

**Red Hat Process Automation Manager-RHPAM** 7.3

Install and configure Process Server on a WebLogic Server

Version 1.0

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1. Overview

1.1 Preface

Process Server is the server where the rules and other artifacts for Red Hat Process Automation Manager are stored and run. Process Server is a standalone built-in component that can be used to instantiate and execute rules through interfaces available for REST, Java Message Service (JMS), or Java client-side applications, as well as to manage processes, jobs, and Red Hat Business Optimizer functionality through solvers.

Created as a web deployable WAR file, Process Server can be deployed on any web container. The current version of the Process Server is included with default extensions for both Red Hat Decision Manager and Red Hat Process Automation Manager.

1.2 Audience

This guide is intended for users who will install & maintain the applications listed above. This document assumes that users performing this activity have good knowledge and are comfortable working in UNIX, Oracle DB and WebLogic.

1.3 Revision History

|  |  |  |
| --- | --- | --- |
| **Revision** | **Date** | **Description** |
| 1.0 | 20.04.2020 | Steps to install RHPAM 7.3 Process server |

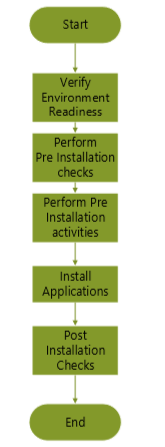
1.4 Typographical Conventions

| **Style** | **Description** |
| --- | --- |
| Boldface | Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary. |
| Italic, highlighted in yellow | Italic type highlighted in yellow indicates placeholder variables for which you supply particular values. |
| Italic | Italic type indicates any command that you have run – either in UNIX or SQL console. |

**2. Installation Overview**

## Installation Roadmap

The steps to install and configure the application are summarized in the Figure 1.1.



|  |  |
| --- | --- |
| **Tasks** | **Details and Documentation** |
| Verify Environment Readiness | Perform steps to ensure that your target environment meets the general installation requirements for CDD Phase components |
| Pre Installation Steps | Perform the set of steps, required to be performed before commencing the installation of the application |
| Install Applications | Run a series of steps to install the different application components. |
| Post Installation Steps | Perform a series of steps post installation to update configuration entries. |

## Preparing for Installation

Before continuing, make sure you have the latest software version baselined in the respective stream on the RTC server.

|  |  |
| --- | --- |
| **Stream** | **Name** |
| DEV |  |
| SIT |  |
| UAT |  |

You have to extract the contents of the all the folder (& sub-folders) from the respective stream into a folder in installation machine. Hence forth, this folder would be referenced as ‘USER\_LOCAL\_BASE’ within this document

## Hardware Requirements

All the RHPAM components are certified for installation on systems running on Linux Operating System (OS) v 7.3

The following table provides more information on the hardware requirements for the different servers

|  |  |  |  |
| --- | --- | --- | --- |
| **Server** | **Core CPU** | **RAM ( GB)** | **Application Storage (GB)** |
| Database Server | 64 | 128 | 1500 |
| Application Server | 4 | 16 | 300 |

## Software Requirements

Prior to installing the RHPAM application, the following software should be installed and running

* Java Open JDK version 1.8.0\_102 64 bit Server VM
* WebLogic Application Server v 12.2.1.3
* Oracle 12c Enterprise Edition
* Apache Maven 3.6

## Perform Pre-Installation Checks

You have to perform the following pre-installation checks, before proceeding with the installation

### Availability of Database and Tables

* Oracle Database should be setup and running.
* You must have the database server IP address, database SID, user name and password to connect to the database.
* Prior to the installation, the database user id should be made INTERACTIVE and hence forth would be referenced as ‘*INTERACTIVE\_DB\_ID*’

If you encounter any errors at this stage, please resolve this with help of DBA support team before proceeding.

### Availability of Managed Server

* You must verify that a managed server is available in WebLogic to host the MDM back office application.
* If it is not available, follow the steps mentioned in the Oracle WebLogic Server guide to create a new managed server. Hence forth, within this document, the managed server for RHPAM is referenced as *‘RHPAM\_PROC\_SERVER’*

If you encounter any errors at this stage, please resolve this with help of Middleware support team before proceeding

If you encounter any errors at this stage, please resolve this with help of Middleware support team before proceeding

## Perform Pre-Installation Activities

You have to perform this step only once (first time installation) and for the subsequent installations, it becomes a pre-installation check.

**3. Configuring WebLogic server For Process Server**

Before deploying Process Server with Oracle WebLogic Server, you must configure system properties, security settings, JMS requirements, and other properties on Oracle WebLogic Server. These configurations promote an optimal integration with Process Server.

**Prerequisites**

* Oracle WebLogic Server is installed and running.
* You are logged in to the WebLogic Administration Console.

## 3.1 Configuring the process server Group and Users

You must assign users to a **kie-server** group in the WebLogic Administration Console to enable the container-managed authentication mechanisms in Oracle WebLogic Server.

**Procedure**

1. In the WebLogic Administration 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** → **New** and create the **kie-server** group.
4. Navigate to **Users** → **New** and create a new user.
5. Enter a user, such as **server-user**, and a password for this new user and click **OK**.
6. Click the newly created user, then return to the **Groups** tab.
7. Use the selection tool to move the **kie-server** group from the **Available** field to the **Chosen** field, and click **Save**.
8. Create one more user named **controller,** set password and add this user to **kie-server** group by following steps from **4 to 7** for Headless PAM controller (Section 5).

## 3.2 Configuring JDBC Data Source

A data source is an object that enables a Java Database Connectivity (JDBC) client, such as an application server, to establish a connection with a database. Applications look up the data source on the Java Naming and Directory Interface (JNDI) tree or in the local application context and request a database connection to retrieve data. You must configure data sources for Oracle WebLogic Server to ensure proper data exchange between the servers and the designated database.

**Procedure**

1. In the WebLogic Administration Console, navigate to **Change Center → Lock & Edit.**
2. Under **Domain Structure**, click **Services** → **Data Sources**.
3. On the **Summary of Data Sources** page, click **New** → **Generic Data Source**.
4. On the **JDBC Data Sources Properties** page, enter or select the following information:

* **Name**: Enter a name for this JDBC data source. This name is used in the configuration file (**config.xml**) and throughout the Administration Console whenever referring to this data source.(Any name)
* **JNDI Name:** Enter the JNDI name as **jdbc/jbpm**
* **Database Type**: Select the DBMS that you want to connect to (Oracle).

1. Click **Next** to continue.
2. Select the **Database Driver** that you want to use to connect to the database.
3. On the **Transaction Options** page, leave the Supports Global Transactions option selected and choose from the available transaction options.
4. Click **Next** to continue.
5. On the **Connection Properties** page, enter values for the following properties:

* **Service Name:** Specify the service name of the database to which you want to connect.
* **Database Name**: Enter the name of the database that you want to connect to.
* **Host Name**: Enter the DNS name or IP address of the server that hosts the database.
* **Port**: Enter the port on which the database server listens for connection requests.
* **Database User Name**: Enter the database user account name that you want to use for each connection in the data source (Should have read write privileges).
* **Password/Confirm Password:** Enter the password for the database user account.
* **oracle.jdbc.DRCPConnectionClass:** Optionally, enter the Database Resident Connection Pooling (DCRP) connection class if required by your environment.

1. Click **Next** to continue.
2. On the **Test Database Connection** page, review the connection parameters and click Test Configuration.
3. Click **Next** to continue or to skip this step if the JDBC driver you selected is not installed on the Administration Server.
4. On the Select Targets page, select the servers or clusters on which you want to deploy the data source and click Finish.
5. Return to the main menu of the WebLogic Administration Console and select **Change Center → Activate Changes.**

## 3.3 Configuring Java Messaging Services (JMS)

The Java Message Service (JMS) is a Java API that Process Server uses to exchange messages with other application servers such as Oracle WebLogic Server and IBM WebSphere Application Server. You must configure your application server to send and receive JMS messages through Process Server to ensure proper collaboration between the two servers.

## 3.3.1 Configuring Java Messaging Services (JMS)

**Procedure**

1. In the WebLogic Administration Console, 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 Process Server deployment.
5. Click **Finish**.

## 3.3.2 Create a JMS Module

You must create a JMS module to store your JMS resources, such as connection factories and queues.

**Prerequisites**

* You have created a JMS server

**Procedure**

1. In the WebLogic Administration Console, navigate to **Services → Messaging → JMS Modules.**
2. Click **New** to create a module.
3. Enter a module name and click **Next**.
4. Select the target server chosen for the Process Server deployment and click **Finish**.
5. Click the newly created module name and then click **Subdeployments**.
6. Click **New** to create a subdeployment for your module.
7. Give your subdeployment a name and click **Next**.
8. Select the check box to choose the previously created JMS server.
9. Click **Finish** to complete the subdeployment configuration.

## 3.3.3 Create JMS Connection Factories

You must create a JMS module to store your JMS resources, such as connection factories and queues.

**Prerequisites**

* You have created a JMS server.
* You have created a JMS module.

**Procedure**

1. In the WebLogic Administration Console, navigate **to Services → Messaging → JMS Modules** to see a list of JMS modules.
2. Select your previously created module and click **New** to create a new JMS resource.
3. Select **Connection Factory** and click **Next**.
4. For each of the following required connection factories in the table below, 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 add the connection factory, and repeat for each required factory.

**Required JMS connection factories for Process Server**

|  |  |
| --- | --- |
| **Name** | **Value** |
| KIE.SERVER.REQUEST | jms/cf/KIE.SERVER.REQUEST |
| KIE.SERVER.RESPONSE | jms/cf/KIE.SERVER.RESPONSE |
| KIE.SERVER.EXECUTOR | jms/cf/KIE.SERVER.EXECUTOR |

## 3.3.4 Create JMS Queues

JMS queues are the destination end points for point-to-point messaging. You must create certain JMS queues to enable JMS messaging with Process Server.

**Prerequisites**

* You have created a JMS server.
* You have created a JMS module.

**Procedure**

1. In the WebLogic Administration Console, navigate **to Services → Messaging → JMS Modules** to see a list of JMS modules.
2. Select your previously created module and click **New** to create a new JMS resource.
3. Select **Queue** and click **Next**.
4. For each of the following required connection factories in the table below, enter the name of the connection factory (for example, **KIE.SERVER.REQUEST**) and the JNDI name (for example, **jms/queue/KIE.SERVER.REQUEST**) and click **Next**. The connection factory automatically selects the servers assigned to the JMS Module as the default.
5. Choose the JMS module subdeployment that connects to the JMS server.

**Required JMS queues for Process Server**

|  |  |
| --- | --- |
| **Name** | **Value** |
| KIE.SERVER.REQUEST | jms/queue/KIE.SERVER.REQUEST |
| KIE.SERVER.RESPONSE | jms/queue/KIE.SERVER.RESPONSE |
| KIE.SERVER.EXECUTOR | jms/queue/KIE.SERVER.EXECUTOR |

**4. Installing Process Server**

After you have configured all required system properties in Oracle WebLogic Server, you can install Process Server with Oracle WebLogic Server to streamline Red Hat Process Automation Manager application management.

**Procedure**

1. In the WebLogic Administration Console, navigate to **Deployments** to view all existing applications.
2. Click **Install**.
3. Navigate to the temporary directory where you downloaded and extracted the **.tar** file.
4. Select the **kie-server.war** file and click **Next** to continue.
5. Select **Install this deployment as an application** as the targeting style and click **Next**.
6. 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.
7. In the **Additional Configuration** section, choose **No, I will review the configuration later** and click **Finish**.

**5. Installing Headless PAM Controller**

To use the Process Server REST API or Java Client API to interact with Process Server, install the headless Process Automation Manager controller with WebLogic Server. The headless Process Automation Manager controller manages Process Server configuration in a centralized way so that you can use the headless Process Automation Manager controller to create and maintain containers and perform other server-level tasks.

**Procedure**

1. In the WebLogic Administration Console, navigate to **Deployments** to view all existing applications.
2. Click **Install**.
3. Navigate to the temporary directory where you downloaded and extracted the **.tar** file.
4. Select the **controller.war** file and click **Next** to continue.
5. Select **Install this deployment as an application** as the targeting style and click **Next**.
6. Set the application name to **controller** and set the security model to DD Only. Leave the remaining options as default and click **Next** to continue.
7. In the **Additional Configuration** section, choose **No, I will review the configuration later** and click **Finish**.
8. **Setting System Properties in Weblogic Server**

Set the system properties listed in this section on your Oracle WebLogic Server before you start Process Server.

**Procedure**

1. Set the below system property to increase the Java Virtual Machine (JVM) memory size:

USER\_MEM\_ARGS=-Xms1024m –Xmx3072m

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

1. Specify the following system properties for Process Server on the Server instance(Sample file can be found with installer package named as **weblogicserverstart.txt**)

|  |  |
| --- | --- |
| **Name** | **Value** |
| kie.server.jms.queues.response | jms/queue/KIE.SERVER.RESPONSE |
| org.kie.server.domain | OracleDefaultLoginConfiguration |
| org.kie.executor.jms.cf | jms/cf/KIE.SERVER.EXECUTOR |
| org.kie.executor.jms.queue | jms/queue/KIE.SERVER.EXECUTOR |
| org.kie.server.persistence.ds | jdbc/jbpm |
| org.kie.server.persistence.tm | org.hibernate.service.jta.platform.internal.WeblogicJtaPlatform |
| org.kie.server.persistence.dialect | org.hibernate.dialect.Oracle10gDialect |
| org.kie.server.mode | Production |
| org.kie.server.id | MBBLABS-Redhat-processingserver |
| org.kie.server.location | http:// <HOST>:<PORT>/kie-server/services/rest/server/ |
| org.kie.server.user | server-user |
| org.kie.server.pwd | <REPLACE WITH PASSWORD OF server-user> |
| org.kie.server.startup.strategy | LocalContainersStartupStrategy |
| org.kie.server.repo | <REPLACE WITH Location on local file system where kie server state files will be stored> |
| org.kie.server.controller | http:// <*HOST>:<PORT*>controller/rest/controller/ |
| org.kie.server.controller.user | Controller |
| org.kie.server.controller.pwd | <REPLACE WITH PASSWORD OF controller> |

1. Set the same property values in the **JAVA\_OPTIONS** environment variable

**7. Stopping and Restarting Weblogic Server**

After you have configured all required system properties in Oracle Weblogic Server, stop and restart the Oracle Weblogic server to ensure that the configurations are applied.

**8. Verifying the Installations**

**Procedure**

1. Enter the Process Server URL http://<HOST>:<PORT>/kie-server/services/rest/server in a web browser.

This URL will give an XML response showing the capabilities. They are kie-server, BRM, BPM, Case Management, BPM-UI, BRP, DMN and swagger. If anyone among the above is missing, means the installation is failed, and the error message will be shown in xml response. Check the error and act accordingly.

1. Check the swagger doc by typing URL http://<HOST>:<PORT>/kie-server/docs

**9. FAQ’s and Solutions to Common Issues faced**

After starting the server, scan the \*.out and \*.log files to check if there are any errors. If there are errors, they must investigate and resolve. The following table provides a list of frequently faced issues and their resolution.

|  |  |
| --- | --- |
| **Issue** | **Resolution** |
| Error Message: Can’t get metadata on specific dataset | Drop all contents in schema and restart application |
| Error Message: Unable to commit transaction | Change the hibernate dialect |

If the issue reported are not listed above, contact the application support team for resolution.