Red Hat Process Automation Manager 7.0

Getting started with decision services

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Red Hat Process Automation Manager 7.0 Getting started with decision services

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Abstract

In this tutorial, you will create and test a mortgage application decision service using Red Hat Process Automation Manager 7.0. The procedures in this document are based on the included Mortgage Process sample project.

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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 mortgage application decision service.

Prerequisites

- Red Hat JBoss Enterprise Application Platform 7.1.0 is installed. See *Red Hat JBoss EAP 7.1.0 Installation Guide*.
- Red Hat Process Automation Manager is installed. 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 **admin** role.

CHAPTER 1. OPENING THE MORTGAGE PROCESS SAMPLE PROJECT

The **Mortgage Process** sample project consists of predefined data objects, guided decision tables, guided rules, forms, and a business process. Using the sample project provides a quick way to get acclimated with Red Hat Process Automation Manager. In a real business scenario, you would create all of the assets by providing data that is specific to your business requirements.

IMPORTANT

The business process application example includes features that are Technology Preview only. Technology Preview features are not supported with Red Hat production service level agreements (SLAs), might not be functionally complete, and are not recommended for production. These features provide early access to upcoming product features, enabling customers to test functionality and provide feedback during the development process. For more information about Red Hat Technology Preview support, see Technology Preview Features Support Scope .

Procedure

Navigate to the Mortgage Process sample project to view the predefined assets.

1. Log in to Business Central and click **Menu → Design → Projects**.
2. Click the three vertical dots in the upper-right corner of the screen and select **Try Samples**.
3. Select **Mortgage Process** and click **Ok**.

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 service are based on.

For more information about creating data objects, see "Creating data objects" in *Designing a decision service using guided decision tables*.

2.1. VIEWING THE MORTGAGE PROCESS DATA OBJECTS

This tutorial utilizes the predefined data objects in the **Mortgage Process** sample project.

The **Mortgage Process** data model is composed of four data objects:

- **Applicant**
- **Application**
- **Property**
- **ValidationErrorDo**

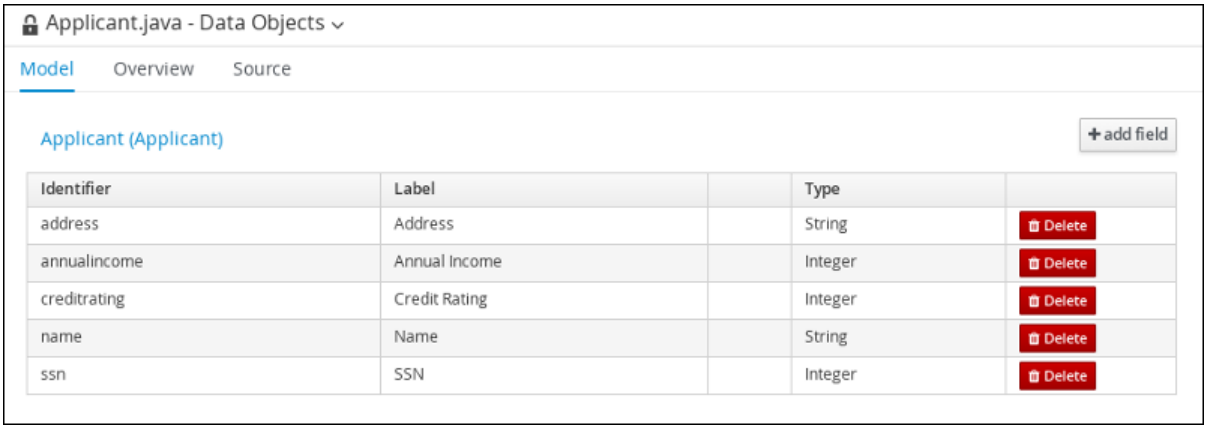
2.1.1. Viewing the Applicant data object

Follow these steps to familiarize yourself with the predefined **Applicant** data object.

Procedure

1. Click **Menu** → **Design** → **Projects**, then click **Mortgage Process**.
2. Input **Applicant.java** in to the project's asset search box and click the **Applicant** data object.

3. Review the **Applicant** data object fields.

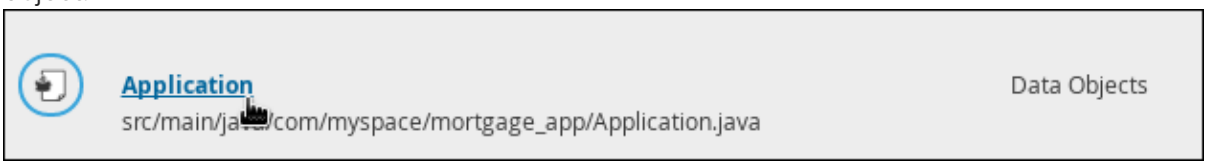


2.1.2. Viewing the Application data object

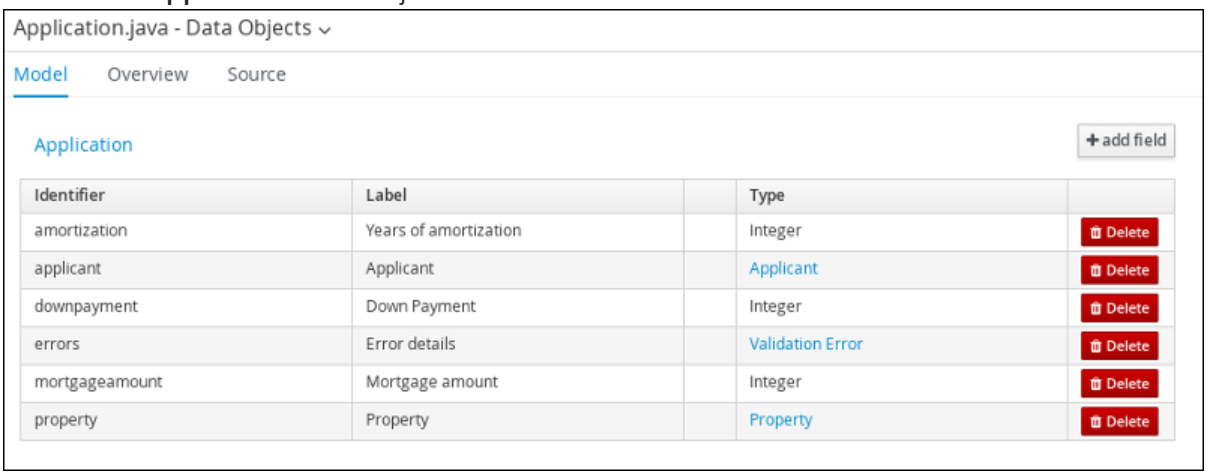
Follow these steps to familiarize yourself with the predefined **Application** data object.

Procedure

1. Click **Menu → Design → Projects**, then click **Mortgage Process**.
2. Input **Applicantion.java** in to the project's asset search box and click the **Application** data object.



3. Review the **Application** data object fields.



2.1.3. Viewing the Property data object

Follow these steps to familiarize yourself with the predefined **Property** data object.

Procedure

1. Click **Menu → Design → Projects**, then click **Mortgage Process**.
2. Input **Property.java** in to the project's asset search box and click the **Property** data object.

3. Review the **Property** data object fields.

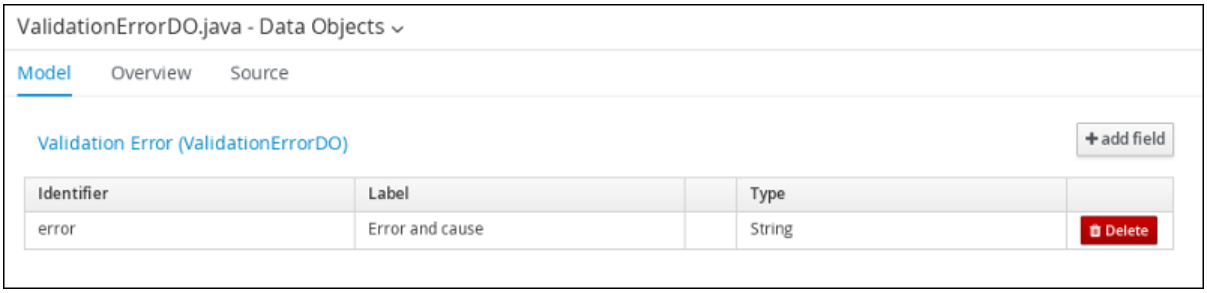
2.1.4. Viewing the ValidationErrorDO data object

Follow these steps to familiarize yourself with the predefined **ValidationErrorDO** data object.

Procedure

1. Click **Menu → Design → Projects**, then click **Mortgage Process**.
2. Input **ValidationErrorDO.java** in to the project's asset search box and click the **ValidationErrorDO** data object.

3. Review the **Property** data object fields.



CHAPTER 3. GUIDED RULES

Guided rules are business rules that you create in a UI-based guided rules designer in Business Central that leads you through the rule-creation process. The guided rules designer provides fields and options for acceptable input based on the data objects for the rule being defined. The guided rules that you define are compiled into Drools Rule Language (DRL) rules as with all other rule assets.

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

3.1. DEFINING BUSINESS RULES

Define business rules in Red Hat Process Automation Manager using the Guided Rule wizard.

Related information

For more information about Guided business rules, see *Designing a decision service using guided rules* .

3.1.1. Creating the Validate Down Payment guided rule

Procedure

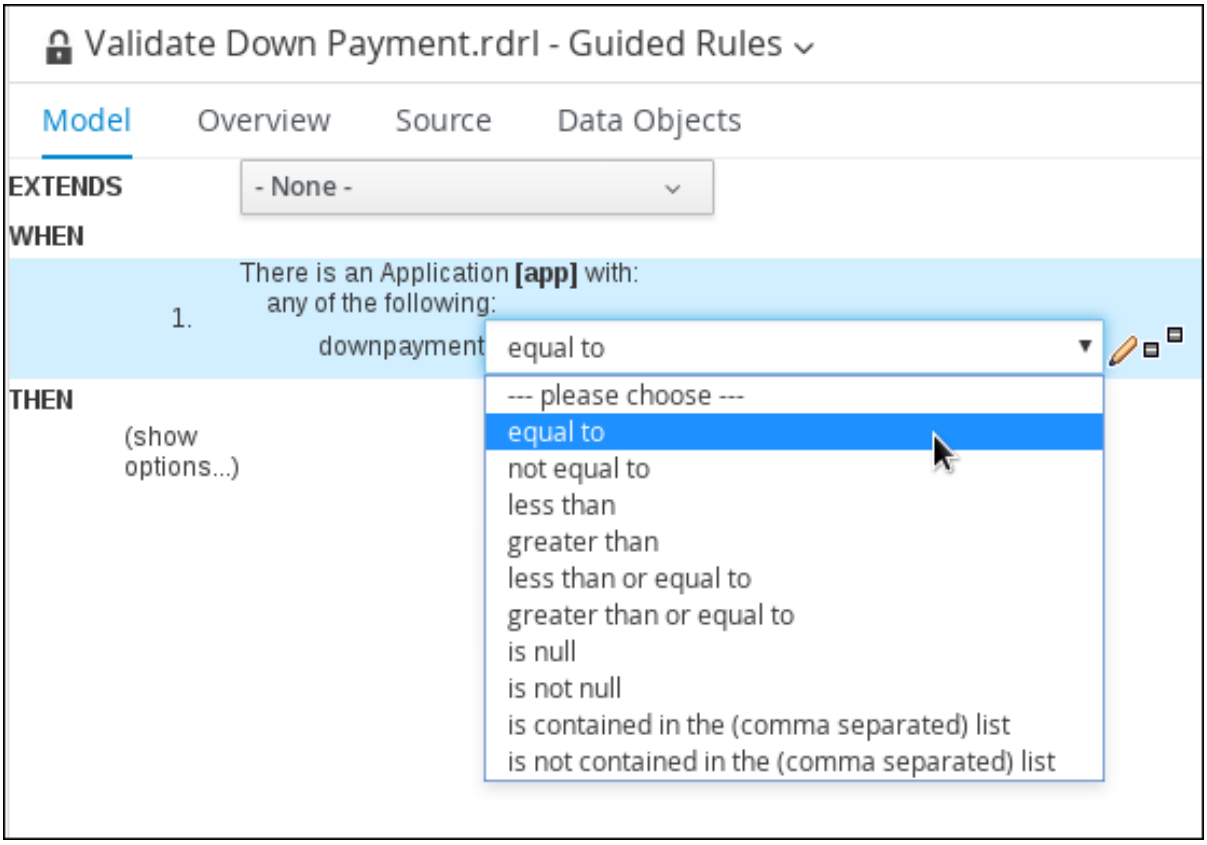
1. Log in to Business Central and click **Menu → Design → Projects**, then **Mortgage Process**.
2. Click **Add Asset → Guided Rule**, then enter:
   - Guided Rule: **Validate Down Payment**
   - Package: **com.myspace.mortgage_app**
3. Click **Ok** to open the Guided Rule Editor.

3.1.2. Defining the Validate Down Payment guided rule conditions

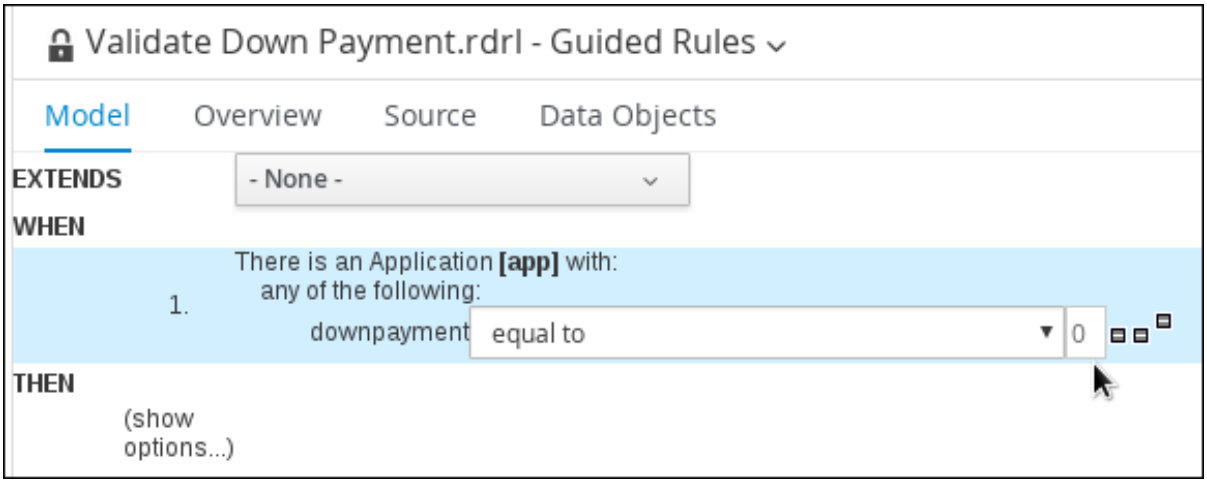
The conditions that you specify in this section are used to determine whether of not the down payment meets the specified requirements.

Procedure

1. Click  next to the **WHEN** label to open the **Add a condition to the rule**window. Then, select **Application...** and click **Ok**.
2. Click the **There is an Application**label and select **Any of (Or)** from **Multiple field constraints**.
3. Click the **There is an Application [app] with: any of the following**label , then select **downpayment** from **Add a restriction on a field**
4. Click **--- please choose ---**, then select **equal to**.



5. Click , select **Literal value**, and enter **0**.



6. Click the **There is an Application [app] with: any of the following** label, then from the **Add a restriction on a field** select **downpayment**.
7. Click **--- please choose ---**, then select **greater than or equal to**.
8. Click , then click **Expression editor**.
9. From the **Choose...** menu, select **app**.
10. From the **Choose...** menu, select **downpayment**.

3.1.3. Defining the error conditions

You must define the conditions and results of the data that is received and processed. In this section, you will define the following two conditions:

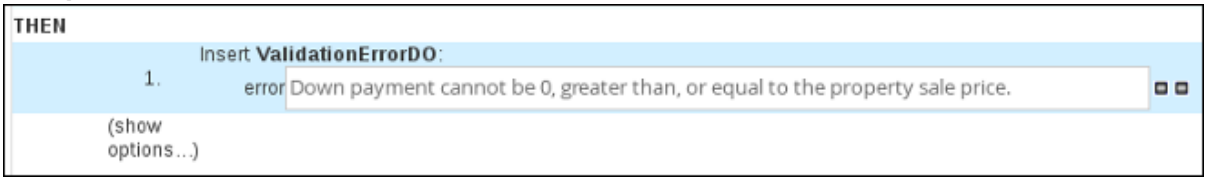
- ValidationErrorDO
- retractValidationErr

3.1.3.1. Defining the ValidationErrorDO

Specify the error message that will be presented to the loan applicant.

Procedure

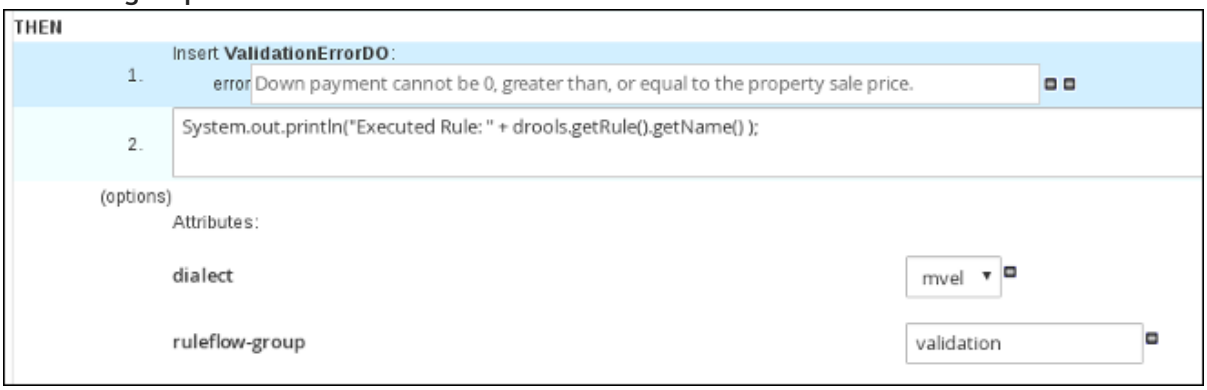
1. Click next to the **THEN** label. Select **Insert fact ValidationErrorDO**, and click **Ok**.
2. Click the **Insert ValidationErrorDO** label and select **error** from the **Add field** pull-down menu.
3. Click , then click **Literal value**.
4. In the **error** field, enter: **Down payment cannot be 0, greater than, or equal to the property sale price.**.



5. Click next to the **THEN** label. Select **Add free form DRL**and click **Ok**.
6. Enter the following in the *Add free form DRL...* text box:

```
System.out.println("Executed Rule: " + drools.getRule().getName() );
```

7. Click **(show options...)**.
8. Click next to the **(options)** label to open the **Add an option to the rule**window.
9. Select **ruleflow-group** from the **Attribute** drop-down menu and enter **validation** in the **ruleflow-group** field.



3.1.3.2. Defining the retractValidationErr

Define the error trigger details.

Procedure

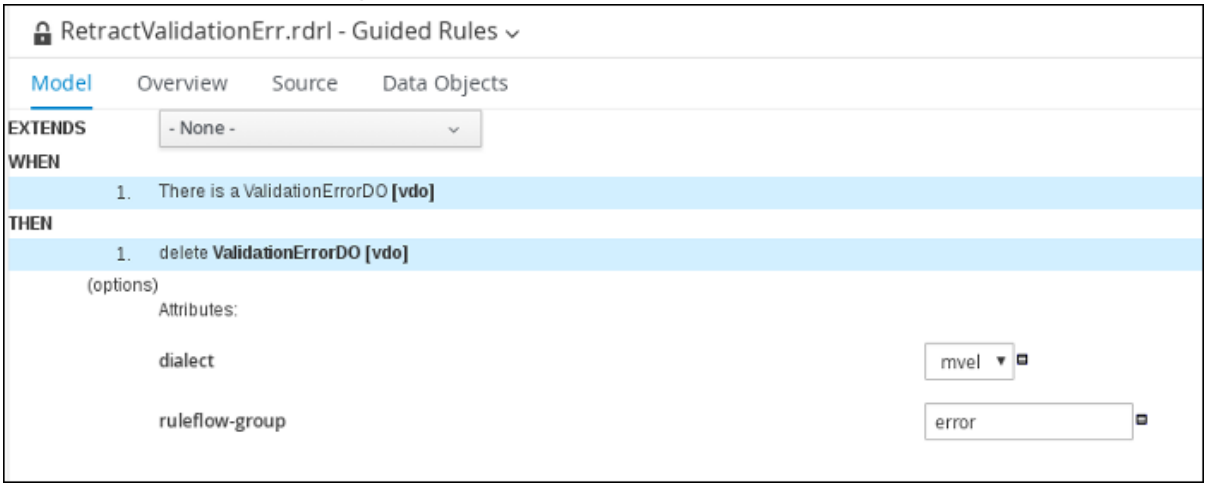
1. Click next to the **WHEN** label to open the **Add a condition to the rule**window. Then, select **ValidationErrorDO** and click **Ok**.

2. Click **There is a ValidationErrorDO** to open the **Modify constraints for ValidationErrorDO** window, enter **vdo** in the variable name field, and click **Set**.

3. Click next to the **THEN** label. Select **Delete vdo**, and click **Ok**.

4. Click **(show options)**.

5. Enter **error** in the **ruleflow-group** field.



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

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 DECISION TABLES

Decision tables are a way to generate rules driven from the data entered into a spreadsheet. Decision tables are created in Red Hat Process Automation Manager using the Guided Decision Table wizard.

Prerequisites

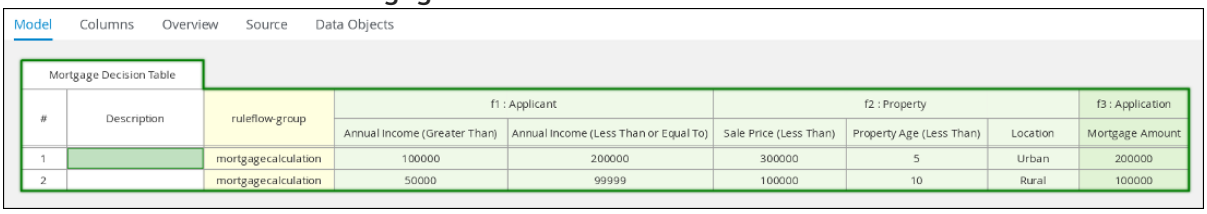
The business rules have been defined. For more information, see Section 3.1, “Defining Business Rules” .

4.1.1. Viewing the Mortgage Decision Table

The goal of this chapter is to introduce you to the **Mortgage Decision Table**. For this tutorial, you will not create and set the decision table conditions. Instead, review the values and the conditions that are already defined in the **Mortgage Process** sample project’s **MortgageDecisionTable** Guided Decision Tables asset.

Procedure

1. Log in to Business Central and click **Menu → Design → Projects**, then **Mortgage Process**.
2. Scroll down and click the **MortgageDecisionTable** Guided Decision Tables asset.



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 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.

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 LOAN APPLICATION SCENARIO

Test the loan application scenario using the data that you specified when you created the mortgage guided decision table. For this test, you will input data for a property in an urban location with a sales price of less than $300000.00 that is under five years old.

Prerequisites

- The **Mortgage Process** project has been created
- The following data objects have been created:
  - Applicant
  - Property
  - ValidationErrorDo
  - Application
- The mortgage guided decision table has been created

5.1.1. Create the Qualify Test Scenario asset

Before you input the fact and test data values, you must create a new Test Scenario asset.

Procedure

1. Log in to Business Central. Click **Menu → Design → Projects**, then **Mortgage Process**.
2. Click **Projects → Add Asset → Test Scenario**.
3. In the **Create new Test Scenario window**wizard, enter the following values:
   a. **Test Scenario**: **Qualify**
   b. **Package**: select **com.myspace.mortgage_app**
4. Click **Ok**.

5.1.2. Input the Applicant facts and values

Input the Applicant test data based on the guided decision table values.

Procedure

1. Click **+GIVEN** to open the **New input** window.
2. Select **Applicant** from the **Insert a new fact** pull-down menu.
3. Enter **app** in the **Fact name** field and click **Add**.
4. Click **Add a field** to open the **Choose a field to add**window and select **annualincome** from the **Choose a field to add**pull-down menu and click **OK**.
5. Click  next to **annualincome**.
6. Click **Literal value** in the **Field value** window and enter **150000** in the **annualincome** field.

5.1.3. Input the Property facts and values

Input the Property test data based on the guided decision table values.

Procedure

1. Click **+GIVEN** to open the **New input** window.
2. Select **Property** from the **Insert a new fact** pull-down menu.
3. Enter **prop** in the **Fact name** field and click **Add**.
4. Click **Add a field** to open the **Choose a field to add**window and select **saleprice** from the **Choose a field to add**pull-down menu and click **OK**.
5. Click  next to **saleprice**.
6. Click **Literal value** in the **Field value** window and enter **250000** in the **saleprice** field.
7. Click **Insert 'Property'[prop]** and select **age** from the **Choose a field to add**pull-down menu in the **Choose a field to add**window, and click **OK**.
8. Click  , then click **Literal value** and enter **4** in the **age** field.
9. Click **Insert 'Property'[prop]** and select **locale** from the **Choose a field to add**pull-down menu in the **Choose a field to add**window, and click **OK**.
10. Click  , then click **Literal value** and enter **Urban** in the **type** field.

5.1.4. Input the Application facts and values

Input the Application test data based on the guided decision table values.

Procedure

1. Click **+GIVEN** to open the **New input** window.

2. Select **Application** from the **Insert a new fact** pull-down menu.
3. Enter **application** in the **Fact name** field and click **Add**.
4. Click **Add a field** to open the **Choose a field to add** window and select **mortgageamount** from the **Choose a field to add** pull-down menu and click **OK**.
5. Click  next to **mortgageamount**.
6. Click **Literal value** in the **Field value** window, then enter **250000** in the **mortgageamount** field.

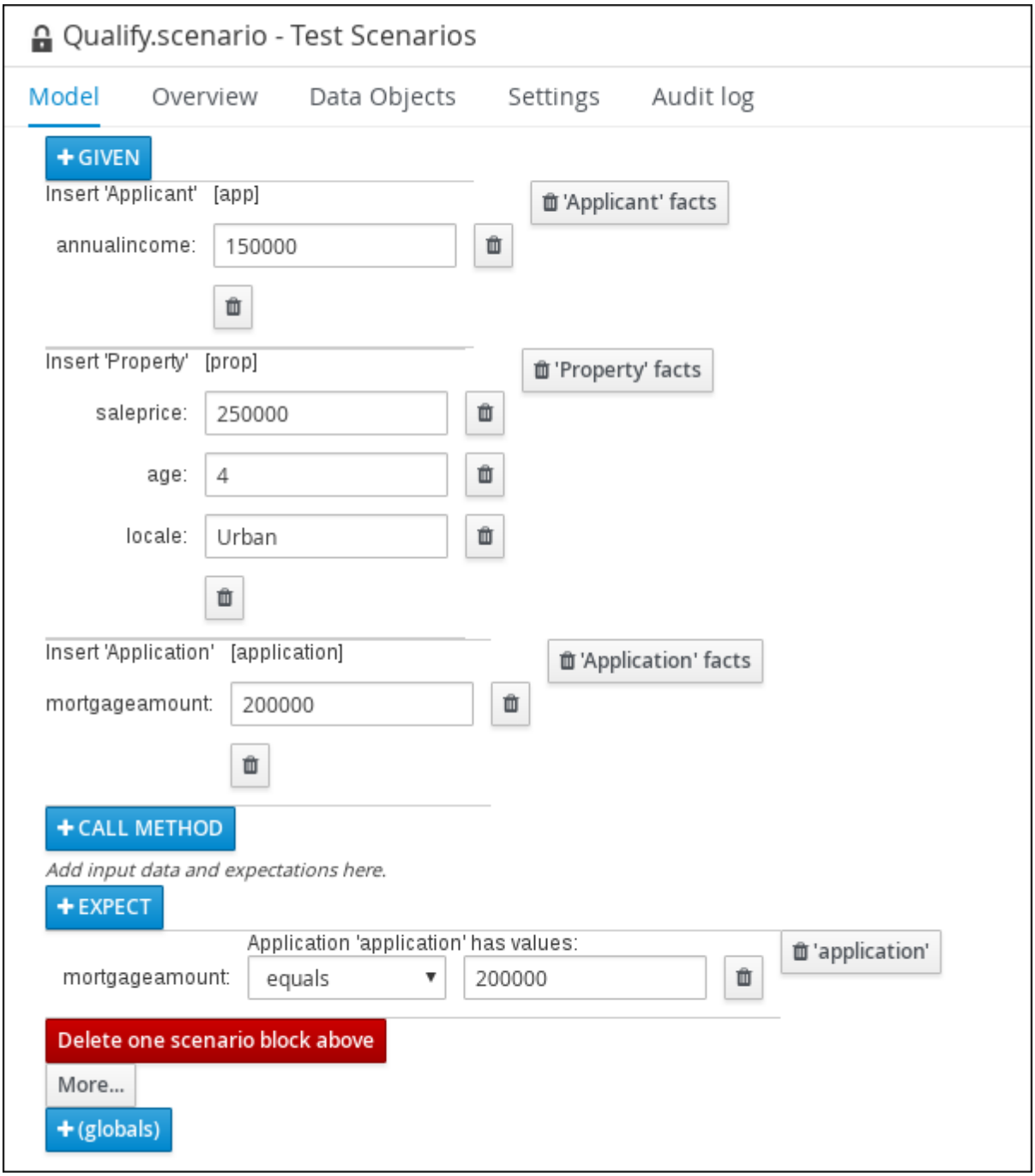
5.1.5. Input the expected values

Input the application's expected values.

Procedure

1. Click **+Expect** to open the **New expectation** window.
2. Expand the **Fact value** pull-down menu, select **Application**, and click **Add**.
3. Click **Application 'application has values:**
4. Select **mortgageamount** from the **Choose a field to add** pull-down menu and click **OK**.
5. Enter **200000** in the **mortgageamount: equals** field.
6. Click **Save**, then click **Save** to confirm your changes.
7. Click **Run scenario**.

Figure 5.1. Application test scenario screen



CHAPTER 6. ADDITIONAL RESOURCES

- *Designing a decision service using guided rules*
- *Designing a decision service using guided decision tables*
- *Testing a decision service using test scenarios*

APPENDIX A. VERSIONING INFORMATION

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