[590023785]Exp1_Script\[590023785]Exp1_Scrip.md

Experiment : Install WSL, VirtualBox, and Set Up Linux VM

Name: Gayatri Bhatt Roll no.: 590023785 Date: 2025-09-05

AIM:

- [To set up WSL and configure a virtual machine utilizing Linux distributions such as Ubuntu or Debian]

Requirements:

- []

Theory:

- []

Procedure & Observations

Part 1: Activating WSL and Virtualization Features in Windows

Step 1: Turn on `WSL` and `Virtualization`

- **Launch Powershell with admin privileges**: Press `win+x` and pick `"Windows Powershell (Admin)"` or `"Terminal (Admin)"`.

- Execute the WSL setup commands:

`wsl -l -o`

`wsl --install Ubuntu`

- After the WSL distribution finishes installing, it will appear among the choices.

- Once installation is complete, reboot your computer when prompted.

The single command above accomplishes these tasks:

- Activates both "Virtual Machine Platform" and "Windows Subsystem for Linux" Windows options.
- Downloads and installs the most recent Ubuntu distribution by default.
- Prompts you to restart your computer.

Step 2: Configure Your Ubuntu Installation

- After reboot, an Ubuntu terminal window should pop up; if not, search for and open "Ubuntu" from the Windows Start menu.

- Wait for the process to finish. You'll be asked to set up a `UNIX username` and a password, which is distinct from your Windows credentials.

Step 3: Turn On Virtualization in BIOS/UEFI

1. To verify if virtualization is enabled:　　* Use `ctrl + shift + esc` to open Task Manager.　　* Head to the "Performance" tab.　　* Check the bottom-right for the "Virtualization" entry; it should read **Enabled**.

2. If it's not enabled:　　* Restart your computer and access BIOS/UEFI setup (commonly with `Delete`, `F2`, `F10`, `F12`, or `Esc` at boot).　　* Navigate to the corresponding menu for Virtualization settings.　　* For Intel machines it's usually "**Intel Virtualization Technology**" or "VT-x".　　* For AMD systems, look for "**AMD-V**".　　* Switch the setting to enabled, save your changes, and exit. Your PC will restart.

- When virtualization is active, Windows should enable the **Hypervisor**. WSL will be ready to use.

- To confirm WSL functionality:　　* Open Powershell or Command Prompt and enter: `wsl -l -v`　　* Your installed distros should be displayed along with their version information.

Part 2: Setting Up VirtualBox

Step 1: Download and Install VirtualBox

- Navigate to the [VirtualBox official downloads page.](#)
- Under "VirtualBox platform packages," select "Windows hosts" to download the setup file.

- Run the `.exe` installer.
- Continue through the setup wizard, accepting the default choices. Installing all features is recommended.
- You might receive a prompt about new device software; click "Install" to proceed.

Step 2: (Optional) Install Microsoft Visual C++ Redistributable

- Some systems need this for VirtualBox to work smoothly, especially when errors arise.
- Get the latest Visual Studio 2019 Redistributable from [Microsoft's site](#).
- Download and execute the `vc_redist.x64.exe` file.
- Follow the instructions for installation. A reboot is suggested after completion.

Part 3: Building a Virtual Machine with Ubuntu

Step 1: Obtain the Ubuntu ISO

- Visit the [Ubuntu downloads page](#).
- Download the LTS version ISO, which is the image used by VirtualBox as the installation source.

Step 2: Set Up a New Virtual Machine in VirtualBox

1. Start **Oracle VM VirtualBox**.

2. Click the "New" button.

3. Machine Details: * Name: Choose `Ubuntu`.   * ISO Image: Use the folder icon to select the ISO file you downloaded.   * Type: Linux   * Version: Ubuntu (64-bit).   * Click **Next**.

4. Allocate System Resources: * Set Memory (RAM) to at least 4096 MB (minimum), provided you have 8GB or more system RAM.   * Assign 2 or more CPUs for systems with multi-core processors.   * Click **Next**.

5. Virtual Hard Disk: * Select "Create a virtual hard disk now," then press **Create**.   * Choose the format: **VDI (VirtualBox Disk Image)**.   * For physical storage: pick "Dynamically allocated" to save space.   * Leave file location as default or select your own. Allocate at least 25 GB disk size. Click **Create**.

Step 3: Install Your Chosen Linux Distro

1. Select the new VM in VirtualBox and click "Start."
2. The machine will boot from the ISO file into a live session of the Linux distro.
3. On the desktop, double-click "Install Linux" to begin.
4. Continue through the installation steps: *   Pick your language and keyboard setup.   *   Connect to WiFi if needed.   *   When prompted, choose the default **"Erase disk and install Linux"**. *Only the VM's virtual drive is affected.*   *   Set your timezone.   *   Create a user profile (name, computer/hostname, username, password).
5. The installer will run and, upon completion, prompt you to restart.
6. When told to "remove the installation medium," press Enter. VirtualBox automatically removes the ISO.
7. The machine will reboot into your new, working Linux environment.

All command lines, actionable steps, and technical setup procedures remain unchanged from your instructions, with only descriptive wording updated for clarity and smoothness.Here is your experiment, reworded for clarity and variation in descriptions, while leaving all code blocks, commands, links, headings, and step ordering *exactly as you provided*:

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AIM:

- [To install WSL and make a virtual machine running a Linux distribution like Ubuntu or Debian.]

Requirements:

- []

Theory:

- []

Procedure & Observations

Part 1: Installing and Setting Up WSL (Ubuntu) on Windows

Step 1: Turn on `WSL` and Virtualization Extensions

- **Access Powershell with administrator rights**: Press `win+x` then select `"Windows Powershell (Admin)"` or `"Terminal (Admin)"`.

- Enter the following installation commands:

```
wsl -l -o
```

```
wsl --install Ubuntu
```

- After installation finishes, the WSL Linux OS will be added to your available list.

- Reboot the system if prompted once setup ends.

This single command does these things:

- Activates the "Virtual Machine Platform" and "Windows Subsystem for Linux" features on Windows.
- Downloads and installs the most recent Ubuntu version by default.
- Prompts you to restart Windows.

Step 2: Complete Ubuntu Configuration

- After rebooting, you'll be greeted by a new window for Ubuntu. If not, search and start "Ubuntu" from the Start menu.

- Wait until setup finishes, then enter a *new UNIX username* and password. These are different and independent from your Windows login.

Step 3: Enable Virtualization in System BIOS/UEFI

1. Check virtualization status: * Use `ctrl + shift + esc` to open Task Manager.   * Navigate to the "Performance" tab.   * Scan the bottom-right corner for the "Virtualization" value; it should indicate **Enabled**.

2. If virtualization shows as Disabled: * Restart and enter BIOS/UEFI setup (keys like `Delete`, `F2`, `F10`, `F12`, or `Esc` on boot).   * Inside BIOS, browse to Virtualization options.   * Intel systems label it as "**Intel Virtualization Technology**" or "VT-x".   * AMD systems call it "**AMD-V**".   * Enable the relevant option.   * Save and exit; your computer reboots automatically.

- After virtualization is active, Windows normally enables the Hypervisor. WSL should now run correctly.

- To check WSL status: * Open Powershell or Command Prompt and type: `wsl -l -v`   * This command lists installed distros with version info.

Part 2: Installing VirtualBox

Step 1: Download and Install VirtualBox

- Go to the [VirtualBox downloads page.](#)
- Under "VirtualBox platform packages", choose "Windows hosts" to get the installer.
- Run the `.exe` installer file.
- Proceed through the wizard, accepting defaults as needed. Installing all offered features is fine.
- If prompted for device software or drivers, click "Install" to confirm.

Step 2: (Optional) Install the Microsoft Visual C++ Redistributable

- If VirtualBox asks for dependency software or displays errors, you might need to install this.
- Download the latest release from [Microsoft's official VC++ Redistributable page](#).
- Run `vc_redist.x64.exe` to install.
- A restart after installation is recommended.

Part 3: Setting Up a VM with Ubuntu

Step 1: Download Ubuntu ISO

- Visit the [Ubuntu download page](#) and grab the LTS version.
- Download the ISO disk image for use in VirtualBox.

Step 2: Create a New VM in VirtualBox

1. Launch **Oracle VM VirtualBox**.

2. Click the "New" icon.

3. Naming and OS Choices: * Enter `Ubuntu` as the VM name. * For the ISO Image, click the folder button and select your Ubuntu ISO. * Set *Type* as Linux, *Version* as Ubuntu (64-bit). * Hit **Next**.

4. Resource Allocation: * For Memory (RAM), assign a minimum of 4096MB (especially if you have 8GB+). * For CPUs, use 2 or more if your machine has more cores. * Press **Next**.

5. Hard Disk Setup: * Make sure "Create a virtual hard disk now" is selected; click **Create**. * Set Hard disk type to **VDI (VirtualBox Disk Image)**. * For storage, select Dynamically allocated. * Location and size defaults are okay. Choose at least 25GB disk size, then click **Create**.

Step 3: Install Ubuntu (or Chosen Linux Distro) Inside Your VM

1. In VirtualBox Manager, select your new VM and click "Start".
2. The VM loads from your ISO into the live Linux environment.
3. Double-click "Install Linux" from the desktop.
4. Use the installer: * Choose language and keyboard layout. * Connect to WiFi if you'd like. * Set installation type to "Erase disk and install Linux" (affects only the virtual disk, not your real drive). * Pick your time zone. * Create a username, password, and machine name for your Linux session.
5. When installation completes, you'll be prompted to restart.
6. If asked to "Please remove the installation medium," simply press `Enter`; VirtualBox will automatically handle the ISO.
7. Your virtual machine will restart with the new, fully installed Linux system.