

## Nginx Installation, Website Hosting, and Nmap Scanning

Documentation: Installing Nginx, Hosting a Website on Ubuntu VM, and Scanning with Nmap from Windows Host

### 1. Prerequisites

- Host Machine: Windows with Oracle VirtualBox installed.
- Guest Machine: Ubuntu running inside Oracle VirtualBox.
- Software Required: Nginx (for hosting the website), Nmap (for port scanning), Text editor (to document the process)

### 2. Install Nginx on Ubuntu VM

- Start the Ubuntu Virtual Machine.
- Open the terminal and update the package list:  
`sudo apt update`
- Install Nginx:  
`sudo apt install nginx -y`
- Start Nginx and enable it to start on boot:  
`sudo systemctl start nginx`  
`sudo systemctl enable nginx`

### 3. Verify Nginx Installation

- Check the status of Nginx:  
`sudo systemctl status nginx`
- Open a web browser on the Ubuntu machine and navigate to `http://localhost` or `http://<IP-ADDRESS>`. You should see the default Nginx welcome page.

#### 4. Host a Website on Nginx

- Replace the default Nginx web page with your custom page:
- Navigate to the Nginx default HTML directory:

```
cd /var/www/html
```

- Create or replace the default index.html:

```
sudo nano index.html
```

- Add your HTML content, for example:

- Save and close the file.

- Restart Nginx to load the new content:

```
sudo systemctl restart nginx
```

#### 5. Configure VirtualBox for Port Forwarding

- Shutdown the Ubuntu VM.

- Open Oracle VirtualBox, select your VM, and click Settings.

- Go to Network > Advanced > Port Forwarding.

- Add a new rule: Protocol: TCP, Host IP: 127.0.0.1, Host Port: 8080, Guest IP: (Leave blank), Guest Port: 80

#### 6. Access the Website from the Windows Host Machine

- Start the VM.

- Open a web browser on your Windows host machine and navigate to <http://127.0.0.1:8080>. You should see your custom website hosted on the Ubuntu VM.

#### 7. Install Nmap on Windows Host Machine

- Download and install Nmap from the official website: <https://nmap.org/download.html>.
- Once installed, open the Command Prompt on Windows.

8. Using nmap command on windows host :

Power down ubuntu vm

navigate to settings of the Oracle VirtualBox ->Network->Adapter1->Attached to ->Host only adaptor ->save

now power on the vm , go to terminal -> type ifconfig -> select the vm's ip (screenshot attached)

now on the windows host machine-> open nmap application then run scan for vm by command -> `nmap -p 1-65535`

## 10. Conclusion

In this setup, Nginx was installed and configured to host a website on an Ubuntu virtual machine. The Windows host machine successfully accessed the website via port forwarding. Nmap was used to scan the VM, revealing open ports for SSH, HTTP, and HTTPS services. This setup verifies that the Nginx server is properly running and accessible.