all the elements together using the Sequence Flow Tool.

To name the lines **Yes** and **No** emanating from the Decision Gateway then select a line, enter its name in the Name field, and check the Name Visible box.

Note that you cannot yet connect the Eligibility Nested service to the Coach.

Select the **Eligibility** nested Service and navigate to the **Properties** View and **Implementation** tab.

Click the **Select** Button and select the **Eligibility_ManagedDecision** in the Services section. If the Service is not visible, press the small arrow in the bottom-right corner of the dialog to reveal it.
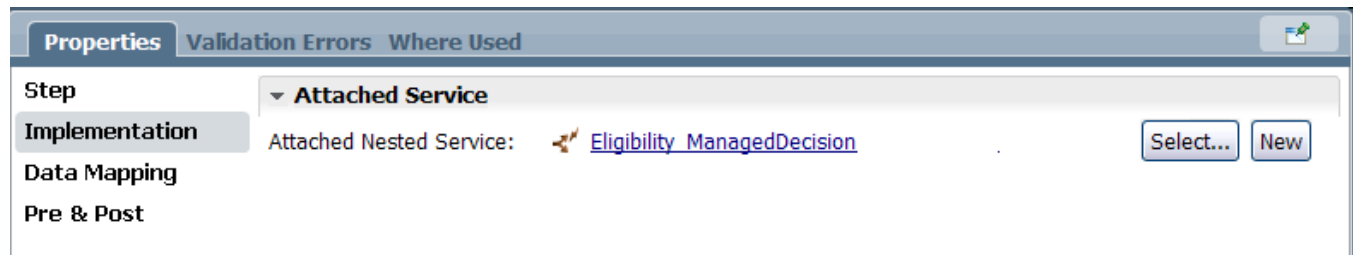
Navigate to the **Data Mapping** tab and click each of the **Automap** icons to generate private variables for the input and output parameters of the service. Check the box in the dialog that appears and click **OK**. Uncheck the **Use Default** checkbox after creating the private variable for the Input Mapping.
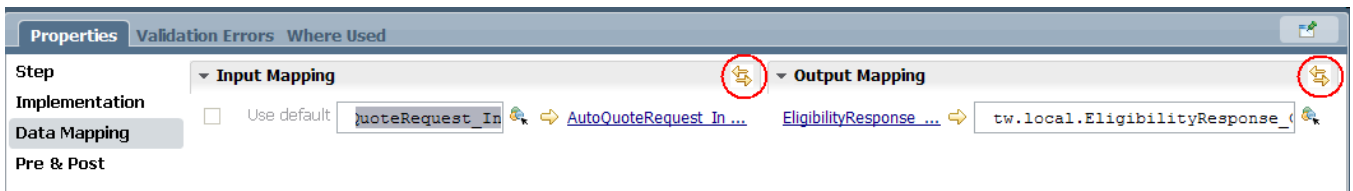
On the Variables tab, click on the **AutoQuoteRequest_In** private variable and check the Has Default checkbox. Initialize the **Driver**, **Vehicle** and **Coverage** with some default values.
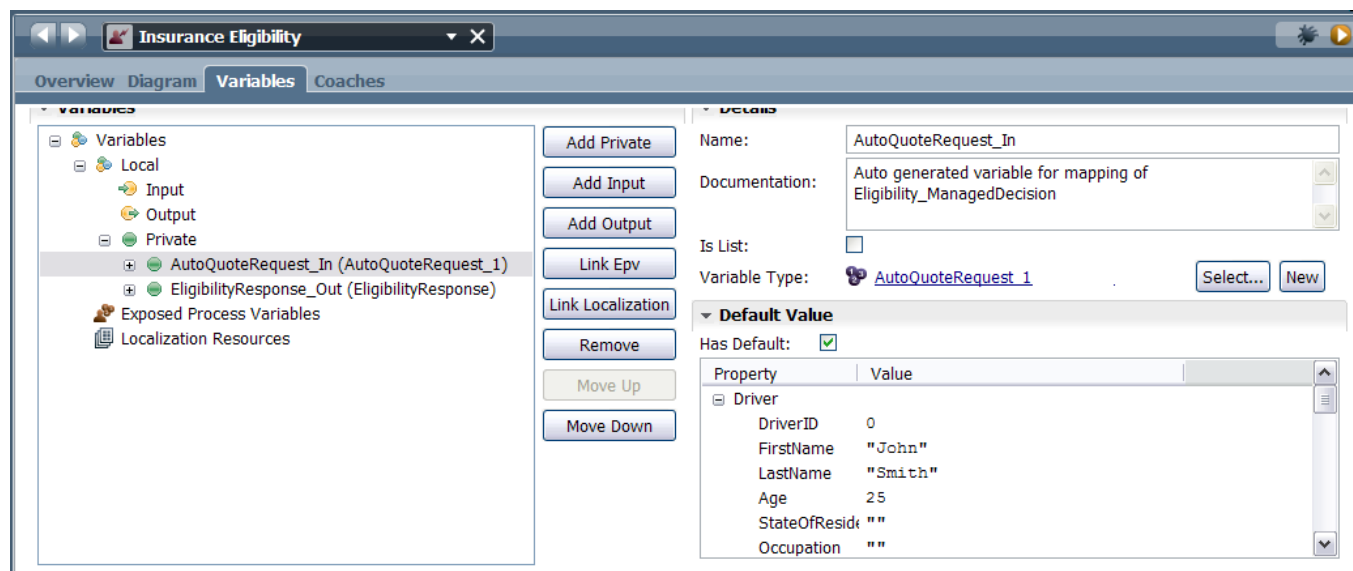

Edit the two Heritage Coaches mapping fields to the private variables generated by the mappings. You can drag Business Objects such as Driver and Vehicle from the Variables palette on the right-hand side of the Coaches tab in order to create Sections for them. To remove any unwanted fields, right-click on them and select Delete. Then in each Heritage Coach, drag a One Column Section

from the Sections palette to the bottom and then drag a Button Group from the Controls palette into the new Section.

Click on the Button Group and give the button the label OK in the Button Details panel of the Presentation view of the Properties tab, and make sure the **Create Flow** checkbox for Button OK is selected.
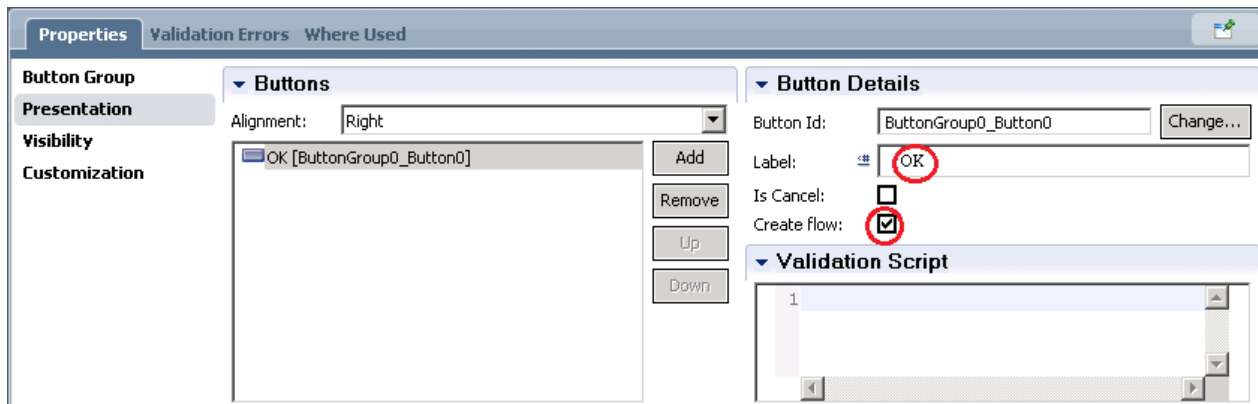
Connect the **Eligibility** Nested Service and the **Eligibility Response** Heritage Coach using the Sequence Flow tool. Finally, establish the Decision Gateway conditions as shown below.
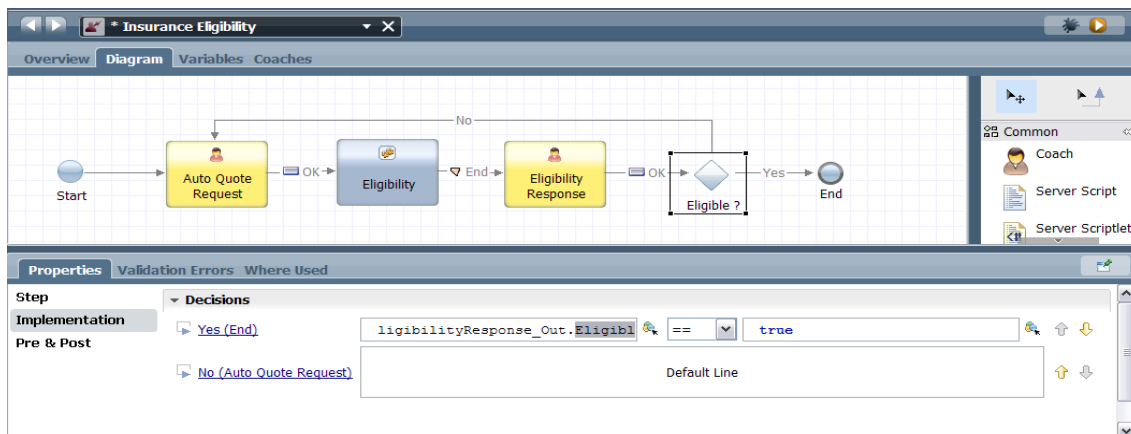
Use the menu option **File > Save All** to save your changes.

Step 10. Running the Managed Decision Service in a Process.

Click on the **User Interface** icon and double-click the **Insurance Eligibility** Human Service.
Click on the **Run** icon.
The default values are shown initially.

Auto Quote Request

Driver

First Name: John

Last Name: Smith

Age: 25

Gender: Male

Number Of Accidents: 5

Vehicle

Vehicle Identification Number: 1234

Make: Lemon

Model: Yellow

Value: 0

OK

Click **OK** and these get rejected as Not eligible.

Eligibility Response

Eligibility Response

Eligible: ☐

Main Message: The driver has had too many accidents

OK
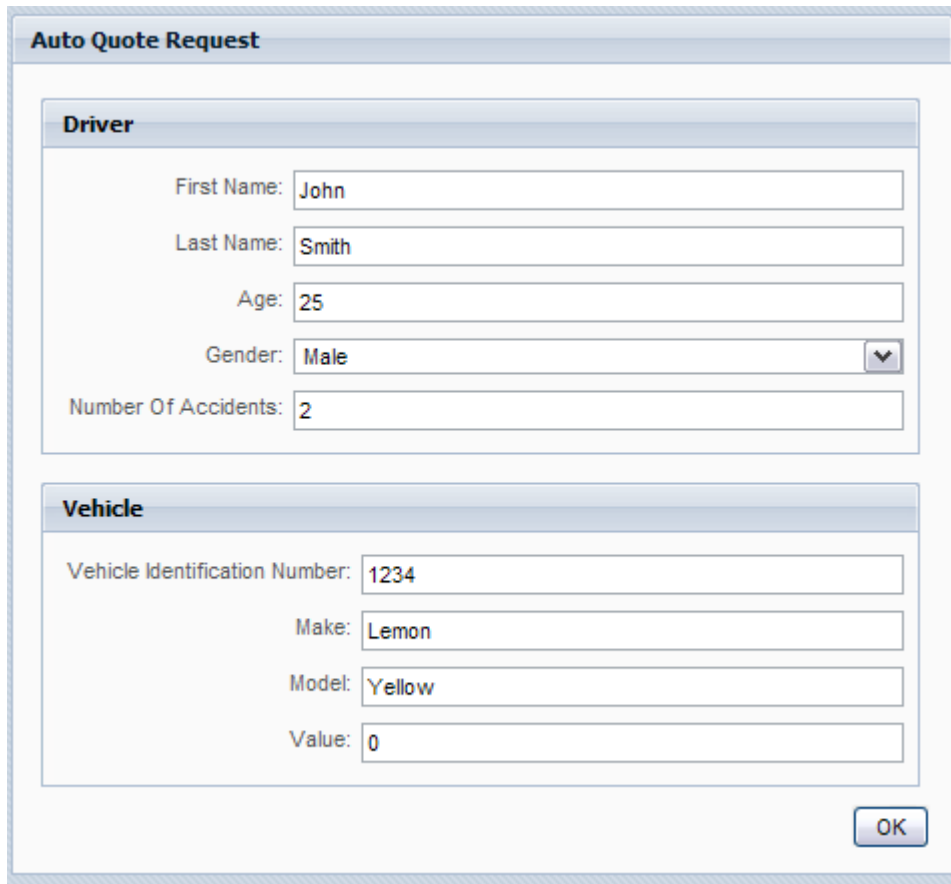
Click **OK** again and enter a lower number of accidents e.g. **2**.

Auto Quote Request

Driver

First Name: John

Last Name: Smith

Age: 25

Gender: Male ▼

Number Of Accidents: 2

Vehicle

Vehicle Identification Number: 1234

Make: Lemon

Model: Yellow

Value: 0

[OK]
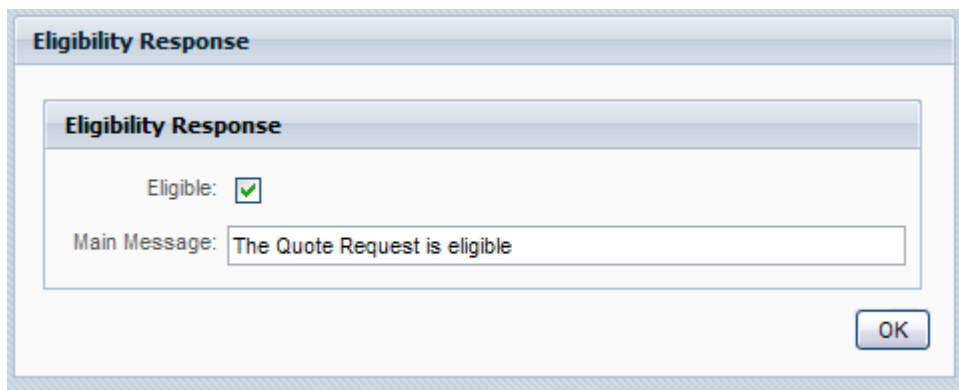
Click **OK** and this time the Quote is eligible.

Eligibility Response

Eligibility Response

Eligible: ☑

Main Message: The Quote Request is eligible

[OK]

Click **OK** again and the service exits.

You have now used an HTDS managed decision service within a BPMN process.