

Handling Multiple JREs and JDKs: The Alternatives System

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It is possible that you will have (or want to have) multiple versions of Java components installed on your system. While you can directly invoke a specific choice without disturbing the general system configuration, it is also possible to set the system default in an easily reversible way.

In order to enable this, most Linux systems use the alternatives tool to set the system default. This utility is used for many alternative setting tasks on the system, not just those which are Java-related.

For example, to reconfigure the choice for Java on a Red Hat-based system:

```
$ sudo alternatives --config java
```

There are 2 programs which provide 'java'.

Selection	Command
1	java-1.7.0-openjdk.x86_64 \
	(/usr/lib/jvm/java-1.7.0-openjdk-1.7.0.161-2.6.12.0.el7_4
	.x86_64/jre/bin/java)
*+ 2	java-1.8.0-openjdk.x86_64 \
	(/usr/lib/jvm/java-1.8.0-openjdk-1.8.0.161-0.b14.el7_4
	.x86_64/jre/bin/java)

Enter to keep the current selection[+], or type selection number:

How to use this is pretty obvious.

On Debian-based systems, such as Ubuntu, the command is **update-alternatives**.

How this works is pretty straightforward. The directory **/etc/alternatives** contains symbolic links to the proper location:

```
$ ls -l /etc/alternatives/java
```

```
lrwxrwxrwx 1 root root 73 Jan 19 07:02 /etc/alternatives/java -> \
```

```
/usr/lib/jvm/java-1.8.0-openjdk-1.8.0.161-0.b14.el7_4.x86_64/jre/bin/java
```

Note that the generic Java binary is also just a symbolic link:

```
$ which java
```

```
/usr/bin/java
```

```
$ ls -l /usr/bin/java
```

```
lrwxrwxrwx 1 root root 22 Jan 19 07:02 /usr/bin/java -> /etc/alternatives/java
```

You can also set this for the Java compiler, **javac**, as in:

```
$ sudo alternatives --config javac
```

There is 1 program that provides 'javac'

Selection	Command
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*+ 1	java-1.7.0-openjdk.x86_64 \ (/usr/lib/jvm/java-1.7.0-openjdk-1.7.0.161-2.6.12.0.el7_4 .x86_64/bin/javac)
------	--

Enter to keep the current selection[+], or type selection number:

To just change versions for a specific user, you could put something like this in the **\$HOME/.bashrc** file:

```
export JAVA_HOME=/usr/lib/jvm/java-1.6.0-sun-1.6.0.21.x86_64/jre
```

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

You can always see what version of Java is actually being run in any environment by doing:

```
$ java -version
```