

Java Setup on Linux: A Complete Tutorial

This tutorial will guide you through checking for Java installation and setting up the JAVA_HOME environment variable on Linux (Ubuntu/Debian-based systems).

Prerequisites:

- A Linux system (Ubuntu/Debian)
- Terminal access
- sudo privileges (for installation only)

Step 1: *Check if Java is Installed First, check if Java Runtime Environment (JRE) is installed:*

```
bash:      java -version
```

Expected output if Java is installed:

```
openjdk version "21.0.10" 2026-01-20 OpenJDK Runtime Environment
(build 21.0.10+7-Ubuntu-124.04) OpenJDK 64-Bit Server VM (build
21.0.10+7- Ubuntu-124.04, mixed mode, sharing)
```

If Java is not installed, you'll see: Command 'java' not found

Step 2: *Check if Java Development Kit (JDK) is Installed*

To compile Java programs, you need the JDK (not just JRE):

```
bash javac -version
```

Expected output if JDK is installed: javac 21.0.10

If only JRE is installed: javac: command not found

Step 3: *Install Java (if needed)*

Install JRE only (for running Java applications):

```
bash sudo apt update sudo apt install default-jre
```

Install JDK (for developing Java applications):

```
bash sudo apt update
sudo apt install default-jdk
```

Install a specific OpenJDK version: `bash sudo apt install openjdk-21-jdk`

Step 4: *Locate Your Java Installation* - Find where Java is installed on your system:

```
bash which java
```

This shows the executable location (usually /usr/bin/java).

To find the actual installation directory (following symlinks):

```
bash readlink -f $(which java) Example output: /usr/lib/jvm/java-21-openjdk-amd64/bin/java
```

The JAVA_HOME path is everything before /bin/java , so in this case:
/usr/lib/jvm/java-21-openjdk-amd64

Step 5: *Check if JAVA_HOME is Set*

```
bash echo $JAVA_HOME
```

 If nothing is displayed, JAVA_HOME is not set.

Step 6: *Set JAVA_HOME Environment Variable:*

Method 1: Using echo commands

```
bash echo 'export
```

```
JAVA_HOME=/usr/lib/jvm/java-21-openjdk-amd64' >> ~/.bashrc echo 'export PATH=$JAVA_HOME/bin:$PATH' >> ~/.bashrc source ~/.bashrc
```

Method 2: Manual editing

Open your .bashrc file:

```
bash nano ~/.bashrc
```

Add these lines at the end:

```
bash export JAVA_HOME=/usr/lib/jvm/java-21-openjdk-amd64 export PATH=$JAVA_HOME/bin:$PATH
```

 Save and exit (Ctrl+X, then Y, then Enter).

Apply the changes:

```
bash source ~/.bashrc
```

Step 7: *Verify JAVA_HOME is Set:*

```
bash echo $JAVA_HOME
```

Expected output: /usr/lib/jvm/java-21-openjdk-amd64