Red Hat Process Automation Manager
7.5

Getting started with business processes
Abstract

This document describes how to create and test an example mortgage application project in Red Hat Process Automation Manager 7.5. The procedures in this document are based on the Mortgage_Process sample project included in Business Central.
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PREFACE

As a business rules and processes developer, you can use Business Central in Red Hat Process Automation Manager to design business processes to meet specific business requirements. Red Hat Process Automation Manager provides example projects in Business Central that contain examples of business assets for reference purposes. This document describes how to create and test an example mortgage application project based on the *Mortgage_Process* sample project included in Business Central.

Prerequisites

- Red Hat JBoss Enterprise Application Platform 7.2 is installed. For details, see the *Red Hat JBoss Enterprise Application Platform 7.2 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 7.2*.

- 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. OVERVIEW

Business Central enables you to automate your business processes. A business process is a diagram that describes the order in which a series of steps must be executed and consists of predefined nodes and connections. Each node represents one step in the process while the connections specify how to transition from one node to another.

For example, a bank offers a housing mortgage loan service. Using Business Central, the housing mortgage department of the bank creates a complete business process for the mortgage loan.

When a customer wants to buy a new property using credit, the following steps occur:

1. The customer contacts a broker at the bank who assists in filing for a mortgage loan.
2. The broker collects information about the property and the customer, such as the salary of the customer, social security number, the property sale price, and the requested loan amount.
3. The broker then submits a request on behalf of the customer.

Whenever a customer submits a request, a new process instance is created. This ensures consistency in the quality of evaluating each request, provides complete visibility into the status of each request, and makes the process efficient and effective.
CHAPTER 2. EXAMPLE PROJECTS AND BUSINESS ASSETS IN BUSINESS CENTRAL

Business Central contains example projects with example business assets that you can use as a reference for the rules, processes, or other assets that you create in your own Red Hat Process Automation Manager projects. Each sample project is designed differently to demonstrate process automation, decision management, or business optimization assets and logic in Red Hat Process Automation Manager.

NOTE

Red Hat does not provide support for the example code included in the Red Hat Process Automation Manager distribution.

The following example projects are available in Business Central:

- **Mortgage_Process**: (Process automation) Example loan approval process using business process and decision assets. Determines loan eligibility based on applicant data and qualifications.
- **IT_Orders**: (Process automation and case management) Example ordering case using business process and case management assets. Places an IT hardware order based on needs and approvals.
- **Traffic_Violation**: (Decision management with DMN) Example traffic violation decision service using a Decision Model and Notation (DMN) model. Determines driver penalty and suspension based on traffic violations.
- **Mortgages**: (Decision management with rules) Example loan approval process using rule-based decision assets. Determines loan eligibility based on applicant data and qualifications.
- **Employee_Rostering**: (Business optimization) Example employee rostering optimization using decision and solver assets. Assigns employees to shifts based on skills.
- **OptaCloud**: (Business optimization) Example resource allocation optimization using decision and solver assets. Assigns processes to computers with limited resources.
- **Course_Scheduling**: (Business optimization) Example course scheduling and curriculum decision process. Assigns lectures to rooms and determines a student’s curriculum based on factors, such as course conflicts and class room capacity.
- **Dinner_Party**: (Business optimization) Guest seating optimization using guided decision tables. Assigns guest seating based on each guest’s job type, political beliefs, and known relationships.

2.1. ACCESSING EXAMPLE PROJECTS AND BUSINESS ASSETS IN BUSINESS CENTRAL

You can use the example projects in Business Central to explore example business assets as a reference for the rules or other assets that you create in your own Red Hat Process Automation Manager projects.

Prerequisites
Business Central is installed and running. For installation options, see Planning a Red Hat Process Automation Manager installation.

Procedure

1. In Business Central, go to Menu → Design → Projects and click Try Samples. If a project already exists, click the three vertical dots in the upper-right corner of the Projects page and click Try Samples.

2. Review the descriptions for each sample project to determine which project you want to explore. Each sample project is designed differently to demonstrate process automation, decision management, or business optimization assets and logic in Red Hat Process Automation Manager.

3. Select one or more sample projects and click Ok to add the projects to your space.

4. In the Projects page of your space, select one of the new example projects to view the example assets for that project.

5. Select each example asset to explore how the project is designed to achieve the specified goal or workflow.

6. In the upper-right corner of the project Assets page, click Build to build the sample project or Deploy to build the project and then deploy it to Process Server.

NOTE

You can also select the Build & Install option to build the project and publish the KJAR file to the configured Maven repository without deploying to a Process Server. In a development environment, you can click Deploy to deploy the built KJAR file to a Process Server without stopping any running instances (if applicable), or click Redeploy to deploy the built KJAR file and replace all instances. The next time you deploy or redeploy the built KJAR, the previous deployment unit (KIE container) is automatically updated in the same target Process Server. In a production environment, the Redeploy option is disabled and you can click Deploy only to deploy the built KJAR file to a new deployment unit (KIE container) on a Process Server.

To configure the Process Server environment mode, set the org.kie.server.mode system property to org.kie.server.mode=development or org.kie.server.mode=production. To configure the deployment behavior for a corresponding project in Business Central, go to project Settings → General Settings → Version and toggle the Development Mode option. By default, Process Server and all new projects in Business Central are in development mode. You cannot deploy a project with Development Mode turned on or with a manually added SNAPSHOT version suffix to a Process Server that is in production mode.

To review project deployment details (if applicable), go to Menu → Deploy → Execution Servers.
CHAPTER 3. OPENING THE MORTGAGE_PROCESS SAMPLE PROJECT

Using the Mortgage_Process sample project provides a quick way to get acclimated with Red Hat Process Automation Manager. In a production environment, you would create all of the assets by providing data that is specific to your business requirements.

Procedure

Navigate to the Mortgage_Process sample project to view the predefined assets.

1. In Business Central, go to Menu → Design → Projects.

2. Click the icon 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 4. VIEWING THE MORTGAGE_PROCESS DATA OBJECTS

Data objects are the building blocks for the rule assets that you create. Data objects are custom data types implemented as Java classes in specified packages of your project. These custom data types determine what data your assets and your decision services are based on.

This tutorial uses the following data objects:

- Applicant
- Application
- Property
- ValidationErrorDO

4.1. VIEWING THE APPLICANT DATA OBJECT

Follow these steps to familiarize yourself with the predefined Applicant data object, which contains information about the applicant. This is the basic information required to apply for the loan in this tutorial.

Procedure

1. In Business Central, click Menu → Design → Projects, and click Mortgage_Process.

2. Enter Applicant.java in the project’s asset search box, press Enter, and click the Applicant data object.

3. Review the Applicant data object values.

4.2. VIEWING THE APPLICATION DATA OBJECT

Follow these steps to familiarize yourself with the predefined Application data object, which contains information about the mortgage details, such as the down payment and the mortgage amount.

Procedure

1. In Business Central, click Menu → Design → Projects, and click Mortgage_Process.
2. Enter `Application.java` in the project’s asset search box, press Enter, and click the `Application` data object.

3. Review the `Application` data object values.

<table>
<thead>
<tr>
<th>Identifier</th>
<th>Label</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>amortization</td>
<td>Years of amortization</td>
<td>Integer</td>
</tr>
<tr>
<td>applicant</td>
<td>Applicant</td>
<td>Applicant</td>
</tr>
<tr>
<td>downpayment</td>
<td>Down Payment</td>
<td>Integer</td>
</tr>
<tr>
<td>errors</td>
<td>Error details</td>
<td>Validation Error</td>
</tr>
<tr>
<td>mortgageamount</td>
<td>Mortgage amount</td>
<td>Integer</td>
</tr>
<tr>
<td>property</td>
<td>Property</td>
<td>Property</td>
</tr>
</tbody>
</table>

### 4.3. VIEWING THE PROPERTY DATA OBJECT

Follow these steps to familiarize yourself with the predefined `Property` data object, which contains information about the property details, such as the property age and price.

**Procedure**

1. In Business Central, click `Menu → Design → Projects`, and click `Mortgage_Process`.

2. Enter `Property.java` in the project’s asset search box, press Enter, and click the `Property` data object.

3. Review the `Property` data object values.

<table>
<thead>
<tr>
<th>Identifier</th>
<th>Label</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>address</td>
<td>Address of property</td>
<td>String</td>
</tr>
<tr>
<td>age</td>
<td>Age of property</td>
<td>Integer</td>
</tr>
<tr>
<td>locale</td>
<td>Locale</td>
<td>String</td>
</tr>
<tr>
<td>saleprice</td>
<td>Sale Price</td>
<td>Integer</td>
</tr>
</tbody>
</table>

### 4.4. VIEWING THE VALIDATIONERRORDO DATA OBJECT

Follow these steps to familiarize yourself with the predefined `ValidationErrorDO` data object, which specifies the cause of an application error.

**Procedure**

1. In Business Central, click `Menu → Design → Projects`, and click `Mortgage_Process`.

2. Enter `ValidationErrorDO.java` in the project’s asset search box, press Enter, and click the `ValidationErrorDO` data object.
3. Review the **ValidationErrorDO** data object values.

<table>
<thead>
<tr>
<th>Model</th>
<th>Overview</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Validation Error (ValidationErrorDO)</strong></td>
<td><img src="add_field.png" alt="add field" /></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Identifier</th>
<th>Label</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>error</td>
<td>Error and cause</td>
<td>String</td>
</tr>
</tbody>
</table>
CHAPTER 5. MORTGAGEAPPROVALPROCESS BUSINESS PROCESS IN BUSINESS CENTRAL

A business process is a diagram that describes the order in which a series of steps must be executed using a flow chart. A business process consists of a collection of nodes that are linked to each other using connections. Each of the nodes represents one step in the overall process while the connections specify how to transition from one node to the other.

The sample Mortgage_Process contains the following predefined MortgageApprovalProcess business process.

![Diagram of MortgageApprovalProcess business process]

5.1. DELETE THE EXISTING MORTGAGEAPPROVALPROCESS PROCESS APPLICATION

For this tutorial, delete the existing MortgageApprovalProcess business process and recreate it to gain a better understanding of creating a business process. Creating a new business process using the same name ensures that the sample project deploys and tests without error.

Procedure

1. In Business Central, go to Menu → Design → Projects → Mortgage_Process.

2. Input MortgageApprovalProcess.bpmn in to the project’s asset search box and click MortgageApprovalProcess.

3. Select Delete from the toolbar, and click Delete to confirm that you want to delete this asset.

5.2. CREATING A NEW MORTGAGEAPPROVALPROCESS BUSINESS PROCESS APPLICATION
The following procedures guide you through the creation of tasks, connections, and gateways that make up the **MortgageApprovalProcess** business process.

Red Hat Process Automation Manager contains a predefined selection of node types to simplify business process creation. The predefined node panel is located on the left side of the diagram editor.

### 5.2.1. Creating the initial mortgage business process

The mortgage validation business process determines whether a mortgage application contains all required data. If the specified data requirements are met, the application proceeds on to the mortgage calculation business process.

**Procedure**

1. In Business Central, go to **Menu → Design → Projects → Mortgage_Process**.

2. Click **Add Asset → Business Process**.

3. Enter the following values:
   - **Business Process**: **MortgageApprovalProcess**
   - **Package**: Select `com.myspace.mortgage_app`
     The Package specifies the location inside the existing project where the asset will be created. In this example, it is created in `com/myspace/mortgage_app`.

4. Click **Ok**. The diagram editor opens.
5. In the upper-right corner, click the Diagram properties icon.


7. Enter the following values:
   - Name: application
   - Data Type: Application [com.myspace.mortgage_app]

5.2.2. Creating outgoing connections and exclusive gateways

This section shows you how to create outgoing connections, exclusive gateways, and business rule tasks. Use exclusive gateways to make decisions and react to events based on the available data.

Procedure

1. Create an outgoing connection from the start event to an exclusive gateway:
   a. On the canvas, click the start event node and click the Create Parallel icon.
   b. Hover over the icon of the parallel and click the Convert into Exclusive icon.
2. Create an outgoing connection from the exclusive gateway to a business rule task:
   a. On the canvas, click the exclusive gateway and click the Create Task icon.

![Diagram showing a connection from an exclusive gateway to a Create Task icon.]

b. Hover over the icon of the task and click the Convert into Business Rule icon.

![Diagram showing a task with a Convert into Business Rule icon.]
h. Click **Save**.

4. In the diagram editor, to save the changes made to the business process, click **Save** and click **Save** again to confirm your changes.

**5.2.3. Defining the validation data**

This section shows you how to define the validation data that determines whether the application data is correct, contains an error, or has missing information.

**Procedure**

1. Create an outgoing connection from the **Validation** task to an exclusive gateway:
   a. Click the **Validation** task and click the **Create Parallel** icon.
   b. Hover over the icon of the parallel and click the **Convert into Exclusive** icon.

2. Create an outgoing connection from the exclusive gateway to a new business rule task:
   a. Click the exclusive gateway and click the **Create Task** icon.
   b. Hover over the icon of the task and click the **Convert into Business Rule** icon.
c. If the Diagram properties panel is not open, in the upper-right corner click the Diagram properties icon.

d. In the Diagram properties panel, enter Retract Validation in the Name field.

e. Expand Implementation/Execution and enter error in the Rule Flow Group field.

3. Configure the connection between the exclusive gateway and the business rule task:

   a. Click the connection.

   b. If the Diagram properties panel is not open, in the upper-right corner click the Diagram properties icon.

   c. In the Diagram properties panel, enter Invalid in the Name field.
d. Expand **Implementation/Execution** and select **Expression** in the **Condition Expression** section.

e. From the list, select **drools** and enter **Validation>ErrorDO()** in the **Condition Expression** field.

4. Create an outgoing connection from the **Retract Validation** task to a new user task:

a. Click the **Retract Validation** task and click the **Create Task** icon.

b. Hover over the icon of the task and click the **Convert into User** icon.

c. If the **Diagram properties** panel is not open, in the upper-right corner click the **Diagram properties** icon.

d. In the **Diagram properties** panel, enter **Correct Data** in the **Name** field.

e. Expand **Implementation/Execution** and enter the following values:
   - **Task Name**: **CorrectData**
   - **Groups**: **broker**

f. Click **next to Assignments**.

g. In the **Correct Data Data I/O window**, click **Add** and create the following assignments:
5. Connect the Correct Data back to the first exclusive gateway. Your workflow should look similar to the following diagram:

5.2.4. Calculating the mortgage

The mortgage calculation business process determines the applicant’s mortgage borrowing limit.

Procedure

1. Return to the second exclusive gateway. Create an outgoing connection to a business rule task.
2. Click the created connection and in the **Diagram properties** panel, input **Valid** in the **Name** field.

3. Expand **Implementation/Execution**, select **Expression** in the **Condition Expression** section, and enter `not ValidationErrorDO()` in the drools expression field.

4. Click the created business rule task and in the **Diagram properties** panel, input **Mortgage Calculation** in the **Name** field.

5. Expand **Implementation/Execution** and select **mortgagecalculation** from the **Rule Flow Group** drop-down menu.

6. Expand **Data Assignments** and click next to **Assignments**.

7. In the **Mortgage Calculation Data I/O** window, click **Add** to create the following assignments and click **Save**.
8. Click an empty space on the canvas, scroll down, expand **Process Data**, and click next to **Process Variables**. Enter the following values:

- **Name**: inlimit
- **Date Type**: Boolean

9. Create an outgoing connection from the **Mortgage Calculation** task to a user task.
10. Click the user task, enter **Qualify** in the **Name** field, expand **Implementation/Execution**, and enter the following values:

- **Task Name**: Qualify
- **Groups**: approver
- Click **next to Assignments**. In the **Qualify Data I/O** window, click **Add** to create the following assignments:

```
Qualify Data I/O

Data Inputs and Assignments
Name     Data Type      Source
application Application [com.i] application

Data Outputs and Assignments
Name     Data Type  Target
inlimit  Boolean    inlimit
```

11. Click **Save**. Above the canvas, click **Save**, and **Save**, to confirm your changes.

12. Create an outgoing connection from the **Qualify** task to an exclusive gateway.
   a. Click the **GATEWAYS** icon in the node panel.
b. Click Exclusive and drag it to the right of the Qualify task.

13. Create an outgoing connection from the exclusive gateway and connect it to a user task.

14. Click the connection and input in Limit in the Name field of the Diagram properties panel.

15. Expand Implementation/Execution and select Condition in the Condition Expression section.

16. Select inlimit from the Process Variable drop-down menu and select Is true from the Condition drop-down menu.

17. Click the user task, enter Final Approval in the Name field, expand Implementation/Execution, and enter the following values:

- Task Name: Final Approval
18. Click next to Assignments. In the Final Approval Data I/O window, click Add to create the following assignments:

![Final Approval Data I/O window]

19. Click Save. Above the canvas, click Save, and Save, to confirm your changes.

### 5.2.5. Increasing the down payment

The increasing the down payment business process checks to see if the applicant qualifies for the loan by increasing their down payment. The final result is either the final loan approval, or loan denial based on the applicant’s inability to increase the down payment.

**Procedure**

1. Create an outgoing connection from the Final Approval user task and connect it to an end event.
2. Return to the exclusive gateway that connects with the Final Approval user task. Create a second outgoing connection and connect it to a new user task.
3. Click the connection and input **Not in Limit** in the Name field of the Diagram properties panel.

4. Expand Implementation/Execution and select **Condition** in the Condition Expression section.

5. Select **inlimit** from the Process Variable drop-down menu and select **Is false** from the Condition drop-down menu.

6. Click an empty space on the canvas, scroll down, expand Process Data, and click \[\text{+}\] next to Process Variables. Enter the following values:

- Name: **incdownpayment**
7. Click the new user task and in the Diagram properties panel, input Increase Down Payment in the Name field.

8. Expand Implementation/Execution and enter the following values:
   - Task Name: IncreaseDownPayment
   - Groups: broker
   - Click next to Assignments. In the Increase Down Payment Data I/O window, click Add to create the following assignments:

9. Click Save. Above the canvas, click Save, and Save, to confirm your changes.

10. Create an outgoing connection from the Increase Down Payment user task to an exclusive gateway.

11. Create an outgoing connection from the exclusive gateway to an end event.
12. Click the connection and input **Down payment not increased** in the Name field of the Diagram properties panel.

13. Expand Implementation/Execution and select Condition in the Condition Expression section.

14. Select incdownpayment from the Process Variable drop-down menu and select Is false from the Condition drop-down menu.

15. Create an outgoing connection from the exclusive gateway and connect it to the first exclusive gateway.

16. Click the connection and input **Down payment increased** in the Name field of the Diagram properties panel.

17. Expand Implementation/Execution and select Condition in the Condition Expression section.

18. Select incdownpayment from the Process Variable drop-down menu and select Is true from the Condition drop-down menu.

19. Click Save, and Save, to confirm your changes.

Figure 5.1. Final version of the business process
CHAPTER 6. 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.

6.1. VIEWING THE MORTGAGE_PROCESS BUSINESS RULES

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

Related information

Business rules are defined using the Guided Rule wizard in Red Hat Process Automation Manager. For information about creating guided business rules, see Designing a decision service using guided rules.

6.1.1. Viewing the Validate Down Payment guided rule

Review the WHEN and THEN rules so that you understand how the conditions are set and used later when you run the process.

Procedure

1. Click Menu → Design → Projects, and click Mortgage_Process.

2. Click the Validate Down Payment guided rule.

3. Review the Validate Down Payment guided rule’s WHEN and THEN conditions and values.

6.1.2. Viewing the RetractValidationErr guided rule

Review the WHEN and THEN rules so that you understand how the conditions are set and used later when you run the process.

Procedure
1. Click **Menu → Design → Projects**, and click **Mortgage_Process**.

2. Click the **RetractValidationErr** guided rule.

3. Review the **RetractValidationErr** guided rule’s **WHEN** and **THEN** conditions and values.

![Guided Rule Diagram](image-url)
CHAPTER 7. GUIDED DECISION TABLES

Guided decision tables are a wizard-led alternative to spreadsheet decision tables 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.

7.1. VIEWING THE MORTGAGE DECISION TABLE

The goal of this chapter is to introduce you to the MortgageDecisionTable decision table. For this tutorial, you do 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. 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 6.1, “Viewing the Mortgage_Process business rules”.

Procedure

1. In Business Central, go to Menu → Design → Projects → Mortgage_Process.

2. Scroll down and click the MortgageDecisionTable Guided Decision Tables asset.

<table>
<thead>
<tr>
<th>#</th>
<th>Description</th>
<th>ruleflow-group</th>
<th>Applicant Annual Income</th>
<th>Property</th>
<th>application</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>mortgagecalculation</td>
<td>100000</td>
<td>200000</td>
<td>300000</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>mortgagecalculation</td>
<td>50000</td>
<td>99999</td>
<td>100000</td>
<td>10</td>
</tr>
</tbody>
</table>
CHAPTER 8. GENERATING AND EDITING FORMS

The following chapter shows you how to automatically generate forms for collecting user data for your mortgage application business process. This chapter also includes information about editing forms to familiarize you with form manipulation.

Prerequisites

- The MortgageApprovalProcess business process has been created. For more information, see Section 5.2, "Creating a new MortgageApprovalProcess business process application".

8.1. AUTOMATIC FORM GENERATION

Red Hat Process Automation Manager enables you to automatically generate forms. For this business process you automatically generate the Applicant, Property, and Application forms.

Procedure

1. In Business Central, go to Menu → Design → Projects → Mortgage_Process.

2. From the asset list, select the MortgageApprovalProcess business process.

3. Click the Form Generation menu in the upper-right menu and select Generate all forms.


5. From the asset list, select the Applicant form.

   The Applicant form is shown below:
6. Click **Menu → Design → Projects → Mortgage_Process**.

7. From the asset list, select the **Property** form. The **Property** form is shown below:

8. Click **Menu → Design → Projects → Mortgage_Process**.

9. From the asset list, select the **Application** form. The **Application** form is shown below:
10. Click the X icon in the upper-right corner to close the editor.

8.2. EDITING FORMS (OPTIONAL)

The following optional process shows you how to edit the Applicant form that you previously defined as part of this tutorial business process:

Procedure

1. In Business Central, go to Menu → Design → Projects → Mortgage_Process.

2. Click the Applicant data object form and add a new Address row.
   a. Expand the Form Controls menu and drag the TextBox field into the existing form.
   b. Complete the form field properties for the new Address row.
<table>
<thead>
<tr>
<th>Field properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field Type</td>
</tr>
<tr>
<td>Label</td>
</tr>
<tr>
<td>PlaceHoider</td>
</tr>
<tr>
<td>Max. Length</td>
</tr>
<tr>
<td>Required</td>
</tr>
<tr>
<td>Read Only</td>
</tr>
<tr>
<td>Validate on change field value</td>
</tr>
<tr>
<td>Help Message i</td>
</tr>
<tr>
<td>Field binding</td>
</tr>
</tbody>
</table>

3. Click the three vertical dots in the upper-right corner to edit or delete the row.

4. Click **Save**, and click **Save** to confirm your changes.
CHAPTER 9. DEPLOYING THE MORTGAGEAPPROVALPROCESS PROCESS APPLICATION

The following chapter instructs you how to build and deploy a new instance of the Mortgage_Process application in Red Hat Process Automation Manager.

Prerequisites

- Process Server is deployed and connected to Business Central.

Procedure

1. In Business Central, go to Menu → Design → Projects → Mortgage_Process.

2. Click Deploy.

   - If no KIE container (deployment unit) is included with the project name, a container with default values is automatically created.

   - If an older version of the project is already deployed, go to the project settings and change the project version. When finished, save the change and click Deploy. This deploys a new version of the same project with the latest changes in place, alongside the older version(s).

   **NOTE**

   You can also select the Build & Install option to build the project and publish the KJAR file to the configured Maven repository without deploying to a Process Server. In a development environment, you can click Deploy to deploy the built KJAR file to a Process Server without stopping any running instances (if applicable), or click Redeploy to deploy the built KJAR file and replace all instances. The next time you deploy or redeploy the built KJAR, the previous deployment unit (KIE container) is automatically updated in the same target Process Server. In a production environment, the Redeploy option is disabled and you can click Deploy only to deploy the built KJAR file to a new deployment unit (KIE container) on a Process Server.

   To configure the Process Server environment mode, set the org.kie.server.mode system property to org.kie.server.mode=development or org.kie.server.mode=production.

   To configure the deployment behavior for a corresponding project in Business Central, go to project Settings → General Settings → Version and toggle the Development Mode option. By default, Process Server and all new projects in Business Central are in development mode. You cannot deploy a project with Development Mode turned on or with a manually added SNAPSHOT version suffix to a Process Server that is in production mode.

3. To verify the deployment, click Menu → Manage → Process Definitions, and click .

4. Click the three vertical dots in the Actions column and select Start to start a new instance of the process.
CHAPTER 10. EXECUTING THE MORTGAGEAPPROVALPROCESS PROCESS APPLICATION

Now that you have deployed the project, you can execute the project’s defined functionality. For this tutorial you input data into a mortgage application form acting as the mortgage broker. The MortgageApprovalProcess business process runs and determines whether or not the applicant has offered an acceptable down payment based on the decision rules that you defined earlier. The business process either ends the rule testing or requests that the applicant increase the down payment to proceed. If the application passes the business rule testing, the bank’s approver reviews the application and either approve or deny the loan.

Prerequisites

- Process Server is deployed and connected to Business Central.
- The Mortgage_Process application has been deployed.
- The user or users working on the tasks are members of the following groups:
  - approver: For the Qualify task
  - broker: For the Correct Data and Increase Down Payment tasks
  - manager: For the Final Approval task

Procedure


2. Click anywhere in the MortgageApprovalProcess row to view the process details.

3. Click the Diagram tab to view the business process diagram in the editor.

4. Click New Process Instance to open the Application form and input the following values in to the form fields:

   - Down Payment: 30000
   - Years of amortization: 10
   - Name: Ivo
   - Annual Income: 60000
   - SSN: 123456789
   - Age of property: 8
   - Address of property: Brno
   - Locale: Rural
   - Property Sale Price: 50000

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5. Click **Submit** to start a new process instance. After starting the process instance, the **Instance Details** view opens.

6. Click the **Diagram** tab to view the process flow within the process diagram. The state of the process is highlighted as it moves through each task.

7. Click **Menu → Track → Task Inbox**. This takes you to the **Qualify** form.

8. As the approver, review the **Qualify** task information, click **Claim** and then **Start** to start the task, and then select **Is mortgage application in limit?** and click **Complete** to complete the task flow.

9. In the **Task Inbox**, click anywhere in the **Final Approval** row to open the **Final Approval** task.

10. Click **Claim** to claim responsibility for the task, and click **Complete** to finalize the loan approval process.

**NOTE**

The **Save** and **Release** buttons are only used to either pause the approval process and save the instance if you are waiting on a field value, or to release the task for another user to modify.
CHAPTER 11. MONITORING THE MORTGAGEAPPROVALPROCESS PROCESS APPLICATION

The following chapter shows how different bank employees, such as a system administrator or a knowledge worker, might use some of the monitoring capabilities to track an instance of the mortgage approval process.

Prerequisites

- Process Server is deployed and connected to Business Central.

Procedure

1. Log in to Red Hat Process Automation Manager and click **Menu → Manage → Process Instances**.

2. In the **Manage Process Instances** window, you can set filters, such as **State**, **Errors**, **Id**, and so on.

3. Select **Completed** in the **State** filter to view all completed **MortgageApprovalProcess** instances.

4. Click each of the following tabs to get a feel for what type of information is available to monitor a specific process instance:
   - **Instance Details**
   - **Process Variables**
   - **Documents**
   - **Logs**
   - **Diagram**

5. Click **Menu → Track → Process Reports**. This view contains a variety of charts that can help a senior process manager to gain an overview of all processes based on **Type**, **Start Date**, **Running Time**, and so on to assist with task reporting.

11.1. FILTERING PROCESS INSTANCES USING DEFAULT OR ADVANCED FILTERS

Business Central now provides you with default and advanced filters to help you filter and search through running process instances. You can also create custom filters using the **Advanced Filters** option.

11.1.1. Filtering process instances using default filters

Filter processes instances by attributes such as **State**, **Errors**, **Filter By**, **Name**, **Start Date**, and **Last update**.

Procedure

1. In Business Central, go to **Menu → Manage → Process Instances**.
2. On the Manage Process Instances page, click the filter icon on the left of the page to expand the Filters pane. This pane lists the following process attributes which you can use to filter process instances:

- **State**: Filter process instances based on their state (Active, Aborted, Completed, Pending, and Suspended).
- **Errors**: Filter process instances by errors.
- **Filter By**: Filter process instances based on Id, Initiator, Correlation Key, or Description attribute.
  1. Select the required attribute.
  2. Enter the search query in the text field below.
  3. Click Apply.
- **Name**: Filter process instances based on process definition name.
- **Start Date**: Filter process instances based on their creation date.
- **Last update**: Filter process instances based on their last modified date.

You can also use the Advanced Filters option to create custom filters in Business Central.

### 11.1.2. Filtering process instances using advanced filters

Use the Advanced Filters option to create custom process instance filters. The newly created custom filter is added to the Saved Filters pane, which is accessible by clicking on the star icon on the left of the Manage Process Instances page.

**Procedure**

1. In Business Central, go to Menu → Manage → Process Instances.

2. On the Manage Process Instances page, click Advanced Filters icon.

3. In the Advanced Filters pane, enter the name and description of the filter, and click Add New.

4. Select an attribute from the Select column drop-down list, for example, processName. The content of the drop-down changes to processName != value1.

5. Click the drop-down again and choose the required logical query. For the processName attribute, choose equals to.

6. Change the value of the text field to the name of the process you want to filter.

   **NOTE**

   The name must match the value defined in the business process of the project.

7. Click Save and the processes are filtered according to the filter definition.

8. Click the star icon to open the Saved Filters pane. In the Saved Filters pane, you can view all the saved advanced filters.
APPENDIX A. VERSIONING INFORMATION

Documentation last updated on Thursday, October 31, 2019.