Red Hat JBoss Enterprise Application Platform 6.4

Installation Guide

For use with Red Hat JBoss Enterprise Application Platform 6

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Abstract

This book is a guide to the installation of Red Hat JBoss Enterprise Application Platform 6 and its patch releases.

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CHAPTER 1. PRODUCT OVERVIEW

1.1. ABOUT RED HAT JBOSS ENTERPRISE APPLICATION PLATFORM 6

Red Hat JBoss Enterprise Application Platform 6 (JBoss EAP 6) is a middleware platform built on open standards and compliant with the Java Enterprise Edition 6 specification. It integrates JBoss Application Server 7 with high-availability clustering, messaging, distributed caching, and other technologies.

JBoss EAP 6 includes a new, modular structure that allows service enabling only when required, improving startup speed.

The Management Console and Management Command Line Interface make editing XML configuration files unnecessary and add the ability to script and automate tasks.

In addition, JBoss EAP 6 includes APIs and development frameworks for quickly developing secure and scalable Java EE applications.

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1.2. FEATURES OF JBOSS EAP 6

Table 1.1. JBoss EAP 6 Features

Feature	Description
Java Certification	Java Enterprise Edition 6 Full Profile and Web Profile certified.
Managed Domain	- Centralized management of multiple server instances and physical hosts, while a standalone server allows for a single server instance. - Per-server group management of configuration, deployment, socket bindings, modules, extensions and system properties. - Centralized and simplified management of application security (including security domains).
Management Console and Management CLI	New domain or standalone server management interfaces. XML configuration file editing is no longer required. The Management CLI also includes a batch mode that can script and automate management tasks.
Simplified directory layout	The **modules** directory now contains all application server modules. The common and server-specific **lib** directories are deprecated. The **domain** and **standalone** directories contain the artifacts and configuration files for domain and standalone deployments respectively.

Feature	Description
Modular class loading mechanism	Modules are loaded and unloaded on demand. This improves performance, has security benefits and reduces start-up and restart times.
Streamlined Data source management	Database drivers are deployed like other services. In addition, datasources are created and managed directly in the Management Console or Management CLI.
Reduced and more efficient resource use	JBoss EAP 6 uses fewer system resources and uses them more efficiently than previous versions. Among other benefits, JBoss EAP 6 starts and stops faster than JBoss EAP 5.

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1.3. ABOUT THE RED HAT CUSTOMER PORTAL

The *Red Hat Customer Portal* is the centralized platform for Red Hat knowledge and subscription resources. Use the *Red Hat Customer Portal* to do the following:

- Manage and maintain Red Hat entitlements and support contracts.

- Download officially-supported software.

- Access product documentation and the Red Hat Knowledgebase.

- Contact Global Support Services.

- File bugs against Red Hat products.

The Customer Portal is available here: https://access.redhat.com.

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CHAPTER 2. INSTALLATION INSTRUCTIONS

2.1. JBOSS EAP 6 INSTALLATION METHODS

There are several different ways to install JBoss EAP 6. Each method is best used in certain situations. This topic provides a brief overview for each type of installation, and links to the sections that cover the relevant installation processes.

> **NOTE**
>
> If you plan to use JBoss ON to deploy and install JBoss EAP patches, the target JBoss EAP instances must have been installed using the Zip installation method.

Table 2.1. Installation Methods

Method	Description	Instructions
Zip Installation	The Zip archive is suitable for installation on all supported operating systems. This process should be used if you wish to extract the instance manually.	• Section 2.3.2, "Install JBoss EAP 6 (ZIP Installation)"
JAR Installer	The JAR installer can be run in a console, or as a graphical wizard. Both options provide step-by-step instructions for installing and configuring the server instance. Additional setup, including the Quickstarts and Maven Repository, is also possible with the installer. This is the preferred way to install JBoss EAP 6 on all supported platforms.	• Section 2.5.2, "Run the JBoss EAP Installation Program"
RPM Installation	JBoss EAP 6 can be installed with the supported RPM package graphical installer, or with a command-line interface. This method is suitable for supported installations of Red Hat Enterprise Linux 5, 6 and 7.	• Section 2.6.7, "Install JBoss EAP 6 (Graphical RPM Installation)" • Section 2.6.8, "Install JBoss EAP 6 (Text-based RPM Installation)"

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2.2. JBOSS EAP 6 INSTALLATION PREREQUISITES

Each installation process for JBoss EAP 6 has a number of prerequisites. This section covers the common requirements, as well as those that are installation specific.

Table 2.2. JBoss EAP 6 prerequisites for installation

Installation type	Prerequisites
Common Prerequisites	- Set up an account on the Red Hat Customer Portal at https://access.redhat.com. For more information, see Section 1.3, "About the Red Hat Customer Portal". - Review the supported configurations and ensure your system is supportable: https://access.redhat.com/articles/111663. - Ensure that your system is up to date with Red Hat issued updates and errata.
ZIP/Installer Prerequisites	- Administration privileges for the installation directory. - Ensure that a supported Java development kit has been installed. - On Microsoft Windows Server, ensure that the JAVA_HOME and PATH environment variables have been set, otherwise shortcuts will not work. - On Hewlett-Packard HP-UX, ensure that an **unzip** utility has been installed.

Installation type	Prerequisites

RPM Prerequisites	From Red Hat Enterprise Linux 7, the term *channel* was replaced with the term *repository*.
	
	● Register the server on the Red Hat Network (Red Hat Enterprise Linux 5 and 6) or using Red Hat Subscription Manager (Red Hat Enterprise Linux 7). For more information on the registration process, see the *Using and Configuring Red Hat Subscription Manager* guide at https://access.redhat.com/documentation/en-US/Red_Hat_Subscription_Management/1/html/RHSM/index.html
	
	● Ensure that a supported Java development kit has been installed. The Java development kit RPM must provide and export the **java** capability to the system.
	
	● Subscribe to the following channels, which apply to all versions of Red Hat Enterprise Linux and all architectures:
	
	  ○ Red Hat Enterprise Linux Server **base** and **supplementary** software channels/repositories appropriate to your Red Hat Enterprise Linux version. The **supplementary** channel/repository is required for the installation of the Java development kit.
	
	  ○ JBoss Enterprise Application Platform channel or repository. For details of the appropriate channel or repository, see Section 2.6, "RPM Installation"
	
	● If the host architecture is *ppc64* subscribe to the following channel/repository.
	
	  ○ Red Hat Enterprise Linux 6, subscribe to the **rhel-ppc64-server-optional-6** channel.
	
	  ○ Red Hat Enterprise Linux 7, subscribe to the **rhel-7-for-power-server-optional-rpms-7Server** repository.
	
	● If the host architecture is *x86_64* there are no extra prerequisites.
	
	● For the list of packages that must be installed in order to use JBoss EAP with a dependency, see Section A.3, "RPM Package List for JBoss EAP 6".

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2.3. ZIP INSTALLATION

2.3.1. Download JBoss EAP 6 (Zip Installation)

Prerequisites:

● Section 2.2, "JBoss EAP 6 Installation Prerequisites"

Summary

The JBoss EAP 6 ZIP file is available from the Red Hat Customer Portal. The ZIP file installation is platform-independent. This topic covers the steps to download the archive.

Procedure 2.1. Download the ZIP file

1. Open a browser and log into the Customer Portal at https://access.redhat.com.

2. Click **Downloads**.

3. Click **Red Hat JBoss Enterprise Application Platform** in the **Product Downloads** list.

4. Select the correct JBoss EAP version from the **Version** drop-down menu.

5. Find **Red Hat JBoss Enterprise Application Platform 6.*x.x*** in the list and click the **Download** option.

Result

JBoss EAP 6 is now downloaded to your target machine, ready for installation.

Next Step in Zip Installation

- Section 2.3.2, "Install JBoss EAP 6 (ZIP Installation)"

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2.3.2. Install JBoss EAP 6 (ZIP Installation)

Previous Step in Zip Installation

- Section 2.3.1, "Download JBoss EAP 6 (Zip Installation)"

Summary

This topic covers the steps to install JBoss EAP 6 using the downloaded ZIP file.

Procedure 2.2. ZIP File Installation

1. **Move the ZIP archive to the desired location.**
   Move the ZIP file to the server and directory where you plan to install JBoss EAP 6. The user who will start and stop the server must have read and write access to this directory.

2. **Use an appropriate application to extract the ZIP archive to the desired location.**
   In a Red Hat Enterprise Linux environment, use the **unzip** utility to extract the contents of the ZIP archive.

   In a Microsoft Windows environment, right-click the file and select **Extract All**.

   In a Hewlett-Packard HP-UX environment, use the **unzip** utility to extract the contents of the ZIP archive.

Result

JBoss EAP 6 has been installed successfully. The directory created by extracting the ZIP archive is the top-level directory for the server. This is referred to as ***EAP_HOME***.

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2.4. UNINSTALL JBOSS EAP 6 (ZIP INSTALLATION)

Prerequisites

Backup any modified configuration files and deployments that may be reused in a later instance.

Summary

This section covers the steps required to uninstall a Zip installation of JBoss EAP 6.

Procedure 2.3. Uninstall JBoss EAP 6 (Zip installation)

1. Go to the directory where you had extracted the JBoss EAP 6 folder from the Zip file.

2. **Delete the installation directory.**
   JBoss EAP 6 installs in a single directory when you use the Zip installation method. Delete the installation directory to uninstall JBoss EAP 6.

3. **Optional: Delete any initialization scripts you created.**
   If you created initialization scripts or other scripts which depended upon JBoss EAP 6 being installed on your computer, delete them.

Result

JBoss EAP 6 is uninstalled from the server.

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2.5. INSTALLER

2.5.1. Download JBoss EAP 6 (Installer)

Prerequisites:

- Section 2.2, "JBoss EAP 6 Installation Prerequisites"

Summary

The JBoss EAP 6 installer archive is available from the Red Hat Customer Portal. The **.jar** archive can be used to run either the graphical or text-based installers. The installer is the preferred way to install JBoss EAP 6 on all supported platforms. This topic covers the steps to download the archive.

Procedure 2.4. Download the Installer

1. Open a browser and log into the Customer Portal at https://access.redhat.com.

2. Click **Downloads**.

3. Click **Red Hat JBoss Enterprise Application Platform** in the **Product Downloads** list.

4. Select the correct JBoss EAP version from the **Version** drop-down menu.

5. Find **Red Hat JBoss Enterprise Application Platform 6.*x.x* Installer** in the list and click the **Download** option.

Result

JBoss EAP 6 is now downloaded to your target machine, ready for installation.

Next Step in Installer

- Section 2.5.3, "Uninstall JBoss EAP 6 (Installer)"

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2.5.2. Run the JBoss EAP Installation Program

The JBoss EAP installation program can be run in either graphical or text mode. This topic covers the command to run the installation program in graphical mode.

Procedure 2.5. Run the JBoss EAP Installation Program

1. Open a terminal and navigate to the directory containing the downloaded installation program JAR.

2. Type the following command:

   ```
   java -jar jboss-eap-6.x.x-installer.jar
   ```

   NOTE

   In the Hewlett-Packard HP-UX or Solaris environment, you can specify the required architecture by using the -d32/-d64 switch. Launch the installer by executing either of these commands:

   ```
   java -jar -d64 jboss-eap-6.x.x-installer.jar
   ```

   or

   ```
   java -jar -d32 jboss-eap-6.x.x-installer.jar
   ```

3. Follow the instructions in the table below.

Table 2.3. JBoss EAP Installation Program Screens

Screen name	When it Appears	Description
Section B.1, "Language Selection"	Always	Choose the desired language for the installation program and click **OK**.
Section B.2, "End User License Agreement"	Always	The EULA for RED HAT JBOSS MIDDLEWARE. Select "I accept the terms of this license agreement", and click **Next**.
Section B.3, "Installation Path"	Always	Select the installation path for JBoss EAP and click **Next**. You are prompted to create the new directory, or, if it exists, to replace the named directory.

Screen name	When it Appears	Description
Section B.4, "Select the Packs to Install"	Always	Select the packs to install. Required packs are disabled for deselection.
Section B.5, "Administrative User Creation"	Always	Create an administrative user and assign a password. The password must be at least eight characters long, with one alphabetic character, one digit, and one non-alphanumeric character. Then click **Next**.
Section B.6, "Quickstart Installation"	Always	Install the quickstart examples. If you would like to install them, choose **Yes** and select the installation path. If you do not wish to install them, choose **No**. Then click **Next**.
Section B.7, "Maven Repository Setup"	If you choose to install the quickstart examples	A publicly hosted Maven repository is available for use with the quickstarts. The default selections automatically configure your installation to use this repository. This is the easiest way to run the quickstarts. If you prefer, specify the path to a locally installed repository, Specify a path if your Maven settings file is not in the default location.
Section B.8, "Socket Binding Setup"	Always	Determine whether the installation will use the default port bindings, configure custom port bindings, or configure port offsets for all default bindings. If you select custom bindings, select whether to configure the ports for standalone mode, domain mode, or both. If you choose to configure port offsets, choose the offset. If the host is configured for IPv6 *only*, check the **Enable pure IPv6 configuration** checkbox and the installer will make the required configuration changes. Click **Next**.
Section B.9, "Custom Socket Bindings for Standalone Configurations"	If you choose to configure the custom port bindings for standalone mode	Configure the ports and system properties for the various standalone modes, then click **Next**.
Section B.10, "Custom Socket Bindings for Domain Configurations"	If you choose to configure the custom port bindings for domain mode.	Configure the ports and system properties for the various domain modes, then click **Next**.
Section B.11, "Server Launch"	Always	Select the preferred startup option on completion of the installation process. Then click **Next**.
Section B.12, "Configure Logging Levels"	Always	Choose **Yes** to configure log levels, or **No** to skip this configuration. Then click **Next**.

Screen name	When it Appears	Description
Section B.13, "Configure Runtime Environment"	Always	Choose **Perform default configuration** to install the default configuration. Choose **Perform advanced configuration** to choose from a list of advanced configuration options. Advanced options can also be configured after installation. Then click **Next**.
Section B.14, "Password Vault Configuration"	If you choose to install password vault in advanced configuration of runtime environment	Configure a password vault to store all your sensitive passwords in an encrypted keystore and click **Next**. For more information, see *Mask the Keystore Password and Initialize the Password Vault* in the *Administration and Configuration Guide*.
Section B.15, "Configure SSL Security"	If you choose to enable SSL security in advanced configuration of runtime environment	Configure an SSL keystore for securing EAP management interfaces. Then click **Next**. For more information, see *Generate a SSL Encryption Key and Certificate* in the *Security Guide*. ⚠ **WARNING** Red Hat recommends that you explicitly disable SSL in favor of TLSv1.1 or TLSv1.2 in all affected packages.
Section B.16, "Configure LDAP"	If you choose to enable LDAP Configuration in advanced configuration of runtime environment	Enable LDAP authentication to use an LDAP directory server as the authentication source for the Management Console, Management CLI or Management API. When you are done click **Next**. For more information, see *Use LDAP to Authenticate to the Management Interfaces* in the *Administration and Configuration Guide*.
Section B.17, "Infinispan Configuration"	If you choose to install Infinispan cache in advanced configuration of runtime environment	Create an Infinispan cache for managing cached data. Give an Infinispan name, configure the other fields and click **Next**. For more information see the chapter entitled *Infinispan* in the *Administration and Configuration Guide* .
Section B.18, "Security Domain Configuration"	If you choose to add a security domain in advanced configuration of runtime environment	Configure a security domain to incorporate the services provided by PicketBox to a JBoss EAP server instance. Most of the fields are already populated with default values and do not need modifications. When you are done click **Next**. For more information, see *Security Domains* in the *Administration and Configuration Guide*.

Screen name	When it Appears	Description
Section B.19, "JDBC Driver Setup"	If you choose to install a JDBC driver in advanced configuration of runtime environment	Install and setup a JDBC driver to convert your application code to the relevant database language. Choose an appropriate driver from the supported list of drivers which appears in "Driver Vendor" drop down list. For more information, see the chapter entitled *Datasource Management* in the *Administration and Configuration Guide*.
Section B.20, "Datasource Setup"	If you choose to install a datasource in advanced configuration of runtime environment	Configure a datasource which can be used by applications. Give a datasource name, configure the other fields and click **Next**. For more information, see *Datasource Configuration* in the *Administration and Configuration Guide*.
Section B.21, "Review Installation Components"	Always	Review your selections and click **Next**.
Section B.22, "Installation Progress"	Always	When installation progress completes, click **Next**.
Section B.23, "Installation Processing Finished"	Always	When processing finishes, click **Next**.
Section B.24, "Create Shortcuts"	Always	Select the **Create shortcuts in the Start-Menu** check box to create shortcuts and then, use the appropriate option to configure shortcuts. Only alphanumeric characters, em dash (–) and underscore (_) characters are allowed. On Microsoft Windows, the slash (/) and backslash (\) characters are also allowed. Click **Next** to create shortcuts.
Section B.25, "Generate Install Script"	Always	Click **Generate installation script and properties file** if you want to capture the selected installation options. Then click **Done**. Installation is now complete.

Procedure 2.6. Text-based Install Process

1. Open a terminal and navigate to the directory containing the downloaded installation program JAR.

2. Launch the Text-based installer by executing the following command:

   ```
   java -jar jboss-eap-6.x.x-installer.jar -console
   ```

3. Follow the steps to install JBoss EAP 6.

Result

The installation is complete and JBoss EAP 6 is installed on your target machine.

2.5.3. Uninstall JBoss EAP 6 (Installer)

Previous Step in Installer

- Section 2.5.1, "Download JBoss EAP 6 (Installer)"

Summary

This section details the steps required to uninstall an instance of JBoss EAP 6 that was installed using either the graphical or text-based installer.

Procedure 2.7. Uninstall JBoss EAP 6 (Graphical Installation)

1. During the installation of JBoss EAP 6 on the target machine, a directory called **Uninstaller** was created in the directory where you had installed JBoss EAP 6. This directory contains a file called **uninstaller.jar**. Navigate to this directory in a terminal window.

2. Launch the GUI uninstaller by executing the following command:

   ```
   java -jar uninstaller.jar
   ```

   The execution of the command will launch the graphical uninstaller as shown in the following figure. Select the check box if you want to delete the JBoss EAP 6 installation directory.
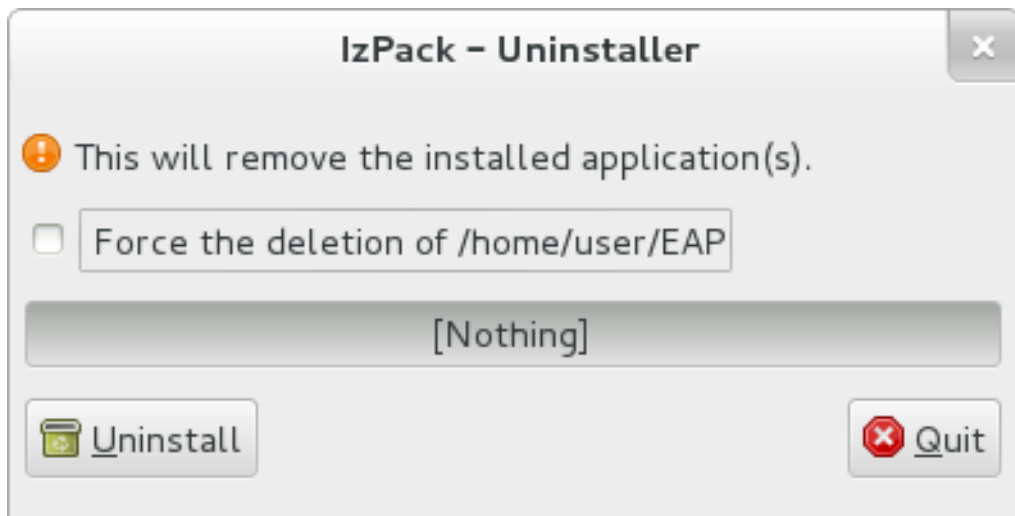

Figure 2.1. Uninstall JBoss EAP 6 using the graphical installer

3. Press the **Uninstall** button to start the uninstall process.

4. When the uninstall process is finished, press the **Quit** button to exit the uninstaller. After a successful uninstall, you may want to manually remove the **Uninstaller** directory from where you launched the uninstaller.

Procedure 2.8. Text-based Uninstall Process

1. In a console, navigate to the **Uninstaller** directory created during the installation process. This can be found one level above *EAP_HOME*.

2. Launch the Text-based uninstaller by executing the following command:

```
java -jar uninstaller.jar -console
```

3. Follow the steps to uninstall JBoss EAP 6.

Result:

JBoss EAP 6 is uninstalled from your server.

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2.6. RPM INSTALLATION

2.6.1. About JBoss EAP 6 Software Channels

Installing JBoss EAP 6 via RPM requires a subscription to several software channels. Subscription to both the *Red Hat Enterprise Linux Server* base software channel and a specific JBoss EAP 6 channel is required.

> **NOTE**
>
> From Red Hat Enterprise Linux 7, the term **channel** was replaced with the term **repository**. In these instructions only the term **channel** is used.

Up to JBoss EAP 6.3.2 the choice of JBoss EAP channel is determined *only* by the Red Hat Enterprise Linux version and the hardware architecture. A subscription to this, the *current* channel provides the latest JBoss EAP release.

From JBoss EAP 6.3.3 you can either subscribe to the current JBoss EAP channel or a *minor* channel that provides a specific minor release and all applicable patches. This allows you to maintain the same minor version of JBoss EAP 6, while still staying current with high severity and security patches.

> **WARNING**
>
> Library version conflicts occur when using RPM packages to install both JBoss Web Server 3 and JBoss EAP 6 on the same machine. To workaround the issue, you can install either JBoss Web Server 3 or JBoss EAP 6 using the RPM installation method, and the other using the ZIP installation method.

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2.6.2. JBoss EAP Channel Naming Convention

The naming convention for the current channel is **jbappplatform-6-ARCHITECTURE-server-6-rpm**. Installing JBoss EAP 6.4 on an x86_64 architecture and Red Hat Enterprise Linux 6 would require a subscription to the **jbappplatform-6-x86_64-server-6-rpm** channel.

The naming convention of the minor version channel for Red Hat Enterprise Linux 5 and Red Hat Enterprise Linux 6 is **jbappplatform-EAP_VERSION-ARCHITECTURE-server-RHEL_VERSION-rpm**.

The naming convention of the minor version channel for Red Hat Enterprise Linux 7 is **jb-eap-EAP_VERSION-for-rhel-7-server-rpms** for x86_64 architecture and **jb-eap-EAP_VERSION-for-rhel-7-for-power-rpms** for ppc64 architecture

EAP_VERSION

This is the major and minor version of JBoss EAP. An EAP_VERSION value of **6.4** would install JBoss EAP 6.4, while a value of **6** would install JBoss EAP 6.

ARCHITECTURE

This is either **i386**, **x86_64** or **ppc**.

RHEL_VERSION

This is either **5** for Red Hat Enterprise Linux 5, **6** for Red Hat Enterprise Linux 6 or **7** for Red Hat Enterprise Linux 7.

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2.6.3. How to Subscribe to the JBoss EAP 6 Current Channel

The subscription command depends on the registration method – Red Hat Subscription Manager or Red Hat Network Classic. Red Hat Subscription Manager is the only method available on Red Hat Enterprise Linux 7.

For Red Hat Subscription Manager:

1. Ensure that your Red Hat Enterprise Linux system is registered to your account using Red Hat Subscription Manager. For more information, see the Red Hat Subscription Management documentation.

2. Enter the following command to subscribe to the JBoss EAP 6 current repository:

   ```
   subscription-manager repos --enable=jb-eap-6-for-rhel-7-server-rpms
   ```

For Red Hat Network Classic:

1. Ensure that your Red Hat Enterprise Linux system is registered to your account using Red Hat Network Classic. For more information, see the this Customer Portal solution: https://access.redhat.com/solutions/11216.

2. Enter the following command to subscribe to the JBoss EAP 6 current channel:

   ```
   rhn-channel --add -c jbappplatform-6-x86_64-server-6-rpm
   ```

   NOTE

   The **rhn-channel** command does not provide an error message if the specified software channel does not exist. Before proceeding, confirm the registration was successful by listing the subscribed channels. To do this, enter the following command:

   ```
   rhn-channel -l
   ```

2.6.4. How To Subscribe to the JBoss EAP 6 Minor Channel

The subscription command depends on the registration method – Red Hat Subscription Manager or Red Hat Network Classic. Red Hat Subscription Manager is the only method available on Red Hat Enterprise Linux 7.

For Red Hat Subscription Manager:

1. Ensure that your Red Hat Enterprise Linux system is registered to your account using Red Hat Subscription Manager. For more information, see the Red Hat Subscription Management documentation.

2. Enter the following command to subscribe to the JBoss EAP 6 minor repository:

   ```
   subscription-manager repos --enable=jb-eap-6.4-for-rhel-7-server-rpms
   ```

For Red Hat Network Classic:

1. Ensure that your Red Hat Enterprise Linux system is registered to your account using Red Hat Network Classic. For more information, see the this Customer Portal solution: https://access.redhat.com/solutions/11216.

2. Enter the following command to subscribe to the JBoss EAP 6 minor channel:

   ```
   rhn-channel --add -c jbappplatform-6.4-x86_64-server-6-rpm
   ```

   NOTE

   The **rhn-channel** command does not provide an error message if the specified software channel does not exist. Before proceeding, confirm the registration was successful by listing the subscribed channels. To do this, enter the following command:

   ```
   rhn-channel -l
   ```

2.6.5. Support for Changing Subscription Channels

Over the lifespan of a JBoss EAP 6.3.3 (or greater) installation, you may want to change the software subscription from one JBoss EAP channel to another. Changing between channels is supported but with the following conditions.

Changing from the current channel to a minor channel

Supported if changing to the *latest* minor channel.

Changing from a minor current channel to another minor channel

Supported if changing to the next minor JBoss EAP version. For example, changing from JBoss EAP 6.3 to JBoss EAP 6.4 *is* supported, but from JBoss EAP 6.3 to JBoss EAP 6.5 is *not* supported.

Changing from a minor channel to the current channel

Supported if changing from the *latest* minor channel.

2.6.6. How to Change from the Current Channel to the Minor Channel

Complete this procedure if a Red Hat Enterprise Linux system is subscribed to the **current** channel and you want to instead switch to the **minor** channel. Doing so will ensure that the system will only receive updates to the JBoss EAP 6.4 RPMs and it will not be updated to a later version.

Before changing channel, it is necessary to ensure the JBoss EAP installation has all applicable updates applied.

For Red Hat Classic, enter the following commands to update the host and unsubscribe from the **current** channel and instead subscribe to the **minor** channel.

```
yum update
```

```
rhn-channel --remove -c jbappplatform-6-x86_64-server-6-rpm
```

```
rhn-channel --add -c jbappplatform-6.4-x86_64-server-6-rpm
```

> **NOTE**
>
> The **rhn-channel** command does not provide an error message if the specified software channel does not exist. Before proceeding, confirm the registration was successful by listing the subscribed channels. To do this, enter the command:
>
> ```
> rhn-channel -/
> ```

For Red Hat Subscription Manager, enter the following commands to update the host and unsubscribe from the **current** channel and instead subscribe to the **minor** channel.

```
yum update
```

```
subscription-manager repos --disable=jb-eap-6-for-rhel-7-server-rpms --enable=jb-eap-6.4-for-rhel-7-server-rpms
```

2.6.7. Install JBoss EAP 6 (Graphical RPM Installation)

Prerequisites:

- Section 2.2, "JBoss EAP 6 Installation Prerequisites"

Summary

The Graphical RPM package method of installing JBoss EAP 6 is available for Red Hat Enterprise Linux 5 and Red Hat Enterprise Linux 6. This topic covers the steps required to complete the installation.

Procedure 2.9. Install JBoss EAP 6 (Graphical RPM Installation)

Use PackageKit to graphically install JBoss EAP 6 on your target machine.

1. **Launch PackageKit**
   PackageKit is an open source package management software installed as part of Red Hat Enterprise Linux. On the target machine launch PackageKit by selecting **System → Administration → Add/Remove Software**.

2. Type **jboss-eap6** in the search box and then press the **Find** button. You will be presented with the JBoss EAP 6 package in the result box.

3. Select the JBoss EAP 6 package and press the **Apply** button. See figure below.
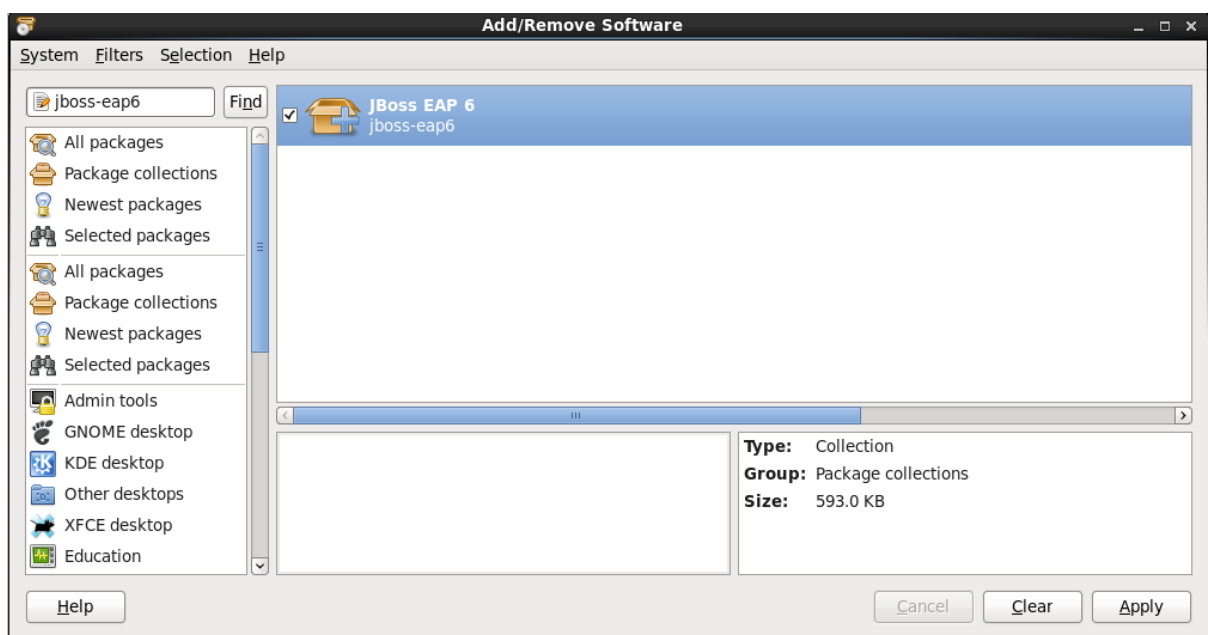
Figure 2.2. JBoss EAP 6 PackageKit Install

4. Follow the rest of the steps to install JBoss EAP 6 on your target machine.

Result

The installation is complete and JBoss EAP 6 is installed in your target machine.

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2.6.8. Install JBoss EAP 6 (Text-based RPM Installation)

Prerequisites:

- Section 2.2, "JBoss EAP 6 Installation Prerequisites"

Summary

The RPM package method of installing JBoss EAP 6 is appropriate for Red Hat Enterprise Linux 5, Red Hat Enterprise Linux 6, and Red Hat Enterprise Linux 7. This topic covers the steps required to install an instance using the command line.

Procedure 2.10. Install JBoss EAP 6 (Text–based RPM Installation)

1. **Install the RPM packages**
   Use YUM to install the default JBoss EAP 6 group package by using the **groupinstall** command.

   ```
   yum groupinstall jboss-eap6
   ```

2. **Configure initialization options.**
   The RPM install contains initialization scripts for launching the server. The configuration for the initialization scripts are contained in several additional files. Refer to Section A.4, "RPM Installation Configuration Files for JBoss EAP 6" for details about these files and the options contained within.

Result

The installation is complete. The default **EAP_HOME** path for the RPM installation is **/usr/share/jbossas**. Refer to Section A.3, "RPM Package List for JBoss EAP 6" for a complete list of all the packages installed.

Report a bug

2.6.9. Configure RPM Service Properties

This section shows you how to configure the RPM service properties and other startup options for your JBoss EAP installation. Note that it is recommended to back up your configuration files before making modifications.

See Section A.4, "RPM Installation Configuration Files for JBoss EAP 6" for a listing of all available startup configuration options for an RPM installation.

- Specify the server configuration file.

  - When starting a standalone server, the **standalone.xml** file is used by default. When running in a managed domain, the **host.xml** file is used by default. You can start JBoss EAP with a different configuration file by setting the **JBOSS_SERVER_CONFIG** property in the appropriate RPM configuration file, for example, **/etc/sysconfig/jbossas**. See Section A.4, "RPM Installation Configuration Files for JBoss EAP 6" for the list of RPM configuration files.

    ```
    JBOSS_SERVER_CONFIG="standalone-full-ha.xml"
    ```

- Set JVM options or Java properties.

  - You can specify JVM options or Java properties to pass into the JBoss EAP startup script by editing the startup configuration file. This file is **EAP_HOME/bin/standalone.conf** for a standalone server or **EAP_HOME/bin/domain.conf** for a managed domain. The below example configures the heap size and binds the JBoss EAP management interfaces to an IP address.

    ```
    JAVA_OPTS="$JAVA_OPTS -Xms2048m -Xmx2048m"
    JAVA_OPTS="$JAVA_OPTS -Djboss.bind.address.management=192.168.0.1"
    ```

Report a bug

2.7. AUTOMATED INSTALLATION

2.7.1. Install Multiple Instances of JBoss EAP 6 (Installer)

Prerequisites

- Generate an automatic installation script using the Graphical or Text-based Installer:

    - . Section 2.5.2, "Run the JBoss EAP Installation Program"

Summary

Multiple identical instances of JBoss EAP 6 can be installed using an automatic installation script, generated during the installation process, using either the Graphical or Text-based installer. This topic covers the steps required to install JBoss EAP 6 using a generated script.

Procedure 2.11. Automated Installation

- In a terminal, run the following command to install JBoss EAP 6 using the automatic installation script:

    ```
    java -jar jboss-eap-6.x.x-installer.jar auto.xml
    ```


    NOTE

    When you use the automatic installation script (auto.xml) for automated installation the installer by default will generate a prompt for entering all passwords.

Result

An identical instance of JBoss EAP 6 has been installed, based on the automatic installation script.

Report a bug

2.7.2. Use Automatic Installation Script (auto.xml) from Different Sources for Installing JBoss EAP 6

The installer can use the automatic installation script (**auto.xml**) from any of the network locations irrespective of where it is being run. Thus the installer (**jboss-eap-6.x.x-installer.jar**) and the automatic installation script (**auto.xml**) can be located on different machines. This topic covers the steps to install JBoss EAP 6 automatically from a different network location.

- In a terminal type either of the following commands to specify the automatic installation script (present at a different network location) to your current network location.

    To access the installation script via HTTP, enter the following command, replacing **network-host** with the hostname of the FTP or HTTP server and **auto.xml** with the filename of the installation script.

    ```
    java -jar jboss-eap-6.x.x-installer.jar http://network-host/auto.xml
    ```

    To access the installation script via FTP, enter the following command:

```
java -jar jboss-eap-6.x.x-installer.jar ftp://network-host/auto.xml
```

Result

JBoss EAP 6 is installed on your machine.

Report a bug

2.8. AUTOMATED INSTALLATION APPROACHES

2.8.1. About Automated Installation Approaches

Prerequisites

Run the installer and generate an automatic installation script using Graphical or Text-based installer: Section 2.5.2, "Run the JBoss EAP Installation Program"

Summary

You may use two approaches to install JBoss EAP 6 automatically using the automatic installation script generated by the installer:

- The first approach is to specify all the key/password values needed for automatic installation in the automatic installation variable file

- The second approach is to specify the key/password values during install time

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2.8.2. Install JBoss EAP 6 by Pre-setting the Key/Password Values in the Automatic Installation Variable File

Use the following procedure to automatically install JBoss EAP 6 by pre-setting the key/password values in the automatic installation variable file.

Procedure 2.12.

1. **Enter key values in variable file**
   JBoss EAP 6 installer creates an automatic installation script and an automatic installation variable file. The automatic installation variable file contains a list of keys and password parameters needed for automatic installation. To enter key values open the automatic installation variable file. Fill in a valid key/password value against each key parameter. For example:

   ```
   adminPassword = password#2
   vault.keystorepwd = vaultkeystorepw
   ssl.password = user12345
   ```

2. **Run the installer with the variablefile filename argument to begin automated installation**
   You can begin a fully automated JBoss EAP installation by running the installer with the *variablefile* argument. This argument supplies the variable file key/password values (step 1) to the installer.To begin a fully automated installation, open a terminal and enter the following command, replacing **auto.xml** and **auto.xml.variables** with the names of your files:

   ```
   java -jar jboss-eap-6.x.x-installer.jar auto.xml -variablefile auto.xml.variables
   ```

Result

JBoss EAP 6 is installed on your machine.

2.8.3. Install JBoss EAP 6 automatically by Specifying the Key Values/Passwords During Installation

Use the following procedure to automatically install JBoss EAP 6 by specifying the key values/passwords during installation.

Procedure 2.13.

- **Run the Installer with the Variables Argument**
  Start the automated installation by running the installer with the *variables* argument and then specifying a variable list. The *variables* specifies the variables and their key or password values during installation. To initiate the installation process open a terminal and enter the following command, replacing the filename **auto.xml** and the variables' values with your own:

  > java -jar jboss-eap-6.x.x-installer.jar auto.xml -variables
  > adminPassword=password#2,vault.keystorepwd=vaultkeystorepw,ssl.password=user12345

  NOTE

  It is important to specify the variable names (adminPassword, keystorepwd and ssl.password) without any empty space for successful installation.

2.9. INSTALLING NATIVE COMPONENTS AND UTILITIES

Native Components are optional components which have been compiled to be optimized for a specific operating system and architecture. In some cases, using the native components may provide performance improvements. Native Components include native support for HornetQ (AIO), and the Tomcat Native Library. For more information, see Section 2.10.2, "Configure JBoss EAP 6 as a Service in Red Hat Enterprise Linux (Zip, Installer)" and the *Jsvc* section of the *Administration and Configuration Guide*.

Native Utilities are optional utilities specific to each supported operating system and architecture. These include scripts and utilities for installing JBoss EAP 6 as a service in your operating system, and generating SSL encryption keys and certificates.

In addition to Native Components and Native Utilities, Webserver Connector Natives are used for load balancing and clustering. See the *Administration and Configuration Guide* to configure Webserver Connector Natives.

2.9.1. Install Native Components and Native Utilities (Zip, Installer)

Prerequisites

- Install JBoss EAP 6 using the Zip installation, Graphical Installer, or Text-based Installer:

  - Section 2.3.2, "Install JBoss EAP 6 (ZIP Installation)" .

  - Section 2.5.2, "Run the JBoss EAP Installation Program"

- Access to the Management CLI or the Management Console for the JBoss EAP 6 server. Refer to *Launch the Management CLI* or *Log in to the Management Console* in the *Administration and Configuration Guide*.

- For Native Components in Red Hat Enterprise Linux 6 and 7 environments:

  - Ensure that the Apache Portability Runtime (APR) and OpenSSL libraries are installed and updated to the latest version available in the official repositories. Outdated OpenSSL libraries can cause issues as more recent JBoss EAP Native Components require features not available in older versions of OpenSSL. To ensure they are updated, open a terminal and enter the following command:

    ```
    sudo yum update apr apr-util openssl
    ```

  - If you intend to use the Tomcat Native Library which is part of the JBoss EAP Native Components, the operating system package **tomcatjss** must be removed before installation.

- For Native Components in a HP-UX environment, OpenSSL must be installed.

Procedure 2.14. Download and Install Native Components

1. Download the Native Components package for your operating system and architecture from the Red Hat Customer Portal. You can download the packages from the same location specified in Section 2.3.1, "Download JBoss EAP 6 (Zip Installation)" .

2. Extract the downloaded Native Components zip archive over your JBoss EAP 6 installation.

   You can verify a successful extraction by checking if there is a new folder for your operating system and architecture in *EAP_HOME*/**modules/system/layers/base/org/jboss/as/web/main/lib/**.

3. Using the Management CLI, activate the native components for the web subsystem with the following command:

   ```
   /subsystem=web:write-attribute(name=native,value=true)
   ```

4. Restart the JBoss EAP 6 server to apply the changes.

Procedure 2.15. Download and Install Native Utilities

1. Download the Native Utilities package for your operating system and architecture from the Red Hat Customer Portal. You can download the packages from the same location specified in Section 2.3.1, "Download JBoss EAP 6 (Zip Installation)" .

2. Extract the downloaded Native Components zip archive over your JBoss EAP 6 installation.

   You can verify a successful extraction by checking if there is **native** directory in *EAP_HOME*/**modules/system/layers/base/**.

3. Refer to procedures in the JBoss EAP documentation suite and on the Red Hat Customer Portal to configure specific native utilities features.

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2.9.2. Install Native Components and Native Utilities (RPM Installation)

You can use the RPM installation method to install native components, utilities and all the corresponding dependencies only if you have installed EAP using RPM installation method. The RPM package method of installing natives is appropriate for Red Hat Enterprise Linux 5, 6 and 7. This topic covers the steps required to install the native components and utilities using the command line.

Prerequisites

- Section 2.2, "JBoss EAP 6 Installation Prerequisites"

Procedure 2.16. Install Native Components and Native Utilities

1. **Install native components and utilities**
   To install native components and utilities in Red Hat Enterprise Linux 5, 6 and 7 (with their dependencies) run the following command using your administration account, replacing **package_name** with name of the native component which you need to install:

   yum install *package_name*

   You can install these native components: **mod_cluster-native**, **mod_jk**, **mod_rt**, **mod_snmp**, **apache-commons-daemon-jsvc-eap6**, **httpd**, **httpd-devel**, **jbossas-hornetq-native**, **jbossas-jbossweb-native**.
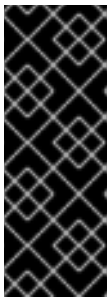
   ### IMPORTANT

   The native components **jbossas-hornetq-native** and **jbossas-jbossweb-native** are installed by default when you run the **yum groupinstall jboss-eap6** command to install JBoss EAP 6 group package. If you have used Section 2.6.7, "Install JBoss EAP 6 (Graphical RPM Installation)" or Section 2.6.8, "Install JBoss EAP 6 (Text-based RPM Installation)" for JBoss EAP 6 installation you need not install **jbossas-hornetq-native** and **jbossas-jbossweb-native**.

   ### NOTE

   It is important to give the correct package name in order to install a specific native component. Package names are case sensitive. In Red Hat Enterprise Linux 7 the name of the **httpd** package is **httpd22**. Therefore the package **httpd** must be replaced with **httpd22** when you run **yum install *package_name*** command for installing Apache HTTP server in Red Hat Enterprise Linux 7.

2. **Restart the server**
   Restart the JBoss EAP 6 server to apply the changes

Report a bug

2.10. SERVICE CONFIGURATION

2.10.1. Configure JBoss EAP 6 as a Service in Red Hat Enterprise Linux (RPM Method)

Prerequisites

- Install JBoss EAP 6 using the RPM Method (Graphical or Text Based).

    - Section 2.6.7, "Install JBoss EAP 6 (Graphical RPM Installation)"

    - Section 2.6.8, "Install JBoss EAP 6 (Text-based RPM Installation)"

- Administrator privileges on the server are required.

IMPORTANT

It is not supported to configure more than one JBoss EAP instance as a system service on a single machine.

Summary

Use the following procedure to install JBoss EAP 6 as a service on Red Hat Enterprise Linux when the installation has been done using the RHN (RPM) method.

Procedure 2.17. Configure JBoss EAP 6 as a Service using the RPM Method in Red Hat Enterprise Linux

1. **Install JBoss EAP 6**
   Install JBoss EAP 6 via the RPM method using one of the steps listed in the prerequisite sections listed above.

2. **Enable the service**
   The RPM install method for JBoss EAP 6 installs the requisite service files in their correct locations. All you need to do to set it up as service is issue the following command:

   ```
   chkconfig jbossas on
   ```

   To set it up as a service in domain mode, issue the following command:

   ```
   chkconfig jbossas-domain on
   ```

Result

JBoss EAP 6 starts automatically when the Red Hat Enterprise Linux reaches its default run-level, and stops automatically when the operating system goes through its shutdown routine.

Report a bug

2.10.2. Configure JBoss EAP 6 as a Service in Red Hat Enterprise Linux (Zip, Installer)

Prerequisites

- Install JBoss EAP 6 using the Zip installation, Graphical Installer, or Text-based Installer:

- ○ Section 2.3.2, "Install JBoss EAP 6 (ZIP Installation)" .

  - ○ Section 2.5.2, "Run the JBoss EAP Installation Program".

- Administrator privileges on the server are required.

Summary

Use the following procedure to install JBoss EAP 6 as a service on Red Hat Enterprise Linux when the installation has been done with either the zip, text, or graphical methods. This process does not apply when the installation has been done using the RHN (RPM) method.

Procedure 2.18. Set Up the Service

NOTE

The steps below describe running JBoss EAP 6 as a service in standalone mode. In order to run JBoss EAP 6 as a service in domain mode, use the same steps but replace **jboss-as-standalone.sh** with **jboss-as-domain.sh**.

1. **Locate the start-up script and configuration file**
   The start-up script and an associated configuration file are located in the **EAP_HOME/bin/init.d/** directory.

2. **Customize the start-up options in thejboss-as.conf file**
   Open the file **jboss-as.conf** in a text editor. There are several options within the **jboss-as.conf** file. At the minimum, specify the correct values for **JBOSS_HOME** and the **JBOSS_USER** variables. If these variables are absent, add them.

3. **Copy files into system directories**

   a. Create the **/etc/jboss-as** directory if it doesn't already exist.

      ```
      sudo mkdir /etc/jboss-as
      ```

   b. Copy the modified configuration file to the **/etc/jboss-as** directory.

      ```
      sudo cp EAP_HOME/bin/init.d/jboss-as.conf /etc/jboss-as
      ```

   c. Copy the start-up script to the **/etc/init.d** directory.

      ```
      sudo cp EAP_HOME/bin/init.d/jboss-as-standalone.sh /etc/init.d
      ```

      To make the start-up script executable.

      ```
      sudo chmod +x /etc/init.d/jboss-as-standalone.sh
      ```

4. **Add the start-up script as a service.**
   Add the new **jboss-as-standalone.sh** service to list of automatically started services, using the **chkconfig** service management command.

   ```
   sudo chkconfig --add jboss-as-standalone.sh
   ```

5. **Start the service.**
   Test that the service has been installed correctly by using one of the following commands for Red Hat Enterprise Linux.

   - For Red Hat Enterprise Linux 5 and 6:

     ```
     sudo service jboss-as-standalone.sh start
     ```

   - For Red Hat Enterprise Linux 7:

     ```
     sudo service jboss-as-standalone start
     ```

   If everything has gone correctly, you should get a green [OK]. If you get an error, check the error logs and make sure your paths are correct in the configuration file.
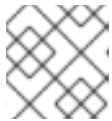
   > **NOTE**
   >
   > The green [OK] does not appear for Red Hat Enterprise Linux 7.

6. **Make the service start automatically when you restart your server.**
   To add the service to the list of services which start automatically when your server restarts, issue the following command.

   ```
   sudo chkconfig jboss-as-standalone.sh on
   ```

Result

JBoss EAP 6 starts automatically when the Red Hat Enterprise Linux reaches its default run-level, and stops automatically when the operating system goes through its shutdown routine.

Procedure 2.19. Uninstall the JBoss EAP 6 service from Red Hat Enterprise Linux
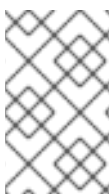
> **NOTE**
>
> The steps below describe uninstalling the JBoss EAP 6 service in standalone mode. In order to uninstall the JBoss EAP 6 service in domain mode, use the same steps but replace **jboss-as-standalone.sh** with **jboss-as-domain.sh**.

1. If the service is running, first open a terminal and stop the service by executing the **stop** command with the name of the service:

   ```
   sudo service jboss-as-standalone.sh stop
   ```

2. Remove JBoss EAP from the list of services:

   ```
   sudo chkconfig --del jboss-as-standalone.sh
   ```

3. Remove the system directory files.

   a. Remove the service start-up script:

```
sudo rm /etc/init.d/jboss-as-standalone.sh
```

b. Remove the service configuration file:

```
sudo rm /etc/jboss-as/jboss-as.conf
```

> **IMPORTANT**
>
> **/etc/jboss-as** is not a standard system directory. Only if there are no other files being used there, also remove the directory itself:
>
> ```
> sudo rm -rf /etc/jboss-as/
> ```

Result

JBoss EAP 6 service is uninstalled from the server.

Report a bug

2.10.3. Configure JBoss EAP 6 as a Service in Microsoft Windows Server (Zip, Installer)

Prerequisites

- Install JBoss EAP 6 using the Zip installation, Graphical Installer, or Text-based Installer:

  - Section 2.3.2, "Install JBoss EAP 6 (ZIP Installation)" .

  - Section 2.5.2, "Run the JBoss EAP Installation Program"

- Administrator privileges on the server are required.

- The **JAVA_HOME** system environment variable must be set.

- The JBoss EAP 6 server instance must not be running.

> **IMPORTANT**
>
> When setting system environment variables, using the **set** command at a Windows Server command prompt will not permanently set the environment variable. You must use either the **setx** command, or the **System** interface in the **Control Panel**.

Summary

Use the following procedures to configure JBoss EAP 6 as a service on Microsoft Windows Server.

Procedure 2.20. Configure a Service for JBoss EAP 6 in Microsoft Windows Server

1. **Create system environment variables**
    Create two system environment variables:

    - **JBOSS_HOME** pointing to the JBoss EAP 6 installation directory.

- **NOPAUSE=1**

2. **If not already configured, download and extract the Native Utilities package for your architecture**
   If the Native Utilities for Windows Server package has not been installed as part of the JBoss EAP 6 installation, download the relevant 32-bit or 64-bit package from the Red Hat Customer Portal at https://access.redhat.com. Extract the Native Utilities zip archive over the JBoss EAP 6 installation.

   This will result in a **native** directory in the following location in the JBoss EAP 6 installation:
   *EAP_HOME***\modules\system\layers\base**

3. **Install the service**
   Open a terminal, and change directories to
   *EAP_HOME***\modules\system\layers\base\native\sbin**

   A new service can be created with the **service install** command, with the available options shown in the following table.

Table 2.4. **service install** options

Argument or Switch	Description
/startup	Indicates the services to auto start. If not specified, the service is set to be started manually.
/controller *HOST:PORT*	The host and port of the management interface. If omitted, the default is **localhost:9999**.
/host [*DOMAIN_HOST*]	Indicates that domain mode is to be used, with an optional host controller name. If the host controller name is omitted, the default name **master** is used.
/loglevel *LEVEL*	The log level for the service, either: **ERROR**, **INFO**, **WARN** or **DEBUG**. If omitted, the default is **INFO**
/name *SERVICE_NAME*	The name of the service to be created, must not contain spaces. If omitted, the default is **JBossEAP6**
/desc "*DESCRIPTION*"	The description of the service. If omitted, the default is **"JBoss Enterprise Application Platform 6"**
/serviceuser *DOMAIN\USERNAME*	Specifies the name of the account under which the service will run. Use an account name in the format of *DOMAIN\USERNAME*. If omitted, the service runs as the Local System account.
/servicepass *PASSWORD*	Password for /serviceuser account.
/jbossuser *USERNAME*	Optional, the JBoss EAP 6 username to use for the shutdown command.

Argument or Switch	Description
/jbosspass *PASSWORD*	Password for /jbossuser account, required if /jbossuser is specified.
/config *XML_FILE*	Specifies the server-config to use. The default is **standalone.xml** or **domain.xml**.
/hostconfig *XML_FILE*	Specifies the host config to use in Domain mode only. The default is **host.xml**.
/base *directory*	Specifies the base directory for server/domain content as a fully qualified path. The default is **%JBOSS_HOME%\standalone** or **%JBOSS_HOME%\domain**.
/logpath *path*	Specifies the path of the log files. **/base** applies when **/logpath** is not defined. The default depends on the domain mode or standalone mode, **%JBOSS_HOME%\domain\log** or **%JBOSS_HOME%\standalone\log**.
/debug	Runs the service install in debug mode.

Below are basic examples of an **install** command to create a new service in either standalone or domain mode. Execute the following command, adjusting the log level for the service as required:

- Standalone mode:

  service.bat install /loglevel *INFO*

- Domain mode:

  If you are not using the default master for your JBoss EAP 6 domain controller, replace *master* with the correct host name or alias of the JBoss EAP 6 domain controller.

  service.bat install /host *master* /loglevel *INFO*

A new Windows service will be created with name **JBossEAP6**.

4. **Verify the new service in the Services console**
   Execute the following command in a terminal to open the Windows Services console:

   services.msc

   If the default service name was used, in the list of Windows services, the new service will have the display name: **JBossEAP6**. From the Services console you can start and stop the service, as well change its settings on how and when it starts.

5. **Starting and stopping the JBoss EAP 6 service from a terminal**
   To start the service from a terminal, use the following command, changing the service name if necessary:

> net start *JBossEAP6*

To stop the service from a terminal, use the following command, changing the service name if necessary:

> net stop *JBossEAP6*

Result

A JBoss EAP 6 service is configured in Microsoft Windows Server.

Procedure 2.21. Uninstall the JBoss EAP 6 service from Microsoft Windows Server

- If the service is running, first open a terminal and stop the service by executing the **net stop** command with the name of the service:

  > net stop *JBossEAP6*

  In a terminal, change directories to ***EAP_HOME*\modules\system\layers\base\native\sbin** and execute the following command:

  > service uninstall

Result

The JBoss EAP 6 service has been removed from Microsoft Windows Server.

[Report a bug](#)

CHAPTER 3. PATCHING AND UPGRADING JBOSS EAP 6

3.1. ABOUT PATCHES AND UPGRADES

Major Upgrades

A major upgrade or migration is required when an application is moved from one major release to another, for example, from JBoss EAP 5 to JBoss EAP 6. This type of migration is not addressed in this guide. For instructions on how to migrate from previous releases of JBoss EAP, see the *Migration Guide* for JBoss EAP 6 located on the Customer Portal at https://access.redhat.com/documentation/en-us/red_hat_jboss_enterprise_application_platform/?version=6.4.

Minor Updates

JBoss EAP periodically provides point releases, which are minor updates that include bug fixes, security fixes, and new features. Minor updates are not applied via patching. If you plan to migrate from one JBoss EAP point release to another, for example, from JBoss EAP 6.3 to JBoss EAP 6.4, code changes should not be required for applications that follow the Java EE specification and do not use any private, unsupported, or tech preview modules. Before you upgrade your JBoss EAP installation, be sure to review Section 3.3.1, "Prepare for the Upgrade" to avoid potential upgrade issues.

Cumulative Patches

JBoss EAP also periodically provides individual or cumulative patches that contain bug and security fixes. Cumulative patches increment the minor release version by the last digit, for example from 6.4.1 to 6.4.2. These patches do not require migration and should not impact the server configuration files. The CLI patch feature can also rollback the patch and the configuration if desired. The patching process is covered in detail in the following sections of this chapter.

See Also:

- Section 3.2, "Patching JBoss EAP 6"

- Section 3.3, "Upgrading JBoss EAP 6"

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3.2. PATCHING JBOSS EAP 6

3.2.1. About Patching Mechanisms

JBoss patches are distributed in two forms: zip (for all products) and RPM (for a subset of products).

> **IMPORTANT**
>
> A JBoss product installation must always only be updated using one patch method: either zip or RPM patches. Only security and cumulative patches will be available via RPM, and customers using an RPM installation will not be able to update using zip patches.

JBoss patches can be either an asynchronous update, or a planned update:

- Asynchronous updates: Individual patches which are released outside the normal update cycle of the existing product. These may include security patches, as well as other individual patches provided by Red Hat Global Support Services (GSS) to fix specific issues.

- Planned updates: The cumulative patches of an existing product, which includes all previously developed updates for that version of the product.

Deciding whether a patch is released as part of a planned update or an asynchronous update depends on the severity of the issue being fixed. An issue of low impact is typically deferred, and is resolved in the next cumulative patch or minor release of the affected product. Issues of moderate or higher impact are typically addressed in order of importance as an asynchronous update to the affected product, and contain a fix for only a specific issue.

Security updates for JBoss products are provided by an erratum (for both zip and RPM methods). The erratum encapsulates a list of the resolved flaws, their severity ratings, the affected products, textual description of the flaws, and a reference to the patches. Bug fix updates are not announced via an erratum.

> **IMPORTANT**
>
> It is important to note that after a patch has been applied, the jars picked up at runtime are picked up from the **EAP_HOME/modules/system/layers/base/.overlays/$PATCH_ID/$MODULE** directory. The original files are left in **EAP_HOME/modules/system/layers/base/$MODULE**. The patching mechanism cripples the original jar files for security reasons. This means that if you apply a patch which updates a module, the original module's jar files are altered to be unusable. If the patch is rolled back, the original files will be reverted back to a usable state. This also means that the proper rollback procedure must be used to rollback any applied patch. See Section 3.2.2.3, "Rollback the Application of a Patch in Zip Form Using the Patch Management System" for the proper rollback procedure.

For more information on how Red Hat rates JBoss security flaws, refer to: Section 3.2.5, "Severity and Impact Rating of JBoss Security Patches"

Red Hat maintains a mailing list for notifying subscribers about security related flaws. See Section 3.2.4, "Subscribe to Patch Mailing Lists"

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3.2.2. Patching a Zip/Installer Installation

3.2.2.1. The Patch Management System

The JBoss EAP 6 patch management system is used to apply downloaded ZIP patches to a single JBoss EAP 6 standalone server or domain host. It can be accessed either through the Management CLI by using the **patch** command, or through the Management Console.

The patch management system cannot be used to automatically patch JBoss EAP 6 hosts across a Managed Domain, but hosts in a Managed Domain can be patched individually. When you patch a managed domain host, all JBoss EAP servers on that host will be updated with the patch. When patching a JBoss EAP managed domain, the domain controller must be patched first.
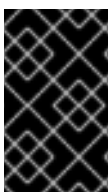
> **IMPORTANT**
>
> JBoss EAP 6 server instances which have been installed using the RPM method cannot be updated using the patch management system. See Section 3.2.3, "Patching an RPM Installation" to update RPM-installed JBoss EAP 6 servers.

> **NOTE**
>
> The patch management system can only be used with patches produced for versions of JBoss EAP 6.2 and later. For patches for versions of JBoss EAP prior to 6.2, you should instead refer to the relevant version's documentation available at https://access.redhat.com/documentation/en-US/JBoss_Enterprise_Application_Platform/.

In addition to applying patches, the patch management system can provide basic information on the state of installed patches, and also provides a way to immediately rollback the application of a patch.

When applying or rolling back a patch, the patch management system will check the modules and other miscellaneous files that it is changing for any user modifications. If a user modification is detected, and a conflict-handling switch has not been specified, the patch management system will abort the operation and warn that there is a conflict. The warning will include a list of the modules and other files that are in conflict. To complete the operation, it must be retried with a switch specifying how to resolve the conflict: either to preserve the user modifications, or to override them.

The table below lists the arguments and switches for the Management CLI **patch** command.

Table 3.1. **patch** Command Arguments and Switches

Argument or Switch	Description
apply	Applies a patch.
--override-all	If there is a conflict, the patch operation overrides any user modifications.
--override-modules	If there is a conflict as a result of any modified modules, this switch overrides those modifications with the contents of the patch operation.
--override=_path_(,_path_)	For specified miscellaneous files only, this will override the conflicting modified files with the files in the patch operation.
--preserve=_path_(,_path_)	For specified miscellaneous files only, this will preserve the conflicting modified files.
--host=_HOST_NAME_	Available for Managed Domain servers, this specifies the host that the patch operation will be performed on.
info	Returns information on currently installed patches. You can optionally provide **--patch-id=**_PATCH_ID_ **-v** for detailed information for a specific patch, including layer/add-on patches.
inspect	Inspects a downloaded patch file and returns important information about the patch.

Argument or Switch	Description
history	Returns information on the patching history.
rollback	Rollsback the application of a patch.
--patch-id=*PATCH_ID*	Required for rollback, the ID of the patch to rollback.
--reset-configuration=*TRUE*|*FALSE*	Required for rollback, this specifies whether to restore the server configuration files as part of the rollback operation.
--rollback-to	If the patch to rollback is an individual (one-off) patch, using this argument specifies that the rollback operation will also rollback all other one-off patches that have been applied on top of the specified patch.

Report a bug

3.2.2.2. Installing Patches in Zip Form Using the Patch Management System

Prerequisites:

- Section 2.2, "JBoss EAP 6 Installation Prerequisites"

Summary

Patches that are in the zip format can be installed using the JBoss EAP 6 patch management system via either the Management CLI or the Management Console.

IMPORTANT

The patch management system is a feature that was added in JBoss EAP 6.2. For versions of JBoss EAP prior to 6.2, the process to install patches in zip form is different, and you should instead refer to the relevant version's documentation available at https://access.redhat.com/documentation/en-US/JBoss_Enterprise_Application_Platform/.

Prerequisites

- Valid access and subscription to the Red Hat Customer Portal.

- A current subscription to a JBoss product installed in zip format.

- Access to either the Management CLI or the Management Console for the JBoss EAP 6 server to be updated. Refer to either the Log in to the Management Console or Launch the Management CLI chapters of the *Administration and Configuration Guide* for instructions on accessing these interfaces.

> **WARNING**
>
> Before installing a patch, you should backup your JBoss product along with all customized configuration files.

Procedure 3.1. Apply a zip patch to a JBoss EAP 6 server instance using the Management CLI

1. Download the patch zip file from the Customer Portal at https://access.redhat.com/downloads/

2. From the Management CLI, apply the patch with the following command including the appropriate path to the patch file:

   patch apply */path/to/downloaded-patch.zip*

   The **patch** tool will warn if there are any conflicts in attempting the apply the patch. Refer to Section 3.2.2.1, "The Patch Management System" for available **patch** command switches to re-run the command to resolve any conflicts.

3. Restart the JBoss EAP 6 server for the patch to take effect:

   shutdown --restart=true

Procedure 3.2. Apply a zip patch to a JBoss EAP 6 server instance using the Management Console

1. Download the patch zip file from the Customer Portal at https://access.redhat.com/downloads/

2. Navigate to the Patch Management View:

   - For a standalone server, in the Management Console, click on the **Administration** tab at the top of the screen, then click **Patch Management**.
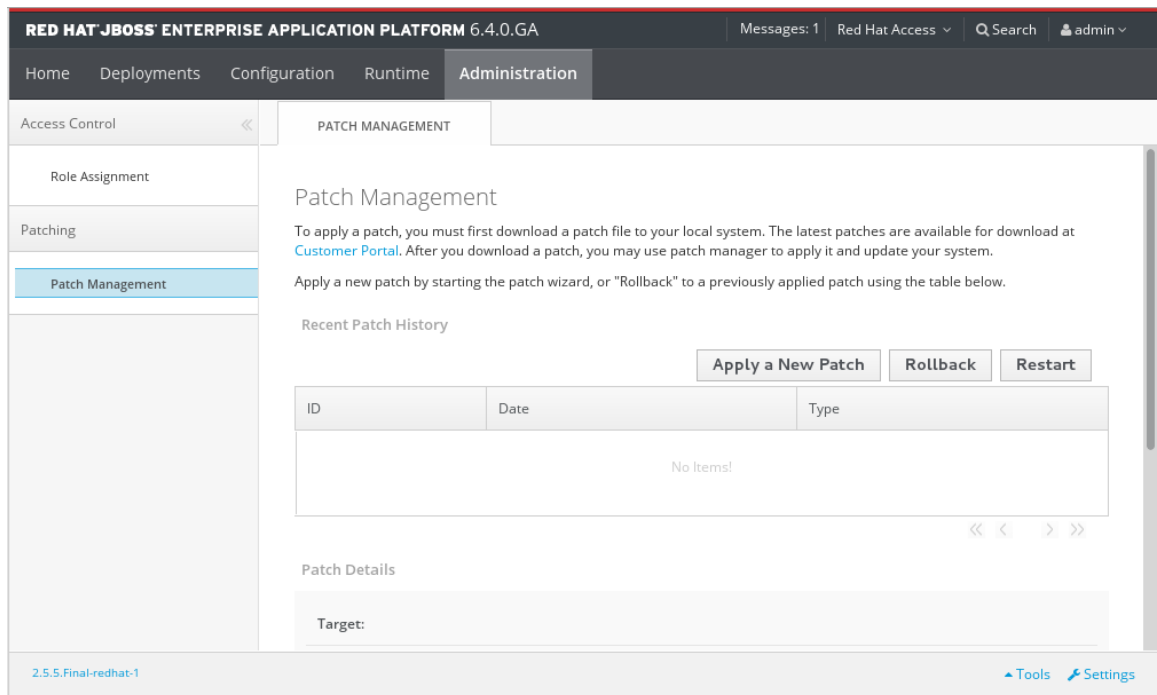
Figure 3.1. The Patch Management view for a standalone server

- For a managed domain, in the Management Console, click on the **Administration** tab at the top of the screen, then click **Patch Management**. Select the host you want to patch from the **Host** table, then click **View**.
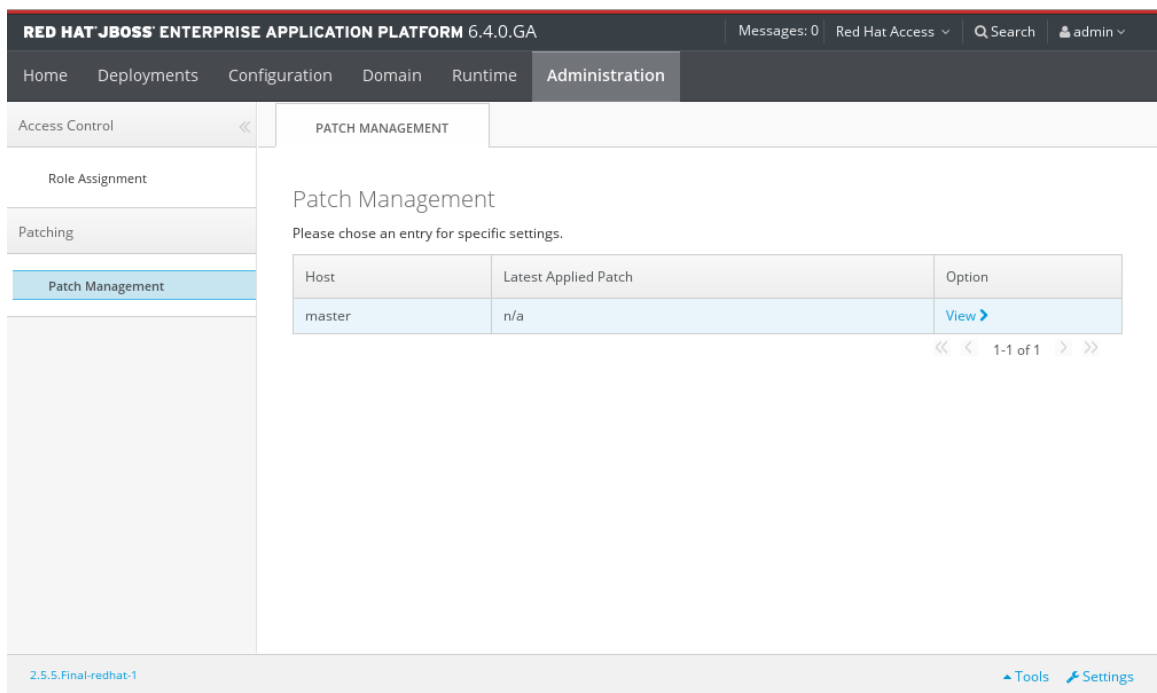
Figure 3.2. The Patch Management view for a managed domain

3. Click **Apply a New Patch**.

   a. If you are patching a managed domain host, on the next screen select whether to shutdown the servers on the host, and click **Next**.

4. Click the **Browse** button, select the downloaded patch you want to apply, and then click **Next**.
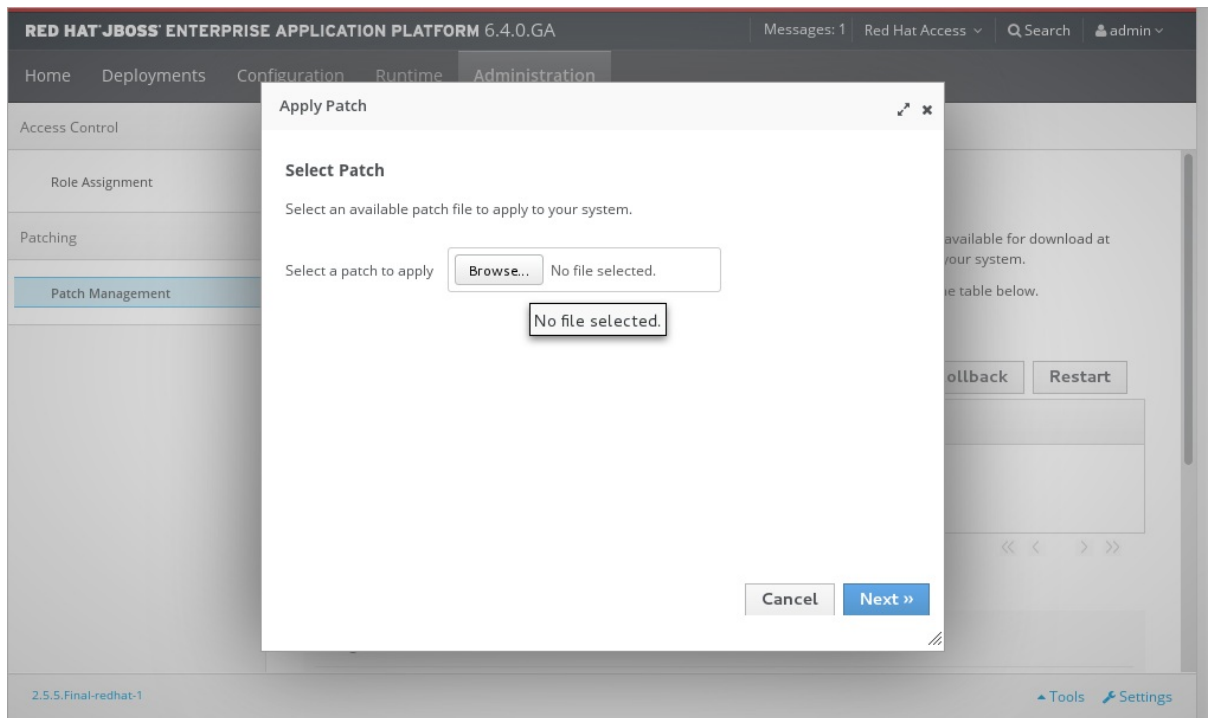
Figure 3.3. Apply Patch dialog

    a. If there are any conflicts in attempting to apply the patch, a warning will be displayed. Click **View error details** to see the detail of the conflicts. If there is a conflict, you can either cancel the operation, or select the **Override all conflicts** check box and click **Next**. Overriding conflicts will result in the content of the patch overriding any user modifications.

5. After the patch has been successfully applied, select whether to restart the JBoss EAP 6 server now for the patch to take effect, and click **Finish**.

Result

The JBoss EAP 6 server instance is patched with the latest update.

[Report a bug](#)

3.2.2.3. Rollback the Application of a Patch in Zip Form Using the Patch Management System

Summary

The JBoss EAP 6 patch management system can be used to rollback the application of a previously applied zip patch, via either the Management CLI or the Management Console.

> ⚠️ **WARNING**
>
> Rolling back the application of a patch using the patch management system is not intended as a general uninstall functionality. It is only intended to be used immediately after the application of a patch which had undesirable consequences.

IMPORTANT

The patch management system is a feature that was added in **JBoss EAP 6.2**. For versions of JBoss EAP prior to 6.2, the process to rollback patches in zip form is different, and you should instead refer to the relevant version's documentation available at https://access.redhat.com/documentation/en-us/red_hat_jboss_enterprise_application_platform/?version=6.4.

Prerequisites

- A patch that was previously applied using the JBoss EAP 6 patch management system.

- Access to the Management CLI or the Management Console for the JBoss EAP 6 server. See *Launch the Management CLI* or *Log in to the Management Console* in the *Administration and Configuration Guide* located on the Customer Portal at https://access.redhat.com/documentation/en-us/red_hat_jboss_enterprise_application_platform/?version=6.4.

WARNING

When following either procedure, use caution when specifying the value of the **Reset Configuration** option:

If set to **TRUE**, the patch rollback process will also rollback the JBoss EAP 6 server configuration files to their pre-patch state. Any changes that were made to the JBoss EAP 6 server configuration files after the patch was applied will be lost.

If set to **FALSE**, the server configuration files will not be rolled back. In this situation, it is possible that the server will not start after the rollback, as the patch may have altered configurations, such as namespaces, which may no longer be valid and have to be fixed manually.

Procedure 3.3. Rollback a patch from a JBoss EAP 6 server instance using the Management CLI

1. From the Management CLI, use the **patch info** command to find the ID of the patch that is to be rolled back.

   - For cumulative patches, the patch ID is the value of the first **cumulative-patch-id** shown in the **patch info** output.

   - Individual security or bug fix patch IDs are listed as the value of the first **patches** shown in the **patch info** output, with the most recently applied individual patch listed first.

2. From the Management CLI, rollback the patch with the appropriate patch ID from the previous step.

   ```
   patch rollback --patch-id=PATCH_ID --reset-configuration=TRUE
   ```

   The **patch** tool will warn if there are any conflicts in attempting the rollback the patch. Refer to Section 3.2.2.1, "The Patch Management System" for available **patch** command switches to re-run the command to resolve any conflicts.

3. Restart the JBoss EAP 6 server for the patch rollback to take effect:

> shutdown --restart=true

Procedure 3.4. Rollback a patch from a JBoss EAP 6 server instance using the Management Console

1. In the Management Console:

   - For a standalone server: click on the **Administration** tab at the top of the screen, then click **Patch Management**.

   - For a managed domain: click on the **Administration** tab at the top of the screen, then click **Patch Management**. From the **Patch Management** table, select the relevant host, then click **View**.

2. In the **Recent Patch History** table, select the patch that you want to rollback, then click **Rollback**.

Figure 3.4. Recent Patch History table for Patch Management

   a. For a managed domain host, on the next screen select whether to shutdown the servers on the host, and click **Next**.

3. Choose your options for the rollback process, then click **Next**.
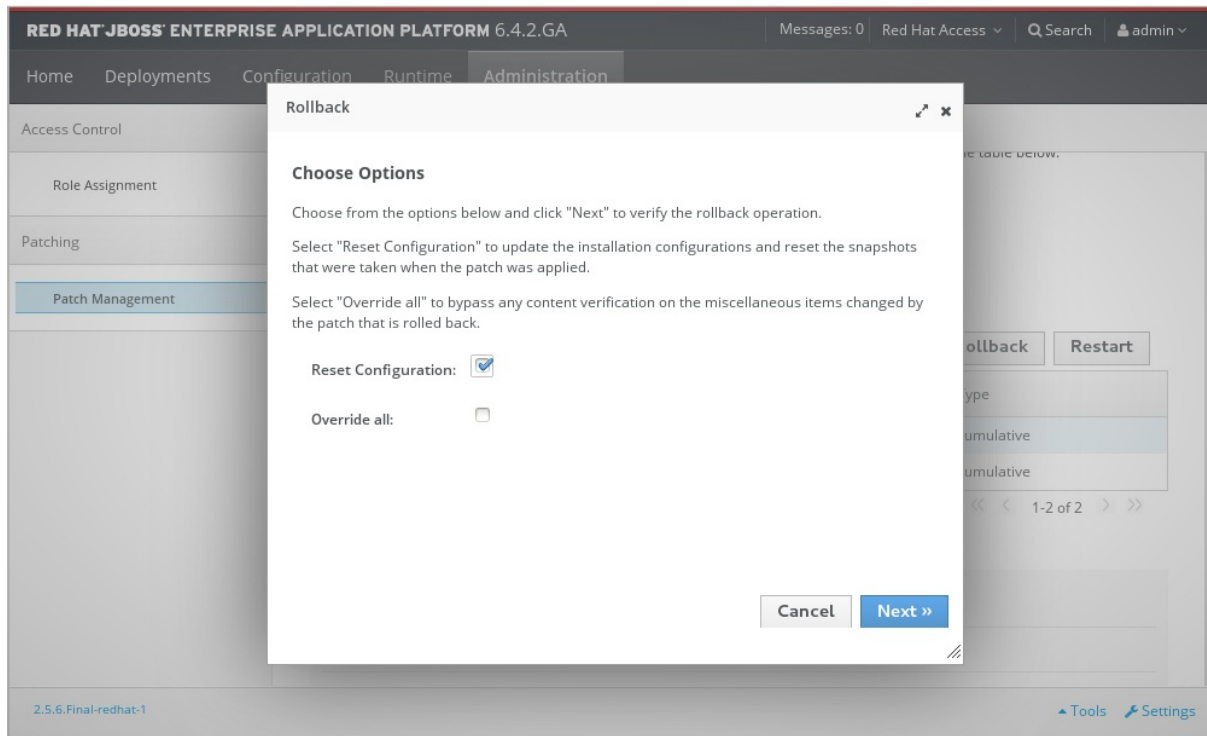
Figure 3.5. Choose Options dialogue

4. Confirm the options and the patch to be rolled back, then click **Next**.

   a. If the **Override all** option was not selected and there are any conflicts in attempting to rollback the patch, a warning will be displayed. Click **View error details** to see the detail of the conflicts. If there is a conflict, you can either cancel the operation, or click **Choose Options** and try the operation again with the **Override all** check box selected. Overriding conflicts will result in the rollback operation overriding any user modifications.

5. After the patch has been successfully rolled back, select whether to restart the JBoss EAP 6 server now for the changes to take effect, and click **Finish**.

Result

The patch, and optionally also the server configuration files, are rolled back on the JBoss EAP 6 server instance.

[Report a bug](#)

3.2.2.4. Clearing Patch History

When patches are applied to a JBoss EAP 6 server, the content and history of the patches are preserved for use in rollback operations. If multiple cumulative patches are applied, the patch history may use a significant amount of disk space.

You can use the Management CLI command below to remove all older patches that are not currently in use. When using this command, only the latest cumulative patch is preserved along with the GA release. This is only useful for freeing space if multiple cumulative patches have previously been applied.

```
/core-service=patching:ageout-history
```

> **IMPORTANT**
>
> If you clear the patch history, you will not be able to rollback a previously applied patch.

3.2.3. Patching an RPM Installation

Prerequisites:

- Section 2.2, "JBoss EAP 6 Installation Prerequisites"

Summary

JBoss patches are distributed in two forms: ZIP (for all products) and RPM (for a subset of products). This task describes the steps you need to take to install the patches via the RPM format.

Prerequisites

- A valid subscription to the Red Hat Network.

- A current subscription to a JBoss product installed via an RPM package.

Procedure 3.5. Apply a patch to a JBoss product via the RPM method

Security updates for JBoss products are provided by errata (for both zip and RPM methods). The errata encapsulates a list of the resolved flaws, their severity ratings, the affected products, textual description of the flaws, and a reference to the patches.

For RPM distributions of JBoss products, the errata include references to the updated RPM packages. The patch can be installed by using **yum**.

> **NOTE**
>
> Only zip installations allow for patching using the Management Console or Management CLI **patch** command.

> **WARNING**
>
> Before installing a patch, you must backup your JBoss product along with all customized configuration files.

1. Get notified about the security patch either via being a subscriber to the JBoss watch mailing list or by browsing the JBoss watch mailing list archives.

2. Read the errata for the security patch and confirm that it applies to a JBoss product in your environment.

3. If the security patch applies to a JBoss product in your environment, then follow the link to download the updated RPM package which is included in the errata.

4. Use

> yum update

to install the patch.

> **IMPORTANT**
>
> When updating an RPM installation, your JBoss product is updated cumulatively with all RPM-released fixes.

Result

The JBoss product is patched with the latest update using the RPM format.

Report a bug

3.2.4. Subscribe to Patch Mailing Lists

Summary

The JBoss team at Red Hat maintains a mailing list for security announcements for Red Hat JBoss Middleware products. This section covers what you need to do to subscribe to this list.

Prerequisites

- None

Procedure 3.6. Subscribe to the JBoss Watch List

1. Click the following link to go to the JBoss Watch mailing list page: JBoss Watch Mailing List.

2. Enter your email address in the **Subscribing to Jboss-watch-list** section.

3. [You can enter your name and select a password for yourself. Doing so is optional but recommended.]

4. Press the **Subscribe** button to start the subscription process.

5. You can browse the archives of the mailing list by going to: JBoss Watch Mailing List Archives.

Result

After confirmation of your email address, you will be subscribed to receive security related announcements from the JBoss patch mailing list.

Report a bug

3.2.5. Severity and Impact Rating of JBoss Security Patches

To communicate the risk of each JBoss security flaw, Red Hat uses a four-point severity scale of low, moderate, important and critical, in addition to Common Vulnerability Scoring System (CVSS) version 2 base scores which can be used to identify the impact of the flaw.

Table 3.2. Severity Ratings of JBoss Security Patches

Severity	Description
Critical	This rating is given to flaws that could be easily exploited by a remote unauthenticated attacker and lead to system compromise (arbitrary code execution) without requiring user interaction. These are the types of vulnerabilities that can be exploited by worms. Flaws that require an authenticated remote user, a local user, or an unlikely configuration are not classed as critical impact.
Important	This rating is given to flaws that can easily compromise the confidentiality, integrity, or availability of resources. These are the types of vulnerabilities that allow local users to gain privileges, allow unauthenticated remote users to view resources that should otherwise be protected by authentication, allow authenticated remote users to execute arbitrary code, or allow local or remote users to cause a denial of service.
Moderate	This rating is given to flaws that may be more difficult to exploit but could still lead to some compromise of the confidentiality, integrity, or availability of resources, under certain circumstances. These are the types of vulnerabilities that could have had a critical impact or important impact but are less easily exploited based on a technical evaluation of the flaw, or affect unlikely configurations.
Low	This rating is given to all other issues that have a security impact. These are the types of vulnerabilities that are believed to require unlikely circumstances to be able to be exploited, or where a successful exploit would give minimal consequences.

The impact component of a CVSS v2 score is based on a combined assessment of three potential impacts: Confidentiality (C), Integrity (I) and Availability (A). Each of these can be rated as None (N), Partial (P) or Complete (C).

Because the JBoss server process runs as an unprivileged user and is isolated from the host operating system, JBoss security flaws are only rated as having impacts of either None (N) or Partial (P).

Example 3.1. CVSS v2 Impact Score

The example below shows a CVSS v2 impact score, where exploiting the flaw would have no impact on system confidentiality, partial impact on system integrity and complete impact on system availability (that is, the system would become completely unavailable for any use, for example, via a kernel crash).

C:N/I:P/A:C

Combined with the severity rating and the CVSS score, organizations can make informed decisions on the risk each issue places on their unique environment and schedule upgrades accordingly.

For more information about CVSS2, please see: CVSS2 Guide.

Report a bug

3.2.6. Manage Security Updates for Dependencies Bundled Inside the Applications Deployed on JBoss EAP

Red Hat provides security patches for all components that are part of the JBoss EAP distribution. However, many users of JBoss EAP deploy applications which bundle their own dependencies, rather than exclusively using components provided as part of the JBoss EAP distribution. For example, a deployed WAR file may include dependency JARs in the WEB-INF/lib/ directory. These JARs are out of scope for security patches provided by Red Hat. Managing security updates for dependencies bundled inside the applications deployed on JBoss EAP is the responsibility of the applications' maintainers. The following tools and data sources may assist in this effort, and are provided without any support or warranty.

Tools and Data Sources

JBoss patch mailing lists

Subscribing to the JBoss patch mailing lists will keep you informed regarding security flaws that have been fixed in JBoss products, allowing you to check whether your deployed applications are bundling vulnerable versions of the affected components.

Security advisory page for bundled components.

Many open source components have their own security advisory page. For example, Struts 2 is a commonly-used component with many known security issues that is not provided as part of the JBoss EAP distribution. The Struts 2 project maintains an upstream security advisory page, which should be monitored if your deployed applications bundle Struts 2. Many commercially-provided components also maintain security advisory pages.

Regularly scan your deployed applications for known vulnerabilities

There are several commercial tools available to do this. There is also an open source tool called Victims, which is developed by Red Hat employees, but comes with no support or warranty. Victims provides plugins for several build and integration tools, which automatically scan applications for bundling known-vulnerable dependencies. Plugins are available for Maven, Ant and Jenkins. For more information about the Victims tool, see https://victi.ms/about.html.

Report a bug

3.3. UPGRADING JBOSS EAP 6

3.3.1. Prepare for the Upgrade

Before you upgrade JBoss EAP using the ZIP or RPM installation, you need to be aware of the following potential issues.

- This update may remove temporary folders. Any standalone or domain managed deployments stored in the **data/content/** directory must be backed up prior to the update and restored after it completes, otherwise the server will fail to start due to the missing content.

- Prior to applying the update, handle any open transactions. Then delete the **data/tx-object-store/** transaction directory.

- If you backup and restore your configuration files when updating to newer point releases, you could overwrite new configurations and prevent new features from being enabled automatically. The suggested approach is to compare the old configuration to the new configuration and only reapply specific configurations you need to keep. This can be done manually or by creating a CLI script that can apply the changes consistently to multiple server configuration files.

- You can copy an existing configuration for an update, but the server restart updates the file and it may no longer be compatible with the previous version of the server.

- The persistent timer **data/timer-service-data** data must be checked to determine whether it is compatible. Before the update, review the **deployment-*BEAN_NAME*** files in that folder to determine which timers are still in use.

Report a bug

3.3.2. Upgrade the JBoss EAP 6 ZIP Installation

Prerequisites

- Ensure that the base operating system is up to date.

- Determine which files have been modified since JBoss EAP 6 was installed.

- Back up any modified configuration files, deployments, and all user data.

- Section 2.3.1, "Download JBoss EAP 6 (Zip Installation)".

Summary

This procedure covers upgrading a JBoss EAP 6 ZIP installation between minor versions (for example, from JBoss EAP 6.1 to 6.2). For installing patches for a specific minor version, refer to the *Patch Installation* section. Upgrading to the latest release of JBoss EAP 6 requires some initial work to back up the existing installation.

> ⚠️ **WARNING**
>
> For managed domains, the master Host Controller (or Domain Controller) instance should be upgraded first, before each Host Controller is upgraded.

Procedure 3.7. Upgrade to the latest JBoss EAP 6 version

1. Move the downloaded ZIP archive to the desired location. It is recommended that this is a different location to the existing JBoss EAP 6 installation.
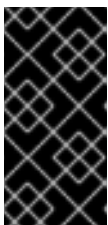
   IMPORTANT

   If you wish to install the latest version of JBoss EAP 6 to the same directory location as the existing installation, you will need to move the existing installation to a different location before proceeding. This is to prevent modified configuration files, deployments, and upgrades from being lost.

2. Unzip the archive. This step installs a clean instance of the latest JBoss EAP 6 release.

3. Copy the *EAP_HOME*/domain/ and *EAP_HOME*/standalone/ directories from the previous installation over the new installation directories.
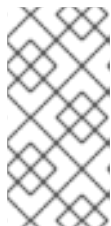
> **NOTE**
>
> New features in the new release, such as new subsystems, may not be activated if configuration files are copied from an older JBoss EAP 6 installation. To use these new features, it is necessary to compare and update the old configuration files with the ones from the new version.

4. Review the changes made to the **bin** directory of the previous installation, and make the equivalent modifications to the new directory.

> **WARNING**
>
> Files in the **bin** directory should not be overwritten by the files from previous versions. Changes should be made manually.

5. Review the remaining modified files from the previous installation, and move these changes into the new installation. These files may include:

   - The **welcome-content** directory.

   - Custom modules in the **modules** directory.

   - Custom bundles in the **bundles** directory.

6. **Optional:** If JBoss EAP 6 was previously configured to run as a service, remove the existing service and configure a new service for the upgraded installation.

Result

The JBoss EAP 6 ZIP installation has been successfully upgraded to the latest release.

Report a bug

3.3.3. Upgrade the JBoss EAP 6 RPM Installation

Prerequisites

- Ensure that the base operating system is up to date and that the system is subscribed and enabled to get updates for the Base OS channel.

- Ensure that the correct JBoss EAP 6 RHN channel is enabled. For example, on a x86, 64 bit architecture, this will be the JBoss Application Platform (v 6) for 6Server x86_64 channel (**jbappplatform-6-x86_64-server-6-rpm**).

- Back up any modified configuration files, deployments, and all user data.

Summary

Upgrading to the latest release of JBoss EAP 6 requires some initial work to back up the existing installation. This topic covers upgrading the RPM installation via the Red Hat Network (RHN).

> ⚠️ **WARNING**
>
> For managed domains, the master Host Controller (or Domain Controller) instance should be upgraded first, before each Host Controller is upgraded.

Procedure 3.8. Upgrade to the latest JBoss EAP 6 release

1. Run the following command in a terminal to upgrade the installation:

   ```
   yum update
   ```

2. Manually merge each created ***.rpmnew** file that contains changes into the production configuration files.

Result

JBoss EAP 6 has been successfully upgraded.

Report a bug

3.3.4. Upgrade JBoss EAP Cluster

Prerequisites

- None

Summary

JBoss EAP 6 does not support the creation of clusters where the different nodes are made up of different versions of JBoss EAP servers. Thus, a mixed cluster based on different versions is not supported and all nodes within a cluster must be the same version.

> ⚠️ **WARNING**
>
> The upgrade process for migrating traffic from a 6.3 cluster to a 6.4 cluster is therefore based on transferring all traffic to the 6.4 cluster and then shutting down the servers or nodes in the 6.3 cluster.

Procedure 3.9. Setup a JBoss EAP Cluster

1. Refer to the *HTTP Clustering and Load Balancing* chapter of the *JBoss EAP 6.4 Administration and Configuration Guide* for instructions on how to setup a JBoss EAP cluster in 6.4.

2. Migrate all traffic to this new cluster using the steps outlined in the *Migrate Traffic between Clusters* chapter of the *JBoss EAP 6.4 Administration and Configuration Guide*

Result

Your JBoss EAP 6.3 cluster has been migrated to a cluster based on JBoss EAP 6.4.

Report a bug

APPENDIX A. REFERENCE MATERIAL

A.1. AVAILABLE DOWNLOADS FOR JBOSS EAP 6

JBoss EAP 6 includes a number of different installation types and optional components, which are available for download on the Red Hat Customer Portal at https://access.redhat.com/. The following table explains the different options. Some components are only appropriate for certain operating systems or architectures, and thus are only available for those specific variations.

Table A.1. Available Downloads

Name	Description	Operating Systems
Apache HTTP Server	A standalone Apache HTTP server instance for each supported operating system and architecture. This HTTP server has been tested and verified to work with JBoss EAP 6.	Red Hat Enterprise Linux 5, Red Hat Enterprise Linux 6, Microsoft Windows Server 2008, Solaris 10 and 11
Native Components	Components which have been compiled to be optimized for a specific platform. For instance, DLLs are provided for Microsoft Windows Server environments. In some cases, the native components may provide performance improvements.	Red Hat Enterprise Linux 5, Red Hat Enterprise Linux 6, Microsoft Windows Server 2008, Solaris 10 and 11, Hewlett-Packard HP-UX
Native Utilities	Utilities specific to each supported operating system and architecture, such as scripts and utilities for installing JBoss EAP 6 as a service in your operating system and generating SSL encryption keys and certificates.	Red Hat Enterprise Linux 5, Red Hat Enterprise Linux 6, Microsoft Windows Server 2008, Solaris 10 and 11, Hewlett-Packard HP-UX
Webserver Connector Natives	Pre-compiled modules for Apache, Microsoft, and Oracle iPlanet web servers, for HTTP load balancing and high-availability capabilities. These binaries are extensively tested and known to work well with JBoss EAP 6.	Red Hat Enterprise Linux 5, Red Hat Enterprise Linux 6, Microsoft Windows Server 2008, Solaris 10 and 11, Hewlett-Packard HP-UX
Javadocs	Documentation for all public APIs exposed by JBoss EAP 6. You can install these into your local HTTP server or IDE, or can view them on your local machine.	Platform-independent
Installer	Java installer for JBoss EAP 6. Includes steps to install the Quickstarts and Maven Repository.	Platform-independent

Name	Description	Operating Systems
Maven Repository	A Maven repository which you can download and make available in your local development environment, and which contains artifacts common to applications built upon JBoss EAP 6. The Maven repository is also available through the JBoss EAP 6 Installer.	Platform-independent
Quickstarts	Example applications to help you get started developing Java EE 6 applications with APIs supplied with JBoss EAP 6. The Quickstarts are also available through the JBoss EAP 6 Installer.	Platform-independent
Source Code	The Java source code for JBoss EAP 6, provided so that you can recompile it in your own environment or audit it yourself.	Platform-independent
Application Platform	The Zip installation package, which can be installed and run on every supported platform. This is the most common way to install JBoss EAP 6.	Platform-independent

IMPORTANT

The RPM installation method's downloads are not available on the Customer Portal, but via the Red Hat Network (RHN).

Report a bug

A.2. DIRECTORY STRUCTURE OF JBOSS EAP 6

Summary

JBoss EAP 6 includes a simplified directory structure, compared to previous versions. This topic contains a listing of the directories, and a description of what each directory contains.

The following directories/files are shareable: appclient, bin, bundles, docs, jboss-modules.jar, modules, welcome-content. The domain and standalone directories are not shareable.

It is possible to use system property to use a $*JBOSS_HOME* directory and specify a different standalone or domain directory for multiple server instances to allow them to use the shareable directories, and specify a different directory for those which cannot be shared.

It also includes directory structures of the **standalone/** and **domain/** folders.

Table A.2. Top-level directories and files

Name	Purpose
appclient/	Contains configuration details for the application client container.
bin/	Contains start-up scripts for JBoss EAP 6 on Red Hat Enterprise Linux and Microsoft Windows.
docs/	License files, schemas, and examples.
domain/	Configuration files, deployment content, and writable areas used when JBoss EAP 6 runs as a managed domain.
modules/	Modules which are dynamically loaded by JBoss EAP 6 when services request them.
standalone/	Configuration files, deployment content, and writable areas used when JBoss EAP 6 runs as a standalone server.
welcome-content/	Contains content used by the Welcome web application which is available on port 8080 of a default installation.
.installation/	Contains metadata for the patching mechanism. No modifications are required for the contents of this directory.
jboss-modules.jar	The bootstrapping mechanism which loads modules.
JBossEULA.txt	Contains license agreement details.
LICENSE.txt	Contains license details.
version.txt	Contains version details.

NOTE

$*JBOSS\_HOME*$/**domain** cannot be shared among two host controllers nor between a domain controller and host controller.

Table A.3. Directories within the **domain**/ directory

Name	Purpose

Name	Purpose
configuration/	Configuration files for the managed domain. These files are modified by the Management Console and Management CLI, and are not meant to be edited directly.
data/	Information about deployed services. Services are deployed using the Management Console and Management CLI, rather than by a deployment scanner. Therefore, do not place files in this directory manually.
log/	Contains the run-time log files for the host and process controllers which run on the local instance.
servers/	Contains the equivalent **data/**, **log/**, and **tmp/** directories for each server instance in a domain, which contain similar data to the same directories within the top-level **domain/** directory.
tmp/	Contains temporary data such as files pertaining to the shared-key mechanism used by the Management CLI to authenticate local users to the managed domain.

NOTE

In Standalone mode, the $*JBOSS_HOME*/**standalone** cannot be shared between two JBoss server instances.

Table A.4. Directories within the**standalone**/ directory

Name	Purpose
configuration/	Configuration files for the standalone server. These files are modified by the Management Console and Management CLI, and are not meant to be edited directly.
data/	Information about deployed services. Services are deployed using the Management Console and Management CLI, rather than by a deployment scanner. Therefore, do not place files in this directory manually.

Name	Purpose
deployments/	Information about deployed services. The standalone server does include a deployment scanner, so you can place archives in this directory to be deployed. However, the recommended approach is to manage deployments using the Management Console or Management CLI.
lib/	External libraries which pertain to a standalone server mode. Empty by default.
log/	Contains the run-time log files for the host and process controllers which run on the local instance.
tmp/	Contains temporary data such as files pertaining to the shared-key mechanism used by the Management CLI to authenticate local users to the server.

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A.3. RPM PACKAGE LIST FOR JBOSS EAP 6

Summary

JBoss EAP 6 is installed on Red Hat Enterprise Linux 6 using the YUM package group **JBoss EAP 6**. That group is made up of the following packages.

Table A.5. Package List

Package	Description
jbossas-appclient	JEE Application Client Container
jbossas-core	Core components. This is required for all configurations.
jbossas-domain	Domain configuration
jbossas-hornetq-native	Container for the JBoss AS HornetQ files
jbossas-jbossweb-native	JBoss Enterprise Web Platform
jbossas-modules-eap	JBoss EAP modules
jbossas-product-eap	Product configuration components. This customizes product execution.
jbossas-standalone	Standalone configuration

Package	Description
jbossas-welcome-content-eap	Welcome content used in startup messages and console pages

IMPORTANT

The **jbossas-hornetq-native** package is included for high availability in JBoss EAP 6 but it is not activated by default.

NOTE

OSGi is not supported in JBoss EAP. For more information, refer https://access.redhat.com/articles/112673 article on Customer Portal.

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A.4. RPM INSTALLATION CONFIGURATION FILES FOR JBOSS EAP 6

Summary

The RPM installation of JBoss EAP 6 includes three additional configuration files to the ZIP installation. These files are used by the service init script to specify the application server's launch environment. One of these files applies to all JBoss EAP 6 instances, while the other two provide overrides for standalone and domain mode servers.

Table A.6. Additional RPM Configuration Files

File	Description
/etc/jbossas/jbossas.conf	This file is read first and applies to all JBoss EAP 6 instances.
/etc/sysconfig/jbossas	Settings specific to standalone servers. Values specified here will override those in jbossas.conf when running as a standalone server.
/etc/sysconfig/jbossas-domain	Settings specific to domain-mode servers. Values specified here will override those in jbossas.conf when running as a domain-mode server.

The following table shows a list of available configuration properties along with their default values.

Table A.7. RPM Installation Configuration Properties

Property	Description
JBOSS_USER	The system user account that the JBoss EAP 6 runs as. This user also has ownership of the files. Default value: **jboss**

Property	Description
JBOSS_GROUP	The system user group that the JBoss EAP 6 files belong to. Default value: **jboss**
JBOSS_STARTUP_WAIT	The number of seconds that the init script will wait until confirming that the server has launched successfully after receiving a **start** or **restart** command. Default value: **60**
JBOSS_SHUTDOWN_WAIT	The number of seconds that the init script will wait for the server to shutdown before continuing when it receives a **stop** or **restart** command. Default value: **20**
JBOSS_CONSOLE_LOG	The file that the CONSOLE log handler will be redirected to. Default value: **/var/log/jbossas/**$JBOSSCONF**/console.log**
JAVA_HOME	The directory where your Java Runtime Environment is installed. Default value: **/usr/lib/jvm/jre**
JBOSS_HOME	The directory where the application server files are installed. Default value: **/usr/share/jbossas**
JAVAPTH	The path where the Java executable files are installed. Default value: *$JAVA_HOME*/**bin**
JBOSSCONF	The server mode to launch this server in, **standalone** or **domain**. Default value: **standalone** or **domain** depending on server mode.
JBOSSSH	The script which is used to launch to server. Default value: **$JBOSS_HOME/bin/$JBOSSCONF.sh**
JBOSS_SERVER_CONFIG	The server configuration file to use. There is no default for this property. Either **standalone.xml** or **domain.xml** can be defined at start.
JBOSS_HOST_CONFIG	This property allows a user to specify the host configuration (such as **host.xml**). It has no value set as the default.

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APPENDIX B. INSTALLER SCREENSHOTS

B.1. LANGUAGE SELECTION
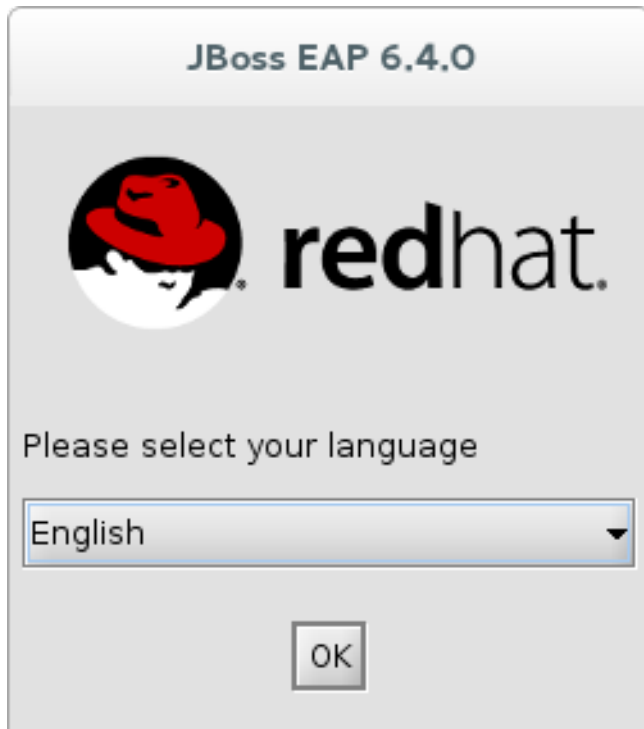
Figure B.1. JBoss EAP Installation Program Language Selection

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B.2. END USER LICENSE AGREEMENT
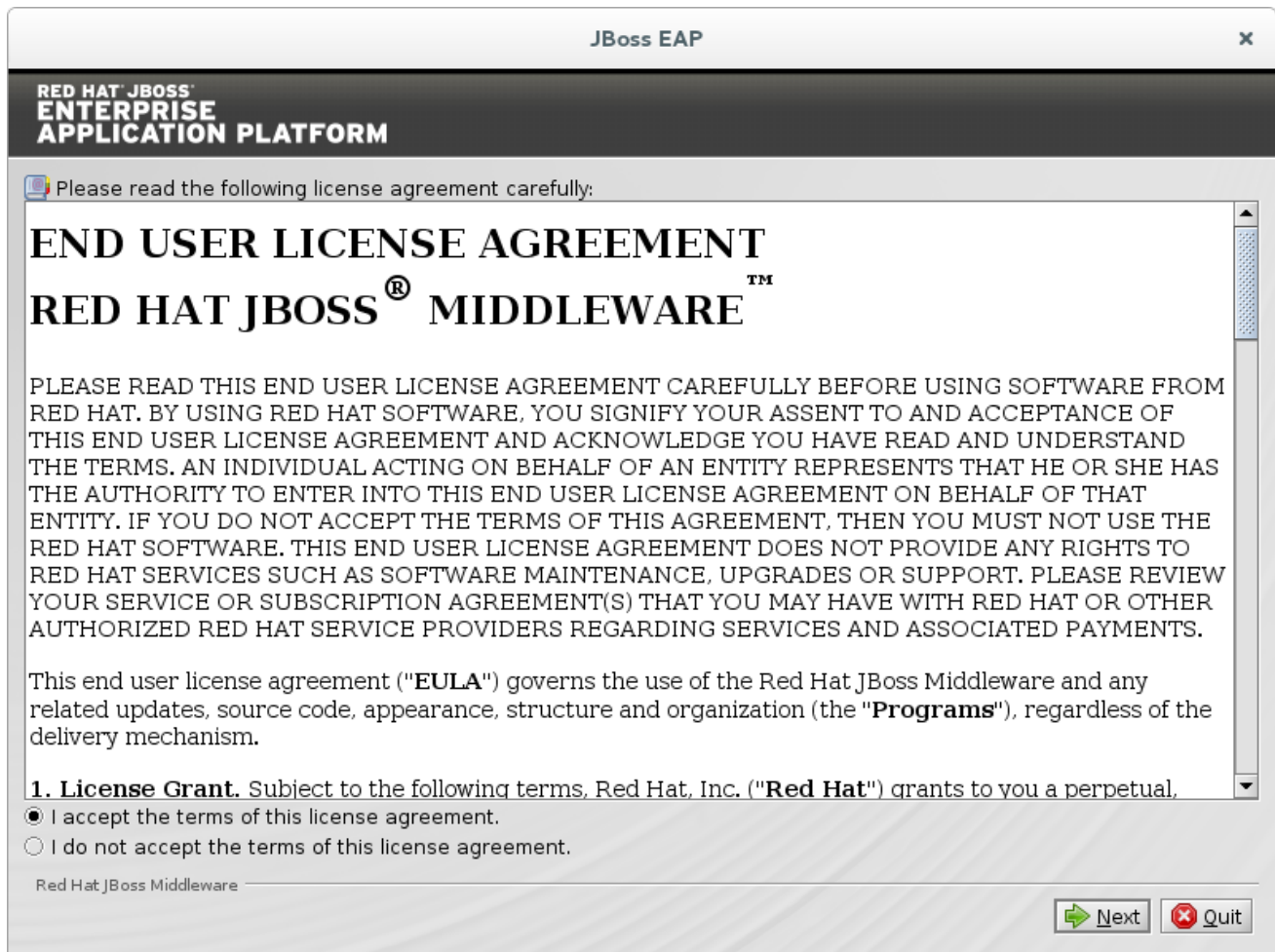
Figure B.2. JBoss EAP Installation Program End User License Agreement

Report a bug

B.3. INSTALLATION PATH

Figure B.3. JBoss EAP Installation Program Installation Path

Report a bug

B.4. SELECT THE PACKS TO INSTALL

Select or deselect the packs to install. Required packs are disabled for deselection.
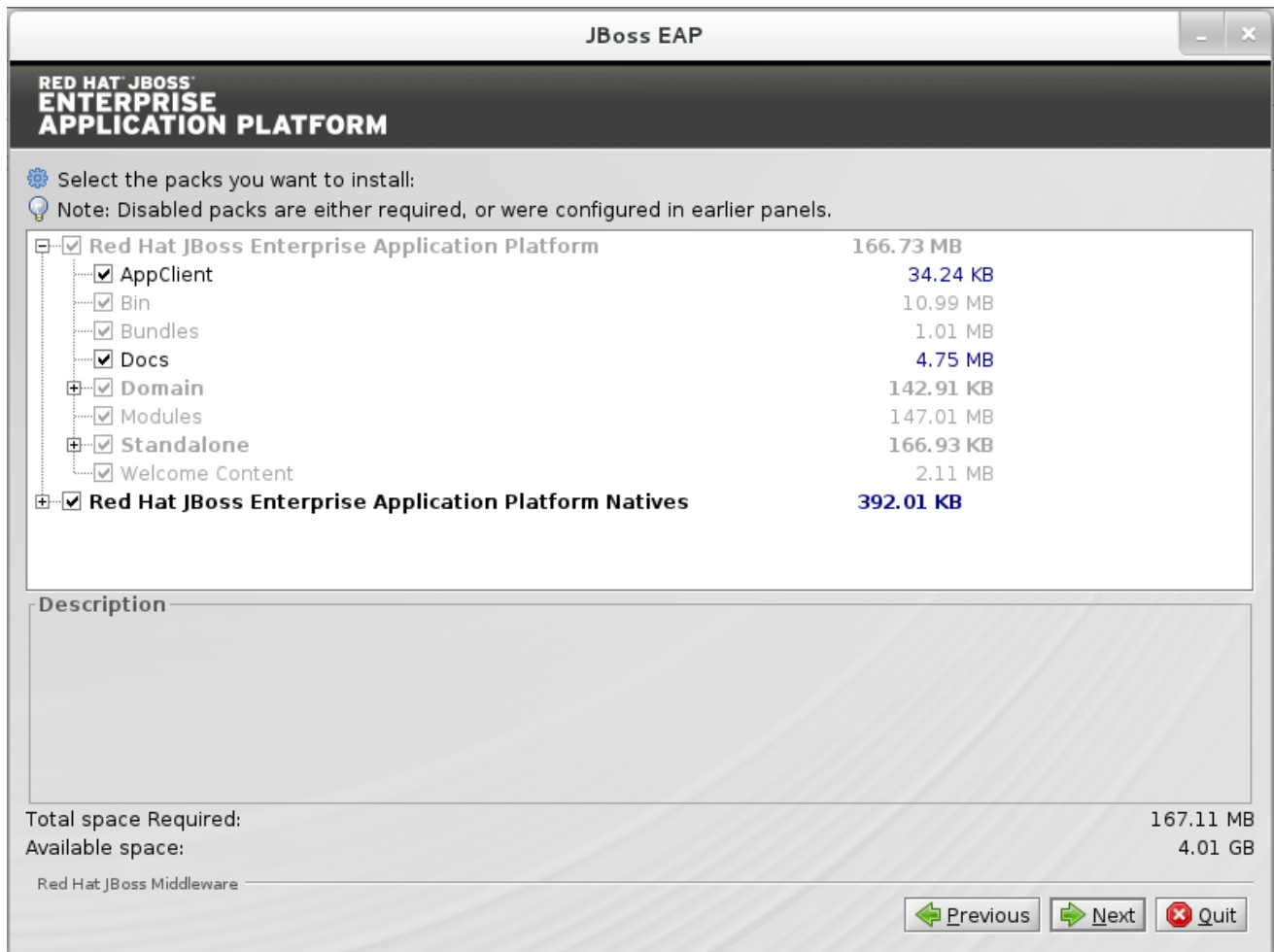
Figure B.4. JBoss EAP Installation Program Select Packs to Install

Report a bug

B.5. ADMINISTRATIVE USER CREATION
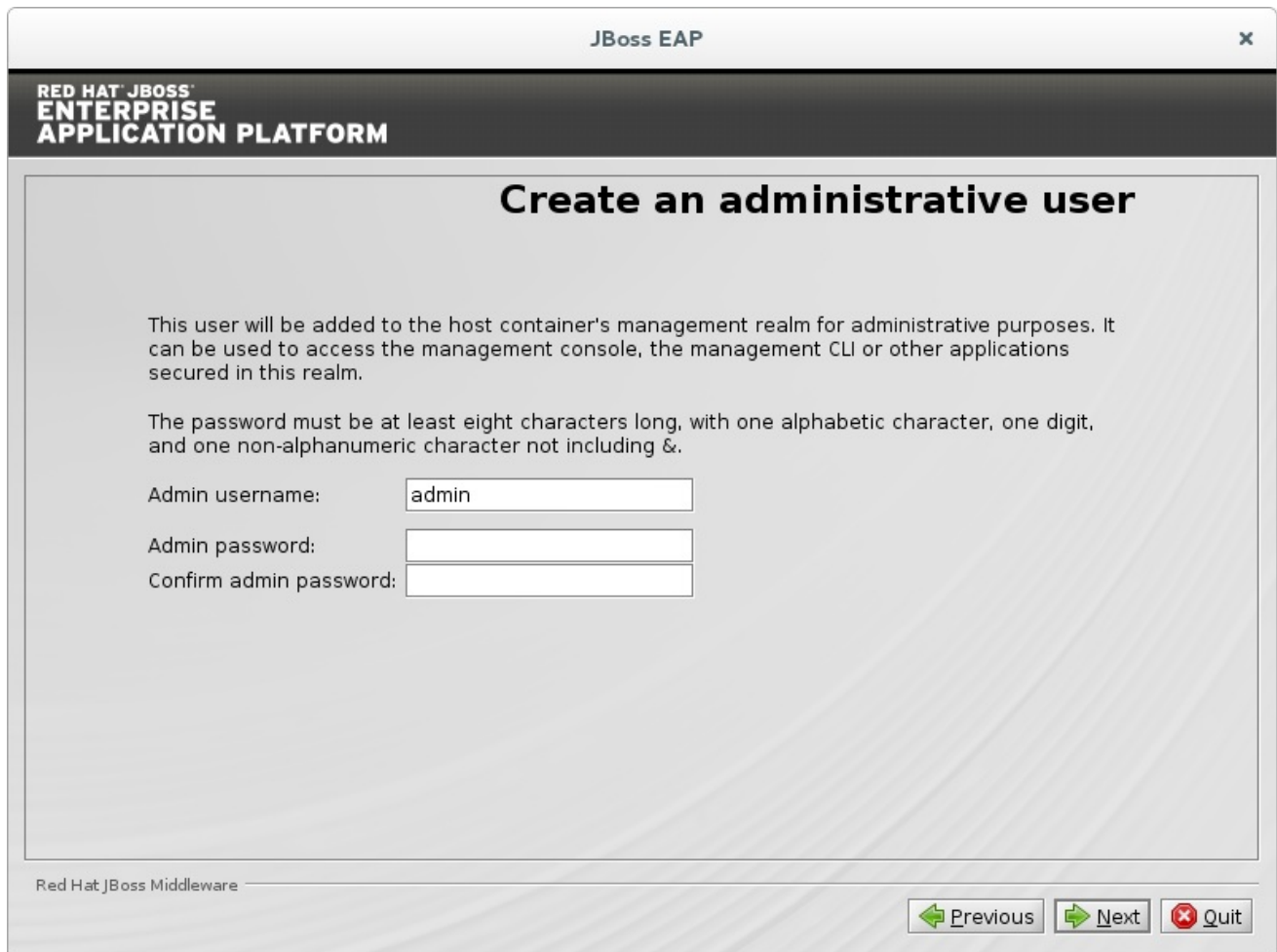
Figure B.5. JBoss EAP Installation Program Administrative User Creation

Report a bug

B.6. QUICKSTART INSTALLATION
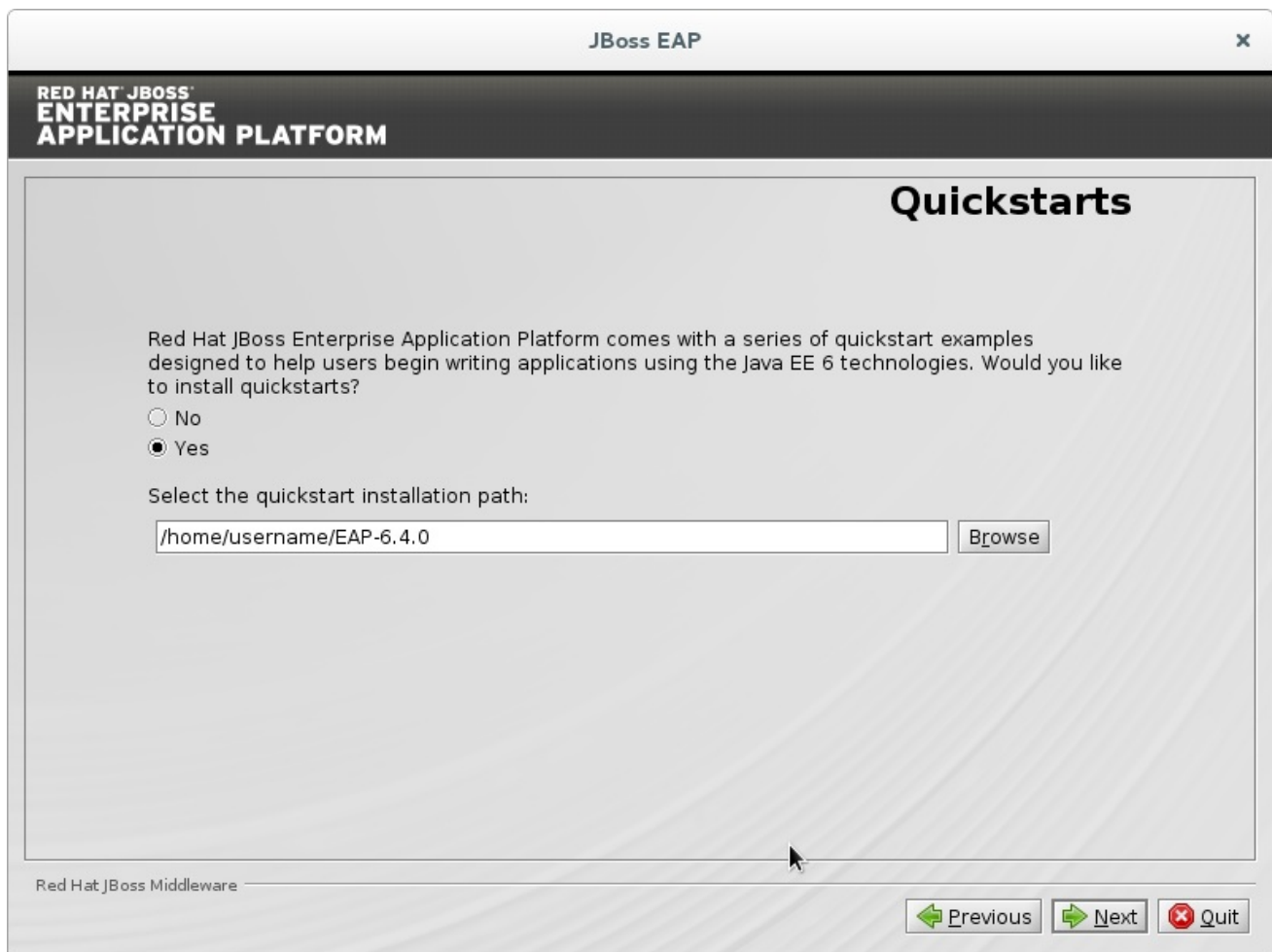
Figure B.6. JBoss EAP Installation Program Quickstart Setup

Report a bug

B.7. MAVEN REPOSITORY SETUP
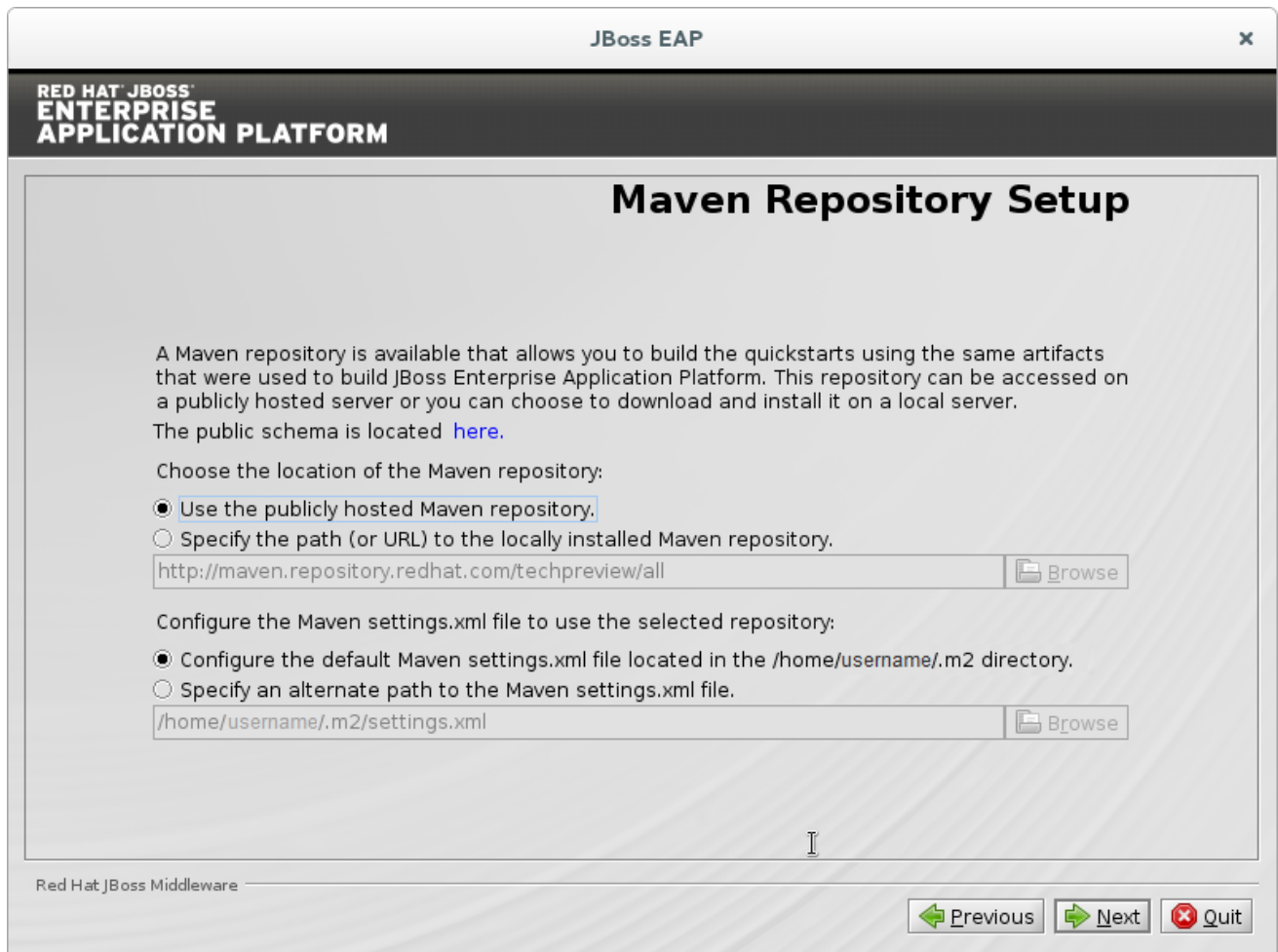
Figure B.7. JBoss EAP Installation Program Maven Repository Setup

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B.8. SOCKET BINDING SETUP

Determine whether to use the default bindings, or configure custom bindings. If the host is configured for IPv6 *only*, check the **Enable pure IPv6 configuration** checkbox.
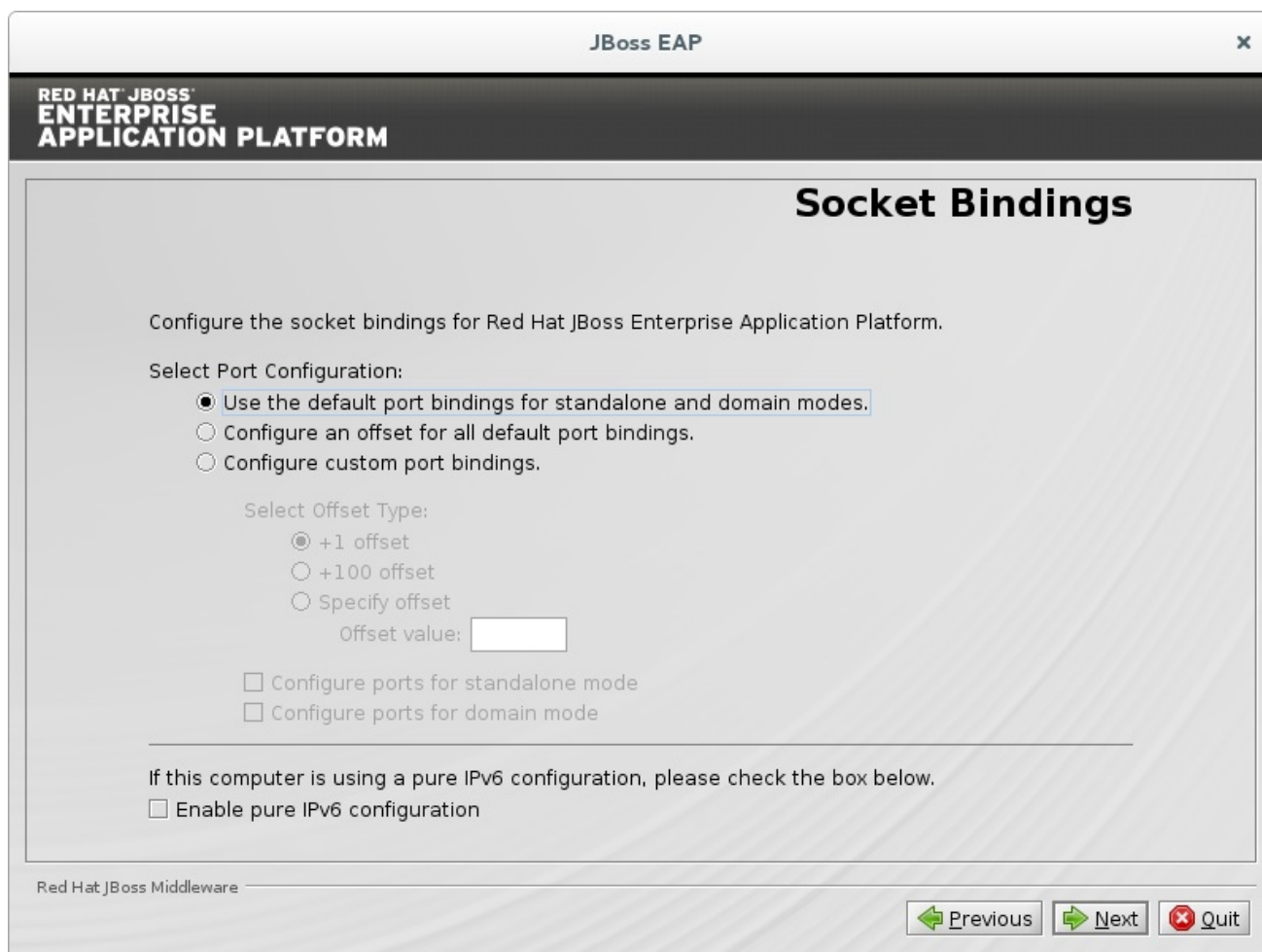
Figure B.8. JBoss EAP Installation Program Default Socket Bindings
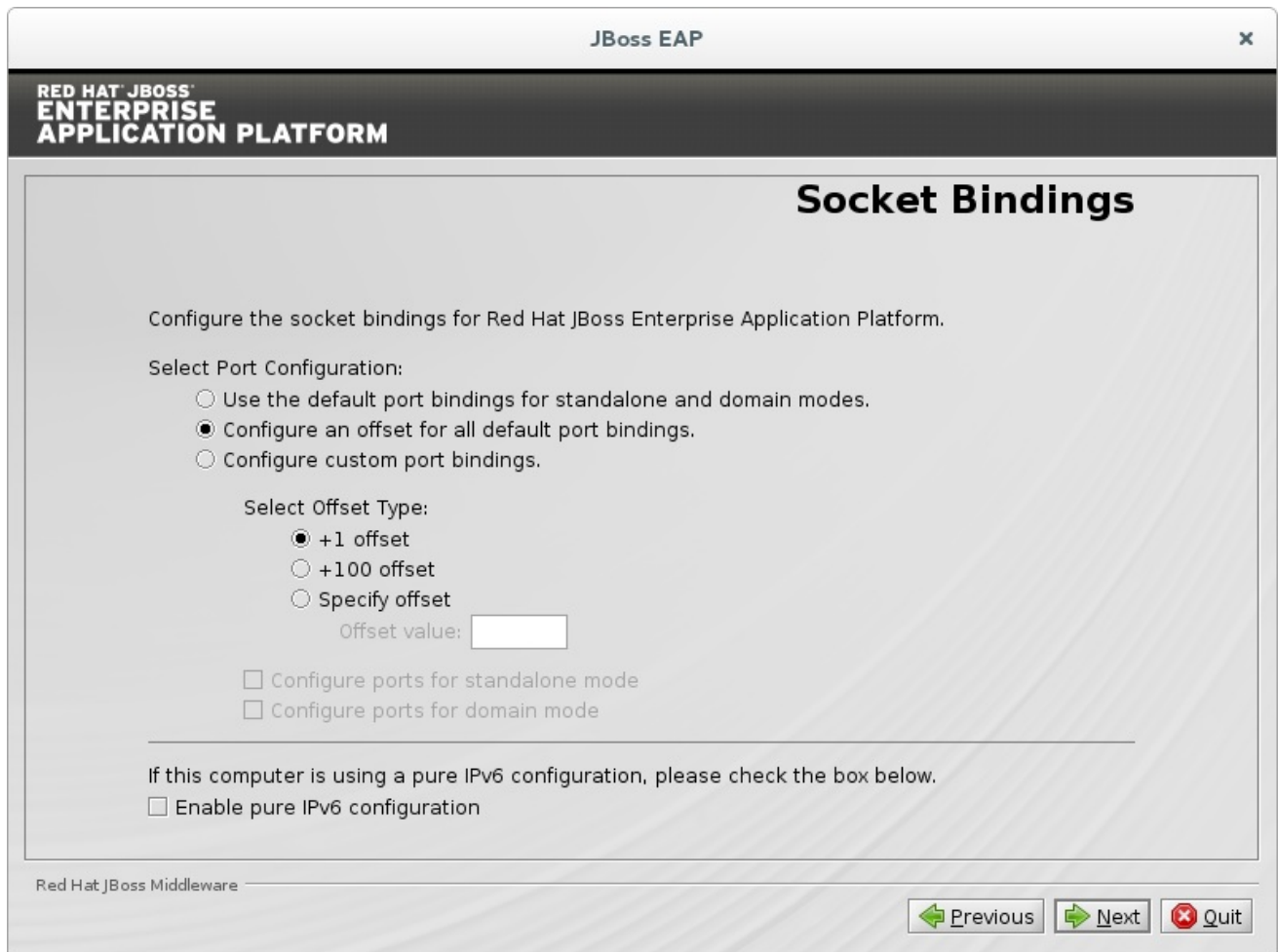
Figure B.9. JBoss EAP Installation Program Custom Port Socket Bindings
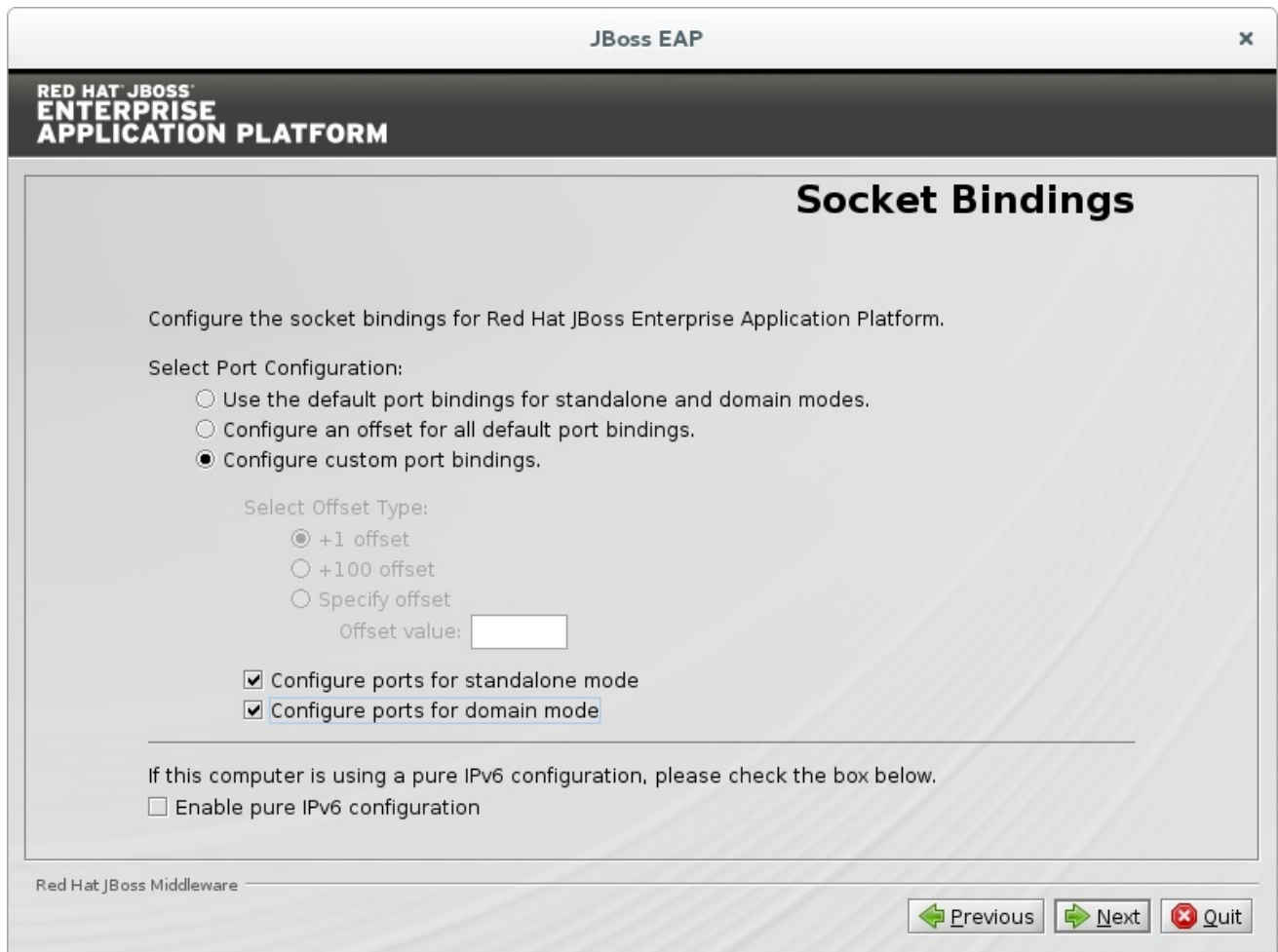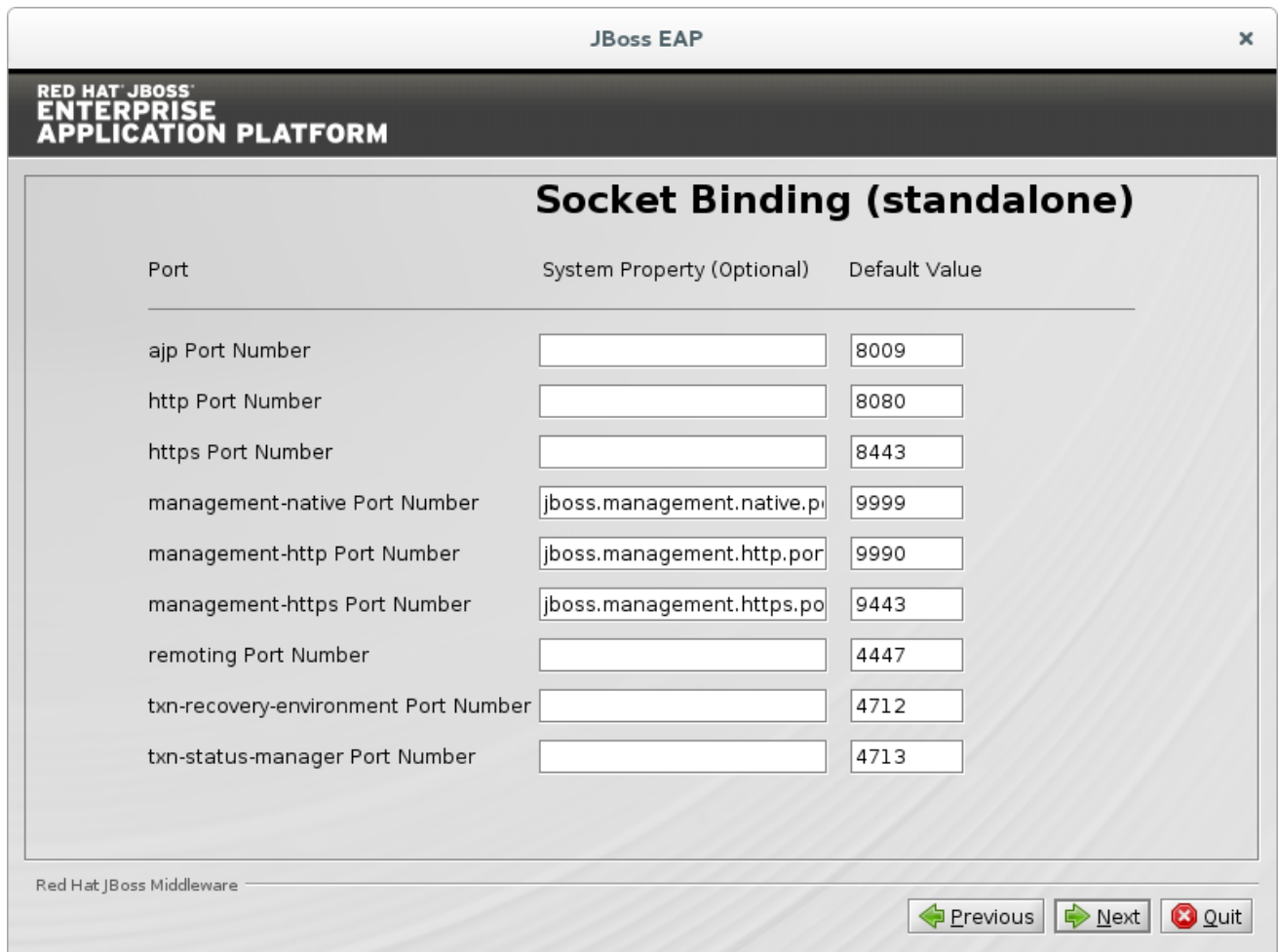
Figure B.10. JBoss EAP Installation Program Configure Offset for Default Socket Bindings

Report a bug

B.9. CUSTOM SOCKET BINDINGS FOR STANDALONE CONFIGURATIONS

The following sequence of screens appear if you choose to configure custom port bindings for standalone mode.

Figure B.11. JBoss EAP Installer Standalone Socket Binding Configuration

Figure B.12. JBoss EAP Installer Standalone HA Socket Binding Configuration

Figure B.13. JBoss EAP Installer Standalone Full Standalone Socket Binding Configuration

Figure B.14. JBoss EAP Installer Standalone Full HA Standalone Socket Binding Configuration

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B.10. CUSTOM SOCKET BINDINGS FOR DOMAIN CONFIGURATIONS

The following sequence of screens appear if you choose to configure custom port bindings for domain mode.
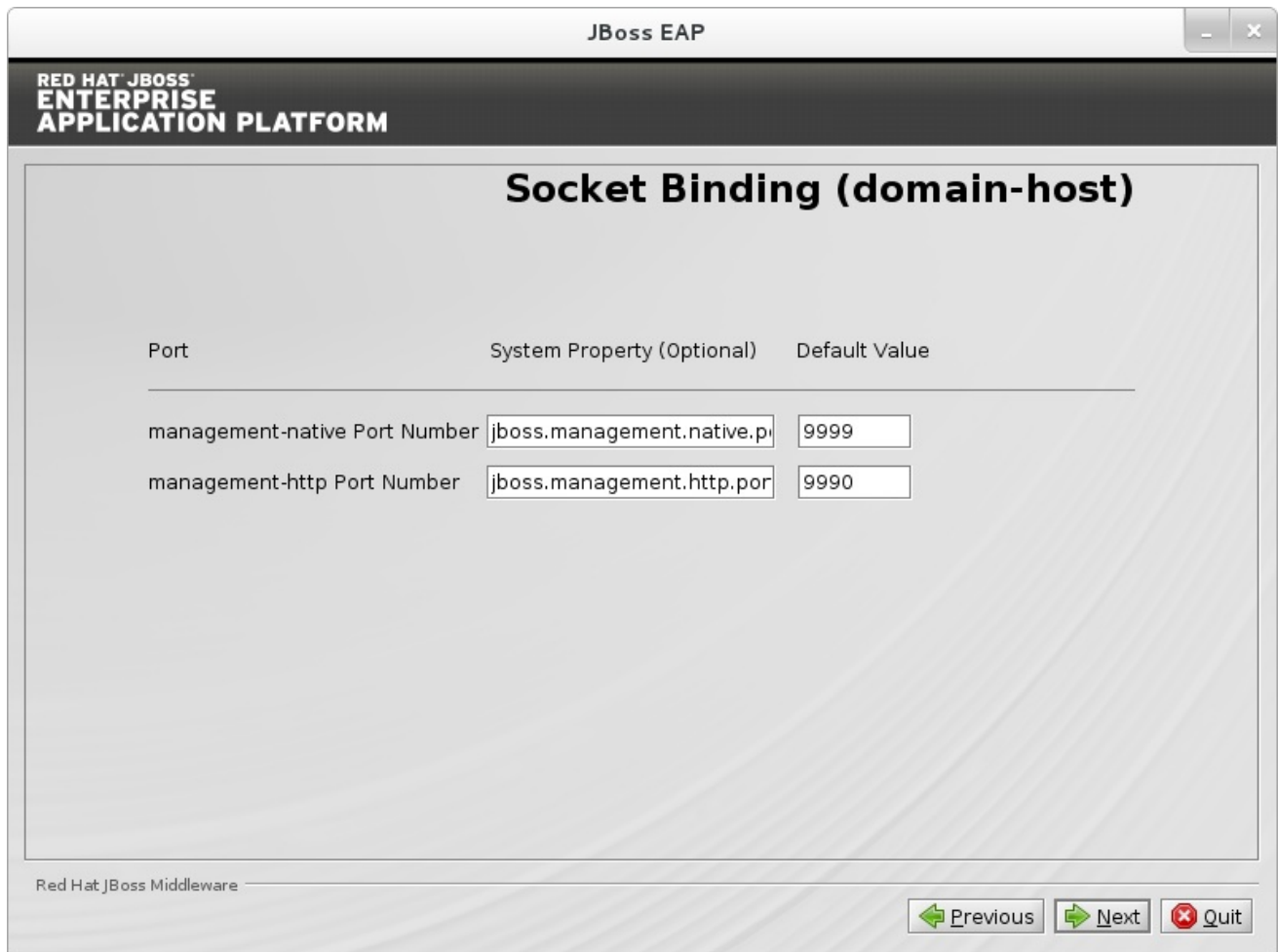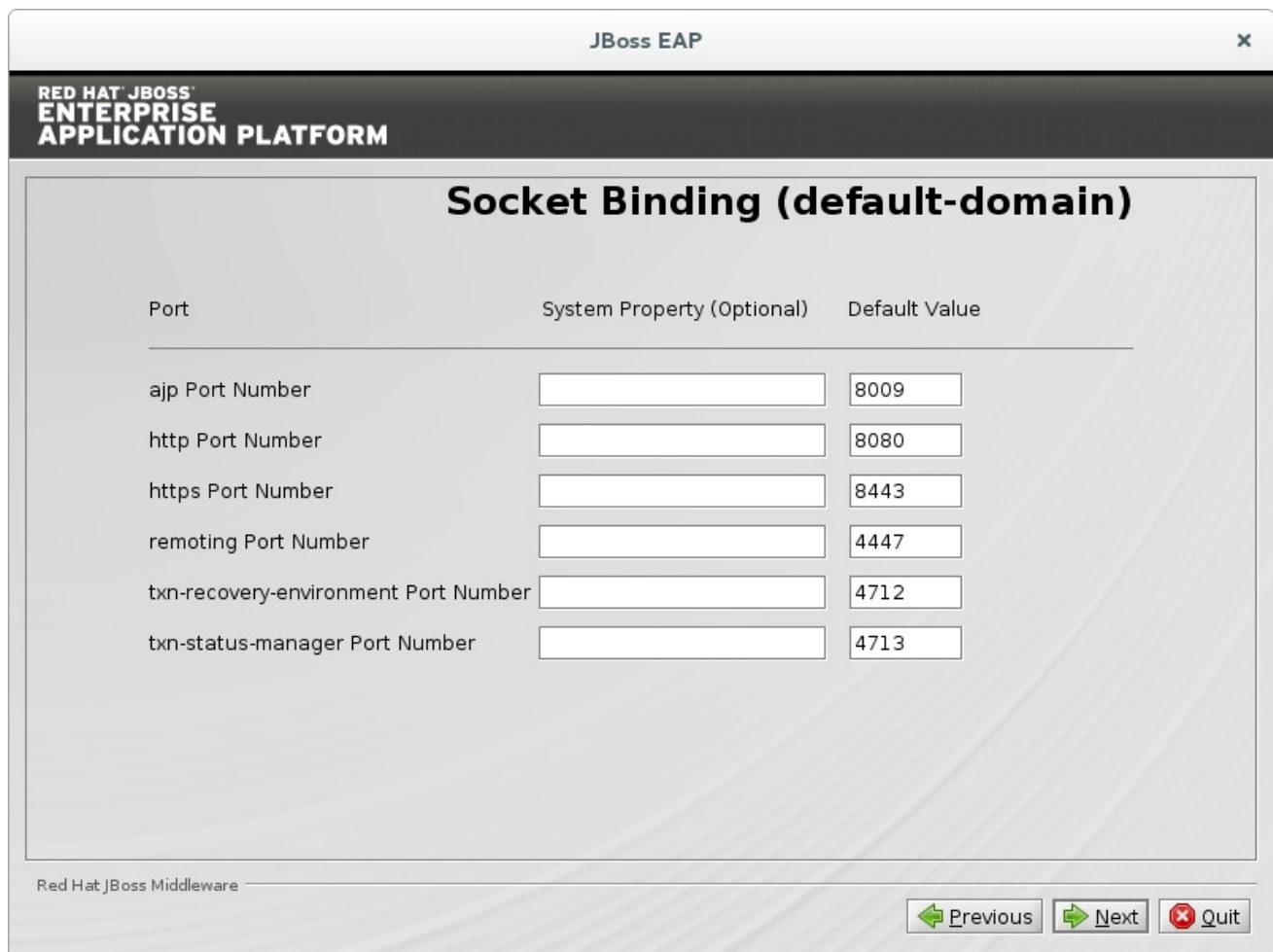
Figure B.15. JBoss EAP Installer Domain Host Socket Binding Configuration

Figure B.16. JBoss EAP Installer Default Domain Socket Binding Configuration

Figure B.17. JBoss EAP Installer HA Domain Socket Binding Configuration

Figure B.18. JBoss EAP Installer Full Domain Socket Binding Configuration

Figure B.19. JBoss EAP Installer Full HA Domain Socket Binding Configuration

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B.11. SERVER LAUNCH
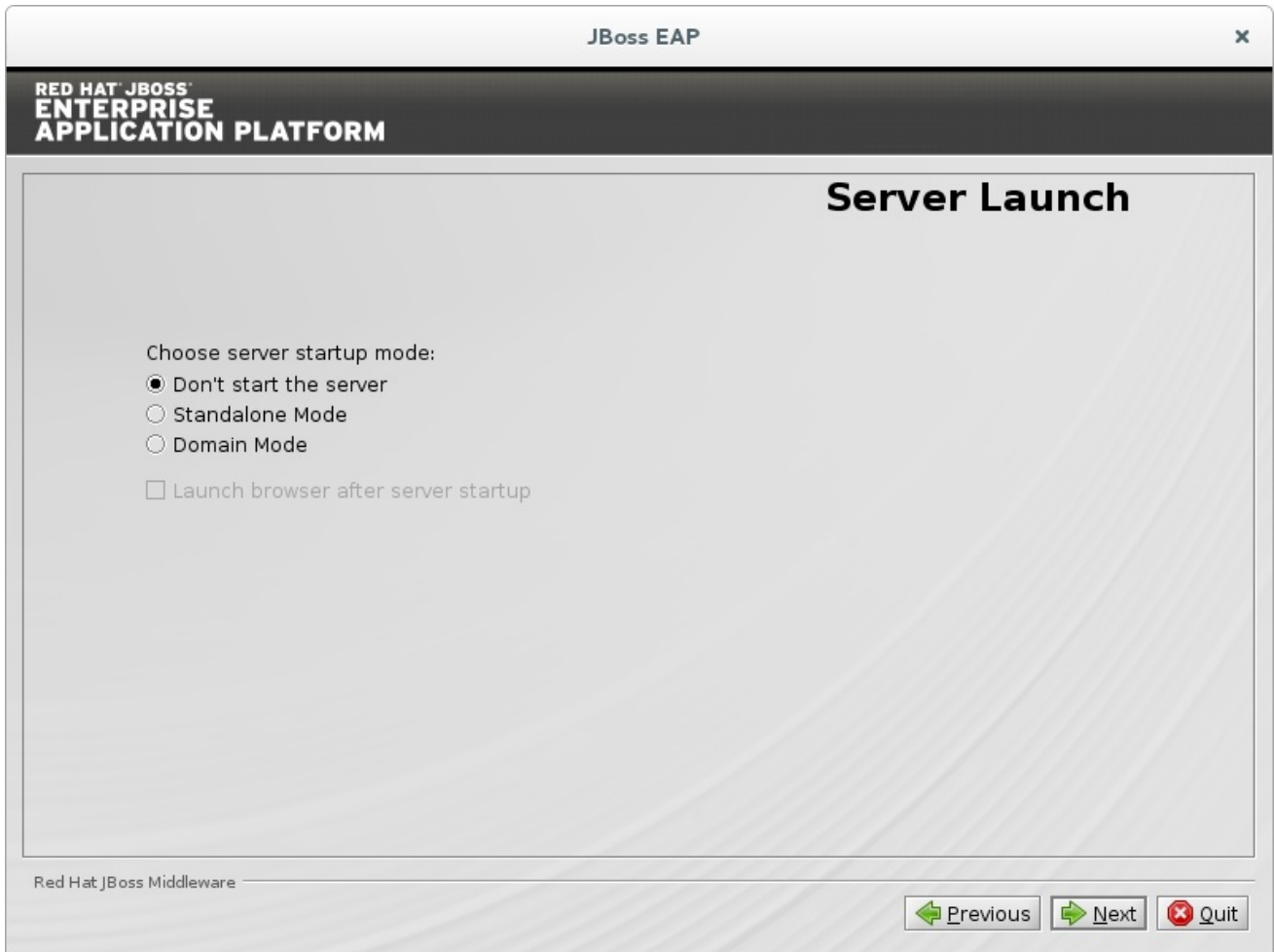
Figure B.20. JBoss EAP Installation Program Server Launch

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B.12. CONFIGURE LOGGING LEVELS
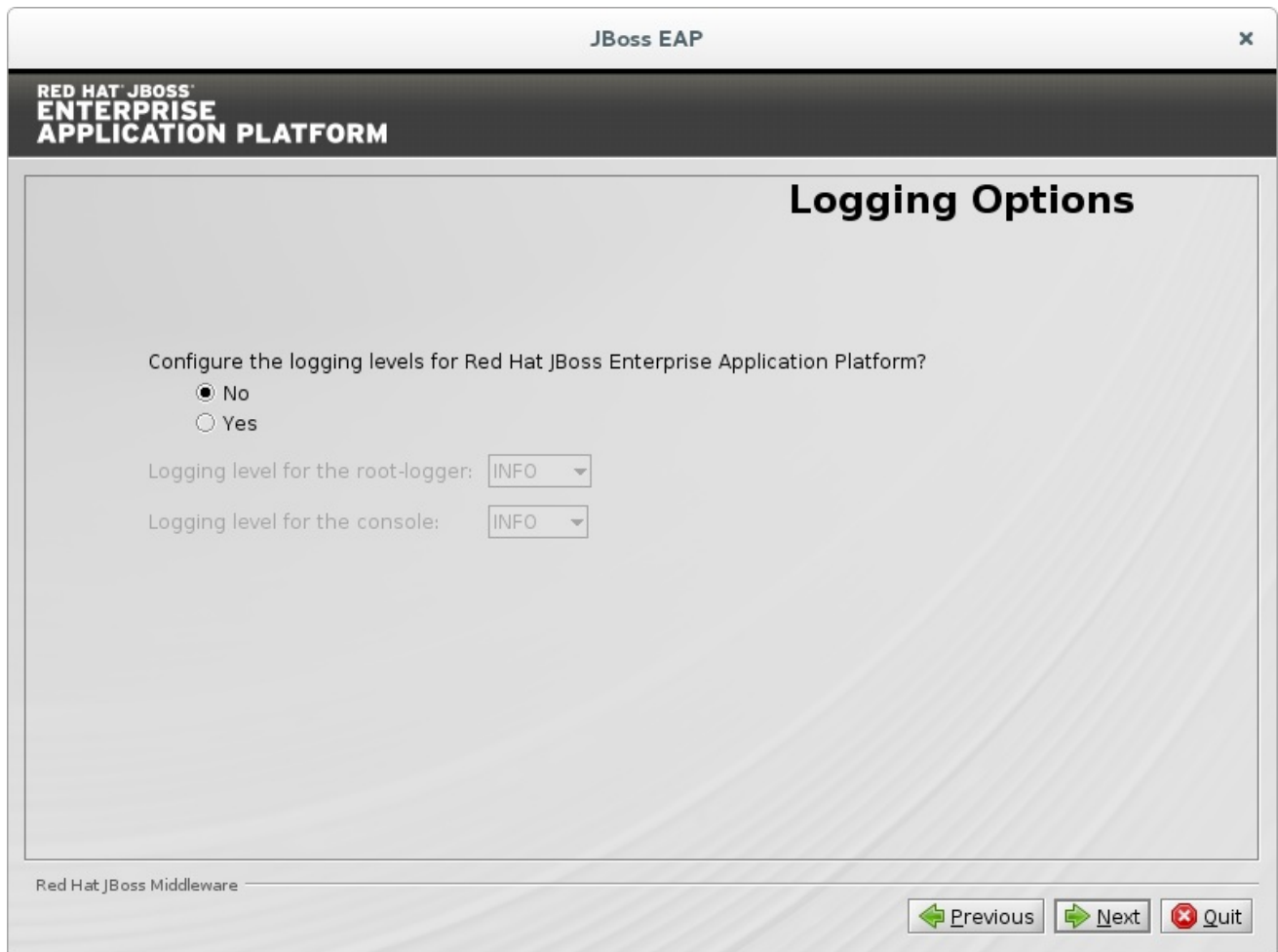
Figure B.21. JBoss EAP Installation Program Skip Logging Level Configuration
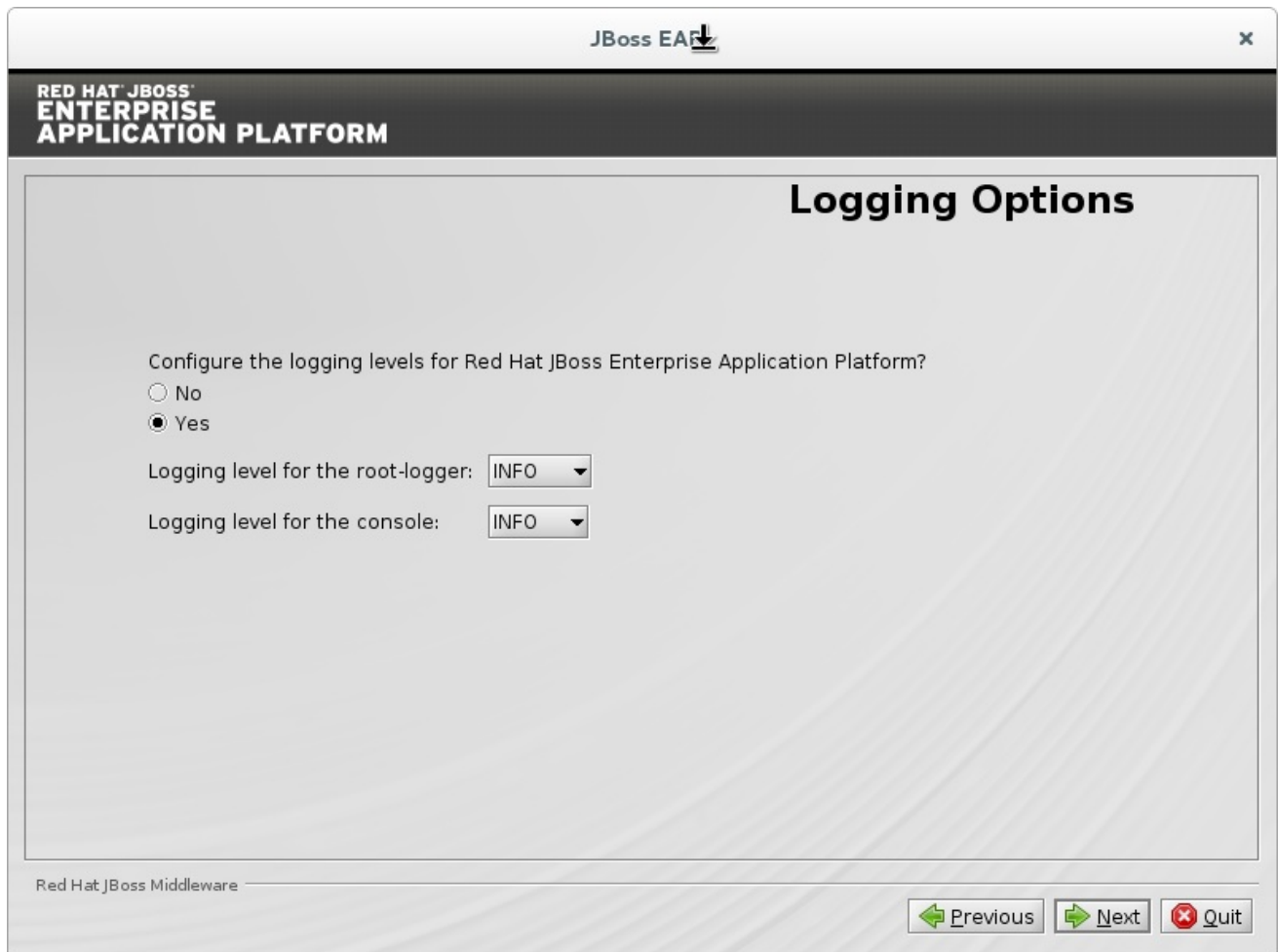
Figure B.22. JBoss EAP Installation Program Configure Logging Levels

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B.13. CONFIGURE RUNTIME ENVIRONMENT

Choose **Perform advanced configuration** to customize installation and configuration of security, caching, LDAP, and datasource options.
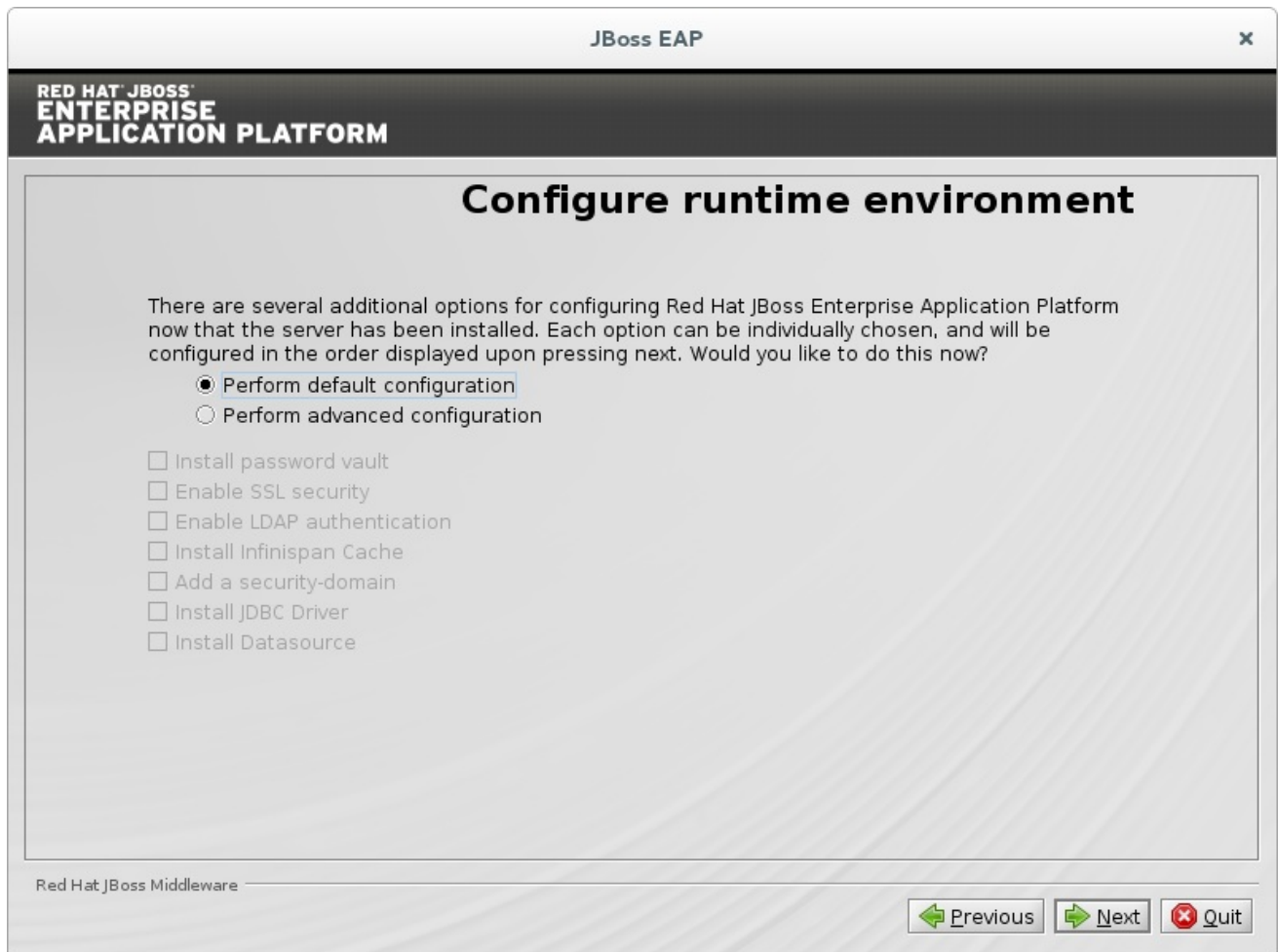
Figure B.23. JBoss EAP Installation Program Configure Runtime Environment – Default
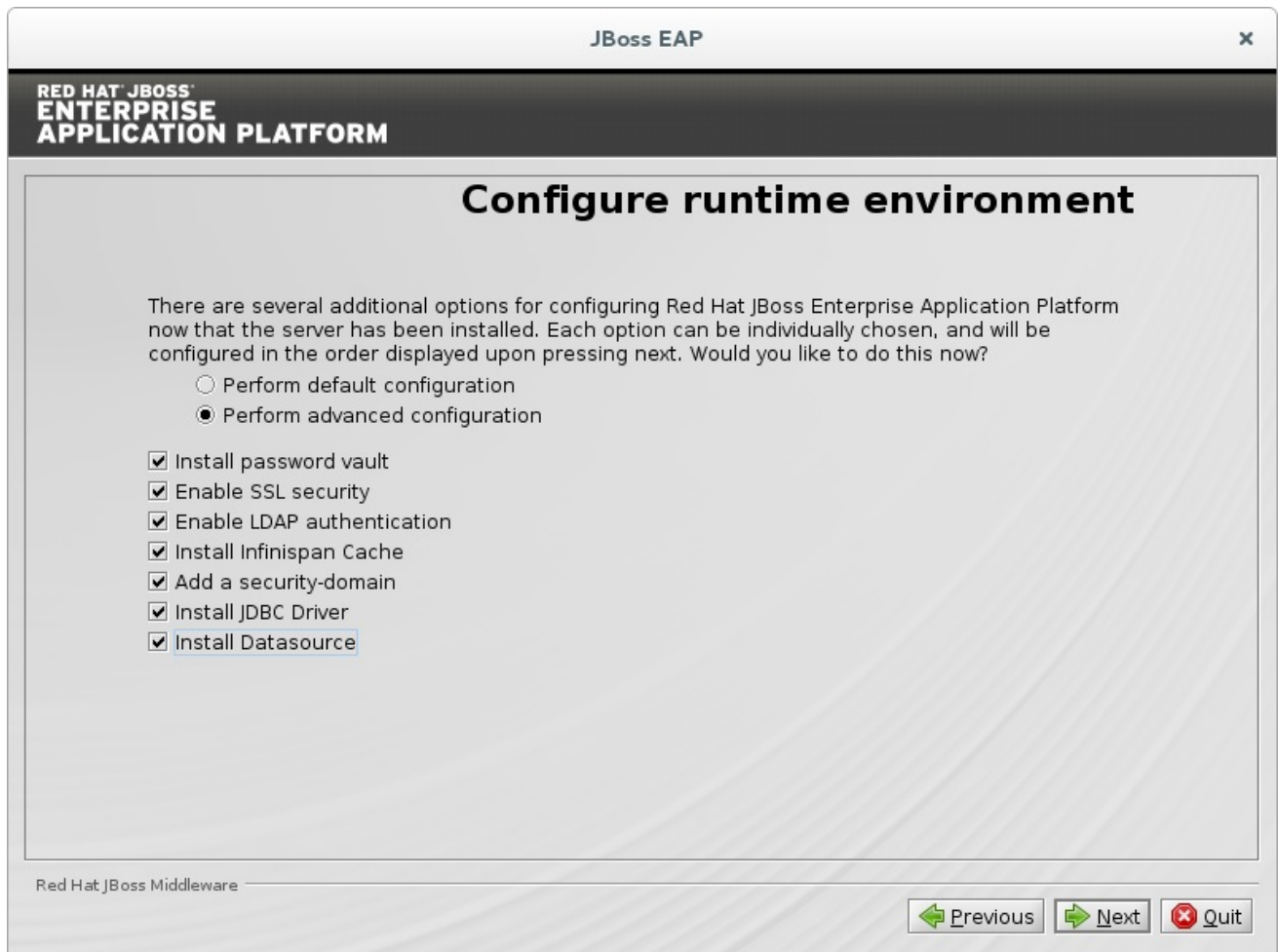
Figure B.24. JBoss EAP Installation Program Configure Runtime Environment – Advanced

Report a bug

B.14. PASSWORD VAULT CONFIGURATION

Figure B.25. JBoss EAP Install Password Vault Configuration

Report a bug

B.15. CONFIGURE SSL SECURITY
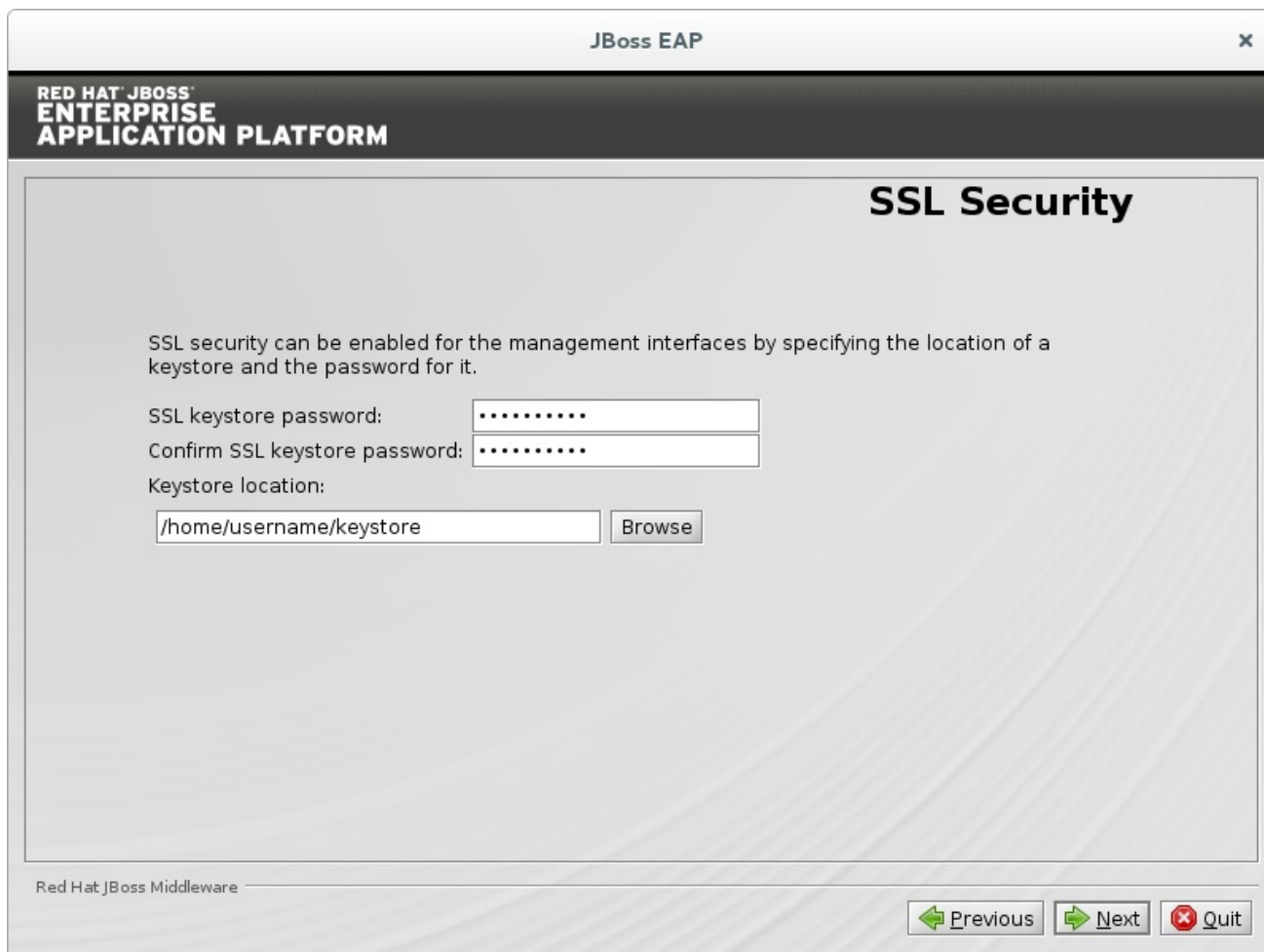
Figure B.26. JBoss EAP Install Configure SSL Security

B.16. CONFIGURE LDAP
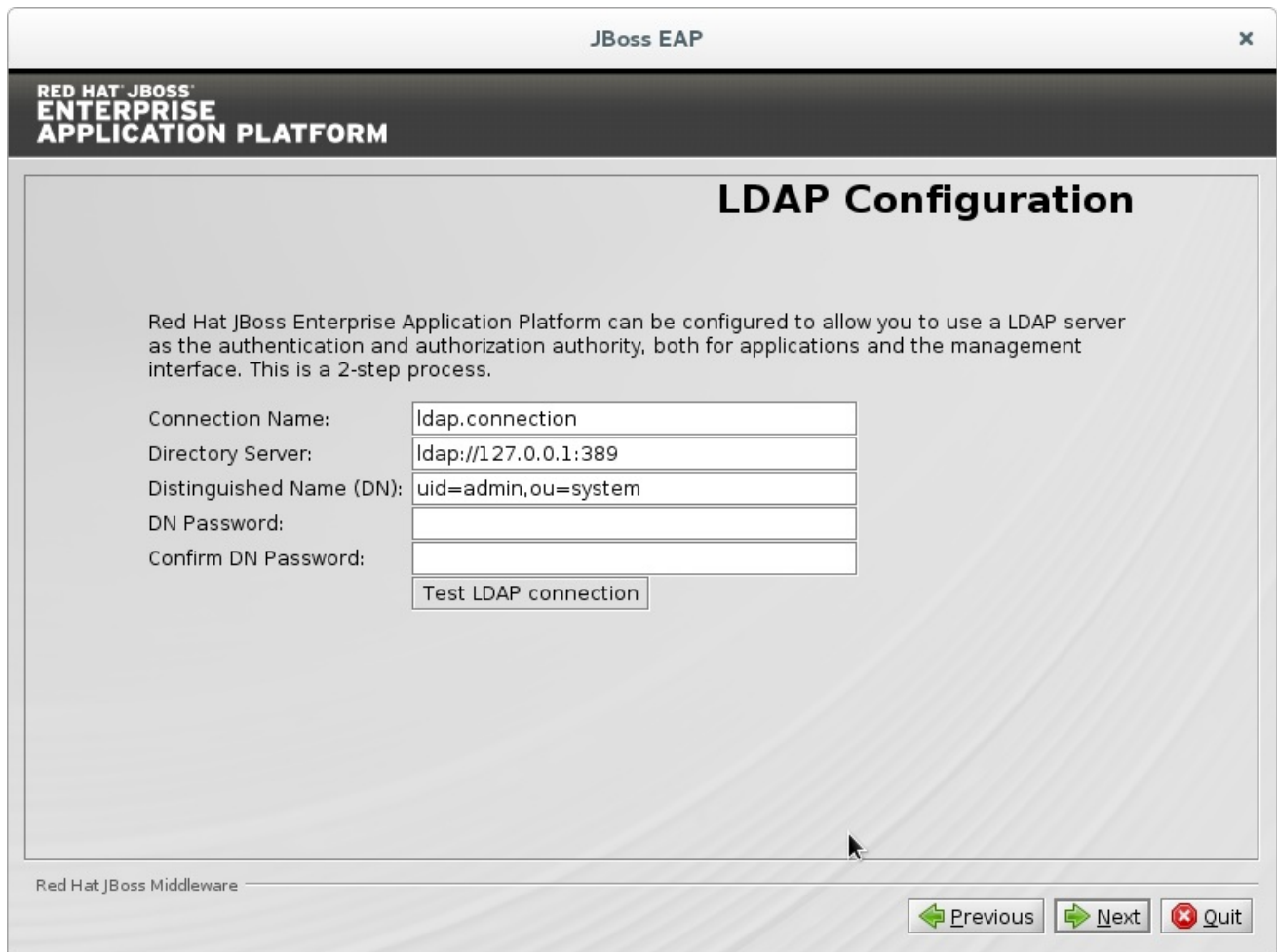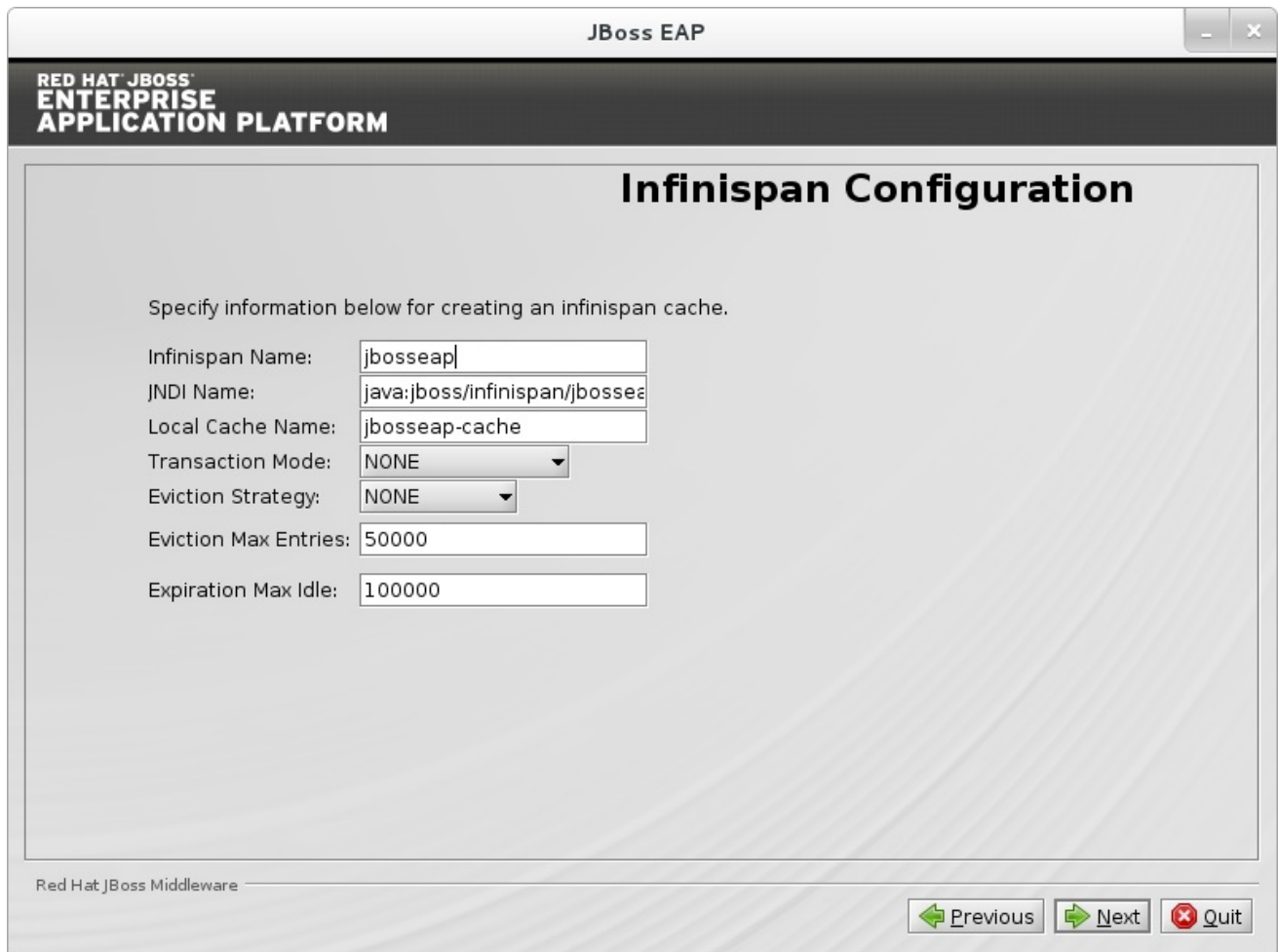
Figure B.27. JBoss EAP Install LDAP Configuration

Report a bug

B.17. INFINISPAN CONFIGURATION

Figure B.28. JBoss EAP Install Infinispan Configuration

Report a bug

B.18. SECURITY DOMAIN CONFIGURATION

Figure B.29. JBoss EAP Install Security Domain Configuration

Report a bug

B.19. JDBC DRIVER SETUP

Figure B.30. JBoss EAP Install Configure a JDBC Driver

Report a bug

B.20. DATASOURCE SETUP

Figure B.31. JBoss EAP Install Datasource Setup

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B.21. REVIEW INSTALLATION COMPONENTS
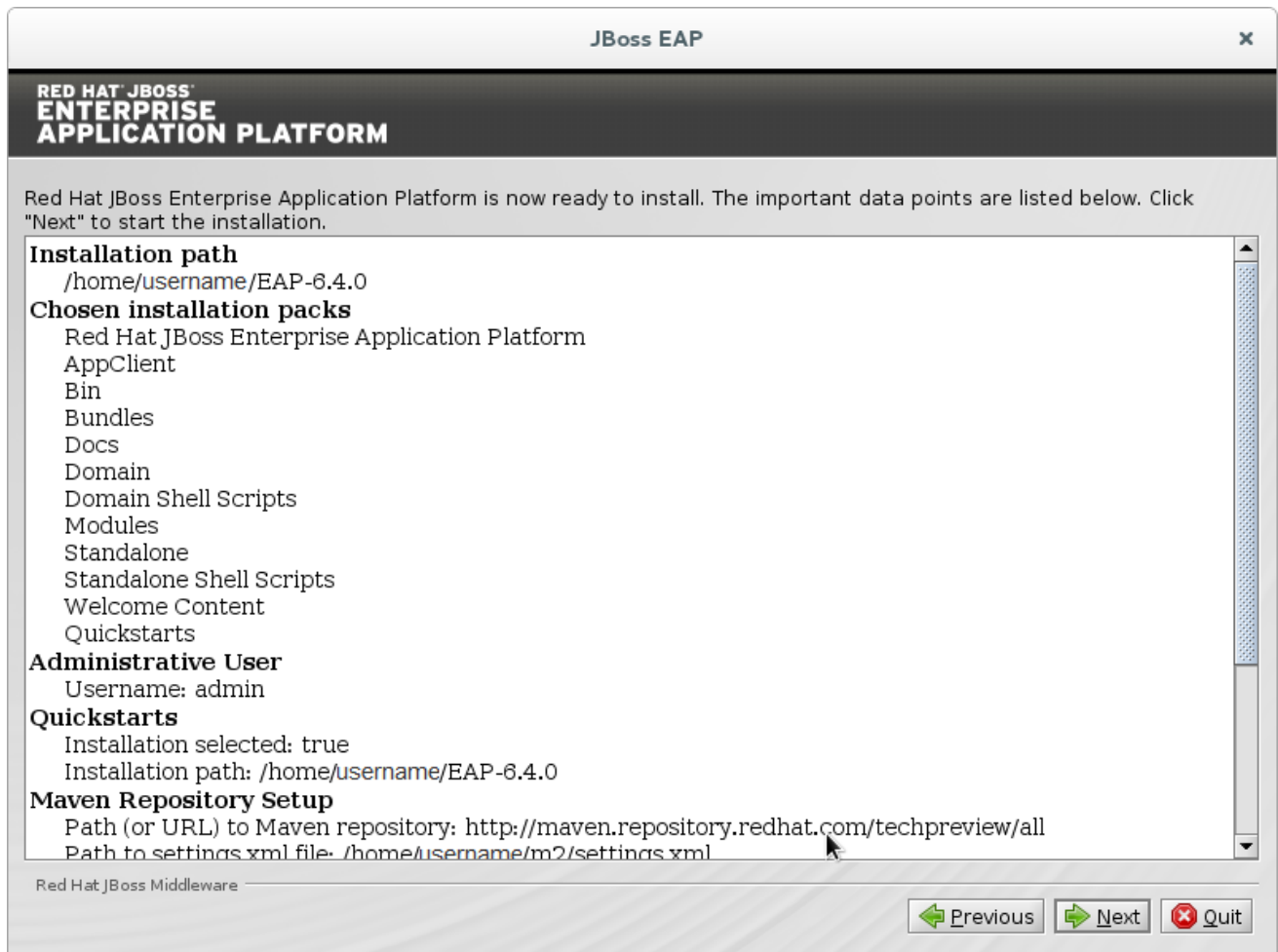
Figure B.32. JBoss EAP Installation Program Review Selected Components
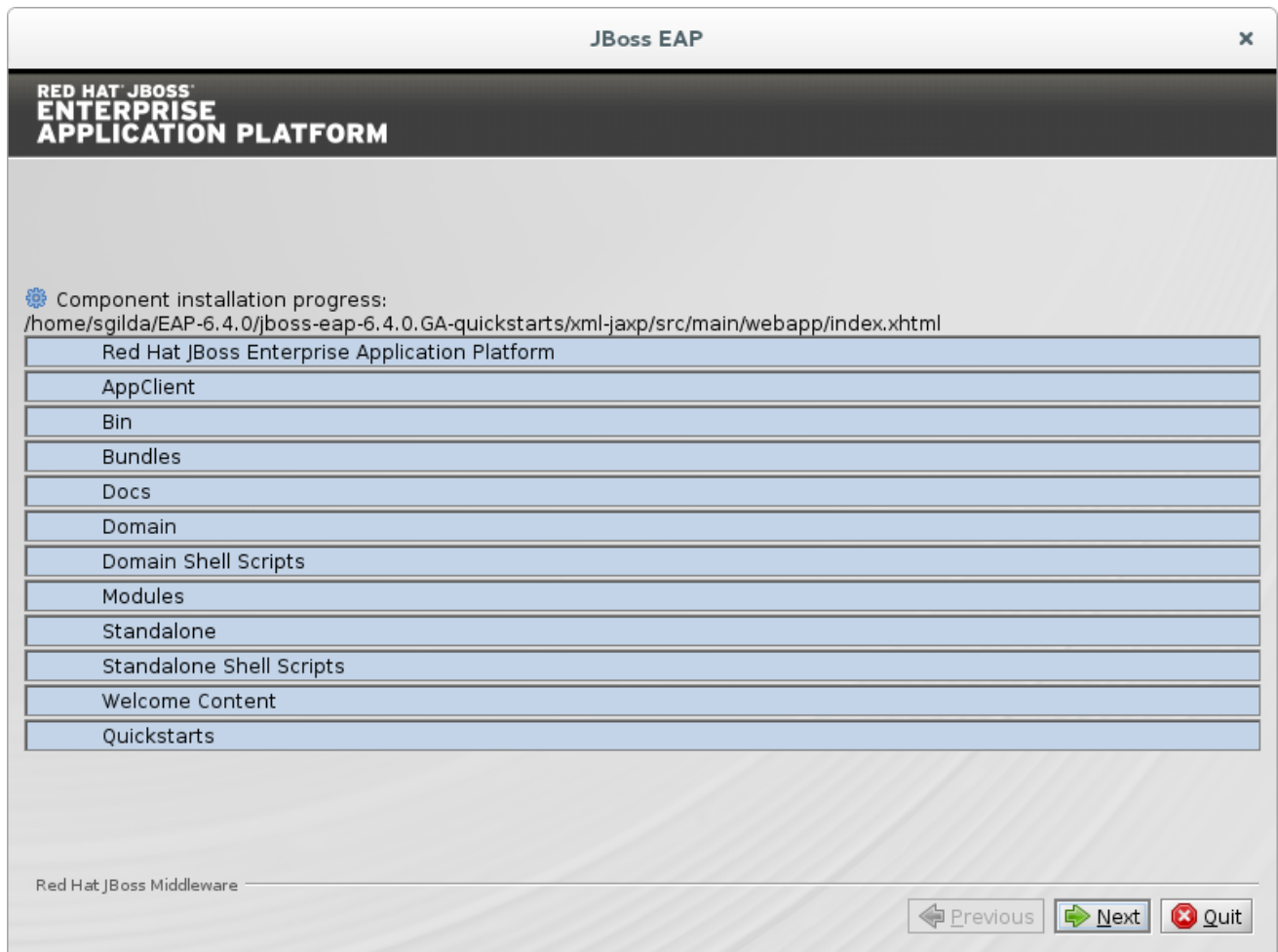
Report a bug

B.22. INSTALLATION PROGRESS

Figure B.33. JBoss EAP Installation Program Component Installation Progress

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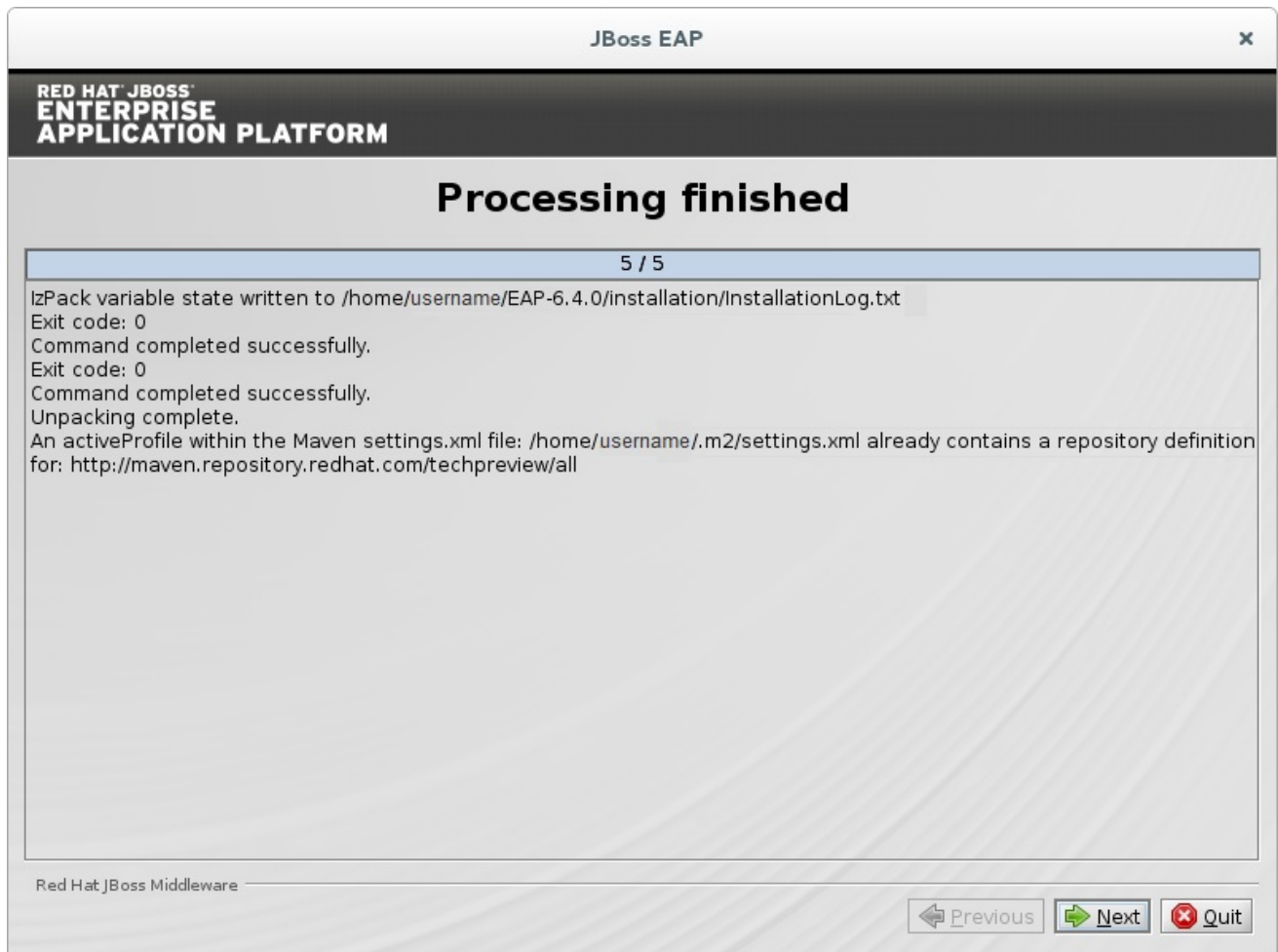# B.23. INSTALLATION PROCESSING FINISHED

Figure B.34. JBoss EAP Installation Program Processing Finished
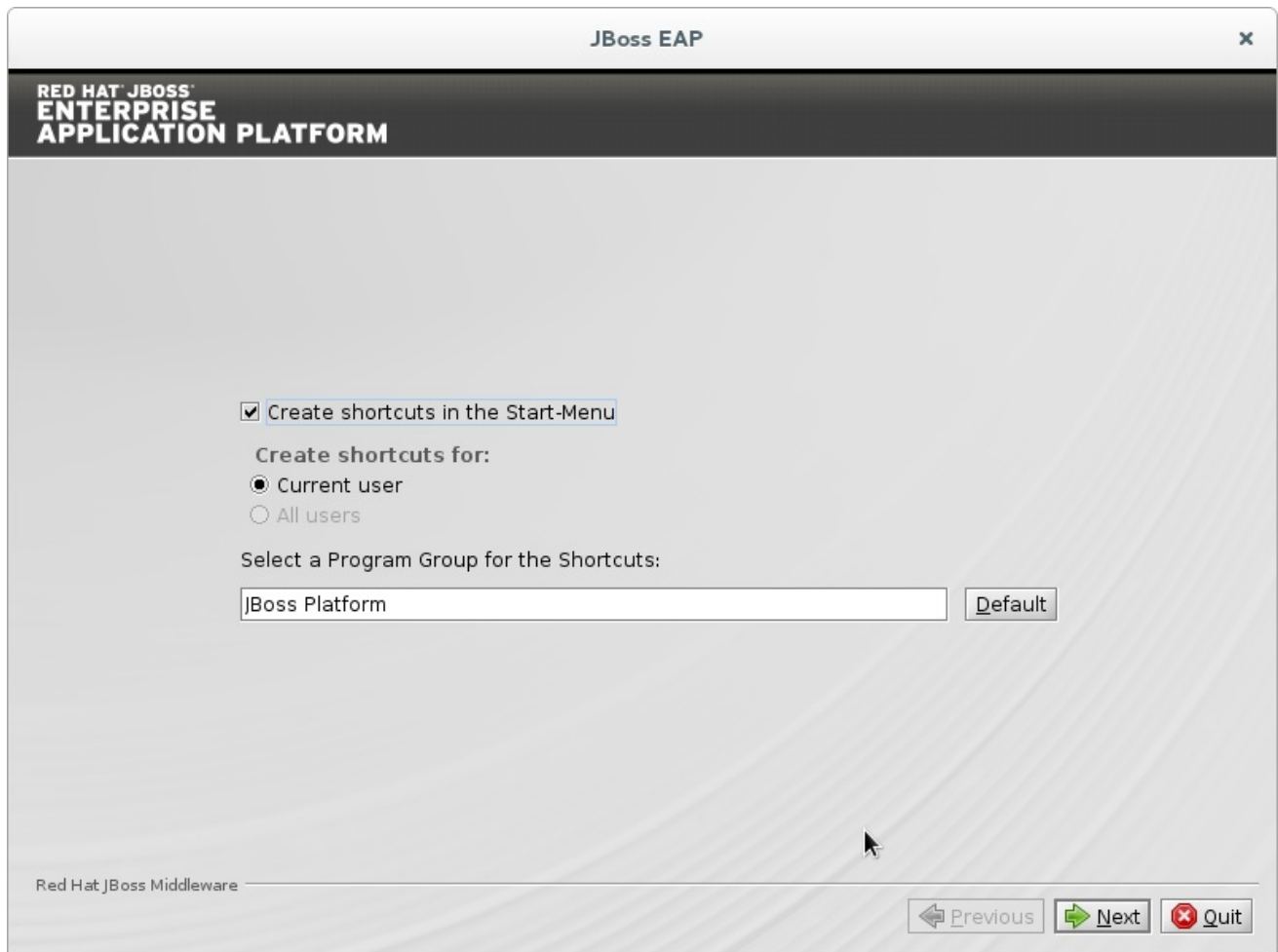
Report a bug

B.24. CREATE SHORTCUTS

Figure B.35. JBoss EAP Installer Create Shortcuts
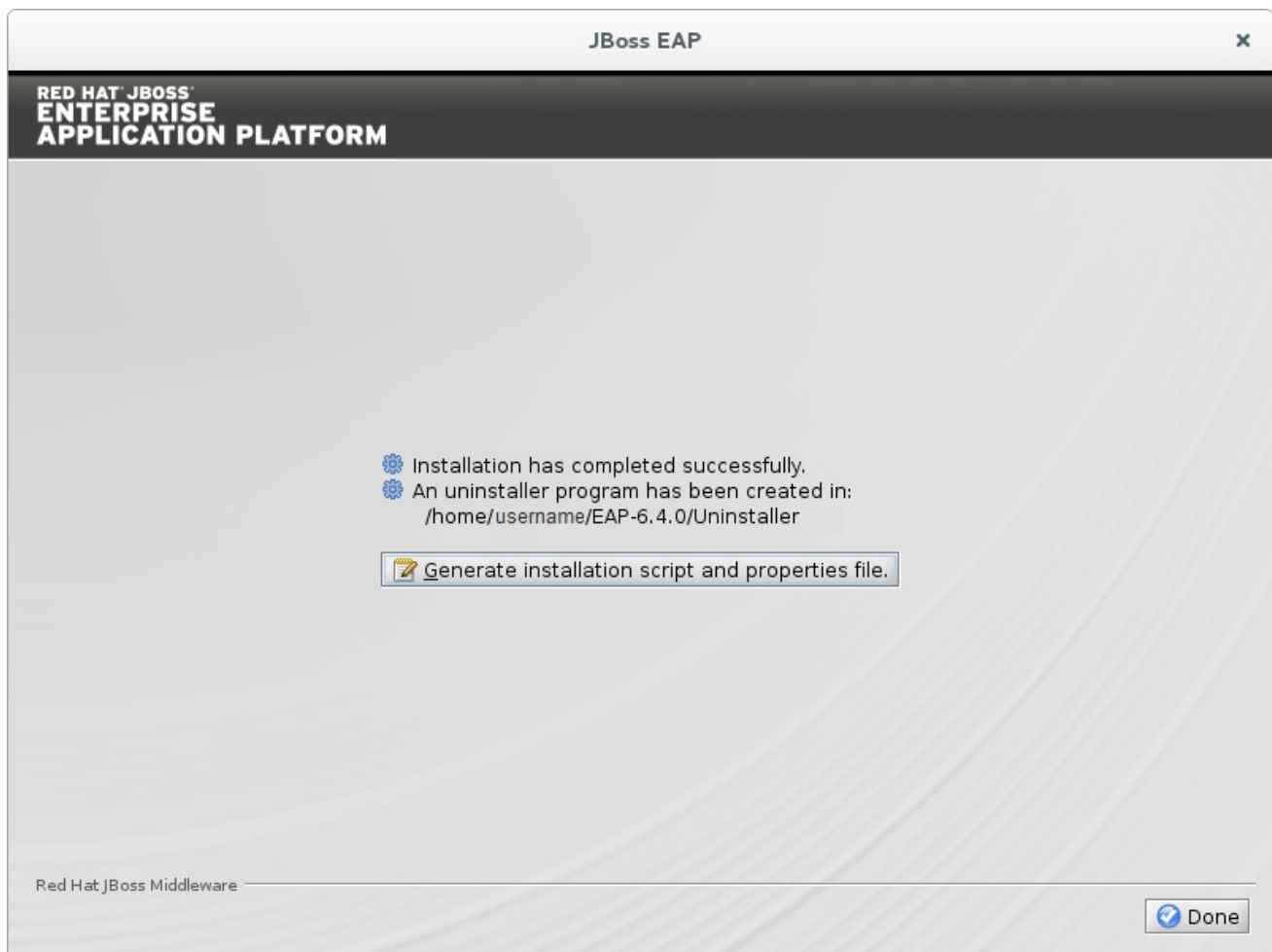
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B.25. GENERATE INSTALL SCRIPT

Figure B.36. JBoss EAP Installation Program Generate Install Script

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APPENDIX C. REVISION HISTORY

Revision 6.4.0-45   **Thursday November 16 2017**   **Red Hat Customer Content Services**
     Red Hat JBoss Enterprise Application Platform 6.4 Continuous Release