

PRACTICAL NO.-1

Aim: Installation of java on Unix/Linux machine.

DESCRIPTION: -

Java is a high-level, object-oriented programming language used to develop platform-independent applications. To run Java programs on a Unix/Linux machine, we need to install the Java Development Kit (JDK), which includes the Java Runtime Environment (JRE), compiler (javac), and other necessary tools.

This practical demonstrates how to install Java on a Unix/Linux system directly (without using VirtualBox or any virtual machine).

STEPS FOR INSTALLATION: -

Step 1: Install WSL (For Windows Users Only)

If you are using Windows, open PowerShell (Admin) and run: **wsl
--install**

This will install the default Ubuntu distribution on WSL. Restart your system after installation.

Step 2: Update the System Repository

After opening Linux (directly or via WSL), update repositories: **sudo
apt update**

Step 3: Install Java JDK

sudo apt install openjdk-11-jdk -y

Step 4: Verify Installation

Check whether Java installed successfully: **java -
version Expected output (may vary by version):**

openjdk version "11.0.x" 2025-xx-xx

OpenJDK Runtime Environment (build 11.0.x+xx)

OpenJDK 64-Bit Server VM (build 11.0.x+xx, mixed mode)

Step 5: Configure Environment Variables nano

~/.bashrc

Opens the .bashrc file in the Nano text editor. This file contains shell configuration commands that run every time you start a terminal.

Inside .bashrc, add:

export JAVA_HOME=/usr/lib/jvm/java-8-openjdk-amd64

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

JAVA_HOME defines the Java installation directory path as an environment variable. PATH adds Java's bin directory, enabling you to run Java commands from anywhere.

Step 6: Apply Changes Immediately**source ~/.bashrc**

Reloads the .bashrc file so that changes to environment variables take effect immediately without restarting the terminal.

Step 7: Confirm JAVA_HOME**echo \$JAVA_HOME**

Prints the current value of the JAVA_HOME environment variable to confirm it's set correctly.

```
PS C:\WINDOWS\system32> wsl --install
Downloading: Ubuntu
PS C:\WINDOWS\system32> cd D:\3% ]
PS D:\> wsl --install
Downloading: Ubuntu
Installing: Ubuntu
Distribution successfully installed. It can be launched via 'wsl.exe -d Ubuntu'
Launching Ubuntu...
Provisioning the new WSL instance Ubuntu
This might take a while...
Create a default Unix user account: sus
New password:
Retype new password:
passwd: password updated successfully
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.
```

```
sus@SUS-VIVOBOOK16:~$ sudo apt update
[sudo] password for sus:
Get:1 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Hit:2 http://archive.ubuntu.com/ubuntu noble InRelease
Get:3 http://archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:4 http://security.ubuntu.com/ubuntu noble-security/main amd64 Components [21.5 kB]
Get:5 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Packages [878 kB]
Get:6 http://archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:7 http://archive.ubuntu.com/ubuntu noble/universe amd64 Packages [13.8 MB]
Get:8 http://security.ubuntu.com/ubuntu noble-security/universe Translation-en [194 kB]
Get:9 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Components [52.2 kB]
Get:10 http://security.ubuntu.com/ubuntu noble-security/universe amd64 c-n-f Metadata [117.0 kB]
Get:11 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Components [212 B]
Get:12 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Packages [18.5 kB]
Get:13 http://security.ubuntu.com/ubuntu noble-security/multiverse Translation-en [4288 B]
Get:14 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Components [212 B]
Get:15 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 c-n-f Metadata [388 B]
Get:16 http://archive.ubuntu.com/ubuntu noble/universe Translation-en [5982 kB]
30% [7 Packages store 0 B] [16 Translation-en 49 B/5982 kB 8%] 2332 kB/s 64
```

```
Get:85 http://archive.ubuntu.com/ubuntu noble-backports/restricted amd64 Components [216 B]
Get:86 http://archive.ubuntu.com/ubuntu noble-backports/restricted amd64 c-n-f Metadata [116 B]
Get:87 http://archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 Components [212 B]
Get:88 http://archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 c-n-f Metadata [116 B]
Fetched 32.9 MB in 11s (3014 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
All packages are up to date.
sus@SUS-VIVOBOOK16:~$ sudo apt install openjdk-11-jdk -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  alsa-topology-conf alsa-ucm-conf ca-certificates-java fonts-dejavu-extra java-common libasound2-data libasound2t64
  libatk-wrapper-java libatk-wrapper-java-jni libgif7 libice-dev libice6 libnspr4 libnss3 libpcsc-lite1
  libpthread-stubs0-dev libxau-dev libxau7 libxcb-shape0 libxcb1-dev libxdmcp-dev libxft2
  libxkbfile1 libxmu6 libxpm4 libxt-dev libxt6t64 libxv1 libxxf86dgal openjdk-11-jdk-headless openjdk-11-jre
  openjdk-11-jre-headless x11-utils x11proto-dev xorg-sgml-doctools xtrans-dev
Suggested packages:
  default-jre alsa-utils libasound2-plugins libice-doc pcscd libse-dev libx11-doc libxcb-doc libxt-doc openjdk-11-demo
  openjdk-11-source visualvm libnss-mdns fonts-ipafont-gothic fonts-ipafont-mincho fonts-wqy-microhei
  | fonts-wqy-zenhei fonts-indic mesa-utils
Recommended packages:
  luit
The following NEW packages will be installed:
  alsa-topology-conf alsa-ucm-conf ca-certificates-java fonts-dejavu-extra java-common libasound2-data libasound2t64
  libatk-wrapper-java libatk-wrapper-java-jni libgif7 libice-dev libice6 libnspr4 libnss3 libpcsc-lite1
  libpthread-stubs0-dev libxau-dev libxau7 libxcb-shape0 libxcb1-dev libxdmcp-dev libxft2
  libxkbfile1 libxmu6 libxpm4 libxt-dev libxt6t64 libxv1 libxxf86dgal openjdk-11-jdk openjdk-11-jdk-headless
```

```
sus@ASUS-VIVOBOOK16:~$ java -version
openjdk version "11.0.28" 2025-07-15
OpenJDK Runtime Environment (build 11.0.28+6-post-Ubuntu-1ubuntu124.04.1)
OpenJDK 64-Bit Server VM (build 11.0.28+6-post-Ubuntu-1ubuntu124.04.1, mixed mode, sharing)
sus@ASUS-VIVOBOOK16:~$ nano ~/.bashrc
sus@ASUS-VIVOBOOK16:~$ source ~/.bashrc
sus@ASUS-VIVOBOOK16:~$ echo $JAVA_HOME
/usr/lib/jvm/java-8-openjdk-amd64
sus@ASUS-VIVOBOOK16:~$ |
```

CONCLUSION: -

Java was successfully installed on a Unix/Linux system (directly or using WSL on Windows). The installation was verified by compiling and executing a sample program.