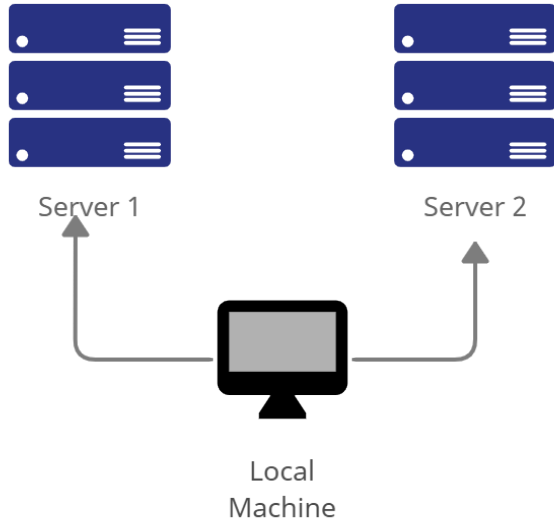


Name: Carag, Carl Jervie B.	Date Performed: 08/08/25
Course/Section: BSCPE CPE31S2	Date Submitted: 08/08/25
Instructor: Engr. Robin Valenzuela	Semester and SY: 1st Semester
Activity 1: Configure Network using Virtual Machines	
1. Objectives: 1.1. Create and configure Virtual Machines in Microsoft Azure or VirtualBox 1.2. Set-up a Virtual Network and Test Connectivity of VMs	
2. Discussion: Network Topology: Assume that you have created the following network topology in Virtual Machines, <i>provide screenshots for each task.</i> (Note: <i>it is assumed that you have the prior knowledge of cloning and creating snapshots in a virtual machine</i>).	
 <pre> graph TD LocalMachine[Local Machine] --- Server1[Server 1] LocalMachine --- Server2[Server 2] subgraph Servers direction TB S1_1[Server Icon] S1_2[Server Icon] S1_3[Server Icon] S2_1[Server Icon] S2_2[Server Icon] S2_3[Server Icon] end </pre>	
Task 1: Do the following on Server 1, Server 2, and Local Machine. In editing the file using nano command, press control + O to write out (save the file). Press enter when asked for the name of the file. Press control + X to end. <ol style="list-style-type: none"> Change the hostname using the command <i>sudo nano /etc/hostname</i> <ol style="list-style-type: none"> Use server1 for Server 1 Use server2 for Server 2 Use workstation for the Local Machine Edit the hosts using the command <i>sudo nano /etc/hosts</i>. Edit the second line. 	

- 2.1 Type 127.0.0.1 server 1 for Server 1
- 2.2 Type 127.0.0.1 server 2 for Server 2
- 2.3 Type 127.0.0.1 workstation for the Local Machine

Task 2: Configure SSH on Server 1, Server 2, and Local Machine. Do the following:

1. Upgrade the packages by issuing the command *sudo apt update* and *sudo apt upgrade* respectively.

Server 2

```
cj@Carl:~$ sudo apt update
Hit:1 http://ph.archive.ubuntu.com/ubuntu noble InRelease
Hit:2 http://ph.archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:3 http://ph.archive.ubuntu.com/ubuntu noble-backports InRelease
Hit:4 http://security.ubuntu.com/ubuntu noble-security InRelease
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
168 packages can be upgraded. Run 'apt list --upgradable' to see them.
cj@Carl:~$ sudo apt upgrade
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
```

Server 1

```
cj@Carl:~$ sudo apt update
Hit:1 http://ph.archive.ubuntu.com/ubuntu noble InRelease
Hit:2 http://ph.archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:3 http://ph.archive.ubuntu.com/ubuntu noble-backports InRelease
Hit:4 http://security.ubuntu.com/ubuntu noble-security InRelease
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
168 packages can be upgraded. Run 'apt list --upgradable' to see them.
cj@Carl:~$ sudo apt upgrade
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Calculating upgrade... Done
The following packages were automatically installed and are no longer required:
  libgl1-amber-dri libglapi-mesa
Use 'sudo apt autoremove' to remove them.
The following packages have been kept back:
  libgl1-amber-dri
The following packages will be upgraded:
  alsa-ucm-conf apparmor apt apt-utils base-files bluez bluez-cups bluez-obexd
  bsdxtrutils bsdxtrutils distro-info-data dmsetup dns-root-data dnsmasq-base
```

Workstation

```
cj@Carl:~$ sudo apt update
Hit:1 http://ph.archive.ubuntu.com/ubuntu noble InRelease
Hit:2 http://ph.archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:3 http://ph.archive.ubuntu.com/ubuntu noble-backports InRelease
Hit:4 http://security.ubuntu.com/ubuntu noble-security InRelease
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
168 packages can be upgraded. Run 'apt list --upgradable' to see them.
cj@Carl:~$ sudo apt upgrade
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Calculating upgrade... Done
The following packages were automatically installed and are no longer required:
  libgl1-amber-dri libglapi-mesa
```

2. Install the SSH server using the command *sudo apt install openssh-server*.

Workstation

```
Processing triggers for libc-bin (2.39-0ubuntu8.5) ...
cj@Carl:~$ sudo apt install openssh-server
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages were automatically installed and are no longer
  libgl1-amber-dri libglapi-mesa
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  ncurses-term openssh-sftp-server ssh-import-id
Suggested packages:
  molly-guard monkeysphere ssh-askpass
The following NEW packages will be installed:
```

Server 1

```
Carl Clone 1 [Running] - Oracle VirtualBox
File Machine View Input Devices Help

Aug 8 09:28
cj@Carl: ~
Setting up gnome-shell (46.0-0ubuntu6-24.04.9) ...
Setting up gnome-shell-extension-desktop-icons-ng (46+really47.0.9-1ubuntu2) .
Setting up update-manager (1:24.04.12) ...
Setting up gnome-shell-extension-ubuntu-dock (90ubuntu3) ...
Setting up update-notifier (3.192.68.2) ...
Processing triggers for initramfs-tools (0.142ubuntu25.5) ...
update-initramfs: Generating /boot/initrd.img-6.14.0-27-generic
Processing triggers for libc-bin (2.39-0ubuntu8.5) ...
cj@Carl:~$ sudo apt install openssh-server
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages were automatically installed and are no longer required:
  libgl1-amber-dri libglapi-mesa
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  ncurses-term openssh-sftp-server ssh-import-id
Suggested packages:
  molly-guard monkeysphere ssh-askpass
The following NEW packages will be installed:
  ncurses-term openssh-server openssh-sftp-server ssh-import-id
0 upgraded, 4 newly installed, 0 to remove and 1 not upgraded.
Need to get 832 kB of archives.
After this operation, 6,743 kB of additional disk space will be used.
```

Server 2

```
Processing triggers for libc-bin (2.39-0ubuntu8.5) ...
cj@Carl:~$ sudo apt install openssh-server
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages were automatically installed and are no longer required:
  libgl1-amber-dri libglapi-mesa
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  ncurses-term openssh-sftp-server ssh-import-id
Suggested packages:
  molly-guard monkeysphere ssh-askpass
The following NEW packages will be installed:
  ncurses-term openssh-server openssh-sftp-server ssh-import-id
0 upgraded, 4 newly installed, 0 to remove and 1 not upgraded.
Need to get 832 kB of archives.
```

3. Verify if the SSH service has started by issuing the following commands:

3.1 *sudo service ssh start*

3.2 *sudo systemctl status ssh*

Server 2

```

ssh.service - OpenBSD Secure Shell server.
~
lines 1-18/18 (END)
[1]+  Stopped                  sudo systemctl status ssh
cj@Carl:~$ sudo systemctl status ssh
● ssh.service - OpenBSD Secure Shell server
   Loaded: loaded (/usr/lib/systemd/system/ssh.service; disabled; preset: ena>
   Active: active (running) since Fri 2025-08-08 09:30:20 UTC; 4min 8s ago
 TriggeredBy: ● ssh.socket
   Docs: man:sshd(8)
         man:sshd_config(5)
  Process: 21731 ExecStartPre=/usr/sbin/sshd -t (code=exited, status=0/SUCCESS)
 Main PID: 21733 (sshd)
   Tasks: 1 (limit: 4181)
  Memory: 1.2M (peak: 1.5M)
    CPU: 27ms
   CGroup: /system.slice/ssh.service
           └─21733 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

Aug 08 09:30:20 Carl systemd[1]: Starting ssh.service - OpenBSD Secure Shell se>
Aug 08 09:30:20 Carl sshd[21733]: Server listening on 0.0.0.0 port 22.
Aug 08 09:30:20 Carl sshd[21733]: Server listening on :: port 22.
Aug 08 09:30:20 Carl systemd[1]: Started ssh.service - OpenBSD Secure Shell ser>
lines 1-18/18 (END)

```

Server 1

```

Aug 8 09:36
cj@Carl: ~
Setting up ncurses-term (6.4+20240113-1ubuntu2) ...
Processing triggers for man-db (2.12.0-4build2) ...
Processing triggers for ufw (0.36.2-6) ...
cj@Carl:~$ sudo service ssh start
cj@Carl:~$ sudo systemctl status ssh
● ssh.service - OpenBSD Secure Shell server
   Loaded: loaded (/usr/lib/systemd/system/ssh.service; disabled; preset: ena>
   Active: active (running) since Fri 2025-08-08 09:36:13 UTC; 10s ago
 TriggeredBy: ● ssh.socket
   Docs: man:sshd(8)
         man:sshd_config(5)
  Process: 21854 ExecStartPre=/usr/sbin/sshd -t (code=exited, status=0/SUCCESS)
 Main PID: 21856 (sshd)
   Tasks: 1 (limit: 4181)
  Memory: 1.2M (peak: 1.7M)
    CPU: 20ms
   CGroup: /system.slice/ssh.service
           └─21856 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

Aug 08 09:36:13 Carl systemd[1]: Starting ssh.service - OpenBSD Secure Shell se>
Aug 08 09:36:13 Carl sshd[21856]: Server listening on 0.0.0.0 port 22.
Aug 08 09:36:13 Carl sshd[21856]: Server listening on :: port 22.
Aug 08 09:36:13 Carl systemd[1]: Started ssh.service - OpenBSD Secure Shell ser>
lines 1-18/18 (END)

```

Workstation

```
Aug 8 09:37
cj@Carl: ~
Processing triggers for ufw (0.36.2-6) ...
cj@Carl:~$ sudo service start
start: unrecognized service
cj@Carl:~$ sudo service ssh start
cj@Carl:~$ sudo systemctl status ssh
● ssh.service - OpenBSD Secure Shell server
   Loaded: loaded (/usr/lib/systemd/system/ssh.service; disabled; preset: ena>
   Active: active (running) since Fri 2025-08-08 09:37:43 UTC; 8s ago
   TriggeredBy: ● ssh.socket
     Docs: man:sshd(8)
           man:sshd_config(5)
   Process: 21832 ExecStartPre=/usr/sbin/sshd -t (code=exited, status=0/SUCCESS)
   Main PID: 21833 (sshd)
     Tasks: 1 (limit: 4181)
    Memory: 1.2M (peak: 1.7M)
       CPU: 22ms
    CGroup: /system.slice/ssh.service
            └─21833 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

Aug 08 09:37:43 Carl systemd[1]: Starting ssh.service - OpenBSD Secure Shell se>
Aug 08 09:37:43 Carl sshd[21833]: Server listening on 0.0.0.0 port 22.
Aug 08 09:37:43 Carl sshd[21833]: Server listening on :: port 22.
Aug 08 09:37:43 Carl systemd[1]: Started ssh.service - OpenBSD Secure Shell ser>
lines 1-18/18 (END)
```

4. Configure the firewall to all port 22 by issuing the following commands:

4.1 *sudo ufw allow ssh*

Workstation

```
cj@Carl:~$ sudo ufw allow ssh
Rules updated
Rules updated (v6)
cj@Carl:~$
```

Server 1

```
cj@Carl:~$ sudo ufw allow ssh
Rules updated
Rules updated (v6)
cj@Carl:~$
```

Server 2

```
cj@Carl:~$ sudo ufw allow ssh
Rules updated
Rules updated (v6)
cj@Carl:~$
```

4.2 *sudo ufw enable*

Workstation

```
cj@Carl:~$ sudo ufw enable
Firewall is active and enabled on system startup
cj@Carl:~$
```

Server 1

```
cj@Carl:~$ sudo ufw enable
Firewall is active and enabled on system startup
cj@Carl:~$
```

Server 2

```
cj@Carl:~$ sudo ufw enable
Firewall is active and enabled on system startup
cj@Carl:~$
```

4.3 *sudo ufw status*

Workstation

```
cj@Carl:~$ sudo ufw status
Status: active

To Action From
--
22/tcp ALLOW Anywhere
22/tcp (v6) ALLOW Anywhere (v6)

cj@Carl:~$
```

Server 1

```
cj@Carl:~$ sudo ufw status
Status: active

To Action From
--
22/tcp ALLOW Anywhere
22/tcp (v6) ALLOW Anywhere (v6)

cj@Carl:~$
```

Server 2


```

cj@Carl:~$ sudo ufw status
Status: active

To Action From
--
22/tcp ALLOW Anywhere
22/tcp (v6) ALLOW Anywhere (v6)

cj@Carl:~$

```

Task 3: Verify network settings on Server 1, Server 2, and Local Machine. On each device, do the following:

1. Record the ip address of Server 1, Server 2, and Local Machine. Issue the command *ifconfig* and check network settings. Note that the ip addresses of all the machines are in this network 192.168.56.XX.

1.1 Server 1 IP address: 192.168.56. 106

Server 1

```

cj@Carl:~$ ifconfig
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.0.2.15 netmask 255.255.255.0 broadcast 10.0.2.255
    inet6 fd00::fb63:321:8595:1583 prefixlen 64 scopeid 0x0<glob
    inet6 fd00::a00:27ff:fe91:5a72 prefixlen 64 scopeid 0x0<glob
    inet6 fe80::a00:27ff:fe91:5a72 prefixlen 64 scopeid 0x20<lin
    ether 08:00:27:91:5a:72 txqueuelen 1000 (Ethernet)
    RX packets 155478 bytes 148537958 (148.5 MB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 54807 bytes 3339176 (3.3 MB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

enp0s8: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.56.106 netmask 255.255.255.0 broadcast 192.168.
    inet6 fe80::4d34:db19:5efb:7e06 prefixlen 64 scopeid 0x20<li
    ether 08:00:27:98:2b:e3 txqueuelen 1000 (Ethernet)
    RX packets 420 bytes 74040 (74.0 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 86 bytes 11099 (11.0 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536

```

1.2 Server 2 IP address: 192.168.56. 107

Server 2


```

cj@Carl:~$ ifconfig
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.0.2.15 netmask 255.255.255.0 broadcast 10.0.2.255
    inet6 fe80::a00:27ff:fe2c:653a prefixlen 64 scopeid 0x20<link>
    inet6 fd00::39ce:a625:f5e5:d4d9 prefixlen 64 scopeid 0x0<global>
    inet6 fd00::a00:27ff:fe2c:653a prefixlen 64 scopeid 0x0<global>
    ether 08:00:27:2c:65:3a txqueuelen 1000 (Ethernet)
    RX packets 154053 bytes 148460146 (148.4 MB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 55213 bytes 3363508 (3.3 MB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

enp0s8: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.56.107 netmask 255.255.255.0 broadcast 192.168.56.255
    inet6 fe80::2a0f:a099:4ab7:50d6 prefixlen 64 scopeid 0x20<link>
    ether 08:00:27:68:fd:5f txqueuelen 1000 (Ethernet)
    RX packets 320 bytes 59272 (59.2 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 93 bytes 12285 (12.2 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

```

1.3 Server 3 IP address: 127.0.0.1

Workstation

```

cj@Carl:~$ ifconfig
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.0.2.15 netmask 255.255.255.0 broadcast 10.0.2.255
    inet6 fe80::a00:27ff:fe08:1c78 prefixlen 64 scopeid 0x20<link>
    inet6 fd00::f2e9:c8f3:a3d9:4f3d prefixlen 64 scopeid 0x0<global>
    inet6 fd00::a00:27ff:fe08:1c78 prefixlen 64 scopeid 0x0<global>
    ether 08:00:27:08:1c:78 txqueuelen 1000 (Ethernet)
    RX packets 153053 bytes 148408755 (148.4 MB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 51449 bytes 3138196 (3.1 MB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 192 bytes 19517 (19.5 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 192 bytes 19517 (19.5 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

```

2. Make sure that they can ping each other.

2.1 Connectivity test for Local Machine 1 to Server 1: ☒ Successful ☐ Not

```

cj@Workstation:~$ ping 192.168.56.106
PING 192.168.56.106 (192.168.56.106) 56(84) bytes of data.
64 bytes from 192.168.56.106: icmp_seq=1 ttl=64 time=1.67 ms
64 bytes from 192.168.56.106: icmp_seq=2 ttl=64 time=0.440 ms
64 bytes from 192.168.56.106: icmp_seq=3 ttl=64 time=0.944 ms
64 bytes from 192.168.56.106: icmp_seq=4 ttl=64 time=0.489 ms
64 bytes from 192.168.56.106: icmp_seq=5 ttl=64 time=0.881 ms
64 bytes from 192.168.56.106: icmp_seq=6 ttl=64 time=0.894 ms
64 bytes from 192.168.56.106: icmp_seq=7 ttl=64 time=0.807 ms
^Z
[1]+  Stopped                  ping 192.168.56.106
cj@Workstation:~$

```

Successful

2.2 Connectivity test for Local Machine 1 to Server 2: ☒ Successful ☐ Not

```

cj@Workstation:~$ ping 192.168.56.107
PING 192.168.56.107 (192.168.56.107) 56(84) bytes of data.
64 bytes from 192.168.56.107: icmp_seq=1 ttl=64 time=3.35 ms
64 bytes from 192.168.56.107: icmp_seq=2 ttl=64 time=0.665 ms
64 bytes from 192.168.56.107: icmp_seq=3 ttl=64 time=0.656 ms
64 bytes from 192.168.56.107: icmp_seq=4 ttl=64 time=0.829 ms
64 bytes from 192.168.56.107: icmp_seq=5 ttl=64 time=0.598 ms
64 bytes from 192.168.56.107: icmp_seq=6 ttl=64 time=0.598 ms
^Z
[2]+  Stopped                  ping 192.168.56.107
cj@Workstation:~$

```

Successful

2.3 Connectivity test for Server 1 to Server 2: ☒ Successful ☐ Not

```

cj@Server1:~$ ping 192.168.56.107
PING 192.168.56.107 (192.168.56.107) 56(84) bytes of data.
ping: Warning: time of day goes back (-1 s), taking countermeasures
64 bytes from 192.168.56.107: icmp_seq=1 ttl=64 time=1.22 ms
64 bytes from 192.168.56.107: icmp_seq=2 ttl=64 time=0.657 ms
64 bytes from 192.168.56.107: icmp_seq=3 ttl=64 time=0.607 ms
64 bytes from 192.168.56.107: icmp_seq=4 ttl=64 time=0.689 ms
64 bytes from 192.168.56.107: icmp_seq=5 ttl=64 time=0.657 ms
64 bytes from 192.168.56.107: icmp_seq=6 ttl=64 time=0.564 ms
^Z
[1]+  Stopped                  ping 192.168.56.107
cj@Server1:~$

```

Successful

Task 4: Verify SSH connectivity on Server 1, Server 2, and Local Machine.

1. On the Local Machine, issue the following commands:

1.1 ssh username@ip_address_server1 for example, *ssh jvtaylor@192.168.56.120*

1.2 Enter the password for server 1 when prompted

1.3 Verify that you are in server 1. The user should be in this format user@server1.

For example, *jvtaylor@server1*

Server 1

```
cj@Workstation:~$ ssh cj@192.168.56.106
cj@192.168.56.106's password:
Welcome to Ubuntu 24.04.3 LTS (GNU/Linux 6.14.0-27-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/pro

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

cj@Server1:~$
```

2. Logout of Server 1 by issuing the command *control + D*.

3. Do the same for Server 2.

Server 2

```
cj@192.168.56.107's password:
Welcome to Ubuntu 24.04.3 LTS (GNU/Linux 6.14.0-27-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/pro

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

*** System restart required ***

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

cj@Carl:~$
```

4. Edit the hosts of the Local Machine by issuing the command **sudo nano /etc/hosts**. Below all texts type the following:
 - 4.1 **IP_address server 1** (provide the ip address of server 1 followed by the hostname)
 - 4.2 **IP_address server 2** (provide the ip address of server 2 followed by the hostname)

```
GNU nano 7.2 /etc/hosts
127.0.0.1 localhost
127.0.0.1 Workstation
192.168.56.106 Server1
192.168.56.107 Server2
# 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
```

- 4.3 Save the file and exit.
5. On the local machine, verify that you can do the SSH command but this time, use the hostname instead of typing the IP address of the servers. For example,

try to do `ssh jvtaylor@server1`. Enter the password when prompted. Verify that you have entered Server 1.

Server 1

```
ED25519 key fingerprint is SHA256:7rMtVwjvCVct2x0BMfvZVxN9WAVvFEAYBzzKe
This host key is known by the following other names/addresses:
  ~/.ssh/known_hosts:1: [hashed name]
  ~/.ssh/known_hosts:2: [hashed name]
  ~/.ssh/known_hosts:3: [hashed name]
  ~/.ssh/known_hosts:4: [hashed name]
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'server1' (ED25519) to the list of known hosts
cj@server1's password:
Welcome to Ubuntu 24.04.3 LTS (GNU/Linux 6.14.0-27-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/pro

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

Last login: Fri Aug  8 10:16:06 2025 from 192.168.56.108
cj@Server1:~$
```

Server 2

```
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'server2' (ED25519) to the list of known hosts.
cj@server2's password:
Welcome to Ubuntu 24.04.3 LTS (GNU/Linux 6.14.0-27-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/pro

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

*** System restart required ***
Last login: Fri Aug  8 10:17:36 2025 from 192.168.56.108
cj@Carl:~$
```

6. Do the same for Server 2.

Reflections:

Answer the following:

1. How are we able to use the hostname instead of IP address in SSH commands?
 - The OS may go first with the hosts file, and when the hostname isn't found on the local host file it may consult the Domain Name System.
2. How secured is SSH?
 - The ssh encrypts all the data being transmitted between the client and server.