

Practical 1: Installation of Java on Unix/Linux Machine (Without VirtualBox)

This guide uses WSL (Windows Subsystem for Linux) to simulate a Linux environment directly on Windows.

Step 1: Enable WSL

1. Open PowerShell as Administrator

2. Run the following command:

```
wsl --install
```

3. Restart your computer when prompted.

4. After restart, choose Ubuntu or install it from the Microsoft Store.

Step 2: Open Ubuntu (WSL)- Search for 'Ubuntu' in Start Menu and open it.- It will initialize and ask for a username and password.

Step 3: Update the Package List

Run the following command:

```
sudo apt update
```

Step 4: Install Java (OpenJDK 8 or 11)- For Java 8:

```
sudo apt install openjdk-8-jdk -y
```

```
For Java 11:  
sudo apt install openjdk-11-jdk -y
```

Step 5: Verify Java Installation

Run:

```
java -version
```

Expected output:

```
openjdk version "1.8.0_xxx" ...
```

Step 6: Set JAVA_HOME Environment Variable (Optional)

1. Open .bashrc file:

```
nano ~/.bashrc
```

2. Add the following lines at the end:

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

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

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

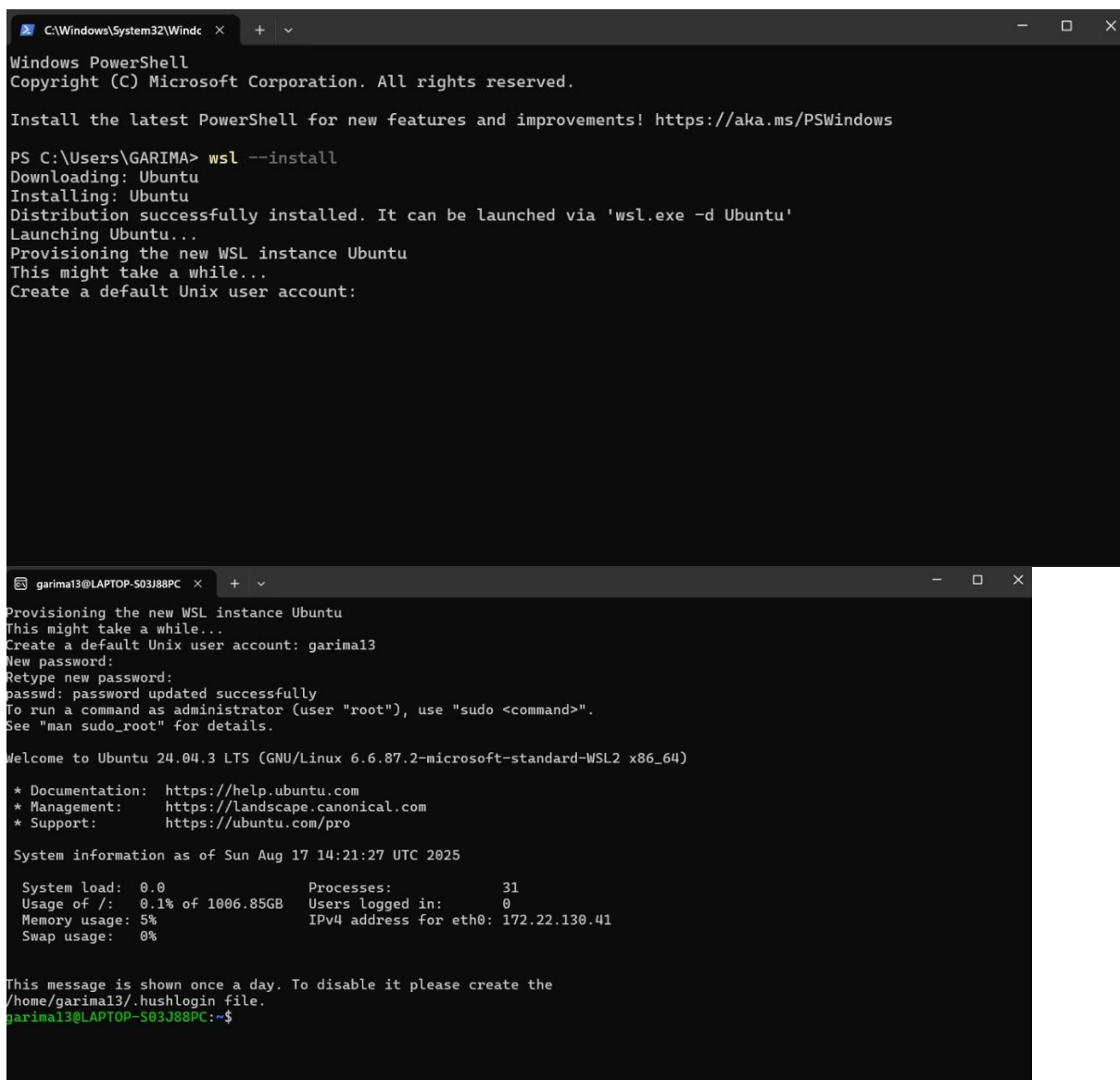
4. Reload bashrc:

```
source ~/.bashrc
```

5. Verify JAVA_HOME is set:

```
echo $JAVA_HOME
```

You now have Java installed on a Linux system simulated within Windows without using VirtualBox



```
C:\Windows\System32\Windc x + v
Windows PowerShell
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Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\GARIMA> 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:

garima13@LAPTOP-S03J88PC x + v
Provisioning the new WSL instance Ubuntu
This might take a while...
Create a default Unix user account: garima13
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.

Welcome to Ubuntu 24.04.3 LTS (GNU/Linux 6.6.87.2-microsoft-standard-WSL2 x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/pro

System information as of Sun Aug 17 14:21:27 UTC 2025

System load:  0.0          Processes:      31
Usage of /:   0.1% of 1006.85GB   Users logged in: 0
Memory usage: 5%          IPv4 address for eth0: 172.22.130.41
Swap usage:   0%

This message is shown once a day. To disable it please create the
/home/garima13/.hushlogin file.
garima13@LAPTOP-S03J88PC:~$
```

```
garima13@LAPTOP-S03J88PC:~$ sudo apt update
[sudo] password for garima13:
Hit:1 http://archive.ubuntu.com/ubuntu noble InRelease
Get:2 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Get:3 http://archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:4 http://archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:5 http://archive.ubuntu.com/ubuntu noble/universe amd64 Packages [15.0 MB]
Get:6 http://security.ubuntu.com/ubuntu noble-security/main amd64 Packages [1060 kB]
Get:7 http://security.ubuntu.com/ubuntu noble-security/main Translation-en [184 kB]
Get:8 http://security.ubuntu.com/ubuntu noble-security/main amd64 Components [21.6 kB]
Get:9 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Packages [879 kB]
Get:10 http://security.ubuntu.com/ubuntu noble-security/universe Translation-en [194 kB]
Get:11 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Components [52.2 kB]
Get:12 http://security.ubuntu.com/ubuntu noble-security/universe amd64 c-n-f Metadata [17.0 kB]
Get:13 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Packages [1572 kB]
Get:14 http://security.ubuntu.com/ubuntu noble-security/restricted Translation-en [346 kB]
Get:15 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Components [212 B]
Get:16 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Packages [18.5 kB]
Get:17 http://security.ubuntu.com/ubuntu noble-security/multiverse Translation-en [4288 B]
Get:18 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Components [212 B]
Get:19 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 c-n-f Metadata [380 B]
Get:20 http://archive.ubuntu.com/ubuntu noble/universe Translation-en [5982 kB]
Get:21 http://archive.ubuntu.com/ubuntu noble/universe amd64 Components [3871 kB]
Get:22 http://archive.ubuntu.com/ubuntu noble/universe amd64 c-n-f Metadata [301 kB]
Get:23 http://archive.ubuntu.com/ubuntu noble/multiverse amd64 Packages [269 kB]
Get:24 http://archive.ubuntu.com/ubuntu noble/multiverse Translation-en [118 kB]
Get:25 http://archive.ubuntu.com/ubuntu noble/multiverse amd64 Components [35.0 kB]
Get:26 http://archive.ubuntu.com/ubuntu noble/multiverse amd64 c-n-f Metadata [8328 B]
Get:27 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [1325 kB]
Get:28 http://archive.ubuntu.com/ubuntu noble-updates/main Translation-en [265 kB]

garima13@LAPTOP-S03J88PC:~$ sudo apt install openjdk-8-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
  libasynccs0 libatk-wrapper-java libatk-wrapper-java-jni libflac12t64 libgail-common libgail18t64 libgif7
  libgtk2.0-0t64 libgtk2.0-bin libgtk2.0-common libice-dev libice6 libmp3lame0 libmpg123-0t64 libnspr4 libnss3 libogg0
  libopus0 libpcsc-lite libpthread-stubs0-dev libpulse0 libsm-dev libsm6 libsndfile1 libvorbis0a libvorbisenc2
  libx11-dev libxau-dev libxaw7 libxcb-shape0 libxcb1-dev libxdmcp-dev libxft2 libxkbfile1 libxmu6 libxpm4 libxt-dev
  libxt6t64 libxv1 libxxf86dga1 openjdk-8-jdk-headless openjdk-8-jre openjdk-8-jre-headless x11-utils x11proto-dev
  xorg-sgml-doctools xtrans-dev
Suggested packages:
  default-jre alsa-utils libasound2-plugins gvfs libice-doc opus-tools pcsd pulseaudio libsm-doc libx11-doc
  libxcb-doc libxt-doc openjdk-8-demo openjdk-8-source visualvm libnss-mdns fonts-nanum 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
  libasynccs0 libatk-wrapper-java libatk-wrapper-java-jni libflac12t64 libgail-common libgail18t64 libgif7
  libgtk2.0-0t64 libgtk2.0-bin libgtk2.0-common libice-dev libice6 libmp3lame0 libmpg123-0t64 libnspr4 libnss3 libogg0
  libopus0 libpcsc-lite libpthread-stubs0-dev libpulse0 libsm-dev libsm6 libsndfile1 libvorbis0a libvorbisenc2
  libx11-dev libxau-dev libxaw7 libxcb-shape0 libxcb1-dev libxdmcp-dev libxft2 libxkbfile1 libxmu6 libxpm4 libxt-dev
  libxt6t64 libxv1 libxxf86dga1 openjdk-8-jdk openjdk-8-jdk-headless openjdk-8-jre openjdk-8-jre-headless x11-utils
  x11proto-dev xorg-sgml-doctools xtrans-dev
0 upgraded, 55 newly installed, 0 to remove and 2 not upgraded.
Need to get 54.4 MB of archives.
After this operation, 183 MB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu noble/main amd64 alsa-topology-conf all 1.2.5.1-2 [15.5 kB]

garima13@LAPTOP-S03J88PC:~$ java -version
openjdk version "1.8.0_462"
OpenJDK Runtime Environment (build 1.8.0_462-8u462-ga~us1-0ubuntu2~24.04.2-b08)
OpenJDK 64-Bit Server VM (build 25.462-b08, mixed mode)
garima13@LAPTOP-S03J88PC:~$
```