



OpenJDK 8

Installing and using OpenJDK 8 for RHEL

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Abstract

OpenJDK is a Red Hat offering on the Red Hat Enterprise Linux platform. The Installing and using OpenJDK 8 guide provides an overview of this product and explains how to install the software and start using it.

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MAKING OPEN SOURCE MORE INCLUSIVE

Red Hat is committed to replacing problematic language in our code, documentation, and web properties. We are beginning with these four terms: master, slave, blacklist, and whitelist. Because of the enormity of this endeavor, these changes will be implemented gradually over several upcoming releases. For more details, see [our CTO Chris Wright's message](#).

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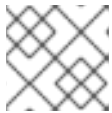
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Procedure

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NOTE

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4. Enter your feedback in the text box and click **Submit**.
A documentation issue is created.
5. To view the issue, click the issue tracker link in the feedback view.

CHAPTER 1. OPENJDK OVERVIEW

OpenJDK (Open Java Development Kit) is a free and open source implementation of the Java Platform, Standard Edition (Java SE). The Red Hat build of OpenJDK is available in two versions, OpenJDK 8u and OpenJDK 11u.

Packages for the Red Hat build of OpenJDK are made available on Red Hat Enterprise Linux and Microsoft Windows and shipped as a JDK and JRE in the Red Hat Container Catalog.

CHAPTER 2. INSTALLING OPENJDK 8 ON RED HAT ENTERPRISE LINUX

OpenJDK is an environment for developing and running a wide range of platform-agnostic applications, from mobile applications to desktop and web applications and enterprise systems. Red Hat provides an open source implementation of the Java Platform SE (Standard Edition) called OpenJDK.

Applications are developed using the JDK (Java Development Kit). Applications are run on a JVM (Java Virtual Machine), which is included in the JRE (Java Runtime Environment) and the JDK. There is also a headless version of Java which has the smallest footprint and does not include the libraries needed for a user interface. The headless version is packaged in the headless subpackage.



NOTE

If you are unsure whether you need the JRE or the JDK, it is recommended that you install the JDK.

The following sections provide instructions for installing OpenJDK on Red Hat Enterprise Linux:

2.1. INSTALLING A JRE ON RHEL USING YUM

You can install OpenJDK Java Runtime Environment (JRE) using the system package manager, **yum**.

Prerequisites

- Log in as a user with root privileges.

Procedure

1. Run the **yum** command, specifying the package you want to install:

```
$ sudo yum install java-1.8.0-openjdk
```

2. Check that the installation works:

```
$ java -version
openjdk version "1.8.0_242"
OpenJDK Runtime Environment (build 1.8.0_242-b08)
OpenJDK 64-Bit Server VM (build 25.242-b08, mixed mode)
```

2.2. INSTALLING A JRE ON RHEL USING AN ARCHIVE

You can install OpenJDK Java Runtime Environment (JRE) using an archive. This is useful if the Java administrator does not have root privileges.



NOTE

To ease the upgrades for later versions create a parent directory to contain your JREs and create a symbolic link to the latest JRE using a generic path.

Procedure

1. [Download the latest version of the JRE archive for Linux](#) .

2. Extract the contents of the archive to a directory of your choice:

```
$ mkdir ~/jres
$ cd ~/jres
$ tar -xf java-1.8.0-openjdk-1.8.0.242-b08-1.static.jre.openjdkportable.x86_64.tar.xz
```

3. Create a generic path by using symbolic links to your JRE for easier upgrades:

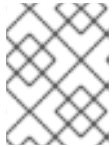
```
$ ln -s ~/jres/java-1.8.0-openjdk-1.8.0.242-b08-1.static.jre.openjdkportable.x86_64
~/jres/java-8
```

4. Configure the **JAVA_HOME** environment variable:

```
$ export JAVA_HOME=~/jres/java-8
```

5. Verify that **JAVA_HOME** environment variable is set correctly:

```
$ printenv | grep JAVA_HOME
JAVA_HOME=~/jres/java-8
```



NOTE

When installed using this method, OpenJDK will only be available for the current user.

6. Add the **bin** directory of the generic JRE path to the **PATH** environment variable:

```
$ export PATH="$JAVA_HOME/bin:$PATH"
```

7. Verify that **java -version** works without supplying the full path:

```
$ java -version
openjdk version "1.8.0_242"
OpenJDK Runtime Environment (build 1.8.0_242-b08)
OpenJDK 64-Bit Server VM (build 25.242-b08, mixed mode)
```



NOTE

You can ensure that **JAVA_HOME** environment variable persists for the current user by exporting the environment variable in `~/.bashrc`.

2.3. INSTALLING OPENJDK 8 ON RHEL USING YUM

You can install OpenJDK using the system package manager, **yum**.

Prerequisites

- Log in as a user with root privileges.

Procedure

1. Run the **yum** command, specifying the package you want to install:


```
$ sudo yum install java-1.8.0-openjdk-devel
```

2. Check that the installation works:

```
$ javac -version
javac 1.8.0_242
```

2.4. INSTALLING OPENJDK ON RHEL USING AN ARCHIVE

You can install OpenJDK using an archive. This is useful if the Java administrator does not have root privileges.



NOTE

To ease upgrades, create a parent directory to contain your JREs and create a symbolic link to the latest JRE using a generic path.

Procedure

1. [Download the latest version of the OpenJDK archive for Linux](#) .
2. Extract the contents of the archive to a directory of your choice:

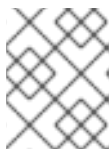
```
$ mkdir ~/jdk
$ cd ~/jdk
$ tar -xf java-1.8.0-openjdk-1.8.0.242.b08-1.static.jdk.openjdkportable.x86_64.tar.xz
```

3. Create a generic path by using symbolic links to your JRE for easier upgrades:
\$ ln -s ~/jdk/java-1.8.0-openjdk-1.8.0.242.b08-1.static.jdk.openjdkportable.x86_64 ~/jdk/java-8
4. Configure the **JAVA_HOME** environment variable:

```
$ export JAVA_HOME=~/jdk/java-8
```

5. Verify that **JAVA_HOME** environment variable is set correctly:

```
$ printenv | grep JAVA_HOME
JAVA_HOME=~/jdk/java-8
```



NOTE

When installed using this method, OpenJDK will only be available for the current user.

6. Add the **bin** directory of the generic OpenJDK path to the **PATH** environment variable:

```
$ export PATH="$JAVA_HOME/bin:$PATH"
```

7. Verify that **javac -version** works without supplying the full path:

```
$ javac -version
javac "1.8.0_242"
```



NOTE

You can ensure that **JAVA_HOME** environment variable persists for the current user by exporting the environment variable in `~/.bashrc`.

2.5. INSTALLING MULTIPLE MAJOR VERSIONS OF OPENJDK ON RHEL USING YUM

You can install multiple versions of OpenJDK using the system package manager, **yum**.

Prerequisites

- A Red Hat Subscription Manager (RHSM) account with an active subscription that provides access to a repository that provides the OpenJDK versions you want to install.
- You must have root privileges on the system.

Procedure

1. Run the following **yum** commands to install the package:

For OpenJDK 8

```
$ sudo yum install java-1.8.0-openjdk
```

For OpenJDK 11

```
$ sudo yum install java-11-openjdk
```

2. After installing, check the available java versions:

```
$ sudo yum list installed "java*"
```

```
Installed Packages
```

```
java-1.8.0-openjdk.x86_64      1:1.8.0.272.b10-3.el8_3      @rhel-8-for-x86_64-
```

```
appstream-rpms
```

```
java-11-openjdk.x86_64      1:11.0.9.11-2.el8_3        @rhel-8-for-x86_64-appstream-
```

```
rpms
```

3. Check the current java version:

```
$ java -version
```

```
openjdk version "1.8.0_242"
```

```
OpenJDK Runtime Environment (build 1.8.0_242-b08)
```

```
OpenJDK 64-Bit Server VM (build 25.242-b08, mixed mode)
```

Additional resources

- You can configure the default OpenJDK version to use by using **java --alternatives**. For more information see [Selecting a system-wide java version](#).

2.6. INSTALLING MULTIPLE MAJOR VERSIONS OF OPENJDK ON RHEL USING AN ARCHIVE

You can install multiple major versions of OpenJDK by using the same procedures found in [Installing a JRE on RHEL using an archive](#) or [Installing OpenJDK on RHEL using an archive](#) using multiple major versions.



NOTE

For instructions how to configure the default OpenJDK version for the system, see [Selecting a system-wide archive java version](#).

2.7. INSTALLING MULTIPLE MINOR VERSIONS OF OPENJDK ON RHEL USING YUM

You can install multiple minor versions of OpenJDK on RHEL. This is done by preventing the installed minor versions from being updated.

Procedure

1. Add the **installonlypkgs** option in **/etc/yum.conf** to specify the OpenJDK packages that **yum** can install but not update.

```
installonlypkgs=java-<version>--openjdk,java-<version>--openjdk-headless,java-<version>--openjdk-devel
```

Updates will install new packages while leaving the old versions on the system:

```
$ rpm -qa | grep java-1.8.0-openjdk
java-1.8.0-openjdk-1.8.0.242.b08-0.el8_1.x86_64
java-1.8.0-openjdk-headless-1.8.0.242.b08-0.el8_1.x86_64
```

2. The different minor versions of OpenJDK can be found in the **/usr/lib/jvm/<minor version>** files.

For example, the following shows part of **/usr/lib/jvm/java-1.8.0-openjdk-1.8.0:**

```
$ /usr/lib/jvm/java-1.8.0-openjdk-1.8.0.242.b08-0.el8_1.x86_64/bin/java -version
openjdk version "1.8.0_242"
OpenJDK Runtime Environment (build 1.8.0_242-b08)
OpenJDK 64-Bit Server VM (build 25.242-b08, mixed mode)

$ /usr/lib/jvm/java-1.8.0-openjdk-1.8.0.172-7.b11.el7.x86_64/bin/java -version
openjdk version "1.8.0_172"
OpenJDK Runtime Environment (build 1.8.0_172-b11)
OpenJDK 64-Bit Server VM (build 25.172-b11, mixed mode)
```

2.8. INSTALLING MULTIPLE MINOR VERSIONS OF OPENJDK ON RHEL USING AN ARCHIVE

Installing multiple minor versions is the same as [Installing a JRE on RHEL using an archive](#) or [Installing OpenJDK on RHEL using an archive](#) using multiple minor versions.



NOTE

For instructions how to choose a default minor version for the system, see [Selecting a system-wide archive java version](#).

CHAPTER 3. UPDATING OPENJDK 8 ON RHEL

3.1. UPDATING OPENJDK ON RHEL USING YUM

The installed OpenJDK packages can be updated using the **yum** system package manager. This requires root privileges.

Prerequisite

- You must have root privileges on the system.

Procedure

1. Check the current OpenJDK version:

```
$ sudo yum list installed "java*"
```

A list of installed OpenJDK packages appears.

```
Installed Packages
java-1.8.0-openjdk.x86_64      1:1.8.0.242.b08-0.el8_1 @rhel-8-appstream-rpms
java-1.8.0-openjdk-headless.x86_64 1:1.8.0.242.b08-0.el8_1 @rhel-8-appstream-rpms
```

2. Update a specific package. For example:

```
$ sudo yum update java-1.8.0-openjdk
```

3. Verify that the update worked by checking the current OpenJDK versions:

```
# java -version
openjdk version "1.8.0_242"
OpenJDK Runtime Environment (build 1.8.0_242-b08)
OpenJDK 64-Bit Server VM (build 25.242-b08, mixed mode)
```

3.2. UPDATING OPENJDK ON RHEL USING AN ARCHIVE

You can update OpenJDK using an archive. This is useful if the OpenJDK administrator does not have root privileges.

Prerequisites

- Know the generic path pointing to your OpenJDK or JRE installation. For example, `~/jdk8/java-8`

Procedure

1. Remove the existing symbolic link of the generic path to your OpenJDK or JRE.

For example:

```
$ unlink ~/jdk8/java-8
```

2. Install the latest version of the OpenJDK or JRE in your installation location.

- For instructions on installing a JRE, see [Installing a JRE on RHEL using an archive](#) .

- For instructions on installing a OpenJDK, see [Installing OpenJDK on RHEL using an archive](#) .