



SupportPac LA71: IBM WebSphere Operational Decision Management 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 than 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.

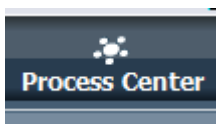
Open Process Designer and login.

For **User Name** type **admin**

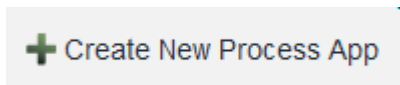
For **Password** type **admin**.



Click the Process Center icon.



Click Create New Process App.



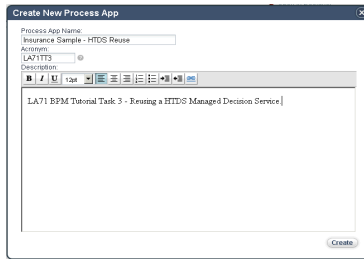
Fill in the Process App details as shown below.

For **Process App Name** type **Insurance Sample – HTDS Reuse**

For the **Acronym** type **LA71TT3**

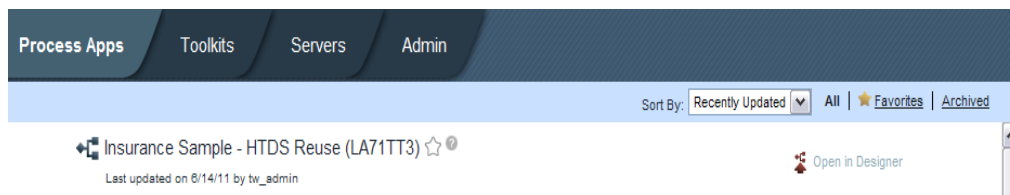
Note: If you have already imported the completed Task 3 you will have to either rename the imported Process App or give this one a different acronym.

For the **Description** provide details as shown below.



Click **Create**.

In the list of Process Apps, in the entry for **LA71TT3** click the **Open in Designer** link.



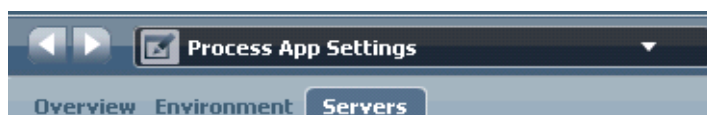
Process Designer opens on the newly created Process App.



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.

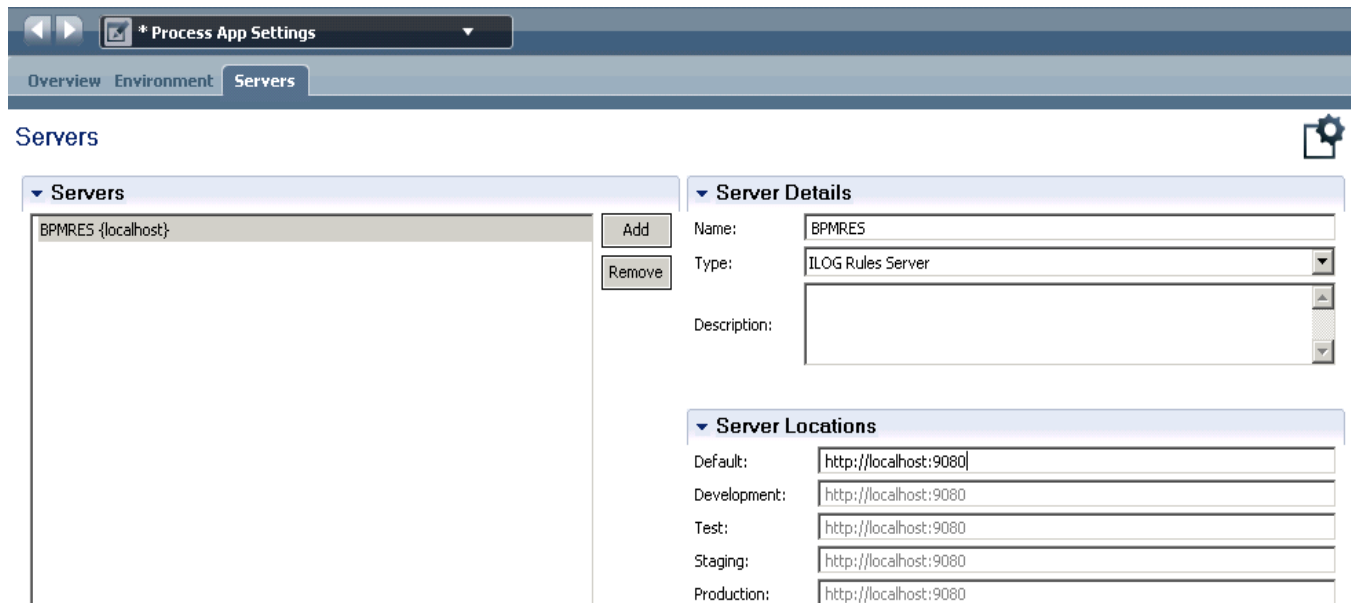


In the **Servers** Screen click the **Add** button

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.



Save your changes

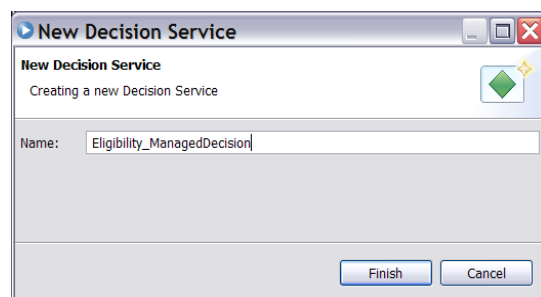
Step 3. Create the Decision Service for the Eligibility Managed Decision.

In the Decisions navigator click the **+** sign 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 and rename it **Eligibility**.

Select the **Sequence Flow** icon.



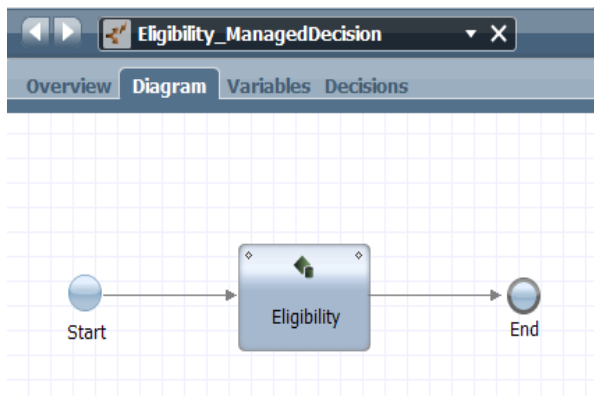
Connect the **Start** node to the **Eligibility** node.
Connect the **Eligibility** node to the **End** node.
Reselect the **Selection Flow** icon,



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

Save your work.

The new decision service should look as below.



Step 4. Bind the Decision Services to the Hosted Transparent Decision Services from WODM.

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.
In **Username** field type **resAdmin**.
In the **Password** field type **resAdmin**.

Step	Discovery
Implementation	Server: BPMRES
Data Mapping	SOAP Port: 8880
Pre & Post	Username: resAdmin
	Password: *****

Connect

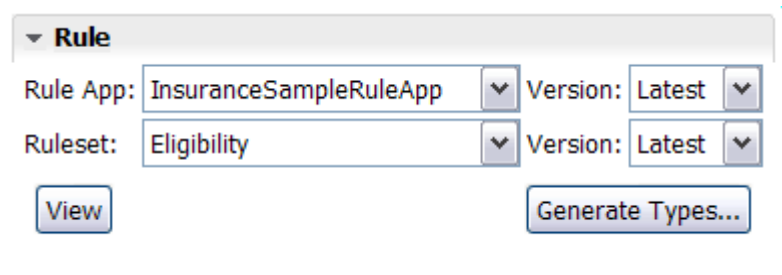
Click **Connect**.

In the **Rules** Panel the available Rule Apps and Rules are 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.

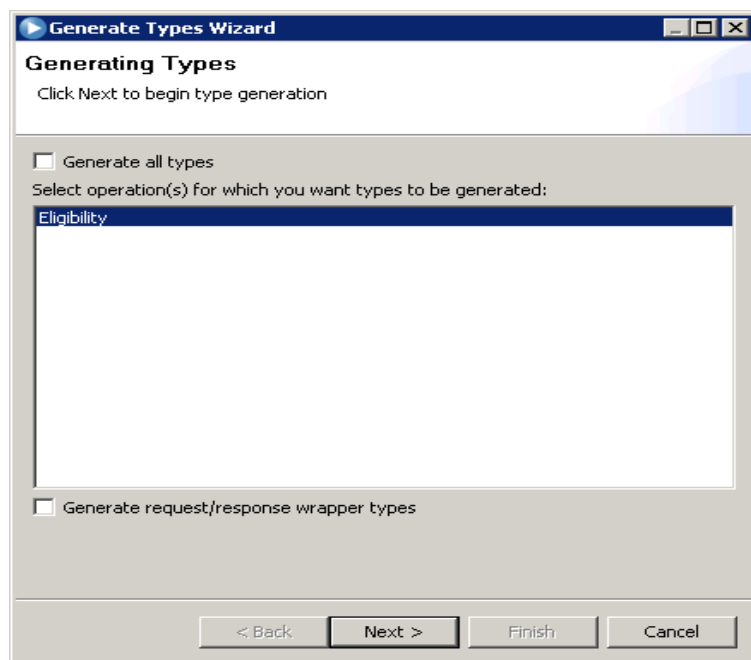


The screenshot shows a configuration panel for a rule. It has a title bar with a dropdown arrow and the word "Rule". Below the title bar, there are two rows of configuration. The first row is for "Rule App" with a dropdown menu showing "InsuranceSampleRuleApp" and a "Version" dropdown showing "Latest". The second row is for "Ruleset" with a dropdown menu showing "Eligibility" and a "Version" dropdown showing "Latest". Below these rows are two buttons: "View" and "Generate Types...".

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.



The screenshot shows a "Generate Types Wizard" dialog box. The title bar says "Generate Types Wizard". The main area has a subtitle "Generating Types" and a message "Click Next to begin type generation". Below this is a checkbox labeled "Generate all types" which is unchecked. Underneath is the text "Select operation(s) for which you want types to be generated:" followed by a list box containing the word "Eligibility". At the bottom of the dialog is another checkbox labeled "Generate request/response wrapper types" which is also unchecked. The bottom of the dialog has four buttons: "< Back", "Next >", "Finish", and "Cancel".

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.

Generate Types Wizard

Mapping Types
Type generation is complete.

Types:

Namespace	Type	IBM BPM Type
http://INSD...	AirbagType	AirbagType
http://INSD...	AutoQuoteRequest	AutoQuoteRequest
http://INSD...	CoverageItem	CoverageItem
http://INSD...	CoverageType	CoverageType
http://INSD...	Driver	Driver
http://INSD...	EligibilityResponse	EligibilityResponse
http://INSD...	GenderType	GenderType
http://INSD...	Vehicle	Vehicle
http://INSD...	VehicleType	VehicleType
http://www...	EligibilityException	EligibilityException
http://www...	AutoQuoteRequest	AutoQuoteRequest_1

Warnings:

Description	Location
Type with name 'EligibilityResponse' already exists. Name co...	/ns2:EligibilityResponse
Type with name 'AutoQuoteRequest' already exists. Name c...	/ns1:AutoQuoteRequest
Type with name 'EligibilityResponse' already exists. Name co...	/ns1:EligibilityResponse

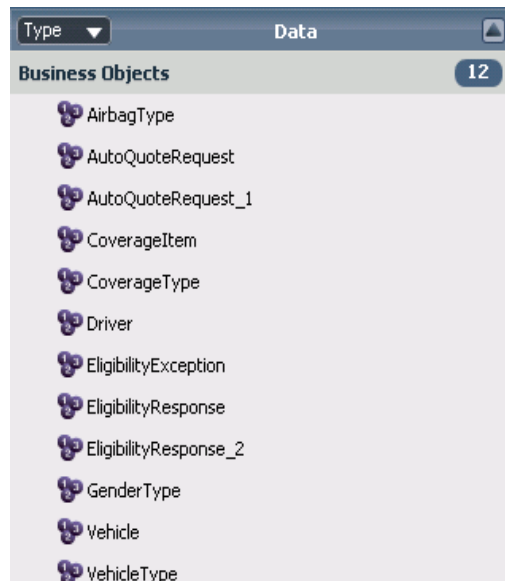
< Back Next > Finish Cancel

Note:

The duplicated **AutoQuoteRequest** in the www.ibm.com/rules/decisionsservice/InsuranceSampleRuleApp/Eligibility/param namespace is mapped to **AutoQuoteRequest_1**.

The duplicated **EligibilityResponse** in the www.ibm.com/rules/decisionsservice/InsuranceSampleRuleApp/Eligibility/param namespace is mapped to **EligibilityResponse_2**.

Click **Finish** to exit the wizard.



Navigate to the **Data** entry 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.

In the Variables Screen click **Add Private**.

In the **Name:** field, type **autoQuoteRequest**.

In the **Variable Type:** field, click **Select...** and select the **AutoQuoteRequest_1** Business Object.

Select the **Has Default** checkbox.

Browse down to the **NumberOfAccidents** field and set the value to **5**.

The screenshot shows the 'Variables' tab in the IBM Design Center for a project named 'Eligibility_ManagedDecision'. The left pane shows a tree view with 'Variables' expanded, containing 'Local', 'Input', 'Output', 'Private', and 'autoQuoteRequest (Auto...)'. The 'Private' category is selected. The right pane shows the 'Details' for the 'autoQuoteRequest' variable. The 'Name' field contains 'autoQuoteRequest'. The 'Documentation' field contains 'Click [Edit](#) to add or edit text.' The 'Is List' checkbox is unchecked. The 'Variable Type' is set to 'AutoQu...uest 1' with a 'Select...' button. The 'Default Value' section has the 'Has Default' checkbox checked. Below it is a table with properties and values.

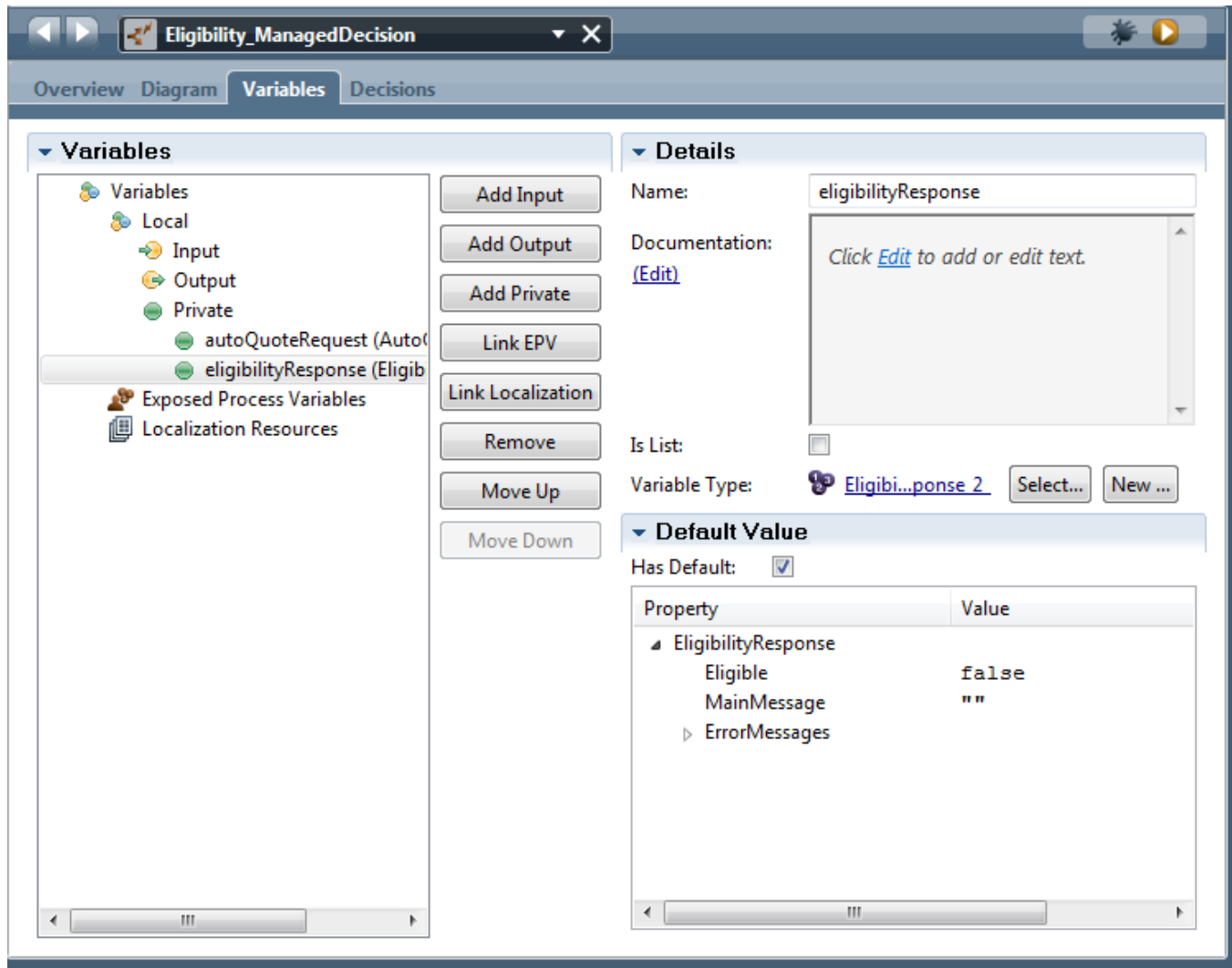
Property	Value
DrivingLicenseNumber	""
FirstDrivingLicenseDt	new TWDate ()
VehicleVandalizedOrStole	false
LicenseSuspendedOrRev	false
DUI	false
NumberOfAccidents	5
NumberOfTrafficTicket	0
Vehicle	
Coverage	

In the Variables Screen click **Add Private**.

In the **Name:** field, type **eligibilityResponse**

In the **Variable Type:** field, click **Select...** and select the **EligibilityResponse_2** Business Object.

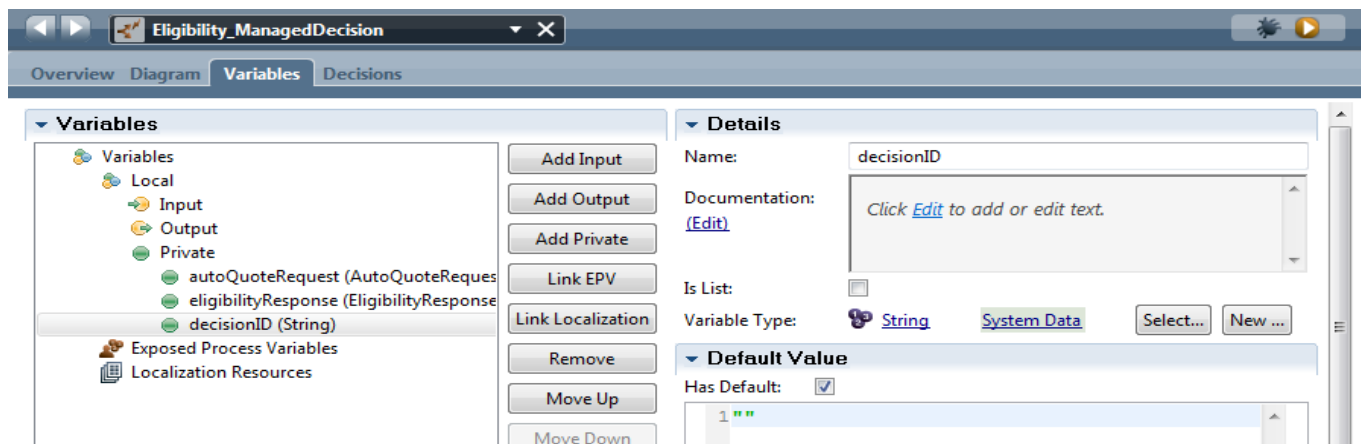
Select the **Has Default** checkbox.



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.

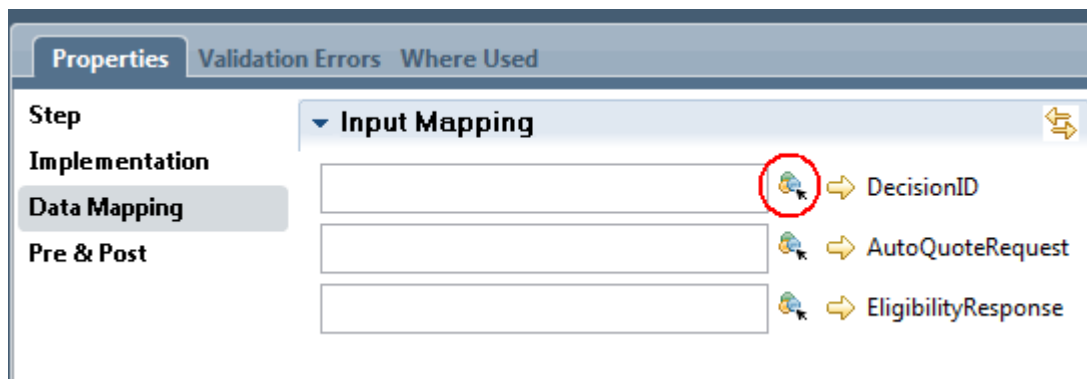
Having created the variables these now need to be mapped to the decision service.

Select the **Eligibility** node and open the **Properties** screen.

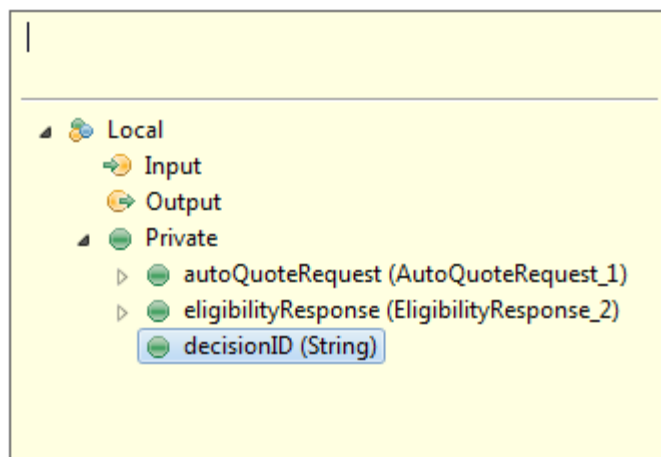


Select the **Data Mapping** tab.

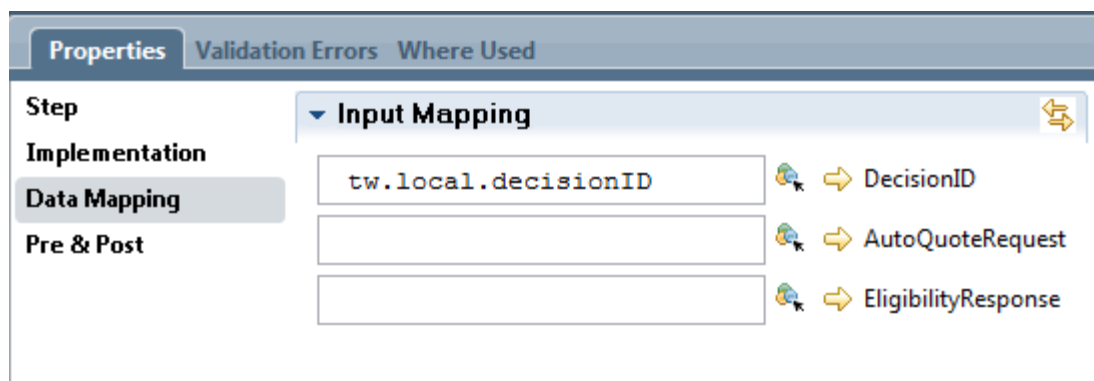
On the **Input Mapping** panel click the mapping icon associated with the **DecisionID** parameter.



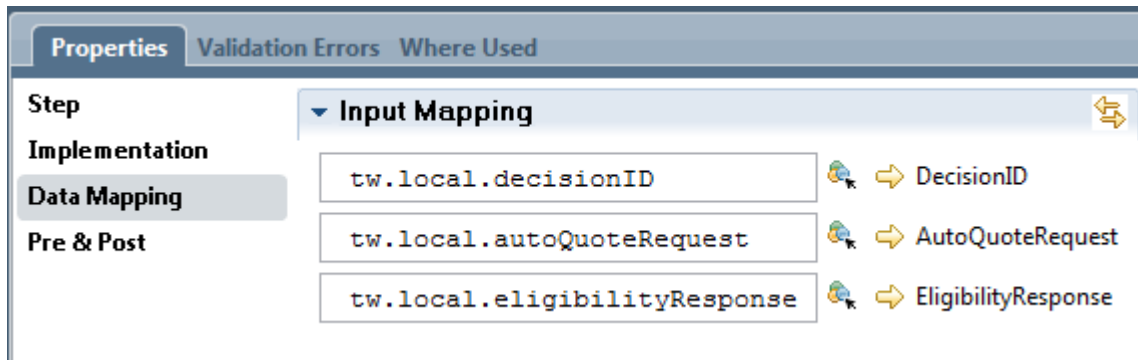
In the pop-up select the **decisionID** private variable that you have just created.



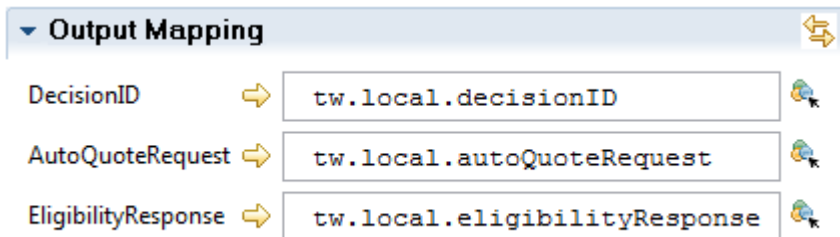
This should then select this variable to be mapped to the parameter.



Repeat this for the **AutoQuoteRequest** and **EligibilityResponse** input parameters.



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.

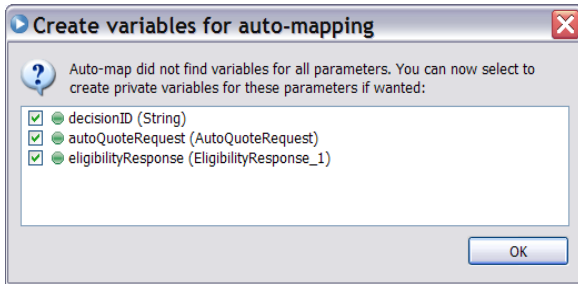
Step 6. Mapping decision service variables using AutoMapping.

There is an automatic mapping feature provided in Process Designer that can be used as described below. This facility is however not fully functional in BPM 8.0 so readers should use the approach described in 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.

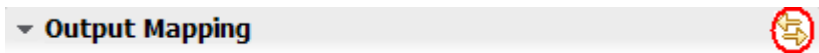


Select all three of the parameters to map.

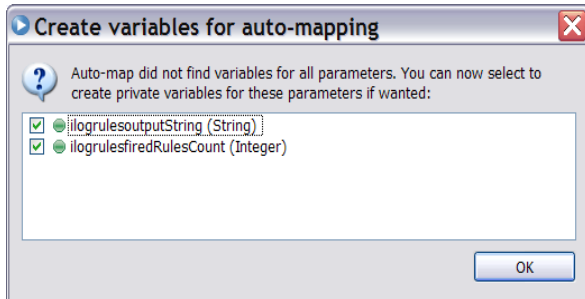


Click **OK**.

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

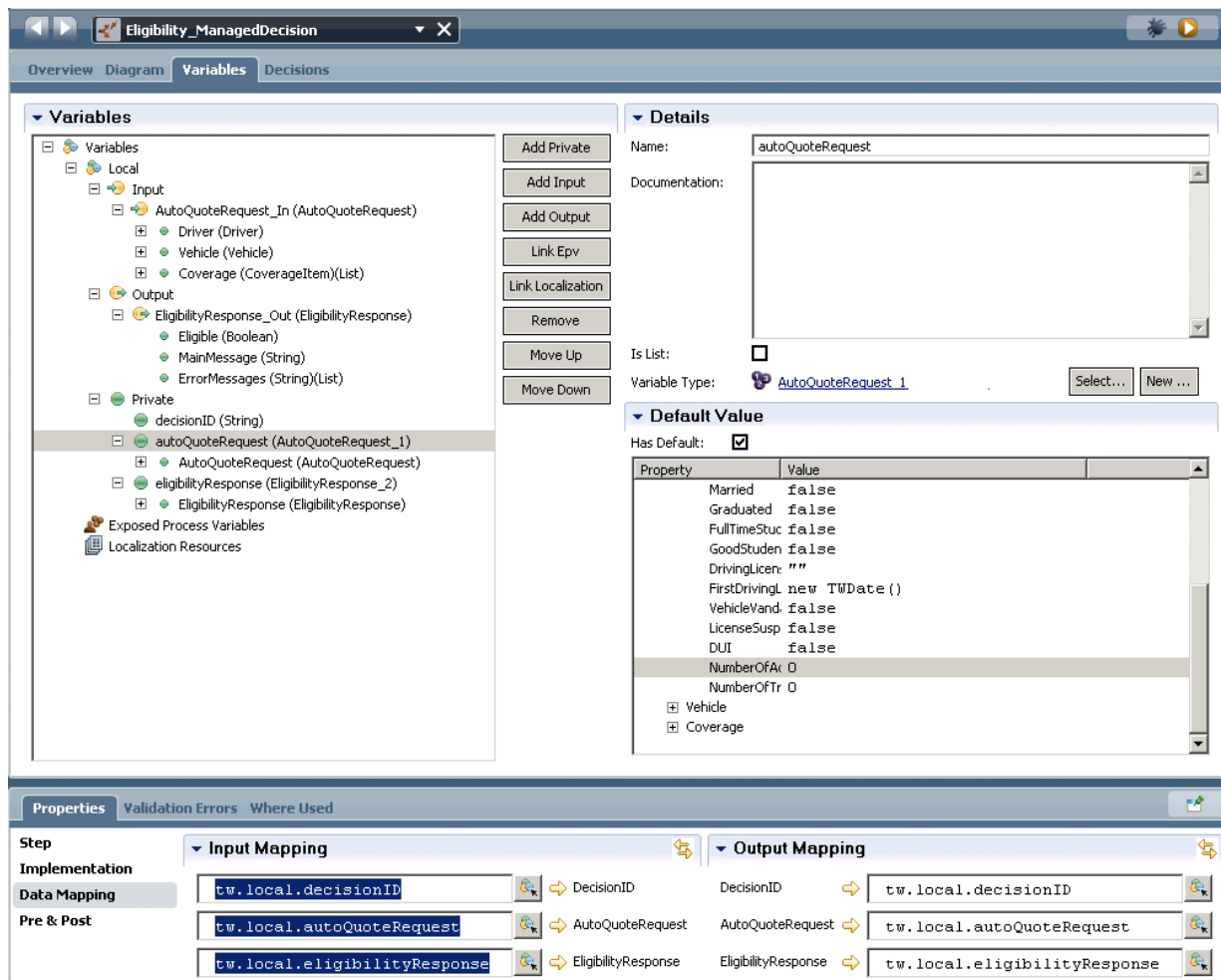


Select the remaining two parameters – as all parameters are inout parameters, variables already exist for the rest of the output parameters.



Click **OK**.

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



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..

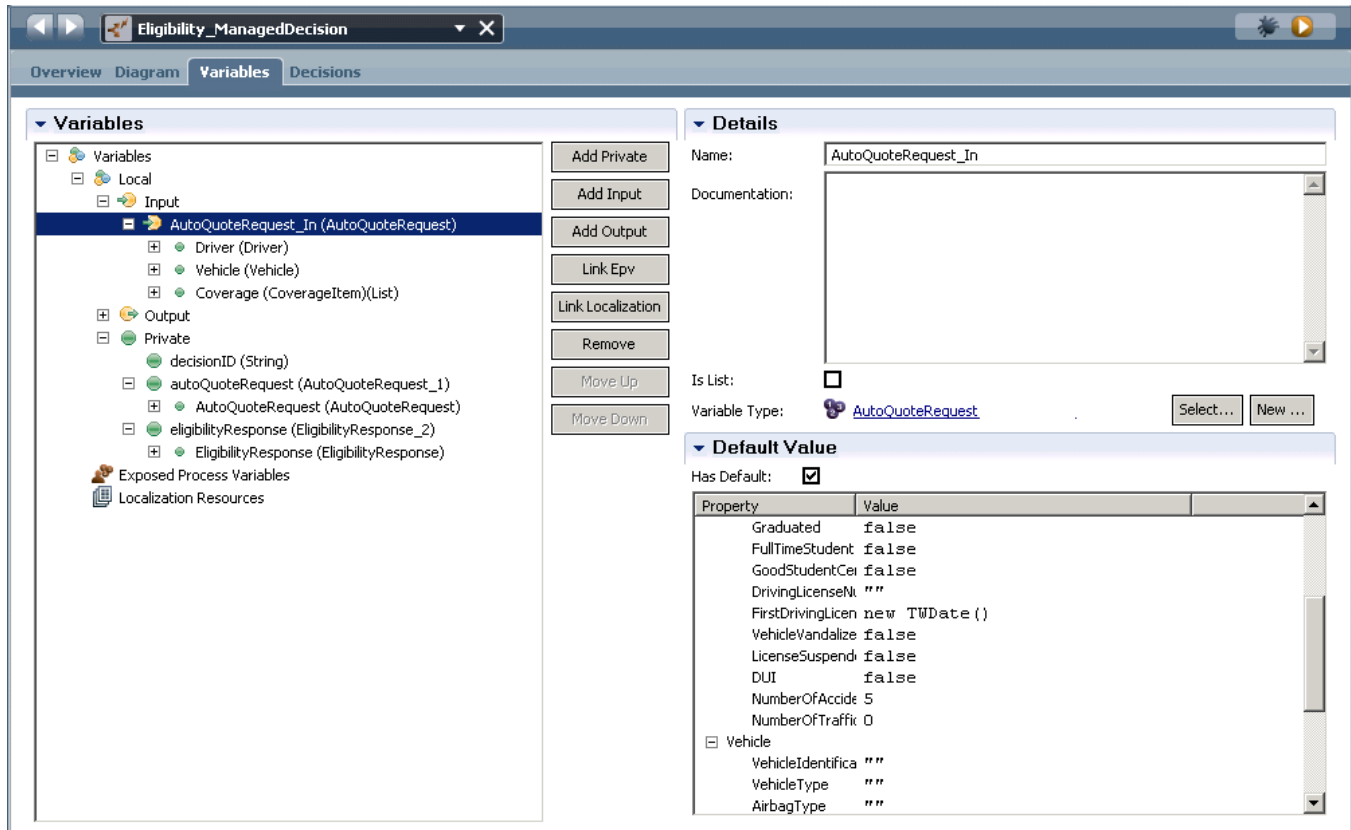
In the Variables Screen click **Add Input**.

In the **Name:** field, type **AutoQuoteRequest_In**.

In the **Variable Type:** field, click **Select...** and select the **AutoQuoteRequest** Business Object.

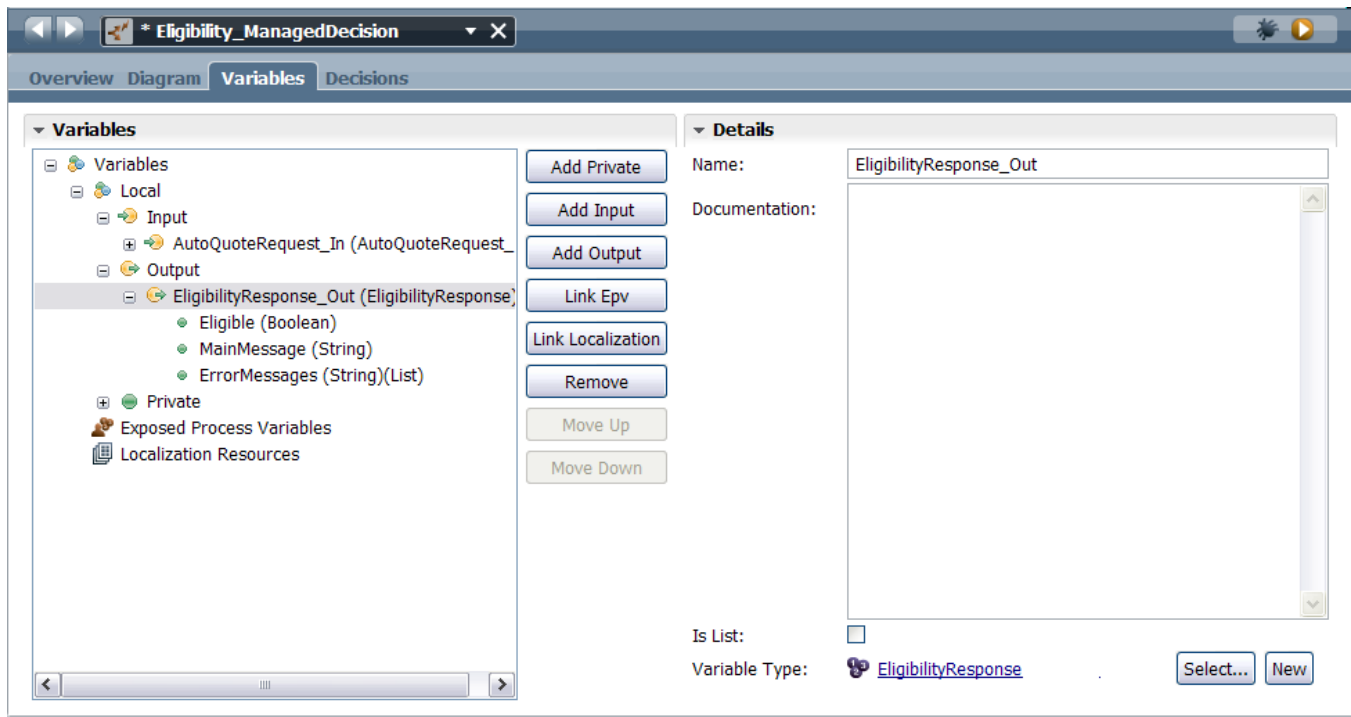
Select the **Has Default** checkbox.

Browse down to the **NumberOfAccidents** field and set the value to **5**.



In the Variables Screen click **Add Output**.
 In the **Name:** field type **EligibilityResponse_Out**.
 In the **Variable Type:** field click **Select...** and select the **EligibilityResponse** Business Object.

Save your work.



Finally you need to map between these input and output parameters and the private variables.

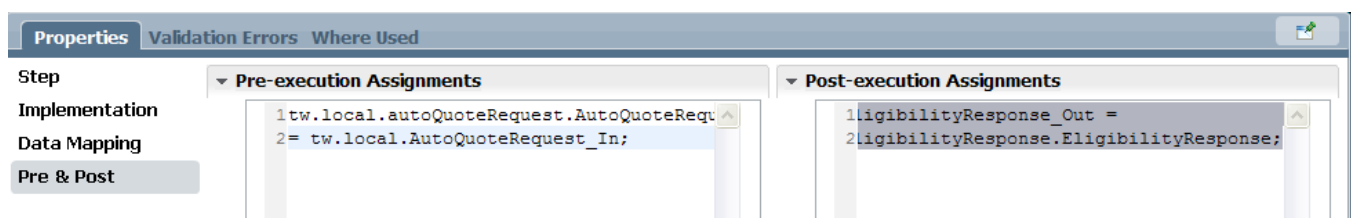
In the Diagram tab select the **Eligibility** Node and in the **Properties** screen select the **Pre & Post** Tab.

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;
```

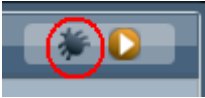


Save your work and you have now completed the variable mapping.

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.

IBM Business Process Manager Service Debug		
Step Run		
Service Eligibility_ManagedDecision		
Item Type ILOGConnector		
Item Name Eligibility		
Namespace: local		
Name	Type	Value
autoQuoteRequest	AutoQuoteRequest_1	<pre><object type="AutoQuoteRequest_1"> <property name="AutoQuoteRequest" type="AutoQuoteRequest"> <property name="Driver" type="Driver"> <property name="NumberOfTrafficTicket" type="Integer" tw-id="id:0">0</property> <property name="NumberOfAccidents" type="Integer">5</property> </property> <property name="DUI" type="Boolean">>false</property> <property name="LicenseSuspendedOrRevoked" type="Boolean">>false</property> <property name="VehicleVandalizedOrStolen" type="Boolean">>false</property> </property> </object></pre>

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

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

IBM Business Process Manager Service Debug		
Step Run		
Service Eligibility_ManagedDecision		
Item Type Exit Point		
Item Name End		
Namespace: local		
Name	Type	Value
autoQuoteRequest	AutoQuoteRequest_1	<pre><object type="AutoQuoteRequest_1"> <property name="AutoQuoteRequest" type="AutoQuoteRequest"> </property> </object></pre>

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

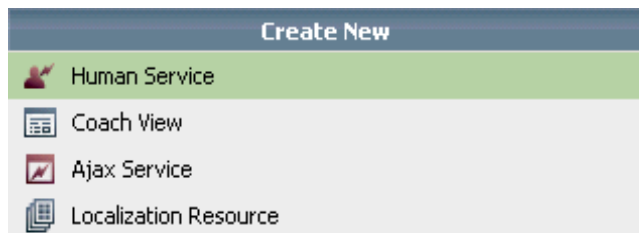
EligibilityResponse_Out	EligibilityResponse	<pre> <object type="EligibilityResponse"> <property name="Eligible" type="Boolean">false</property> <property name="MainMessage" type="String">The driver has had too many accidents</property> <property name="ErrorMessages" type="String[]"> <arrayElement size="1"> <item type="String"></item> </arrayElement> </property> <metadata> <property name="dirty" type="Boolean">true</property> <property name="shared" type="Boolean">false</property> <property name="key" /> <property name="version" /> </metadata> </object> </pre>
-------------------------	---------------------	---

You have now successfully tested the decision service.

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

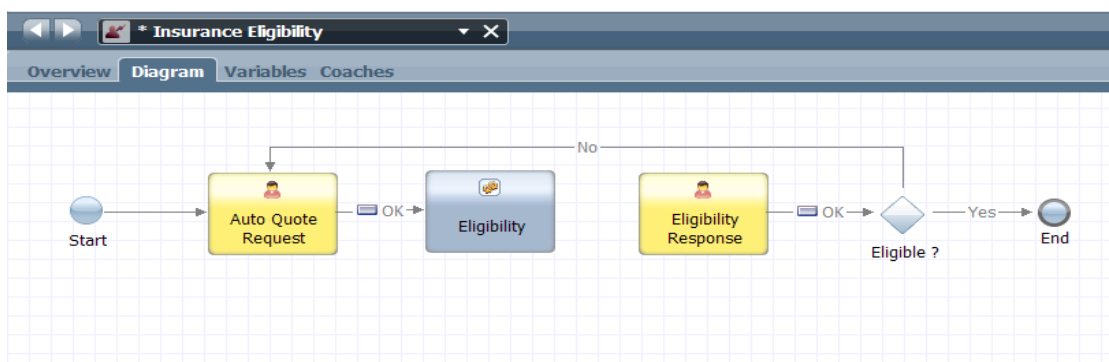
This final steps are optional and involves developing a Human process that invokes the managed decision.

Create a new Human Interface



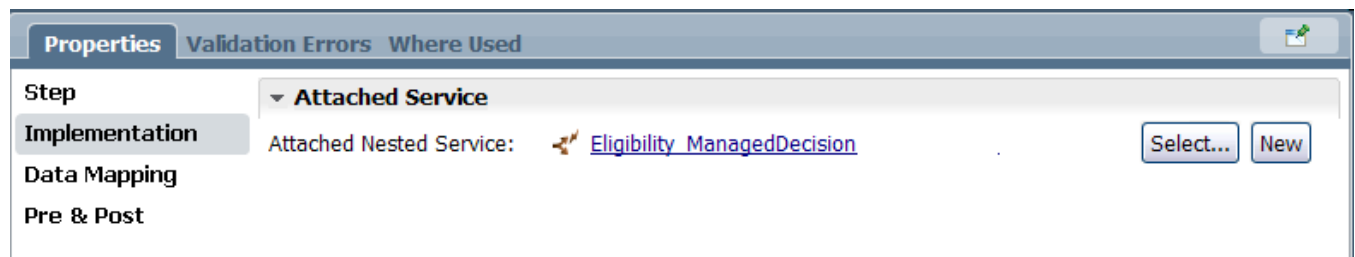
Give it the name **Insurance Eligibility**.

Create the following structure in the canvas. Note that you cannot yet connect the Eligibility Nested service to the Coach.

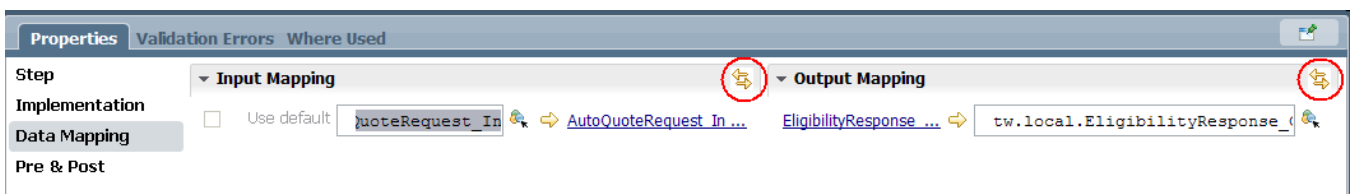


Select the **Eligibility** nested Service and navigate to the **Properties** View and **Implementation** tab.

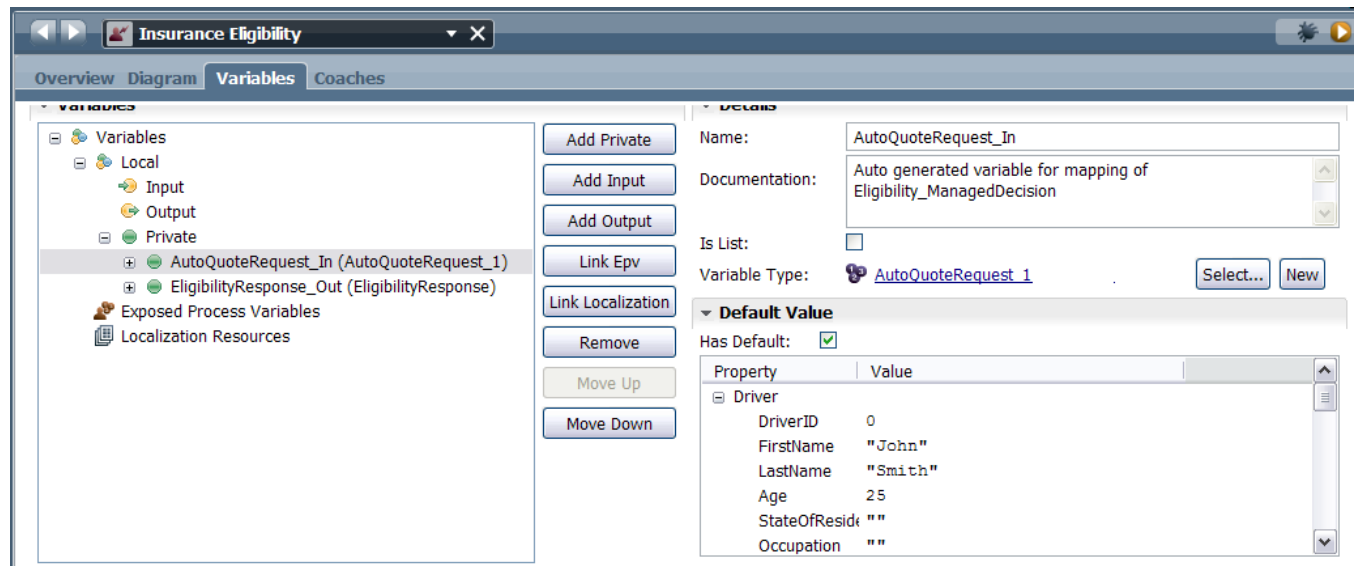
Click the **Select** Button and select the **Eligibility_ManagedDecision** in the Services section.



Navigate to the **Data Mapping** tab and click each of the Automap icons to generate local variables for the input and output parameters of the service.



Initialize the variables that have been created with default values



Create the two Coaches mapping the fields to the private Variables generated by the mapping.

Insurance Eligibility

Overview Diagram Variables **Coaches**

Auto Quote Request

Eligibility Response

Auto Quote Request tw.local.AutoQuoteRequest_In.Driver

Driver

First Name:

Last Name:

Age:

Gender: Male

Number Of Accidents:

Vehicle tw.local.AutoQuoteRequest_In.Vehicle

Vehicle Identification Number:

Make:

Model:

Value:

OK

Sections

- One-Column with Title
- One-Column
- Two-Column
- Three-Column

Controls

- Button Group
- Text
- Text Area
- Output Text
- Combo Box
- List
- Dual List
- Date Selector
- Check Box
- Radio Buttons
- Table

Variables

- AutoQuoteRequest
- EligibilityResponse

Insurance Eligibility

Overview Diagram Variables **Coaches**

Auto Quote Request

Eligibility Response

Eligibility Response tw.local.EligibilityResponse_Out

Eligible: ☒

Main Message:

OK

Sections

- One-Column with Title
- One-Column

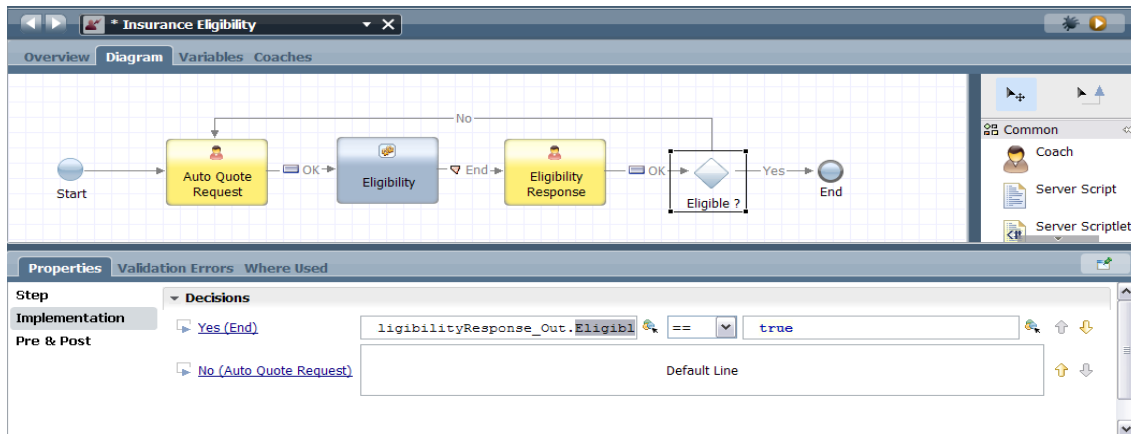
Controls

- Button Group
- Text
- Text Area

Variables

- AutoQuoteRequest
- EligibilityResponse

Connect up the final wire and establish the gateway conditions.



Save your work.

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

Run the **Insurance Eligibility** Human Service.
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

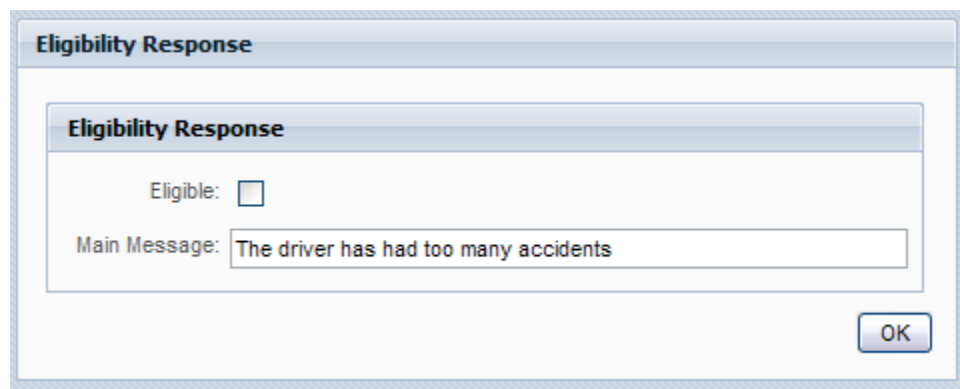
Make: Lemon

Model: Yellow

Value: 0

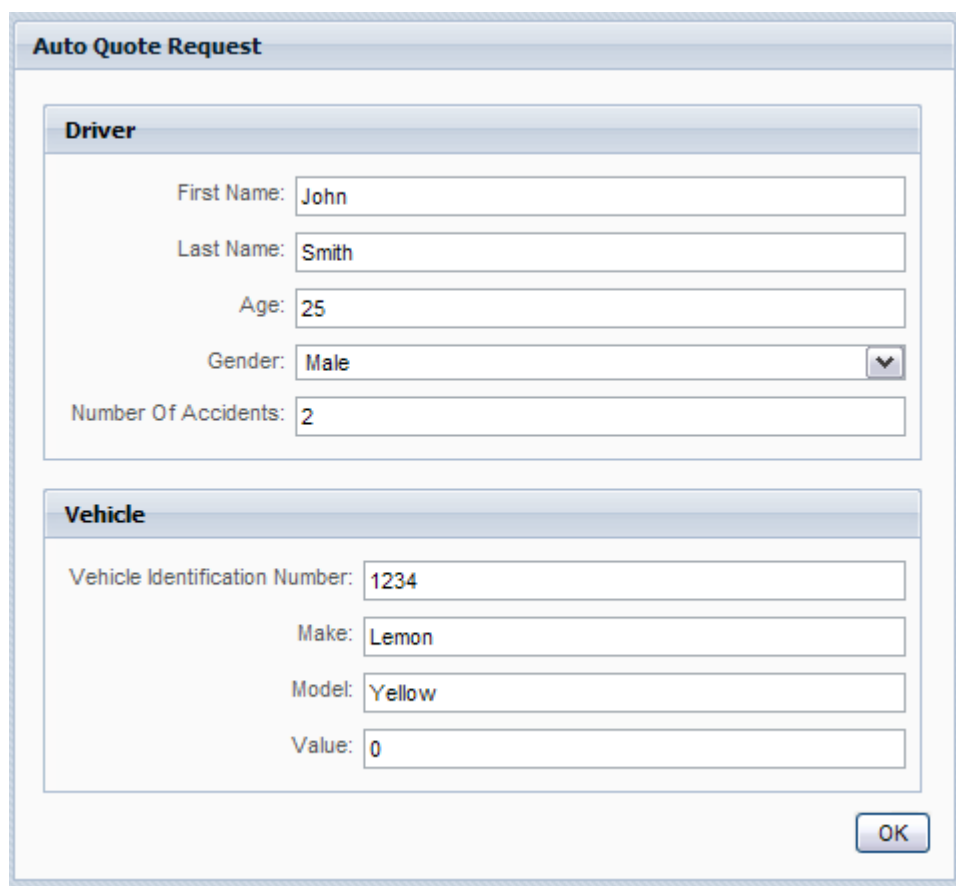
OK

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



The dialog box is titled "Eligibility Response". It contains a section with the same title. Inside this section, there is a label "Eligible:" followed by an unchecked checkbox. Below this is a label "Main Message:" followed by a text box containing the text "The driver has had too many accidents". At the bottom right of the dialog box is an "OK" button.

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



The dialog box is titled "Auto Quote Request". It contains two sections: "Driver" and "Vehicle".

Driver Section:

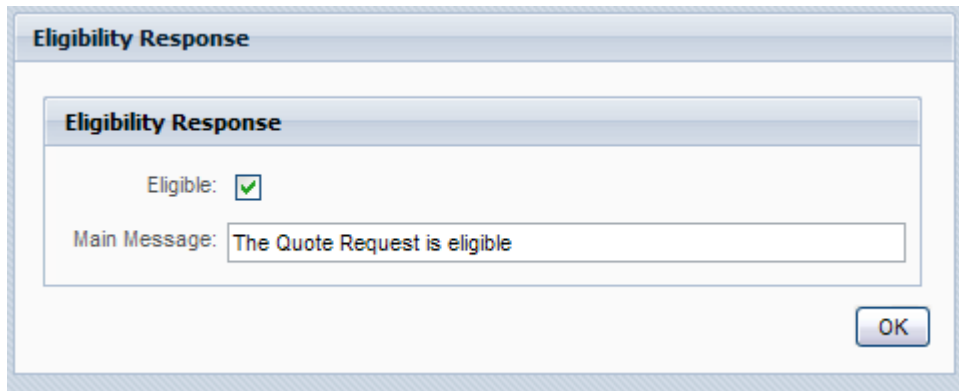
- First Name: John
- Last Name: Smith
- Age: 25
- Gender: Male (dropdown menu)
- Number Of Accidents: 2

Vehicle Section:

- Vehicle Identification Number: 1234
- Make: Lemon
- Model: Yellow
- Value: 0

At the bottom right of the dialog box is an "OK" button.

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



The image shows a software dialog box titled "Eligibility Response". It has a light blue header bar with the title. Inside the dialog, there is a smaller box with a similar header. Below the header, the text "Eligible:" is followed by a green checkmark icon. Below that, the text "Main Message:" is followed by a text box containing the message "The Quote Request is eligible". In the bottom right corner of the dialog, there is an "OK" button.

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

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