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Course/Section: BSCPE CPE31S2	Date Submitted: 08/08/25
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### Activity 1: Configure Network using Virtual Machines

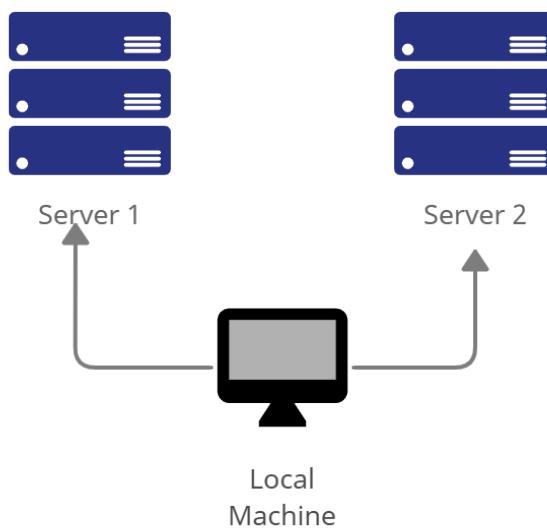
#### 1. Objectives:

- 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, **provide screenshots for each task**. (Note: *it is assumed that you have the prior knowledge of cloning and creating snapshots in a virtual machine*).



**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.

1. Change the hostname using the command ***sudo nano /etc/hostname***
  - 1.1 Use server1 for Server 1
  - 1.2 Use server2 for Server 2
  - 1.3 Use workstation for the Local Machine
2. Edit the hosts using the command ***sudo nano /etc/hosts***. 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

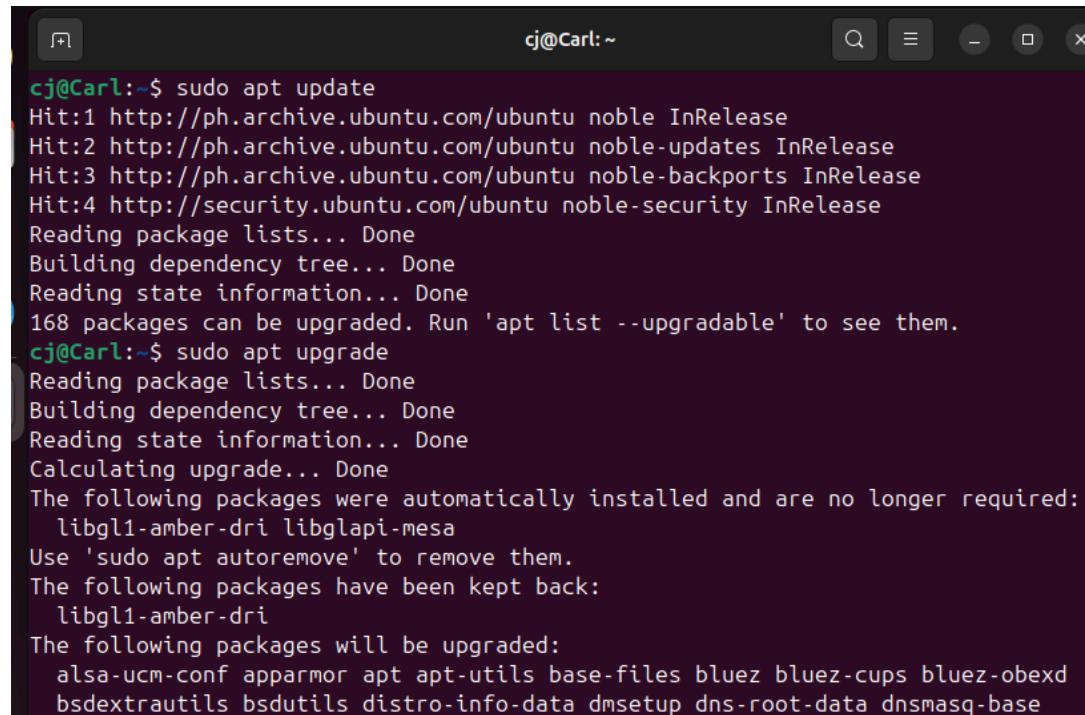
**Task 2:** Configure SSH on Server 1, Server 2, and Local Machine. Do the following:

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
  bsdextrautils bsduutils 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 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:
```

## 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

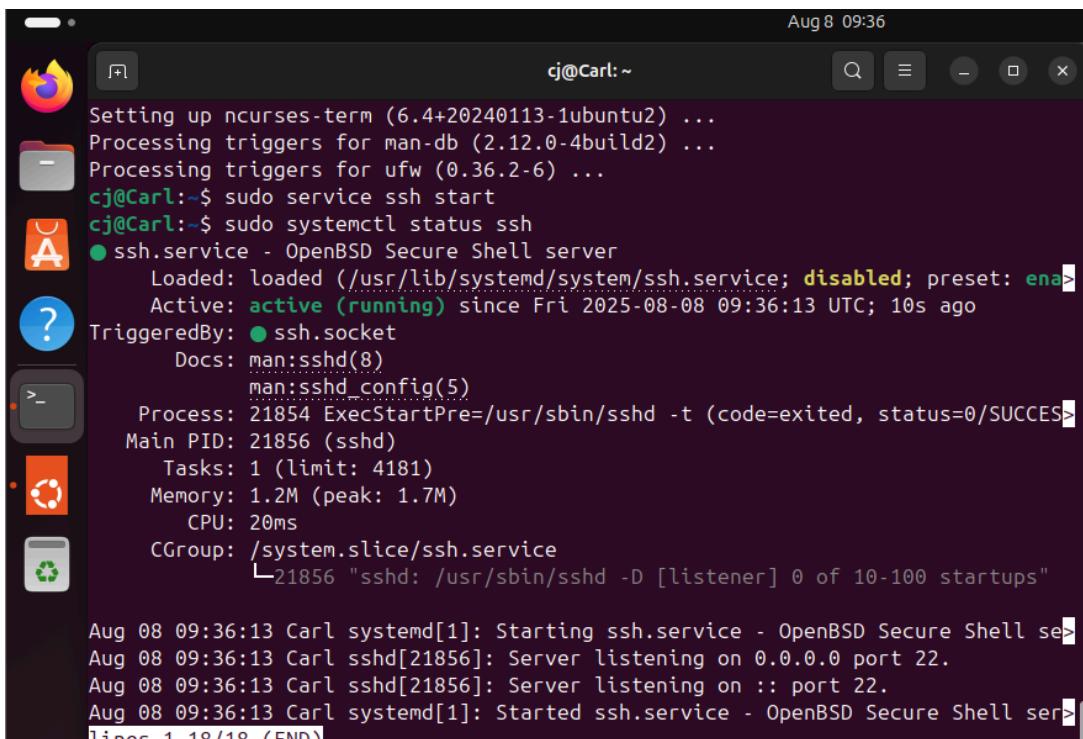
```
Processing triggers for libc-bin (2.39-0ubuntu8.5) ...
cj@Carl: $ sudo apt install openssh-server
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages were automatically installed and are no longer required
  libgl1-amber-dri libglapi-mesa
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: enablement)  
    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 08 09:36:13  
cj@Carl:~$ Setting up ncurses-term (6.4+20240113-1ubuntu2) ...  
cj@Carl:~$ Processing triggers for man-db (2.12.0-4build2) ...  
cj@Carl:~$ 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: enablement)  
    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

```
ej@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<global>
              inet6 fd00::a00:27ff:fe91:5a72  prefixlen 64  scopeid 0x0<global>
              inet6 fe80::a00:27ff:fe91:5a72  prefixlen 64  scopeid 0x20<link>
                  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 192.168.56.255
              inet6 fe80::4d34:db19:5efb:7e06  prefixlen 64  scopeid 0x20<link>
                  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

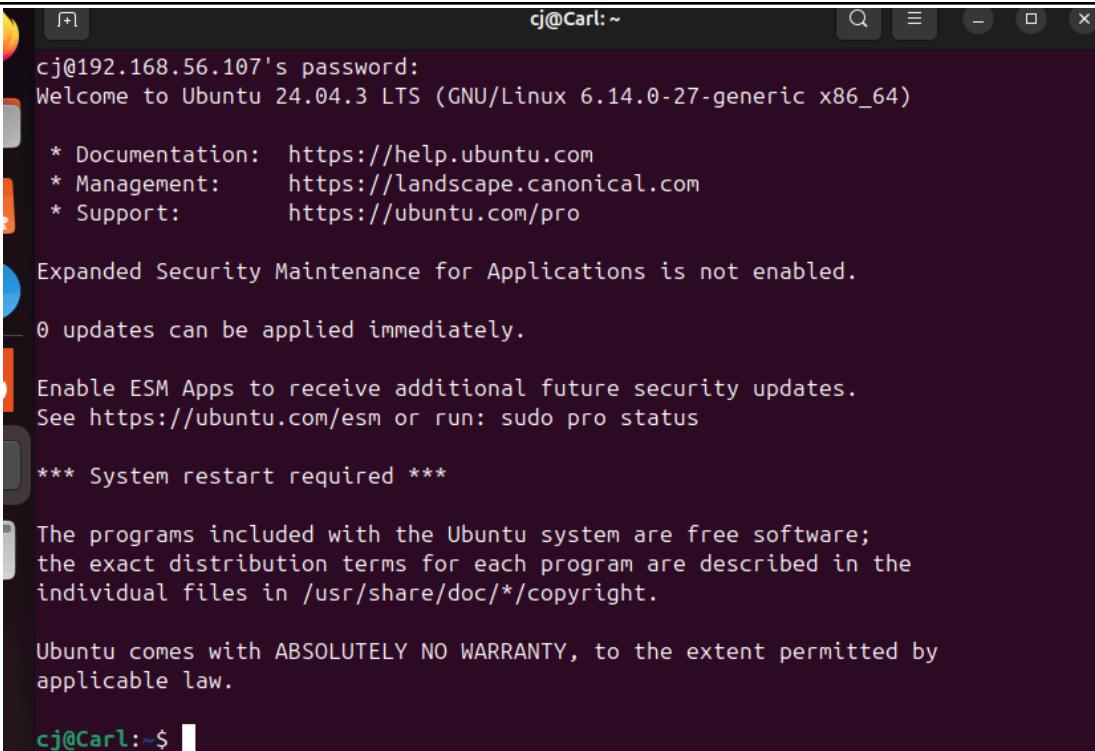
The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*copyright.

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

cj@Server1:~$
```

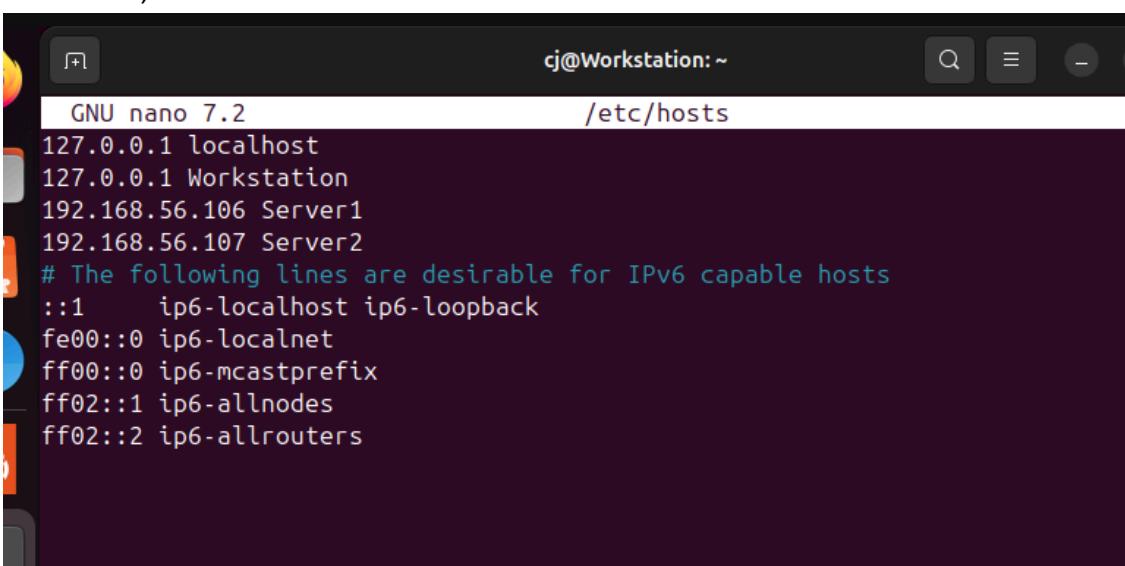
2. Logout of Server 1 by issuing the command *control + D*.
3. Do the same for Server 2.

### 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 SHA256:7rMtVwjvvCV Ct2x0BMfvZVxN9WAVvFEAYBzzKe
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.