SETTING UP A LINUX ENVIRONMENT USING WINDOWS SUBSYSTEM FOR LINUX

by Andrei Dumitraș

Verify if CPU Virtualization is enabled

1. Open *Task Manager*
2. Go to *Performance* tab.
3. Check if *Virtualization* is *Enabled* (see Figures 1 and 2).

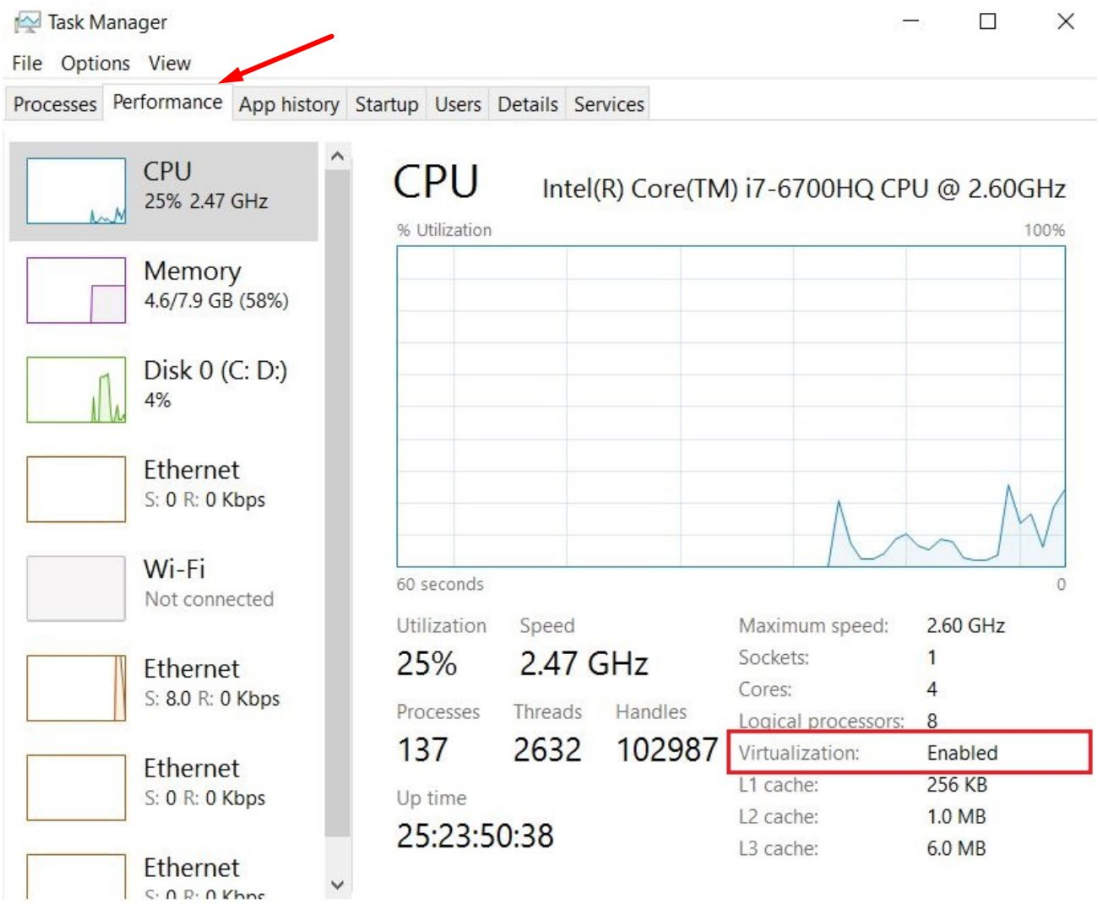

Figure 1: Task Manager on Windows 10 [1]

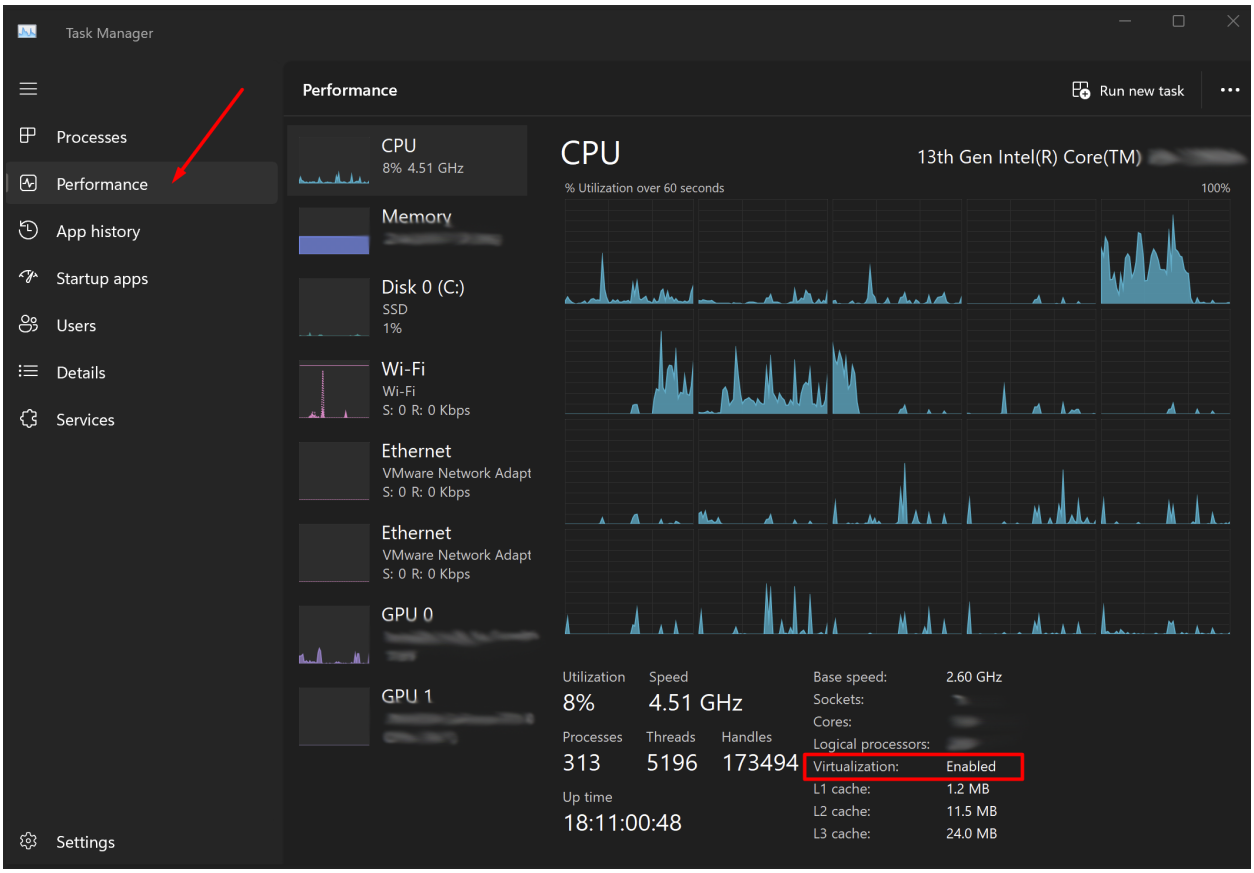

Figure 2: Task Manager on Windows 11

Enable Windows Subsystem for Linux Feature

1. Search for "*Turn Windows Features On or Off*"
2. Check the box corresponding to *Windows Subsystem for Linux*
3. Check also the box corresponding to *Virtual Machine Platform*
4. Click OK
5. Restart your system.

If they are already checked, continue with the next step. If not, you have to restart your computer in order the changed to be applied.

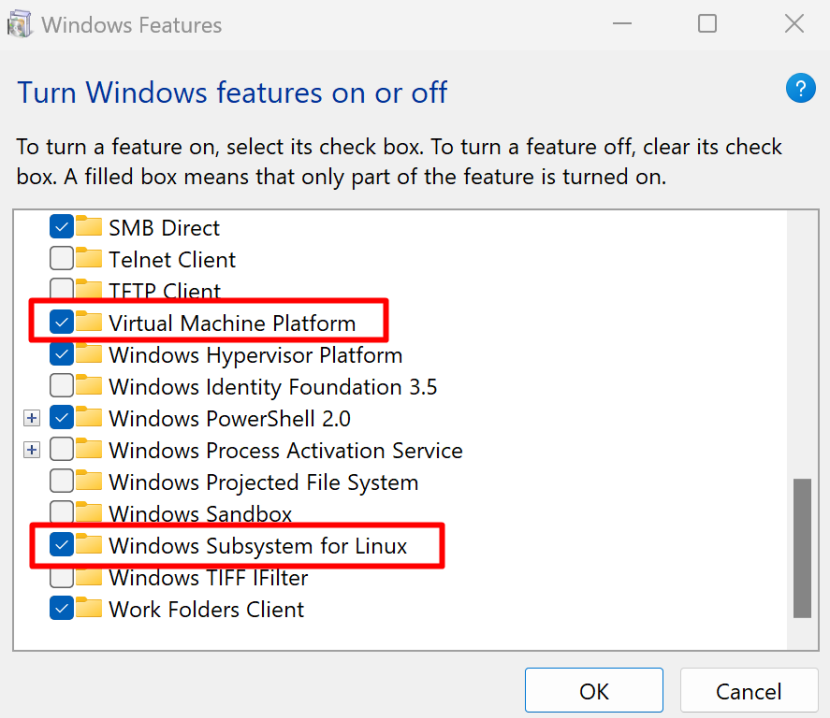

Figure 3: Turn On WSL and VMP

Install Linux distro

The Linux distro that will pe used in this tutorial, is *Ubuntu 22.04 LTS* (***LTS*** stands for Long Term Support [2]). However, the steps will work just fine for other Linux dostros.

1. Open *PowerShell* as *Administrator*
2. Run the following commands:
   - `wsl --install --d Ubuntu-22.04`
   - `wsl –update`
   - `wsl --set-default-version 2`

Install Windows Terminal

If you have Windows 11, Windows Terminal is already installed on the system. If you have Windows 10, then you need to install it from *Microsoft Store*. Windows Terminal is a good modern terminal for Windows OS, fully customizable for a great experience.

1. Open *Microsoft Store*
2. Search for "*Terminal*"
3. Select *Windows Terminal*
4. Click on *Get*

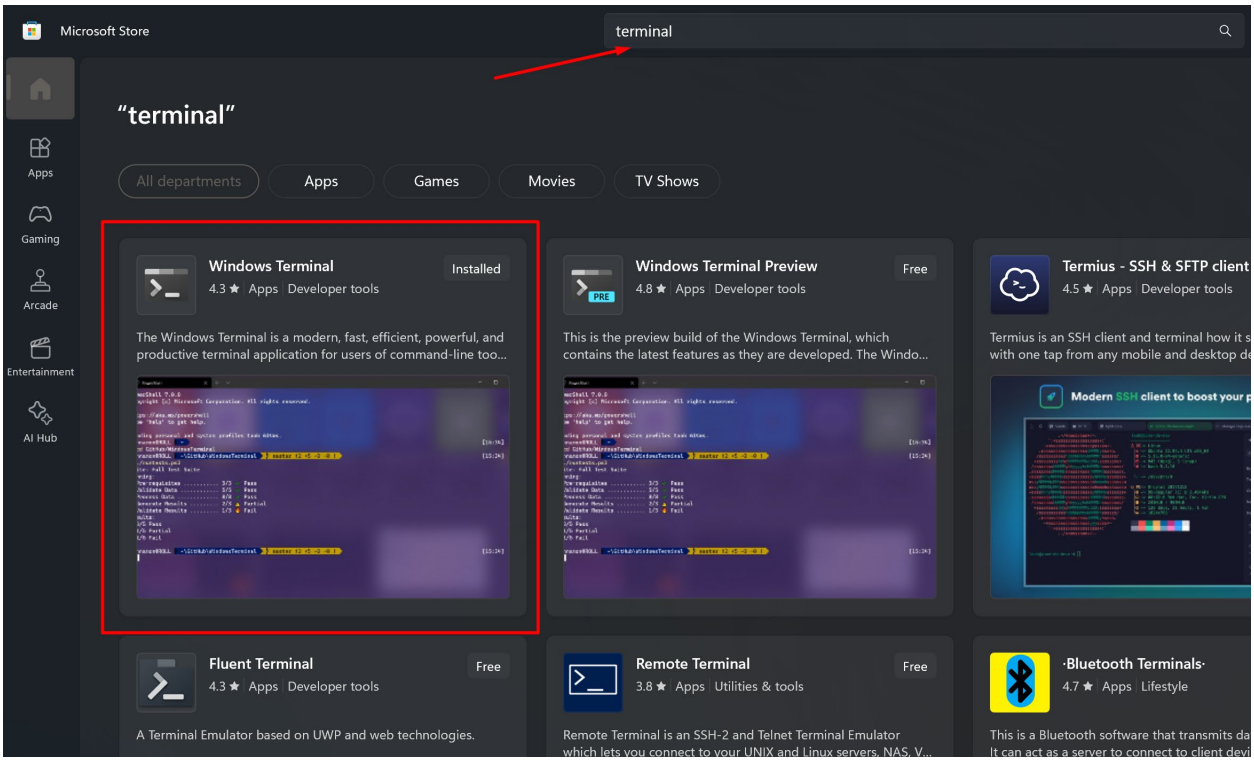

Figure 4: Windows Terminal in Microsoft Store.

Make Ubuntu as the default shell

To open Ubuntu each time the Terminal is opened, follow the following steps steps:

1. Open Terminal
2. Click on the *drop-down arrow* as shown in Figure 5
3. Select *Settings* (`Ctrl + ,`)

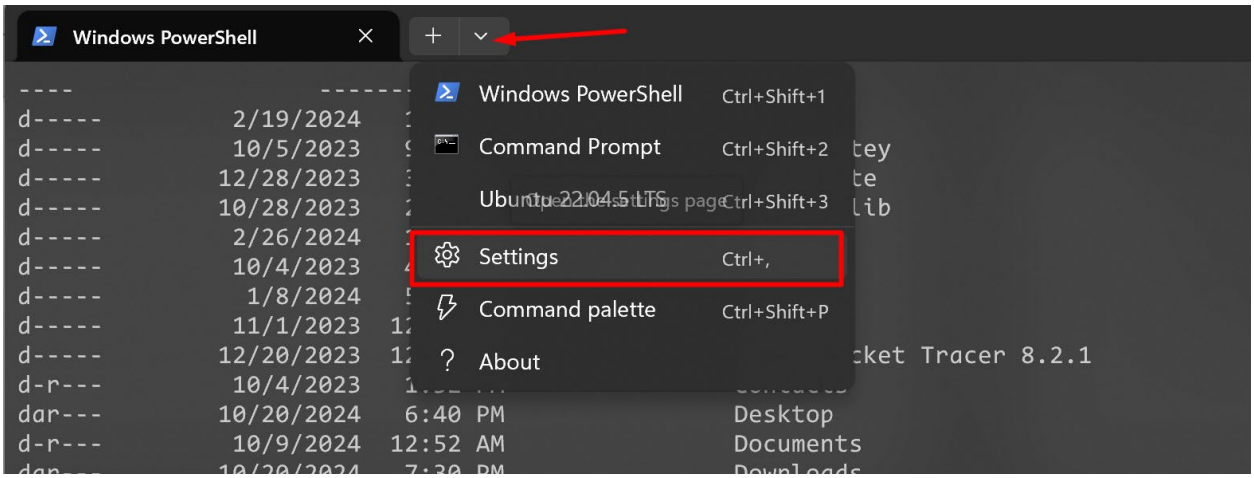

Figure 5: Open Settings in Windows Terminal

4. Select Default profile
5. Choose Ubuntu 22.04 LTS as the default profile as shown in Figure 6.

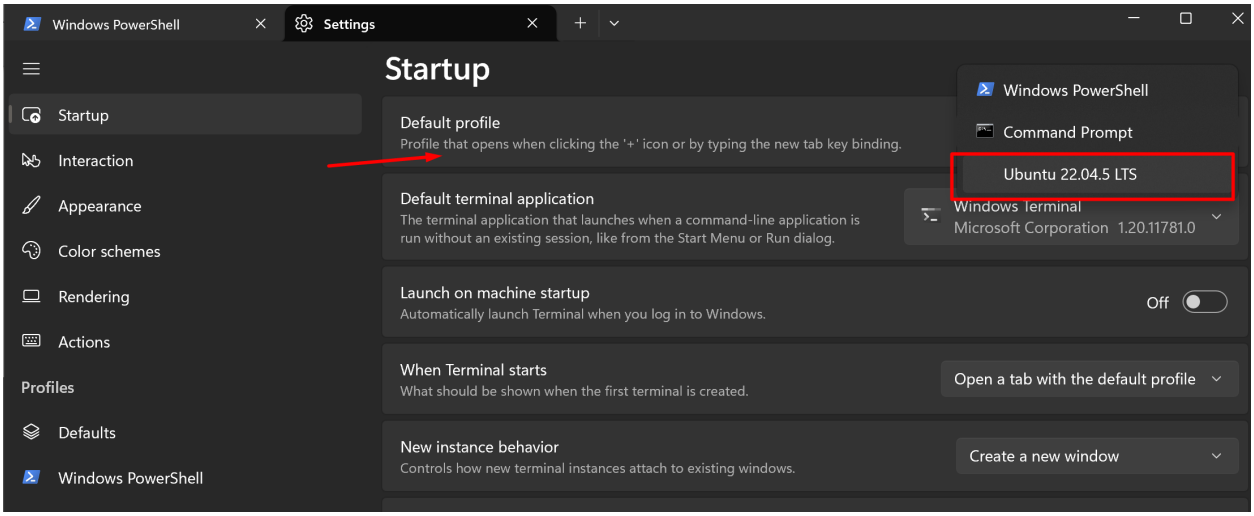

Figure 6: Select Ubuntu 20.04 LTS as the default profile

6. Close Terminal and open it again.

You may see something similar with Figure 7.

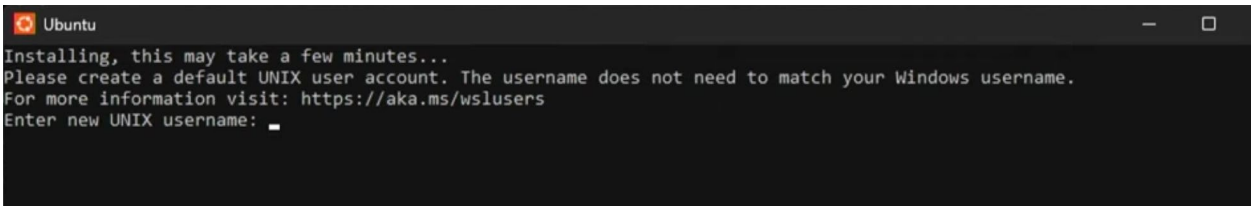

Figure 7: The prompting message for a newly installed Linux distro[3]

7. Fill the UNIX username with your name (e.g. ionut, ana, bubi, etc)

8. Set a **simple** and **easy to remember** password! (you will use it often with *sudo*).

Further improvements

Feel free to customize your terminal as you like. Some tips might be:

- Switching from Bash to Zsh
- Installing a nerd font (https://www.nerdfonts.com/font-downloads)
- Using a theme like *PowerLevel10k* or *Oh-My-Posh*
- Useful Zsh plugins:
  - Zsh-autosuggestions
  - Zsh-syntax-highlighting
  - Dirhistory
  - History

Google/YouTube them! 😊

Download pacman framework

Supposing that on your Desktop, you may have a structure like this: *Desktop* > *Facultate* > *An3* > *Sem1* > *AI* > *labs*, you can use the following commands:

```
➢ cd /mnt/c/Users/{your windows username}
```

If you have OneDrive active on your device, and if your Desktop is not showed when you type ls -l (please type `ls -l`), then you follow:

```
➢ cd /OneDrive/Desktop/Facultate/An3/Sem1/AI/labs
```

Otherwise, you follow:

```
➢ cd Desktop/Facultate/An3/Sem1/AI/labs
```

Download the framework:

```
➢ wget https://inst.eecs.berkeley.edu/~cs188/fa24/assets/projects/search.zip
```

Extract the content of the file inside the current location, and after that remove the zip file.

```
➢ unzip search.zip
```

If you do not have the unzip command, install it using apt install and redo the unzip command.

```
➢ sudo apt install unzip
```

Go inside the search folder, and you will see the source files

```
➢ cd search
➢ ls -l
```

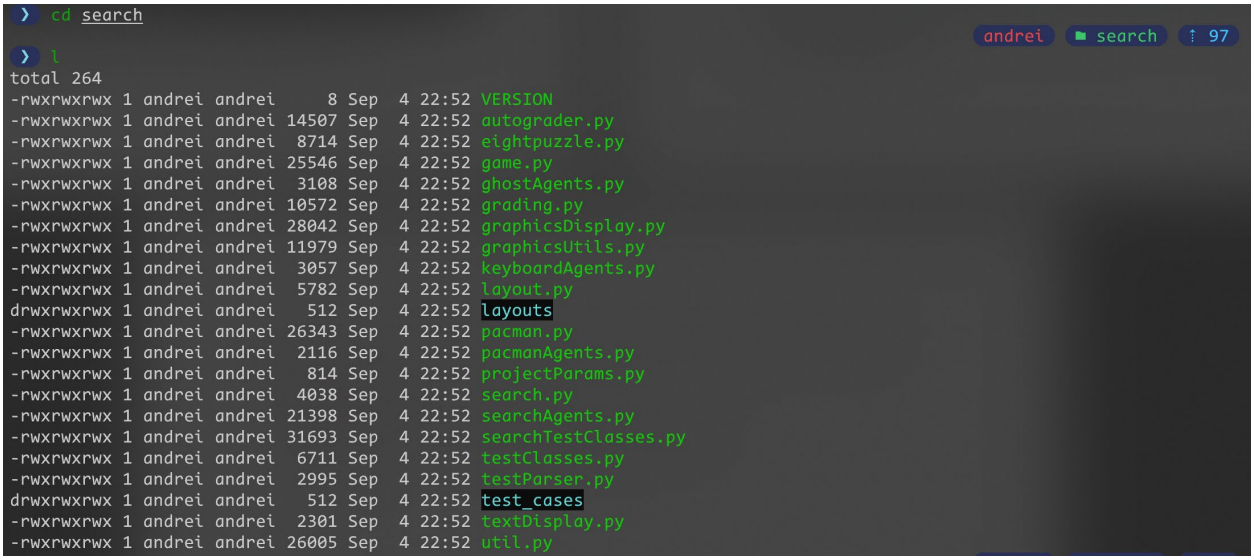

Figure 8: The pacman framework files

Install Python 3 and run Pacman

Type the following commands if you do not have python already installed:

```
➢ sudo apt update
➢ sudo apt upgrade -y
➢ sudo apt install python3
➢ sudo apt install python3-tk
```

Run Pacman. You may see something like Figure 9.

```
➢ python3 pacman.py
```

Figure 9: Running Pacman with Python 3

Bibliography:

1. https://stackoverflow.com/questions/49005791/how-to-check-if-intel-virtualization-is-enabled-without-going-to-bios-in-windows
2. https://spinupwp.com/doc/what-does-lts-mean-ubuntu/
3. https://www.youtube.com/watch?v=AMlaEFaKG88