Networking and Servers

https://github.com/AdarshIITDH/devops_class_assignment/tree/main/Networking%20and%20Servers

---

Question 1

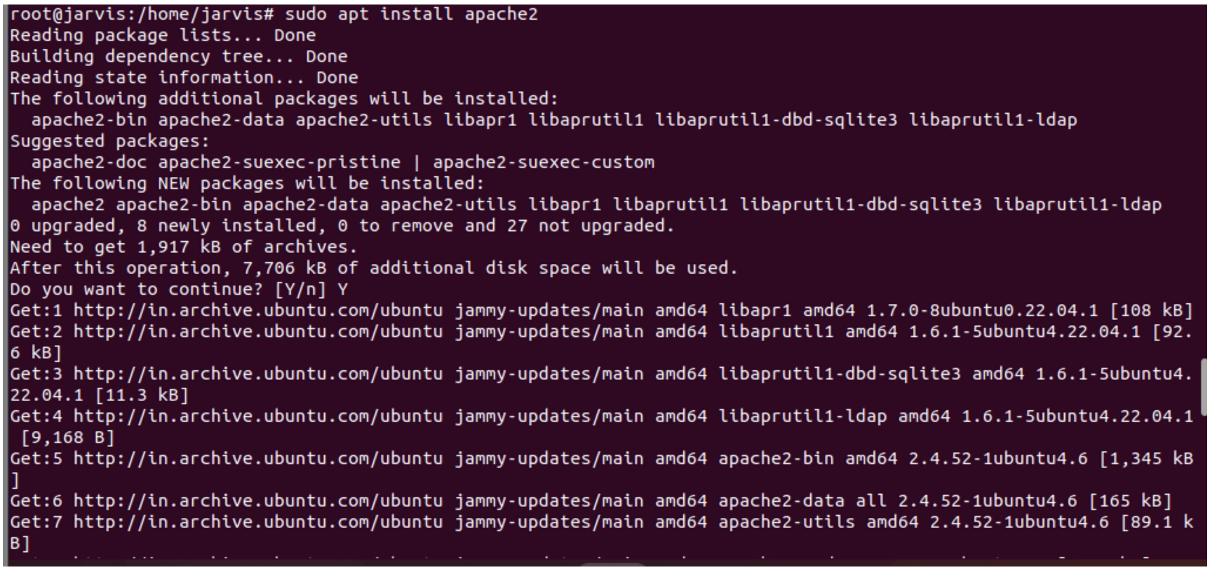
Deploy a website on localhost using either apache2 or nginx. Create a DNS name for this website as 'awesomeweb'. You can use any web template you want or can write your own simple html code. Write a detailed documentation with steps involved.

Solution:

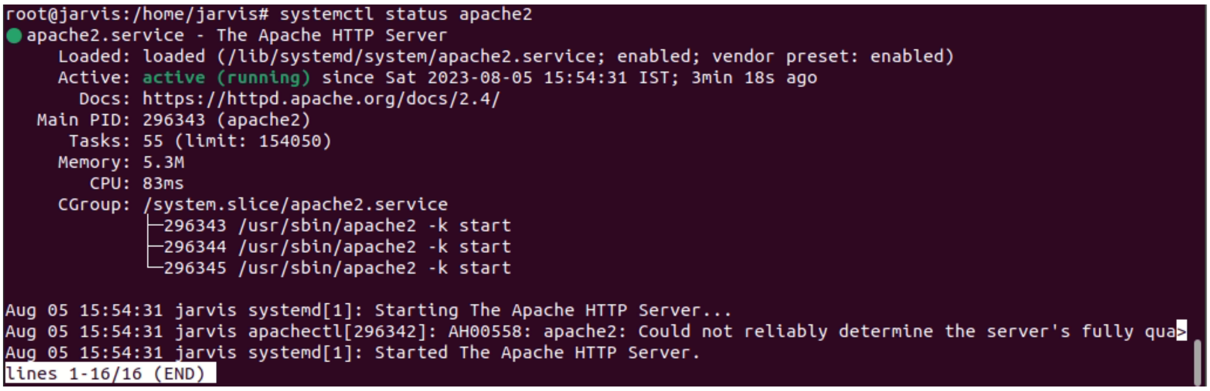
For Ubuntu with Apache

Step 1: Install Apache2

- sudo apt update
- sudo apt install apache2
- systemctl status apache2



```
root@jarvis:/home/jarvis# sudo apt install apache2
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  apache2-bin apache2-data apache2-utils libapr1 libaprutil1 libaprutil1-dbd-sqlite3 libaprutil1-ldap
Suggested packages:
  apache2-doc apache2-suexec-pristine | apache2-suexec-custom
The following NEW packages will be installed:
  apache2 apache2-bin apache2-data apache2-utils libapr1 libaprutil1 libaprutil1-dbd-sqlite3 libaprutil1-ldap
0 upgraded, 8 newly installed, 0 to remove and 27 not upgraded.
Need to get 1,917 kB of archives.
After this operation, 7,706 kB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libapr1 amd64 1.7.0-8ubuntu0.22.04.1 [108 kB]
Get:2 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libaprutil1 amd64 1.6.1-5ubuntu4.22.04.1 [92.
6 kB]
Get:3 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libaprutil1-dbd-sqlite3 amd64 1.6.1-5ubuntu4.
22.04.1 [11.3 kB]
Get:4 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libaprutil1-ldap amd64 1.6.1-5ubuntu4.22.04.1
 [9,168 B]
Get:5 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 apache2-bin amd64 2.4.52-1ubuntu4.6 [1,345 kB
]
Get:6 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 apache2-data all 2.4.52-1ubuntu4.6 [165 kB]
Get:7 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 apache2-utils amd64 2.4.52-1ubuntu4.6 [89.1 k
B]
```



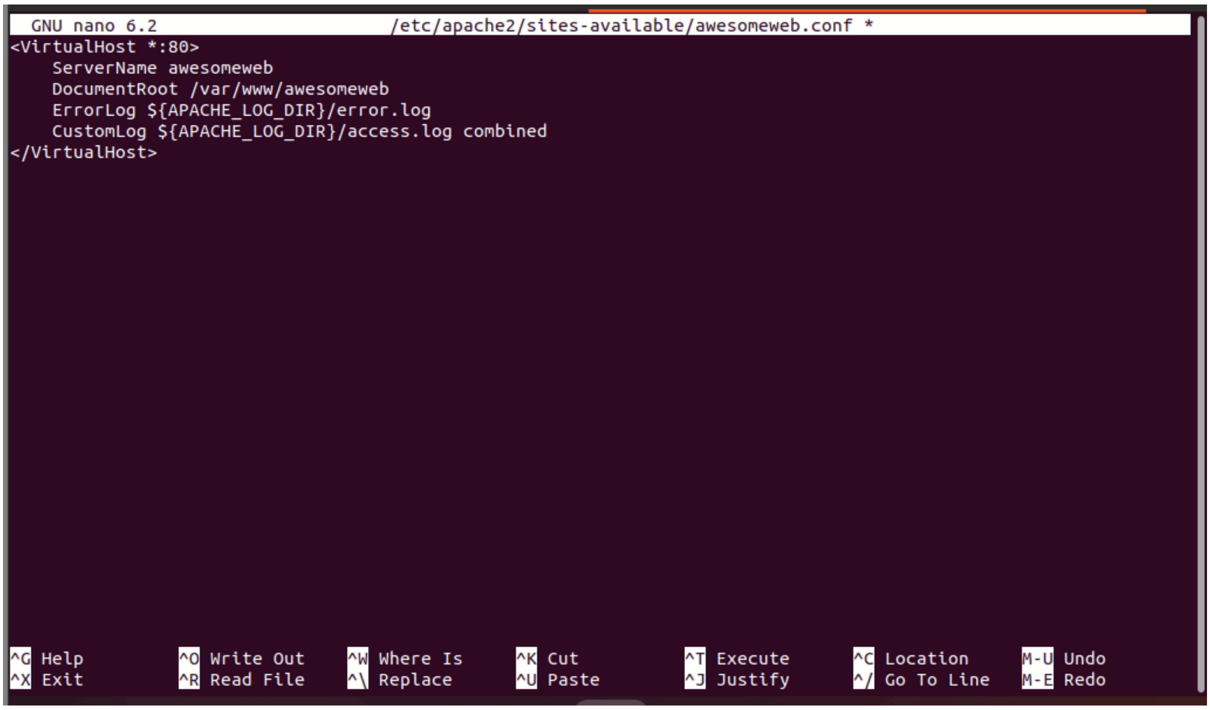
```
root@jarvis:/home/jarvis# systemctl status apache2
● apache2.service - The Apache HTTP Server
     Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)
     Active: active (running) since Sat 2023-08-05 15:54:31 IST; 3min 18s ago
       Docs: https://httpd.apache.org/docs/2.4/
   Main PID: 296343 (apache2)
      Tasks: 55 (limit: 154050)
     Memory: 5.3M
        CPU: 83ms
     CGroup: /system.slice/apache2.service
             ├─296343 /usr/sbin/apache2 -k start
             ├─296344 /usr/sbin/apache2 -k start
             └─296345 /usr/sbin/apache2 -k start

Aug 05 15:54:31 jarvis systemd[1]: Starting The Apache HTTP Server...
Aug 05 15:54:31 jarvis apachectl[296342]: AH00558: apache2: Could not reliably determine the server's fully qua>
Aug 05 15:54:31 jarvis systemd[1]: Started The Apache HTTP Server.
lines 1-16/16 (END)
```

Step 2: Configure Virtual Host

1. Create a configuration file for the virtual host.
   - sudo nano /etc/apache2/sites-available/awesomeweb.conf

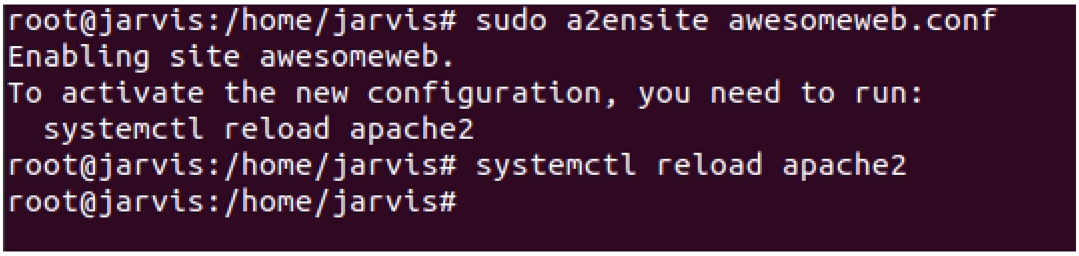
2.

```
<VirtualHost *:80>
   ServerName awesomeweb
   DocumentRoot /var/www/awesomeweb
   ErrorLog ${APACHE_LOG_DIR}/error.log
   CustomLog ${APACHE_LOG_DIR}/access.log combined
</VirtualHost>
```



```
  GNU nano 6.2                    /etc/apache2/sites-available/awesomeweb.conf *
<VirtualHost *:80>
    ServerName awesomeweb
    DocumentRoot /var/www/awesomeweb
    ErrorLog ${APACHE_LOG_DIR}/error.log
    CustomLog ${APACHE_LOG_DIR}/access.log combined
</VirtualHost>
```

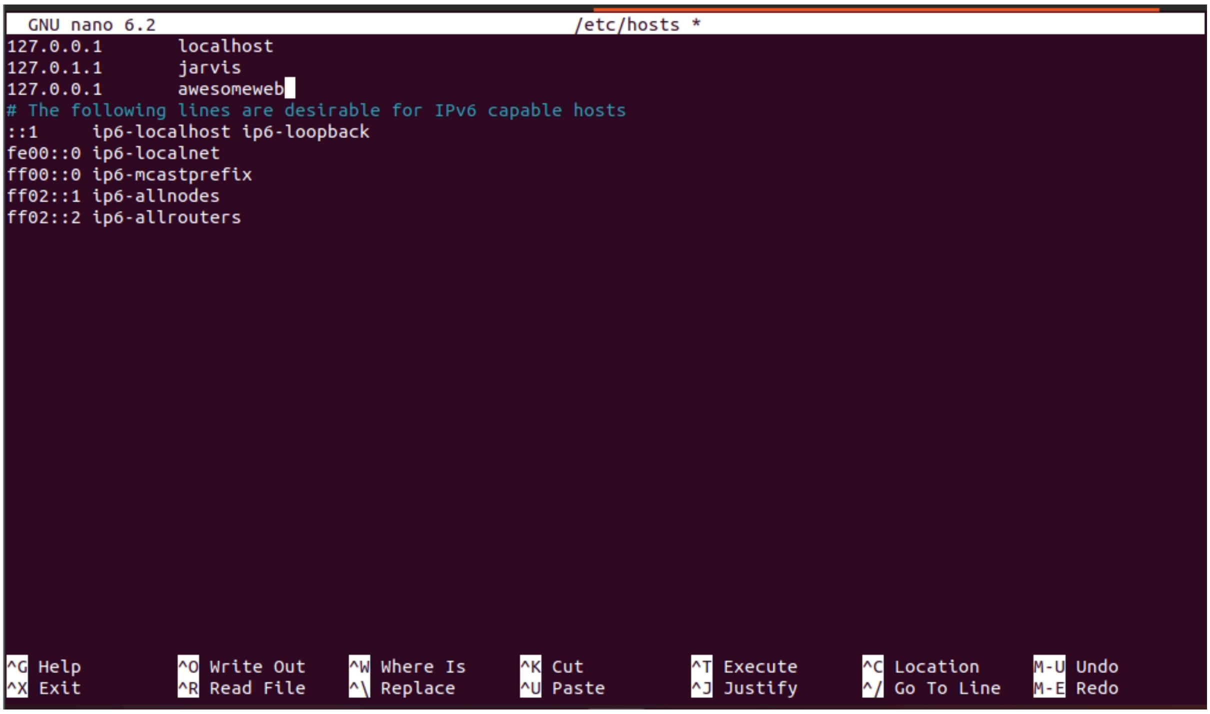
3. Enable the virtual host:
   - sudo a2ensite awesomeweb.conf



```
root@jarvis:/home/jarvis# sudo a2ensite awesomeweb.conf
Enabling site awesomeweb.
To activate the new configuration, you need to run:
  systemctl reload apache2
root@jarvis:/home/jarvis# systemctl reload apache2
root@jarvis:/home/jarvis#
```

Step 3: Create DNS entry (Edit Hosts File)

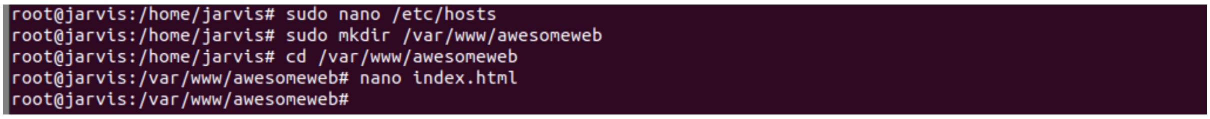
1. Open the hosts file in the editor:
   - sudo nano /etc/hosts
2. Add the following line:
   - 127.0.0.1 awesomeweb



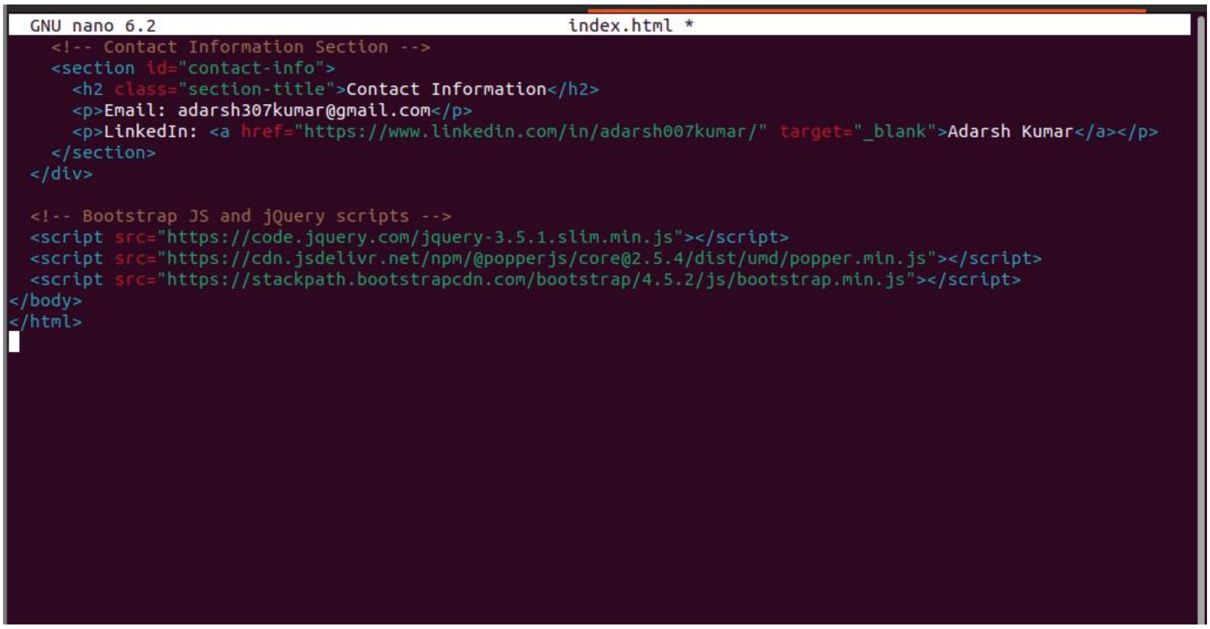
```
127.0.0.1       localhost
127.0.1.1       jarvis
127.0.0.1       awesomeweb
# The following lines are desirable for IPv6 capable hosts
::1     ip6-localhost ip6-loopback
fe00::0 ip6-localnet
ff00::0 ip6-mcastprefix
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
```

Step 4: Prepare Website Files

1. Create the website directory:
   - sudo mkdir /var/www/awesomeweb
2. Place your website files (HTML) in the /var/www/awesomeweb directory.



```
root@jarvis:/home/jarvis# sudo nano /etc/hosts
root@jarvis:/home/jarvis# sudo mkdir /var/www/awesomeweb
root@jarvis:/home/jarvis# cd /var/www/awesomeweb
root@jarvis:/var/www/awesomeweb# nano index.html
root@jarvis:/var/www/awesomeweb#
```



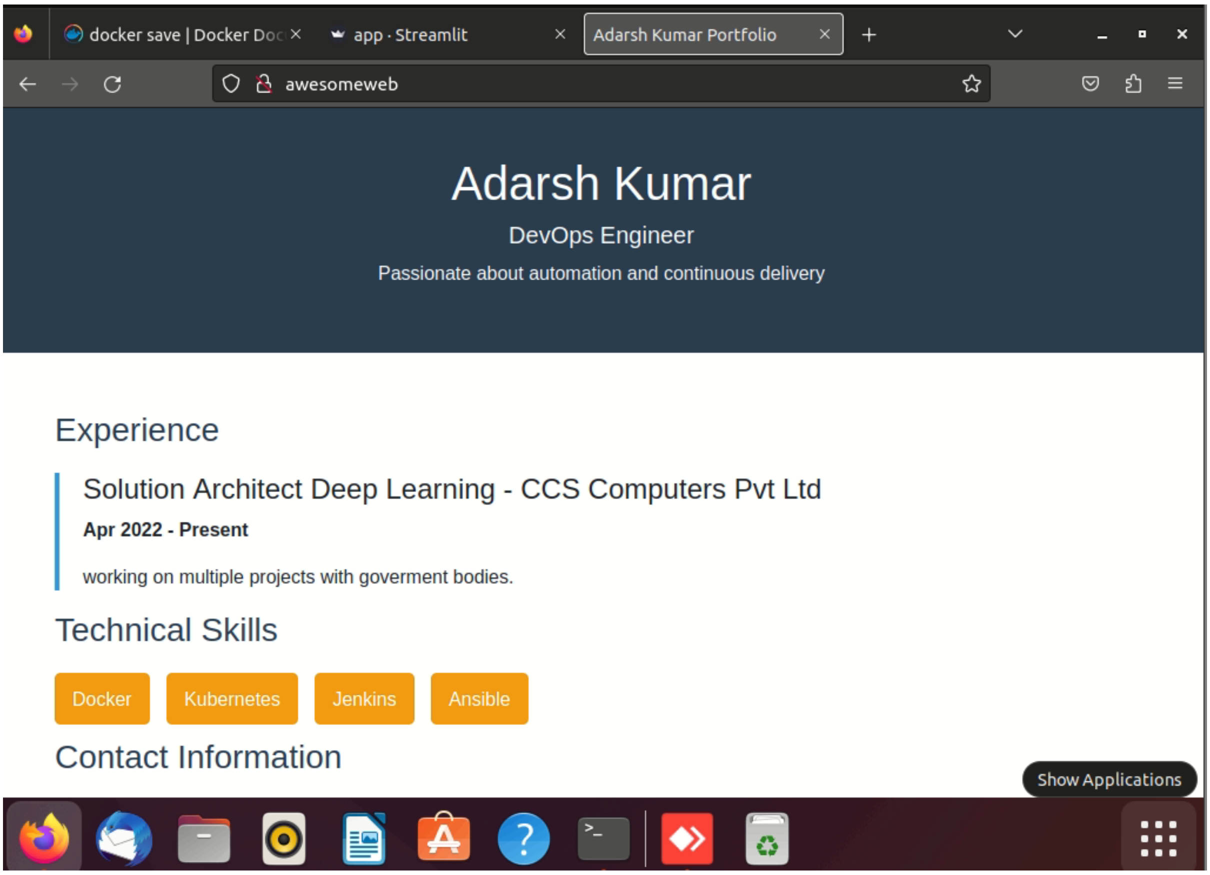
```
    <!-- Contact Information Section -->
    <section id="contact-info">
      <h2 class="section-title">Contact Information</h2>
      <p>Email: adarsh307kumar@gmail.com</p>
      <p>LinkedIn: <a href="https://www.linkedin.com/in/adarsh007kumar/" target="_blank">Adarsh Kumar</a></p>
    </section>
  </div>

  <!-- Bootstrap JS and jQuery scripts -->
  <script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>
  <script src="https://cdn.jsdelivr.net/npm/@popperjs/core@2.5.4/dist/umd/popper.min.js"></script>
  <script src="https://stackpath.bootstrapcdn.com/bootstrap/4.5.2/js/bootstrap.min.js"></script>
</body>
</html>
```

Step 5: Restart Apache2

- sudo service apache2 restart

Step 6: Open http://awesomeweb in web browser

- firefox http://awesomeweb



Adarsh Kumar

DevOps Engineer

Passionate about automation and continuous delivery

Experience

Solution Architect Deep Learning - CCS Computers Pvt Ltd

Apr 2022 - Present

working on multiple projects with goverment bodies.

Technical Skills

Docker Kubernetes Jenkins Ansible

Contact Information

For Ubuntu with Nginx

Step 1: Install Nginx

- sudo apt update
- sudo apt install nginx
- systemctl status ngnix

Step 2: Configure Virtual Host

4. Create a configuration file for the virtual host.
   - sudo nano /etc/nginx/sites-available/awesomeweb
5.

```
server {
   listen 80;
   server_name awesomeweb;
   root /var/www/awesomeweb;
   access_log /var/log/nginx/awesomeweb.access.log;
   error_log /var/log/nginx/awesomeweb.error.log;
   location / {
      index index.html;
   }
}
```

6. Enable the virtual host:
   - sudo ln -s /etc/nginx/sites-available/awesomeweb /etc/nginx/sites-enabled/

Step 3: Create DNS entry (Edit Hosts File)

3. Open the hosts file in the editor:
   - sudo nano /etc/hosts
4. Add the following line:
   - 127.0.0.1 awesomeweb

Step 4: Prepare Website Files

3. Create the website directory:
   - sudo mkdir /var/www/awesomeweb
4. Place your website files (HTML) in the /var/www/awesomeweb directory.

Step 5: Restart Nginx

- sudo service nginx restart

Step 6: Open http://awesomeweb in web browser

- firefox http://awesomeweb

Question 2

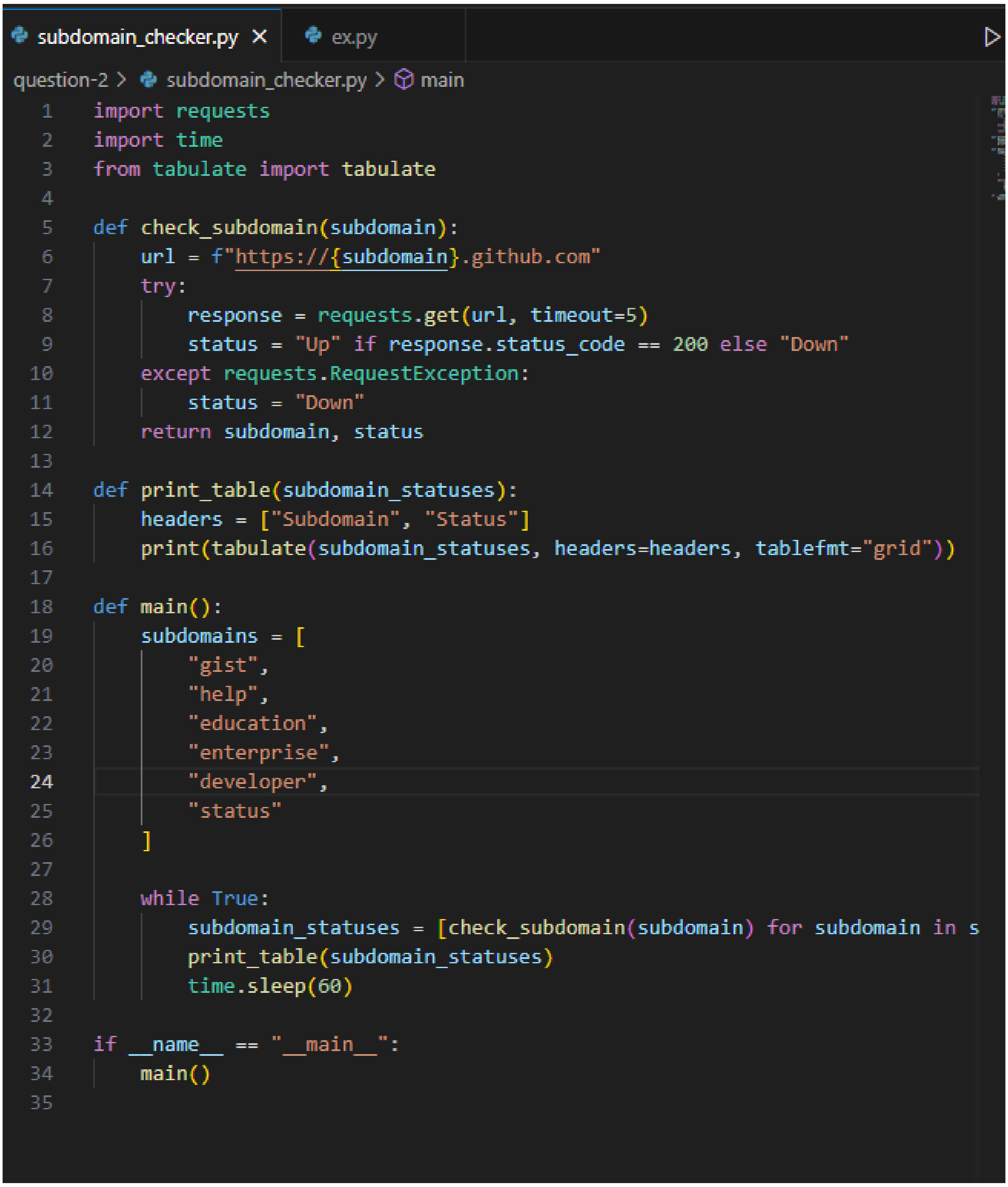
A website can have many subdomains and different services are running on them. Write a Python script to check the status of the subdomains which are up or down. The script should automatically check the status every min and should update it in tabular format on the screen. Write a detailed documentation of it.

Solution:

Requirements:

- requests library: To make HTTP requests and check the status of subdomains.
- tabulate library: To present the results in a tabular format.
- time library: to check in 60sec
- pip install requests tabulate

Code:

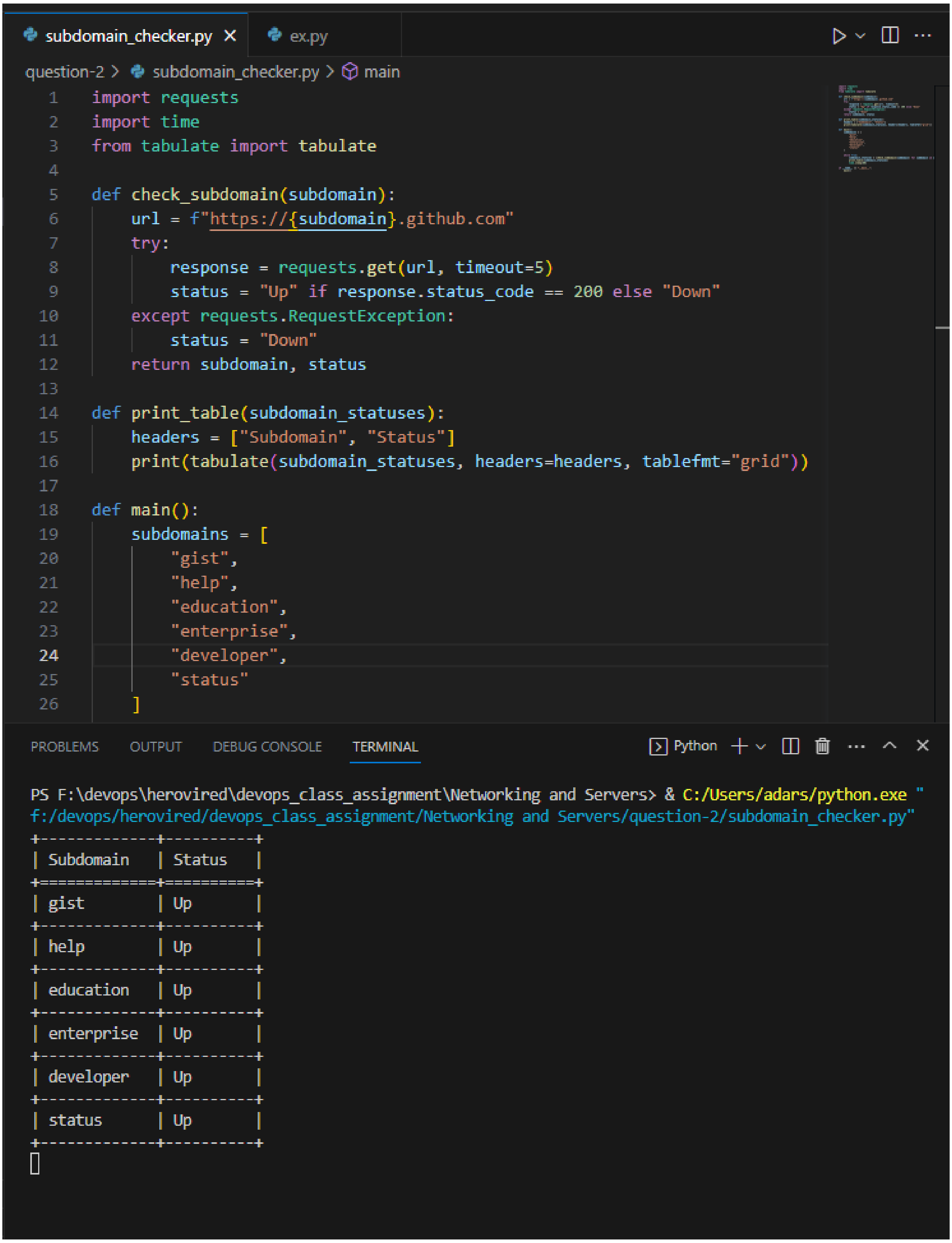


```python
import requests
import time
from tabulate import tabulate

def check_subdomain(subdomain):
    url = f"https://{subdomain}.github.com"
    try:
        response = requests.get(url, timeout=5)
        status = "Up" if response.status_code == 200 else "Down"
    except requests.RequestException:
        status = "Down"
    return subdomain, status

def print_table(subdomain_statuses):
    headers = ["Subdomain", "Status"]
    print(tabulate(subdomain_statuses, headers=headers, tablefmt="grid"))

def main():
    subdomains = [
        "gist",
        "help",
        "education",
        "enterprise",
        "developer",
        "status"
    ]

    while True:
        subdomain_statuses = [check_subdomain(subdomain) for subdomain in s
        print_table(subdomain_statuses)
        time.sleep(60)

if __name__ == "__main__":
    main()
```

Functionality:

- The script uses the requests library to make HTTP GET requests to the URLs of the subdomains to check their status.
- The tabulate library is employed to display the results in a grid-based tabular format on the screen.
- The script continuously checks the status of all subdomains every minute and updates the status table accordingly.
- If a subdomain's service is up and responds with a status code of 200, the status will be marked as 'Up.' Otherwise, it will be marked as 'Down.'
- To stop the script, simply press Ctrl+C.

Output:



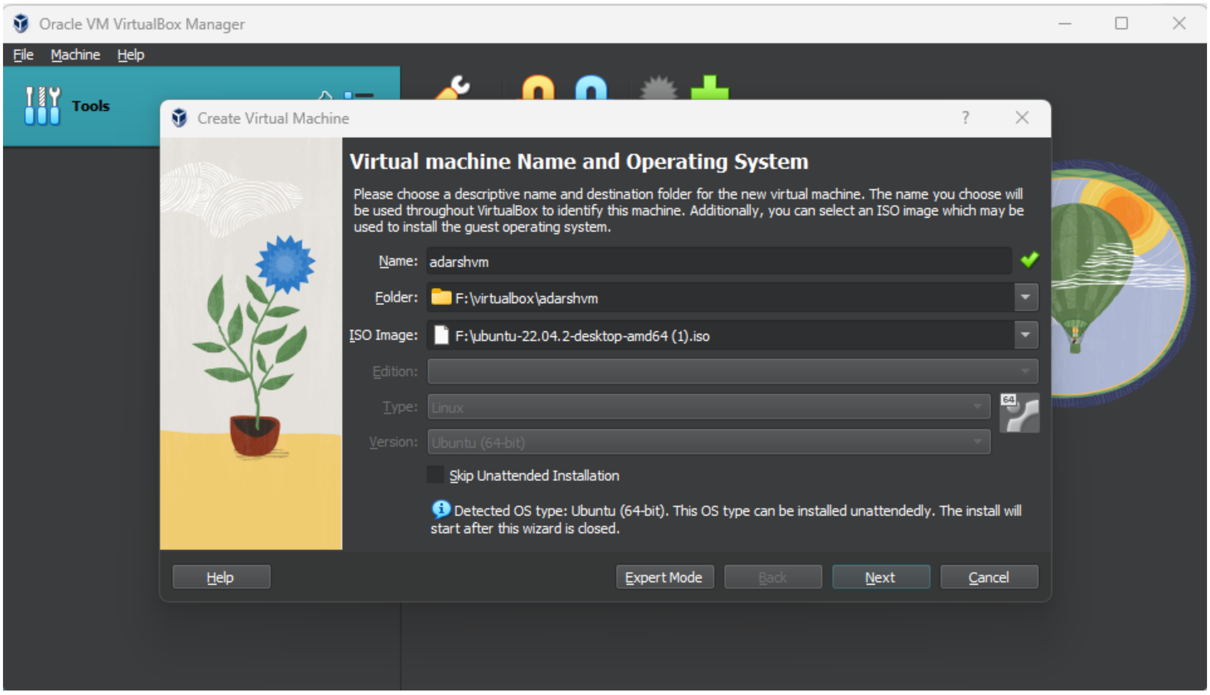
```python
import requests
import time
from tabulate import tabulate

def check_subdomain(subdomain):
    url = f"https://{subdomain}.github.com"
    try:
        response = requests.get(url, timeout=5)
        status = "Up" if response.status_code == 200 else "Down"
    except requests.RequestException:
        status = "Down"
    return subdomain, status

def print_table(subdomain_statuses):
    headers = ["Subdomain", "Status"]
    print(tabulate(subdomain_statuses, headers=headers, tablefmt="grid"))

def main():
    subdomains = [
        "gist",
        "help",
        "education",
        "enterprise",
        "developer",
        "status"
    ]
```

```
PS F:\devops\herovired\devops_class_assignment\Networking and Servers> & C:/Users/adars/python.exe "f:/devops/herovired/devops_class_assignment/Networking and Servers/question-2/subdomain_checker.py"
+------------+----------+
| Subdomain  | Status   |
+============+==========+
| gist       | Up       |
+------------+----------+
| help       | Up       |
+------------+----------+
| education  | Up       |
+------------+----------+
| enterprise | Up       |
+------------+----------+
| developer  | Up       |
+------------+----------+
| status     | Up       |
+------------+----------+
```

Question 3: Hosting and Scanning a website on Virtual Machine

Install VirtualBox

1. For Windows: Host machine is windows installing a VirtualBox from https://www.virtualbox.org/ and creating a ubuntu VM inside it.



Virtual machine Name and Operating System

Please choose a descriptive name and destination folder for the new virtual machine. The name you choose will be used throughout VirtualBox to identify this machine. Additionally, you can select an ISO image which may be used to install the guest operating system.

Name: adarshvm

Folder: F:\virtualbox\adarshvm

ISO Image: F:\ubuntu-22.04.2-desktop-amd64 (1).iso

Edition:

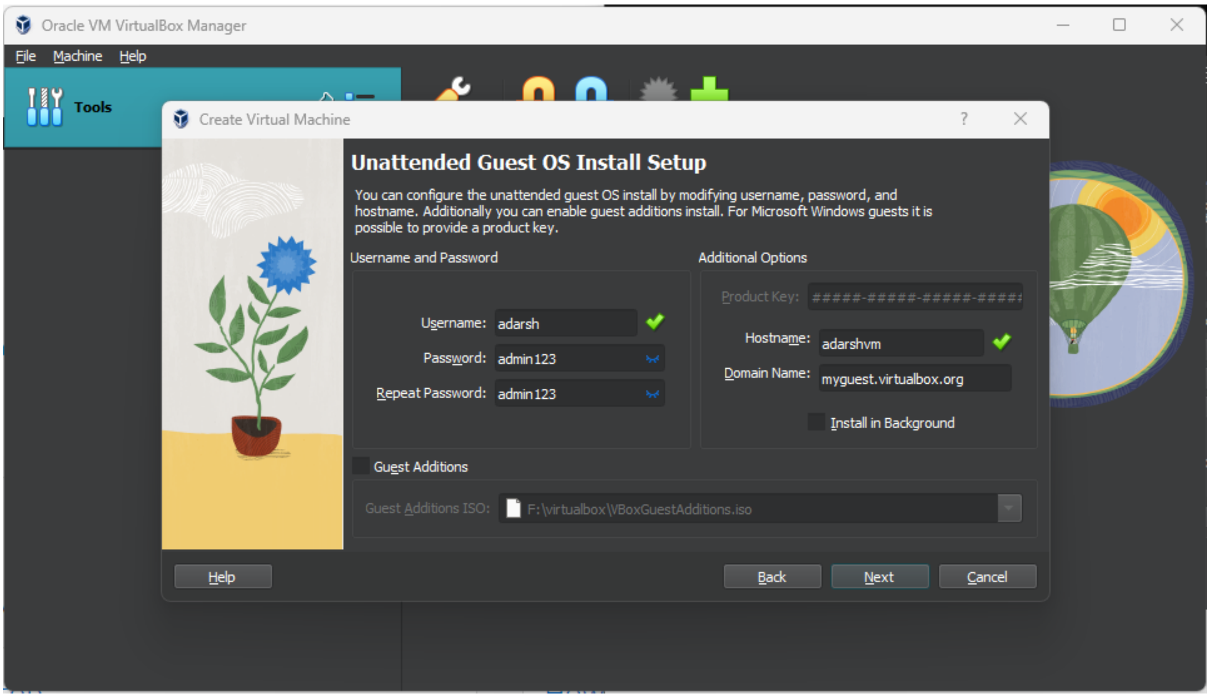
Type: Linux

Version: Ubuntu (64-bit)

□ Skip Unattended Installation

Detected OS type: Ubuntu (64-bit). This OS type can be installed unattendedly. The install will start after this wizard is closed.

Added a user “adarsh” with password “admin123”



Unattended Guest OS Install Setup

You can configure the unattended guest OS install by modifying username, password, and hostname. Additionally you can enable guest additions install. For Microsoft Windows guests it is possible to provide a product key.

Username and Password

Username: adarsh

Password: admin123

Repeat Password: admin123

Additional Options

Product Key: #####-#####-#####-#####

Hostname: adarshvm

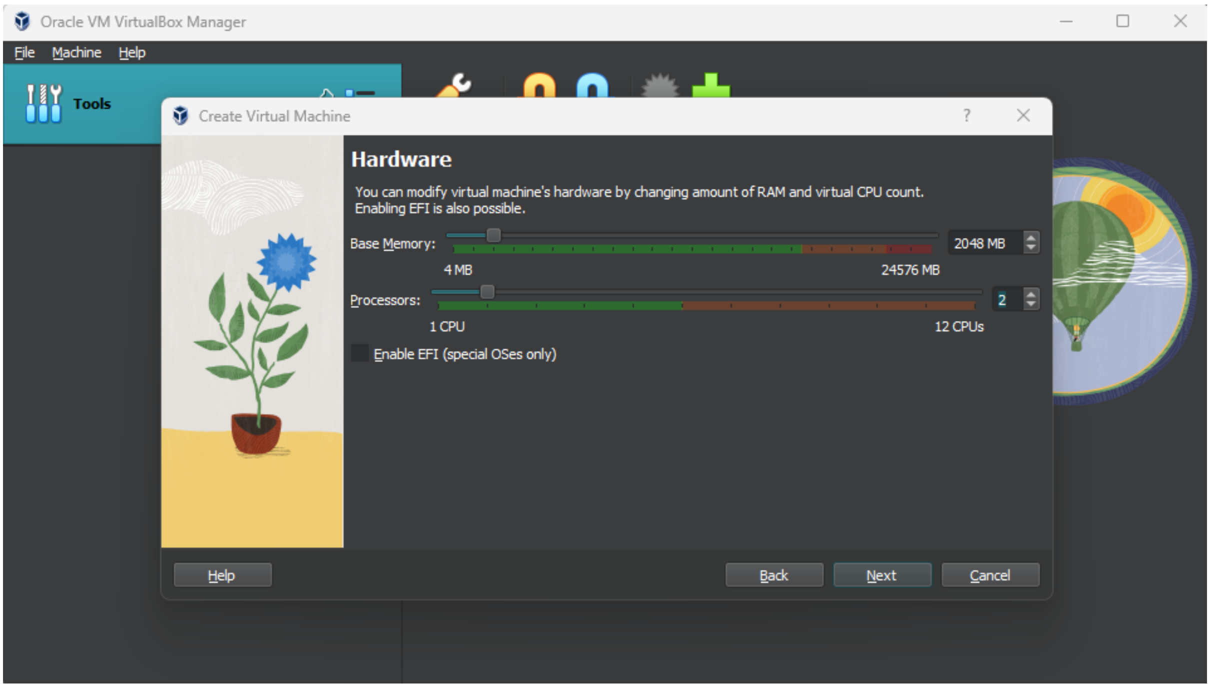
Domain Name: myguest.virtualbox.org

□ Install in Background

□ Guest Additions

Guest Additions ISO: F:\virtualbox\VBoxGuestAdditions.iso

Assigning the Ram to the VM



Hardware

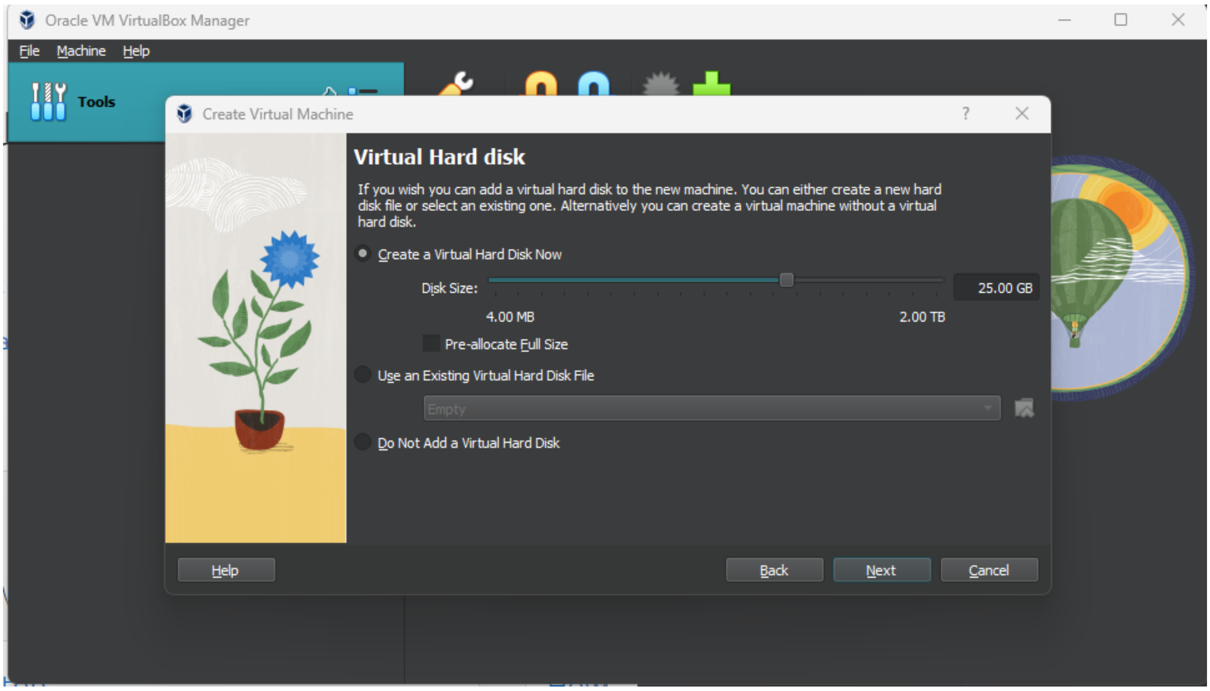
You can modify virtual machine's hardware by changing amount of RAM and virtual CPU count. Enabling EFI is also possible.

Base Memory: 2048 MB (4 MB – 24576 MB)

Processors: 2 (1 CPU – 12 CPUs)

□ Enable EFI (special OSes only)

Assigning the hard disk to the VM



Virtual Hard disk

If you wish you can add a virtual hard disk to the new machine. You can either create a new hard disk file or select an existing one. Alternatively you can create a virtual machine without a virtual hard disk.

● Create a Virtual Hard Disk Now

Disk Size: 25.00 GB (4.00 MB – 2.00 TB)

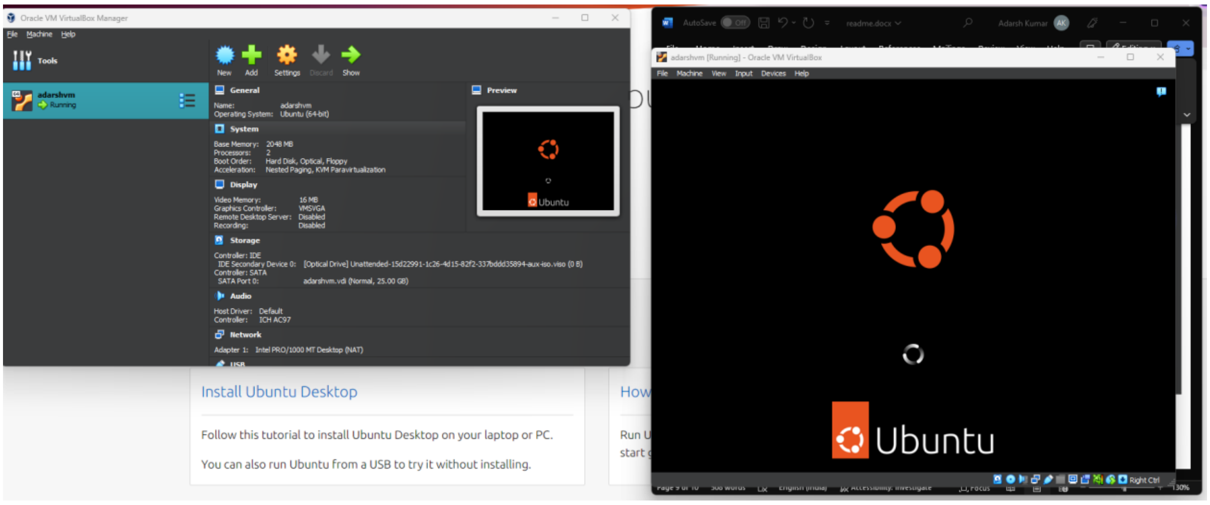
□ Pre-allocate Full Size

○ Use an Existing Virtual Hard Disk File

Empty

○ Do Not Add a Virtual Hard Disk

Ubuntu VM is ready.


Oracle VM VirtualBox Manager
File Machine Help
Tools
adarshvm
Running
New
Add
Settings
Discard
Show
Preview
Ubuntu
adarshvm [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Ubuntu
Right Ctrl

General

Name: adarshvm
Operating System: Ubuntu (64-bit)

System

Base Memory: 2048 MB
Processors: 2
Boot Order: Hard Disk, Optical, Floppy
Acceleration: Nested Paging, KVM Paravirtualization

Display

Video Memory: 16 MB
Graphics Controller: VMSVGA
Remote Desktop Server: Disabled
Recording: Disabled

Storage

Controller: IDE
IDE Secondary Device 0: [Optical Drive] Unattended-15d22991-1c26-4d15-82f2-337bddd35894-aux-iso.viso (0 B)
Controller: SATA
SATA Port 0: adarshvm.vdi (Normal, 25.00 GB)

Audio

Host Driver: Default
Controller: ICH AC97

Network

Adapter 1: Intel PRO/1000 MT Desktop (NAT)

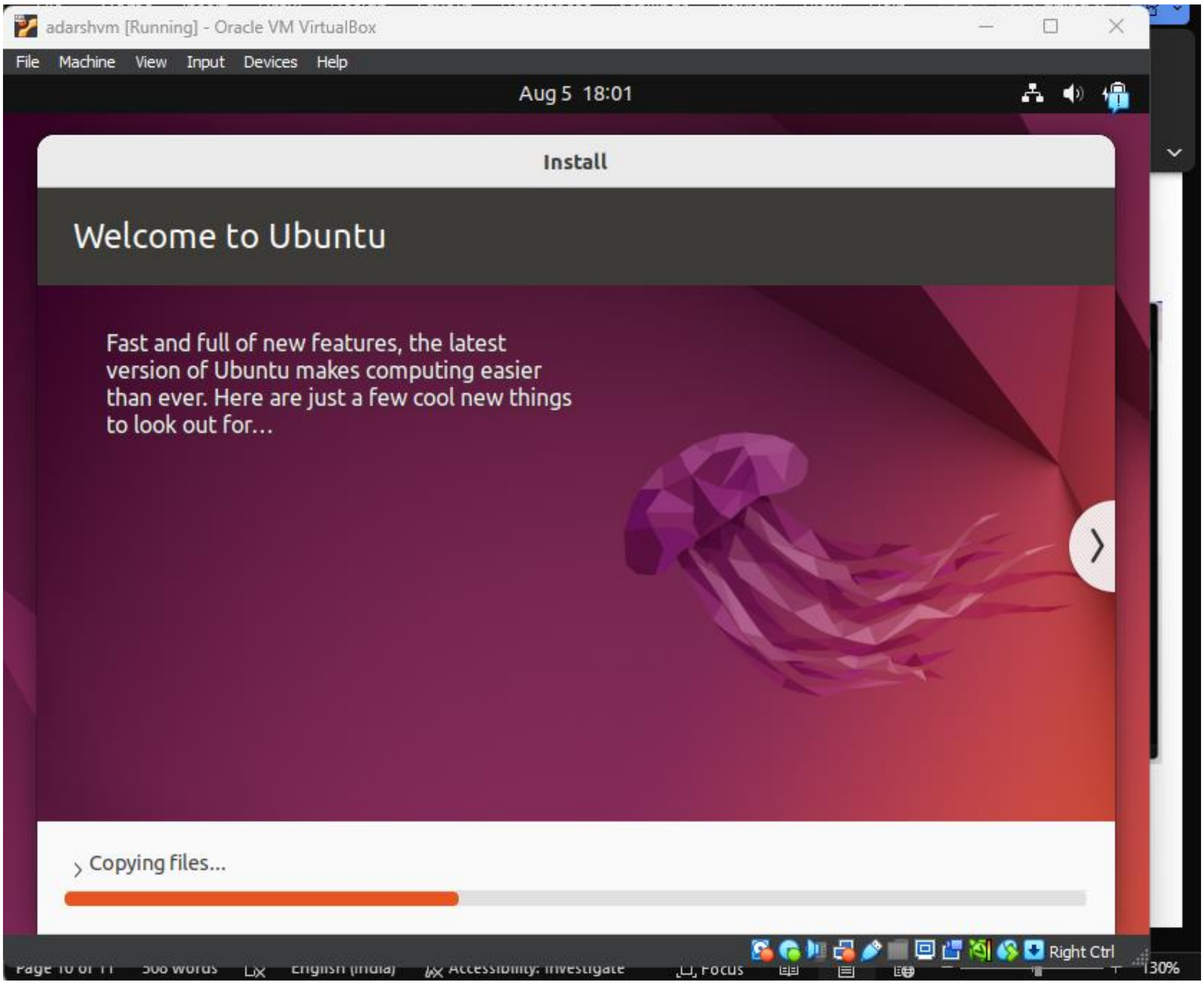
USB

Install Ubuntu Desktop

Follow this tutorial to install Ubuntu Desktop on your laptop or PC.

You can also run Ubuntu from a USB to try it without installing.

Ubuntu is being installed in the virtualbox


adarshvm [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Aug 5 18:01
Right Ctrl
130%

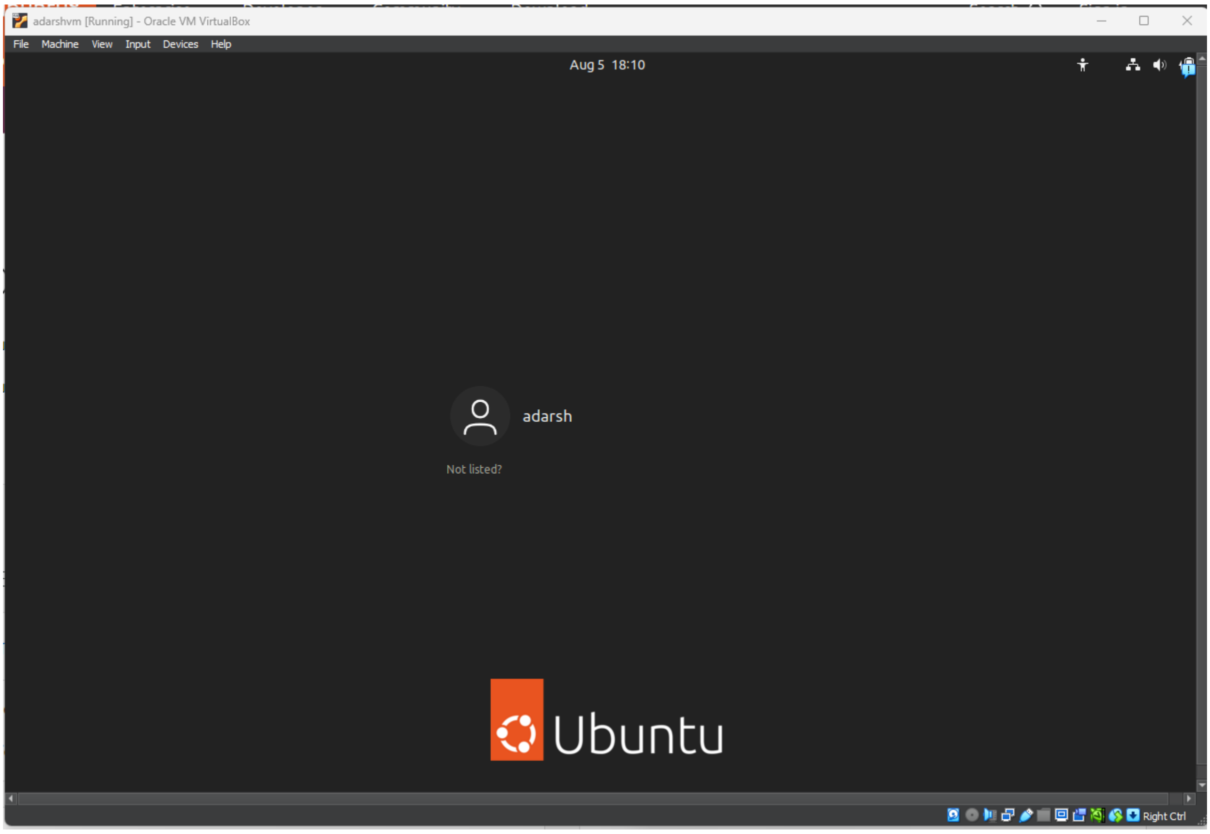
Install

Welcome to Ubuntu

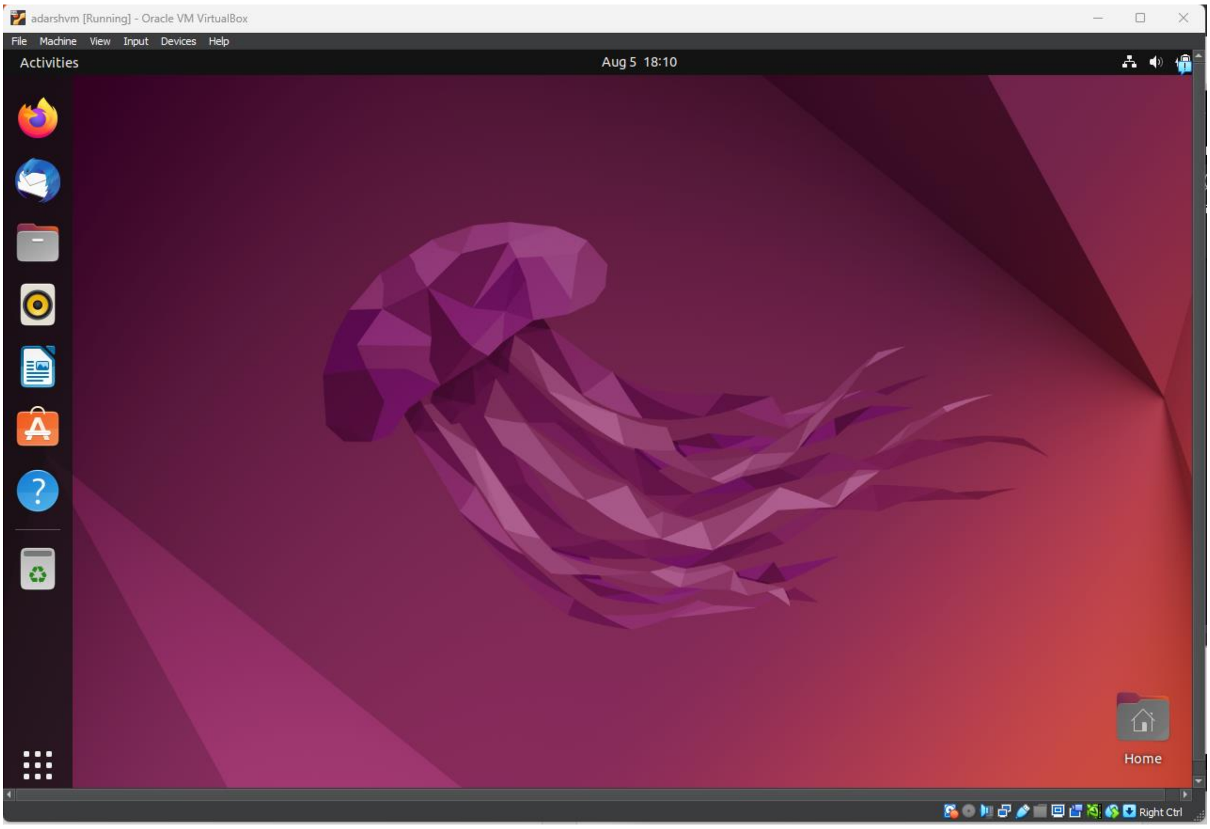
Fast and full of new features, the latest version of Ubuntu makes computing easier than ever. Here are just a few cool new things to look out for…

Copying files…

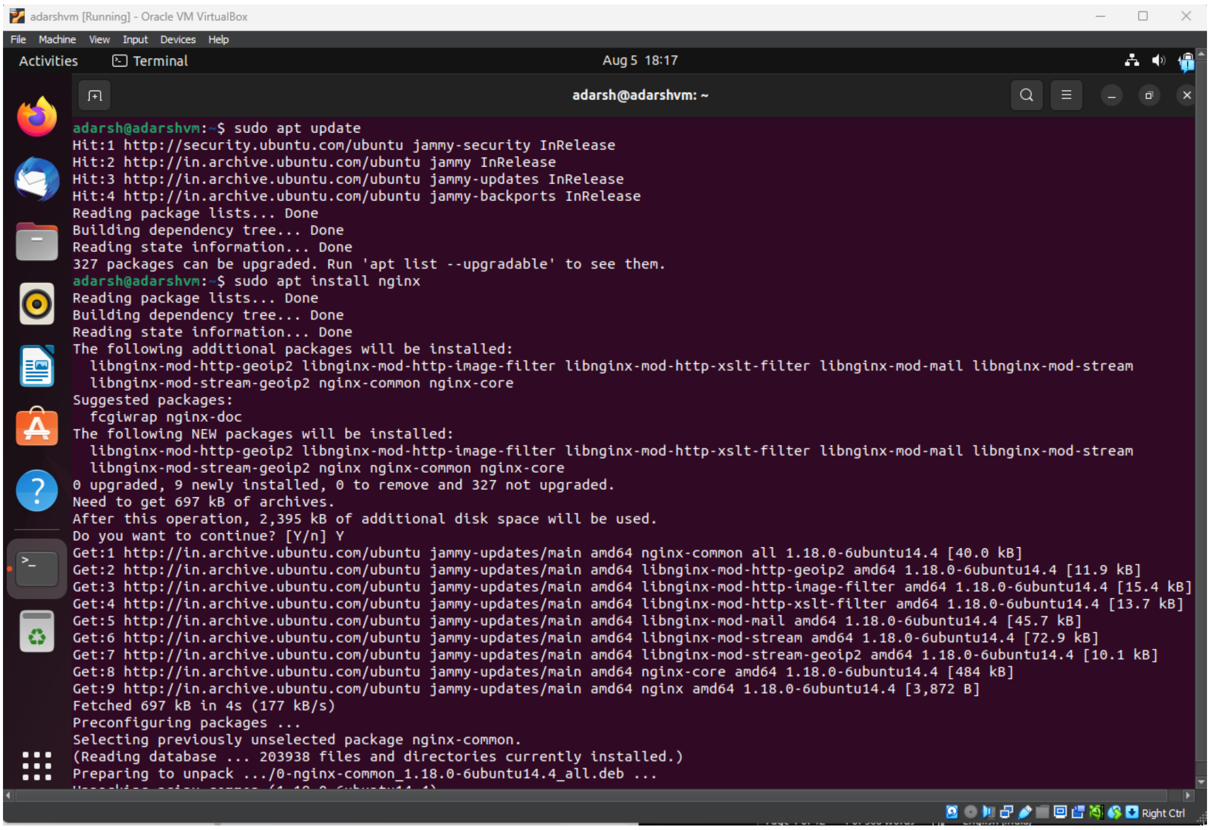
Logging the VM via user “adarsh” and password “admin123”


adarshvm [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Aug 5 18:10
adarsh
Not listed?
Ubuntu
Right Ctrl

We are inside the ubuntu VM

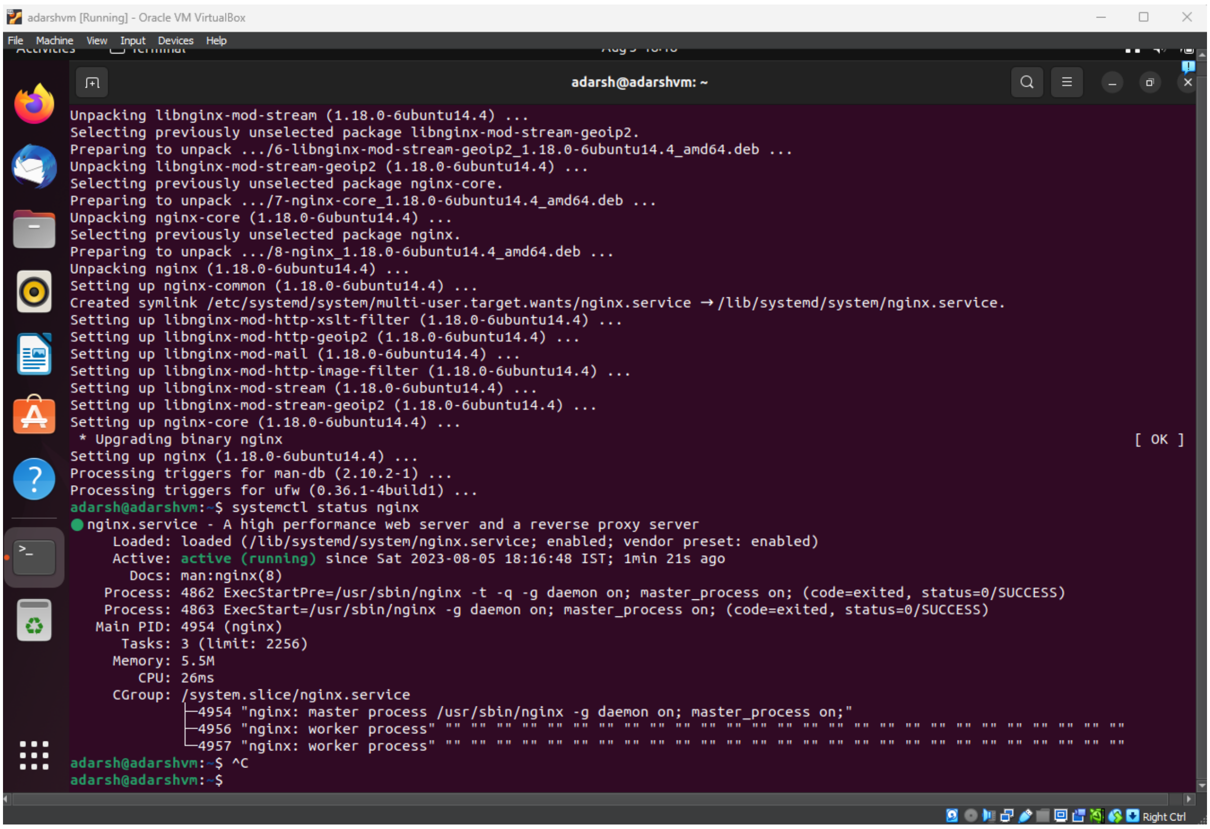

adarshvm [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities
Aug 5 18:10
Home
Right Ctrl

Task 1: Install Nginx inside the Ubuntu machine and host a website.


adarshvm [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities
Terminal
Aug 5 18:17
adarsh@adarshvm: ~
Right Ctrl

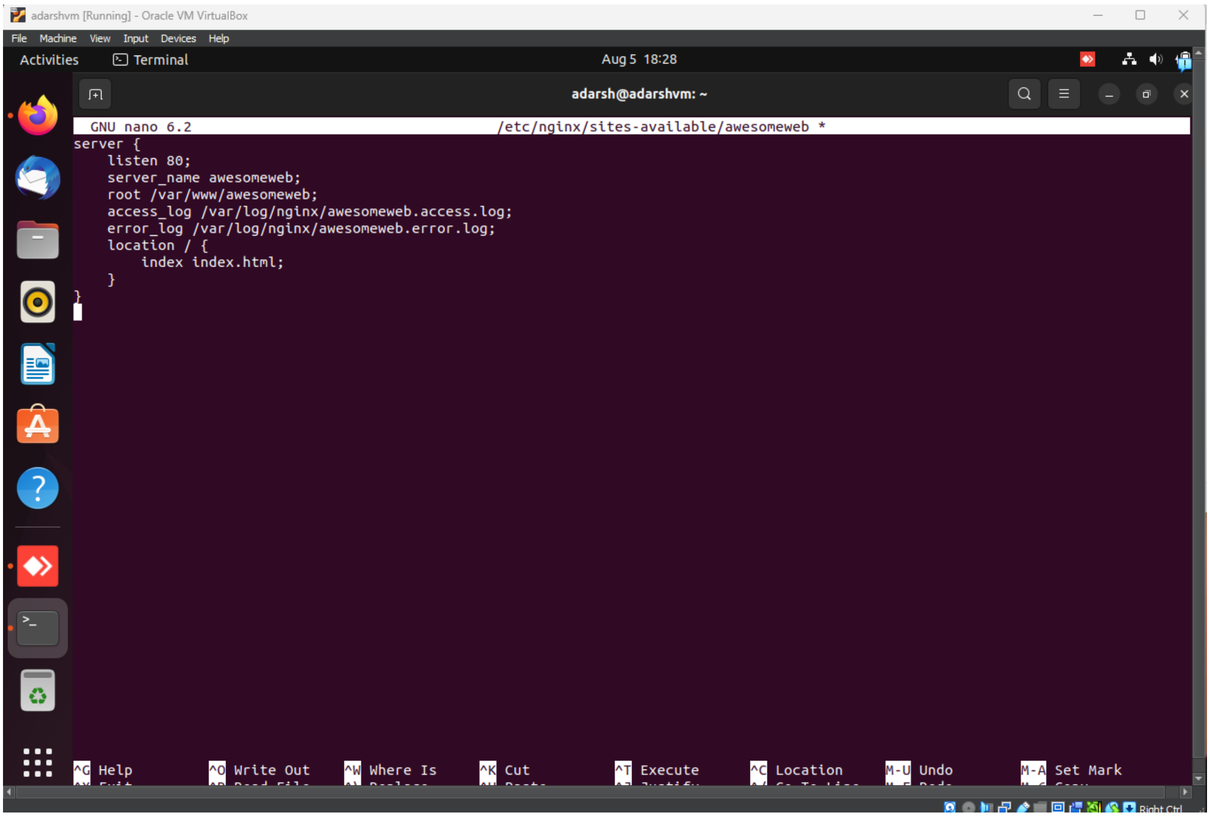
```
adarsh@adarshvm:~$ sudo apt update
Hit:1 http://security.ubuntu.com/ubuntu jammy-security InRelease
Hit:2 http://in.archive.ubuntu.com/ubuntu jammy InRelease
Hit:3 http://in.archive.ubuntu.com/ubuntu jammy-updates InRelease
Hit:4 http://in.archive.ubuntu.com/ubuntu jammy-backports InRelease
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
327 packages can be upgraded. Run 'apt list --upgradable' to see them.
adarsh@adarshvm:~$ sudo apt install nginx
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  libnginx-mod-http-geoip2 libnginx-mod-http-image-filter libnginx-mod-http-xslt-filter libnginx-mod-mail libnginx-mod-stream
  libnginx-mod-stream-geoip2 nginx-common nginx-core
Suggested packages:
  fcgiwrap nginx-doc
The following NEW packages will be installed:
  libnginx-mod-http-geoip2 libnginx-mod-http-image-filter libnginx-mod-http-xslt-filter libnginx-mod-mail libnginx-mod-stream
  libnginx-mod-stream-geoip2 nginx nginx-common nginx-core
0 upgraded, 9 newly installed, 0 to remove and 327 not upgraded.
Need to get 697 kB of archives.
After this operation, 2,395 kB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 nginx-common all 1.18.0-6ubuntu14.4 [40.0 kB]
Get:2 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libnginx-mod-http-geoip2 amd64 1.18.0-6ubuntu14.4 [11.9 kB]
Get:3 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libnginx-mod-http-image-filter amd64 1.18.0-6ubuntu14.4 [15.4 kB]
Get:4 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libnginx-mod-http-xslt-filter amd64 1.18.0-6ubuntu14.4 [13.7 kB]
Get:5 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libnginx-mod-mail amd64 1.18.0-6ubuntu14.4 [45.7 kB]
Get:6 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libnginx-mod-stream amd64 1.18.0-6ubuntu14.4 [72.9 kB]
Get:7 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libnginx-mod-stream-geoip2 amd64 1.18.0-6ubuntu14.4 [10.1 kB]
Get:8 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 nginx-core amd64 1.18.0-6ubuntu14.4 [484 kB]
Get:9 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 nginx amd64 1.18.0-6ubuntu14.4 [3,872 B]
Fetched 697 kB in 4s (177 kB/s)
Preconfiguring packages ...
Selecting previously unselected package nginx-common.
(Reading database ... 203938 files and directories currently installed.)
Preparing to unpack .../0-nginx-common_1.18.0-6ubuntu14.4_all.deb ...
Unpacking nginx-common (1.18.0-6ubuntu14.4) ...
```

Nginx server is Active


adarshvm [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
adarsh@adarshvm: ~
Right Ctrl

```
Unpacking libnginx-mod-stream (1.18.0-6ubuntu14.4) ...
Selecting previously unselected package libnginx-mod-stream-geoip2.
Preparing to unpack .../6-libnginx-mod-stream-geoip2_1.18.0-6ubuntu14.4_amd64.deb ...
Unpacking libnginx-mod-stream-geoip2 (1.18.0-6ubuntu14.4) ...
Selecting previously unselected package nginx-core.
Preparing to unpack .../7-nginx-core_1.18.0-6ubuntu14.4_amd64.deb ...
Unpacking nginx-core (1.18.0-6ubuntu14.4) ...
Selecting previously unselected package nginx.
Preparing to unpack .../8-nginx_1.18.0-6ubuntu14.4_amd64.deb ...
Unpacking nginx (1.18.0-6ubuntu14.4) ...
Setting up nginx-common (1.18.0-6ubuntu14.4) ...
Created symlink /etc/systemd/system/multi-user.target.wants/nginx.service → /lib/systemd/system/nginx.service.
Setting up libnginx-mod-http-xslt-filter (1.18.0-6ubuntu14.4) ...
Setting up libnginx-mod-http-geoip2 (1.18.0-6ubuntu14.4) ...
Setting up libnginx-mod-mail (1.18.0-6ubuntu14.4) ...
Setting up libnginx-mod-http-image-filter (1.18.0-6ubuntu14.4) ...
Setting up libnginx-mod-stream (1.18.0-6ubuntu14.4) ...
Setting up libnginx-mod-stream-geoip2 (1.18.0-6ubuntu14.4) ...
Setting up nginx-core (1.18.0-6ubuntu14.4) ...
 * Upgrading binary nginx                                                                                       [ OK ]
Setting up nginx (1.18.0-6ubuntu14.4) ...
Processing triggers for man-db (2.10.2-1) ...
Processing triggers for ufw (0.36.1-4build1) ...
adarsh@adarshvm:~$ systemctl status nginx
● nginx.service - A high performance web server and a reverse proxy server
     Loaded: loaded (/lib/systemd/system/nginx.service; enabled; vendor preset: enabled)
     Active: active (running) since Sat 2023-08-05 18:16:48 IST; 1min 21s ago
       Docs: man:nginx(8)
    Process: 4862 ExecStartPre=/usr/sbin/nginx -t -q -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
    Process: 4863 ExecStart=/usr/sbin/nginx -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
   Main PID: 4954 (nginx)
      Tasks: 3 (limit: 2256)
     Memory: 5.5M
        CPU: 26ms
     CGroup: /system.slice/nginx.service
             ├─4954 "nginx: master process /usr/sbin/nginx -g daemon on; master_process on;"
             ├─4956 "nginx: worker process" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" ""
             └─4957 "nginx: worker process" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" "" ""
adarsh@adarshvm:~$ ^C
adarsh@adarshvm:~$
```

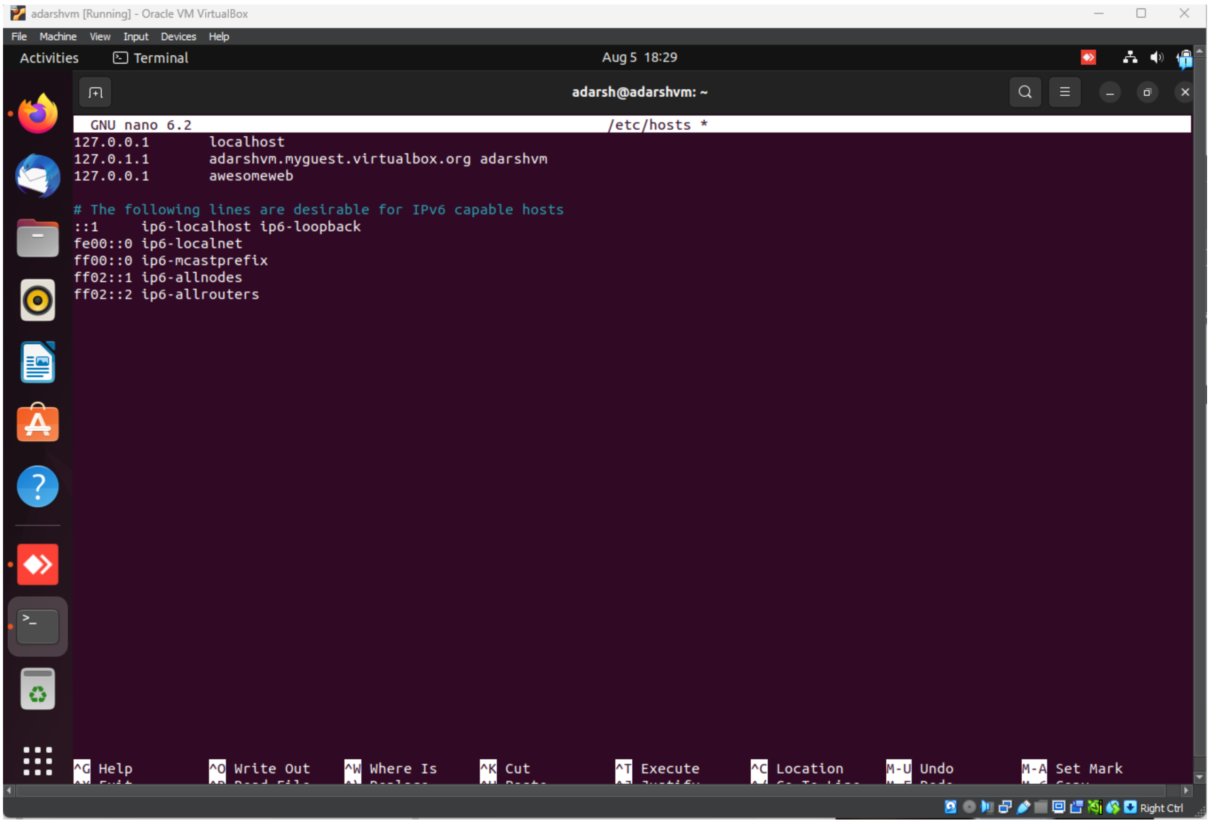
Hosting a webpage in the nginix server with DNS as awesomeweb



adarshvm [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities
Terminal
Aug 5 18:28
adarsh@adarshvm: ~

```
  GNU nano 6.2                              /etc/nginx/sites-available/awesomeweb *
server {
    listen 80;
    server_name awesomeweb;
    root /var/www/awesomeweb;
    access_log /var/log/nginx/awesomeweb.access.log;
    error_log /var/log/nginx/awesomeweb.error.log;
    location / {
        index index.html;
    }
}
```

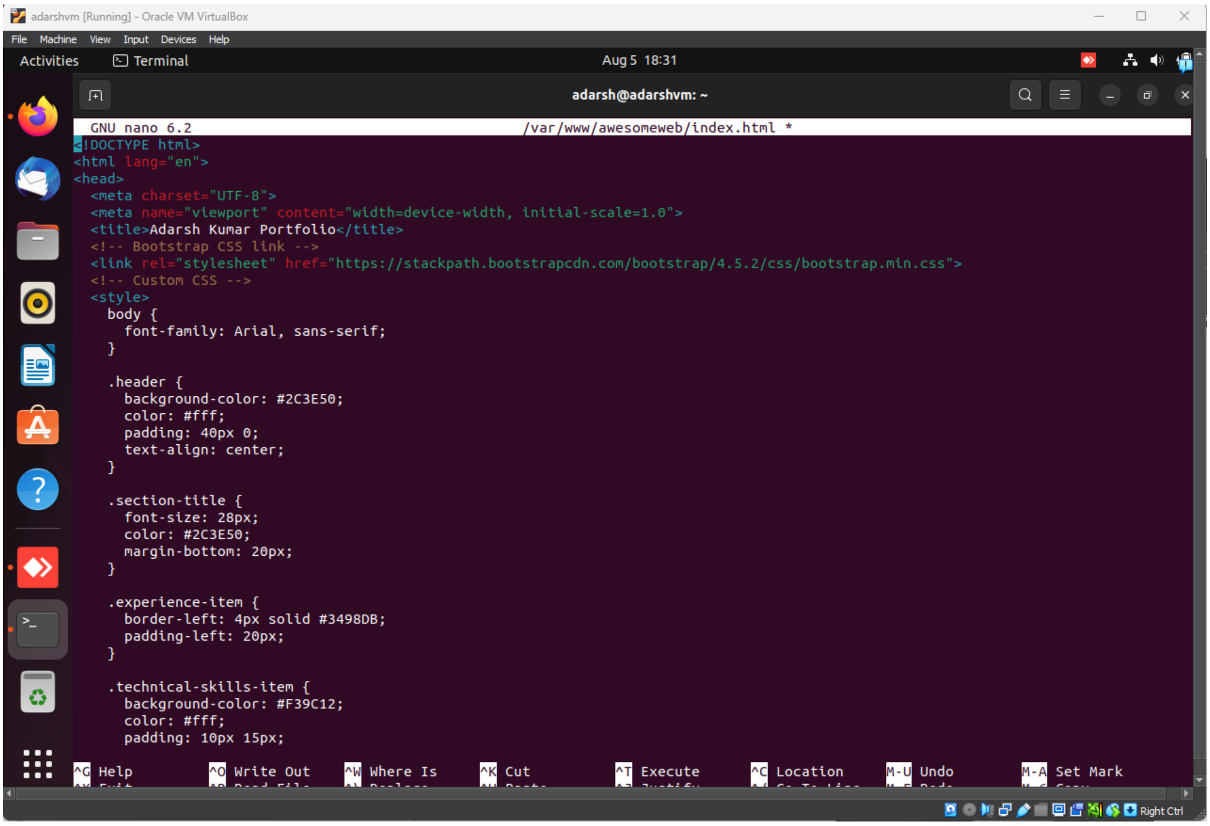
Adding the DNS in the hosts file



adarshvm [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities
Terminal
Aug 5 18:29
adarsh@adarshvm: ~

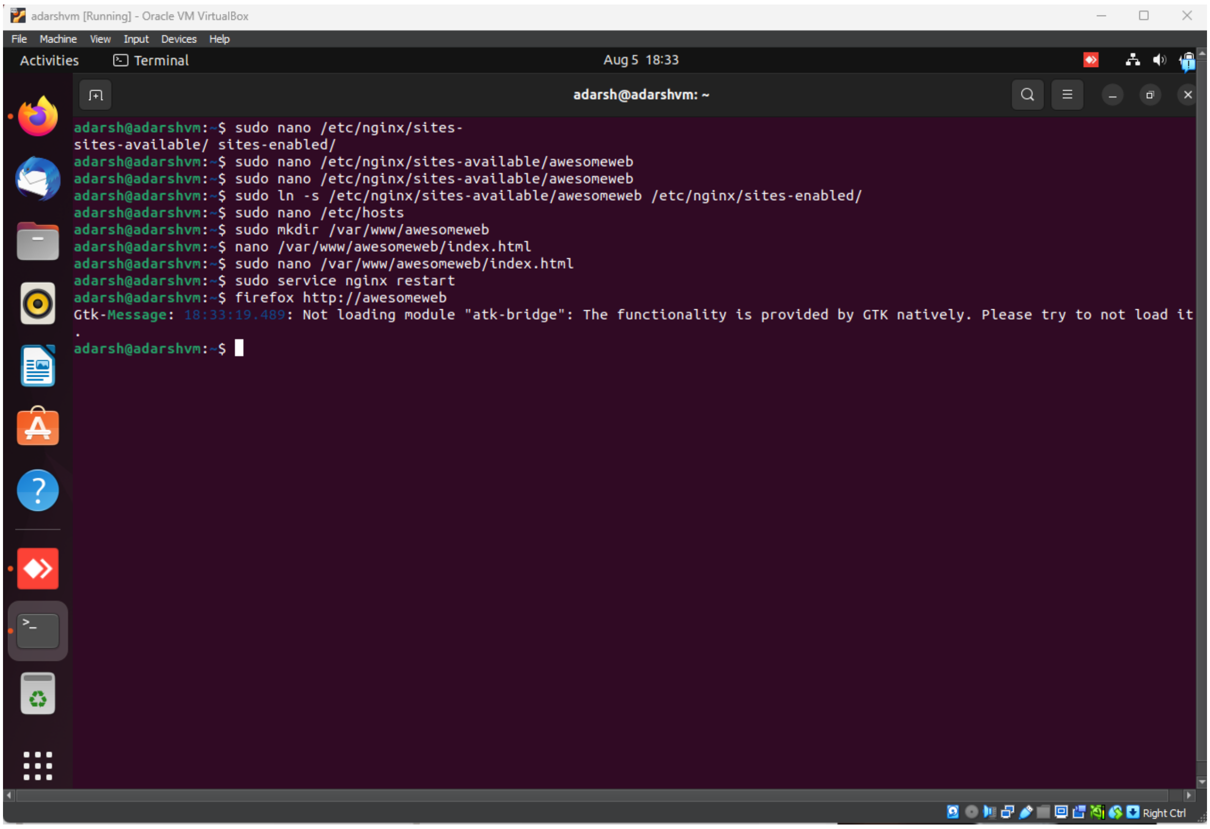
```
  GNU nano 6.2                                          /etc/hosts *
127.0.0.1       localhost
127.0.1.1       adarshvm.myguest.virtualbox.org adarshvm
127.0.0.1       awesomeweb

# The following lines are desirable for IPv6 capable hosts
::1     ip6-localhost ip6-loopback
fe00::0 ip6-localnet
ff00::0 ip6-mcastprefix
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
```

Placing the static html page in /var/www/awesomeweb/


adarshvm [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities
Terminal
Aug 5 18:31
adarsh@adarshvm: ~
Right Ctrl

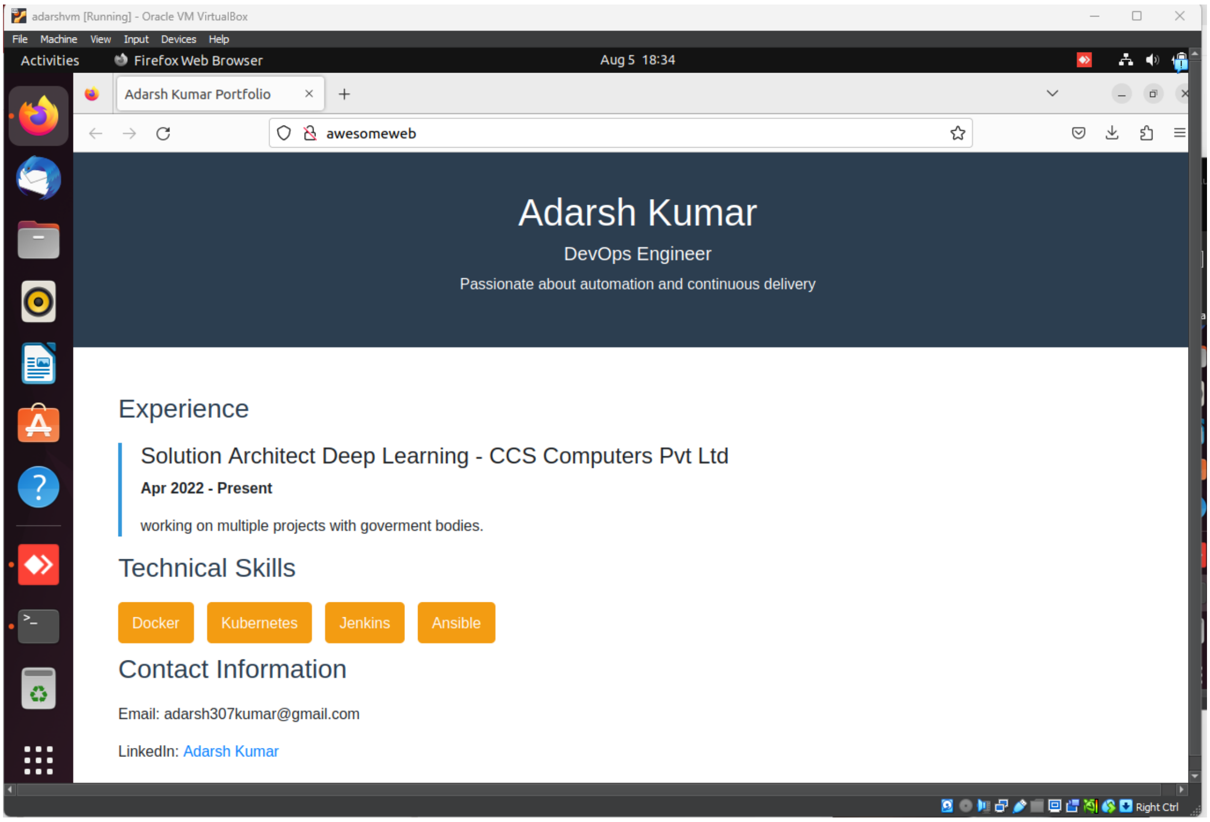
```
  GNU nano 6.2                                       /var/www/awesomeweb/index.html *
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Adarsh Kumar Portfolio</title>
  <!-- Bootstrap CSS link -->
  <link rel="stylesheet" href="https://stackpath.bootstrapcdn.com/bootstrap/4.5.2/css/bootstrap.min.css">
  <!-- Custom CSS -->
  <style>
    body {
      font-family: Arial, sans-serif;
    }

    .header {
      background-color: #2C3E50;
      color: #fff;
      padding: 40px 0;
      text-align: center;
    }

    .section-title {
      font-size: 28px;
      color: #2C3E50;
      margin-bottom: 20px;
    }

    .experience-item {
      border-left: 4px solid #3498DB;
      padding-left: 20px;
    }

    .technical-skills-item {
      background-color: #F39C12;
      color: #fff;
      padding: 10px 15px;

^G Help         ^O Write Out    ^W Where Is     ^K Cut          ^T Execute      ^C Location     M-U Undo        M-A Set Mark
```

Restarting the server to update the changes and launching the webpage in firefox


adarshvm [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities
Terminal
Aug 5 18:33
adarsh@adarshvm: ~
Right Ctrl

```
adarsh@adarshvm:~$ sudo nano /etc/nginx/sites-
sites-available/ sites-enabled/
adarsh@adarshvm:~$ sudo nano /etc/nginx/sites-available/awesomeweb
adarsh@adarshvm:~$ sudo nano /etc/nginx/sites-available/awesomeweb
adarsh@adarshvm:~$ sudo ln -s /etc/nginx/sites-available/awesomeweb /etc/nginx/sites-enabled/
adarsh@adarshvm:~$ sudo nano /etc/hosts
adarsh@adarshvm:~$ sudo mkdir /var/www/awesomeweb
adarsh@adarshvm:~$ nano /var/www/awesomeweb/index.html
adarsh@adarshvm:~$ sudo nano /var/www/awesomeweb/index.html
adarsh@adarshvm:~$ sudo service nginx restart
adarsh@adarshvm:~$ firefox http://awesomeweb
Gtk-Message: 18:33:19.489: Not loading module "atk-bridge": The functionality is provided by GTK natively. Please try to not load it
.
adarsh@adarshvm:~$ 
```

Webpage is hosted locally at http://awesomeweb



Adarsh Kumar

DevOps Engineer

Passionate about automation and continuous delivery

Experience

Solution Architect Deep Learning - CCS Computers Pvt Ltd

Apr 2022 - Present

working on multiple projects with goverment bodies.

Technical Skills

Docker Kubernetes Jenkins Ansible

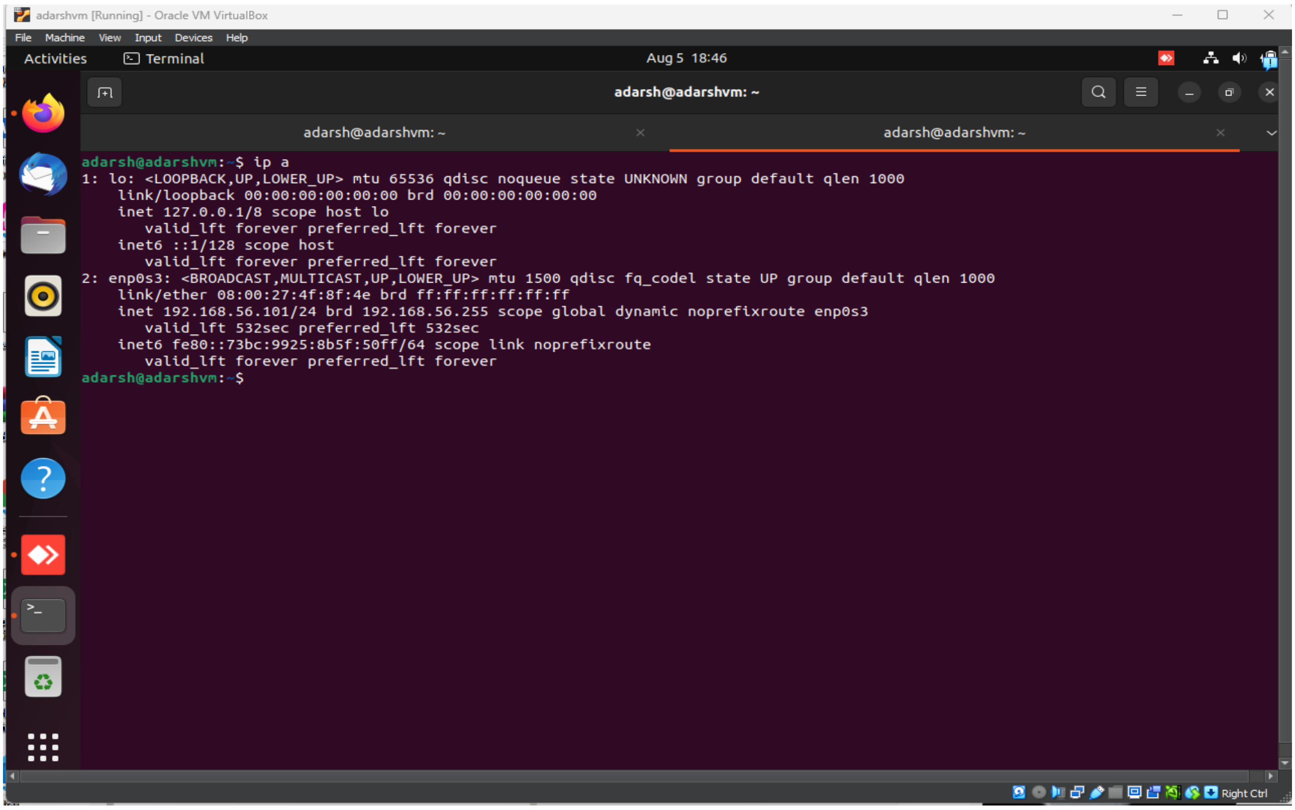
Contact Information

Email: adarsh307kumar@gmail.com

LinkedIn: Adarsh Kumar

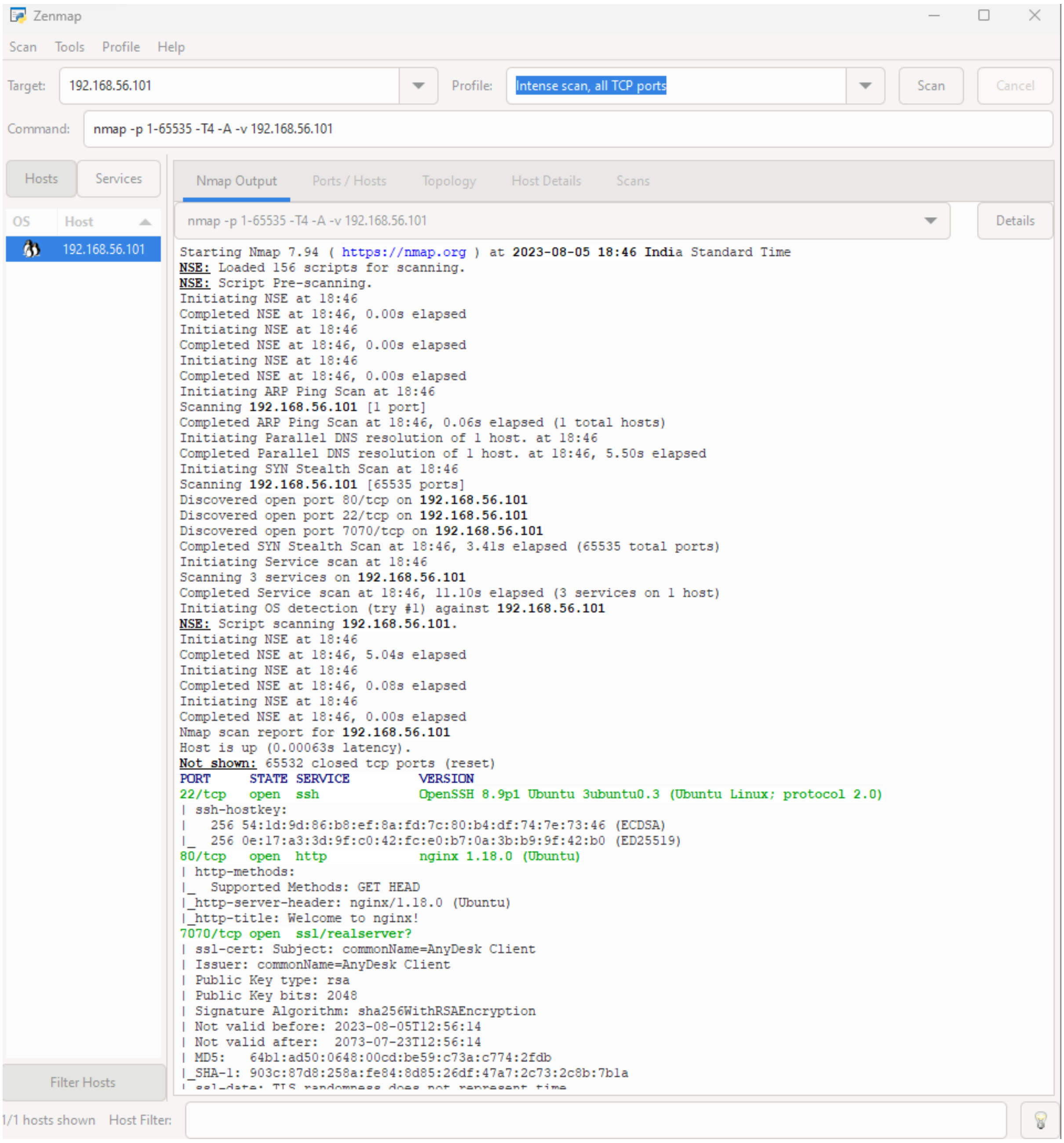
Task 2: Come back to your host machine (windows/Linux/mac) and scan the virtual machine using Nmap.

Checking the IP of Ubuntu VM. IP is 192.168.56.101



```
adarsh@adarshvm:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:4f:8f:4e brd ff:ff:ff:ff:ff:ff
    inet 192.168.56.101/24 brd 192.168.56.255 scope global dynamic noprefixroute enp0s3
       valid_lft 532sec preferred_lft 532sec
    inet6 fe80::73bc:9925:8b5f:50ff/64 scope link noprefixroute
       valid_lft forever preferred_lft forever
adarsh@adarshvm:~$
```

Scanning the VM using NMAP on host windows machine.



Target: 192.168.56.101

Profile: Intense scan, all TCP ports

Command: nmap -p 1-65535 -T4 -A -v 192.168.56.101

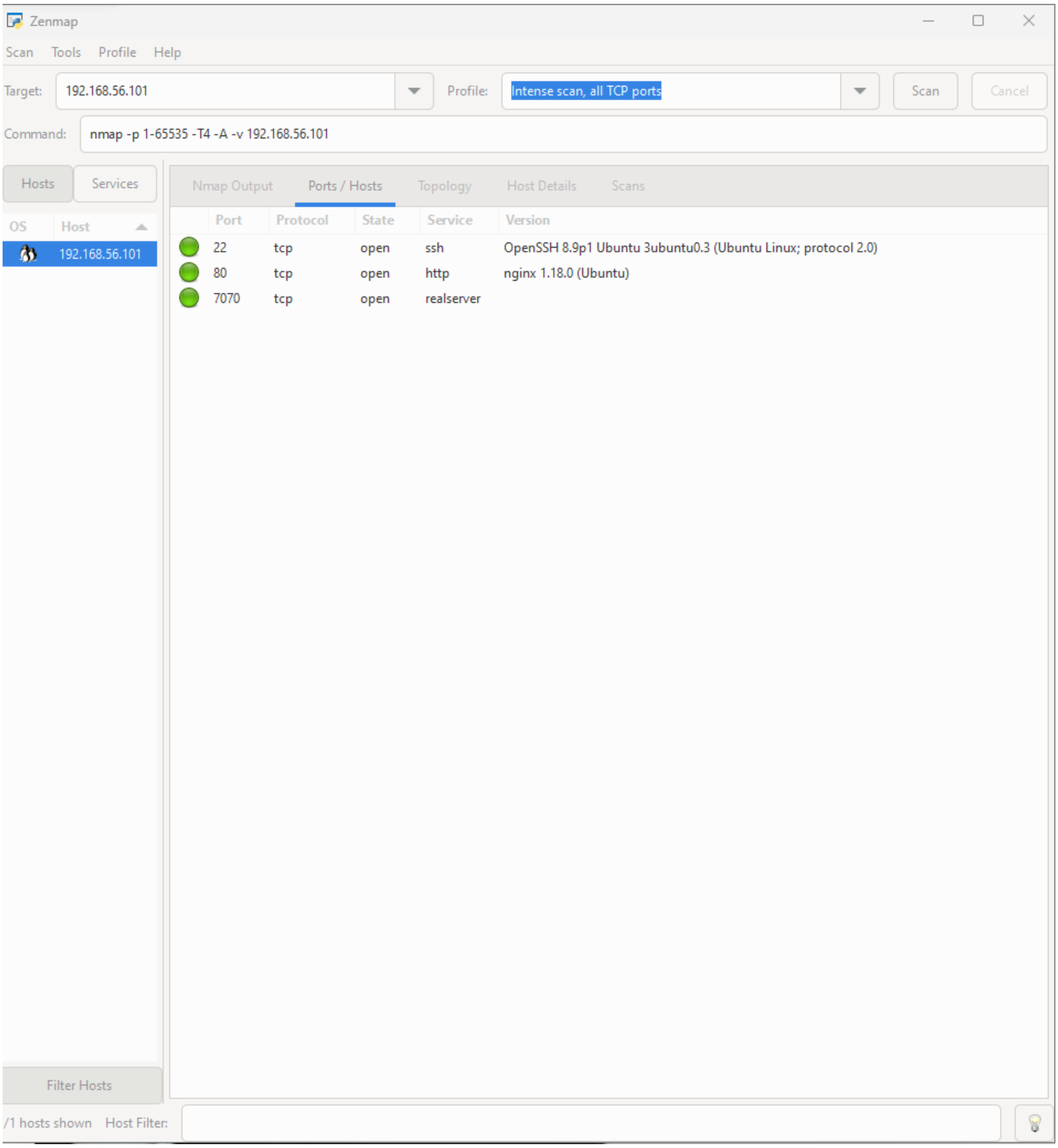
Host: 192.168.56.101

Host Filter:

```
nmap -p 1-65535 -T4 -A -v 192.168.56.101
```

```
Starting Nmap 7.94 ( https://nmap.org ) at 2023-08-05 18:46 India Standard Time
NSE: Loaded 156 scripts for scanning.
NSE: Script Pre-scanning.
Initiating NSE at 18:46
Completed NSE at 18:46, 0.00s elapsed
Initiating NSE at 18:46
Completed NSE at 18:46, 0.00s elapsed
Initiating NSE at 18:46
Completed NSE at 18:46, 0.00s elapsed
Initiating ARP Ping Scan at 18:46
Scanning 192.168.56.101 [1 port]
Completed ARP Ping Scan at 18:46, 0.06s elapsed (1 total hosts)
Initiating Parallel DNS resolution of 1 host. at 18:46
Completed Parallel DNS resolution of 1 host. at 18:46, 5.50s elapsed
Initiating SYN Stealth Scan at 18:46
Scanning 192.168.56.101 [65535 ports]
Discovered open port 80/tcp on 192.168.56.101
Discovered open port 22/tcp on 192.168.56.101
Discovered open port 7070/tcp on 192.168.56.101
Completed SYN Stealth Scan at 18:46, 3.41s elapsed (65535 total ports)
Initiating Service scan at 18:46
Scanning 3 services on 192.168.56.101
Completed Service scan at 18:46, 11.10s elapsed (3 services on 1 host)
Initiating OS detection (try #1) against 192.168.56.101
NSE: Script scanning 192.168.56.101.
Initiating NSE at 18:46
Completed NSE at 18:46, 5.04s elapsed
Initiating NSE at 18:46
Completed NSE at 18:46, 0.08s elapsed
Initiating NSE at 18:46
Completed NSE at 18:46, 0.00s elapsed
Nmap scan report for 192.168.56.101
Host is up (0.00063s latency).
Not shown: 65532 closed tcp ports (reset)
PORT     STATE SERVICE         VERSION
22/tcp   open  ssh             OpenSSH 8.9p1 Ubuntu 3ubuntu0.3 (Ubuntu Linux; protocol 2.0)
| ssh-hostkey: 
|   256 54:1d:9d:86:b8:ef:8a:fd:7c:80:b4:df:74:7e:73:46 (ECDSA)
|_  256 0e:17:a3:3d:9f:c0:42:fc:e0:b7:0a:3b:b9:9f:42:b0 (ED25519)
80/tcp   open  http            nginx 1.18.0 (Ubuntu)
| http-methods: 
|_  Supported Methods: GET HEAD
|_http-server-header: nginx/1.18.0 (Ubuntu)
|_http-title: Welcome to nginx!
7070/tcp open  ssl/realserver?
| ssl-cert: Subject: commonName=AnyDesk Client
| Issuer: commonName=AnyDesk Client
| Public Key type: rsa
| Public Key bits: 2048
| Signature Algorithm: sha256WithRSAEncryption
| Not valid before: 2023-08-05T12:56:14
| Not valid after:  2073-07-23T12:56:14
| MD5:   64b1:ad50:0648:00cd:be59:c73a:c774:2fdb
|_SHA-1: 903c:87d8:258a:fe84:8d85:26df:47a7:2c73:2c8b:7b1a
| ssl-date: TLS randomness does not represent time
```

We can see port 22, 80 and 7070 is open on Ubuntu VM. It means ssh facility is enable at Ubuntu VM. Port 80 is telling that nginx server is being hosted.



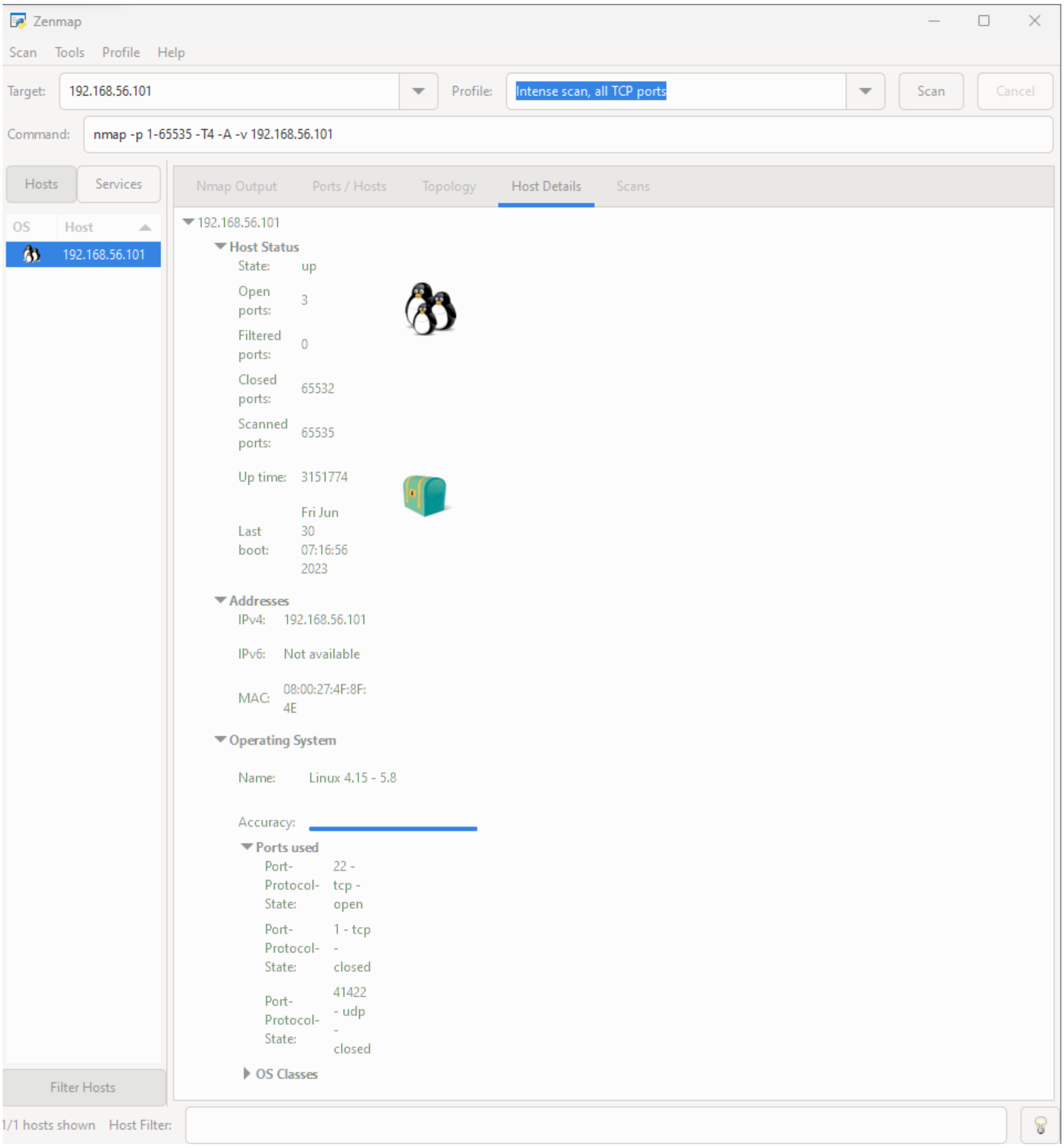
Target: 192.168.56.101

Profile: Intense scan, all TCP ports

Command: nmap -p 1-65535 -T4 -A -v 192.168.56.101

192.168.56.101

	Port	Protocol	State	Service	Version
●	22	tcp	open	ssh	OpenSSH 8.9p1 Ubuntu 3ubuntu0.3 (Ubuntu Linux; protocol 2.0)
●	80	tcp	open	http	nginx 1.18.0 (Ubuntu)
●	7070	tcp	open	realserver	



Target: 192.168.56.101

Profile: Intense scan, all TCP ports

Command: nmap -p 1-65535 -T4 -A -v 192.168.56.101

192.168.56.101

192.168.56.101

Host Status

State: up

Open ports: 3

Filtered ports: 0

Closed ports: 65532

Scanned ports: 65535

Up time: 3151774

Last boot: Fri Jun 30 07:16:56 2023

Addresses

IPv4: 192.168.56.101

IPv6: Not available

MAC: 08:00:27:4F:8F:4E

Operating System

Name: Linux 4.15 - 5.8

Accuracy:

Ports used

Port-Protocol-State: 22 - tcp - open

Port-Protocol-State: 1 - tcp - closed

Port-Protocol-State: 41422 - udp - closed

OS Classes

1/1 hosts shown Host Filter: