



Red Hat JBoss Fuse 6.2

Installation Guide

Installing Red Hat JBoss Fuse on a computer

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Installing Red Hat JBoss Fuse on a computer

JBoss A-MQ Docs Team

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Abstract

It is easy to install Red Hat JBoss Fuse and tailor the installation to a particular environment.

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CHAPTER 1. INSTALLATION PREREQUISITES

Abstract

Before attempting to install and use Red Hat JBoss Fuse, make sure your system meets the minimum requirements.

SUPPORTED PLATFORMS

Red Hat tests and supports Fuse products in the configurations listed at [Red Hat JBoss Fuse Supported Configurations](#).

JAVA RUNTIME

For details of the Java runtimes supported by Red Hat JBoss Fuse, see [Red Hat JBoss Fuse Supported Configurations](#).



WARNING

Do *not* install the Java runtime under a directory path that includes whitespace. For example, `C:\Program Files\Java\jre7` is not an acceptable install path and will lead to unpredictable errors in Red Hat JBoss Fuse at run time.

SUPPORTED STANDARDS

Red Hat JBoss Fuse supports the standards and protocols listed at [Red Hat JBoss Fuse Supported Standards](#).

HARDWARE REQUIREMENTS

The minimum hardware requirements for installing Red Hat JBoss Fuse are:

- Full Installation
 - 700 MB of free disk space
 - 2 GB of RAM

In addition to the disk space required for the base installation, a running system will require space for caching, persistent message stores, and other functions.

CHAPTER 2. INSTALLATION TYPES

2.1. OVERVIEW OF INSTALLATION TYPES

You can install Red Hat JBoss Fuse with the following feature sets:

- *Full install*—the package that is available for download from the Red Hat Customer Portal installs Apache Karaf, Apache Camel, Apache ActiveMQ, Apache CXF, and the Fuse Management Console (Hawtio).
- *Custom assembly*—it is possible to create your own custom assembly of JBoss Fuse 6.2, containing a customized subset of the JBoss Fuse features and bundles. You can use this approach to replace the *Minimal* and the *Medium* install types, which were available for versions of JBoss Fuse prior to 6.2. To create a custom assembly of JBoss Fuse, proceed as follows:
 1. Download and install the standard *Full Install* from the Red Hat Customer Portal, as described in [Chapter 3, Installing](#).
 2. Go to the `Installdir/quickstarts/custom` project and read the instructions in `Installdir/quickstarts/custom/README.md` for creating a custom assembly.
 3. After customizing the configuration of the `quickstarts/custom` project, build the project by entering the command:

```
mvn clean install
```

4. The result of building this project is a custom assembly file, in the following location:

```
Installdir/quickstarts/custom/target/custom-  
distro-ProjectVersion-bin.zip
```

5. You can now install the custom assembly by unzipping the `custom-distro-ProjectVersion-bin.zip` file into a convenient location on the file system.



NOTE

The `quickstarts/custom` project is based mainly on the following Maven plug-ins: `features-maven-plugin` and `maven-assembly-plugin`. For more details about the `features-maven-plugin` plug-in, see [section "Generating a Custom Offline Repository" in "Deploying into the Container"](#).

CHAPTER 3. INSTALLING

Abstract

Red Hat JBoss Fuse is installed by unpacking an archive system on a system. This provides an easy way for a developer to get up and running.

GETTING THE ARCHIVE

You can download the Red Hat JBoss Fuse archive from the [Red Hat Customer Portal>Downloads>Red Hat JBoss Middleware>Downloads](#) page, after you register and login to your customer account.

Once logged in:

1. Select **Fuse**, listed under **Integrated Platforms**, in the sidebar menu.
2. Select **6.2.0** from the **Version** drop-down list on the **Software Downloads** page.
3. Click the **Download** button next to the Red Hat JBoss Fuse 6.2.0 distribution file you want to download.

UNPACKING THE ARCHIVE

Red Hat JBoss Fuse is packaged as a **.zip** file. Using a suitable archive tool, such as **Zip**, unpack Red Hat JBoss Fuse into a directory to which you have full access.



WARNING

Do not unpack the archive file into a folder that has spaces in its path name. For example, do not unpack into **C:\Documents and Settings\Greco Roman\Desktop\fusesrc**.



WARNING

Do not unpack the archive file into a folder that has any of the following special characters in its path name: #, %, ^, ".

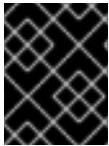
CHAPTER 4. ADDING A REMOTE CONSOLE USER

Abstract

The server's remote command console is not configured with a default user. Before you can connect to the server's console remotely, you must add a user to the configuration.

4.1. ADD A USER

Red Hat JBoss Fuse is not installed with a default user for the remote console. Before you can remotely manage a server, you must add a user by editing *InstallDir/etc/users.properties*.



IMPORTANT

The information in this file is unencrypted so it is not suitable for environments that require strict security.

To add a user:

1. Open *InstallDir/etc/users.properties* in your favorite text editor.
2. Locate the line `#admin=admin,admin,manager,viewer,Operator, Maintainer, Deployer, Auditor, Administrator, SuperUser`.

This line specifies a user `admin` with the password `admin` and comma-separated list of roles.

3. Uncomment the line by removing the leading `#`.
4. Change the first `admin` to the desired user name.
5. Change the second `admin` to the desired password.
6. Leave the role list, `admin,manager,viewer,Operator, Maintainer, Deployer, Auditor, Administrator, SuperUser`, as is.
7. Save the changes.

CHAPTER 5. OFFLINE MODE

Abstract

You can run the JBoss Fuse container in offline mode (that is, without an Internet connection). But if you are planning to deploy custom applications to the container, it might be necessary to download additional dependencies (to a local Maven repository) before you can run the container in offline mode with these applications.

5.1. SUPPORTED FUNCTIONALITY

If you want to run the JBoss Fuse container in offline mode, it is necessary to distinguish between the following kinds of dependency:

- *Runtime dependencies*—the dependencies required to run the JBoss Fuse container, in its default configuration.
- *Build-time dependencies*—the dependencies required to build a custom application (which might include third-party libraries).

Here is a summary of what can be done in offline mode and what needs to be done in online mode (with an Internet connection):

- *Running the JBoss Fuse container in its default configuration*—is supported in offline mode. The default configuration of the JBoss Fuse container is specified by the **featuresBoot** property in the **etc/org.apache.karaf.features.cfg** file. The requisite dependencies are all provided in the **system/** sub-directory of the installation.
- *Installing additional features*—is, in general, *not* supported in offline mode. In principle, you can use the **features:install** command to install any of the features from the standard feature repositories (as specified by the **featuresRepositories** property in the **etc/org.apache.karaf.features.cfg** file), but the majority of these features must be downloaded from the Internet and are thus not supported in offline mode.
- *Deploying custom applications*—is, in general, *not* supported in offline mode. There may be some cases where an application with a minimal set of build-time dependencies is deployable offline, but in general, custom applications would have third-party dependencies that require an Internet connection (so that JAR files can be downloaded by Apache Maven).

If you do need to deploy an application with dependencies that are not available offline, you can use the Maven dependency plug-in to download the application's dependencies into a Maven offline repository. This customized Maven offline repository can then be distributed internally to any machines that do not have an Internet connection. For more details of this approach, see [section "Offline Repository for a Maven Project" in "Fabric Guide"](#).

CHAPTER 6. MONITORING FUSE RESOURCES

Abstract

Using Red Hat JBoss Operations Network (JON), you can discover, import, and monitor Red Hat JBoss Fuse.

6.1. INSTALLATION PROCEDURE

The Fuse Plugin Pack for JBoss ON 3.3 is not installed with the JON base distribution. You must download and install it separately after you have installed JON.

To install the **Fuse Plugin Pack for JBoss ON 3.3**:

1. Navigate to the Red Hat [Software Downloads](#) page on the Red Hat Customer Portal.
2. Select JBoss ON for Fuse under **Management** in the sidebar menu (or using the drop-down menu for the **Products** field).
3. Make sure **3.3** appears in the **Version** drop-down list on the Software Downloads page.
4. Click **Download** next to Fuse Plugin Pack for Red Hat JBoss Operations Network 3.3 .
5. Unzip the plugin package (**jon-plugin-pack-fuse-3.3.0.GA.zip**) into a temporary directory (for example, */installDir/server/*).
6. Install the jar files in one of two ways:
 - Hot Deploy

Copy the unpacked jar files into the JBoss Operations Network's */installDir/server/plugins/* directory. For details, see the [JBoss Operations Network Installation Guide](#).

- JON Server UI

For details, see the [JBoss Operations Network Installation Guide](#), or watch the video [Installing JBoss Operations Network - Part 4, Installing JON Agent Plugins](#).

CHAPTER 7. GETTING STARTED WITH SWITCHYARD ON JBOSS FUSE

7.1. SWITCHYARD



IMPORTANT

SwitchYard on JBoss Fuse is currently provided as a technical preview only, not suitable for production environments. For details on what "technical preview" means, see <https://access.redhat.com/solutions/21101>. However, SwitchYard will be supported with the release of JBoss Fuse 6.2.1 with full documentation provided.

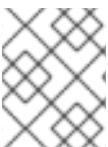
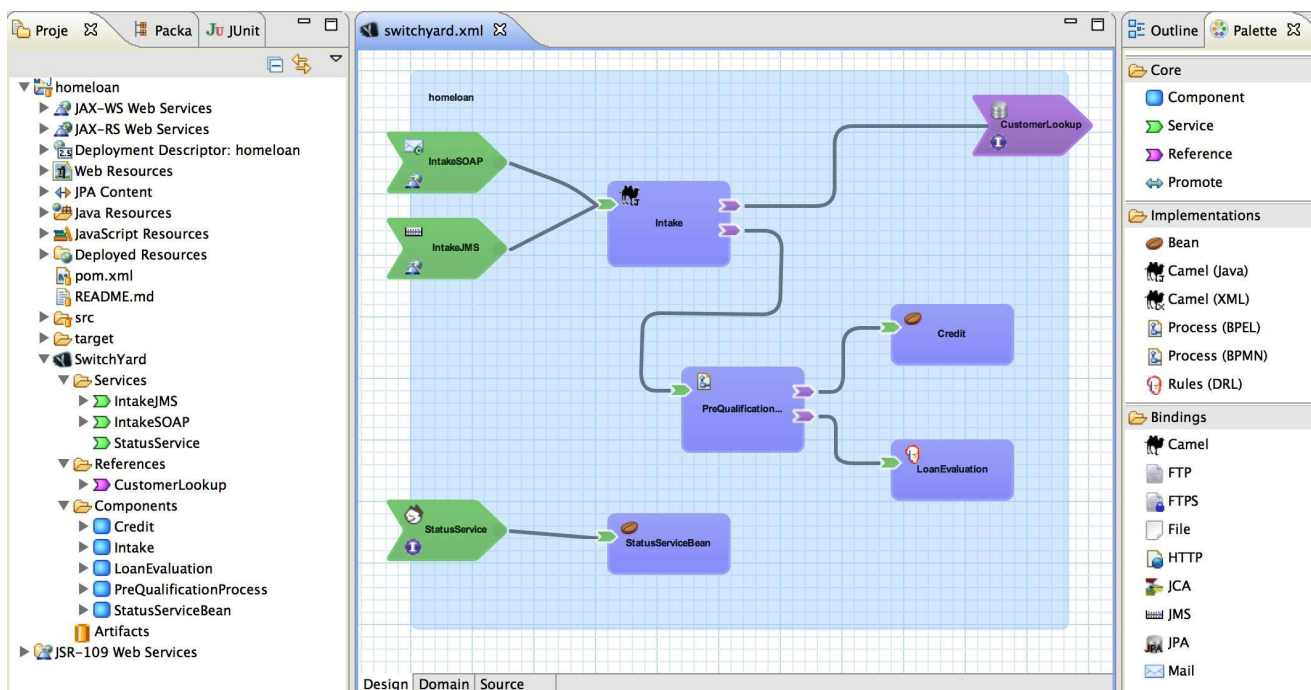
SwitchYard is a lightweight service delivery framework providing full lifecycle support for developing, deploying, and managing service-oriented applications.

It works with Apache Camel to provide a fast, simple, flexible integration runtime with comprehensive connectivity and transports.

A uniform application model augments Apache Camel, joining Java EE, BPM, rules, orchestration, and routing into a cohesive development model and runtime.

Common functionality and cross-cutting concerns (for example, validation, transformation and policy) are isolated from business logic and handled declaratively. This ensures consistency and eliminates duplication, offering developers a clear view of the structure and relationships of services in an integration application.

Figure 7.1. SwitchYard Visual Editor



NOTE

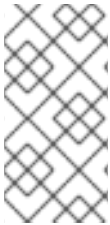
SwitchYard tooling is provided with installation of the [Red Hat JBoss Developer Studio Integration Stack](#).

7.2. INSTALLING SWITCHYARD ON JBOSS FUSE

SwitchYard does not necessarily need to be installed on JBoss Fuse explicitly. When a SwitchYard application is installed, as long as its accompanying features file is defined correctly, its dependencies will be installed automatically if they are not already installed. This includes the core SwitchYard components.

You can confirm this by installing a quickstart application on a fresh installation of JBoss Fuse.

However, you can also install SwitchYard and its related components manually.



NOTE

Each SwitchYard component and application is provided as a feature. Packaged features (including quickstart applications) are defined in the SwitchYard features file located at ***installDir/system/org/switchyard/karaf/switchyard/2.0.1.redhat-620117/switchyard-2.0.1.redhat-620117-core-features.xml***.

Procedure 7.1. Install SwitchYard Manually

1. Start JBoss Fuse:

```
./installDir/bin/fuse
```

2. List the available SwitchYard features by entering the following console command. If this is a fresh instance, they will all be uninstalled at this point.

```
JBossFuse:karaf@root> features:list | grep switchyard
```

3. Install the core SwitchYard components by entering the following console command:

```
JBossFuse:karaf@root> features:install switchyard
```

4. List the SwitchYard features again. You will now see that SwitchYard (the switchyard feature) has been installed, along with its dependencies as defined by the SwitchYard features file.

7.3. SWITCHYARD QUICKSTART APPLICATIONS

You can find a variety of SwitchYard applications in ***installDir/quickstarts/switchyard***.

Quickstart applications are typically installed from the JBoss Fuse command line console as follows:

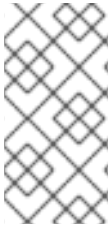
1. Start JBoss Fuse:

```
./installDir/bin/fuse
```

2. Install the application by entering the following console command:

```
JBossFuse:karaf@root> features:install switchyard-quickstart-APP_NAME
```

You can find out more about running each quickstart application by reading the accompanying **Readme.md** file for each.



NOTE

There is no need to add the features URL as described by the **Readme.md** file. SwitchYard features are already defined in ***installDir/system/org/switchyard/karaf/switchyard/2.0.1.redhat-620117/switchyard-2.0.1.redhat-620117-core-features.xml***.

7.4. INSTALLING YOUR FIRST QUICKSTART APPLICATION

The following procedure demonstrates how to install and run the **camel-quartz-binding** quickstart application. This application makes use of the **camel-quartz** component which schedules a logging service to run every second.

1. Start JBoss Fuse:

```
./installDir/bin/fuse
```

2. List the available SwitchYard features by entering the following console command. If this is a fresh instance, they will all be uninstalled at this point.

```
JBossFuse:karaf@root> features:list | grep switchyard
```

Install the **camel-quartz-binding** application by entering the following console command:

```
JBossFuse:karaf@root> features:install switchyard-quickstart-camel-quartz-binding
```

3. List the SwitchYard features again. You will now see that the camel-quartz-binding application (the switchyard-quickstart-camel-quartz-binding feature) has been installed, along with its dependencies as defined by the SwitchYard features file.
4. View the output from the installed (and running) application by entering the following console command:

```
JBossFuse:karaf@root> log:tail
```



NOTE

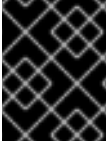
Find out more about this quickstart application in ***installDir/quickstarts/switchyard/camel-quartz-binding/Readme.md***.

7.5. WHAT'S NEXT?

Find out more about [SwitchYard](#).

CHAPTER 8. INTEGRATING JBOSS BRMS AND JBOSS BPM SUITE WITH JBOSS FUSE

Red Hat JBoss Fuse integration allows users of JBoss Fuse to complement their integration solution with additional features provided by JBoss BPM Suite and JBoss BRMS. Integration is provided by two **features.xml** files: one providing core JBoss BPM Suite and JBoss BRMS features, and the other providing additional support for integration with SwitchYard and Camel.



IMPORTANT

SwitchYard integration is a Technical Preview in JBoss Fuse 6.2, and is therefore not currently supported.



NOTE

For users of JBoss Fuse 6.1, only the core JBoss BPM Suite and JBoss BRMS features, provided by the following features file, are supported. Customers who are using an earlier version of this file must update it.

Core JBoss BPM Suite and JBoss BRMS features are provided by **drools-karaf-features-6.2.0.Final-redhat-6-BZ1232486-features.xml**:

- drools-common
- drools-module
- drools-templates
- drools-decisiontable
- drools-jpa
- kie
- kie-ci
- kie-spring
- kie-aries-blueprint
- jbpm-commons
- jbpm-human-task
- jbpm
- droolsjbpm-hibernate
- h2

This features file (and supporting repositories) is currently provided as a patch — **Integration Pack contains references related to non-supported jars** — that you can download from the Red Hat Customer Portal under [JBoss BRMS](#) or [JBoss BPM Suite](#).

The following table lists some sample use cases and the corresponding features that are required to support them.

Table 8.1. Sample Use Cases and Corresponding Features

| Use Case | Feature(s) |
|---|---|
| I need to use Drools engine for rules evaluation. I do not need persistence, processes, nor decision tables. | Install drools-module . |
| I need to use Drools engine for rules evaluation with persistence and transactions. I do not need processes, nor decision tables. | Install drools-jpa (which includes drools-module). You might also want to install the droolsjbpm-hibernate feature, or ensure there is a compatible hibernate bundle installed. |
| I need to use Drools engine with decision tables. | Install drools-decisiontable (which includes drools-module). If you need persistence, install drools-jpa as well. |
| I need to use jBPM engine (or Drools engine with processes). | Install jbpm feature (which includes drools-module and drools-jpa). You might also want to install droolsjbpm-hibernate feature, or ensure there is a compatible hibernate bundle installed. |
| I need to use jBPM engine (or Drools engine with processes) with Human Task. | Install jbpm and jbpm-human-task . |
| I need to use Drools/jBPM with KieScanner (KIE-CI) to be able to download kJARs from a Maven repository. | Install required core engine jars (see row above) and kie-ci . |
| I need to use KIE-Spring integration. | Install kie-spring . |
| I need to use KIE-Aries-Blueprint integration. | Install kie-spring and kie-aries-blueprint . |

The following additional features for integration with SwitchYard and Camel on JBoss Fuse are provided by `org/jboss/integration/fuse/karaf-features/1.0.0.redhat-620137/karaf-features-1.0.0.redhat-620137-features.xml`:

- `fuse-bxms-switchyard-common-knowledge`
- `fuse-bxms-switchyard-rules`
- `fuse-bxms-switchyard-bpm`
- `kie-camel`
- `jbpm-workitems-camel`

This file (and supporting repositories) is located in

<http://repository.jboss.org/nexus/content/repositories/public/> which is already configured for use on JBoss Fuse 6.2 out of the box in `installDir/etc/org.ops4j.pax.url.mvn.cfg`.

8.1. INSTALL CORE JOSS BRMS AND JOSS BPM SUITE FEATURES

Use the following procedure to add core features for JBoss BRMS and JBPM Suite.

Procedure 8.1.

1. The latest supported version of these features are provided as a patch — **Integration Pack contains references related to non-supported jars** — that you can download from the Red Hat Customer Portal under [JBoss BRMS](#) or [JBoss BPM Suite](#). Download and install this patch.

- a. [Download the patch](#) and unzip it.
- b. Navigate to the unzipped **BZ-1232486** directory.
- c. Run the following console command:

```
$ mvn org.apache.maven.plugins:maven-install-  
plugin:2.5.2:install-file -Dfile=drools-karaf-features-  
6.2.0.Final-redhat-6-BZ1232486-features.xml -DgroupId=org.drools  
-DartifactId=drools-karaf-features -Dversion=6.2.0.Final-redhat-  
6-BZ1232486 -Dpackaging=xml -Dclassifier=features
```

2. Configure the required repositories.
 - a. Edit the `installDir/etc/org.ops4j.pax.url.mvn.cfg` file in your JBoss Fuse installation and add the following entry to the `org.ops4j.pax.url.mvn.repositories` variable, noting that entries are separated by `,` `\``:
 - `http://maven.repository.redhat.com/techpreview/all/@id=bxms-product-repo`

3. Start JBoss Fuse:

```
$ ./installDir/bin/fuse
```

4. Add a reference to the core features file by running the following console command:

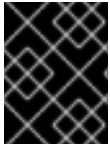
```
JBossFuse:karaf@root> features:addurl mvn:org.drools/drools-karaf-  
features/6.2.0.Final-redhat-6-BZ1232486/xml/features
```

5. You can now install the features provided by this file by running, for example, the following console command:

```
JBossFuse:karaf@root> features:install drools-module
```

8.2. INSTALL SWITCHYARD AND CAMEL INTEGRATION FEATURES

Use the following procedure to install features for JBoss BRMS and JBPM Suite integration with SwitchYard and Camel.



IMPORTANT

SwitchYard integration is a Technical Preview in JBoss Fuse 6.2, and is therefore not currently supported.

Procedure 8.2.

1. Add a reference to the features file by running the following console command:

```
JBossFuse:karaf@root> features:addurl
mvn:org.jboss.integration.fuse/karaf-features/1.0.0.redhat-
620137/xml/features
```

2. You can now install the features provided for SwitchYard and Camel integration by running, for example, the following console command:

```
JBossFuse:karaf@root> features:install fuse-bxms-switchyard-rules
```

8.3. INSTALL JBOSS FUSE INTEGRATION QUICKSTART APPLICATIONS

The following features for JBoss Fuse integration quickstart applications are provided by **org/jboss/integration/fuse/quickstarts/karaf-features/1.0.0.redhat-620137/karaf-features-1.0.0.redhat-620137-features.xml**:

- fuse-bxms-switchyard-quickstart-bpm-service
- fuse-bxms-switchyard-quickstart-remote-invoker
- fuse-bxms-switchyard-quickstart-rules-camel-cbr
- fuse-bxms-switchyard-quickstart-rules-interview
- fuse-bxms-switchyard-quickstart-rules-interview-container
- fuse-bxms-switchyard-quickstart-rules-interview-dtable
- fuse-bxms-switchyard-demo-library
- fuse-bxms-switchyard-demo-helpdesk

This file (and supporting repositories) is located in <http://repository.jboss.org/nexus/content/repositories/public/>, which is already configured for use on JBoss Fuse 6.2 out of the box in **installDir/etc/org.ops4j.pax.url.mvn.cfg**.

Procedure 8.3. Install JBoss Fuse Integration Quickstart Applications

1. Add a reference to the features file by running the following console command:

```
JBossFuse:karaf@root> features:addurl
mvn:org.jboss.integration.fuse.quickstarts/karaf-
```

```
features/1.0.0.redhat-620137/xml/features
```

2. You can now install the quickstart applications provided by this features file by running, for example, the following console command:

```
JBossFuse:karaf@root> features:install fuse-bxms-switchyard-quickstart-bpm-service
```

The [Integration Pack for Red Hat JBoss Fuse 6.2, BRMS 6.1 and BPM Suite 6.1](#) (available from the JBoss Fuse [Software Downloads](#) page) provides source and test code for each quickstart application.

Procedure 8.4. Download and Install the Quickstart Application Source Files

1. Download the quickstart application ZIP file.
2. Unpack the contents of the quickstarts directory into your existing *installDir/quickstarts* directory.
3. Unpack the contents of the system directory into your existing *installDir/system* directory. You can replace existing files if requested to do so.

8.4. TESTING YOUR FIRST INTEGRATION QUICKSTART APPLICATION

Procedure 8.5.

1. Start JBoss Fuse:

```
$ ./installDir/bin/fuse
```

2. Install and start the **switchyard-bpm-service** by running the following console command. Any dependent features specified by the application's features file will be installed automatically.

```
JBossFuse:karaf@root> features:install fuse-bxms-switchyard-quickstart-bpm-service
```

3. Submit a webservice request to invoke the SOAP gateway.
 - a. Open a terminal window and navigate to the associated quickstart directory that was unpacked from the quickstart application ZIP file (in this case, **switchyard-bpm-service**).
 - b. Run the following command:

```
$ mvn clean install
```

**NOTE**

You will need the following repositories configured in your Maven `settings.xml` file:

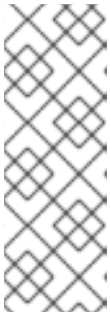
- <http://maven.repository.redhat.com/techpreview/all/>
- <http://repository.jboss.org/nexus/content/repositories/public/>
- <https://repo.fusesource.com/nexus/content/groups/public/>

c. Run the following command:

```
$ mvn exec:java -Pkaraf
```

4. You will receive the following response:

```
SOAP Reply:
<soap:Envelope
xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"><SOAP-
ENV:Header xmlns:SOAP-
ENV="http://schemas.xmlsoap.org/soap/envelope/" /><soap:Body><ns2:sub
mitOrderResponse xmlns:ns2="urn:switchyard-quickstart:bpm-
service:1.0">
  <orderId>test1</orderId>
  <accepted>true</accepted>
  <status>Thanks for your order, it has been shipped!</status>
</ns2:submitOrderResponse></soap:Body></soap:Envelope>
```

**NOTE**

If you have not restarted the server since working through the configuration procedures up to this point, you might receive the following response. If so, restart the server and run the command again.

```
SOAP Reply:
<html><body>No service was found.</body></html>
```

APPENDIX A. INSTALLING THE APACHE COMPONENTS

Abstract

Red Hat JBoss Fuse includes standard distributions of Apache Camel and Apache CXF in the installation's **extras** directory.

A.1. ZIP ARCHIVES FOR THE APACHE COMPONENTS

If you want to use a standard distribution of Apache Camel or Apache CXF, without the OSGi container or Fuse Fabric, use the archived versions in the installation's **extras** directory.

The following archives are provided for all supported platforms:

- `apache-camel-2.15.1.redhat-620133.zip`
- `apache-cxf-3.0.4.redhat-620133.zip`

You can copy these files to the desired location and decompress them using the appropriate utility for your platform.



WARNING

Do not unpack an archive file into a folder that has spaces in its path name. For example, do not unpack into **C:\Documents and Settings\Greco Roman\Desktop\fusesrc**.

APPENDIX B. RED HAT JBOSS FUSE MAVEN REPOSITORIES

Abstract

Red Hat JBoss Fuse and Red Hat JBoss Fuse strongly support Maven, an open source build system available from [Apache Maven](#). To use Maven to build your projects, you need to specify, in a Maven `settings.xml` file, where required artifacts are located.

For details on setting up Maven to work with Red Hat JBoss Fuse, see *Building with Maven in Red Hat JBoss Fuse Deploying into the Container* on the [Red Hat Customer Portal](#).

B.1. MAVEN REPOSITORIES

The following repositories contain artifacts your projects may need:

- JBoss Fuse repository

Provides access to the artifacts in the Red Hat JBoss Fuse Maven repository. This repository is required.

`https://repo.fusesource.com/nexus/content/groups/public/`

- JBoss Fuse Snapshots repository

Provides access to the artifacts in the Red Hat JBoss Fuse snapshot kit. This repository is not required, but it is useful if you want to experiment with building your project using different versions of the supplied archetypes.

`https://repo.fusesource.com/nexus/content/groups/public-snapshots/`

- Apache Public repository

Provides access to the artifacts in the Apache Maven repository. This repository is not required, but it is useful to include as Red Hat JBoss Fuse depends on various Apache artifacts.

`https://repository.apache.org/content/groups/public/`