



Red Hat Process Automation Manager 7.1

Getting started with decision services

Red Hat Process Automation Manager 7.1 Getting started with decision services

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Abstract

In this tutorial, you will create and test a driver's license suspension scenario.

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PREFACE

As a business analyst or rules developer, you can use Business Central in Red Hat Process Automation Manager to design a variety of decision services. In this tutorial, you will create and test a driver's license suspension scenario.

Prerequisites

- Red Hat JBoss Enterprise Application Platform 7.1.0 is installed. For details, see [Red Hat JBoss EAP 7.1.0 Installation Guide](#).
- Red Hat Process Automation Manager is installed and configured with Process Server. For more information, see [Installing and configuring Red Hat Process Automation Manager on Red Hat JBoss EAP 7.1](#).
- Red Hat Process Automation Manager is running and you can log in to Business Central with the **developer** role. For more information, see [Planning a Red Hat Process Automation Manager installation](#).

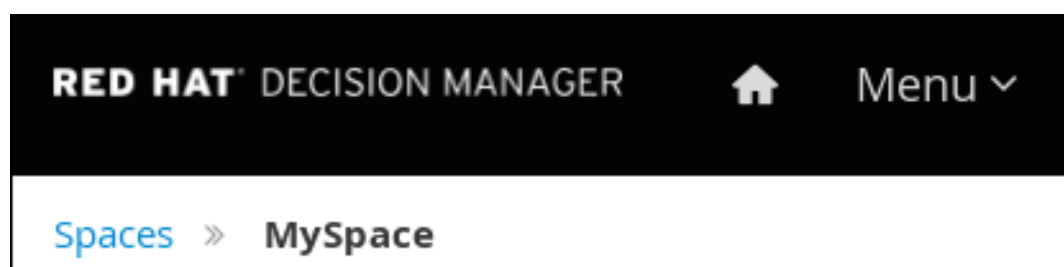
CHAPTER 1. CREATING THE TRAFFIC VIOLATIONS PROJECT

A project is the container for assets such as data objects, guided decision tables, and guided rules. For this tutorial, you will create the **Driver_department_traffic_violations** project.

Procedure

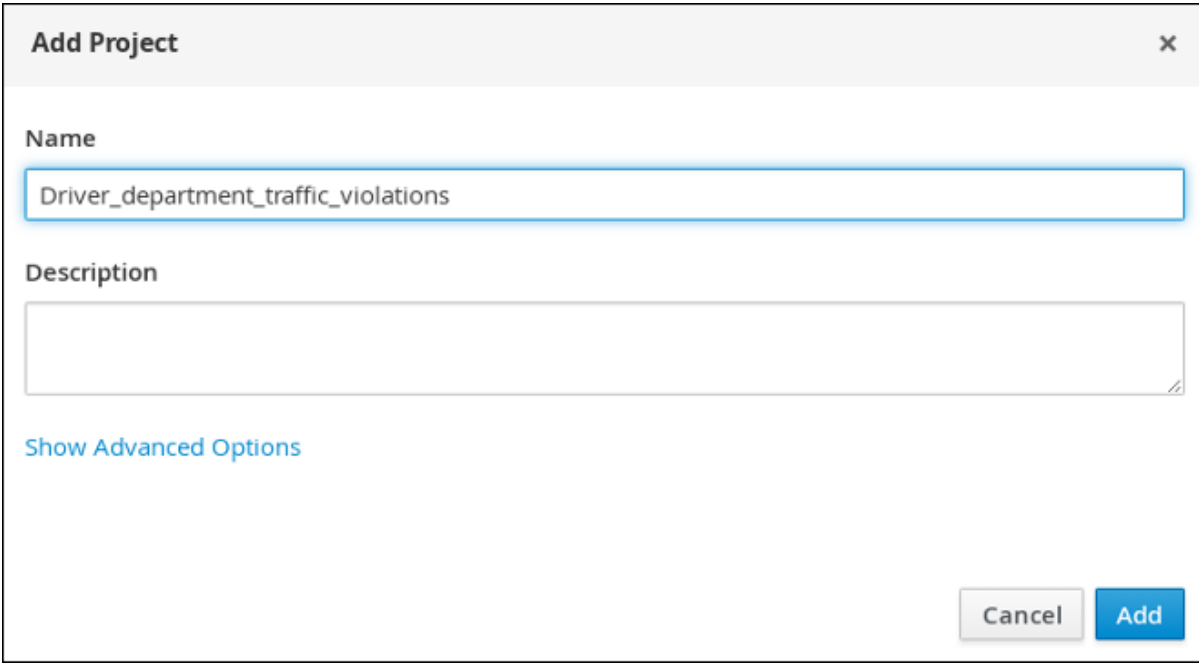
1. Log in to Business Central.
2. Go to **Menu → Design → Projects**.
Tip: Red Hat Decision Manager provides a default space called **MySpace**, as shown in the following image. You can use the default space to create and test example projects.

Figure 1.1. Default spaces



3. Click **Add Project**.
4. Enter **Driver_department_traffic_violations** in the **Name** field.
5. Click **Add**.

Figure 1.2. Add Project window

The image shows a 'Add Project' dialog box with a title bar containing the text 'Add Project' and a close button 'x'. Inside the dialog, there is a 'Name' label followed by a text input field containing 'Driver_department_traffic_violations'. Below this is a 'Description' label followed by a larger text area. At the bottom left, there is a link 'Show Advanced Options' in blue. At the bottom right, there are two buttons: 'Cancel' and 'Add'.

The Assets view of the project opens.

CHAPTER 2. DATA OBJECTS

Data objects are the building blocks for the rule assets that you create. Data objects are custom data types implemented as Java objects in specified packages of your project. For example, you might create a **Person** object with data fields **Name**, **Address**, and **DateOfBirth** to specify personal details for loan application rules. These custom data types determine what data your assets and your decision services are based on.

The following tables show the **Violation** and **Driver** data objects that you will create in this tutorial.

Table 2.1. Violation data object

ID	Label	Type
code	Code	String
points	Points	Integer
violationDate	Violation Date	Date
type	Type	String
fineAmount	Fine Amount	Double
speedLimit	Speed Limit	Integer
actualSpeed	Actual Speed	Integer

Table 2.2. Driver data object

ID	Label	Type
name	Name	String
age	Age	Integer
state	State	String
city	City	String
violations	Violations	Violation (org.jboss.example.traffic_violations.Violation) Note: The violations field is set to "List" to hold multiple items for the given type.
fineAmount	Fine Amount	Double
totalPoints	Total Points	Integer

ID	Label	Type
reason	Reason	String

2.1. CREATING THE VIOLATION DATA OBJECT

The **Violation** data object contains data fields based on violation details, such as **Violation Date**, **Fine Amount**, and **Speed Limit**.

Prerequisites

You have created the **Driver_department_traffic_violations** project.

Procedure

1. Click **Add Asset** → **Data Object**.
2. In the **Create new Data Object** wizard, enter the following values:
 - **Data Object:** **Violation**
 - **Package:** select **com.myspace.driver_department_traffic_violations**
3. Click **Ok**.

Figure 2.1. Create new Data Object window

The screenshot shows a 'Create new Data Object' window. The 'Data Object' field is set to 'Violation'. The 'Package' dropdown is set to 'com.myspace.driver_department_traffic_violations'. Under the 'JPA' section, the 'Persistable' checkbox is not checked. The window has standard '+ Ok' and 'Cancel' buttons at the bottom right.

2.1.1. Adding the Violation data object constraints

Populate the **Violation** data object fields with the constraints that you will select when you define your rules.

Prerequisites

You have created the **Violation** data object.

Procedure

1. In the **'Violation'-general properties** section, enter **Violation** in the **Label** field.

Figure 2.2. General properties

'Violation (Violation)'- general properties

Identifier	Violation
Label	Violation
Description	
Package	com.myspace.driver_department_traffic_violations
Superclass	java.lang.Object

2. Click **+ add field**
3. Enter the following values:
 - **Id: code**
 - **Label: Code**
 - **Type: String**
4. Click **Create and continue**, then enter the following values:
 - **Id: points**
 - **Label: Points**
 - **Type: Integer**
5. Click **Create and continue**, then enter the following values:
 - **Id: violationDate**
 - **Label: Violation Date**
 - **Type: Date**
6. Click **Create and continue**, then enter the following values:
 - **Id: type**
 - **Label: Type**
 - **Type: String**
7. Click **Create and continue**, then enter the following values:
 - **Id: fineAmount**

- **Label: Fine Amount**
 - **Type: Double**
8. Click **Create and continue**, then enter the following values:
 - **Id: speedLimit**
 - **Label: Speed Limit**
 - **Type: Integer**
 9. Click **Create and continue**, then enter the following values:
 - **Id: actualSpeed**
 - **Label: Actual Speed**
 - **Type: Integer**
 10. Click **Create**.
 11. Click **Save**, and then click **Save** to confirm your changes.
 12. Click the **Driver_department_traffic_violations** label to return to the **Assets** view of the project.

Figure 2.3. Violation data object fields

Identifier	Label	Type	
code	Code	String	Delete
points	Points	Integer	Delete
violationDate	Violation Date	Date	Delete
type	Type	String	Delete
fineAmount	Fine Amount	Double	Delete
speedLimit	Speed Limit	Integer	Delete
actualSpeed	Actual Speed	Integer	Delete

2.2. CREATING THE DRIVER DATA OBJECT

The **Driver** data object contains data fields based on driver details, such as **Name**, **Age**, and **Total Points**.

Prerequisites

You have created the **Driver_department_traffic_violations** project.

Procedure

1. Click **Add Asset → Data Object**.
2. In the **Create new Data Object** wizard, enter the following values:
 - **Data Object:** **Driver**
 - **Package:** select **com.myspace.driver_department_traffic_violations**
3. Click **Ok**.

Figure 2.4. Create new Data Object window

The screenshot shows a dialog box titled "Create new Data Object". It has a close button (X) in the top right corner. The dialog contains the following fields and controls:

- Data Object ***: A text input field containing the text "Driver".
- Package**: A dropdown menu with the selected value "com.myspace.driver_department_traffic_violations".
- JPA**: A section containing a checkbox labeled "Persistable" and a blue information icon (i).
- At the bottom right, there are two buttons: a blue "+ Ok" button and a grey "Cancel" button.

2.2.1. Adding the Driver data object constraints

Populate the **Driver** data object fields with the constraints that you will select when you define your rules.

Prerequisites

You have created the **Driver** data object.

Procedure

1. In the **'Driver'-general properties** section, enter **Driver** in the **Label** field.
2. Click **+ add field**
3. Enter the following values:
 - **Id:** **name**
 - **Label:** **Full Name**
 - **Type:** **String**
4. Click **Create and continue**, then enter the following values:

- **Id: age**
 - **Label: Age**
 - **Type: Integer**
5. Click **Create and continue**, then enter the following values:
- **Id: state**
 - **Label: State**
 - **Type: String**
6. Click **Create and continue**, then enter the following values:
- **Id: city**
 - **Label: City**
 - **Type: String**
7. Click **Create and continue**, then enter the following values:
- **Id: violations**
 - **Label: Violations**
 - **Type: Violation(com.myspace.driver_department_traffic_violations.Violation)**
 - **List:** Select this check box to enable the field to hold multiple items for the specified type.
8. Click **Create and continue**, then enter the following values:
- **Id: fineAmount**
 - **Label: Fine Amount**
 - **Type: Double**
9. Click **Create and continue**, then enter the following values:
- **Id: totalPoints**
 - **Label: Total Points**
 - **Type: Integer**
10. Click **Create and continue**, then enter the following values:
- **Id: reason**
 - **Label: Reason**
 - **Type: String**
11. Click **Create**.
12. Click **Save**, and then click **Save** to confirm your changes.

13. Click the **Driver_department_traffic_violations** label to return to the **Assets** view of the project.

Figure 2.5. Driver data object fields

Spaces » MySpace » [Driver_department_traffic_violations](#) » master » Driver

Driver.java - Data Objects ▾

[Model](#)
[Overview](#)
[Source](#)

Driver + add field

Identifier	Label	Type	
name	Full Name	String	Delete
age	Age	Integer	Delete
state	State	String	Delete
city	City	String	Delete
violations	Violations	Violation [List]	Delete
fineAmount	Fine Amount	Double	Delete
totalPoints	Total Points	Integer	Delete
reason	Reason	String	Delete

CHAPTER 3. GUIDED RULES

Guided Rules are business rules that you can create in a UI-based Guided Rules designer that leads you through the rule creation process. The rule designer provides fields and options for acceptable input based on the object model of the rule being edited. All data objects related to the rule must be in the same project package as the rule. Assets in the same package are imported by default. You can use the **Data Objects** tab of the rule designer to verify that all required data objects are listed or to import any other needed data objects.

Figure 3.1. The Guided Rule designer

The screenshot shows the Guided Rule designer interface with the following details:

- Tabs:** Editor (selected), Overview, Source, Data Objects.
- EXTENDS:** - None -
- WHEN:**
 - 1. There is a Driver **[driver]** with: **[previousPts]** totalPoints --- please choose ---
 - 2. There is a Number with: **[totalNewPoints]** intValue() Choose... greater than or equal to 20-previousPts
- THEN:**
 - 1. Set value of Driver **[driver]** state suspend
- Options:**
 - Attributes: dialect mvel, ruleflow-group trafficViolation

3.1. CREATING THE DRIVER LICENSE SUSPENSION RULE

Create the Driver license suspension rule using the Guided Rule wizard.

Prerequisite

You have created both the **Violation** and **Driver** data objects.

Procedure

1. Log in to Business Central.
2. Click **Menu** → **Design** → **Projects**, then **Driver_department_traffic_violations**.
3. Click **Add Asset** → **Guided Rule**, then enter:
 - **Guided Rule:** **DriverLicenseSuspensionRule**
 - **Package:** **com.myspace.driver_department_traffic_violations**
4. Click **Ok** to open the **Guided Rule designer**.

Figure 3.2. Create new Guided Rule window

Create new Guided Rule [X]

Guided Rule *

DriverLicenseSuspensionRule

Package

com.myspace.driver_department_traffic_violations [v]

Use Domain Specific Language (DSL)

☐ Show declared DSL sentences

+ Ok **Cancel**

3.2. SETTING THE SUSPENSION RULE CONDITIONS

Set the **Suspension** rule conditions that are used to determine the driver's violation.

Prerequisite

You have created the Driver License Suspension rule.

Procedure


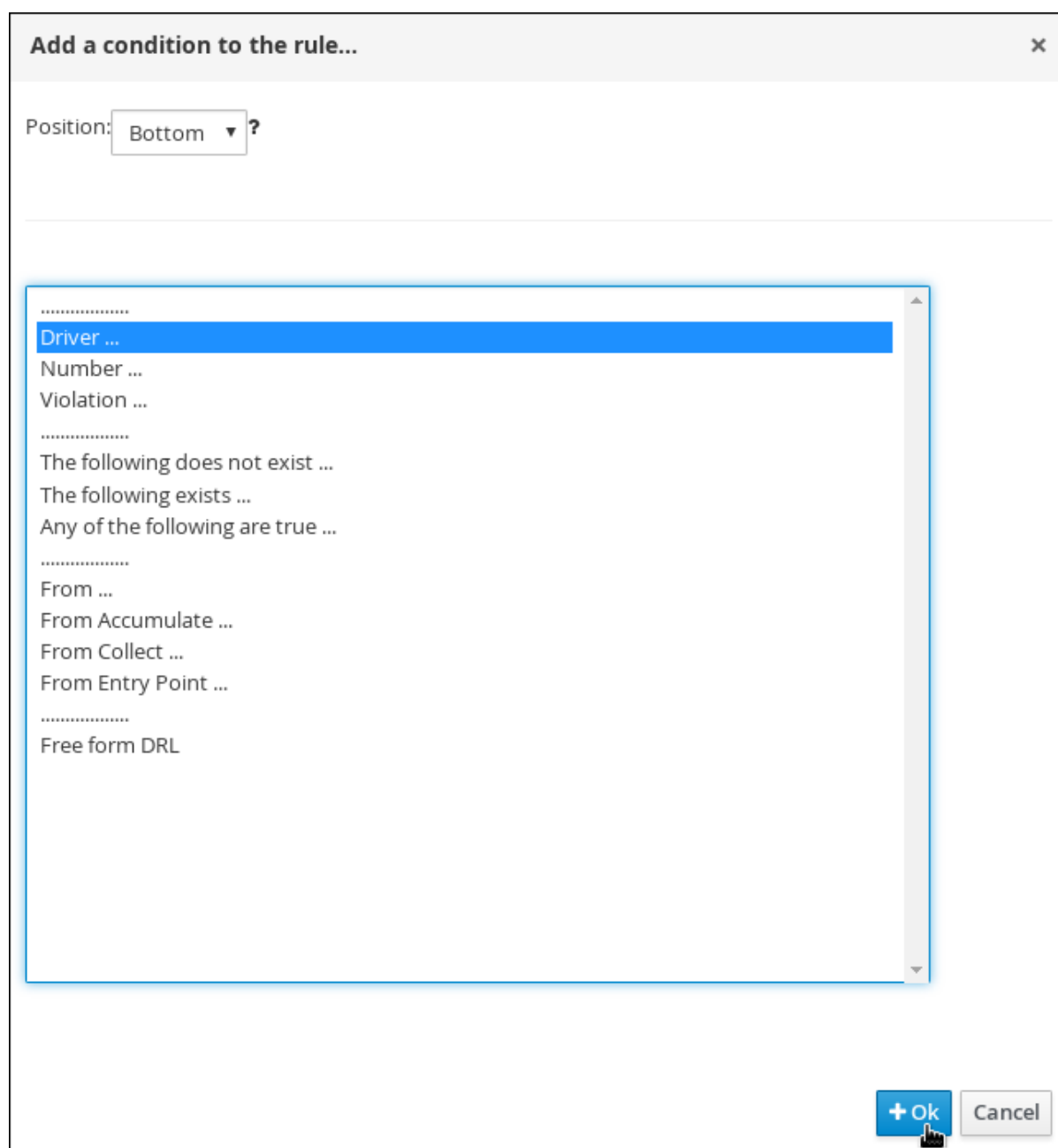

1. Click () next to the **WHEN** label to open the **Add a condition to the rule** window.
2. Select **Driver** and click **Ok**.

Figure 3.3. Create new Guided Rule window



3. Click the **There is a Driver** label to open the **Modify constraints for Driver** window.
4. Enter **driver** in the **Variable name** field and click **Set**.
5. Click **There is a Driver[driver]** and click **Expression editor**.
6. Click **[not bound]** to open the **Expression editor**.
7. In the **Bind the Expression to a new variable** field, enter: **previousPts** and click **Set**.
8. From the **Choose** menu, select **totalPoints**.
9. Click () next to line 1 (the **previousPts** label) to open the **Add a condition to the rule** window.
10. Select **From Accumulate** and click **Ok**.



11. Click **click to add pattern** above the **From Accumulate** label and select **Number** from the **choose fact type** menu.
12. Click **There is a number** label to open the **Modify constraints for Driver** window.
13. Click **Expression editor** and select **intValue()** from the **[not bound]: Choose** menu.
14. Click **[not bound]** to open the **Expression editor**.
15. In the **Bind the Expression to a new variable** field, enter: **totalNewPoints** and click **Set**.
16. Click **click to add pattern** and select **Violation** from the **choose fact type** menu.
17. Click **All Violation with:** to open the **Modify constraints for Violation** window and select **points** from the **Add a restriction on a field** menu.
18. Click **please choose** next to the **points** label and select **greater than**.
19. Click (), and then click **Literal value**.
20. Click the **points** label to open the **Add a field** window.
21. Enter **vPoints** and click **Set**.
22. In the **Function** field, enter **sum(vPoints)**.
23. Select **greater than or equal to** from the **totalNewPoints → please choose** menu.
24. Click (), click **New formula**, and enter **20-previousPts** in the new field.
25. Click **Save**, and then click **Save** to confirm your changes.

Figure 3.4. Suspension Rule conditions


DriverLicenseSuspensionRule.rdl - Guided Rules ▾

Editor Overview Source Data Objects



EXTENDS - None - ▾

WHEN

1. There is a Driver [driver] with:


[previousPts] :totalPoints. Choose... ▾ --- please choose --- ▾ 

There is a Number with:

[totalNewPoints] :intValue(). Choose... ▾ greater than or equal to ▾  20-previousPts 

From Accumulate

All Violation with:

2. [vPoints] points: greater than ▾ 0 

Custom Code **Function**

Function: sum(vPoints)

3.3. SETTING THE SUSPENSION RULE ACTIONS

Set the **Suspension** rule actions that are used to determine a driver's resulting penalties, including points and fine amounts, based on the Suspension rule conditions.

Prerequisite

You have set the Suspension rule conditions.

Procedure

1. Click (show options...).

Figure 3.5. show options selection





2. Click () next to the **THEN** label and select **Change field values of driver**, and click **Ok**.
3. Click the **Set value of Driver [driver]** field and select **state** from the **Add field** menu.
4. Click () next to **state** in the **Set value of Driver [driver]** section to open the **Field value** window.
5. Click **Literal value** and enter **suspend** in the new field.

Figure 3.6. New field




6. Click () next to the (options) label below the **Set value of Driver [driver]** section.
7. From the **Add an option to the rulewindow**, select the **ruleflow-group** option from the **Attribute** menu.
8. Enter **trafficViolation** in to the **ruleflow-group** field.
9. Click **Save**, and then click **Save** to confirm your changes.

Figure 3.7. Suspension rule actions



CHAPTER 4. GUIDED DECISION TABLES

Guided decision tables are a wizard-led alternative to uploaded decision table spreadsheets for defining business rules in a tabular format. With guided decision tables, you are led by a UI-based wizard in Business Central that helps you define rule attributes, metadata, conditions, and actions based on specified data objects in your project. After you create your guided decision tables, the rules you defined are compiled into Drools Rule Language (DRL) rules as with all other rule assets.

All data objects related to a guided decision table must be in the same project package as the guided decision table. Assets in the same package are imported by default. After you create the necessary data objects and the guided decision table, you can use the **Data Objects** tab of the guided decision tables designer to verify that all required data objects are listed or to import other existing data objects by adding a **New item**.

4.1. CREATING A TRAFFIC VIOLATION GUIDED DECISION TABLE

Use the Guided Decision Table designer to create the traffic violation guided decision table, which specifies the driver's specific violation and the resulting fine and points.

Prerequisite

You have created both the **Violation** and **Driver** data objects.

Procedure

1. Log in to Business Central.
2. Click **Menu** → **Design** → **Projects**, then **Driver_department_traffic_violations**.
3. Click **Add Asset** → **Guided Decision Table**, then enter:
 - **Guided Decision Table: SpeedViolationRule**
 - **Package: com.myspace.driver_department_traffic_violations**
4. Select **Unique Hit** from the **Hit Policy** menu.
5. Select **Extended entry, values defined in table body** in the **Table format** section.
6. Click **Ok** to open the **Guided Decision Tables** designer.

Figure 4.1. Guided Decision Tables designer

Create new Guided Decision Table [X]

Guided Decision Table*

SpeedViolationRule

Package

com.myspace.driver_department_traffic_violations

☐ Use Wizard

Hit Policy:

Unique Hit

Unique Hit

With unique hit policy each row has to be unique meaning there can be no overlap. There can never be a situation where two rows can fire, if there is the Verification feature warns about this on development time.

Table Format:

☒ Extended entry, values defined in table body

☐ Limited entry, values defined in columns

[+ Ok] [Cancel]

4.1.1. Inserting Violation Type columns

The **Violation Type** column contains the violation details such as the the driver's speed and if the driver was under the influence of drugs or alcohol.

Prerequisite

You have created the traffic violation guided decision table.

Procedure

1. Click **Columns** → **Insert Column** and then select **Include advanced options**.

Figure 4.2. Column tab

Editor **Columns** Overview Source Data Objects

2. Select **Add an Attribute column** and click **Next**.

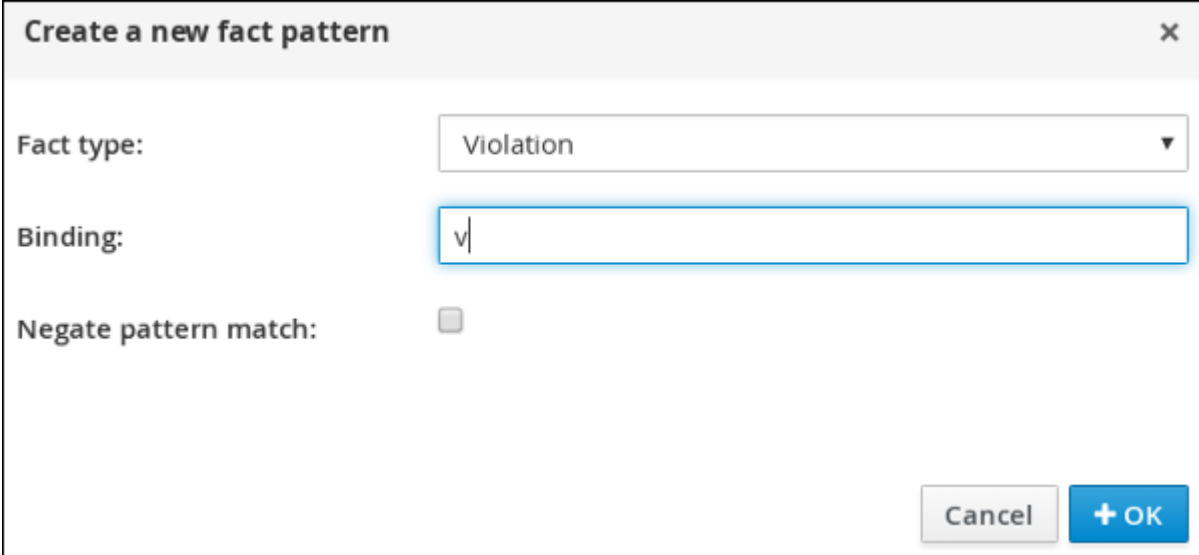
Figure 4.3. Add a new column window

3. Select **Ruleflow-group** and click **Finish**.
4. Expand **Attribute columns** and enter **trafficViolation** in the **Default value** field.

Figure 4.4. Attribute columns window

5. Click **Insert Column**, select **Add a Condition** → **Pattern** → **+Create a new Fact Pattern**
6. Select **Violation** from the **Fact type** menu, enter **v** in the **Binding** field, and click **OK**.

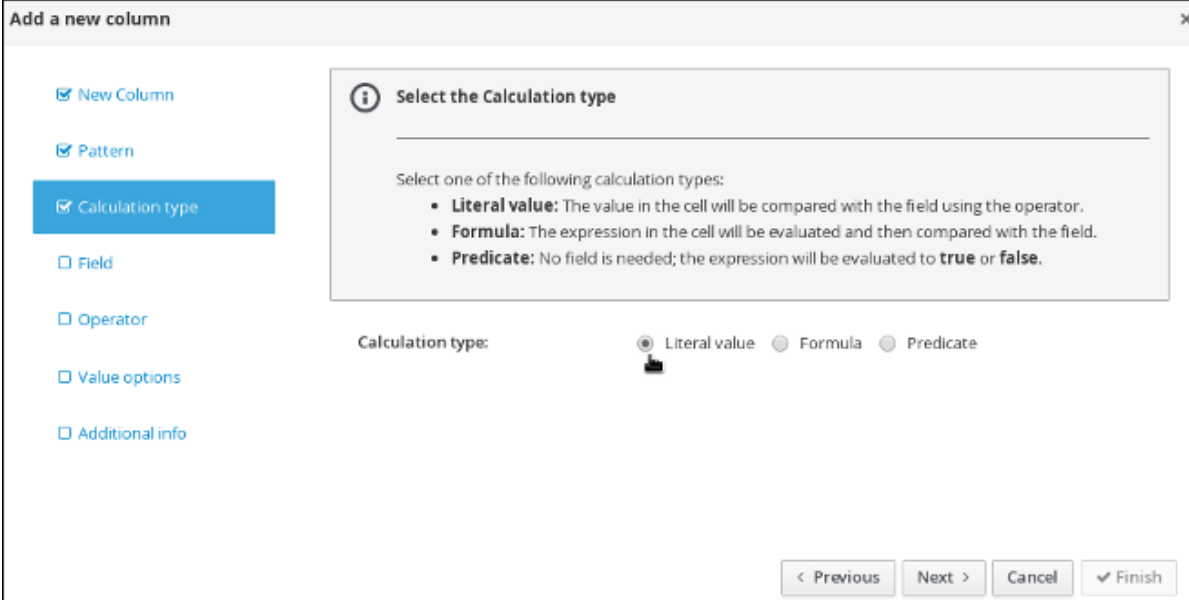
Figure 4.5. Create a new fact pattern window



The 'Create a new fact pattern' dialog box has a title bar with a close button (X). It contains three main sections: 'Fact type:' with a dropdown menu showing 'Violation'; 'Binding:' with a text input field containing 'v|'; and 'Negate pattern match:' with an unchecked checkbox. At the bottom right are 'Cancel' and '+ OK' buttons.

7. Select **Calculation type** → **Literal value**.

Figure 4.6. Calculation type options



The 'Add a new column' dialog box has a title bar with a close button (X). On the left is a sidebar with options: 'New Column' (checked), 'Pattern' (checked), 'Calculation type' (checked and highlighted in blue), 'Field' (unchecked), 'Operator' (unchecked), 'Value options' (unchecked), and 'Additional info' (unchecked). The main area is titled 'Select the Calculation type' with an information icon. It contains a list of calculation types: 'Literal value' (selected with a radio button), 'Formula' (unselected), and 'Predicate' (unselected). Below this is a 'Calculation type:' label and three radio buttons: 'Literal value' (selected), 'Formula' (unselected), and 'Predicate' (unselected). At the bottom right are '< Previous', 'Next >', 'Cancel', and '✓ Finish' buttons.

8. Select **Field** and then select **type** from the **Field** menu.
9. Select **Operator** and then **equal to** from the **Operator** menu.
10. Select **Value options** and enter **Speed, Driving while intoxicated, DWI=Driving while under the influence of drugs** in the **Value list (optional)** field.
11. Select **Additional info**, enter **Violation Type** in the **Header (description)** field, and click **Finish**.

Figure 4.7. Violation Type header

The screenshot shows the 'Add a new column' dialog box. On the left, a list of options is checked: New Column, Pattern, Calculation type, Field, Operator, Value options, and Additional info. The 'Additional info' option is highlighted with a blue button. On the right, there is a section titled 'Insert additional information about the column' with a sub-header 'Add header text for the column and other supplementary parameters.' Below this, the 'Header (description):' field contains the text 'Violation Type'. The 'Hide column:' checkbox is unchecked. At the bottom right, there are four buttons: '< Previous', 'Next >', 'Cancel', and a blue 'Finish' button with a checkmark.

12. Click **Insert Column**, select **Add a Condition** → **Pattern**, and select **Violation[v]** from the **Pattern** menu.
13. Select **Calculation type** → **Predicate** → **Field** and enter **actualSpeed-speedLimit > \$param**.
14. Select **Value options**, then select **Additional info** and enter **Speed Limit (MPH) >** in the **Header (description)** field.
15. Click **Finish**.

Figure 4.8. Speed Limit (MPH) > header

The screenshot shows the 'Add a new column' dialog box. On the left, the same list of options is checked as in Figure 4.7. The 'Additional info' option is highlighted with a blue button. On the right, the 'Header (description):' field now contains the text 'Speed Limit (MPH) >'. The 'Hide column:' checkbox remains unchecked. At the bottom right, the same four buttons are present: '< Previous', 'Next >', 'Cancel', and a blue 'Finish' button with a checkmark.

16. Click **Insert Column**, select **Add a Condition** → **Pattern**, and select **Violation[v]** from the **Pattern** menu.
17. Select **Calculation type** → **Predicate**.
18. Select **Field** and enter **actualSpeed-speedLimit < \$param** in the **Field** field.

19. Select **Operator**, select **Value options**, then select **Additional info**.
20. Enter **Speed Limit (MPH) <** in the **Header (description)** field and click **Finish**.

Figure 4.9. Condition columns

SpeedViolationRule.gdst - Guided Decision Tables

Editor **Columns** Overview Source Data Objects

[Insert Column](#)

- > Attribute columns
- > Metadata columns
- ▼ Condition columns

Violation [v]	
Violation Type	Edit Delete
Speed Limit (MPH) >	Edit Delete
Speed Limit (MPH) <	Edit Delete
- > Action columns

All the rules inherit: - None -

4.1.2. Inserting Fine Amount and Points columns

The **Fine Amount*** and **Points** columns contain the fines and points based on the corresponding **Violation Type** field values.

Prerequisite

You have inserted the **Violation Type** column in to the traffic violation guided decision table.

Procedure

1. Click **Insert Column**, select **Set the value of a field**→ **Pattern**, and select **Violation[v]** from the **Pattern** menu.
2. Select **Field** and then **fineAmount** from the **Field** menu.
3. Select **Value options**, and then select **Additional info**, and enter **Fine Amount** in the **Header (description)** field.

4. Select the **Update engine with changes** option and click **Finish**.

Figure 4.10. Fine Amount header

The screenshot shows a dialog box titled "Add a new column". On the left, there is a list of tabs: "New Column", "Pattern", "Field", "Value options", and "Additional info". The "Additional info" tab is selected and highlighted in blue. To the right of the tabs, there is a section titled "Insert additional information about the column" with a sub-header "Add header text for the column and other supplementary parameters." Below this, there are three fields: "Header (description):" with the value "Fine Amount", "Hide column:" with a checkbox, and "Update engine with changes:" with a checked checkbox. At the bottom right, there are four buttons: "< Previous", "Next >", "Cancel", and "✓ Finish". The "Finish" button is highlighted in blue.

5. Click **Insert Column**, select **Set the value of a field**→ **Pattern**, and select **Violation[v]** from the **Pattern** menu.
6. Select **Field** and then **points** from the **Field** menu.
7. Select **Value options**, then select **Additional info** and enter **Points** in the **Header (description)** field.
8. Select the **Update engine with changes** option and click **Finish**.

Figure 4.11. Action columns

The screenshot shows a section titled "Action columns" with a dropdown arrow. Below the title, there is a list of columns. The first column is "[v]". The second column is "Fine Amount" with "Edit" and "Delete" links to its right. The third column is "Points" with "Edit" and "Delete" links to its right. At the bottom, there is a label "All the rules inherit:" followed by a dropdown menu showing "- None -".

4.1.3. Inserting guided decision table rows

After you have created your columns in the guided decision table, you can add rows and define rules within the decision table designer.

Prerequisite

You have created the **Violation Type**, **Fine Amount**, and **Points** columns in the traffic violation guided decision table.

Procedure

1. Click **Editor** → **Insert** → **Append row**. Repeat this step to add a total of five table rows.
2. Fill out the table as shown in the following example:

Figure 4.12. Populated data fields

SpeedViolationRule							
U	Description	ruleflow-group	v: Violation			v	
			Violation Type	Speed Limit (MPH) >	Speed Limit (MPH) <	Fine Amount	Points
1		trafficViolation	Speed	10	20	100	1
2		trafficViolation	Speed	20	30	200	2
3		trafficViolation	Speed	30	40	300	3
4		trafficViolation	Driving while intoxicated			500	4
5		trafficViolation	Driving while under the influence of drugs			500	4

3. Click **Save**, and then click **Save** to confirm your changes.

CHAPTER 5. TEST SCENARIOS

Test Scenarios in Red Hat Process Automation Manager enable you to validate the functionality of rules, models, and events before deploying them into production. A test scenario uses data for conditions that resemble an instance of your fact or project model. This data is matched against a specific set of rules and if the expected results match the actual results, the test is successful. If the expected results do not match the actual results, then the test fails.

After you run all test scenarios, the status of the scenarios is reported in a **Reporting** panel.

Test scenarios can be executed one at a time or as a group. The group execution contains all the scenarios from one package. Test scenarios are independent, so that one scenario cannot affect or modify the other.


5.1. TESTING THE SPEED LIMIT SCENARIO

Test the speed limit scenario using the data that you specified when you created the traffic violation guided decision table.

Prerequisites

- You have created the **Driver_department_traffic_violations** project.
- You have created the **Violation** and **Driver** data objects.
- You have created the speed violation guided decision table.

Procedure

1. Log in to Business Central.
2. Click **Menu** → **Design** → **Projects**, then **Driver_department_traffic_violations**.
3. Click **Add Asset** → **Test Scenario**.
4. In the **Create new Test Scenario window** wizard, enter the following values:
 - a. **Test Scenario:** **Speed limit 10-20**.
 - b. **Package:** select **com.myspace.driver_department_traffic_violations**.
5. Click **Ok**.
6. Click **+GIVEN** to open the **New input** window.
7. Select **Violation** from the **Insert a new fact** menu.
8. Enter **violation** in the **Fact name** field and click **Add**.
9. Click **Add a field** located under **Insert 'Violation'[violation]** to open the **Choose a field to add** window.
10. Select **speedLimit** from the **Choose a field to add** menu and click **OK**.
11. Click (), and then click **Literal value** next to **speedLimit**.



12. Click **Literal value** in the **Field value** window, then enter **40** in the **speedLimit** field.
13. Click **Insert 'Violation'[violation]**.
14. Select **type** from the **Choose a field to add** menu in the **Choose a field to add** window, and click **OK**.
15. Click (), and then click **Literal value** next to **Literal value**.
16. Enter **Speed** in the **type** field.
17. Click **Insert 'Violation'[violation]**.
18. Select **actualSpeed** from the **Choose a field to add** menu, and click **OK**.
19. Click (), and then click **Literal value** next to **Literal value**.
20. Enter **55** in the **actualSpeed** field.
21. Click **+Expect** to open the **New expectation** window.
22. Expand the **Rule** menu, select **Row 1 SpeedViolationRule**, and click **OK**.
23. Click **+GIVEN** to open the **New input** window, enter **trafficViolation** in the **Activate rule flow group** field, and click **Add**.
24. Click **+Expect** to open the **New expectation** window and click **Add** next to **Fact value: violation**.
25. Click **Violation 'violation' has values:** to open the **Choose a field to add** window.
26. Select **fineAmount** from the **Choose a field to add** menu and click **OK**.
27. Enter **100.0** in the **fineAmount: equals** field.
28. Click **Violation 'violation' has values:** to open the **Choose a field to add** window.
29. Select **points** from the **Choose a field to add** menu and click **OK**.
30. Enter **1** in the **points: equals** field.
31. Click **Save**, and then click **Save** to confirm your changes.
32. Click **Run scenario**.

Figure 5.1. Speed test results screen

Speed limit 10-20.scenario - Test Scenarios

Model Overview Data Objects Settings Audit log

+ GIVEN

Insert 'Violation' [violation] **'Violation' facts**

speedLimit: 40

type: Speed

actualSpeed: 55

Activate rule flow group

trafficViolation

+ CALL METHOD

Add input data and expectations here.

+ EXPECT

Expect rules

Row 1 SpeedViolationRule: fired at least once

Violation 'violation' has values:

fineAmount: equals 100.0

points: equals 1

Delete one scenario block above

More...

+ (globals)

Reporting

Success

1 test(s) ran in 0 minutes 0 seconds.

Text

If the values and conditions set in the test scenario meet the requirements as specified in the speed violation guided decision table, the Reporting section at the bottom of the window displays a Success message.

5.2. TESTING THE DRIVER LICENSE SUSPENSION SCENARIO

Test the driver license suspension scenario using the data that you specified when you set the Driver License Suspension rules and actions.

Prerequisites

- You have created the **Driver_department_traffic_violations** project.
- You have created the **Violation** and **Driver** data objects.
- You have set the Driver License Suspension rules and actions.

Procedure

1. Log in to Business Central.
2. Click **Menu** → **Design** → **Projects**, then **Driver_department_traffic_violations**.
3. Click **Add Asset** → **Test Scenario**.
4. In the **Create new Test Scenario** window wizard, enter the following values:
 - a. **Test Scenario:** **Suspend due to total points**.
 - b. **Package:** select **com.myspace.driver_department_traffic_violations**.

5. Click **Ok**.
6. Click **+GIVEN** to open the **New input** window.
7. Select **Driver** from the **Insert a new fact** menu.
8. Enter **driver** in the **Fact name** field and click **Add**.
9. Click **Add a field** located under **'Driver'[driver]** to open the **Choose a field to add** window.
10. Select **totalPoints** from the **Choose a field to add** menu and click **OK**.
11. Click () next to **totalPoints**, click **Literal value**, then enter **10** in the **totalPoints** field.
12. Click **+GIVEN** to open the **New input** window.
13. Select **Violation** from the **Insert a new fact** menu.
14. Enter **violation** in the **Fact name** field and click **Add**.
15. Click **Add a field** located under **Insert 'Violation'[violation]** to open the **Choose a field to add** window.
16. Select **points** from the **Choose a field to add** menu and click **OK**.
17. Click (), and then click **Literal value** next to **Literal value**.
18. Enter **10** in the **points** field.
19. Click **+Expect** to open the **New expectation** window.
20. Expand the **Rule** menu, select **DriverLicenseSuspensionRule**, and click **OK**.
21. Click **+GIVEN** to open the **New input** window, enter **trafficViolation** in the **Activate rule flow group** field, and click **Add**.
22. Click **+Expect** to open the **New expectation** window and click **Add** next to **Fact value: driver**.
23. Click **Driver 'driver' has values:** to open the **Choose a field to add** window.
24. Select **state** from the **Choose a field to add** menu and click **OK**.
25. Enter **suspend** in the **state: equals** field.
26. Click **Save**, and then click **Save** to confirm your changes.
27. Click **Run scenario**.

Result

The rule is fired and the driver's license is suspended because the total number of points is ≥ 20 .

Figure 5.2. Suspension test results screen

Suspend due to total points.scenario - Test Scenarios ▾

Save Delete Rename Copy Download Run scenario Run all scenarios Latest Version ▾ View Alerts

Model Overview Data Objects Settings Audit log

+ GIVEN

Insert 'Driver' [driver] Driver facts

totalPoints: 10

Insert 'Violation' [violation] Violation facts

points: 10

Activate rule flow group

trafficViolation

+ CALL METHOD

Add input data and expectations here.

+ EXPECT

Expect rules

DriverLicenseSuspensionRule: fired at least once

Driver 'driver' has values:

state: equals suspend driver

Delete one scenario block above

More...

+ (globals)

Reporting

Success

1 test(s) ran in 0 minutes 0 seconds.

Text

If the values and conditions set in the test scenario meet the requirements that you specified when you set the Driver License Suspension rules and actions, the Reporting section at the bottom of the window displays a Success message.

5.3. TESTING THE MULTIPLE VIOLATIONS SCENARIO

Copy the **Suspend due to total points** asset and modify it to create the driver license suspension scenario for drivers with multiple violations using the data that you specified when you set the Driver License Suspension rules and actions.

Prerequisites

- You have created the **Driver_department_traffic_violations** project.
- You have created the **Violation** and **Driver** data objects.
- You have set the driver license suspension rules and actions.

Procedure

1. Log in to Business Central.
2. Click **Menu** → **Design** → **Projects**, then **Driver_department_traffic_violations**.
3. Click **Suspend due to total points** → **Copy**, enter **Suspend due to multiple violations** in the **New Asset Name** field, and click **Make a Copy**.
4. Click **Space** → **MySpace** → **Driver_department_traffic_violations**, and then select the **Suspend due to multiple violations** Asset.


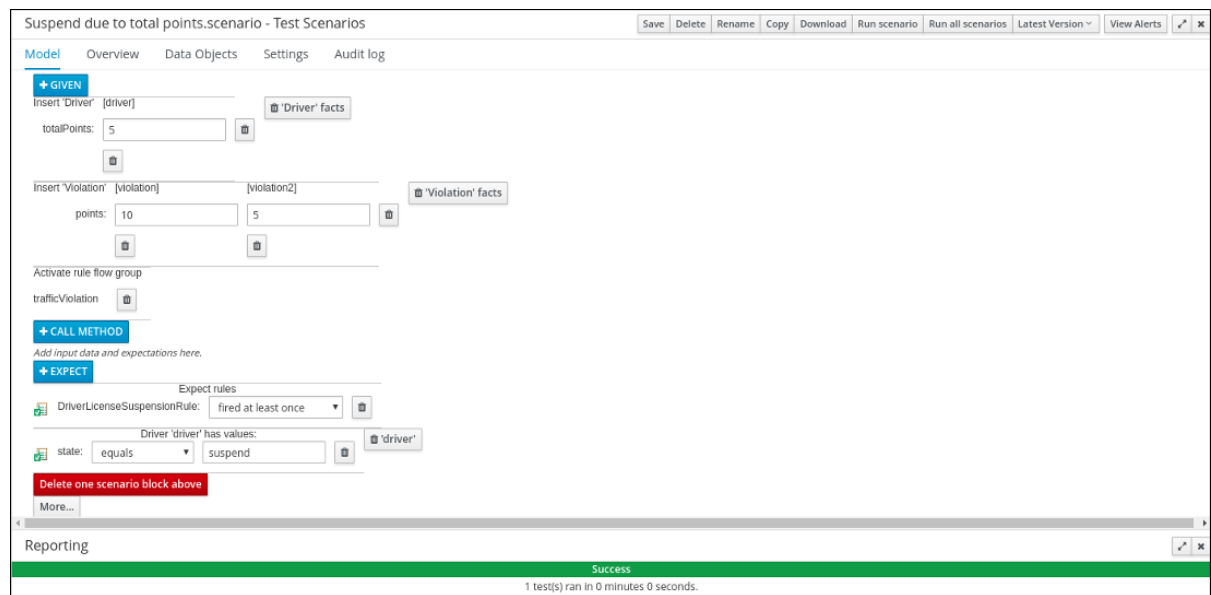
5. Click **+GIVEN** to open the **New input** window.
6. Select **Violation** from the **Insert a new fact** menu.
7. Enter **violation2** in the **Fact name** field and click **Add**.
8. Click () next to **points**, click **Literal value**, then enter **5** in the **points → violation2** field.
9. In the **totalPoints** field, change the value from **10** to **5**.
10. Click **Save**, and then click **Save** to confirm your changes.
11. Click **Run scenario**.

Figure 5.3. Suspension test results screen



If the values and conditions set in the test scenario meet the requirements that you specified when you set the Driver License Suspension rules and actions, the Reporting section at the bottom of the window displays a Success message.

APPENDIX A. VERSIONING INFORMATION

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