

# WSL - Windows Subsystem for Linux

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## Install WSL in Windows

We will use windows powershell to install wsl.

### Check WSL-2 Installed or not?

- Open PowerShell
- `wsl --version` or `wsl.exe --version`
- If any above command shows wsl version 2 , then it is already installed

### If WSL 2 Not Instlled

- Search Turn Windows features on or off
- Enable Virtual Machine Platform, Windows Hypervisor Platform, Windows Subsystem for Linux
- Restart Computer (Not power on/off, click on restart)
- Install WSL [WSL-2 Setup](#)
- Switch to WSL-2 `wsl --set-default-version 2`

### If already installed then Remove Previous Installed Distributions

```
wsl --list --verbose
```

For Each Listed distribution

```
- wsl --unregister <DistributionName>
```

- Open Settings → Apps → Installed apps - Find each Linux distribution, click the three-dot menu, and select Uninstall

## Update WSL -> Ubuntu Installation

- `wsl --update`
- `wsl --list --online`
- `wsl --install Ubuntu-24.04 -> Install Ubuntu`
- `sudo apt update && sudo apt upgrade -y -> Update Ubuntu`

### Example

```
PS C:\Users\hrith> wsl --install Ubuntu-24.04
Downloading: Ubuntu 24.04 LTS
Installing: Ubuntu 24.04 LTS
Distribution successfully installed. It can be launched via 'wsl.exe -d Ubuntu-24.04'
Launching Ubuntu-24.04...
Provisioning the new WSL instance Ubuntu-24.04
This might take a while...
Create a default Unix user account: hrm
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.

hrm@bitnd:/mnt/c/Users/hrith$ sudo apt update && sudo apt upgrade -y
[sudo] password for hrm:
Hit:1 http://archive.ubuntu.com/ubuntu noble InRelease
Get:2 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
```

## Install JavaScript Tools

- nvm install visit and run bash script <https://github.com/nvm-sh/nvm>
  - node install <https://nodejs.org/en/download>
    - `nvm install 22`
    - `nvm list nvm use 22 nvm current`
    - `corepack enable yarn`
    - `corepack enable pnpm`
- Check
- `nvm -v`
  - `node -v`
  - `npm -v npx -v`
  - `pnpm -v`
  - `yarn -v`

## Install Python Tools

- 1) Python VENV

- `python3 -m venv .venv -> Copy error code and run sudo apt install python3.12-venv`
- 2) PIPX
  - `sudo apt install pipx`
- 3) UV - Rust-based Python package installer
  - `pipx install uv` It will maintain isolation
- 4) LLM
  - `pipx install llm -> pipx ensurepath`
  - Configure it
    - `llm install llm-gemini` or `llm install llm-ollama`
    - `llm keys set gemini`
    - `llm -m gemini-2.0-flash 'Tell me fun facts about Mountain View'`
- 5) MiniConda
  - Download `.sh` <https://www.anaconda.com/download/success>
  - `bash <pathto .sh file>`
  - `conda config --set auto_activate_base false`

## Install C/C++ Tools

`sudo apt install build-essential`

- `gcc -> The C compiler`
- `g++ -> The C++ compiler`
- Check - `gcc -version`
- `g++ -version`

## Install Java Tools

`sudo apt install default-jdk`

This command installs:

Java Development Kit (JDK) - Compiler, debugger, and development tools

Java Runtime Environment (JRE) - Required to run Java applications

Java Virtual Machine (JVM) - Core execution environment

- Configure JAVA\_HOME Environment Variable
  - `echo 'export JAVA_HOME="/usr/lib/jvm/default-java"' >> ~/.bashrc` ##
  - confirm the path first using below update-alternative... command
  - restart shell
- Install other versions of java
  - `sudo apt install openjdk-17-jdk`
- Set Default Java/Javac installed version
  - `sudo update-alternatives --config java`
  - `sudo update-alternatives --config javac`

Check

- `java --version`
- `javac --version`
- `echo $JAVA_HOME`

## Resources

### Video Tutorials

- WSL-2 Setup [https://www.youtube.com/embed/G4AVNkd\\_u0E](https://www.youtube.com/embed/G4AVNkd_u0E)