

# Linux

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## Setting the Runtime Java Environment

The version of Java used to compile REEF is controlled in the Maven pom.xml file in the build plugins section under the maven-compiler-plugin artifact identifier. In order to run REEF applications, you must set the JAVA\_HOME environment variable to the correct Java installation directory for your operating system and java version.

On a number of Linux distributions such as Ubuntu, the current active version of Java is controlled via links from /usr/bin set by the update-alternatives command; thus, the value of JAVA\_HOME that causes REEF to use the Java version controlled by update-alternatives is given in the code block below. REEF will concatenate the appropriate path to find executable files.

### bash script to set JAVA\_HOME

```
export JAVA_HOME=/usr
```

You can change the active version of Java controlled by update-alternatives by entering the command below and selecting the desired version from the displayed list.

### bash script to list all installed Java versions on Linux

```
update-alternatives --config java
```

## Test Environment Configuration

The REEF unit tests require a large number of simultaneously open files to successfully complete. This may or may not be allowed by your platform administrator.

### Ubuntu

The default number of open files in an Ubuntu shell is 1024. You can verify this by typing the following command at the shell prompt.

### Check the number of open files allowed for your current user

```
myuser@build> ulimit -n  
1024
```

If you have sudo privileges, you can temporarily increase the number of open files by starting a shell as root, increasing the limit, and then starting a new shell with your login name.

### Temporarily increase the number of open files

```
sudo bash  
ulimit -n 128000  
sudo -u myuser bash  
mvn clean install
```

A more permanent fix requires changing values in system files. If the following lines exist in the /etc/security/limits.conf file, update them to a size of at least 40960. If these line do not exist, add them to the end of the file.

#### Modify limits.conf to permanently increase the number of allowed open files for all users and root

```
*      soft  nofile 128000
*      hard  nofile 128000
root   soft  nofile 128000
root   hard  nofile 128000
```

If the following line does not exist in the `/etc/pam.d/common-session` file, add it.

#### Modify pam.d to permanently increase the number of allowed open files

```
session required pam_limits.so
```

Reboot your machine.

Now type `"ulimit -n"` at the shell prompt and you should get return a value of 40960 which should be sufficient to run the REEF unit tests.

## Compiling

[Java build instructions](#)

[C# build instructions](#)