Red Hat Decision Manager 7.2

Installing and configuring Red Hat Decision Manager on Red Hat JBoss EAP 7.2

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Abstract

This document describes how to install Red Hat Decision Manager on a Red Hat JBoss EAP 7.2 installation.

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PREFACE

This document describes how to install Red Hat Decision Manager on a Red Hat JBoss Enterprise Application Platform 7.2 instance.

Prerequisites

- You have reviewed the information in *Planning a Red Hat Decision Manager installation*.
- You have installed the latest patch release of Red Hat JBoss EAP 7.2.

CHAPTER 1. ABOUT RED HAT DECISION MANAGER

Red Hat Decision Manager is an open source decision management platform that combines business rules management, complex event processing, Decision Model & Notation (DMN) execution, and Business Optimizer for solving planning problems. It automates business decisions and makes that logic available to the entire business.

Business assets such as rules, decision tables, and DMN models are organized in projects and stored in the Decision Central repository. This ensures consistency, transparency, and the ability to audit across the business. Business users can modify business logic without requiring assistance from IT personnel.

Red Hat JBoss Enterprise Application Platform (Red Hat JBoss EAP) 7.2 is a certified implementation of the Java Enterprise Edition 7 (Java EE 7) full and web profile specifications. Red Hat JBoss EAP provides preconfigured options for features such as high availability, clustering, messaging, and distributed caching. It also enables users to write, deploy, and run applications using the various APIs and services that Red Hat JBoss EAP provides.

The instructions in this document explain how to install Red Hat Decision Manager in a Red Hat JBoss EAP 7.2 server instance. For instruction on how to install Red Hat Decision Manager in other environments, see the following documents:

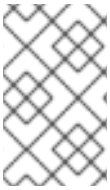
- *Installing and configuring Decision Server on IBM WebSphere Application Server*
- *Installing and configuring Decision Server on Oracle WebLogic Server*
- *Deploying a Red Hat Decision Manager immutable server environment on Red Hat OpenShift Container Platform*
- *Deploying a Red Hat Decision Manager managed server environment on Red Hat OpenShift Container Platform*

For information on supported components, see the following documents:

- What is the mapping between Red Hat Decision Manager and the Maven library version?
- Red Hat Decision Manager 7 Supported Configurations

CHAPTER 2. ROLES AND USERS

To access Decision Central or Decision Server, you must create users and assign them appropriate roles before the servers are started. This section describes available Red Hat Decision Manager user roles.



NOTE

The **admin**, **analyst**, and **rest-all** roles are reserved for Decision Central. The **kie-server** role is reserved for Decision Server. For this reason, the available roles can differ depending on whether Decision Central, Decision Server, or both are installed.

- **admin**: Users with the **admin** role are the Decision Central administrators. They can manage users and create, clone, and manage the repositories. They have full access to make required changes in the application. Users with the **admin** role have access to all areas within Red Hat Decision Manager.
- **analyst**: Users with the **analyst** role have access to all high-level features. They can model projects. However, these users cannot add contributors to spaces or delete spaces in the **Design** → **Projects** view. Access to the **Deploy** → **Execution Servers** view, which is intended for administrators, is not available to users with the **analyst** role. However, the **Deploy** button is available to these users when they access the Library perspective.
- **rest-all**: Users with the **rest-all** role can access Decision Central REST capabilities.
- **kie-server**: Users with the **kie-server** role can access Decision Server (KIE Server) REST capabilities. This role is mandatory for users to have access to Manage and Track views in Decision Central.

CHAPTER 3. DOWNLOADING THE RED HAT DECISION MANAGER INSTALLATION FILES

Depending on your environment and installation requirements, download a Red Hat Decision Manager distribution.

Procedure

1. Navigate to the Software Downloads page in the Red Hat Customer Portal (login required), and select the product and version from the drop-down options:
   - **Product:** Decision Manager
   - **Version:** 7.2
2. Download one of the following product distributions, depending on your preferred installation method:

NOTE

You only need to download one of these distributions.

   - If you want to use the installer to install Red Hat Decision Manager on Red Hat JBoss EAP 7.2 download **Red Hat Decision Manager 7.2.0 Installer** (`rhdm-installer-7.2.0.jar`). The installer graphical user interface guides you through the installation process.
   - If you want to install Red Hat Decision Manager on Red Hat JBoss EAP 7.2 using the deployable zip files, download the following files:
     - **Red Hat Decision Manager 7.2.0 Decision Server for All Supported EE7 Containers** (`rhdm-7.2.0-kie-server-ee7.zip`)
     - **Red Hat Decision Manager 7.2.0 Decision Server Deployable for EAP 7** (`rhdm-7.2.0-decision-central-eap7-deployable.zip`)

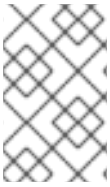
     The ZIP files do not require a graphical user interface so you can install Red Hat Decision Manager using SSH.
   - To run Decision Central without needing to deploy it to an application server, download **Red Hat Decision Manager 7.2.0 Decision Central Standalone** (`rhdm-7.2.0-decision-central-standalone.jar`).

CHAPTER 4. USING THE RED HAT DECISION MANAGER INSTALLER

This section describes how to install Decision Server and the headless Decision Manager controller using the installer JAR file. The JAR file is an executable file that installs Red Hat Decision Manager in an existing Red Hat JBoss EAP 7.2 server installation. You can run the installer in interactive or command line interface (CLI) mode.

NOTE

The Red Hat Decision Manager JAR file installer does *not* support the Red Hat JBoss EAP distribution installed by yum or RPM Package Manager. If you want to install Red Hat Decision Manager in this type of Red Hat JBoss EAP installation, download the **Red Hat Decision Manager 7.2 Deployable for Red Hat JBoss EAP 7.2** file and follow the steps in Chapter 5, *Installing Red Hat Decision Manager from ZIP files*.



NOTE

Because IBM JDK cannot use keystores generated on other JDKs, you cannot install Red Hat Decision Manager into an existing Red Hat JBoss EAP installation running on IBM JDK with a keystore generated on another JDK.

Next steps:

Follow the instructions in one of the following sections:

- Section 4.1, “Using the installer in interactive mode”
- Section 4.2, “Using the installer in CLI mode”

4.1. USING THE INSTALLER IN INTERACTIVE MODE

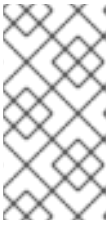
The installer for Red Hat Decision Manager is an executable JAR file. You can use it to install Red Hat Decision Manager in an existing Red Hat JBoss EAP 7.2 server installation.

NOTE

For security reasons, you should run the installer as a non-root user.

Prerequisites

- A backed-up Red Hat JBoss EAP 7.2 or higher server installation is available.
- Sufficient user permissions to complete the installation are granted.
- The JAR binary is included in **`$PATH`** environment variable. On Red Hat Enterprise Linux, it is included in the **`java-$JAVA_VERSION-openjdk-devel`** package.



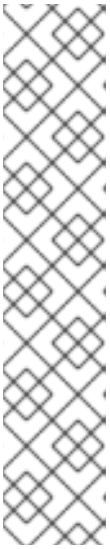
NOTE

Red Hat Decision Manager is designed to work with UTF-8 encoding. If a different encoding system is used by the underlying JVM, unexpected errors might occur. To ensure UTF-8 is used by the JVM, use the **`"-Dfile.encoding=UTF-8"`** system property.

Procedure

1. In a terminal window, navigate to the directory where you downloaded the installer JAR file and enter the following command:

```
java -jar rhdm-installer-7.2.0.jar
```



NOTE

When running the installer on Windows, you may be prompted to provide administrator credentials during the installation. To prevent this requirement, add the **`izpack.mode=privileged`** option to the installation command:

```
java -Dizpack.mode=privileged -jar
rhdm-installer-7.2.0.jar
```

Furthermore, when running the installer on a 32-bit Java virtual machine, you might encounter memory limitations. To prevent this issue, run this command:

```
java -XX:MaxHeapSize=4g -jar
rhdm-installer-7.2.0.jar
```

The graphical installer displays a splash screen and a license agreement page.

2. Click **I accept the terms of this license agreement** and click **Next**.
3. Specify the Red Hat JBoss EAP 7.2 server home where you want to install Red Hat Decision Manager and click **Next**.
4. Select the components that you want to install and click **Next**.

NOTE

You can install Decision Central and Decision Server on the same server. However, you should install Decision Central and Decision Server on different servers in production environments. To do this, run the installer twice.

5. Create a user and click **Next**. By default, the new user is given the **`admin`**, **`kie-server`**, and **`rest-all`** roles. To select another role, deselect **`admin`**. For more information, see Chapter 2, *Roles and users*.

NOTE

Make sure that the specified user name is not the same as an existing user, role, or group. For example, do not create a user with the user name **admin**.

The password must have at least eight characters and must contain at least one number and one non-alphanumeric character, but not & (ampersand).

Make a note of the user name and password. You will need them to access Decision Central and Decision Server.

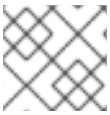
6. On the **Installation Overview** page, click **Next** to start the installation. The Installation Overview page lists the components that you will install.
7. When the installation has completed, click **Next**.
8. When **Processing finished** appears at the top of the screen, click **Next** to complete the installation.
9. If desired, click **Generate Installation Script and Properties File** to save the installation data in an XML file, and then click **Done**. You can use this file to automatically install Red Hat Decision Manager on the same type of server. Note that you must change the **installpath** parameter in the XML file to specify the path of the new server that you want to install Red Hat Decision Manager on. Enter the following command to perform an installation with the XML file:

```
java -jar rhdm-installer-7.2.0.jar <path-to-file>
```

You have successfully installed Red Hat Decision Manager using the installer.

4.2. USING THE INSTALLER IN CLI MODE

You can run the Red Hat Decision Manager installer through the command-line interface (CLI).



NOTE

For security reasons, you should run the installer as a non-root user.

Prerequisites

- A backed-up Red Hat JBoss EAP 7.2 or higher server installation is available.
- Sufficient user permissions to complete the installation are granted.
- The JAR binary is included in the **$PATH** environment variable. On Red Hat Enterprise Linux, it is included in the **java-$*JAVA_VERSION*-openjdk-devel** package.

NOTE

Red Hat Decision Manager is designed to work with UTF-8 encoding. If a different encoding system is used by the underlying JVM, unexpected errors might occur. To ensure UTF-8 is used by the JVM, use the **"-Dfile.encoding=UTF-8"** system property.

Procedure

1. In a terminal window, navigate to the directory where you downloaded the installer file and enter the following command:

```
java -jar rhdm-installer-7.2.0.jar -console
```

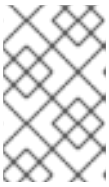
   The command-line interactive process will start and display the End-User License Agreement.

```
press 1 to continue, 2 to quit, 3 to redisplay.
```

2. Read the license agreement, enter **1**, and press Enter to continue:

```
Specify the home directory of one of the following servers:  Red Hat
JBoss EAP 7.2 or Red Hat JBoss Web Server 5.0.1
```

3. Enter the parent directory of an existing Red Hat JBoss EAP 7.2 installation.
   The installer will verify the location of the installation at the location provided. Enter **1** to confirm and continue.



NOTE

You can install Decision Central and Decision Server on the same server. However, you should install Decision Central and Decision Server on different servers in production environments.

4. Follow the instructions in the installer to complete the installation.

NOTE

When you create the user name and password, make sure that the specified user name does not conflict with any known title of a role or a group. For example, if there is a role called **admin**, you should not create a user with the user name **admin**.

The password must have at least eight characters and must contain at least one number and one non-alphanumeric character (*not* including the character **&**).

Make a note of the user name and password. You will need them to access Decision Central and Decision Server.

5. When the installation has completed, you will see this message:

```
Would you like to generate an automatic installation script and
properties file?
```

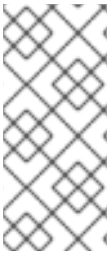
6. Enter **y** to create an XML file that contains the installation data, or **n** to complete the installation. If you enter **y**, you are prompted to specify a path for the XML file.

7. Enter a path or press the Enter key to accept the suggested path.

8. If you installed only Decision Central, repeat these steps to install Decision Server on a separate server.

CHAPTER 5. INSTALLING RED HAT DECISION MANAGER FROM ZIP FILES

The Red Hat Decision Manager ZIP files (one for Decision Central and one for Decision Server) do not require a graphical user interface so you can install Red Hat Decision Manager using SSH.



NOTE

You should install Decision Central and the Decision Server on different servers in production environments.

For information about installing the headless Decision Manager controller, see Chapter 7, *Installing and running the headless Decision Manager controller*.

5.1. INSTALLING DECISION CENTRAL FROM THE ZIP FILE

Decision Central is a web console that enables you to create, manage, and edit your rules and related assets in a unified web-based environment.

Prerequisites

- A backed-up Red Hat JBoss EAP installation version 7.2 or higher is available. The base directory of the Red Hat JBoss EAP installation is referred to as ***EAP_HOME***.
- Sufficient user permissions to complete the installation are granted.
- The following file is downloaded from the Red Hat Customer Portal: **`rhdm-7.2.0-decision-central-eap7-deployable.zip`**

Procedure

1. Extract the **`rhdm-7.2.0-decision-central-eap7-deployable.zip`** file to a temporary directory. In the following examples this directory is called ***TEMP_DIR***.
2. Copy the contents of the ***TEMP_DIR*/`rhdm-7.2.0-decision-central-eap7-deployable/jboss-eap-7.2`** directory to ***EAP_HOME***. When prompted, merge or replace files.

WARNING

Ensure the names of the Red Hat Decision Manager deployments you are copying do not conflict with your existing deployments in the Red Hat JBoss EAP instance.

5.2. INSTALLING DECISION SERVER FROM THE ZIP FILE

Decision Server provides the runtime environment for business assets and accesses the data stored in the assets repository (knowledge store).

Prerequisites

- A backed-up Red Hat JBoss EAP installation version 7.2 or higher is available. The base directory of the Red Hat JBoss EAP installation is referred to as ***EAP_HOME***.
- Sufficient user permissions to complete the installation are granted.
- The following file is downloaded from the Red Hat Customer Portal: **rhdm-7.2.0-kie-server-ee7.zip**

Procedure

1. Extract the **rhdm-7.2.0-kie-server-ee7.zip** archive to a temporary directory. In the following examples this directory is called ***TEMP_DIR***.
2. Copy the ***TEMP_DIR*/rhdm-7.2.0-kie-server-ee7/rhdm-7.2.0-kie-server-ee7/kie-server.war** directory to ***EAP_HOME*/standalone/deployments/**.

WARNING

Ensure the names of the Red Hat Decision Manager deployments you are copying do not conflict with your existing deployments in the Red Hat JBoss EAP instance.

3. Copy the contents of the ***TEMP_DIR*/rhdm-7.2.0-kie-server-ee7/rhdm-7.2.0-kie-server-ee7/SecurityPolicy/** to ***EAP_HOME*/bin**. When asked to overwrite files, click **Replace**.
4. In the ***EAP_HOME*/standalone/deployments/** directory, create an empty file named **kie-server.war.dodeploy**. This file ensures that Decision Server is automatically deployed when the server starts.

5.3. CREATING USERS

Before you can log in to Decision Central or Decision Server, you must create users. This section shows you how to create a Decision Central user with the **admin**, **rest-all**, and **kie-server** roles and a Decision Server user that has the **kie-server** role. For information about roles, see Chapter 2, *Roles and users*.

Prerequisites

Red Hat Decision Manager is installed in the base directory of the Red Hat JBoss EAP installation (***EAP_HOME***).

Procedure

1. In a terminal application, navigate to the ***EAP_HOME*/bin** directory.

2. Create a user with the **admin** role that you will use to log in to Decision Central. In the following command, replace **<username>** and **<password>** with the user name and password of your choice.

```
$ ./add-user.sh -a --user <USERNAME>  --password <PASSWORD> --role
admin
```

NOTE

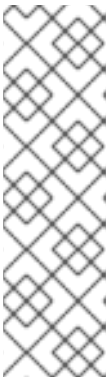
Make sure that the specified user name is not the same as an existing user, role, or group. For example, do not create a user with the user name **admin**.

The password must have at least eight characters and must contain at least one number and one non-alphanumeric character, but not & (ampersand).

3. Create a user with the **kie-server** role that you will use to log in to Decision Server.

```
$ ./add-user.sh -a --user <USERNAME>  --password <PASSWORD> --role
kie-server
```

4. Make a note of your user names and passwords.



NOTE

If you installed Decision Central and Decision Server in the same server instance, you can create a single user that has both of these roles:

```
$ ./add-user.sh -a --user <USERNAME>  --password
<PASSWORD> --role admin,rest-all,kie-server
```

You should install Decision Central and Decision Server on different servers in production environments.

5.4. CONFIGURING DECISION SERVER WITH THE INTEGRATED DECISION MANAGER CONTROLLER

NOTE

Only make the changes described in this section if Decision Server will be managed by Decision Central and you installed Red Hat Decision Manager from the ZIP files. If you did not install Decision Central, you can use the headless Decision Manager controller to manage Decision Server, as described in Chapter 7, *Installing and running the headless Decision Manager controller*.

Decision Server can be managed or it can be unmanaged. If Decision Server is unmanaged, you must manually create and maintain KIE containers (deployment units). If Decision Server is managed, the Decision Manager controller manages the Decision Server configuration and you interact with the Decision Manager controller to create and maintain KIE containers.

The Decision Manager controller is integrated with Decision Central. If you install Decision Central, you can use the **Execution Server** page in Decision Central to interact with the Decision Manager controller.

If you installed Red Hat Decision Manager from the ZIP files, you must edit the **standalone-full.xml** file in both the Decision Server and Decision Central installations to configure Decision Server with the integrated Decision Manager controller.

Prerequisites

- Decision Central and Decision Server are installed in the base directory of the Red Hat JBoss EAP installation (***EAP_HOME***) as described in the following sections:
  - Section 5.1, “Installing Decision Central from the ZIP file”
  - Section 5.2, “Installing Decision Server from the ZIP file”

NOTE

You should install Decision Central and Decision Server on different servers in production environments. However, if you install Decision Server and Decision Central on the same server, for example in a development environment, make the changes described in this section in the shared **standalone-full.xml** file.

- On Decision Central server nodes, a user with the **rest-all** role exists.
  For more information, see Section 5.3, “Creating users”.

Procedure

1. In the Decision Central ***EAP_HOME*/standalone/configuration/standalone-full.xml** file, uncomment the following properties in the **<system-properties>** section and replace **<USERNAME>** and **<USER_PWD>** with the credentials of a user with the **kie-server** role:

```
    <property name="org.kie.server.user" value="<USERNAME>"/>
    <property name="org.kie.server.pwd" value="<USER_PWD>"/>
```

2. In the Decision Server ***EAP_HOME*/standalone/configuration/standalone-full.xml** file, uncomment the following properties in the **<system-properties>** section.

```
  <property name="org.kie.server.controller.user" value="
<CONTROLLER_USER>"/>
  <property name="org.kie.server.controller.pwd" value="
<CONTROLLER_PWD>"/>
  <property name="org.kie.server.id" value="<KIE_SERVER_ID>"/>
  <property name="org.kie.server.location" value="http://<HOST>:
<PORT>/kie-server/services/rest/server"/>
  <property name="org.kie.server.controller" value="
<CONTROLLER_URL>"/>
```

3. Replace the following values:
   - Replace **<CONTROLLER_USER>** and **<CONTROLLER_PWD>** with the credentials of a user with the **rest-all** role.
   - Replace **<KIE_SERVER_ID>** with the ID or name of the Decision Server installation, for example, **rhdm-7.2.0-decision_server-1**.

- Replace **<HOST>** with the ID or name of the Decision Server host, for example, **localhost** or **192.7.8.9**.
- Replace **<PORT>** with the port of the Decision Server host, for example, **8080**.

NOTE

The **org.kie.server.location** property specifies the location of Decision Server.

- Replace **<CONTROLLER_URL>** with the URL of Decision Central. Decision Server connects to this URL during startup.
  - If you installed Decision Central using the installer or Red Hat JBoss EAP zip installations, **<CONTROLLER_URL>** has this format:
    http://<HOST>:<PORT>/decision-central/rest/controller
  - If you are running Decision Central using the **standalone.jar** file, **<CONTROLLER_URL>** has this format:
    http://<HOST>:<PORT>/rest/controller

CHAPTER 6. RUNNING RED HAT DECISION MANAGER

Use this procedure to run the Red Hat Decision Manager on Red Hat JBoss EAP in standalone mode.

Prerequisites

- Red Hat Decision Manager is installed and configured.

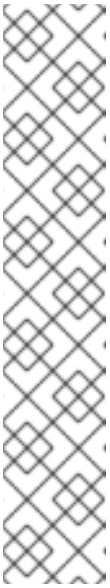
Procedure

1. In a terminal application, navigate to ***EAP_HOME*/bin**.
2. Run the standalone configuration:
   - On Linux or UNIX-based systems:

     ```
     $ ./standalone.sh -c standalone-full.xml
     ```

   - On Windows:

     ```
     standalone.bat -c standalone-full.xml
     ```



NOTE

If you deployed Decision Central without Decision Server, you can start Decision Central with the **standalone.sh** script without specifying the **standalone-full.xml** file. In this case, ensure that you make any configuration changes to the **standalone.xml** file before starting Decision Central.

On Linux or UNIX-based systems:

```
$ /standalone.sh
```

On Windows:

```
standalone.bat
```

3. In a web browser, open the URL **localhost:8080/decision-central**.
4. Log in using the credentials of the user that you created for Decision Central in Section 5.3, “Creating users”.

CHAPTER 7. INSTALLING AND RUNNING THE HEADLESS DECISION MANAGER CONTROLLER

You can configure Decision Server to run in managed or unmanaged mode. If Decision Server is unmanaged, you must manually create and maintain KIE containers (deployment units). If Decision Server is managed, the Decision Manager controller manages the Decision Server configuration and you interact with the Decision Manager controller to create and maintain KIE containers.

Decision Central has an embedded Decision Manager controller. If you install Decision Central, use the **Execution Server** page to create and maintain KIE containers. If you want to automate Decision Server management without Decision Central, you can use the headless Decision Manager controller.

7.1. INSTALLING THE HEADLESS DECISION MANAGER CONTROLLER

You can install the headless Decision Manager controller and use the REST API or the Decision Server Java Client API to interact with it.

Prerequisites

- A backed-up Red Hat JBoss EAP installation version 7.2 or higher is available. The base directory of the Red Hat JBoss EAP installation is referred to as ***EAP_HOME***.
- Sufficient user permissions to complete the installation are granted.

Procedure

1. Navigate to the Software Downloads page in the Red Hat Customer Portal (login required), and select the product and version from the drop-down options:
   - **Product:** Decision Manager
   - **Version:** 7.2
2. Download **Red Hat Decision Manager 7.2.0 Add Ons** (the **`rhdm-7.2.0-add-ons.zip`** file).
3. Unzip the **`rhdm-7.2.0-add-ons.zip`** file. The **`rhdm-7.2-controller-ee7.zip`** file is in the unzipped directory.
4. Extract the **`rhdm-7.2-controller-ee7`** archive to a temporary directory. In the following examples this directory is called ***`TEMP_DIR`***.
5. Copy the ***`TEMP_DIR`*`/rhdm-7.2-controller-ee7/controller.war`** directory to ***`EAP_HOME`*`/standalone/deployments/`**.

WARNING

Ensure that the names of the headless Decision Manager controller deployments you are copying do not conflict with your existing deployments in the Red Hat JBoss EAP instance.

6. Copy the contents of the ***TEMP_DIR*/rhdm-7.2-controller-ee7/SecurityPolicy/** directory to ***EAP_HOME*/bin**. When asked to overwrite files, select **Yes**.

7. In the ***EAP_HOME*/standalone/deployments/** directory, create an empty file named **controller.war.dodeploy**. This file ensures that the headless Decision Manager controller is automatically deployed when the server starts.

7.1.1. Creating a headless Decision Manager controller user

Before you can use the headless Decision Manager controller, you must create a user that has the **kie-server** role.

Prerequisites

- The headless Decision Manager controller is installed in the base directory of the Red Hat JBoss EAP installation (***EAP_HOME***).

Procedure

1. In a terminal application, navigate to the ***EAP_HOME*/bin** directory.

2. Enter the following command and replace **<USER_NAME>** and **<PASSWORD>** with the user name and password of your choice.

```
$ ./add-user.sh -a --user <username> --password <password> --role
kie-server
```

NOTE

Make sure that the specified user name is not the same as an existing user, role, or group. For example, do not create a user with the user name **admin**.

The password must have at least eight characters and must contain at least one number and one non-alphanumeric character, but not & (ampersand).

3. Make a note of your user name and password.

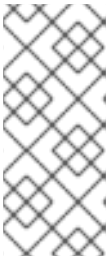
7.1.2. Configuring Decision Server and the headless Decision Manager controller

If Decision Server will be managed by the headless Decision Manager controller, you must edit the **standalone-full.xml** file in both the Decision Server and headless Decision Manager controller installations, as described in this section.

Prerequisites

- Decision Server is installed in the base directory of the Red Hat JBoss EAP installation (***EAP_HOME***) as described in Chapter 5, *Installing Red Hat Decision Manager from ZIP files* section.

- The headless Decision Manager controller is installed in an ***EAP_HOME***.



NOTE

You should install Decision Server and the headless Decision Manager controller on different servers in production environments. However, if you install Decision Server and the headless Decision Manager controller on the same server, for example in a development environment, make these changes in the shared **`standalone-full.xml`** file.

- On Decision Server nodes, a user with the **`kie-server`** role exists.
- On the server nodes, a user with the **`kie-server`** role exists.
  For more information, see Section 5.3, “Creating users”.

Procedure

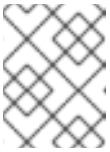
1. In the ***`EAP_HOME`*`/standalone/configuration/standalone-full.xml`** file, add the following properties to the **`<system-properties>`** section and replace **`<USERNAME>`** and **`<USER_PWD>`** with the credentials of a user with the **`kie-server`** role:

```
    <property name="org.kie.server.user" value="<USERNAME>"/>
    <property name="org.kie.server.pwd" value="<USER_PWD>"/>
```

2. In the Decision Server ***`EAP_HOME`*`/standalone/configuration/standalone-full.xml`** file, add the following properties to the **`<system-properties>`** section:

```
  <property name="org.kie.server.controller.user" value="
<CONTROLLER_USER>"/>
  <property name="org.kie.server.controller.pwd" value="
<CONTROLLER_PWD>"/>
  <property name="org.kie.server.id" value="<KIE_SERVER_ID>"/>
  <property name="org.kie.server.location" value="http://<HOST>:
<PORT>/kie-server/services/rest/server"/>
  <property name="org.kie.server.controller" value="
<CONTROLLER_URL>"/>
```

3. In this file, replace the following values:
   - Replace **`<CONTROLLER_USER>`** and **`<CONTROLLER_PWD>`** with the credentials of a user with the **`kie-server`** role.
   - Replace **`<KIE_SERVER_ID>`** with the ID or name of the Decision Server installation, for example, **`rhdm-7.2.0-decision_server-1`**.
   - Replace **`<HOST>`** with the ID or name of the Decision Server host, for example, **`localhost`** or **`192.7.8.9`**.
   - Replace **`<PORT>`** with the port of the Decision Server host, for example, **`8080`**.



NOTE

The **`org.kie.server.location`** property specifies the location of Decision Server.

- Replace **<CONTROLLER_URL>** with the URL of the headless Decision Manager controller.

4. Decision Server connects to this URL during startup.

7.2. RUNNING THE HEADLESS DECISION MANAGER CONTROLLER

After you have installed the headless Decision Manager controller on Red Hat JBoss EAP, use this procedure to run the headless Decision Manager controller.

Prerequisites

- The headless Decision Manager controller is installed and configured in the base directory of the Red Hat JBoss EAP installation (***EAP_HOME***).

Procedure

1. In a terminal application, navigate to ***EAP_HOME*/bin**.
2. If you installed the headless Decision Manager controller on the same Red Hat JBoss EAP instance as the Red Hat JBoss EAP instance where you installed the Decision Server, enter one of the following commands:
   - On Linux or UNIX-based systems:

     ```
     $ ./standalone.sh -c standalone-full.xml
     ```

   - On Windows:

     ```
     standalone.bat -c standalone-full.xml
     ```

3. If you installed the headless Decision Manager controller on a separate Red Hat JBoss EAP instance from the Red Hat JBoss EAP instance where you installed the Decision Server, you can start the headless Decision Manager controller with the **standalone.sh** script:

   NOTE

   In this case, ensure that you made all required configuration changes to the **standalone.xml** file.

   - On Linux or UNIX-based systems:

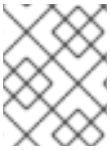
     ```
     $ ./standalone.sh
     ```

   - On Windows:

     ```
     standalone.bat
     ```

4. To verify that the headless Decision Manager controller is working on Red Hat JBoss EAP, enter the following command where **<CONTROLLER>** and **<CONTROLLER_PWD>** is the user name and password combination that you created in Section 7.1.1, “Creating a headless Decision Manager controller user”. The output of this command provides information about the Decision Server instance.

```
curl -X GET "http://<HOST>:
<PORT>/controller/rest/controller/management/servers" -H  "accept:
application/xml" -u '<CONTROLLER>:<CONTROLLER_PWD>'
```



NOTE

Alternatively, you can use the Decision Server Java API Client to access the headless Decision Manager controller.

CHAPTER 8. RUNNING STANDALONE DECISION CENTRAL

You can use the Decision Central standalone JAR file to run Decision Central without needing to deploy it to an application server such as Red Hat JBoss EAP.

NOTE

Red Hat supports this installation type only when it is installed on Red Hat Enterprise Linux.

Procedure

1. Navigate to the Software Downloads page in the Red Hat Customer Portal (login required), and select the product and version from the drop-down options:
   - **Product:** Decision Manager
   - **Version:** 7.2
2. Download **Red Hat Decision Manager 7.2 Decision Central Standalone** (**`rhdm-7.2.0-decision-central-standalone.jar`**).
3. Create a directory and move the **`rhdm-7.2.0-decision-central-standalone.jar`** file to this directory.
4. In a terminal window, navigate to the directory that contains the standalone JAR file.
5. Create the **`application-users.properties`** file. Include an administrative user and if this Decision Central instance will be a Decision Manager controller for Decision Server, include a Decision Manager controller user, for example:

```
rhdmAdmin=password1
controllerUser=controllerUser1234
```

6. Create the **`application-roles.properties`** file to assign roles to the users that you included in the **`application-users.properties`** file, for example:

```
rhdmAdmin=admin
controllerUser=kie-server
```

7. Create the **`application-config.yaml`** configuration file with the following contents, where **`<APPLICATION_USERS>`** is the path to the **`application-users.properties`** file and **`<APPLICATION_ROLES>`** is the path to the **`application-roles.properties`** file:

```
swarm:
  management:
    security-realms:
      ApplicationRealm:
        local-authentication:
          default-user: local
          allowed-users: local
          skip-group-loading: true
        properties-authentication:
          path: <APPLICATION_USERS>
```

```
          plain-text: true
        properties-authorization:
          path: <APPLICATION_ROLES>
datasource:
  management:
    wildfly:
      admin: admin
```

8. Enter the following command:

```
java -jar rhdm-7.2.0-decision-central-standalone.jar -s application-
config.yaml
```

In addition, you can set any properties supported by Decision Central by including the **-D<property>=<value>** parameter in this command, for example:

```
java -jar rhdm-7.2.0-decision-central-standalone.jar -s application-
config.yaml -D<property>=<value> -D<property>=<value>
```

See Section 8.1, “Supported properties” for more information.

8.1. SUPPORTED PROPERTIES

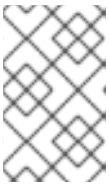
When you install standalone Decision Central, you can use the properties listed in this section in the following command:

```
java -jar rhdm-7.2.0-decision-central-standalone.jar -s application-
config.yaml -D<property>=<value> -D<property>=<value>
```

In this command, **<property>** is a property from the following list and **<value>** is a value that you assign to that property:

- **org.uberfire.nio.git.dir**: Location of the Decision Server Git directory.
- **org.uberfire.nio.git.dirname**: Name of the Decision Server Git directory. Default value: **.niogit**.
- **org.uberfire.nio.git.proxy.ssh.over.http**: Specifies whether SSH should use an HTTP proxy. Default: **false**
- **http.proxyHost**: Defines the host name of the HTTP proxy. Default: **null**
- **http.proxyPort**: Defines the host port (integer value) of the HTTP proxy. Default: **null**
- **org.uberfire.nio.git.proxy.ssh.over.https**: Specifies whether SSH should use an HTTPS proxy. Default: **false**
- **https.proxyHost**: Defines the host name of the HTTPS proxy. Default: **null**
- **https.proxyPort**: Defines the host port (integer value) of the HTTPS proxy. Default: **null**
- **org.uberfire.nio.git.daemon.enabled**: Enables or disables the Git daemon. Default value: **true**.

- **`org.uberfire.nio.git.daemon.host`**: If the Git daemon is enabled, it uses this property as the local host identifier. Default value: **`localhost`**.
- **`org.uberfire.nio.git.daemon.port`**: If the Git daemon is enabled, it uses this property as the port number. Default value: **`9418`**.
- **`org.uberfire.nio.git.http.sslVerify`**: Enables or disables SSL certificate checking for Git repositories. Default: **`true`**



NOTE

If the default or assigned port is already in use, a new port is automatically selected. Ensure that the ports are available and check the log for more information.

- **`org.uberfire.nio.git.ssh.enabled`**: Enables or disables the SSH daemon. Default value: **`true`**.
- **`org.uberfire.nio.git.ssh.host`**: If the SSH daemon enabled, it uses this property as the local host identifier. Default value: **`localhost`**.
- **`org.uberfire.nio.git.ssh.port`**: If the SSH daemon is enabled, it uses this property as the port number. Default value: **`8001`**.

NOTE

If the default or assigned port is already in use, a new port is automatically selected. Ensure that the ports are available and check the log for more information.

- **`org.uberfire.nio.git.ssh.cert.dir`**: Location of the **`.security`** directory where local certificates are stored. Default: the working directory.
- **`org.uberfire.nio.git.ssh.passphrase`**: Pass phrase used to access the public key store of your operating system when cloning git repositories with SCP style URLs. Example: **`git@github.com:user/repository.git`**.
- **`org.uberfire.nio.git.ssh.algorithm`**: Algorithm used by SSH. Default value: **`RSA`**.

NOTE

If you plan to use RSA or any algorithm other than DSA, make sure you set up your application server to use the Bouncy Castle JCE library.

- **`org.uberfire.metadata.index.dir`**: Place where the Lucene **`.index`** directory is stored. Default: the working directory
- **`org.uberfire.ldap.regex.role_mapper`**: Regex pattern used to map LDAP principal names to the application role name. Note that the variable role must be part of the pattern because it is substituted by the application role name when matching a principal value to a role name. Default: Not used.

- **`org.uberfire.sys.repo.monitor.disabled`**: Disables the configuration monitor. Do not disable unless you are sure. Default value: **`false`**
- **`org.uberfire.secure.key`**: Password used by password encryption. Default value: **`org.uberfire.admin`**
- **`org.uberfire.secure.alg`**: Crypto algorithm used by password encryption. Default value: **`PBEWithMD5AndDES`**
- **`org.uberfire.domain`**: Security-domain name used by uberfire. Default value: **`ApplicationRealm`**
- **`org.guvnor.m2repo.dir`**: Place where the Maven repository folder is stored. Default value: **`<working-directory>/repositories/kie`**
- **`org.guvnor.project.gav.check.disabled`**: Disables group ID, artifact ID, and version (GAV) checks. Default value: **`false`**
- **`org.kie.build.disable-project-explorer`**: Disables automatic build of a selected project in Project Explorer. Default value: **`false`**
- **`org.kie.verification.disable-dtable-realtime-verification`**: Disables the real-time validation and verification of decision tables. Default value: **`false`**
- **`org.kie.server.controller`**: URL for connecting with a Decision Manager controller, for example: **`ws://localhost:8080/decision-central/websocket/controller`**
- **`org.kie.server.user`**: User name used to connect with the Decision Server nodes from the Decision Manager controller. This property is only required when using this Decision Central installation as a Decision Manager controller.
- **`org.kie.server.pwd`**: Password used to connect with the Decision Server nodes from the Decision Manager controller. This property is only required when using this Decision Central installation as a Decision Manager controller.
- **`kie.maven.offline.force`**: Forces Maven to behave as offline. If true, disable online dependency resolution. Default: **`false`**.

CHAPTER 9. SETTING MAVEN DEPENDENCIES IN YOUR PROJECT

You can use an external Maven repository to deploy a project. When you create a project, Decision Central uses the Maven repositories that are configured for Decision Central. You can use the Maven global or user settings to direct all Red Hat Decision Manager projects to retrieve dependencies from the public Red Hat Decision Manager repository by modifying the following files:

- The Maven **settings.xml** file.
- The Maven project object model (POM) file (**pom.xml**).

For more information, see *Packaging and deploying a Red Hat Decision Manager project*.

9.1. MODIFY THE MAVEN SETTINGS FILE

You can configure Decision Central and Decision Server to use an external Maven repository, such as Nexus, instead of the built-in repository. In this case, when you build projects in Decision Central, all built project KJAR files are pushed into this external repository. You can progress these files through the repository as necessary to implement your integration process, and deploy the KJAR files using Decision Central or the Decision Server REST API.

Prerequisite

Decision Central and Decision Server are installed. For installation options, see *Planning a Red Hat Decision Manager installation*.

Procedure

1. Create a Maven **settings.xml** file with connection and access details for your external repository. For details about the **settings.xml** file, see the Maven Settings Reference.
2. Save the file in a known location, for example, **/opt/custom-config/settings.xml**.
3. In your Red Hat Decision Manager installation directory, navigate to the **standalone-full.xml** file. For example, if you use a Red Hat JBoss EAP installation for Red Hat Decision Manager, go to **$EAP_HOME/standalone/configuration/standalone-full.xml**.
4. Open **standalone-full.xml** and under the **<system-properties>** tag, set the **kie.maven.settings.custom** property to the full path name of the **settings.xml** file. For example:

```
<property name="kie.maven.settings.custom" value="/opt/custom-config/settings.xml"/>
```

5. Start or restart Decision Central and Decision Server.

9.2. MODIFY THE MAVEN POM FILE

To use the correct Maven dependencies in your Red Hat Decision Manager project, add the Red Hat Business Automation bill of materials (BOM) files to the project's **pom.xml** file. The Red Hat Business Automation BOM applies to both Red Hat Decision Manager and Red Hat Process Automation Manager.

When you add the BOM files, the correct versions of transitive dependencies from the provided Maven repositories are included in the project.

For more information about the Red Hat Business Automation BOM, see What is the mapping between Red Hat Decision Manager and the Maven library version?.

Procedure

1. Declare the Red Hat Business Automation BOM in the **pom.xml** file:

```
<dependencyManagement>
 <dependencies>
  <dependency>
   <groupId>com.redhat.ba</groupId>
   <artifactId>ba-platform-bom</artifactId>
   <version>7.2.0.GA-redhat-00002</version>
   <type>pom</type>
   <scope>import</scope>
  </dependency>
 </dependencies>
</dependencyManagement>
<dependencies>
<!-- Your dependencies -->
</dependencies>
```

2. Declare dependencies required for your project in the **<dependencies>** tag. After you import the product BOM into your project, the versions of the user-facing product dependencies are defined so you do not need to specify the **<version>** sub-element of these **<dependency>** elements. However, you must use the **<dependency>** element to declare dependencies which you want to use in your project.

3. For standalone projects that are not authored in Decision Central, specify all dependencies required for your projects. In projects that you author in Decision Central, the basic decision engine dependencies are provided automatically by Decision Central.

   - For a basic Red Hat Decision Manager project, declare the following dependencies, depending on the features that you want to use:

   - For a basic Red Hat Decision Manager project, declare the following dependencies:

     Embedded decision engine dependencies

```
<dependency>
  <groupId>org.drools</groupId>
  <artifactId>drools-compiler</artifactId>
</dependency>

<!-- Dependency for persistence support. -->
<dependency>
  <groupId>org.drools</groupId>
  <artifactId>drools-persistence-jpa</artifactId>
</dependency>

<!-- Dependencies for decision tables, templates, and scorecards.
For other assets, declare org.drools:drools-workbench-models-*
dependencies. -->
```

```
<dependency>
  <groupId>org.drools</groupId>
  <artifactId>drools-decisiontables</artifactId>
</dependency>
<dependency>
  <groupId>org.drools</groupId>
  <artifactId>drools-templates</artifactId>
</dependency>
<dependency>
  <groupId>org.drools</groupId>
  <artifactId>drools-scorecards</artifactId>
</dependency>

<!-- Dependency for loading KJARs from a Maven repository using
KieScanner. -->
<dependency>
  <groupId>org.kie</groupId>
  <artifactId>kie-ci</artifactId>
</dependency>
```

- To use the Decision Server, declare the following dependencies:

  Client application Decision Server dependencies

```
<dependency>
  <groupId>org.kie.server</groupId>
  <artifactId>kie-server-client</artifactId>
</dependency>
```

- To create a remote client for Red Hat Decision Manager, declare the following dependency:

  Client dependency

```
<dependency>
  <groupId>org.uberfire</groupId>
</dependency>
```

- When creating a JAR file that includes assets, such as rules and process definitions, specify the packaging type for your Maven project as **`kjar`** and use **`org.kie:kie-maven-plugin`** to process the **`kjar`** packaging type located under the **`<project>`** element. In the following example, **`${kie.version}`** is the Maven library version listed in What is the mapping between Red Hat Decision Manager and the Maven library version?:

```
<packaging>kjar</packaging>
<build>
 <plugins>
  <plugin>
   <groupId>org.kie</groupId>
   <artifactId>kie-maven-plugin</artifactId>
   <version>${kie.version}</version>
   <extensions>true</extensions>
  </plugin>
 </plugins>
</build>
```

CHAPTER 10. IMPORTING PROJECTS FROM GIT REPOSITORIES

Git is a distributed version control system. It implements revisions as commit objects. When you save your changes to a repository, a new commit object in the Git repository is created.

Decision Central uses Git to store project data, including assets such as rules and processes. When you create a project in Decision Central, it is added to a Git repository that is embedded in Decision Central. If you have projects in other Git repositories, you can import those projects into the Decision Central Git repository through Decision Central spaces.

Prerequisites

- Red Hat Decision Manager projects exist in an external Git repository.
- Credentials required for read access to that external Git repository are available.

Procedure

1. In Decision Central, click **Menu** → **Design** → **Projects**.
2. Select or create the space into which you want to import the projects. The default space is **mySpace**.
3. Click the three vertical dots on the right side of the screen and select **Import Project**.
4. In the **Import Project** window, enter the URL and credentials for the Git repository that contains the projects that you want to import and click **Import**. The projects are added to the Decision Central Git repository and are available from the current space.

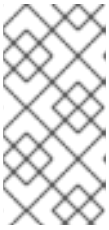
CHAPTER 11. VERIFYING THE RED HAT DECISION MANAGER INSTALLATION

After you have installed Red Hat Decision Manager, create an asset to verify that the installation is working.

Procedure

1. In a terminal window, navigate to the ***EAP_HOME*/bin** directory and enter the following command to start Red Hat Decision Manager:

```
./standalone.sh -c standalone-full.xml
```



NOTE

If you deployed Decision Central without Decision Server, you can start Decision Central with the **standalone.sh** script without specifying the **standalone-full.xml** file. In this case, ensure that you make any configuration changes to the **standalone.xml** file before starting Decision Central.

2. In a web browser, enter **localhost:8080/decision-central**.
   - If Red Hat Decision Manager has been configured to run from a domain name, replace **localhost** with the domain name, for example: **http://www.example.com:8080/decision-central**
   - If Red Hat Decision Manager has been configured to run in a cluster, replace **localhost** with the IP address of a particular node, for example: **http://<node_IP_address>:8080/decision-central**
3. Enter the **admin** user credentials that you created during installation. The Decision Central home page appears.
4. Select **Menu** → **Deploy** → **Execution Servers**.
5. Confirm that **default-kieserver** is listed under **Server Configurations**.
6. Select **Menu** → **Design** → **Projects**.
7. Click **Try Samples** → **Mortgages** → **OK**. The **Assets** window appears.
8. Click **Create New Asset** → **Data Object**.
9. Enter **MyDataObject** in the **Data Object** field and click **OK**.
10. Click **Spaces** → **MySpace** → **Mortgages** and confirm that **MyDataObject** is in the list of assets.
11. Delete the **Mortgages** project.

CHAPTER 12. CUSTOMIZING DECISION CENTRAL

You can customize the Decision Central login page and application header.

12.1. CUSTOMIZING THE DECISION CENTRAL LOGIN PAGE

You can customize the company logo and the project logo on the Decision Central login page.

Procedure

1. Start Red Hat JBoss EAP and open Decision Central in a web browser.
2. Copy a PNG format image to the ***EAP_HOME*/standalone/deployments/decision-central.war/img/** directory in your Red Hat Decision Manager installation.
3. In the ***EAP_HOME*/standalone/deployments/decision-central.war/img/** directory, either move or rename the existing **login-screen-logo.png** file.
4. Rename your PNG file **login-screen-logo.png**.
5. To change the project logo that appears above the **User name** and **Password** fields, replace the default image **RHDM_Logo.svg** with a new SVG file.
6. Force a full reload of the login page, bypassing the cache, to view the changes. For example, in most Linux and Windows web browsers, press Ctrl+F5.

12.2. CUSTOMIZING DECISION CENTRAL APPLICATION HEADER

You can customize the Decision Central application header.

Procedure

1. Start Red Hat JBoss EAP, open Decision Central in a web browser, and log in with your user credentials.
2. Copy your new application header image in the SVG format to the ***EAP_HOME*/standalone/deployments/decision-central.war/banner/** directory in your Red Hat Decision Manager installation.
3. Open the ***EAP_HOME*/standalone/deployments/decision-central.war/banner/banner.html** file in a text editor.
4. Replace **logo.svg** in the **<img>** tag with the file name of your new image:admin-and-config/

```
<img src="banner/logo.svg"/>
```

5. Force a full reload of the login page, bypassing the cache, to view the changes. For example, in most Linux and Windows web browsers, press Ctrl+F5.

CHAPTER 13. INTEGRATING LDAP AND SSL

With Red Hat Decision Manager you can integrate LDAP and SSL through RH-SSO. For more information, see the *Red Hat Single Sign-On Server Administration Guide*.

- *Integrating Red Hat Developer Studio with Red Hat Decision Manager*

APPENDIX A. VERSIONING INFORMATION

Documentation last updated on Wednesday, February 13, 2019.