**Ubuntu AMD64 VM Setup Guide for Windows**

Step-by-step outline for students to successfully set up and connect to an Ubuntu VM. Basically it works creating a ubuntu server pre built VM. Use it freely to create as many VMs you desire. Packer build allows some provisioning as does the Vagrantfile that will be created via a Powershell script (**setup.ps1**). Check also the README.md file in your output directory after your setup has run.

Check the powershell script for details of what its creating as far as directories and files.

Feel free to add any details to any files or of course create your own files and script logic to finish the Summative Assessment.

After working the processes below you will be able to SSH into your VM!

**Prerequisites**

* Windows 10/11 with an Intel/AMD processor
* Administrative access to install software

**Setup Process**

**1. Install Required Software**

* Install VirtualBox (must be in your PATH). Good to install latest VirtualBox example 7.1.8. Run install as Administrator.
* Install Vagrant if necessary (must be in your PATH). Example PowerShell command follows (make sure to run as Administrator).  
     
  Set-ExecutionPolicy Bypass -Scope Process -Force; [System.Net.ServicePointManager]::SecurityProtocol = [System.Net.ServicePointManager]::SecurityProtocol -bor 3072; iex ((New-Object System.Net.WebClient).DownloadString('https://community.chocolatey.org/install.ps1')); choco install vagrant -y
* Install Packer if necessary. Example PowerShell installs packer with elevated priviliges

powershell -Command "Start-Process powershell -Verb RunAs -ArgumentList '-Command','choco install packer -y'"

**2. Run the Setup Script**

* Navigate to the project root directory
* Run setup.ps1 by right-clicking and selecting "Run with PowerShell" or run via CLI.

Example:

powershell -ExecutionPolicy Bypass -File .\setup.ps1

or just

.\setup.ps1

**3. What Happens During Setup**

* The script creates a setup script (setup.ps1) that will set up your VM with:
  + Ubuntu 22.04 LTS (jammy64)
  + 2GB RAM and 2 CPU cores
  + Port forwarding: guest port 80 → host port 8080
  + Bidirectional clipboard

**4. Connecting to the VM** (from project root\ubuntu-amd64-project\output)

* Run the setup.ps1 script is what verifies your VirtualBox and Vagrant installations, adds the Ubuntu AMD64 box if needed, and starts the VM
* After successful setup, use the command: vagrant ssh
* Login credentials:
  + Username: vagrant
  + Password: vagrant

**5. VM Management Commands**

* Stop the VM: vagrant halt
* Remove the VM: vagrant destroy

**Troubleshooting Tips**

* If you have any conflict with Hyper-V enabled with Windows, disable this feature.
* If you see errors about VirtualBox or Vagrant not found, ensure they're installed and in your PATH
* If the box fails to download, check your internet connection
* If VM fails to start, ensure VirtualBox is running properly and virtualization is enabled in BIOS

Understanding What's Happening

The automation script:

1. Creates a Packer template that sets up your environment

2. Generates a Vagrantfile configured for Ubuntu on VirtualBox

3. Creates helper scripts to manage your VM

4. Sets up documentation

Vagrant then:

1. Downloads the pre-built Ubuntu box

2. Creates a VM based on that box

3. Configures networking and shared folders

4. Establishes SSH access

This approach gives you a fully functional Ubuntu environment with SSH access and with minimal setup time and complexity!