



Red Hat Decision Manager 7.0

Getting started with decision services

Red Hat Decision Manager 7.0 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 Decision Central in Red Hat Decision Manager to design a variety of decision services. In this tutorial, you will create and test a driver's license suspension scenario.

Prerequisites

- Installed Red Hat JBoss Enterprise Application Platform 7.1.0. See [Red Hat JBoss EAP 7.1.0 Installation Guide](#).
- Installed Red Hat Decision Manager. For more information, see the [Installing Red Hat Decision Manager on premise](#).
- Red Hat Decision Manager is running and you can log in to Decision Central with the **admin** role. For more information, see the [Installing Red Hat Decision Manager on premise](#).

CHAPTER 1. CREATING THE TRAFFIC VIOLATIONS PROJECT

A project is the container for assets, such as data objects, guided decision tables, and guided rules. In this chapter, you will create the **Driver department traffic violations** project.

Procedure

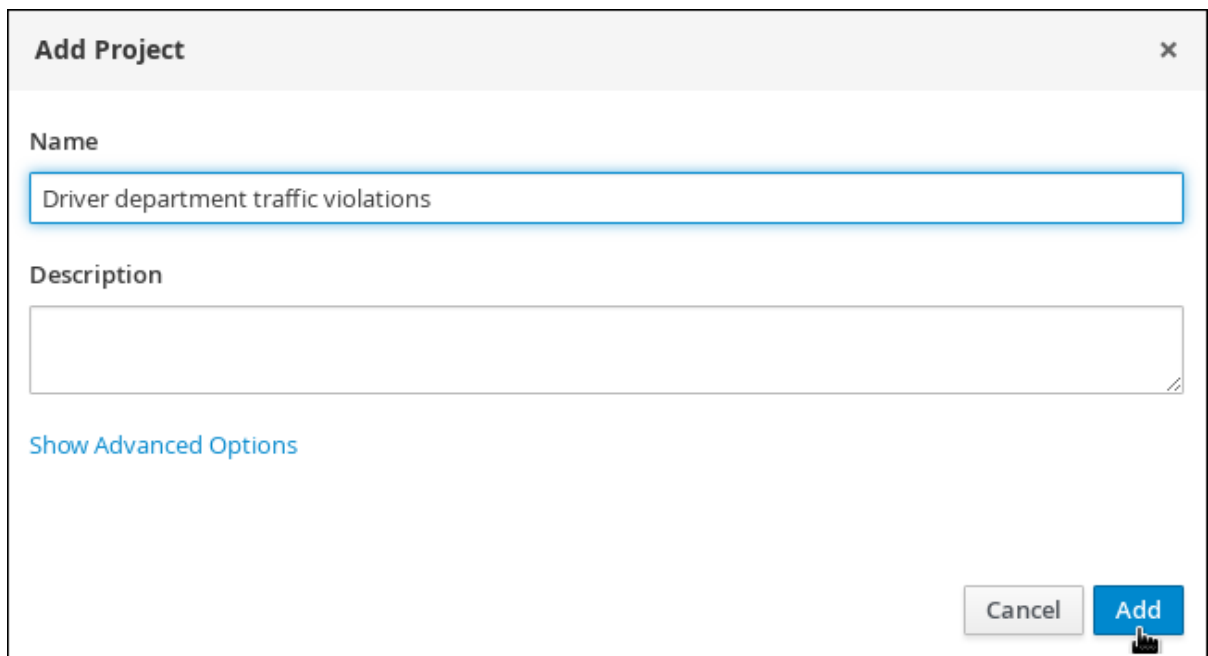
1. Log in to Decision Central.
2. Go to **Menu** → **Design** → **Projects**.
Tip: Red Hat Decision Manager provides a default space called **myteam**, as shown in the following image. You can use the default space to create and test example projects.

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 dialog window titled 'Add Project' with a close button (X) in the top right corner. It contains a 'Name' field with the text 'Driver department traffic violations' and a 'Description' field which is empty. Below the description field is a link that says 'Show Advanced Options'. At the bottom right of the dialog are two buttons: 'Cancel' and 'Add'.

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 **Date of Birth** to specify personal details for loan application rules. These custom data types determine what data your assets and your decision service are based on.

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

Figure 2.1. Driver department traffic violations data objects

VIOLATION DATA OBJECT	DRIVER DATA OBJECT
ID: code LABEL: Code TYPE: String	ID: name LABEL: Full Name TYPE: String
ID: points LABEL: Points TYPE: Integer	ID: age LABEL: Age TYPE: Integer
ID: violationDate LABEL: Violation Date TYPE: Date	ID: state LABEL: State TYPE: String
ID: type LABEL: Type TYPE: String	ID: city LABEL: City TYPE: String
ID: fineAmount LABEL: Fine Amount TYPE: Double	ID: violations LABEL: Violations TYPE: Violation (org.jboss.example.traffic _violations.Violation) <i>Note: The violations field is set to "List" to hold multiple items for the given type.</i>
ID: speedLimit LABEL: Speed Limit TYPE: Integer	
ID: actualSpeed LABEL: Actual Speed	

LABEL: Actual Speed TYPE: Integer	ID: fineAmount LABEL: Fine Amount TYPE: Double
	ID: totalPoints LABEL: Total Points TYPE: Integer
	ID: reason LABEL: Reason TYPE: 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. Log in to Decision Central. Click **Menu** → **Design** → **Projects**, then **Driver department traffic violations**.
2. Click **Create New Asset** → **Data Object**.
3. In the **Create new Data Object** wizard, enter the following values:
 - **Data Object:** **Violation**.
 - **Package:** select **com.myteam.driverdepartmenttrafficviolations**.
4. Click **Ok**.

Figure 2.2. Create new Data Object window

Create new Data Object [x]

Data Object *

Violation

Package

com.myteam.org.jboss.example.traffic_violations

Persistable ⓘ

+ Ok Cancel

2.1.1. Adding the Violation data object data fields

Prerequisites

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

Procedure

The data fields in the **Violation** data object define the available constraints that you can select from when you define your violation rules later.

1. In the **Violation-general properties** section, locate the **Label** property and enter: **Violation**.

Figure 2.3. General properties

'Violation (Violation)'- general properties

Identifier	Violation
Label	Violation
Description	
Package	com.myteam.org.jboss.example.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**, then click **Save** to confirm your changes.

- Click the **Driver department traffic violations** label to return to the **Assets** view of the project.

Figure 2.4. Violation data object fields

The screenshot shows the 'Violation (Violation)' data object in the IDE. It features a table with columns for Identifier, Label, and Type, and a 'Delete' button for each row. A '+ add field' button is located in the top right corner of the table area.

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**.

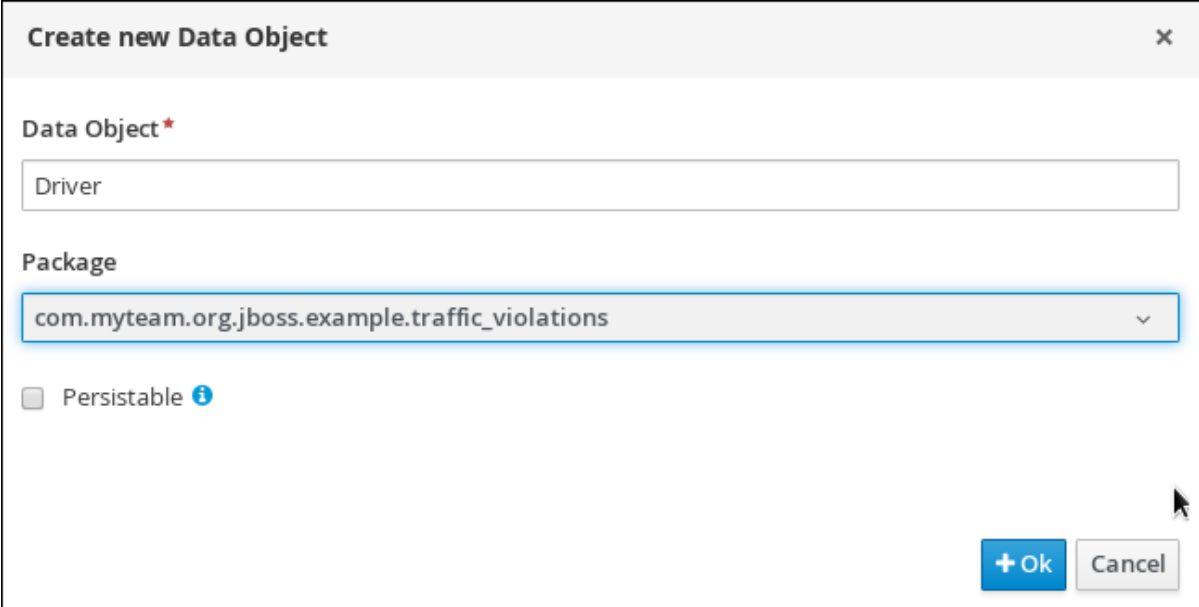
Prerequisites

You have created the **Driver department traffic violations** project.

Procedure

- Log in to Decision Central. Click **Menu** → **Design** → **Projects**, then **Driver department traffic violations**.
- Click **Create New Asset** → **Data Object**.
- In the **Create new Data Object** wizard, enter the following values:
 - **Data Object:** **Driver**.
 - **Package:** select **com.myteam.driverdepartmenttrafficviolations**.
- Click **Ok**.

Figure 2.5. Create new Data Object window



The screenshot shows a dialog box titled "Create new Data Object". It contains the following elements:

- Data Object ***: A text input field containing "Driver".
- Package**: A dropdown menu showing "com.myteam.org.jboss.example.traffic_violations".
- Persistable**: A checkbox that is currently unchecked, with an information icon to its right.
- Buttons**: "+ Ok" and "Cancel" buttons at the bottom right.

2.2.1. Adding the Driver data object data fields

Prerequisites

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

Procedure

The data fields in the **Driver** data object define the driver details that you can select from when you define your violation rules later.

1. In the '**Driver**' - **general properties** section, locate the **Label** property and enter: **Driver**.
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.myteam.driverdepartmenttrafficviolations.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**, 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 2.6. Driver data object fields

Spaces » myteam » [Driver department traffic violations](#) » Driver

> Driver.java - Data Objects ▾

[Editor](#) Overview Source

Driver (Driver) + add field

Identifier	Label	Type	
name	Full Name	String	Delete
age	Age	String	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 'Editor' tab of the Guided Rule designer. The interface is divided into several sections:

- EXTENDS:** A dropdown menu set to '- None -'.
- WHEN:**
 - Condition 1: 'There is a Driver [driver] with:'. A sub-condition for '[previousPts] totalPoints' is set to '--- please choose ---'.
 - Condition 2: 'There is a Number with:'. A sub-condition for '[totalNewPoints] :intValue()' is set to 'Choose...' with a comparison operator of 'greater than or equal to' and a value of '20-previousPts'.
 - Condition 3: 'From Accumulate All Violation with:'. A sub-condition for '[vPoints] points' is set to 'greater than' with a value of '0'.
 - Custom Code: A 'Function' field containing 'sum(vPoints)'.
- THEN:**
 - Action 1: 'Set value of Driver [driver]' with 'state' set to 'suspend'.
 - (options) Attributes:
 - 'dialect' set to 'mvel'
 - 'ruleflow-group' set to 'trafficViolation'

3.1. CREATING THE DRIVER LICENSE SUSPENSION RULE

The **Driver license suspension** rule is created using the Guided Rule wizard and is comprised of various conditions and their resulting actions.

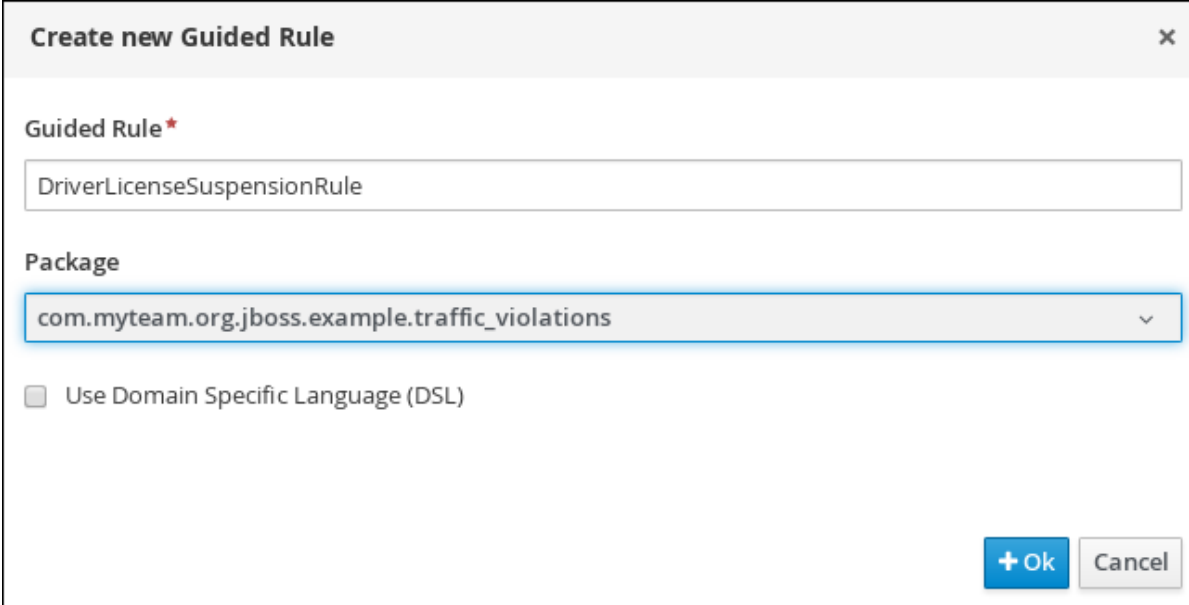
Prerequisite

Created both the **Violation** and **Driver** data objects.

Procedure

1. Log in to Decision Central. Click **Menu** → **Design** → **Projects**, then **Driver department traffic violations**.
2. Click **Create New Asset** → **Guided Rule**, then enter:
 - **Guided Rule: DriverLicenseSuspensionRule**
 - **Package: com.myteam.driverdepartmenttrafficviolations**
3. 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.myteam.org.jboss.example.traffic_violations

Use Domain Specific Language (DSL)

[+ Ok] [Cancel]

3.2. SETTING THE SUSPENSION RULE CONDITIONS

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

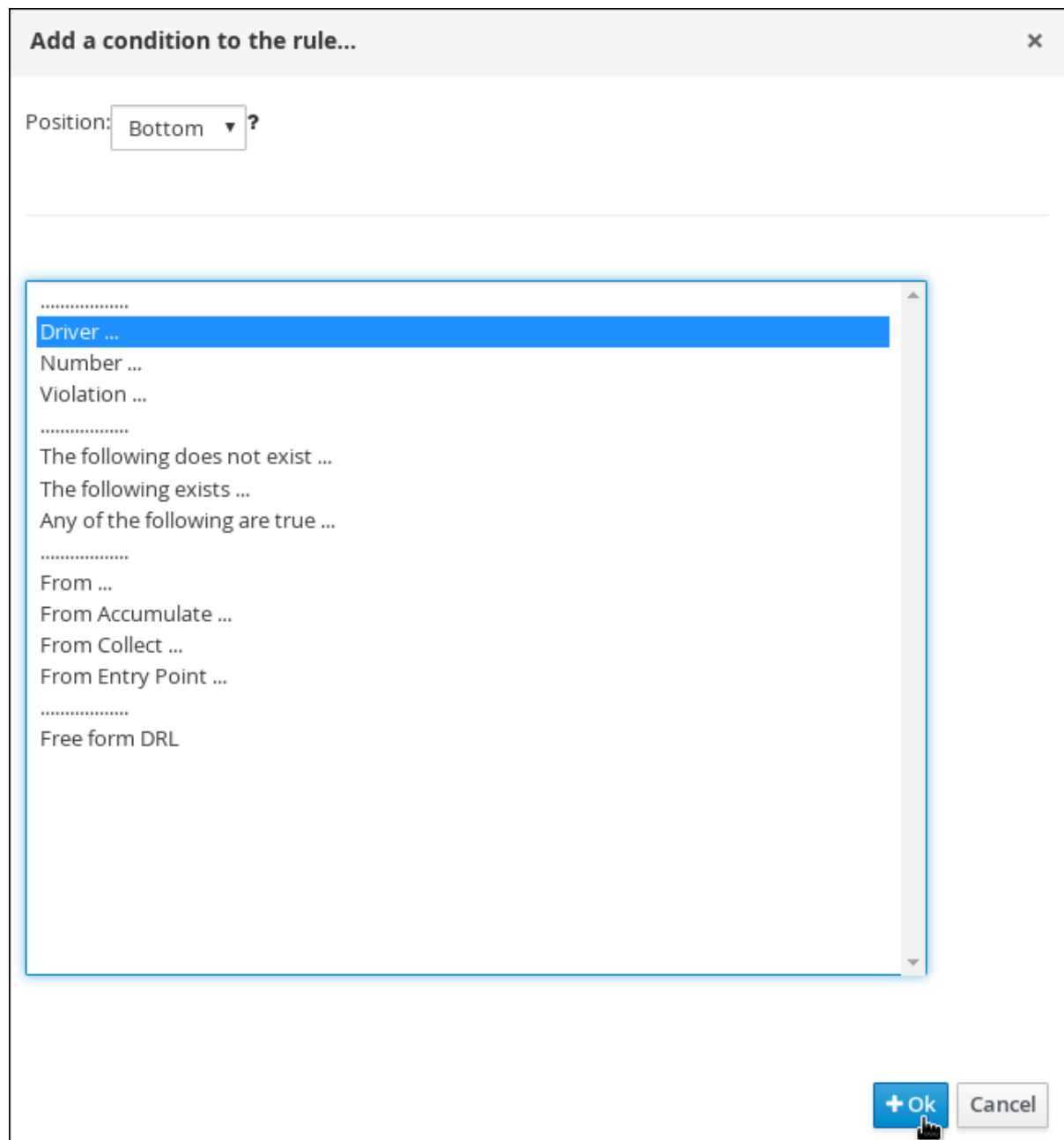
Prerequisite

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. . . Select **Driver** and click **Ok**.

Figure 3.3. Create new Guided Rule window



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



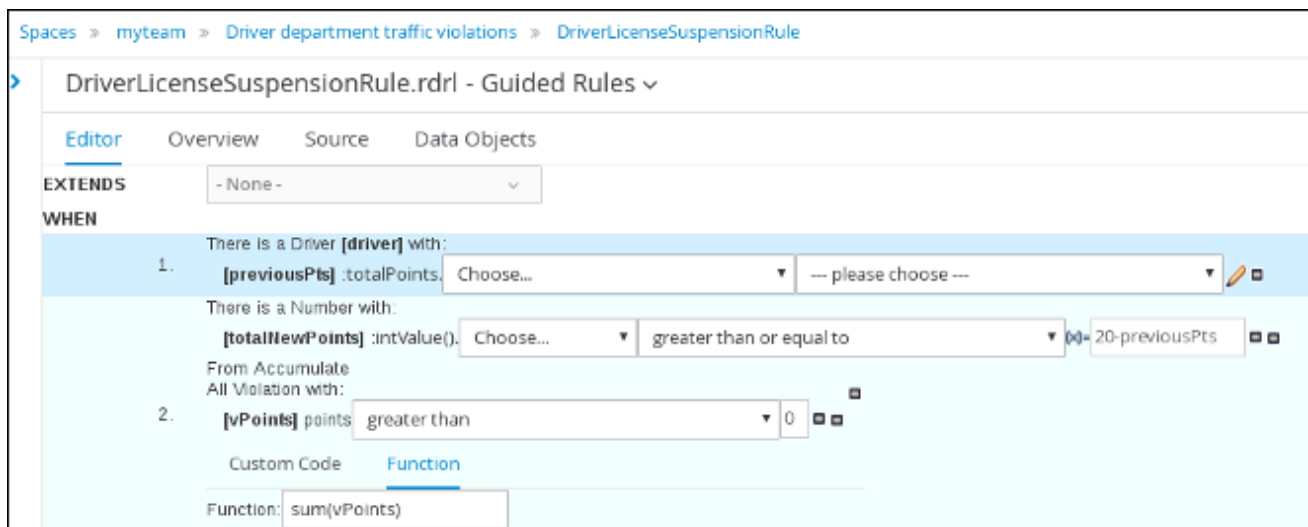
11. Click **There is a number** label to open the **Modify constraints for Driver** window.
12. Click **Expression editor** and select **intValue()** from the **[not bound]: Choose** menu.
13. Click **[not bound]** to open the **Expression editor**.
14. In the **Bind the Expression to a new variable**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

Figure 3.4. Suspension Rule conditions



3.3. SETTING THE SUSPENSION RULE ACTIONS

The **Suspension** rule actions determine a driver's resulting penalties including points and fine amounts based on the **Suspension** rule conditions.

Prerequisite

You have created set the Suspension rule conditions

Procedure

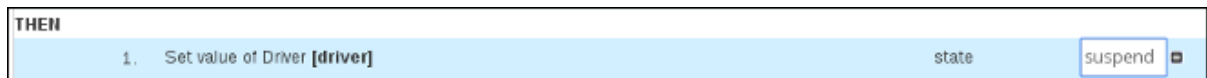
1. Click **(show options...)**.

Figure 3.5. show options selection



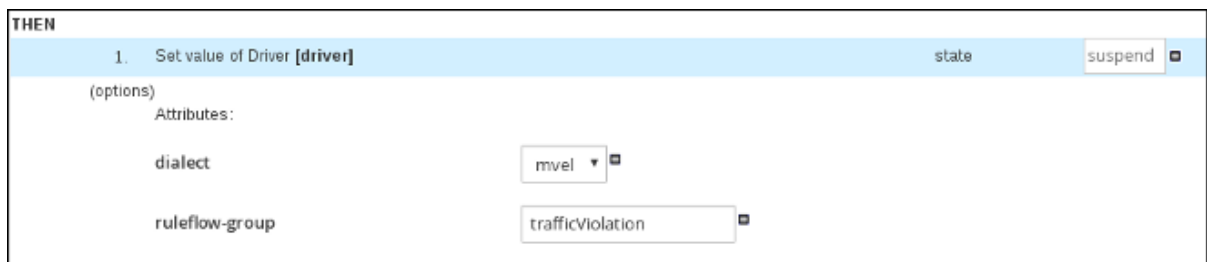
2. Click **+** next to the **THEN** label and select **Change field values of driver**, then click **Ok**.
3. Click the **Set value of Driver [driver]** field and select **state** from the **Add field** pull-down menu.
4. Click **✎** next to **state** in the **Set value of Driver [driver]** section to 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 rule** window, select the **ruleflow-group** option from the **Attribute** pull-down menu.
8. Enter **trafficViolation** in to the **ruleflow-group** field.
9. Click **Save**, 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 Decision 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 the necessary data objects and the guided decision table are created, 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

Created both the **Violation** and **Driver** data objects.

Procedure

1. Log in to Decision Central. Click **Menu** → **Design** → **Projects**, then **Driver department traffic violations**.
2. Click **Create New Asset** → **Guided Decision Table**, then enter:
 - **Guided Decision Table: SpeedViolationRule**
 - **Package: com.myteam.driverdepartmenttrafficviolations**
3. Select **Unique Hit** from the **Hit Policy** pull-down menu.
4. Select **Extended entry, values defined in table body** in the **Table format** section.
5. 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*

Package

Use Wizard

Hit Policy:

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

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.

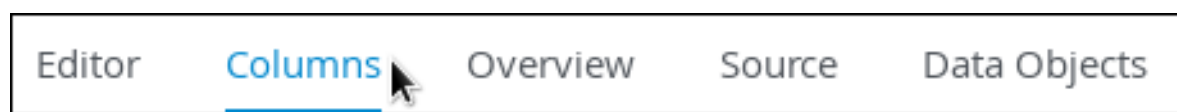
Prerequisite

Created the traffic violation guided decision table.

Procedure

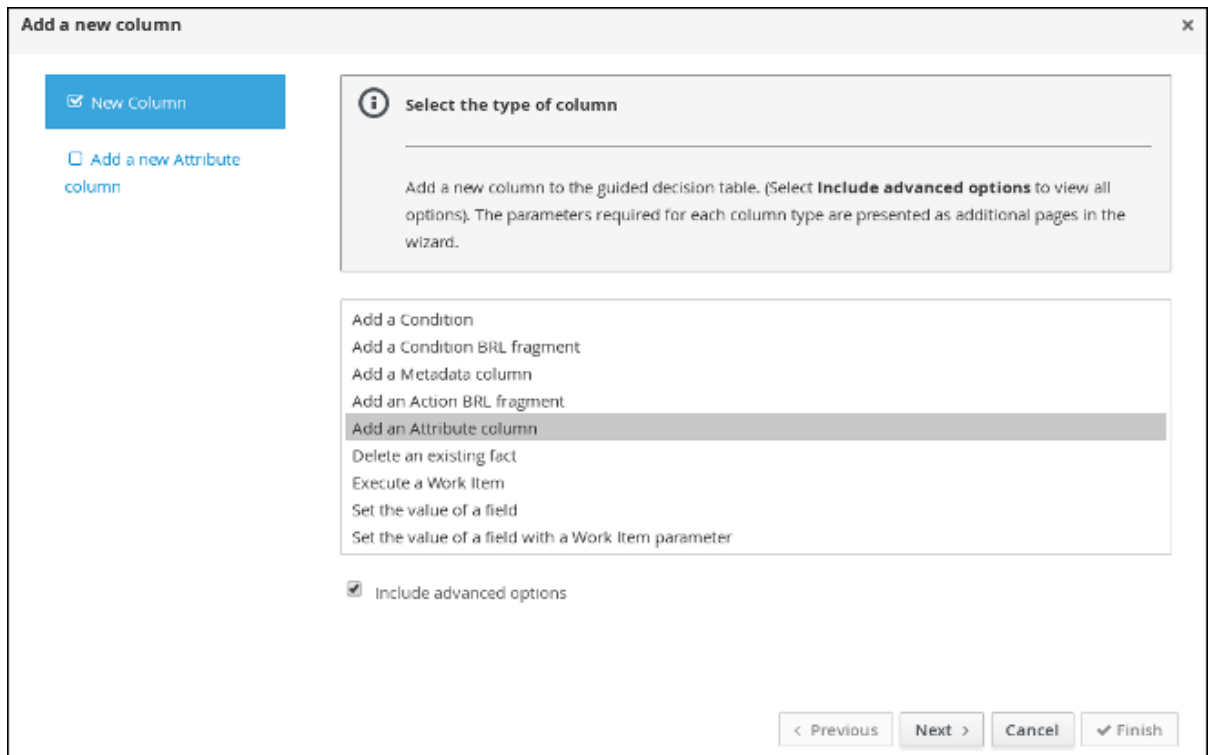
1. Click **Columns** → **Insert Column** and select **Include advanced options**.

Figure 4.2. Column tab



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** pull-down menu, enter **v** in the **Binding** field, and click **OK**.

Figure 4.5. Create a new fact pattern window

The dialog box titled "Create a new fact pattern" has a close button (X) in the top right corner. It contains three main sections:

- Fact type:** A dropdown menu currently showing "Violation".
- Binding:** A text input field containing the characters "v|".
- Negate pattern match:** A checkbox that is currently unchecked.

 At the bottom right, there are two buttons: a grey "Cancel" button and a blue "+ OK" button.

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

Figure 4.6. Calculation type options

The dialog box titled "Add a new column" has a close button (X) in the top right corner. On the left, there is a sidebar with several options:

- New Column
- Pattern
- Calculation type (highlighted in blue)
- Field
- Operator
- Value options
- Additional info

 The main area contains a panel titled "Select the Calculation type" with an information icon (i). Below the title, it says "Select one of the following calculation types:" followed by a bulleted list:

- **Literal value:** The value in the cell will be compared with the field using the operator.
- **Formula:** The expression in the cell will be evaluated and then compared with the field.
- **Predicate:** No field is needed; the expression will be evaluated to **true** or **false**.

 Below this list, there are three radio buttons under the label "Calculation type:":

- Literal value
- Formula
- Predicate

 At the bottom right, there are four buttons: "< Previous", "Next >", "Cancel", and "✓ Finish".

8. Select **Field** and then select **type** from the **Field** pull-down menu.
9. Select **Operator** and then **equal to** from the **Operator** pull-down 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** pull-down 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**.

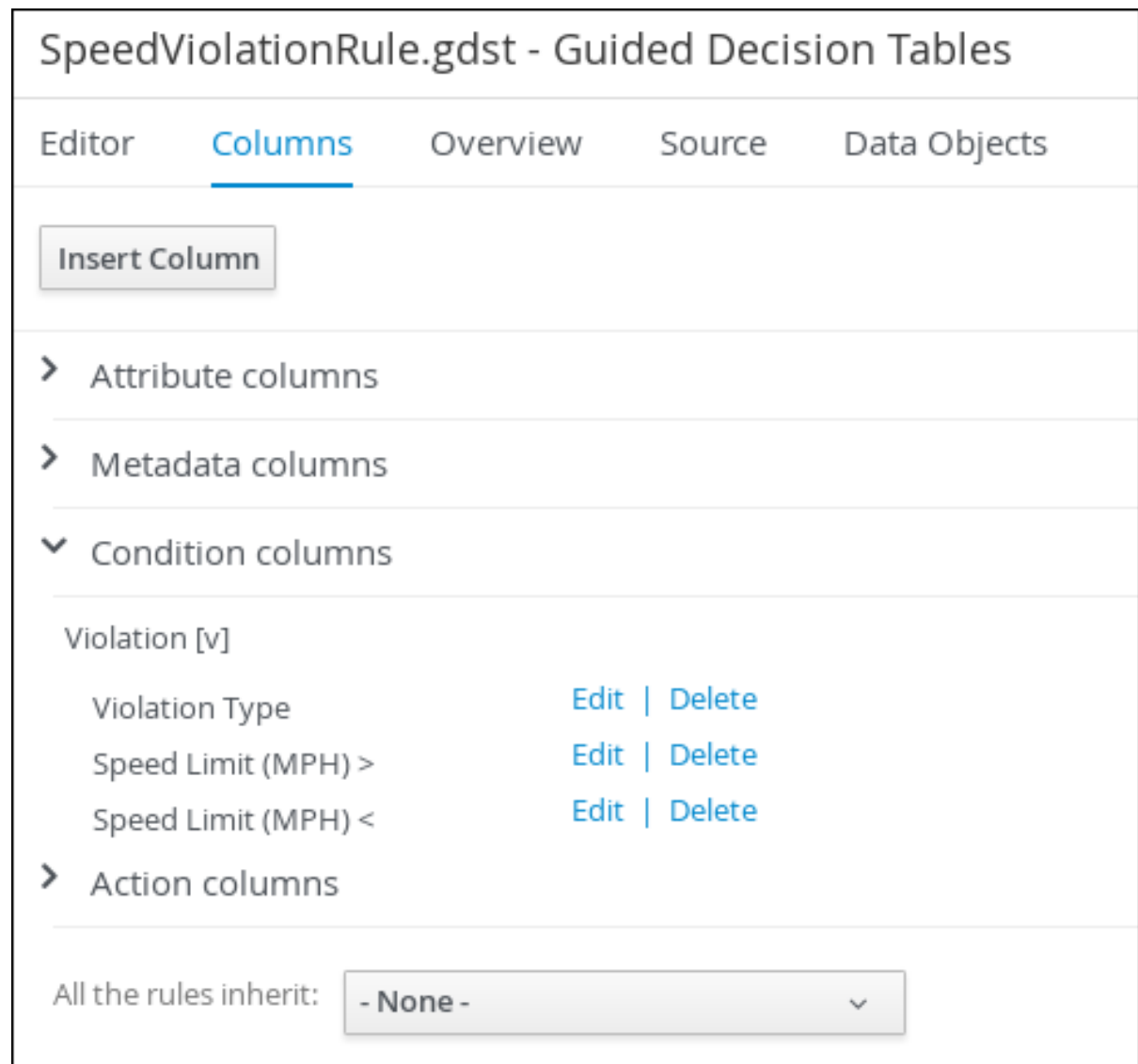
Figure 4.8. Speed Limit (MPH) > header

The screenshot shows the 'Add a new column' dialog box. On the left, 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 'Speed Limit (MPH) >'. 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.

16. Click **Insert Column**, select **Add a Condition** → **Pattern**, and select **Violation[v]** from the **Pattern** pull-down 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



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

Inserted the **Violation Type** column.

Procedure

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

- 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" with a close button (X) in the top right corner. 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. In the center, there is a section titled "Insert additional information about the column" with a sub-label "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 an unchecked checkbox, and "Update engine with changes:" with a checked checkbox. At the bottom right, there are four buttons: "< Previous", "Next >", "Cancel", and "Finish" (highlighted in blue).

- Click **Insert Column**, select **Set the value of a field** → **Pattern**, and select **Violation[v]** from the **Pattern** pull-down menu.
- Select **Field** and then **points** from the **Field** pull-down menu.
- Select **Value options**, then select **Additional info** and enter **Points** in the **Header (description)** field.
- 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 -".

- Click **Columns**, expand **Attribute columns**, and select the **Hide column** option.

Figure 4.12. Column attributes

The screenshot shows a section titled "Attribute columns" with a dropdown arrow. Below the title, there is a list of columns. The first column is "ruleflow-group". To its right, there is a "Default value:" field containing "trafficViolation". Further right, there is a "Hide column:" checkbox which is checked, followed by a "Delete" link.

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.

Procedure

1. Click **Editor** → **Insert** → **Append row**. Repeat this step to add a total of five table rows.

Figure 4.13. Appending rows

The screenshot shows the 'Editor' tab of the decision table designer. A table titled 'SpeedViolationRule' is displayed with the following structure:

SpeedViolationRule		v : Violation				
#	Description	Violation Type	Speed Limit (MPH)	Speed Limit (MPH)	Fine Amount	Points

A context menu is open over the table, showing the following options: 'Append row', 'Insert row above', 'Insert row below', and 'Insert column'.

2. Fill out the table as shown in the following example.

Figure 4.14. Populated data fields

The screenshot shows the 'SpeedViolationRule' table populated with five rows of data. The table structure is as follows:

SpeedViolationRule		v : Violation					
U	Description	ruleflow-group	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

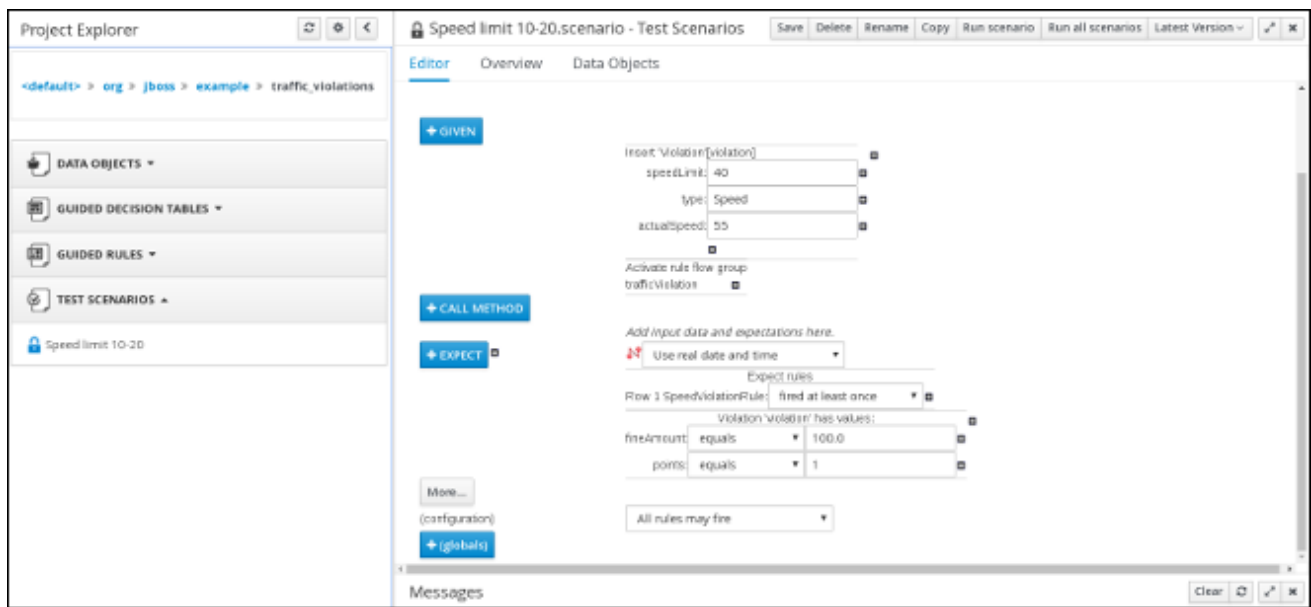
3. Click **Save**, then click **Save** to confirm your changes.

CHAPTER 5. TEST SCENARIOS

Test Scenarios in Red Hat Decision 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 given 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.

Figure 5.1. Speed test scenario screen



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 speed violation guided decision table.

Prerequisites

- Created the **Driver department traffic violations** project
- Created the **Violation** and **Driver** data objects
- Created the speed violation guided decision table

Procedure

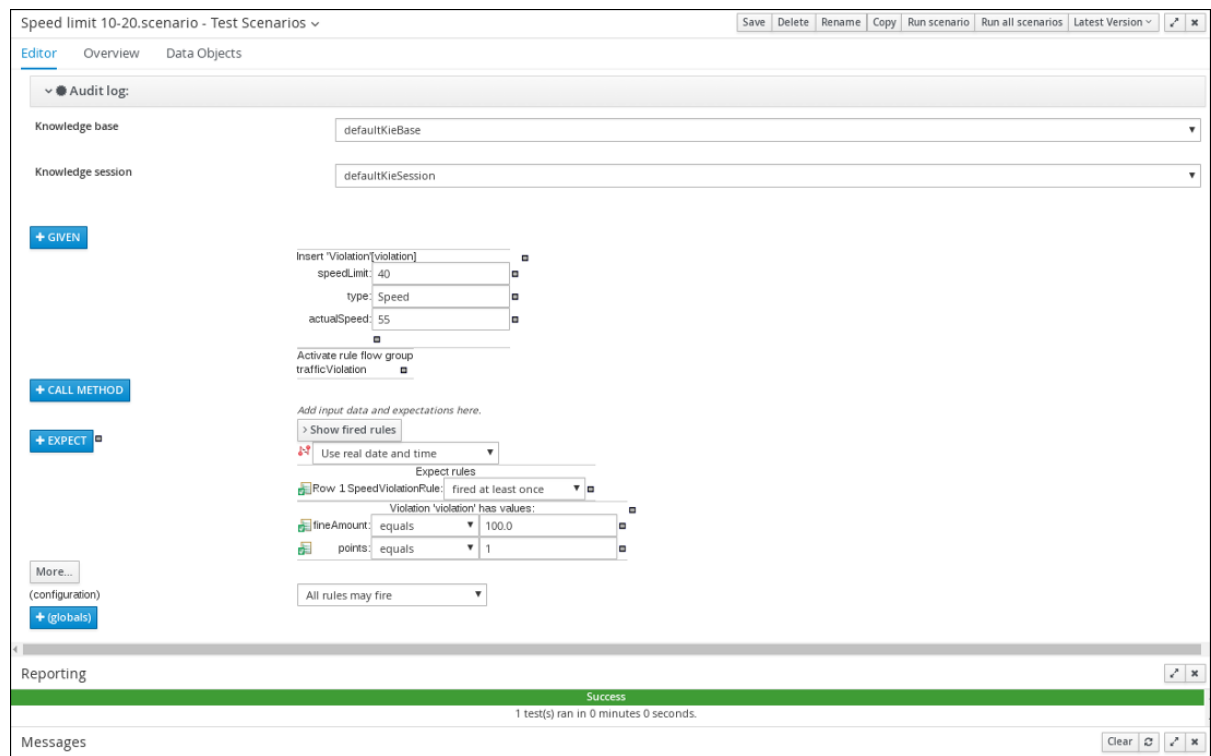
1. Log in to Decision Central. Click **Menu** → **Design** → **Projects**, then **Driver department traffic violations**.
2. Click **Projects** → **Create New Asset** → **Test Scenario**.
3. In the **Create new Test Scenario window** wizard, enter the following values:

- a. **Test Scenario: Speed limit 10-20.**
- b. **Package:** select `com.myteam.driverdepartmenttrafficviolations`.
4. Click **Ok**.
5. Click **+GIVEN** to open the **New input** window.
6. Select **Violation** from the **Insert a new fact** pull-down menu.
7. Enter **violation** in the **Fact name** field and click **Add**.
8. Click **Add a field** located under **Insert 'Violation'[violation]** to open the **Choose a field to add** window.
9. Select **speedLimit** from the **Choose a field to add** pull-down menu and click **OK**.
10. Click  , then click **Literal value** next to **speedLimit**.
11. Click **Literal value** in the **Field value** window, then enter **40** in the **speedLimit** field.
12. Click **Insert 'Violation'[violation]** and select **type** from the **Choose a field to add** pull-down menu in the **Choose a field to add** window, and click **OK**.
13. Click  , then click **Literal value** next to **Literal value**.
14. Enter **Speed** in the **type** field.
15. Click **Insert 'Violation'[violation]**, and select **actualSpeed** from the **Choose a field to add** pull-down menu, and click **OK**.
16. Click  , then click **Literal value** next to **Literal value**.
17. Enter **55** in the **actualSpeed** field.
18. Click **+Expect** to open the **New expectation** window.
19. Expand the **Rule** pull-down menu, select **Row 1 SpeedViolationRule**, and click **OK**.
20. Click **+GIVEN** to open the **New input** window, enter **trafficViolation** in the **Activate rule flow group** field, and click **Add**.
21. Click **+Expect** to open the **New expectation** window and click **Add** next to **Fact value: violation**.
22. Click **Violation 'violation' has values:** to open the **Choose a field to add** window.
23. Select **fineAmount** from the **Choose a field to add** pull-down menu and click **OK**.
24. Enter **100.0** in the **fineAmount: equals** field.
25. Click **Violation 'violation' has values:** to open the **Choose a field to add** window.
26. Select **points** from the **Choose a field to add** pull-down menu and click **OK**.
27. Enter **1** in the **points: equals** field.

28. Click **Save**, then click **Save** to confirm your changes.

29. Click **Run scenario**.

Figure 5.2. Speed test results screen



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

- Created the **Driver department traffic violations** project
- Created the **Violation** and **Driver** data objects
- Set the Driver License Suspension rules and actions

Procedure

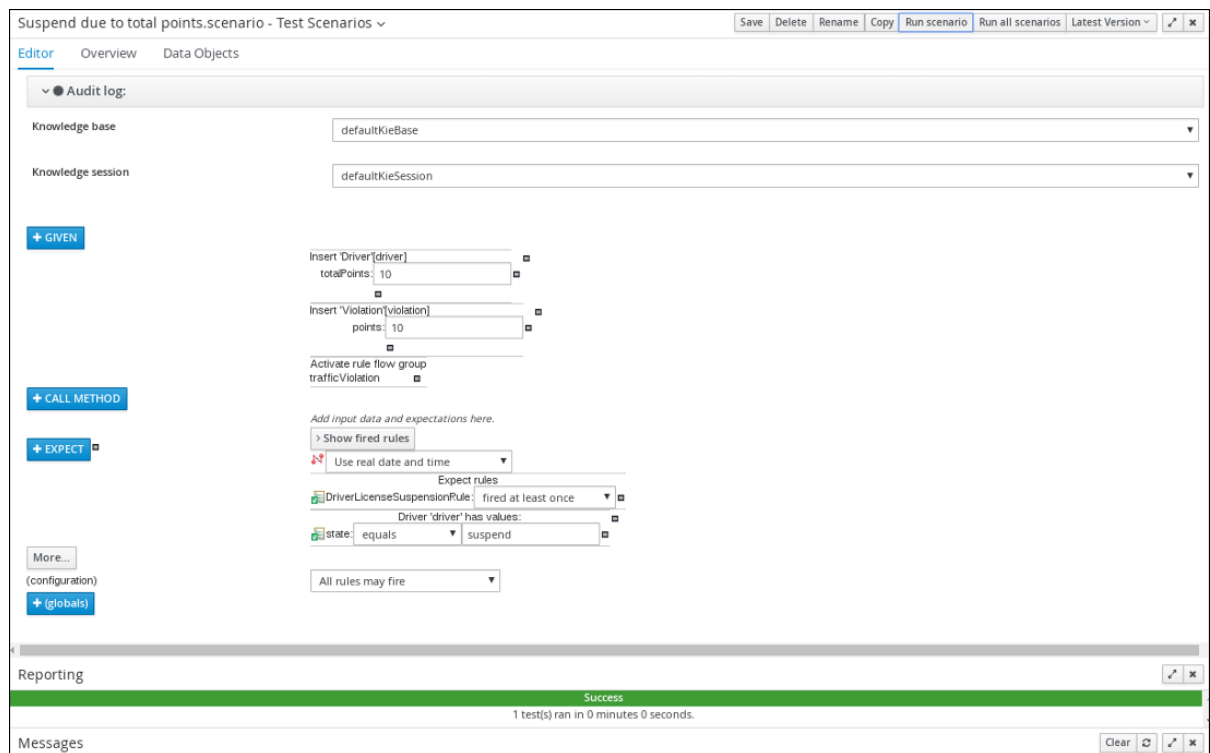
1. Log in to Decision Central. Click **Menu** → **Design** → **Projects**, then **Driver department traffic violations**.
2. Click **Create New Asset** → **Test Scenario**.
3. In the **Create new Test Scenario window** wizard, enter the following values:
 - a. **Test Scenario:** Suspend due to total points.
 - b. **Package:** select `com.myteam.driverdepartmenttrafficviolations`.
4. Click **Ok**.

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

Result

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

Figure 5.3. Suspension test results screen



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

- Created the **Driver department traffic violations** project
- Created the **Violation** and **Driver** data objects
- Set the driver license suspension rules and actions

Procedure

1. Log in to Decision Central. Click **Menu** → **Design** → **Projects**, then **Driver department traffic violations**.
2. Click **Suspend due to total points** → **Copy**, enter **Suspend due to multiple violations** in the **New Asset Name** field, and click **Make a Copy**.

Figure 5.4. Make a copy window


3. Click **Space** → **myteam** → **Driver department traffic violations**, and then select the **Suspend due to multiple violations** Asset.
4. Click **+GIVEN** to open the **New input** window.
5. Select **Violation** from the **Insert a new fact** pull-down menu.
6. Enter **violation2** in the **Fact name** field and click **Add**.
7. Click  next to **points**, click **Literal value**, then enter **5** in the **points** → **violation2** field.
8. In the **totalPoints** field, change the value from **10** to **5**.
9. Click **Save**, then click **Save** to confirm your changes.
10. Click **Run scenario**.

Figure 5.5. Suspension test results screen

APPENDIX A. VERSIONING INFORMATION

Documentation last updated on: Monday, October 1, 2018.