Installing Windows Subsystem for Linux (WSL) and Running Basic Unix Commands

# What is WSL?

Windows Subsystem for Linux (WSL) is a feature in Windows that allows you to run a Linux environment directly on a Windows machine without needing a virtual machine or dual-boot setup. It provides developers and system administrators with the ability to use Linux tools and scripts natively in Windows, bridging the gap between the two operating systems.

Using WSL is particularly useful for simulating a Cloud environment, where Linux servers are often the default. You can install server software like Nginx, configure services, and run applications as you would on a remote cloud-based Linux machine, all from your Windows computer.

# Step 1: Enable Windows Subsystem for Linux (WSL)

1. Open PowerShell as Administrator:  
 - Right-click the Start Menu and select 'Windows PowerShell (Admin)'. Alternatively, you can search for PowerShell in the search bar, right-click it, and choose 'Run as Administrator'.  
  
2. Install WSL and the Default Ubuntu Distribution:  
 - In the PowerShell window, type the following command and press Enter:  
   
 wsl --install  
   
 This command will enable WSL, install the latest version (WSL 2), and set Ubuntu as the default Linux distribution.  
  
3. Restart Your System:  
 - If prompted, restart your system to complete the installation process.  
  
4. Verify Installation:  
 - After the restart, open PowerShell again and run the following command to confirm WSL and Ubuntu are installed:  
   
 wsl --list --verbose  
   
 The output should show 'Ubuntu' as the default distribution using WSL 2.

# Step 2: Start as Superuser and Create a New User

1. Launch Ubuntu:  
 - Open Ubuntu by typing 'Ubuntu' in the Start Menu or running `wsl` in PowerShell.  
  
2. Switch to the Superuser Account:  
 - By default, you will be logged in as the user you created during the installation process. To switch to the superuser (root), run the following command:  
   
 sudo su  
   
  
3. Create a New User Account:  
 - While logged in as the superuser, create a new user by running the following command:  
   
 adduser newuser  
   
 - Follow the prompts to set the password and other details for the new user.  
  
4. Add the New User to the sudo Group:  
 - To give the new user administrative privileges, run:  
   
 usermod -aG sudo newuser  
   
  
5. Switch to the New User Account:  
 - To log in as the newly created user, run the following command:  
   
 su - newuser

# Step 3: Run Basic Unix Commands

Now that you are logged in as the new user, you can begin using basic Unix commands to interact with the system.  
  
1. Check Your Current Directory:  
   
 pwd  
   
  
2. List Files and Directories:  
   
 ls  
   
  
3. Create a New Directory:  
   
 mkdir myfolder  
   
  
4. Change Directory:  
   
 cd myfolder  
   
  
5. Create a New File:  
   
 touch myfile.txt  
   
  
6. Display File Contents:  
   
 cat myfile.txt

# Step 4: Install Nginx

Nginx is a popular web server and reverse proxy used for hosting websites and applications. Follow these steps to install and start Nginx on your WSL instance.  
  
1. Update the Package Lists:  
   
 sudo apt update  
   
  
2. Install Nginx:  
   
 sudo apt install nginx -y  
   
  
3. Start the Nginx Service:  
   
 sudo service nginx start  
   
  
4. Verify Nginx Installation:  
 - Open your browser and go to `http://localhost`. If Nginx is working correctly, you should see the default Nginx welcome page.