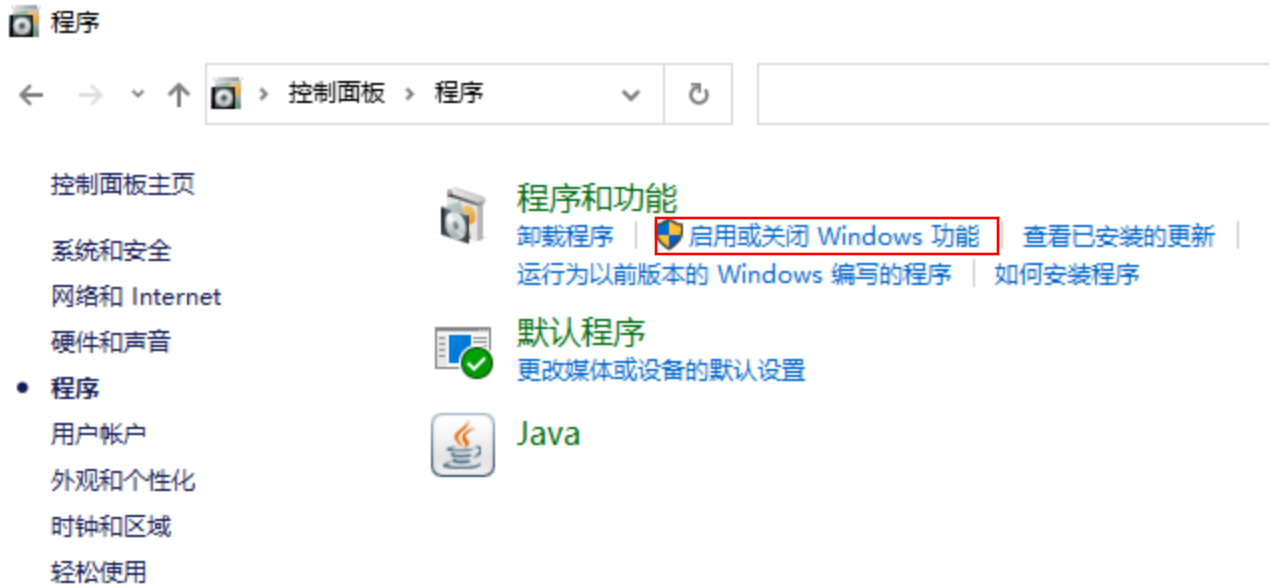
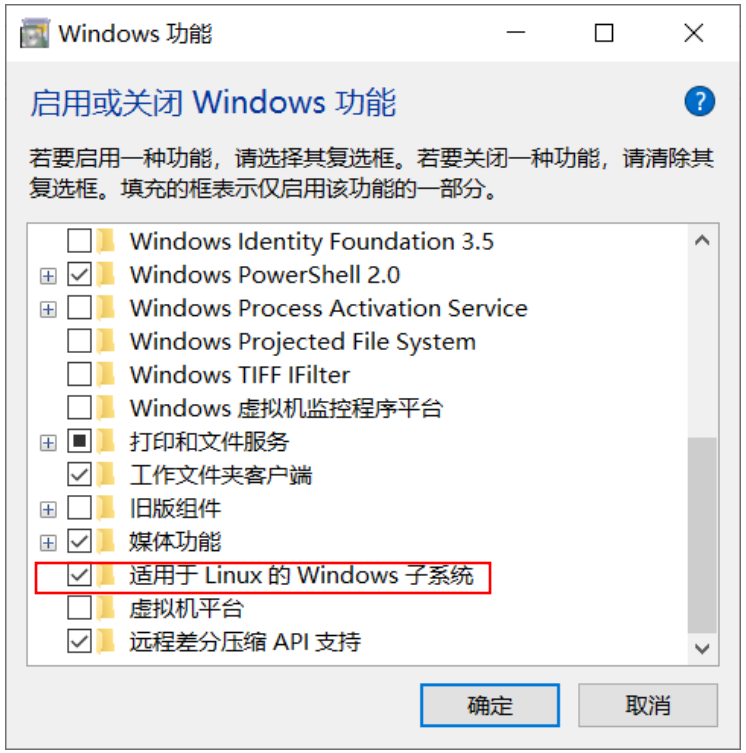
1 Download and install GCC on Windows 10 (Based on WSL)

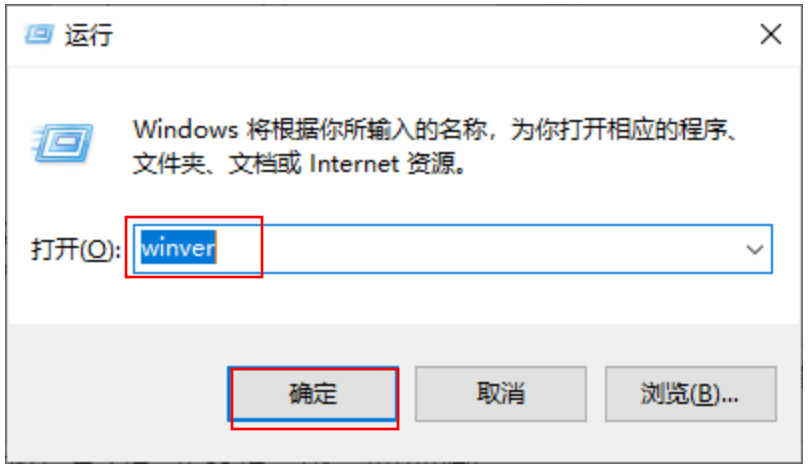
1.1 Install WSL on Windows system

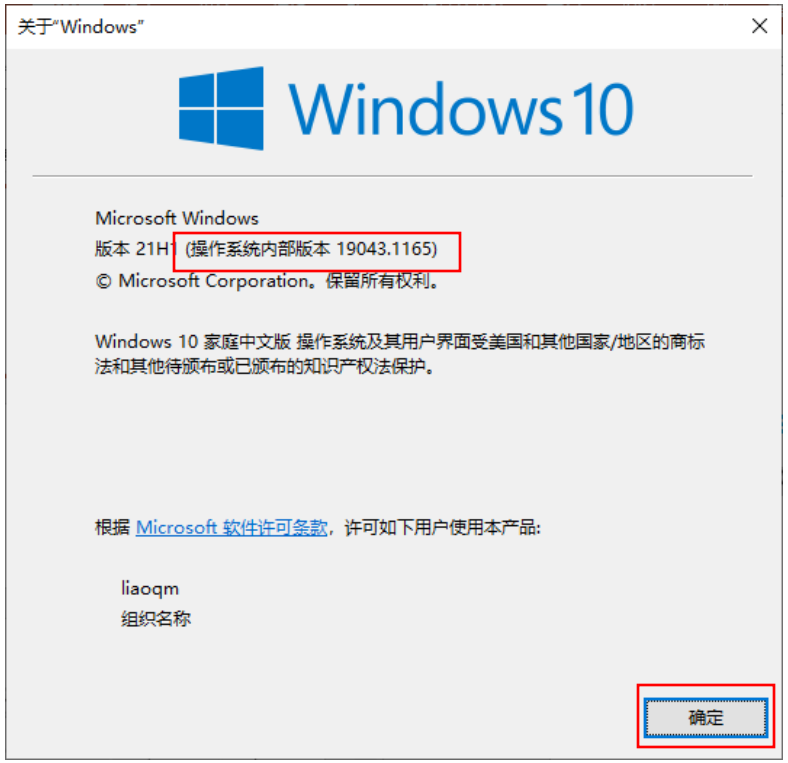
- **Step one**: enable the **W**indows **S**ubsystem for **L**inux
  - ➢ Open the Control Panel and set the Windows functions





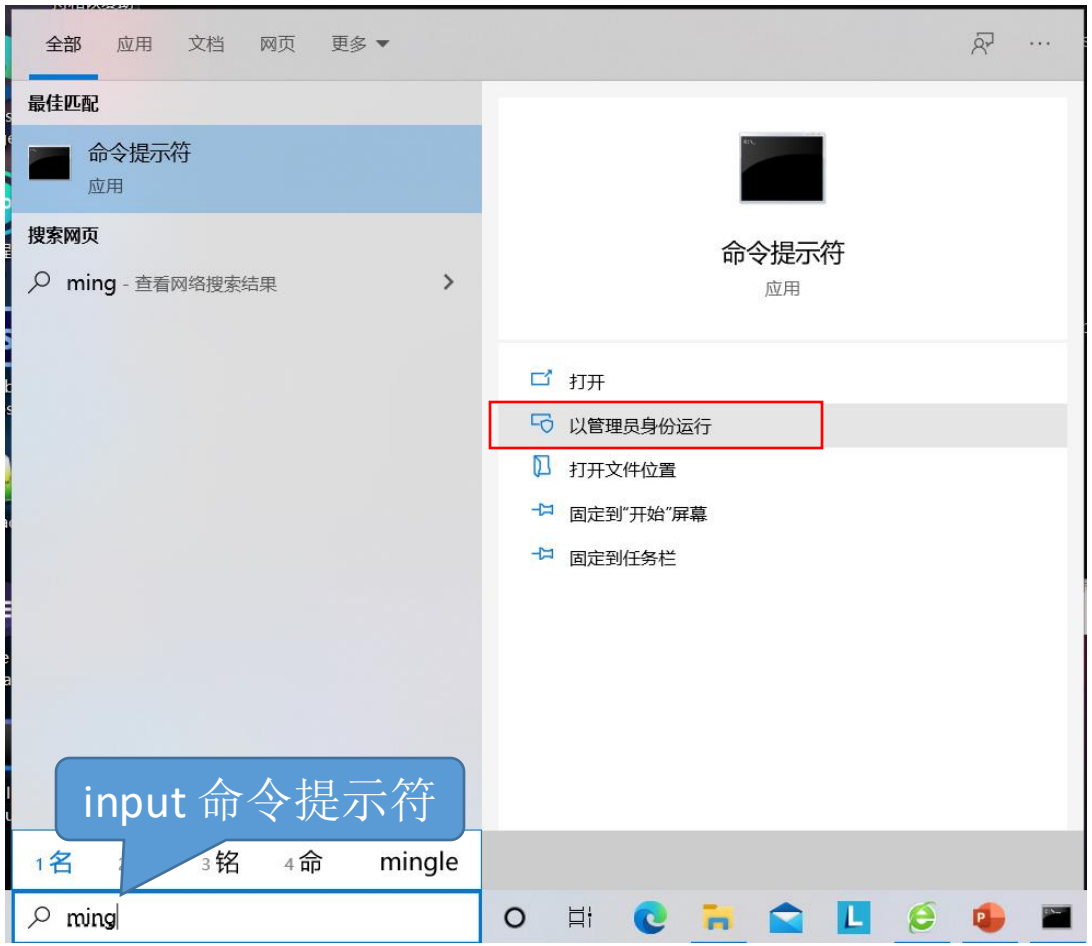
- **Step one**: enable the Windows Subsystem for Linux
  - Check Prerequisites: You must be running Windows 10 version 2004 and higher (Build 19041 and higher) or Windows 11.
  - To check your version and build number, select **Windows** logo key + **R**, type **winver**, select **OK**.

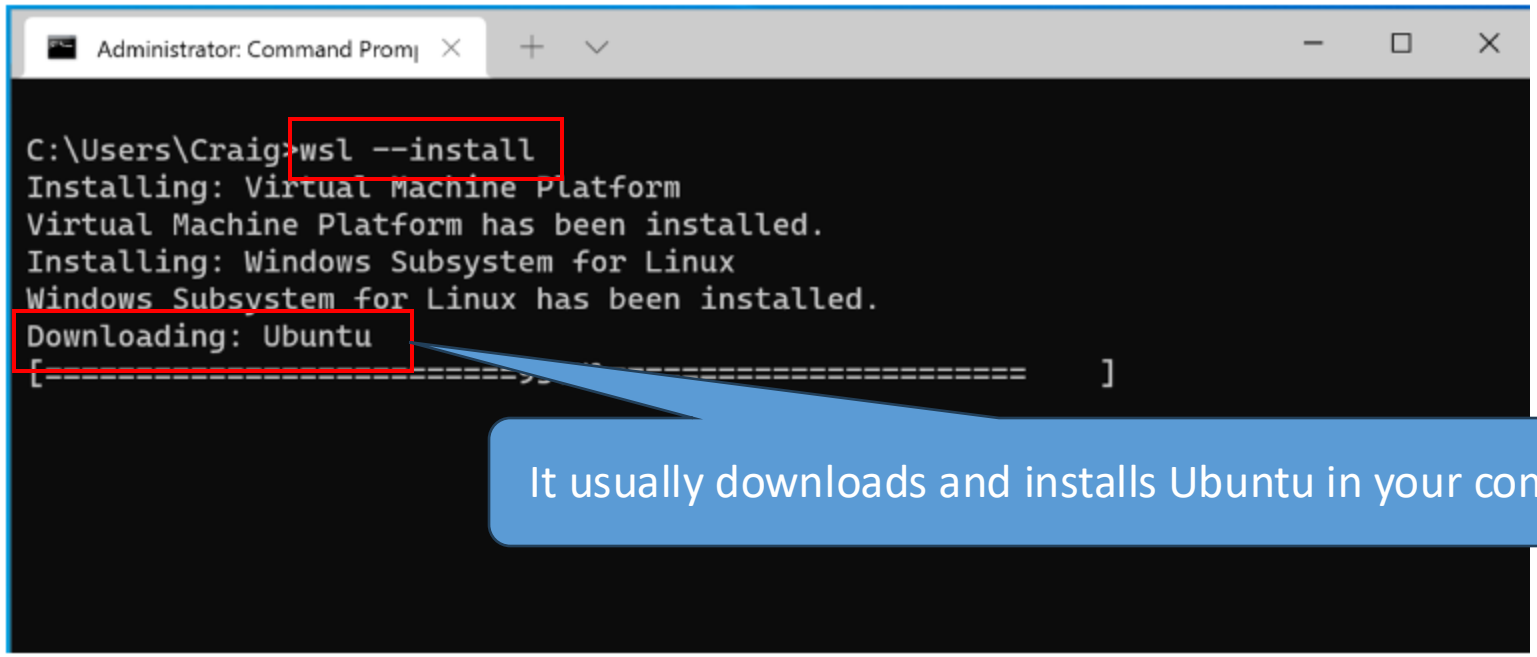


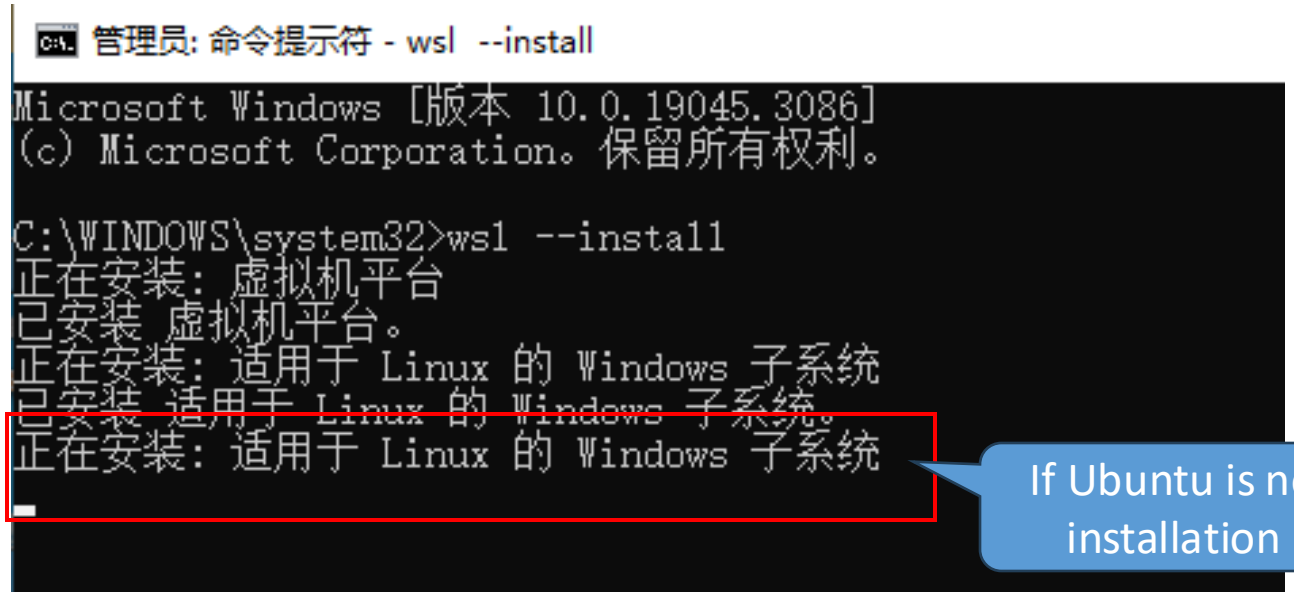


https://learn.microsoft.com/en-us/windows/wsl/install

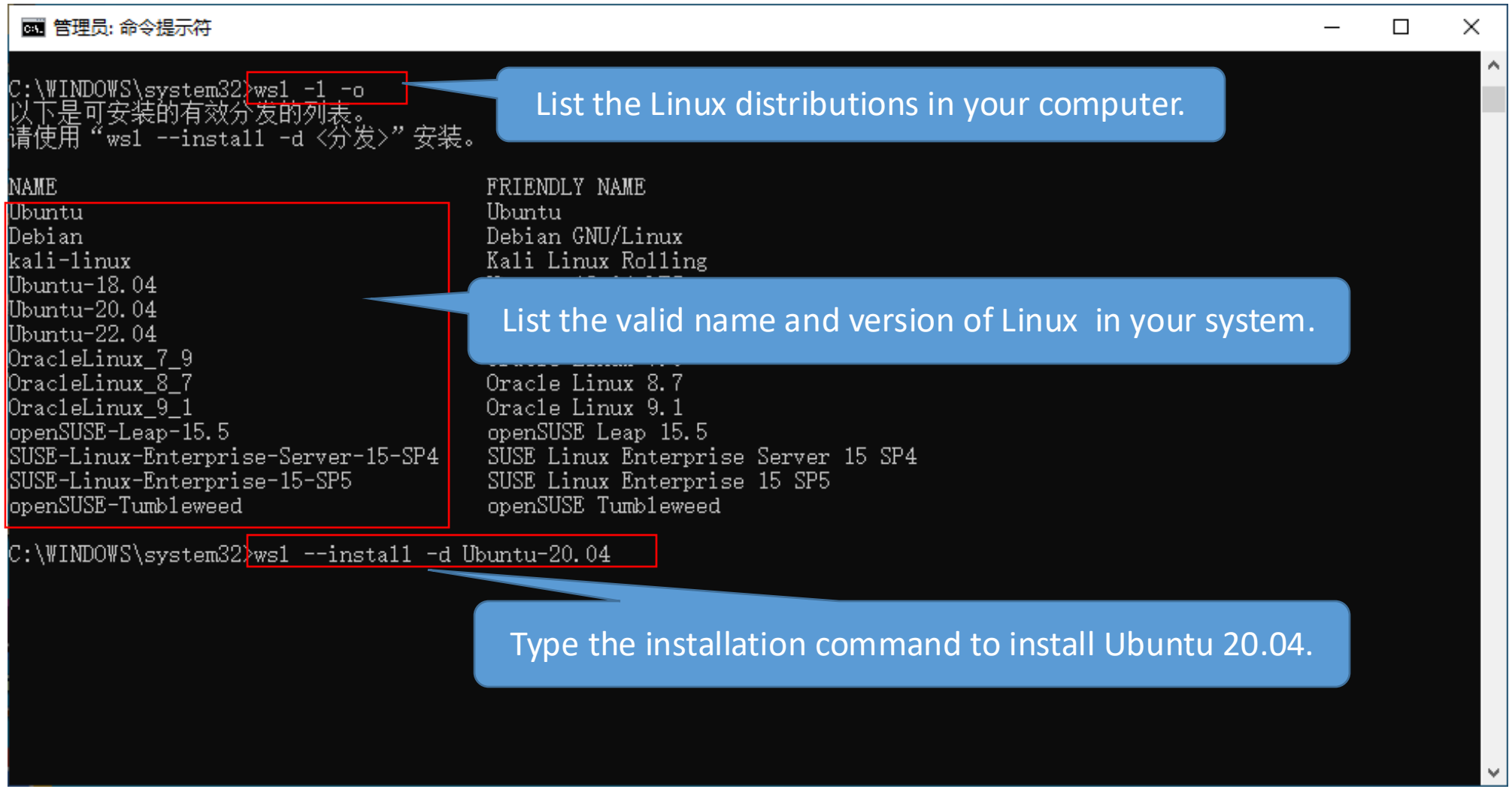
- **Step one**: enable the Windows Subsystem for Linux
  - Open Powershell or Windows Command Prompt in administrator mode and enter the ***wsl --install*** command




Administrator: Command Prom
C:\Users\Craig>wsl --install
Installing: Virtual Machine Platform
Virtual Machine Platform has been installed.
Installing: Windows Subsystem for Linux
Windows Subsystem for Linux has been installed.
Downloading: Ubuntu
It usually downloads and installs Ubuntu in your computer.


管理员: 命令提示符 - wsl --install
Microsoft Windows [版本 10.0.19045.3086]
(c) Microsoft Corporation。保留所有权利。
C:\WINDOWS\system32>ws1 --insta11
正在安装: 虚拟机平台
已安装 虚拟机平台。
正在安装: 适用于 Linux 的 Windows 子系统
已安装 适用于 Linux 的 Windows 子系统。
正在安装: 适用于 Linux 的 Windows 子系统
If Ubuntu is not downloaded, terminate the current installation by Ctrl+c and restart your computer.

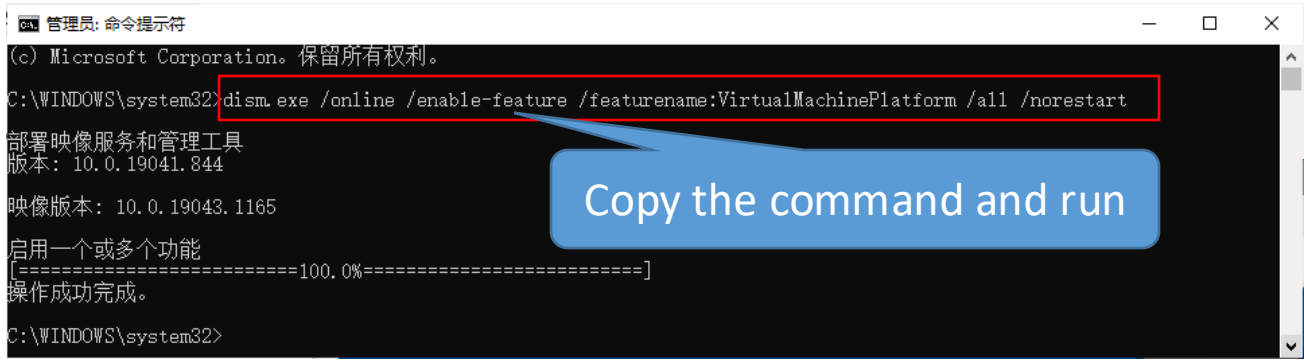
Use the command wsl -l -o to check which version of Ubuntu is valid to your system. Then use the command *wsl --install –d* with the name of Ubuntu. For example, *wsl --install –d Ubuntu-20.04*.



If you use command ***wsl --install*** and return the command instruction, it means that the default Ubuntu is not fit to your system(If you input the wrong command, it shows you the same window).

At this time, you need open PowerShell as administrator and run:

dism.exe /online /enable-feature /featurename:VirtualMachinePlatform /all /norestart



Restart your computer, open the **Microsoft Store**, search for your preferred Linux distribution (Ubuntu), get and install it in your computer according to the guidance.

liao@DESKTOP-OOC4F37: ~

```
Installing, this may take a few minutes...
Please create a default UNIX user account. The username does not need to match your Windows username.
For more information visit: https://aka.ms
Enter new UNIX username: liao
New password:
Retype new password:
passwd: password updated successfully
Installation successful!
适用于 Linux 的 Windows 子系统现已在 Microsoft Store 中可用:
你可以通过运行“wsl.exe --update”或通过访问 https://aka.ms/wslstorepage 进行升级
从 Microsoft Store 安装 WSL 将可以更快地获取最新的 WSL 更新。
有关详细信息，请访问 https://aka.ms/wslstoreinfo

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

Welcome to Ubuntu 20.04.6 LTS (GNU/Linux 4.4.0-19041-Microsoft x86_64)

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

  System information as of Mon Sep  4 13:13:33 CST 2023

  System load:    0.52      Processes:             7
  Usage of /home: unknown   Users logged in:       0
  Memory usage:   36%       IPv4 address for eth0: 10.16.75.223
  Swap usage:     0%        IPv6 address for eth0: 2001:da8:201d:1107::1239

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status


The list of available updates is more than a week old.
To check for new updates run: sudo apt update


This message is shown once a day. To disable it please create the
/home/liao/.hushlogin file.
liao@DESKTOP-OOC4F37:~$
```

Input new UNIX username and new password.
Remember your username and password.
Note: the password is not displayed on the screen.

Linux command prompt

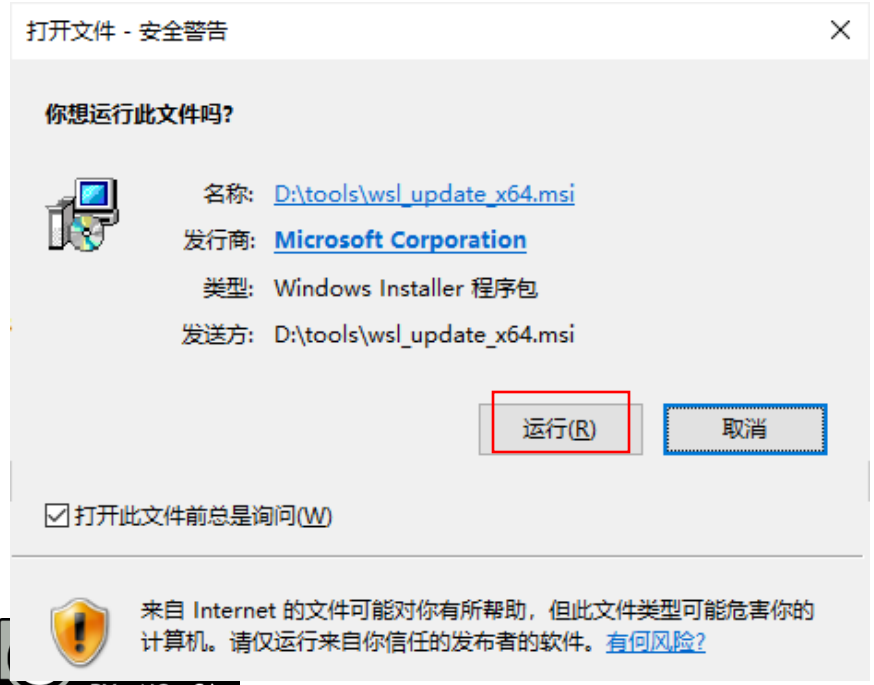
1.1 Install WSL on Windows 10(cont.)

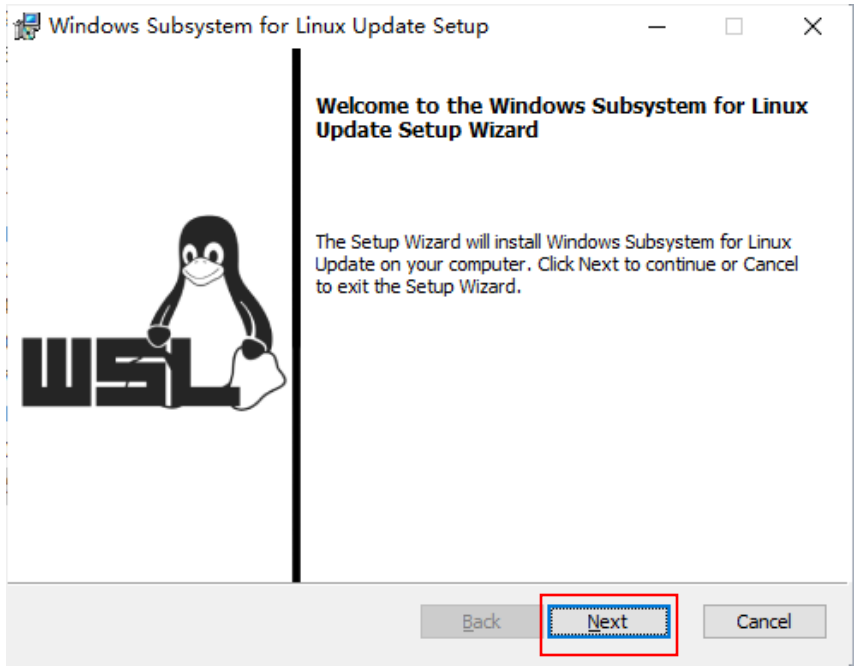
- **Step two**: Update WSL kernel
- Download the latest package and run the update package

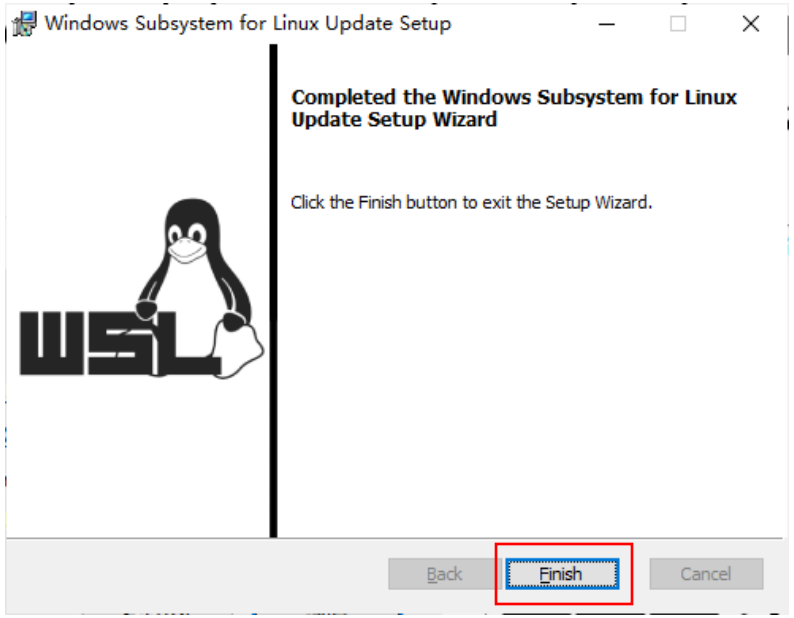
https://wslstorestorage.blob.core.windows.net/wslblob/wsl_update_x64.msi

If you're using an ARM64 machine, please download the **ARM64 package** instead.

https://wslstorestorage.blob.core.windows.net/wslblob/wsl_update_arm64.msi

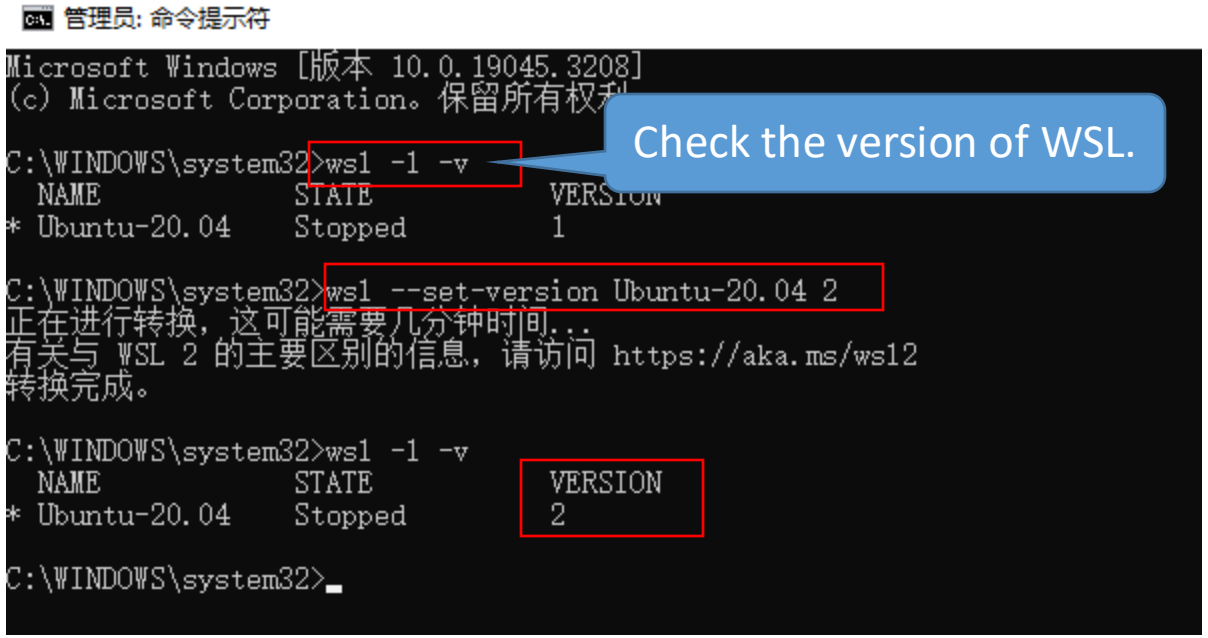




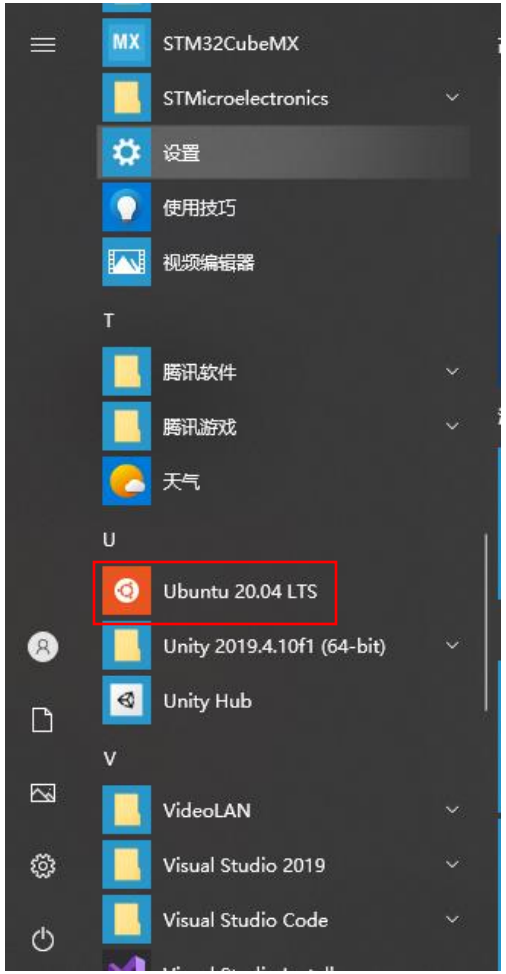


1.1 Install WSL on Windows 10(cont.)

- **Step three**: Set WSL version as 2
- Open PowerShell or Windows command prompt and run this command to set WSL version as 2 : wsl --set-version Ubuntu-20.04 2



1.2 Install GCC on WSL



- Once you finished the installation of Ubuntu 20.04 LTS, you can find it on your start menu.
- Open it and you will see a Terminal for Linux
- You can set username and password for your system (Please remember this password as you need it to switch to root user later)

- Use the two commands below to install GNU: (If you are using any Linux distribution based on debian you can use below to install, too)
  - **sudo apt update** this command will update your apt library (apt: Advanced Packaging Tools)
  - **sudo apt install g++ -y** this command will install g++ and its independence

liao@DESKTOP-OOC4F37: ~

```
适用于 Linux 的 Windows 子系统现已在 Microsoft Store 中可用!
你可以通过运行“wsl.exe --update”或通过访问 https://aka.ms/wslstorepage 进行升级
从 Microsoft Store 安装 WSL 将可以更快地获取最新的 WSL 更新。
有关详细信息，请访问 https://aka.ms/wslstoreinfo

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

liao@DESKTOP-OOC4F37:~$ sudo apt update
[sudo] password for liao:
Get:1 http://security.ubuntu.com/ubuntu focal-security InRelease [114 kB]
Hit:2 http://archive.ubuntu.com/ubuntu focal InRelease
Get:3 http://archive.ubuntu.com/ubuntu focal-updates InRelease [114 kB]
Get:4 http://security.ubuntu.com/ubuntu focal-security/main amd64 Packages [2401 kB]
Get:5 http://archive.ubuntu.com/ubuntu focal-backports InRelease [108 kB]
Get:6 http://archive.ubuntu.com/ubuntu focal/universe amd64 Packages [8628 kB]
Get:7 http://archive.ubuntu.com/ubuntu focal/universe Translation-en [5124 kB]
Get:8 http://archive.ubuntu.com/ubuntu focal/universe amd64 c-n-f Metadata [265 kB]
Get:9 http://archive.ubuntu.com/ubuntu focal/multiverse amd64 Packages [144 kB]
Get:10 http://archive.ubuntu.com/ubuntu focal/multiverse Translation-en [104 kB]
Get:11 http://archive.ubuntu.com/ubuntu focal/multiverse amd64 c-n-f Metadata [9136 B]
Get:12 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 Packages [2788 kB]
Get:13 http://archive.ubuntu.com/ubuntu focal-updates/main Translation-en [461 kB]
Get:14 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 c-n-f Metadata [17.0 kB]
Get:15 http://archive.ubuntu.com/ubuntu focal-updates/restricted amd64 Packages [2243 kB]
Get:16 http://archive.ubuntu.com/ubuntu focal-updates/restricted Translation-en [313 kB]
Get:17 http://archive.ubuntu.com/ubuntu focal-updates/restricted amd64 c-n-f Metadata [576 B]
Get:18 http://archive.ubuntu.com/ubuntu focal-updates/universe amd64 Packages [1105 kB]
Get:19 http://archive.ubuntu.com/ubuntu focal-updates/universe Translation-en [264 kB]
Get:20 http://archive.ubuntu.com/ubuntu focal-updates/universe amd64 c-n-f Metadata [25.4 kB]
```

input the command and your password

liao@DESKTOP-OOC4F37: ~

```
Get:41 http://security.ubuntu.com/ubuntu focal-security/multiverse Translation-en [5504 B]
Get:42 http://security.ubuntu.com/ubuntu focal-security/multiverse amd64 c-n-f Metadata [548 B]
Fetched 27.9 MB in 36s (773 kB/s)
Reading package lists... Done
Building dependency tree
Reading state information... Done
80 packages can be upgraded. Run 'apt list --upgrada
liao@DESKTOP-OOC4F37: $ sudo apt install g++ -y
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  binutils binutils-common binutils-x86-64-linux-gnu cpp cpp-9 g++-9 gcc gcc-10-base gcc-9 gcc-9-base libasan5
  libatomic1 libbinutils libc-dev-bin libc6-dev libcc1-0 libcrypt-dev libctf-nobfd0 libctf0 libgcc-9-dev libgcc-s1
  libgomp1 libisl22 libitm1 liblsan0 libmpc3 libquadmath0 libstdc++-9-dev libstdc++6 libtsan0 libubsan1 linux-libc-dev
  manpages-dev
Suggested packages:
  binutils-doc cpp-doc gcc-9-locales g++-multilib g++-9-multilib gcc-9-doc gcc-multilib make autoconf automake libtool
  flex bison gdb gcc-doc gcc-9-multilib glibc-doc libstdc++-9-doc
The following NEW packages will be installed:
  binutils binutils-common binutils-x86-64-linux-gnu cpp cpp-9 g++ g++-9 gcc gcc-9 gcc-9-base libasan5 libatomic1
  libbinutils libc-dev-bin libc6-dev libcc1-0 libcrypt-dev libctf-nobfd0 libctf0 libgcc-9-dev libgomp1 libisl22
  libitm1 liblsan0 libmpc3 libquadmath0 libstdc++-9-dev libtsan0 libubsan1 linux-libc-dev manpages-dev
The following packages will be upgraded:
  gcc-10-base libgcc-s1 libstdc++6
3 upgraded, 31 newly installed, 0 to remove and 77 not upgraded.
Need to get 44.7 MB of archives.
After this operation, 197 MB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 gcc-10-base amd64 10.5.0-1ubuntu1~20.04 [20.8 kB]
Get:2 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 libstdc++6 amd64 10.5.0-1ubuntu1~20.04 [501 kB]
1% [2 libstdc++6 2613 B/501 kB 1%]
```

input the command to install g++

1.3 Verify GCC on WSL

- You can input command: gcc --version or g++ --version to check whether the GCC is installed well