



# **Red Hat JBoss Fuse 6.2.1**

## **Integration Guide**

Use Integration packs for Red Hat JBoss Fuse



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Use Integration packs for Red Hat JBoss Fuse

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## Abstract

Use this guide to help you use the Integration packages on Red Hat JBoss Fuse.

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# CHAPTER 1. INSTALL INTEGRATION PACK

The Integration packages for JBoss Fuse 6.2.1 contain libraries and components that can interact with other integration modules that are not included in the base JBoss Fuse 6.2.1 package.

## Pack Definitions

The JBoss Fuse Integration Packages contain the following components:

1. Fuse Integration distros for both Karaf and JBoss EAP - SwitchYard BRMS components: Rules component and BPM component
2. KIE JBoss Fuse Distributions BPMS layer - Camel components used in KIE: kie-camel and jbpm-workitem-camel components

## 1.1. INSTRUCTIONS FOR JBOSS FUSE ON JBOSS EAP

### Prerequisites

JBoss Fuse 6.2.1 must be installed on JBoss EAP 6.4. If you need to install JBoss EAP 6.4, download it from [JBoss EAP 6.4 Installer Download](#). See [JBoss EAP 6.4 Installation Guide](#) for installation instructions.

### Identify the correct sequence of packages to install

When installing JBoss Fuse on EAP and the integration package over the base JBoss EAP 6.4 installation, it is essential to install the correctly matching packages in the right order. The following types of package can be downloaded from the [JBoss Fuse 6.2.1 Software Downloads](#) page on the Red Hat Customer Portal:

#### Red Hat JBoss Fuse 6.2.1 [Rollup *N*] on EAP Installer

For the JBoss Fuse on EAP package, you have a choice between the original GA package or subsequent rollup patches, identified by Rollup *N* in the package name. Generally, we recommend that you install the latest rollup patch.

#### Integration Pack for Red Hat JBoss Fuse 6.2.1 [Roll Up *N*] on EAP, BRMS *VersionOfBRMS* and BPM Suite *VersionOfBPMS* Installer

The integration package that you pick must have a rollup number, Roll Up *N*, that matches rollup number of the underlying JBoss Fuse on EAP package.

### Install the SwitchYard/BRMS Integration Pack on JBoss EAP

The integration SwitchYard/BRMS pack must be installed on the Fuse/EAP instance of JBoss EAP. Make sure that the server is stopped.

1. It is assumed that JBoss EAP 6.4 is already installed, where the installation directory is given by the environment variable **EAP\_HOME**.
2. If you have not already installed the JBoss Fuse on EAP package, install it now. Download the appropriate GA package or rollup patch, and install it over JBoss EAP using the following command:

```
java -jar fuse-eap-installer-version.jar ${EAP_HOME}
```

- 
- 3. *(For integration packages released before JBoss Fuse 6.2.1 Rollup 3)* Prior to JBoss Fuse 6.2.1 Rollup 3, integration packages were released as a single Jar file which could be installed directly over the JBoss EAP installation using the following command:

```
java -jar fuse-integration-eap-installer-version.jar ${EAP_HOME}
```

- 4. *(For subsequent integration packages)* More recent integration packages consist of an archive file, **fuse-integration-eap-installer-distro-version.zip**, which must be unpacked to obtain two separate Jar files that are installed in sequence. To install this kind of integration package, proceed as follows:
  - 1. Use an archive utility to extract the Jar packages from the downloaded integration package file, **fuse-integration-eap-installer-distro-version.zip**, into a convenient temporary location.
  - 2. Install the KIE EAP package over JBoss EAP using the following command:

```
java -jar kie-eap-installer-version.jar ${EAP_HOME}
```

- 3. Install the Fuse integration package over JBoss EAP using the following command:

```
java -jar fuse-integration-eap-installer-version.jar ${EAP_HOME}
```

## Run the Quickstarts

The Fuse integration quickstarts can be found in **`$EAP_HOME/quickstarts/fuse-integration`**.

- 1. Start the instance of JBoss EAP where the integraton pack has been installed. See [chapter "Start and Stop the Application Server" in "Installation on JBoss EAP"](#)
- 2. Navigate to **`$EAP_HOME/quickstarts/fuse-integration`**.
- 3. Navigate to the directory for the quickstart you want to run. Follow the instructions in the README file to execute the quickstart. Each quickstart has different instructions.

## 1.2. INSTRUCTIONS FOR JOSS FUSE ON KARAF

### Install the Integration Pack on JBoss Fuse on Karaf

#### Procedure 1.1. Install the SwitchYard/BRMS Integration Pack on JBoss Fuse on Karaf

The integration SwitchYard/BRMS pack must be installed on an instance of JBoss Fuse on Karaf. Make sure that the server is stopped.

- 1. Download **fuse-integration-karaf-distro-1.3.0.redhat-002.zip** and unpack the .zip files on to JBoss Fuse on Karaf.
- 2. Start JBoss Fuse.
- 3. In Karaf, add Drools if it has not already been added:



```
features:addurl mvn:org.drools/drools-karaf-features/6.3.0.Final-
redhat-5/xml/features
```

4. Add the JBoss Fuse integration features files:

```
features:addurl mvn:org.jboss.integration.fuse/karaf-
features/1.3.0.redhat-002/xml/features
```

5. Install the core features by entering the following command:

```
features:install feature-name
```

and replacing *feature-name* with the feature name one at a time:

```
fuse-bxms-switchyard-bpm
fuse-bxms-switchyard-common-knowledge
fuse-bxms-switchyard-rules
```

6. Add the JBoss Fuse integration quickstart features files:

```
features:addurl mvn:org.jboss.integration.fuse.quickstarts/karaf-
features/1.3.0.redhat-002/xml/features
```

7. Install the quickstart features by entering the following command:

```
features:install feature-name
```

and replacing *feature-name* with the feature name one at a time:

```
fuse-bxms-switchyard-quickstart-rules-camel-cbr
fuse-bxms-switchyard-quickstart-rules-interview
fuse-bxms-switchyard-quickstart-rules-dtable
fuse-bxms-switchyard-quickstart-rules-interview-container
fuse-bxms-switchyard-quickstart-bpm-service
fuse-bxms-switchyard-demo-library
fuse-bxms-switchyard-demo-helpdesk
fuse-bxms-camel-spring-drools-decision-table
fuse-bxms-camel-blueprint-drools-decision-table
fuse-bxms-switchyard-quickstart-rules-csv
fuse-bxms-switchyard-quickstart-rules-multithread
```

The Fuse integration quickstarts can be found in ***install\_dir/quickstarts/fuse-integration***. Navigate to the directory for the quickstart you want to run. Follow the instructions in the README file to execute the quickstart. Each quickstart has different instructions.

## Install the Integration Pack on JBoss Fuse Fabric

### Procedure 1.2. Install the SwitchYard/BRMS Integration Pack on JBoss Fuse Fabric

The integration SwitchYard/BRMS pack must be installed on an instance of JBoss Fuse on Karaf. Make sure that the server is stopped.

1. Download **fuse-integration-karaf-distro-1.3.0.redhat-002.zip** and unpack the **.zip** files on to JBoss Fuse on Karaf.
2. Add a new management user.

```
fabric:create --wait-for-provisioning --new-user admin --new-user-
password admin
```

3. Start JBoss Fuse.
4. Create a new fabric profile for integration pack.

```
fabric:profile-create --parent jboss-fuse-full jboss-fuse-full-ip
```

5. Modify the list of Maven repositories in the io.fabric8.agent properties PID.

```
fabric:profile-edit --append --pid
io.fabric8.agent/org.ops4j.pax.url.mvn.repositories=http://download.
lab.bos.redhat.com/brewroot/repos/jb-bxms-6.3-
build/latest/maven@id=jb-bxms-6.3-build default
```

6. Edit the Integration pack fabric profile to add repository url.

```
fabric:profile-edit --repository mvn:org.drools/drools-karaf-
features/6.4.0.Beta2-redhat-1/xml/features jboss-fuse-full-ip
fabric:profile-edit --repository
mvn:org.jboss.integration.fuse.quickstarts/karaf-
features/1.4.0.redhat-001/xml/features jboss-fuse-full-ip
fabric:profile-edit --repository
mvn:org.switchyard.karaf/switchyard/2.0.1.redhat-621107/xml/core-
features jboss-fuse-full-ip
```

Install the quickstart features by entering the following command and replacing *feature-name* with the feature name one at a time.

```
features:install feature-name
```

For example, install the switchyard rules quickstart feature.

```
fabric:profile-edit --feature fuse-bxms-switchyard-quickstart-rules-
camel-cbr jboss-fuse-full-ip
```

## Using Integration Pack with Maven

In order for Maven to resolve the supported versions of CXF and camel-cxf artifacts, the jboss-fuse-parent BOM must be imported into the **<dependencyManagement>** section of the top-level pom.xml. For example:

```
<dependencyManagement>
...
<dependency>
  <groupId>org.jboss.fuse.bom</groupId>
  <artifactId>jboss-fuse-parent</artifactId>
```

```
<version>version.fuse.eap</version>  
<type>pom</type>  
<scope>import</scope>  
</dependency>
```

The value of **version.fuse.eap** should be **6.2.1.redhat-084** in this instance.

## CHAPTER 2. KIE-EAP-DISTRIBUTION-BPMS-LAYER PACKAGE

The Integration Pack contains a .zip file which contains JBoss EAP modules for **Red Hat JBoss BPM** (JBoss BPM) and **Red Hat JBoss BRMS** (JBoss BRMS) integration.

### APPLY THE PACKAGE

The package will be applied by the SwitchYard/BRMS Integration Pack installer jar.

### CONTENTS OF THE JBOSS BPMS LAYER INTEGRATION PACKAGE

The following table shows the relationships between different components in BxMS and JBoss Fuse. Expansion of the table entries can be found below the table.

**Table 2.1. Relationship Between JBoss BPM/JBoss BRMS components and Fuse components**

	Camel	SwitchYard
JBoss BPM	JBos BPM can invoke Camel	JBoss BPM can orchestrate SwitchYard services
	Camel can invoke JBoss BPM	SwitchYard can invoke JBoss BPM
Rules	Rules does not use Camel.	Rules does not use SwitchYard
	Camel can use Rules	SwitchYard can call Rules

### JBOSS BPM CAN INVOKE CAMEL

JBoss BPM has a Camel WorkItemHandler. See [JBoss BPM Suite Development Guide](#) for more information.

### CAMEL CAN INVOKE JBOSS BPM

There are three interfaces that can be used to invoke JBoss BPM from Camel:

- JMS - see [JBoss BPM Suite Development Guide - JMS section](#)
- REST - [JBoss BPM Suite Development Guide - REST API section](#)
- Java - see [JBoss BPM Suite Development Guide - Remote Java API section](#)

### JBOSS BPM CAN ORCHESTRATE SWITCHYARD SERVICES

The JBoss BPM process definition must be embedded in the SwitchYard application, not on a remote JBoss BPM server.

JBoss BPM will not execute on a remote JBoss BPM server. It will only run via jars provided in the integration pack.

See the provided quickstart `EAP_HOME/quickstarts/fuse-integration/switchyard-bpm-service` for an example.

## SWITCHYARD CAN INVOKE JBOSS BPM

The following scenarios have are supported:

- Invoke/signal local JBoss BPM process defined as a SwitchYard service.
- Invoke/signal remote JBoss BPM process defined as a SwitchYard service.
- Invoke/signal a remote JBoss BPM process *and* insert/execute rules locally as a SwitchYard service using rules definitions resolved as KIE artifacts using Maven.

JBoss BPM process can be embedded in the SwitchYard application or it can be on a JBoss BPMS server on a different JVM.

If the process is embedded, the engine used must be the .jar file that is installed as part of the Integration pack. If the JBoss BPM engine is running locally in the JBoss Fuse JVM, then it can only be used to orchestrate SwitchYard services and can not be used to perform other tasks.

If the JBoss BPM process is not embedded, the invocation must occur via the SwitchYard JBoss BPM component. In this case, the user does not need to manage the interaction.

## CAMEL CAN USE RULES

You can insert facts and execute rules locally in JBoss Fuse using a Camel route. Rule definitions are resolved as KIE artifacts using Maven.

Camel can invoke Business Rules when the Karaf container is used. This functionality is not available on JBoss Fuse on JBoss EAP. It will be made available in a future release.

For use by JBoss BPM, the Rules must be in a Maven repository where the Kie scanner can find them. The Maven repository can be on the same machine or a remote machine. If the repository is on a remote machine, the rules will be added to the local repository during rules resolution process.

The Rules engine can be placed on the same machine as Camel is installed on, or on a remote JBoss BRMS execution server. For the local engine, binaries are provided by the Integration Pack. For the remote engine, the rules can be invoked using a mechanism such as the REST interface provided by JBoss BRMS.

## SWITCHYARD CAN USE RULES

You can insert facts and execute rules locally as a SwitchYard service using rules definitions deployed with the application. This makes the rules static and will require a rebuild to change them.

Alternatively you can insert facts and execute rules locally as a SwitchYard service using rules definitions resolved as KIE artifacts using Maven.. This repository can be either on the same machine as JBoss Fuse, or on a remote machine. Rules stored in a Maven repository can be updated at runtime using Kie scanning.

The Rules engine is installed on the JBoss Fuse server as part of the integration pack installation.

## CHAPTER 3. DOWNLOAD THE OFFLINE REPOSITORY

A Maven repository that contains the artifacts required for the Integration Pack is available for download. It is an optional download and is provided for use of an offline Maven repository.



### NOTE

This repository is useful only if you are using offline Maven repositories.

To use an offline Maven repository:

1. In the Red Hat customer portal, go to <https://access.redhat.com/jbossnetwork/restricted/listSoftware.html?product=jboss.fuse&downloadType=distributions>.
2. Select the Fuse version you are using. This displays the downloads for that Fuse version.
3. Select the offline Maven repository that meets your needs.
4. Click **Download**.
5. Unpack the downloaded zip file into an accessible location.
6. Add entries for the unzipped repositories to Maven's **settings.xml** file. Base your entry on the code below.

```
<repository>
  <id>BPMS-repo</id>
  <name>Red Hat JBoss Fuse 6.2.1/name>
  <url>file://file-location/BPMS-repo/maven-repository/</url>
  <layout>default</layout>
  <releases>
    <enabled>true</enabled>
    <updatePolicy>never</updatePolicy>
  </releases>
  <snapshots>
    <enabled>false</enabled>
    <updatePolicy>never</updatePolicy>
  </snapshots>
</repository>
```