**Setting virtual lab for window on personal computer**

**Step 1: Check System Requirements**

Make sure your PC meets the minimum requirements:

* **RAM:** At least 4 GB (8 GB recommended for multiple VMs)
* **Disk Space:** At least 50 GB free
* **CPU:** 64-bit processor with **hardware virtualization enabled** in BIOS
* **Host OS:** Windows, macOS, or Linux

**Tip:** Enable virtualization in BIOS under **Advanced → Virtualization Technology / VT-x / AMD-V**.

**Step 2: Install Virtualization Software**

You need software to run virtual machines. Popular options:

1. **Oracle VirtualBox** (Free)
   * Download: [https://www.virtualbox.org](https://www.virtualbox.org/)
   * Install Extension Pack for USB 2.0/3.0, RDP, and disk encryption
2. **VMware Workstation Player** (Free for personal use)
   * Download: <https://www.vmware.com/products/workstation-player.html>

*For most labs, VirtualBox is enough.*

**Step 3: Get a Windows VM**

There are two options:

1. **Pre-Built VM Image**
   * Microsoft provides free evaluation VMs: <https://developer.microsoft.com/en-us/windows/downloads/virtual-machines/>
   * File type: .OVA (Open Virtualization Format)
2. **Install from ISO**
   * Download a Windows ISO from Microsoft: <https://www.microsoft.com/software-download/windows10>
   * You’ll manually install Windows inside the VM.

**Step 4: Create a Windows Virtual Machine**

**Option A: Import Pre-Built VM**

1. Open VirtualBox → **File → Import Appliance**
2. Select the .OVA file → Next
3. Set:
   * **Machine Base Folder:** Documents or preferred folder
   * **MAC Address Policy:** Generate new MAC addresses
4. Click **Import** → Wait until finished

**Option B: Install from ISO**

1. Open VirtualBox → **New**
2. Enter VM name (e.g., Windows Lab) → Type: Microsoft Windows → Version: Windows 10 (64-bit)
3. Allocate resources:
   * RAM: 2–4 GB
   * Hard Disk: 20–50 GB → Create VDI (VirtualBox Disk Image)
4. Select the Windows ISO as boot disk → Start VM
5. Follow Windows installation steps inside the VM

**Step 5: Start and Use Your Windows VM**

1. Click **Start** in VirtualBox.
2. Log in with your Windows credentials.
3. Familiarize yourself with tools and desktop environment:
   * File Explorer
   * Web browser
   * Command Prompt / PowerShell
4. **Take snapshots** to save VM state for easy rollback:
   * Right-click VM → Snapshots → Take Snapshot

**Step 6: Configure VM for Networking and Labs**

* **Network Settings:** NAT (default) or Bridged Adapter depending on lab requirements
* **Shared Folders:** Share files between host and VM
* **Clipboard Sharing:** Enable bidirectional copy/paste

**Step 7: Shutdown and Resume VM**

* **Save State:** File → Close → Save the machine state
* **Power Off:** File → Close → Power off
* **Resume:** Click Start → VM continues from saved state

**Tips for a Windows Virtual Lab**

* Use **pre-built Windows VMs** for labs to save installation time.
* Always **take snapshots** before testing or making changes.
* Ensure host PC has **enough RAM** if running multiple VMs.
* Keep VirtualBox/VMware updated for best performance.