Practical: 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

```
Provisioning the new WSL instance Ubuntu
This might take a while...
Create a default Unix user account: fhrizwi
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 Mon Aug 11 06:20:30 UTC 2025

  System load:  0.0              Processes:             32
  Usage of /:   0.1% of 1006.85GB   Users logged in:       0
  Memory usage: 11%              IPv4 address for eth0: 172.29.237.181
  Swap usage:   0%

This message is shown once a day. To disable it please create the
/home/mmdu/.hushlogin file.
mmdu@DESKTOP-HVMJ00U:~$ sudo apt update
[sudo] password for mmdu:
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://security.ubuntu.com/ubuntu noble-security/main amd64 Components [21.6 kB]
Get:5 http://archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:6 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Packages [878 kB]
Get:7 http://security.ubuntu.com/ubuntu noble-security/universe Translation-en [194 kB]
Get:8 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Components [52.3 kB]
Get:9 http://security.ubuntu.com/ubuntu noble-security/universe amd64 c-n-f Metadata [17.0 kB]
Get:10 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Components [212 B]
Get:11 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Packages [18.5 kB]
Get:12 http://security.ubuntu.com/ubuntu noble-security/multiverse Translation-en [4288 B]
Get:13 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Components [212 B]
Get:14 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 c-n-f Metadata [380 B]
Ign:15 http://archive.ubuntu.com/ubuntu noble/universe amd64 Packages
```

```
fhrizwi@GOLDEN: /mnt/c/WII                                                      ─  ⬜  ✕

Downloading: Ubuntu
Installing: Ubuntu
wsl: Failed to configure network (networkingMode Nat), falling back to networkingMode VirtioProxy.
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: fhrizwi
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.

fhrizwi@GOLDEN:/mnt/c/WINDOWS/system32$ sudo apt update
[sudo] password for fhrizwi:
Hit:1 http://archive.ubuntu.com/ubuntu noble InRelease
Get:2 http://archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:3 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Get:4 http://archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:5 http://security.ubuntu.com/ubuntu noble-security/main amd64 Packages [1056 kB]
Get:6 http://security.ubuntu.com/ubuntu noble-security/main Translation-en [183 kB]
Get:7 http://security.ubuntu.com/ubuntu noble-security/main amd64 Components [21.6 kB]
Get:8 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Packages [878 kB]
Get:9 http://security.ubuntu.com/ubuntu noble-security/universe Translation-en [194 kB]
Get:10 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Components [52.3 kB]
Get:11 http://security.ubuntu.com/ubuntu noble-security/universe amd64 c-n-f Metadata [17.0 kB]
Get:12 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Packages [1566 kB]
Get:13 http://security.ubuntu.com/ubuntu noble-security/restricted Translation-en [343 kB]
Get:14 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Components [208 B]
Get:15 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Packages [18.5 kB]
Get:16 http://security.ubuntu.com/ubuntu noble-security/multiverse Translation-en [4288 B]
Get:17 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Components [212 B]
Get:18 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 c-n-f Metadata [380 B]
Get:19 http://archive.ubuntu.com/ubuntu noble/universe amd64 Packages [15.0 MB]
Ign:19 http://archive.ubuntu.com/ubuntu noble/universe amd64 Packages
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]
```

Terminal output (top window):

```
Get:52 http://archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 c-n-f Metadata [116 B]
Ign:19 http://archive.ubuntu.com/ubuntu noble/universe amd64 Packages
Ign:19 http://archive.ubuntu.com/ubuntu noble/universe amd64 Packages
Get:19 http://archive.ubuntu.com/ubuntu noble/universe amd64 Packages [15.0 MB]
Fetched 36.1 MB in 4min 49s (125 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
All packages are up to date.
fhrizwi@GOLDEN:/mnt/c/WINDOWS/system32$ 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 libpcsclite1
  libpthread-stubs0-dev libsm-dev libsm6 libx11-dev
  libxau-dev libxaw7 libxcb-shape0 libxcb1-dev libxdmcp-dev
  libxft2 libxkbfile1 libxmu6 libxpm4 libxt-dev libxt6t64
  libxv1 libxxf86dga1 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
  libsm-doc 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 libpcsclite1
  libpthread-stubs0-dev libsm-dev libsm6 libx11-dev
```

Terminal output (bottom window):

```
Get:32 http://archive.ubuntu.com/ubuntu noble/main amd64 libxdmcp-dev amd64 1:1.1.3-0ubuntu6 [26.5 kB]
Get:33 http://archive.ubuntu.com/ubuntu noble/main amd64 xtrans-dev all 1.4.0-1 [68.9 kB]
Get:34 http://archive.ubuntu.com/ubuntu noble/main amd64 libxcb1-dev amd64 1.15-1ubuntu2 [85.8 kB]
Get:35 http://archive.ubuntu.com/ubuntu noble/main amd64 libx11-dev amd64 2:1.8.7-1build1 [732 kB]
Get:36 http://archive.ubuntu.com/ubuntu noble/main amd64 libxt-dev amd64 1:1.2.1-1.2build1 [394 kB]
Ign:37 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 openjdk-11-jre-headless amd64 11.0.28+6-1ubuntu1~24.04.1
Get:38 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 openjdk-11-jre amd64 11.0.28+6-1ubuntu1~24.04.1 [210 kB]
Get:39 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 openjdk-11-jdk-headless amd64 11.0.28+6-1ubuntu1~24.04.1 [73.7 MB]
Get:40 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 openjdk-11-jdk amd64 11.0.28+6-1ubuntu1~24.04.1 [1341 kB]
Ign:37 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 openjdk-11-jre-headless amd64 11.0.28+6-1ubuntu1~24.04.1
Ign:37 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 openjdk-11-jre-headless amd64 11.0.28+6-1ubuntu1~24.04.1
Get:37 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 openjdk-11-jre-headless amd64 11.0.28+6-1ubuntu1~24.04.1 [42.3 MB]
Ign:37 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 openjdk-11-jre-headless amd64 11.0.28+6-1ubuntu1~24.04.1
Err:37 http://security.ubuntu.com/ubuntu noble-updates/universe amd64 openjdk-11-jre-headless amd64 11.0.28+6-1ubuntu1~24.04.1
  Undetermined Error [IP: 91.189.91.82 80]
Fetched 82.3 MB in 8min 31s (161 kB/s)
E: Failed to fetch http://security.ubuntu.com/ubuntu/pool/universe/o/openjdk-lts/openjdk-11-jre-headless_11.0.28%2b6-1ubuntu1%7e24.04.1_amd64.deb  Undetermined Error [IP: 91.189.91.82 80]
E: Unable to fetch some archives, maybe run apt-get update or try with --fix-missing?
fhrizwi@GOLDEN:/mnt/c/WINDOWS/system32$ java -version
Command 'java' not found, but can be installed with:
sudo apt install default-jre              # version 2:1.17-75, or
sudo apt install openjdk-17-jre-headless  # version 17.0.14+7-1~24.04
sudo apt install openjdk-21-jre-headless  # version 21.0.6+7-1~24.04.1
sudo apt install openjdk-19-jre-headless  # version 19.0.2+7-4
sudo apt install openjdk-20-jre-headless  # version 20.0.2+9-1
sudo apt install openjdk-22-jre-headless  # version 22~22ea-1
sudo apt install openjdk-11-jre-headless  # version 11.0.26+4-1ubuntu1~24.04
sudo apt install openjdk-8-jre-headless   # version 8u442-b06~us1-0ubuntu1~24.04
fhrizwi@GOLDEN:/mnt/c/WINDOWS/system32$
```