



# **Red Hat Decision Manager 7.0**

## **Installing and configuring Decision Server on Oracle WebLogic Server**



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## Abstract

This document describes how to install Red Hat Decision Manager on Oracle Weblogic Server.

## Table of Contents

<b>PREFACE</b> .....	<b>3</b>
<b>CHAPTER 1. ABOUT RED HAT DECISION MANAGER FOR ORACLE WEBLOGIC SERVER</b> .....	<b>4</b>
<b>CHAPTER 2. DOWNLOADING DECISION SERVER</b> .....	<b>5</b>
<b>CHAPTER 3. CONFIGURING ORACLE WEBLOGIC SERVER</b> .....	<b>6</b>
3.1. SETTING ENVIRONMENT VARIABLES .....	6
JVM memory size .....	6
JVM custom properties .....	6
3.2. STARTING ORACLE WEBLOGIC SERVER .....	6
3.3. CONFIGURING SECURITY SETTINGS .....	7
3.4. CONFIGURING JAVA MESSAGE SERVICE .....	8
3.4.1. Create a JMS server .....	8
Create a JMS module .....	8
Create JMS connection factories .....	9
Create JMS queues .....	9
<b>CHAPTER 4. INSTALLING DECISION SERVER</b> .....	<b>11</b>
<b>CHAPTER 5. INSTALLING AND RUNNING THE STANDALONE DECISION SERVER CONTROLLER</b> .....	<b>12</b>
5.1. SETTING ENVIRONMENT VARIABLES FOR THE CONTROLLER .....	12
5.2. INSTALLING THE CONTROLLER .....	13
<b>APPENDIX A. VERSIONING INFORMATION</b> .....	<b>15</b>



# PREFACE

The document describes how to configure Oracle Weblogic Server for Decision Server and how to install Decision Server on that server instance.

## Prerequisites

- An Oracle Weblogic Server instance, release 12.2.1.3.0 or higher
- Access to the Oracle WebLogic Server administrative console, usually **`http://TARGET_SERVER:7001/console`**

# CHAPTER 1. ABOUT RED HAT DECISION MANAGER FOR ORACLE WEBLOGIC SERVER

Red Hat Decision Manager is an open source decision management platform that combines business rules management and complex event processing. It includes decision management and business resource optimization capabilities. With Red Hat Decision Manager, you can automate business decisions and make that logic available to the entire business.

Red Hat Decision Manager uses a centralized repository for storing all resources. This ensures consistency, transparency, and the ability to audit across the business. Business users can modify business logic and business processes without requiring assistance from IT personnel.

Red Hat Decision Manager is made up of Decision Central, Decision Server, and Red Hat Business Optimizer.

- Decision Central is the graphical user interface where you create and manage business rules.
- Decision Server is the server where the rules and other artifacts are stored. Decision Server is used to instantiate and execute rules and solve planning problems.
- Red Hat Business Optimizer is a lightweight, embeddable planning engine that optimizes planning problems.

This guide explains how to install Decision Server on a full profile version of Oracle WebLogic Server.

For information about running the Decision Central standalone JAR file, see [Installing Red Hat Decision Manager on premise](#). For information about installing Red Hat Business Optimizer, see [Installing and configuring Red Hat Business Optimizer](#).



## CHAPTER 2. DOWNLOADING DECISION SERVER

Download the deployable Red Hat Decision Manager package file for Oracle WebLogic Server from the Red Hat Customer Portal:

1. Log in to the [Red Hat Customer Portal](#).
2. Click **DOWNLOADS** at the top of the page.
3. On the **Product Downloads** page that opens, navigate to the JBOSS INTEGRATION AND AUTOMATION section, and click **Red Hat Decision Manager**.
4. On the **Software Downloads** page, if necessary select **Decision Manager** from the **Product** menu and **7.0** from the **Version** menu.
5. Download the following product distribution:
  - **Red Hat Decision Manager Decision Server for All Supported EE7 Containers (rhdm-7.0.0.GA-kie-server-ee7.zip)**
6. Extract **rhdm-7.0.0.GA-kie-server-ee7.zip** to a temporary directory.

## CHAPTER 3. CONFIGURING ORACLE WEBLOGIC SERVER

### 3.1. SETTING ENVIRONMENT VARIABLES

You must set the environment variables listed in this section on your Oracle WebLogic Server before you deploy Decision Server.

#### JVM memory size

Set the following environment variable to increase the JVM memory size:

```
USER_MEM_ARGS=-Xms512m -Xmx1024m
```

If you do not increase the JVM memory size, Oracle WebLogic Server freezes or causes deployment errors when deploying Decision Server.

#### JVM custom properties

You must specify the following Decision Server property values on the Oracle WebLogic Server instance:

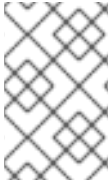
- **com.sun.jersey.server.impl.cdi.lookupExtensionInBeanManager:** Uses **BeanManager** to look up extensions. This avoids conflicts across multiple instances. Set to **true**.
- **kie.server.jms.queues.response:** JNDI name of the response queue for the Decision Server. Set to **jms/KIE.SERVER.RESPONSE**.
- **org.kie.server.domain:** JAAS LoginContext domain used to authenticate users when using JMS. Set to **OracleDefaultLoginConfiguration**.
- Set the values of the following properties to **true** to disable the jBPM functionality of Decision Server:
  - **org.jbpm.server.ext.disabled**
  - **org.jbpm.ui.server.ext.disabled**
  - **org.jbpm.case.server.ext.disabled**

Set these property values in the `JAVA_OPTIONS` environment variable:

```
JAVA_OPTIONS="-Dkie.server.jms.queues.response=jms/KIE.SERVER.RESPONSE
-Dorg.org.kie.server.domain=OracleDefaultLoginConfiguration
-Dcom.sun.jersey.server.impl.cdi.lookupExtensionInBeanManager=true
-Dorg.jbpm.server.ext.disabled=true
-Dorg.jbpm.ui.server.ext.disabled=true
-Dorg.jbpm.case.server.ext.disabled=true"
```

### 3.2. STARTING ORACLE WEBLOGIC SERVER

The instructions in this section describe how to start Oracle WebLogic Server in a standalone Oracle WebLogic Server domain.



## NOTE

If you are already running an instance of Oracle WebLogic Server that uses the same listener port as the one to be used by the server you are starting, you must stop the first server before starting the second server.

## Procedure

1. At the command prompt, navigate to the domain directory, ``WLS_HOME/user_projects/<DOMAIN_NAME>'`. For example:

```
WLS\user_projects\mydomain
```

2. Enter one of the following commands to start Oracle WebLogic Server:

- On UNIX-based system:

```
startWebLogic.sh
```

- On Microsoft Windows:

```
startWebLogic.cmd
```

The startup script displays a series of messages, finally displaying a message similar to the following:

```
<Dec 8, 2017 3:50:42 PM PDT> <Notice> <WebLogicServer> <000360>
<Server started in RUNNING mode>
```

3. Open the following URL in a web browser:

```
http://<HOSTNAME>:<PORT>/console
```

In this command:

- **HOSTNAME** is the system name or IP address of the host server
- **PORT** is the address of the port on which the host server is listening for requests (7001 by default)

For example, to start the Administration Console for a local instance of Oracle WebLogic Server running on your system, enter the following URL in a web browser address field:

```
http://localhost:7001/console/
```

If you started the Administration Server using secure socket layer (SSL), you must add **s** after **http**, as follows: <https://hostname:port/console>

4. When the login page appears, enter your administrative credentials.

## 3.3. CONFIGURING SECURITY SETTINGS

Complete the steps in this section to enable the container-managed authentication mechanisms provided by the Oracle WebLogic Server:

## Procedure

1. In the WebLogic administrative console, click **Security Realms**.
2. Choose your desired security realm or click **New** to create a new security realm.
3. Navigate to **Users and Groups** → **Groups** to display the groups list for your security realm.
4. Click **New** to create the **kie-server** group.
5. Click the **Users** tab and click **New** to create a new user.
6. Enter a name and password for this new user, for example **server-user/ password1234**, and click **OK**.



### IMPORTANT

Make sure that the selected user name does *not* conflict with any known title of a role or a group.

For example, if there is a role called **kie-server**, you should *not* create a user with the user name **kie-server**.

7. Click the newly created user, then click the **Groups** tab.
8. Use the selection tool to move the **kie-server** group from the **Available** field to the **Chosen** field, and click **Save**.

## 3.4. CONFIGURING JAVA MESSAGE SERVICE

You must configure Oracle WebLogic Server to send and receive Java Message Service (JMS) messages through Decision Server.

### 3.4.1. Create a JMS server

You must create a JMS server before you can use JMS.

## Procedure

1. Navigate to **Services** → **Messaging** → **JMS Servers**.
2. Click **New** to create a new JMS server.
3. Enter a name for your JMS server and click **Next**.
4. Select the target server chosen for the Decision Central deployment.
5. Click **Finish** to complete the JMS Server creation.

### Create a JMS module

A JMS module stores your JMS resources, such as connection factories and queues. Use the following steps to create a new JMS module.

## Procedure

1. Navigate to **Services** → **Messaging** → **JMS Modules**.
2. Click **New** to create a new module.
3. Provide your module with a name and click **Next** to advance to the next configuration screen.
4. Select the target server chosen for the Decision Server deployment.
5. Click **Finish** to complete the JMS module creation.
6. Click the newly created module's name, then click **Subdeployments**.
7. Click **New** to create a subdeployment for your module.
8. Give your subdeployment a name and click **Next**.
9. Click the box to select the previously created JMS server.
10. Click **Finish** to complete the subdeployment configuration.

### Create JMS connection factories

To send and receive messages from Decision Server, you must create a JMS connection factory for receiving messages and another JMS connection factory for sending messages. The following connection factories are required:

- **KIE.SERVER.REQUEST**: for all requests to Decision Server.  
Default value: `jms/cf/KIE.SERVER.REQUEST`.
- **KIE.SERVER.RESPONSE**: for receiving all responses produced by Decision Server.  
Default value: `jms/cf/KIE.SERVER.RESPONSE`.

Perform the following steps for each connection factory.

### Procedure

1. Navigate to **Services** → **Messaging** → **JMS Modules** to see a list of JMS modules.
2. Select your previously created module, then click **New** to create a new JMS resource.
3. Select **Connection Factory** and click **Next**.
4. Enter the name of the connection factory (for example **KIE.SERVER.REQUEST**) and the JNDI name (for example `jms/cf/KIE.SERVER.REQUEST`) and click **Next**. The connection factory automatically selects the servers assigned to the JMS Module as the default.
5. Click **Finish** to complete the connection factory creation.

### Create JMS queues

JMS queues are the destination end points for point-to-point messaging. You must create the following JMS queues:

- **KIE.SERVER.REQUEST**: for all requests to the Decision Server.  
Default value: `jms/KIE.SERVER.REQUEST`.
- **KIE.SERVER.RESPONSE**: for the Decision Server responses.  
Default value: `jms/KIE.SERVER.RESPONSE`.

Repeat the following steps to create each queue:

1. Navigate to **Services** → **Messaging** → **JMS Modules** to see the list of JMS modules.
2. Select your previously created module, then click **New** to create a new JMS resource.
3. Select **Queue** and click **Next**.
4. Enter the name of the queue (for example **KIE . SERVER . REQUEST**) and the JNDI name (for example **jms/KIE . SERVER . REQUEST**) and then click **Next**.
5. Choose the JMS module subdeployment that connects to the JMS server.
6. Click **Finish** to complete the queue creation.

## CHAPTER 4. INSTALLING DECISION SERVER

This section describes how to install Decision Server on Oracle Weblogic Server.

### Prerequisites

- An Oracle Weblogic Server instance configured as described in the previous chapter
- The **rhdm-7.0.0.GA-kie-server-ee7.zip** file, downloaded and extracted to a temporary directory  
See [Chapter 2, Downloading Decision Server](#) for information about downloading these files.

### Procedure

1. Navigate to **Deployments** to view all existing applications.
2. Click **Install**.
3. Navigate to the extracted archive location for **kie-server.war** and select it. Click **Next** to continue.
4. Select **Install this deployment as an application** as the targeting style and click **Next**.
5. Set the application name to **kie-server** and set the security model to **DD Only**. Leave the remaining options as default and click **Next** to continue.
6. In the **Additional Configuration** section, choose **No, I will review the configuration later** and click **Finish**.

You can now access the Decision Server at **`http://TARGET_SERVER:7001/kie-server`**.

## CHAPTER 5. INSTALLING AND RUNNING THE STANDALONE DECISION SERVER CONTROLLER

You can configure Decision Server to run in managed or unmanaged mode. If Decision Server is unmanaged, you must manually create and maintain containers. If Decision Server is managed, the standalone Decision Server Controller manages the Decision Server configuration and you interact with the Controller to create and maintain containers.

The standalone Decision Server Controller is integrated with Decision Central. If you install Decision Central, use the **Execution Server** page to create and maintain containers. However, if you do not install Decision Central, you can install the standalone Decision Server Controller and use the REST API or the Decision Server Java Client API to interact with it.

### 5.1. SETTING ENVIRONMENT VARIABLES FOR THE CONTROLLER

Set the environment variables listed in this section.

#### Prerequisites

- Decision Server installed on an Oracle Weblogic Server instance
- The Controller installed on an Oracle Weblogic Server instance



#### NOTE

Red Hat recommends that you install Decision Server and the standalone Decision Server Controller on different servers in production environments. However, if you install Decision Server and the standalone Decision Server Controller on the same server, for example in a development environment, make these changes on the same Oracle Weblogic Server instance.

- On Decision Server nodes, a user with the **kie-server** role
- On the Controller server nodes, a user with the **kie-server** role

#### Procedure

1. Specify the following JVM property values on the Oracle Weblogic Server instance where the Controller is installed:
  - **org.kie.server.user**: A user with the **kie-server** role.
  - **org.kie.server.pwd**: The password for the user specified in the **org.kie.server.user** property.
2. Specify the following JVM property values on the Oracle Weblogic Server instance where Decision Server is installed:
  - **org.kie.server.controller.user**: A user with the **kie-server** role
  - **org.kie.server.controller.pwd**: The password for the user specified for the **org.kie.server.controller.user** property



- **org.kie.server.id**: The ID or name of the Decision Server installation, for example, **rhdm700-decision-server-1**
- **org.kie.server.location**: <http://<HOST>:<PORT>/kie-server/services/rest/server>
- **org.kie.server.controller**: The URL of the standalone Decision Server Controller, for example <http://<HOST>:<PORT>/controller/rest/controller>  
In the preceding examples:
- **<HOST>** is the ID or name of the Decision Server host, for example, **localhost** or **192.7.8.9**.
- **<PORT>** is the port of the Decision Server host, for example, **7001**.

## 5.2. INSTALLING THE CONTROLLER

This section describes how to install the Controller on Oracle Weblogic Server.

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

### Prerequisites

- An Oracle Weblogic Server instance configured as described in this document
- Sufficient user permissions to complete the installation.

### Procedure

1. Download the **rhdm-7.0-controller-ee7.zip** file by clicking **Download** next to **Red Hat Decision Manager 7.0.0 Add Ons** on the Product Downloads page of the [Red Hat Customer Portal](#).
2. Unzip the **rhdm-7.0.0.GA-add-ons.zip** file. The **rhdm-7.0-controller-ee7.zip** file is in the unzipped directory.
3. Create a user and password for the Controller in the **kie-server** group, for example **controller/pwd1234**. For information about creating users, see [Section 3.3, “Configuring security settings”](#).
4. Navigate to **Deployments** to view all existing applications.
5. Click **Install**.
6. Navigate to the extracted archive location for the **controller.war** file and select it. Click **Next** to continue.
7. Select **Install this deployment as an application** as the targeting style and click **Next**.
8. Keep the application name as **controller** and set the security model to **DD Only**. Leave the remaining options as default and click **Next** to continue.
9. In the **Additional Configuration** section, choose **No, I will review the configuration later** and click **Finish**.

10. To verify that the Controller is working on Oracle Weblogic Server, enter the following command:

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

In this command, replace **<CONTROLLER>** and **<CONTROLLER\_PWD>** with the user credentials that you created in this section.

The output of this command provides information about the Decision Server instance.

**NOTE**

Alternatively, you can use the Decision Server Java API Client to access the Controller.

## APPENDIX A. VERSIONING INFORMATION

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