



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

US Government Users Restricted Rights - Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

Copyright

Copyright notice

© Copyright IBM Corp. 1987, 2012

US Government Users Restricted Rights - Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

Trademarks

IBM, the IBM logo, ibm.com, WebSphere, and ILOG are trademarks or registered trademarks of International Business Machines Corp., in many jurisdictions worldwide.

Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the Web at *Copyright and trademark information*.

Adobe, the Adobe logo, PostScript, and the PostScript logo are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States, and/or other countries.

Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.

Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation in the United States, other countries, or both.

Java and all Java-based trademarks and logos are trademarks of Sun Microsystems, Inc. in the United States, other countries, or both.

Other company, product, or service names may be trademarks or service marks of others.

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.

Note: Additional HTDS services can be added to the Process Application, but if any Business Objects or Data types have duplicate names (irrespective of namespace), the business objects will have to be renamed and certain automated functions – e.g. mapping variables – will not work and will need to be undertaken manually. These constraints will be removed in a future release of BPM 7.5.

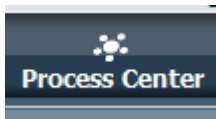
Step 1. Create a Process Application to host the HTDS Decision Service

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

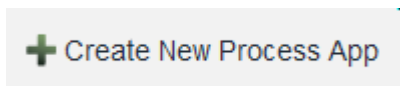
Open Process Designer and login.
For **User Name** type **tw_admin**
For **Password** type **tw_admin**.



Click the Process Center icon.



Click Create New Process App.



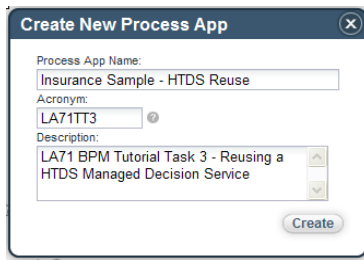
Fill in the Process App details as shown below.

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.



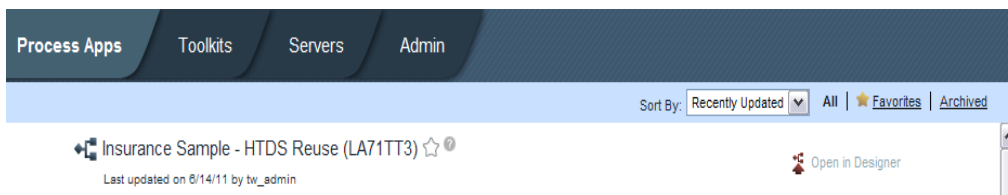
The 'Create New Process App' dialog box contains the following fields:

- Process App Name:** Insurance Sample - HTDS Reuse
- Acronym:** LA71TT3
- Description:** LA71 BPM Tutorial Task 3 - Reusing a HTDS Managed Decision Service

A 'Create' button is located at the bottom right of the dialog.

Click **Create**.

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



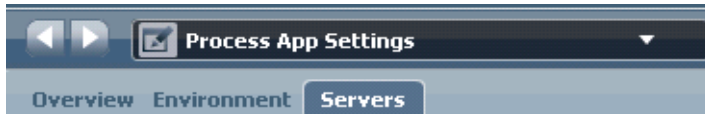
Process Designer opens on the newly created Process App.



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.

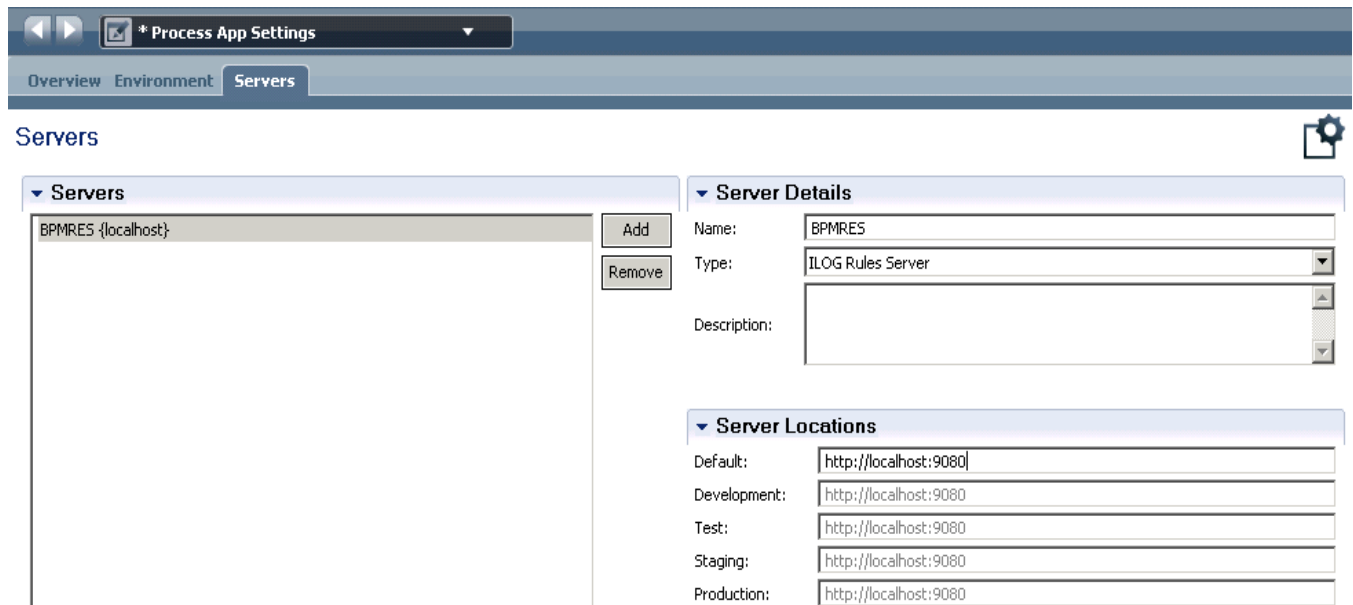


In the **Servers** Screen click the **Add** button

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

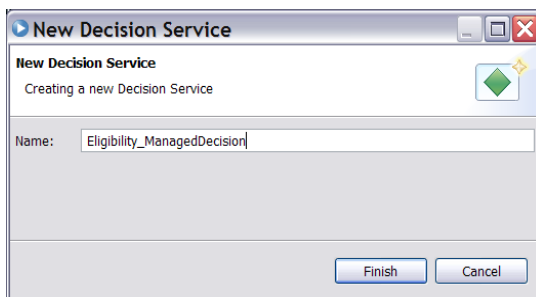
Step 3. Create the Decision Service for the Eligibility Managed Decision.

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.



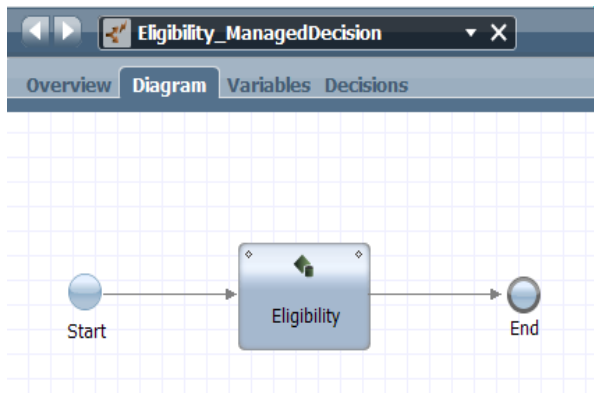
Connect the **Start** node to the **Eligibility** node.
 Connect the **Eligibility** node to the **End** node.
 Reselect the **Selection Flow** icon,



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 JRules.

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**.

Properties	Validation Errors	Where Used
Step	Discovery	
Implementation	Server: BPMRES	
Data Mapping	SOAP Port: 8880	
Pre & Post	Username: resAdmin	
	Password: resAdmin	
Connect		

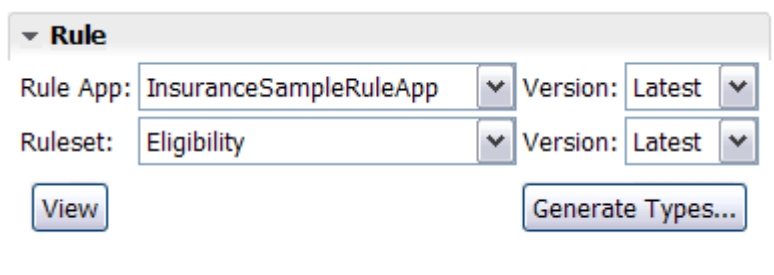
Click **Connect**.

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.

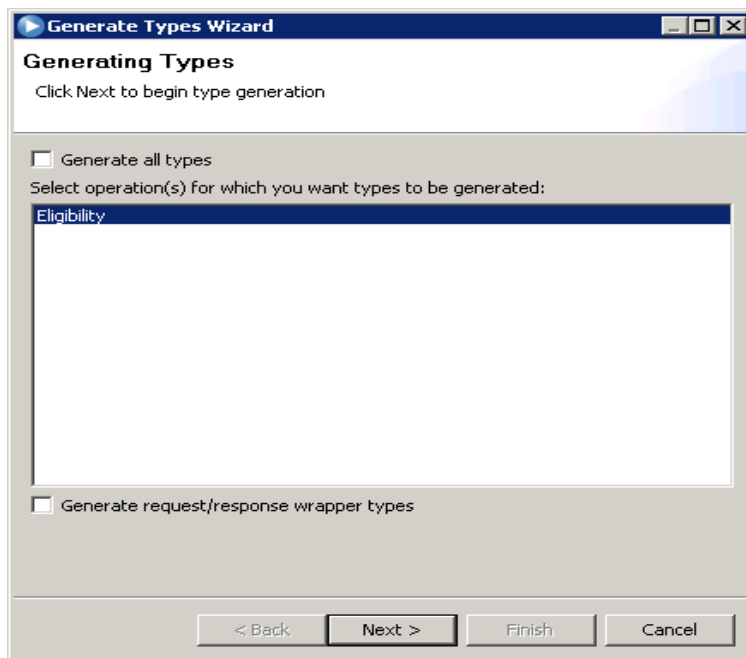


The screenshot shows a configuration panel for a rule. It has a title bar with a dropdown arrow and the word "Rule". Below the title bar, there are two rows of configuration. The first row is for "Rule App" with a dropdown menu showing "InsuranceSampleRuleApp" and a "Version" dropdown showing "Latest".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

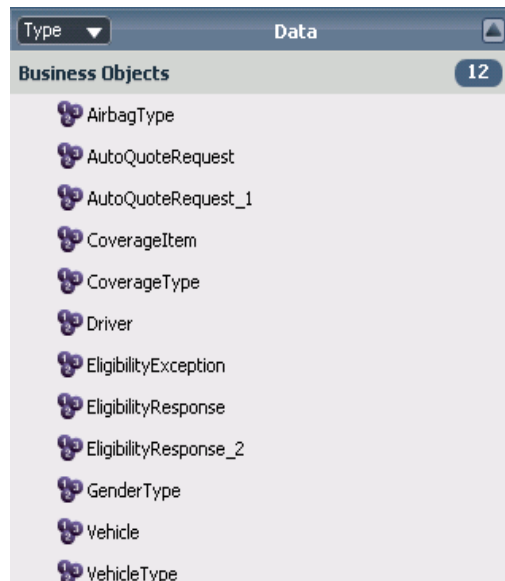
Note:

The duplicated **AutoQuoteRequest** in the INSDemo namespace is mapped to **AutoQuoteRequest_1**.

The duplicated **EligibilityResponse** in the www.ilog.com/param namespace is mapped to

EligibilityResponse_2.

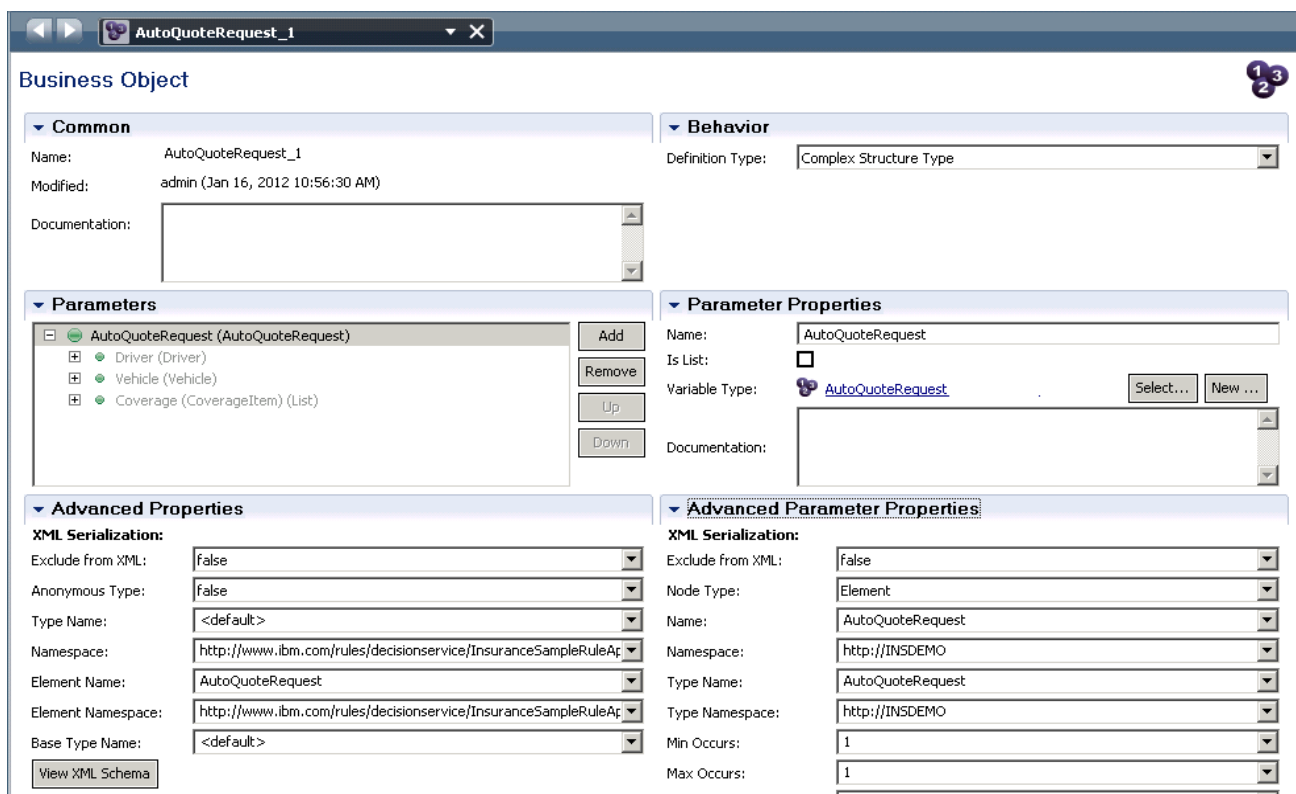
Click **Finish** to exit the wizard.



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.

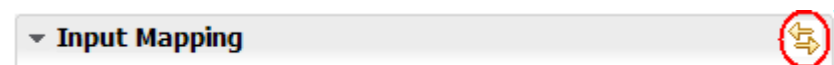
Because the HTDS managed decision services use wrapper types, we need to map these HTDS parameters to decision service variables that only use the INSDemo business objects.

Open the **Eligibility_ManagedDecision** Diagram.

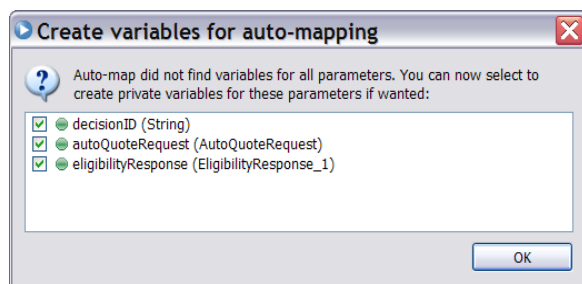
Select the **Eligibility** node and open the **Properties** screen.

Select the **Data Mapping** tab.

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



Select all three of the parameters to map.

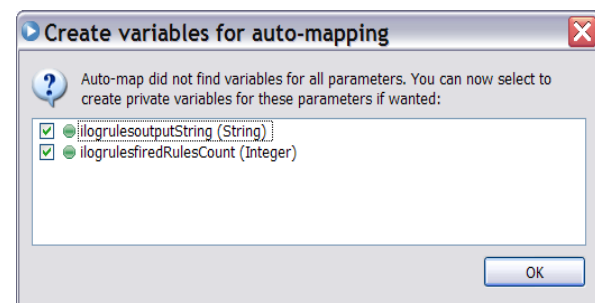


Click **OK**.

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

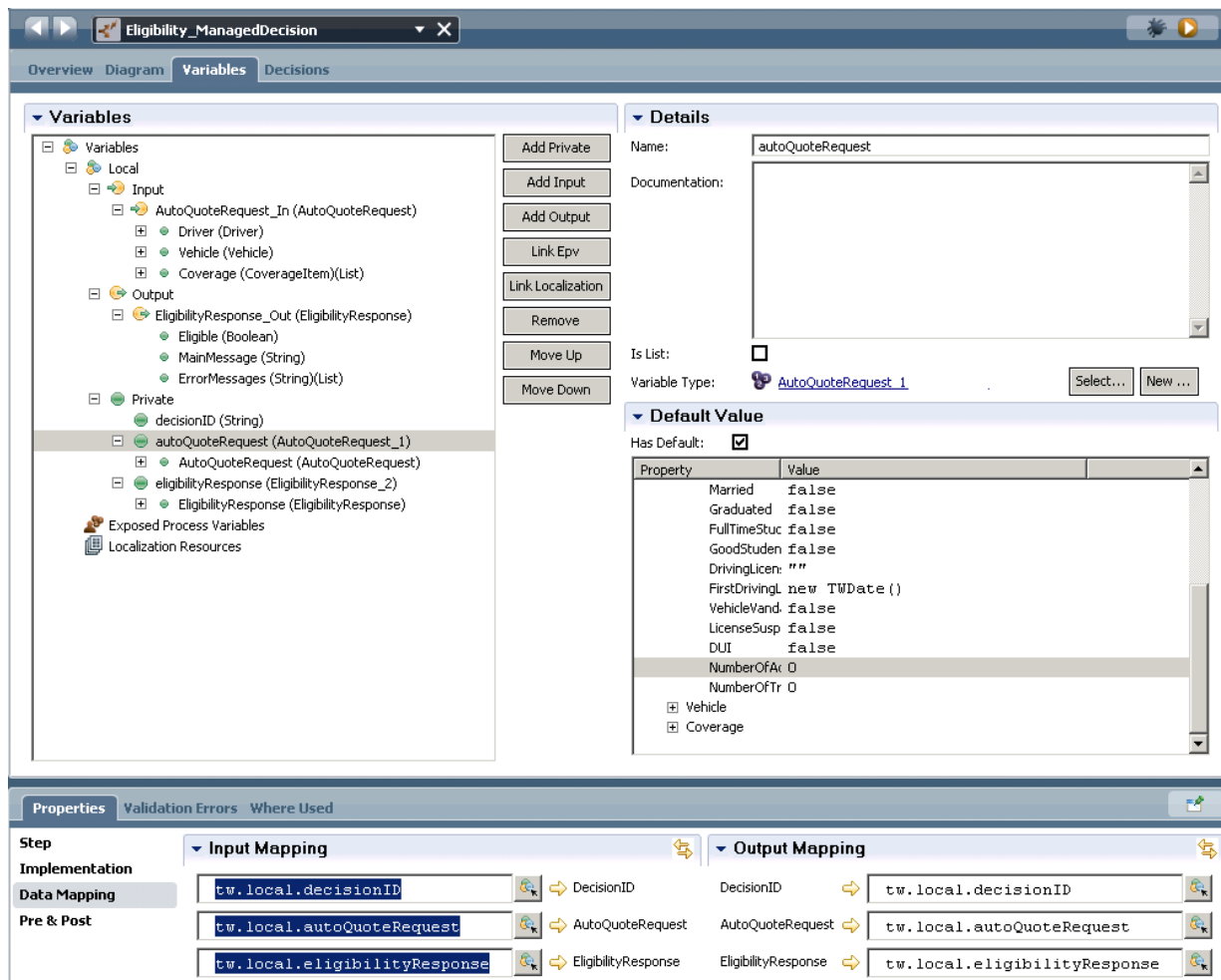


Select the remaining two parameters – as all parameters are input parameters, variables already exist for the rest of the output parameters.

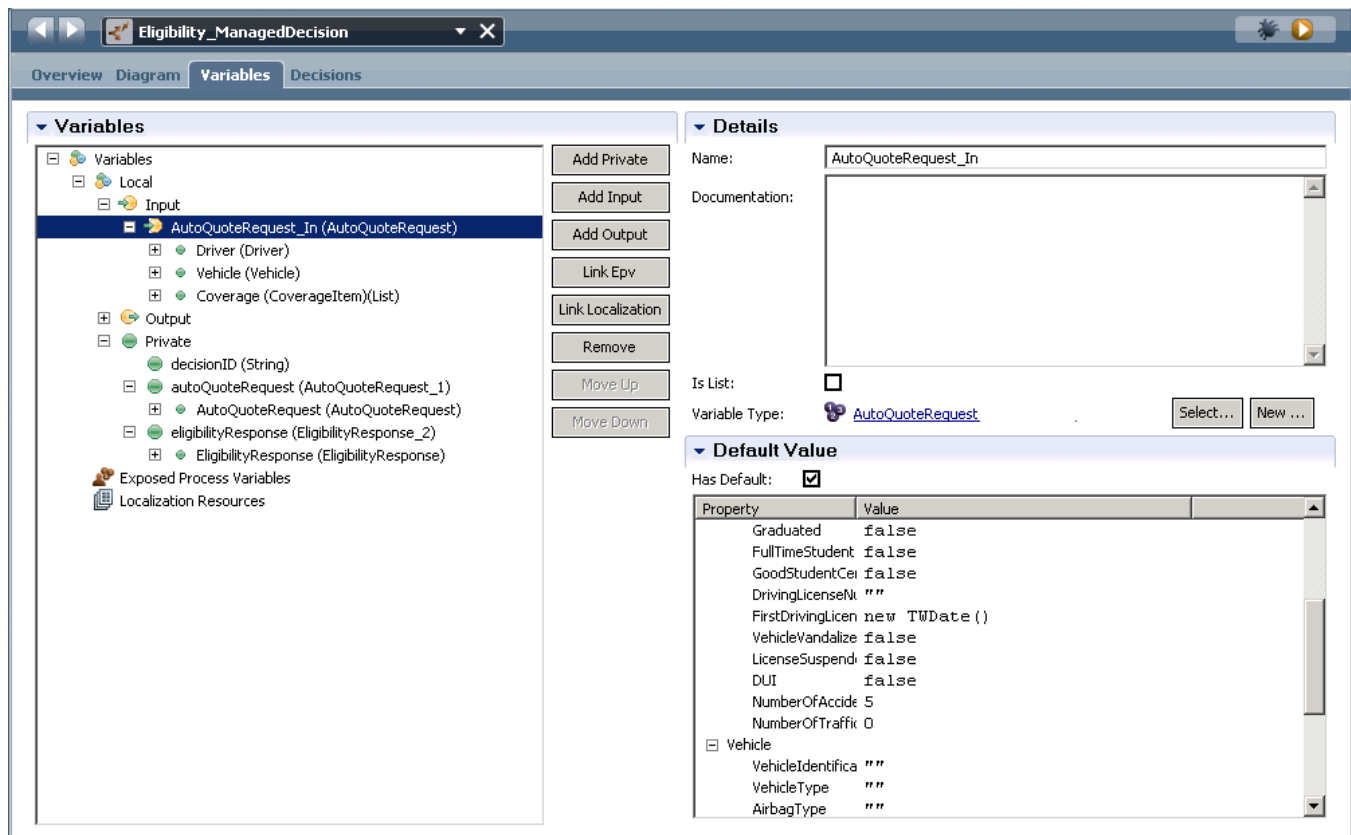


Click **OK**.

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

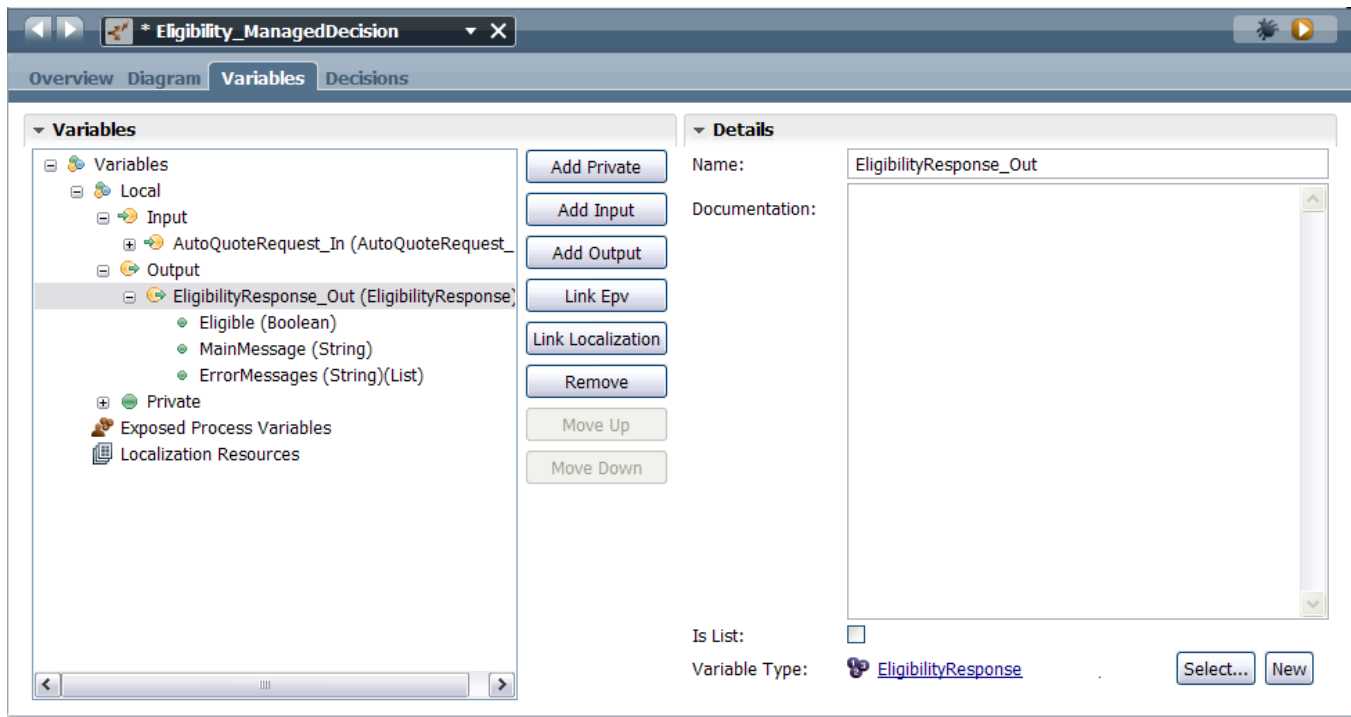


Now you need to create the input and output parameters to the **Eligibility_ManagedDecision** decision service. In the Variables Screen click **Add Input**. In the **Name:** field, type **AutoQuoteRequest_In**. In the **Variable Type:** field, click **Select...** and select the **AutoQuoteRequest** Business Object. Select the **Has Default** checkbox. Browse down to the **NumberOfAccidents** field and set the value to **5**.

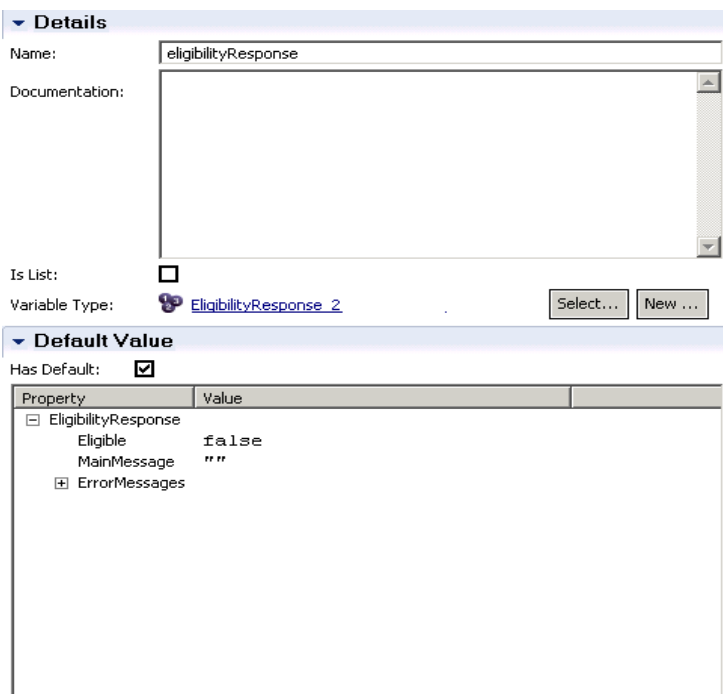


In the Variables Screen click **Add Output**.
 In the **Name:** field type **EligibilityResponse_Out**.
 In the **Variable Type:** field click **Select...** and select the **EligibilityResponse** Business Object.

Save your work.



Finally select the private variables and check the Has Default checkbox. This makes sure all HTDS parameters are initialized.



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

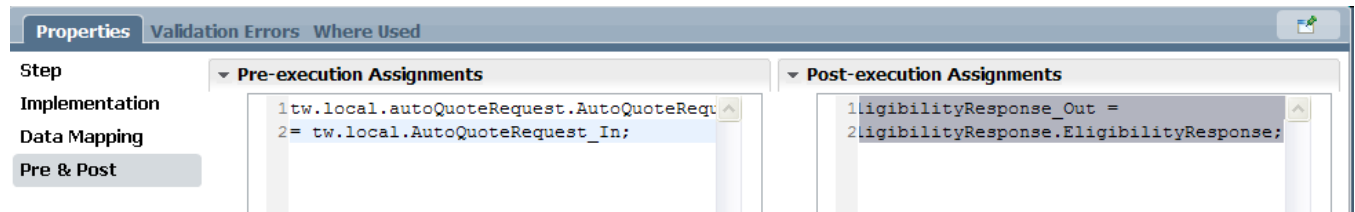
In the drawing screen select the Eligible Node and in the properties screen select the Pre and Post Tab.

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;
```

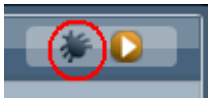


Save your work and you have now completed the variable mapping.

Step 6. 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		
<div> <div>Step</div> <div>Run</div> </div>		
Service Eligibility_ManagedDecision Item Type ILOGConnector Item Name Eligibility		
Namespace: local		
Name	Type	Value
autoQuoteRequest	AutoQuoteRequest	<pre> <object type="AutoQuoteRequest"> <property name="AutoQuoteRequest" type="AutoQuoteRequest_1"> <property name="Coverage" type="CoverageItem[]"> <arrayElement size="1"> <item type="CoverageItem"> <property name="CoverageType" type="String" /> <property name="Deductible" type="Integer" tw-id="id:0">0</p> <property name="MaxLimit" type="Integer" tw-ref="id:0" /> <property name="MinLimit" type="Integer" tw-ref="id:0" /> </item> </arrayElement> </property> <property name="Driver" type="Driver"> <property name="LicenseSuspendedOrRevoked" type="Boolean">f <property name="LastName" type="String" /> <property name="Gender" type="String" /> <property name="DriverID" type="Integer" tw-ref="id:0" /> <property name="DrivingLicenseNumber" type="String" /> <property name="NumberOfAccidents" type="Integer">5</property> <property name="NumberOfTrafficTickets" type="Integer" tw-ref="ic <property name="Occupation" type="String" /> <property name="VehicleVandalizedOrStolen" type="Boolean">fals <property name="Married" type="Boolean">>false</property> <property name="DUI" type="Boolean">>false</property> <property name="Graduated" type="Boolean">>false</property> <property name="GoodStudentCertificate" type="Boolean">>false</ <property name="FirstDrivingLicenseDt" type="Date"> <fullYear>2011</fullYear> </property> </property> </AutoQuoteRequest_1> </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		
<div> <div>Step</div> <div>Run</div> </div>		
Service Eligibility_ManagedDecision Item Type Exit Point Item Name End		
Namespace: local		
Name	Type	Value
autoQuoteRequest	AutoQuoteRequest	<pre> <object type="AutoQuoteRequest"> <property name="AutoQuoteRequest" type="AutoQuoteRequest_1"> </pre>

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

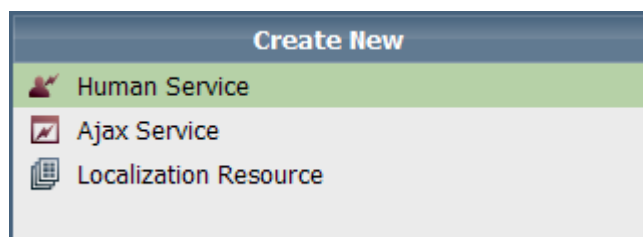
decisionID	String	575f5a7c-d8a8-4911-b9b3-960eb2741ce6
eligibilityResponse	EligibilityResponse_1	<pre> <object type="EligibilityResponse_1"> <property name="EligibilityResponse" type="EligibilityResponse"> <property name="ErrorMessages" type="String[]"> <arrayElement size="1"> <item type="String" /> </arrayElement> </property> <property name="Eligible" type="Boolean">false</property> <property name="MainMessage" type="String">The driver has had too many accidents</property> </property> </object> </pre>
EligibilityResponse_Out	EligibilityResponse	<pre> <object type="EligibilityResponse"> <property name="ErrorMessages" type="String[]"> <arrayElement size="1"> <item type="String" /> </arrayElement> </property> <property name="Eligible" type="Boolean">false</property> <property name="MainMessage" type="String">The driver has had too many accidents</property> </object> </pre>

You have now successfully tested the decision service.

Step 7. Using the Managed Decision Service in a Process.

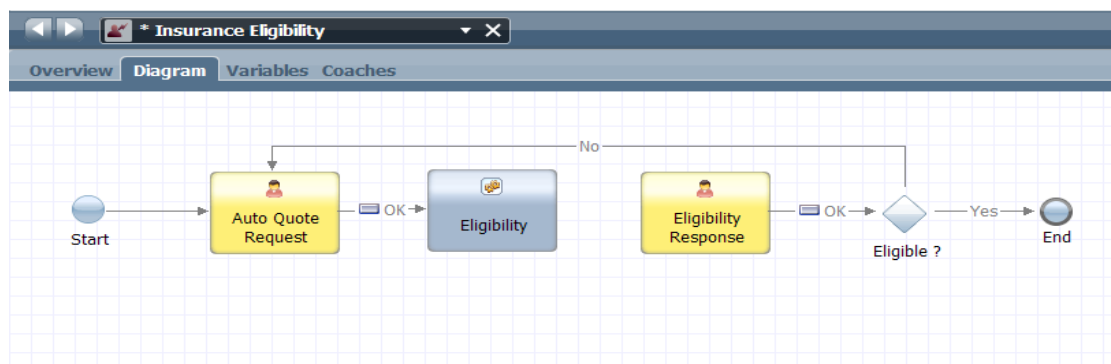
This final steps are optional and involves developing a Human process that invokes the managed decision.

Create a new Human Interface



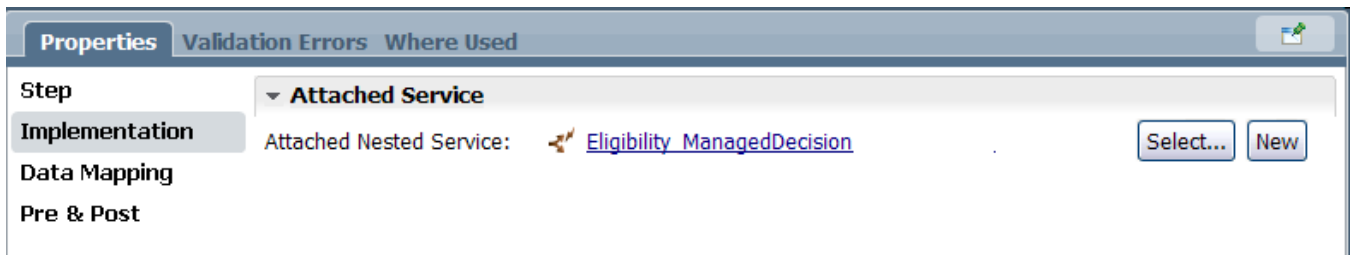
Give it the name **Insurance Eligibility**.

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

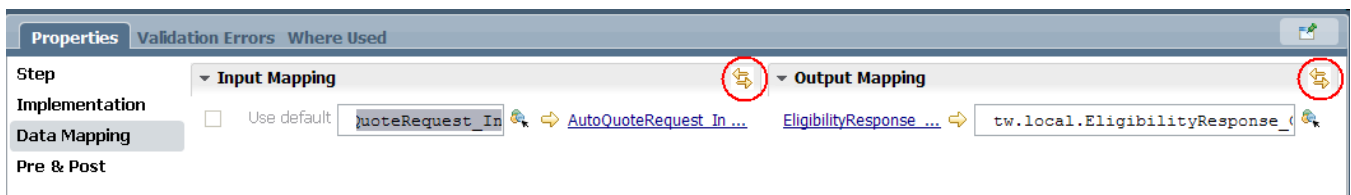


Select the **Eligibility** nested Service and navigate to the **Properties** View and **Implementation** tab.

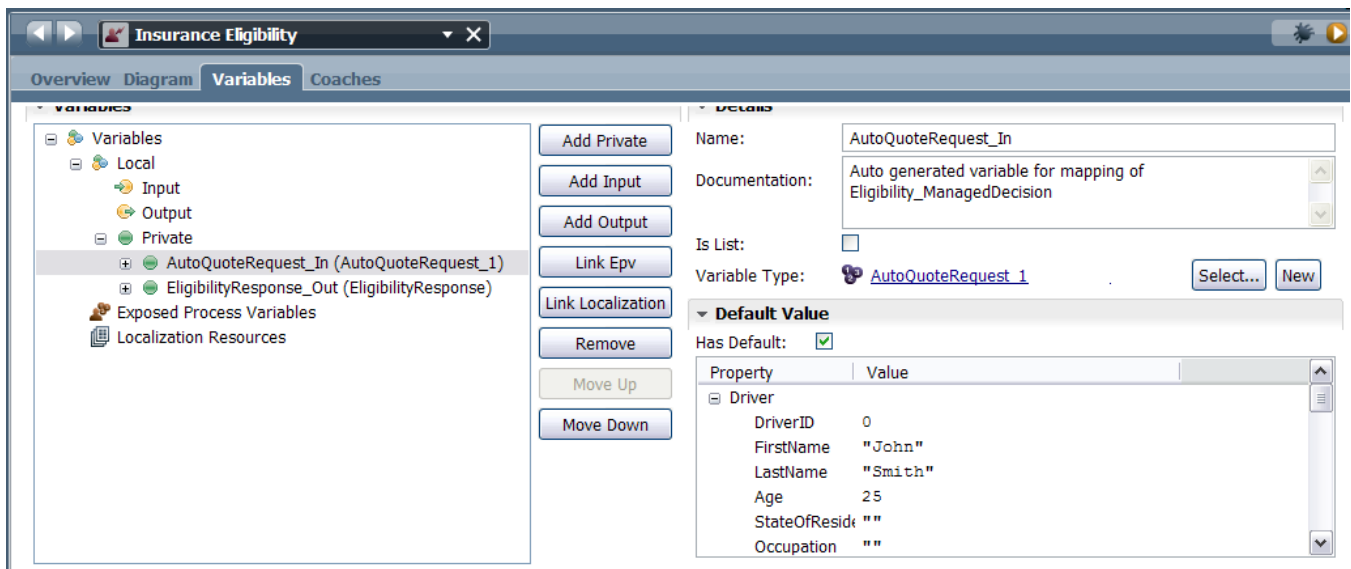
Click the **Select** Button and select the **Eligibility_ManagedDecision** in the Services section.



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

Driver

tw.local.AutoQuoteRequest_In.Driver

First Name:

Last Name:

Age:

Gender: Male

Number Of Accidents:

Vehicle

tw.local.AutoQuoteRequest_In.Vehicle

Vehicle Identification Number:

Make:

Model:

Value:

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

Eligibility Response

tw.local.EligibilityResponse_Out

Eligible: ☒

Main Message:

Sections

- One-Column with Title
- One-Column

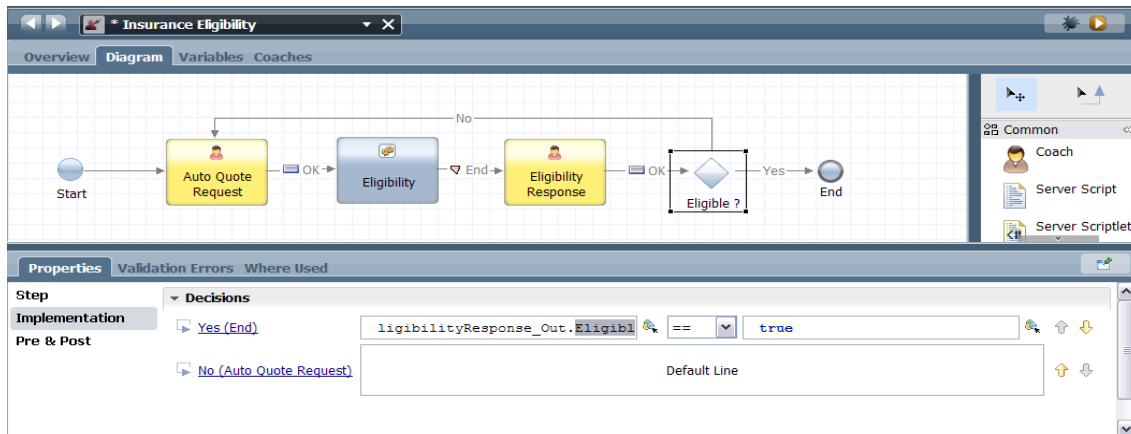
Controls

- Button Group
- Text
- Text Area

Variables

- AutoQuoteRequest
- EligibilityResponse

Connect up the final wire and establish the gateway conditions.



Save your work.

Step 8. 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

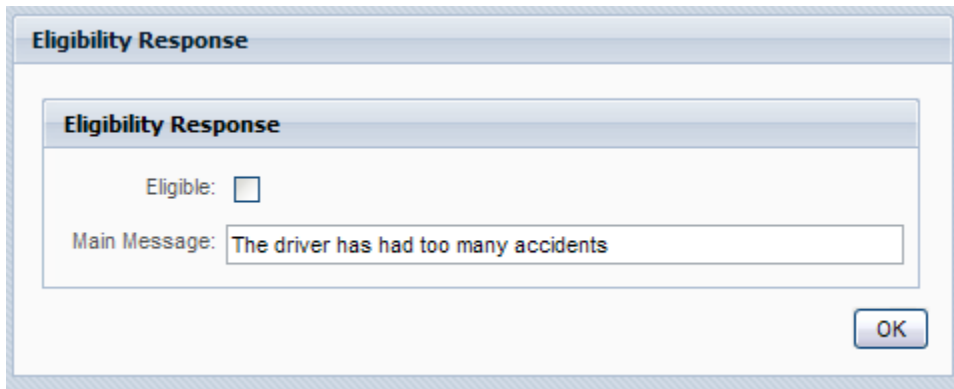
Make: Lemon

Model: Yellow

Value: 0

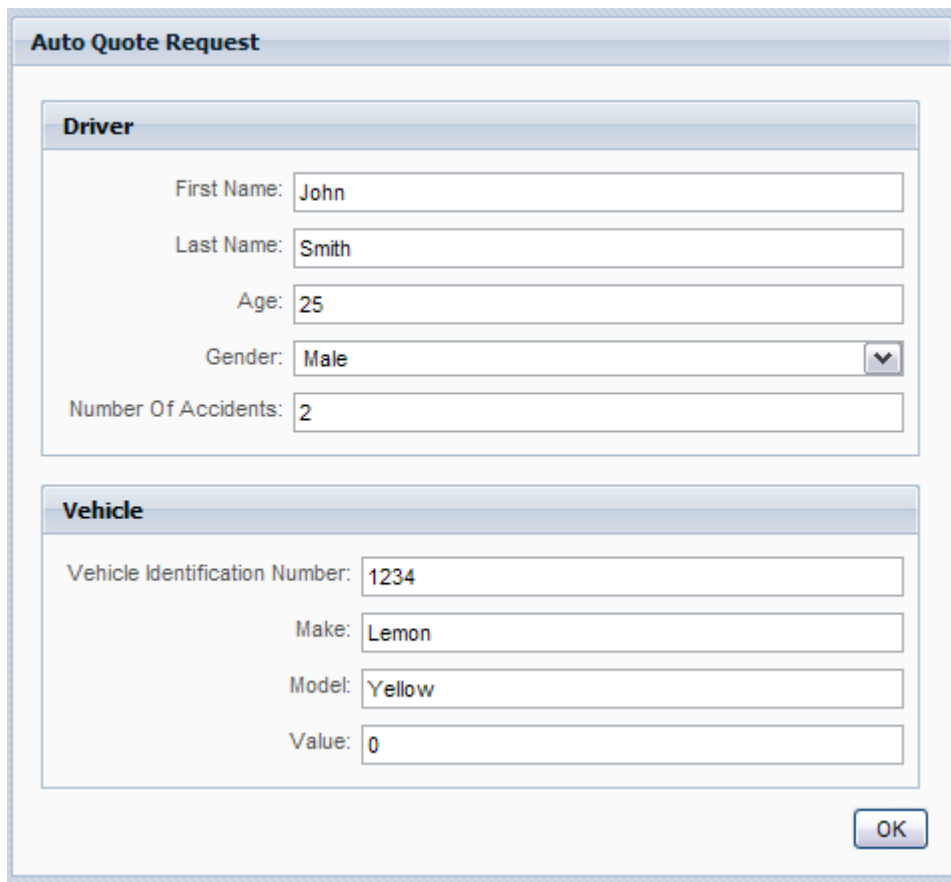
OK

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



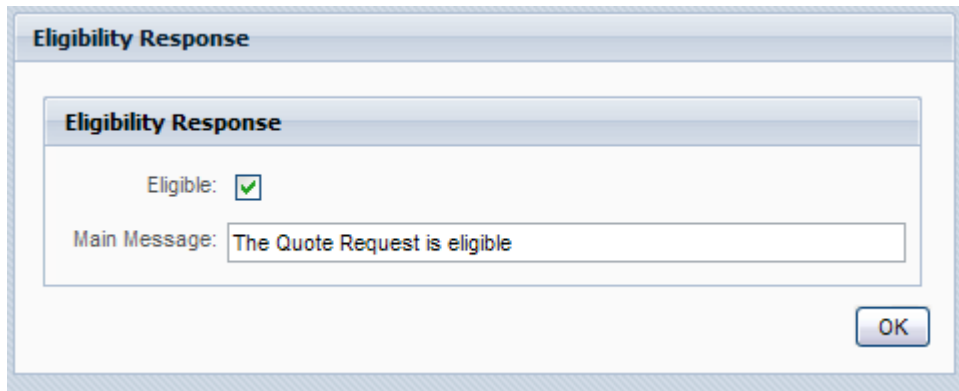
The dialog box is titled "Eligibility Response". It contains a sub-section also titled "Eligibility Response". Inside this sub-section, there is a label "Eligible:" followed by an unchecked checkbox. Below this is a label "Main Message:" followed by a text box containing the text "The driver has had 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 eg **2**.



The dialog box is titled "Auto Quote Request". It is divided into two main sections: "Driver" and "Vehicle".
The "Driver" section contains the following fields:
- First Name: John
- Last Name: Smith
- Age: 25
- Gender: Male (with a dropdown arrow)
- Number Of Accidents: 2
The "Vehicle" section contains the following fields:
- 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 the same title "Eligibility Response". Below this inner title, 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 main dialog box, 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.