



Red Hat Decision Manager 7.1

Getting started with decision services

Red Hat Decision Manager 7.1 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 Decision Manager 7.1. The procedures in this document are based on the included Mortgages sample project.

Table of Contents

PREFACE	3
CHAPTER 1. OPENING THE MORTGAGES SAMPLE PROJECT	4
CHAPTER 2. DATA OBJECTS	5
2.1. VIEWING THE MORTGAGES DATA OBJECTS	5
2.1.1. Viewing the Applicant data object	5
2.1.2. Viewing the Bankruptcy data object	5
2.1.3. Viewing the IncomeSource data object	6
2.1.4. Viewing the LoanApplication data object	6
CHAPTER 3. GUIDED RULES	8
3.1. VIEWING THE MORTGAGES BUSINESS RULES	8
3.1.1. Viewing the CreditApproval guided rule	8
3.1.2. Viewing the Bankruptcy history guided rule	8
3.1.3. Viewing the Underage guided rule	9
CHAPTER 4. GUIDED DECISION TABLES	10
4.1. VIEWING THE PRICING LOANS DECISION TABLE	10
CHAPTER 5. TEST SCENARIOS	11
5.1. TESTING THE PRICING LOW END SCENARIO	11
5.2. TESTING THE ARE THEY OLD ENOUGH SCENARIO	11
CHAPTER 6. ADDITIONAL RESOURCES	13
APPENDIX A. VERSIONING INFORMATION	14

PREFACE

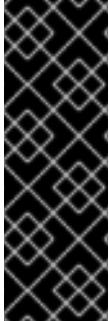
As a business analyst or rules developer, you can use Decision Central in Red Hat Decision Manager to design a variety of decision services. In this tutorial, you will review the pre-defined data objects, business rules, and decision tables. You will then test the mortgage application decision service.

Prerequisites

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

CHAPTER 1. OPENING THE MORTGAGES SAMPLE PROJECT

The **Mortgages** sample project consists of predefined data objects, guided decision tables, guided rules, forms, and test scenarios. Using the sample project provides a quick way to get acclimated with Red Hat Decision 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 Mortgages sample project to view the predefined assets.

1. Log in to Decision Central and click **Menu** → **Design** → **Projects**.



2. Click  in the upper-right corner of the screen and select **Try Samples**.
3. Select **Mortgages** 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 MORTGAGES DATA OBJECTS

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

The **Mortgages** data model is composed of four data objects:

- **Applicant**
- **Bankruptcy**
- **IncomeSource**
- **LoanApplication**

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 **Mortgages**.
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.

Applicant.java - Data Objects				
<div>Model Overview Source</div>				
Applicant				+ add field
Identifier	Label		Type	
age			Integer	Delete
applicationDate			Date	Delete
approved			Boolean	Delete
creditRating			String	Delete
name			String	Delete

2.1.2. Viewing the Bankruptcy data object

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

Procedure

1. Click **Menu** → **Design** → **Projects**, then click **Mortgages**.
2. Input **Bankruptcy.java** in to the project's asset search box and click the **Bankruptcy** data object.
3. Review the **Bankruptcy** data object fields.

Bankruptcy.java - Data Objects ▾				
<div>Model Overview Source</div>				
Bankruptcy				+ add field
Identifier	Label		Type	
amountOwed			Integer	Delete
yearOfOccurrence			Integer	Delete

2.1.3. Viewing the IncomeSource data object

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

Procedure

1. Click **Menu** → **Design** → **Projects**, then click **Mortgages**.
2. Input **IncomeSource.java** in to the project's asset search box and click the **IncomeSource** data object.
3. Review the **IncomeSource** data object fields.

IncomeSource.java - Data Objects ▾				
<div>Model Overview Source</div>				
IncomeSource				+ add field
Identifier	Label		Type	
amount			Integer	Delete
type			String	Delete

2.1.4. Viewing the LoanApplication data object

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

Procedure







1. Click **Menu** → **Design** → **Projects**, then click **Mortgages**.
2. Input **LoanApplication.java** in to the project's asset search box and click the **LoanApplication** data object.
3. Review the **Property** data object fields.

LoanApplication.java - Data Objects ▾

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

LoanApplication

[+ add field](#)

Identifier	Label	Type	
amount		Integer	 Delete
approved		Boolean	 Delete
approvedRate		Integer	 Delete
deposit		Integer	 Delete
explanation		String	 Delete
insuranceCost		Integer	 Delete
lengthYears		Integer	 Delete

CHAPTER 3. GUIDED RULES

Guided rules are business rules that you create in a UI-based guided rules designer in Decision 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. VIEWING THE MORTGAGES BUSINESS RULES

Follow these steps to familiarize yourself with the predefined business rules for the **Mortgages** project.

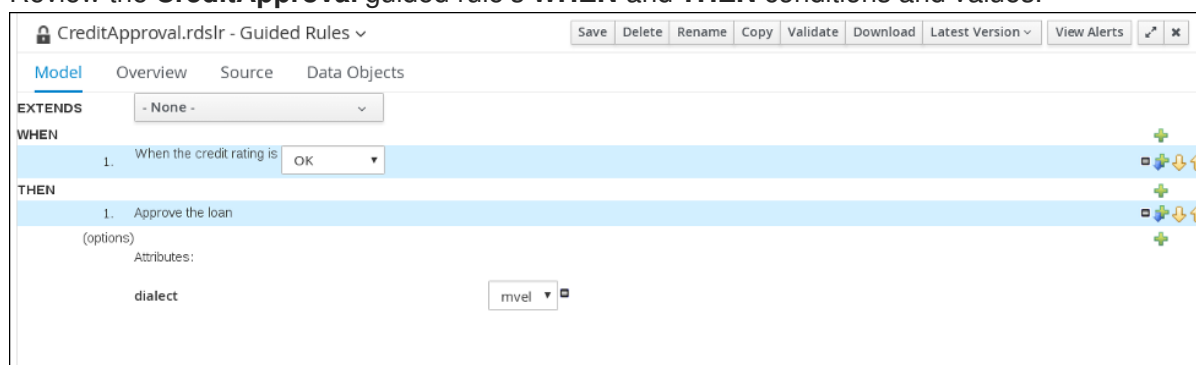
Related information

Business rules are defined using the Guided Rule wizard in Red Hat Decision Manager. For information about creating guided business rules, see [Designing a decision service using guided rules](#).

3.1.1. Viewing the CreditApproval guided rule

Procedure

1. Click **Menu** → **Design** → **Projects**, then click **Mortgages**.
2. Click the **CreditApproval** guided rule.
3. Review the **CreditApproval** guided rule's **WHEN** and **THEN** conditions and values.



3.1.2. Viewing the Bankruptcy history guided rule

Procedure

1. Click **Menu** → **Design** → **Projects**, then click **Mortgages**.
2. Click the **Bankruptcy history** guided rule.
3. Review the **Bankruptcy history** guided rule's **WHEN** and **THEN** conditions and values.

Bankruptcy history.rdl - Guided Rules

Save Delete Rename Copy Validate Download Latest Version View Alerts

Model Overview Source Data Objects

EXTENDS - None

WHEN

1. There is a LoanApplication [a]
2. The following exists:
There is a Bankruptcy with:
any of the following:
 - yearOfOccurrence greater than 1990
 - amountOwed greater than 10000

THEN

1. Set value of LoanApplication [a] approved false
- Set value of LoanApplication [a] explanation has been bankrupt
2. delete LoanApplication [a]

(options)

Attributes:

salience 10

dialect mvel

3.1.3. Viewing the Underage guided rule

Procedure

1. Click **Menu** → **Design** → **Projects**, then click **Mortgages**.
2. Click the **Underage** guided rule.
3. Review the **Underage** guided rule's **WHEN** and **THEN** conditions and values.

Underage.rdl - Guided Rules

Save Delete Rename Copy Validate Download Latest Version View Alerts

Model Overview Source Data Objects

EXTENDS - None

WHEN

1. There is a LoanApplication [application]
2. There is an Applicant with:
age less than 21

THEN

1. Set value of LoanApplication [application] approved false
- Set value of LoanApplication [application] explanation Underage
2. delete LoanApplication [application]

(show options...)

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 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. VIEWING THE PRICING LOANS DECISION TABLE

The goal of this chapter is to introduce you to the **Pricing loans** 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 **Mortgages** sample project's **Pricing loans** Guided Decision Tables asset. For information about creating decision tables, see [Designing a decision service using guided decision tables](#).

Prerequisites

The business rules have been defined. For more information, see [Section 3.1, “Viewing the Mortgages business rules”](#).

Procedure

1. Log in to Decision Central and click **Menu** → **Design** → **Projects**, then **Mortgages**.
2. Scroll down and click the **Pricing loans** Guided Decision Tables asset.

Pricing loans									
#	Description	application : LoanApplication				income : IncomeSource	application		
		amount min	amount max	period	deposit max	income	Loan approved	LMI	rate
1		131000	200000	30	20000	Asset	true	0	2
2		10000	100000	20	2000	Job	true	0	4
3		100001	130000	20	3000	Job	true	10	6

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.

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 PRICING LOW END SCENARIO

Test the **Pricing low end** scenario using the data that is specified in the **Pricing loans** decision table as shown in [Section 4.1, “Viewing the Pricing loans decision table”](#). For information about testing decision services, see [Testing a decision service using test scenarios](#).

Procedure

1. Log in to Decision Central. Click **Menu** → **Design** → **Projects**, then **Mortgages**.
2. Scroll down and click the **Pricing low end** test scenario asset.
3. Review the **Pricing low end** test scenario’s **GIVEN** and **EXPECT** conditions and values.
4. Click **Run scenario**.

The **Reporting** section at the bottom of the window should show a **Success** message. This is the expected result as the values and conditions set in the test scenario meet the requirements as specified in the **Pricing loans** decision table.

5.2. TESTING THE ARE THEY OLD ENOUGH SCENARIO

Test the **Are they old enough** scenario using the data that you specified when you created the **Underage** guided rule. For information about testing decision services, see [Testing a decision service using test scenarios](#).

Procedure

1. Log in to Decision Central. Click **Menu** → **Design** → **Projects**, then **Mortgages**.
2. Scroll down and click the **Are they old enough** test scenario asset.
3. Review the **Are they old enough** test scenario’s **GIVEN** and **EXPECT** conditions and values. Leave the preset age value of **17** as is.
4. Click **Run scenario**.

The **Reporting** section at the bottom of the window should show a **Success** message. This is the expected result as an applicant below the age of **21** is not eligible for a mortgage loan as defined in the **Underage** guided rule.

Are they old enough.scenario - Test S... Save Delete Rename Copy Download Run scenario Run all scenarios Latest Version View Alerts

Model Overview Data Objects Settings Audit log

+ GIVEN

Insert 'Applicant' [a] 'Applicant' facts

age: 17

Insert 'LoanApplication' [application] 'LoanApplication' facts

amount: 1

Insert 'IncomeSource' [incomeSource] 'IncomeSource' facts

Add a field

+ CALL METHOD

Add input data and expectations here.

+ EXPECT

LoanApplication 'application' has values:

approved: equals false 'application'

Delete one scenario block above

More...

+ (globals)

Reporting

Success

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

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 Friday, October 12, 2018.