GATS Companion
Installing WSL
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Overview

How to install Windows Subsystem for Linux (WSL) on Windows 11.

Installation

If you have already installed Ubuntu earlier than 24.04.1 LTS then uninstall it (you may wish to backup the files first).

The easiest way to install the latest version of Ubuntu Linux on Windows is to install it from the Windows Terminal.

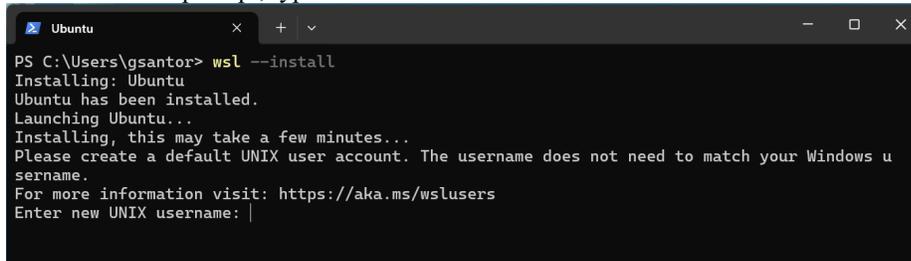1. Type "Terminal" in the Windows Search bar and execute.
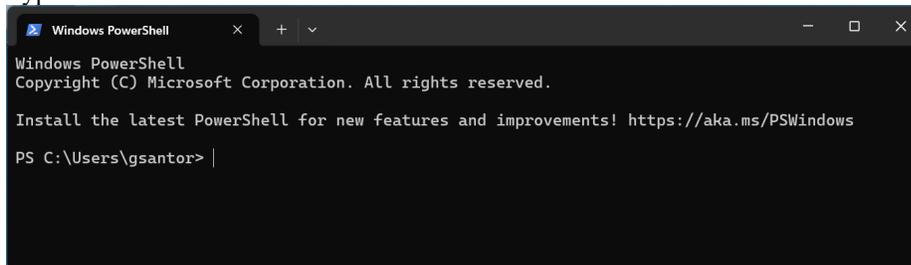
2. At the Terminal prompt, type "wsl –install"

3. Enter a username and password (anything, but Linux is case-sensitive on both counts). The installation will complete and print the distro version of the installation.

4. Exit Linux by typing "exit" (or ^D) at the prompt. This should return you to the original Terminal application.
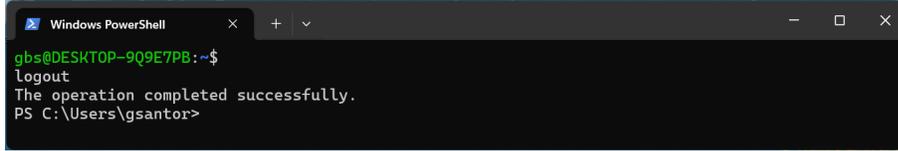
5. Exit the Terminal application.

Launching Ubuntu

There are several ways to launch Ubuntu once installed.

From the Start menu

Look for Ubuntu icon from the Start menu and double click.

From the Terminal app shell menu

Installing Ubuntu has added Ubuntu as an option from the Terminal menu. Click the down pointing wedge then select "Ubuntu"

This opens a new window with Ubuntu. Your username and password have been stored and will be automatically entered.
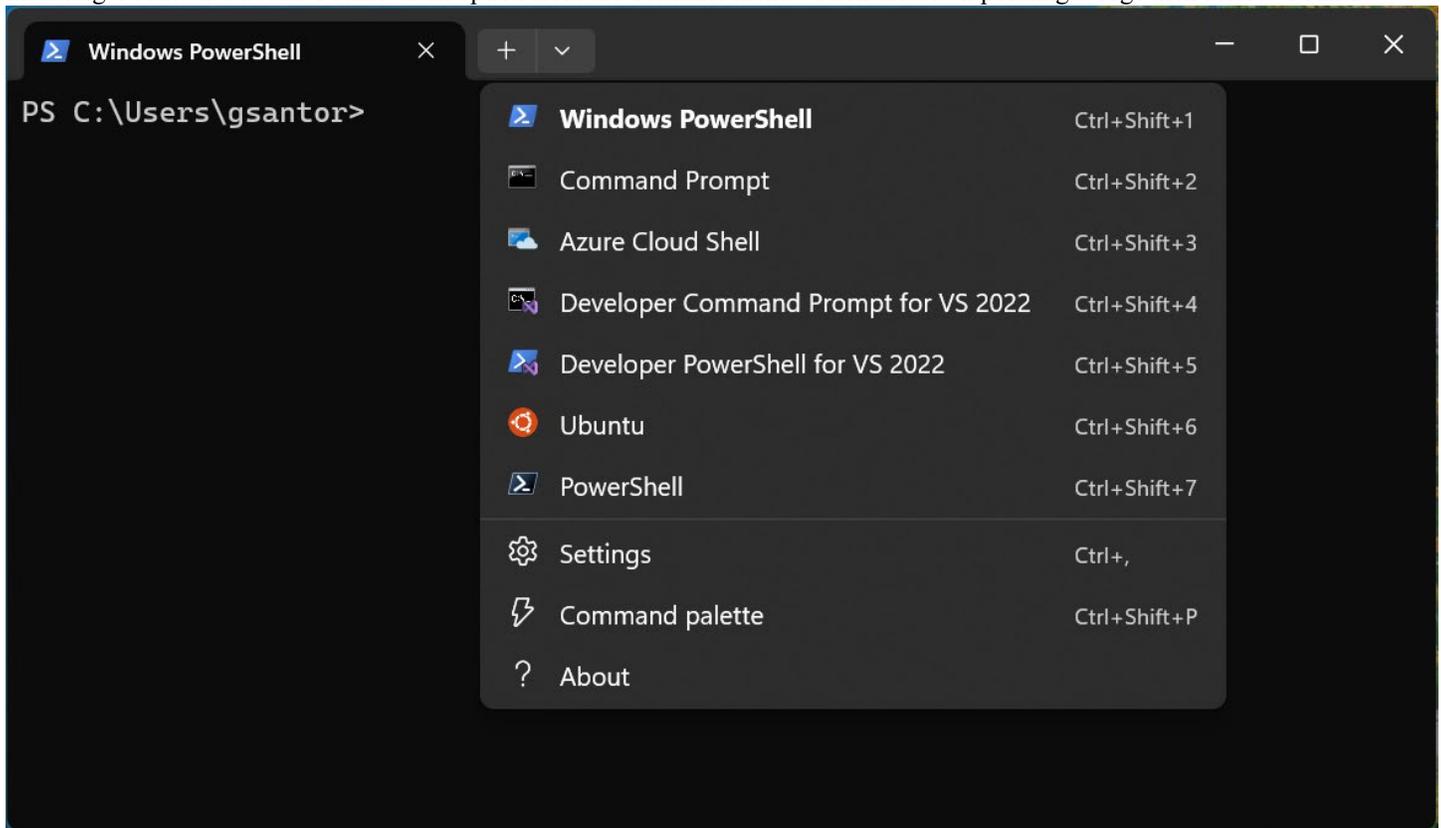
From another Terminal shell

You can launch ubuntu from **Windows PowerShell** or **Command Prompt**.

At the prompt, type "ubuntu"
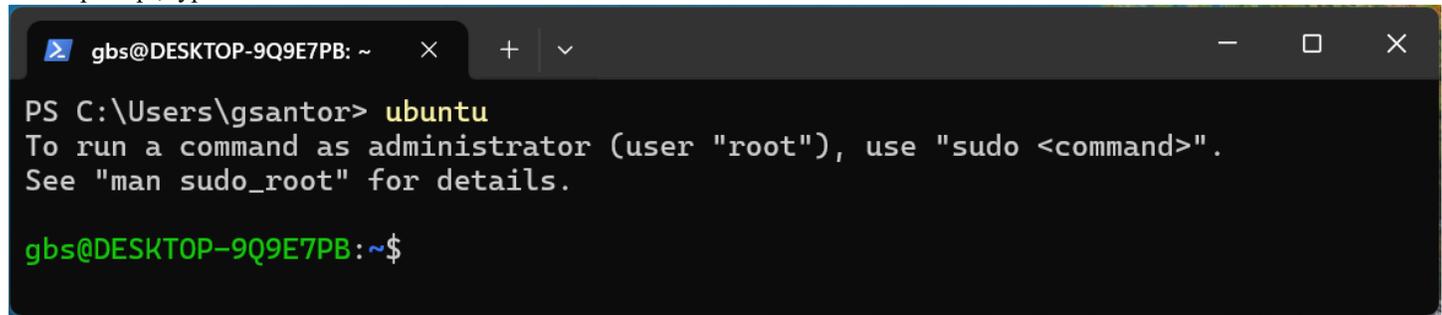
```
PS C:\Users\gsantor> ubuntu
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

gbs@DESKTOP-9Q9E7PB:~$
```

Verify the installation

We can verify the installation using the command lsb_release. LSB stands for Linux Standard Base, a project to standardize the system structure of multiple Linux distributions, to support open standards for Linux binary applications.

At the console prompt, type: `lsb_release --all`↵
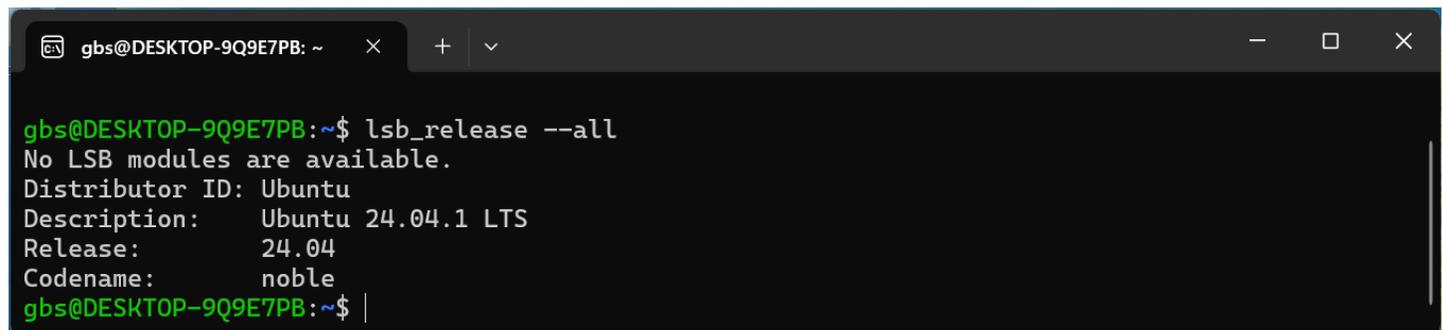
```
gbs@DESKTOP-9Q9E7PB:~$ lsb_release --all
No LSB modules are available.
Distributor ID: Ubuntu
Description:    Ubuntu 24.04.1 LTS
Release:        24.04
Codename:       noble
gbs@DESKTOP-9Q9E7PB:~$
```

Updating your Installation

At the console prompt, type: "**sudo apt update**"

You will see something like this:

```
gbs@DESKTOP-9Q9E7PB:~$ sudo apt update
[sudo] password for gbs:
Hit:1 http://archive.ubuntu.com/ubuntu noble InRelease
Get:2 http://archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:3 http://archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:4 http://security.ubuntu.com/ubuntu noble-security 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 [586 kB]
Get:7 http://security.ubuntu.com/ubuntu noble-security/main Translation-en [114 kB]
Get:8 http://security.ubuntu.com/ubuntu noble-security/main amd64 Components [7232 B]
Get:9 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Packages [800 kB]
Get:10 http://archive.ubuntu.com/ubuntu noble/universe Translation-en [5982 kB]
Get:11 http://security.ubuntu.com/ubuntu noble-security/universe Translation-en [171 kB]
Get:12 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Components [52.0 kB]
Get:13 http://security.ubuntu.com/ubuntu noble-security/universe amd64 c-n-f Metadata [13.5 kB]
Get:14 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Packages [572 kB]
Get:15 http://security.ubuntu.com/ubuntu noble-security/restricted Translation-en [110 kB]
Get:16 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Components [212 B]
Get:17 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Packages [12.4 kB]
Get:18 http://security.ubuntu.com/ubuntu noble-security/multiverse Translation-en [2940 B]
Get:19 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Components [212 B]
Get:20 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 c-n-f Metadata [356 B]
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 [775 kB]
Get:28 http://archive.ubuntu.com/ubuntu noble-updates/main Translation-en [176 kB]
Get:29 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 Components [151 kB]
Get:30 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 Packages [974 kB]
Get:31 http://archive.ubuntu.com/ubuntu noble-updates/universe Translation-en [242 kB]
Get:32 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 Components [309 kB]
Get:33 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 c-n-f Metadata [19.9 kB]
Get:34 http://archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Packages [583 kB]
Get:35 http://archive.ubuntu.com/ubuntu noble-updates/restricted Translation-en [113 kB]
Get:36 http://archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Components [212 B]
Get:37 http://archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Packages [16.0 kB]
Get:38 http://archive.ubuntu.com/ubuntu noble-updates/multiverse Translation-en [3844 B]
Get:39 http://archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Components [940 B]
Get:40 http://archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 c-n-f Metadata [552 B]
Get:41 http://archive.ubuntu.com/ubuntu noble-backports/main amd64 Components [208 B]
Get:42 http://archive.ubuntu.com/ubuntu noble-backports/main amd64 c-n-f Metadata [112 B]
Get:43 http://archive.ubuntu.com/ubuntu noble-backports/universe amd64 Packages [10.7 kB]
Get:44 http://archive.ubuntu.com/ubuntu noble-backports/universe Translation-en [10.8 kB]
Get:45 http://archive.ubuntu.com/ubuntu noble-backports/universe amd64 Components [11.7 kB]
Get:46 http://archive.ubuntu.com/ubuntu noble-backports/universe amd64 c-n-f Metadata [1104 B]
Get:47 http://archive.ubuntu.com/ubuntu noble-backports/restricted amd64 Components [216 B]
Get:48 http://archive.ubuntu.com/ubuntu noble-backports/restricted amd64 c-n-f Metadata [116 B]
Get:49 http://archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 Components [212 B]
Get:50 http://archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 c-n-f Metadata [116 B]
Fetched 31.8 MB in 4s (7671 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
7 packages can be upgraded. Run 'apt list --upgradable' to see them.
gbs@DESKTOP-9Q9E7PB:~$
```

Installing development tools

The easiest way to get a development environment for Linux is to install the build-essential package.

To do so, type: `sudo apt install build-essential↵` at the Linux command prompt.

The beginning of the installation will look like this:

This is long one, so I won't show the whole of the output.

You'll be prompted for addition installation files, respond with 'Y' to add them.

It should finish up with something like:

Testing a C program

Enter the following program with your favour editor (I used `vim`). If you are unfamiliar with UNIX editors, you can use a Windows editor (try: "notepad.exe hello.c")

```
hello.c
```
```
#include <stdio.h>

int main() {
    printf("hello, C-world\n");
    return 0;
}
```

You can confirm the file was created using the "ls" command.

Build and execute the program. At the prompt, type: `cc hello.c -o helloc`⏎

Execute the program by typing at the prompt: `./helloc`⏎

Testing a C++ program

Enter the following program with your favour editor (I used `vim`).

```
hello.cpp
#include <iostream>

int main() {
    std::cout << "Hello, C++-world\n";
}
```

At the prompt, type: `g++ hello.cpp -o helloc++`⏎

Execute the program by typing at the prompt: `./helloc++`⏎

FAQs

Question: What does LTS stand for?

Answer: LTS stands for *Long Term Support* which guarantees five years of security patching for the Ubuntu application you have installed.

References

Installation

[Install WSL | Microsoft Learn](#)

[Running Visual Studio Code on Linux](#)

Document History

Version	Date	Activity
1.0.0	2023-09-24	Document created.
1.1.0	2025-01-19	Updated to install a newer version of Ubuntu and g++