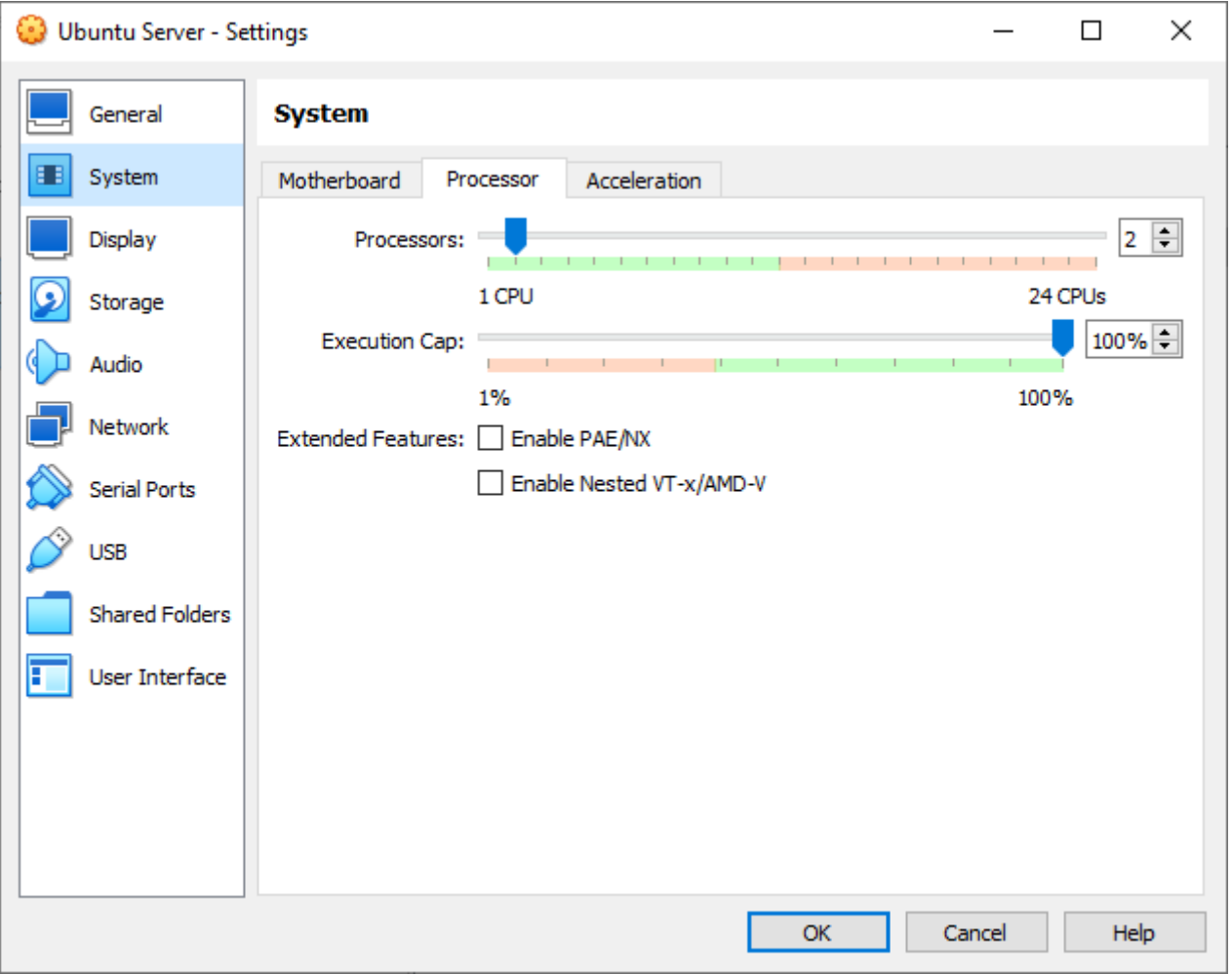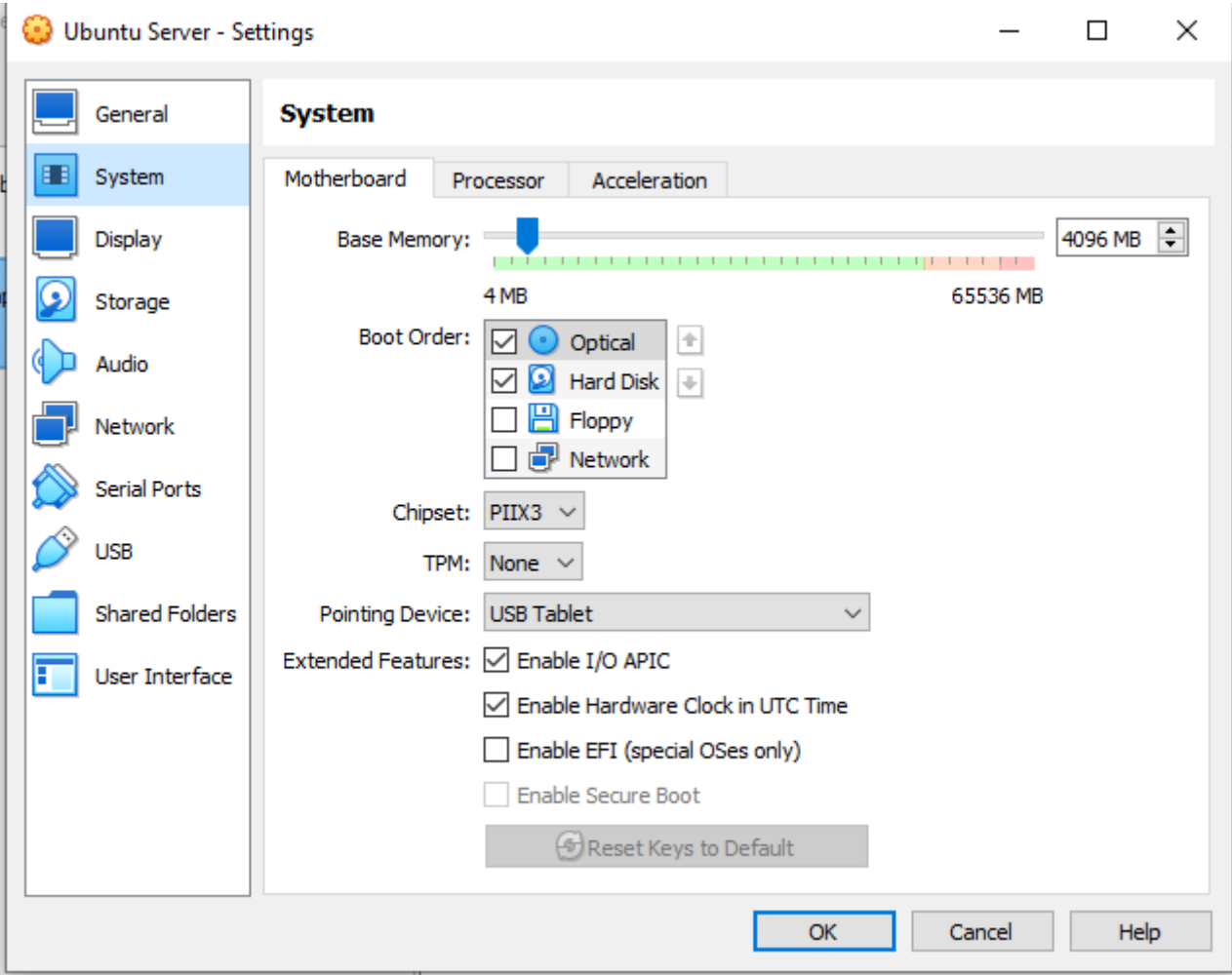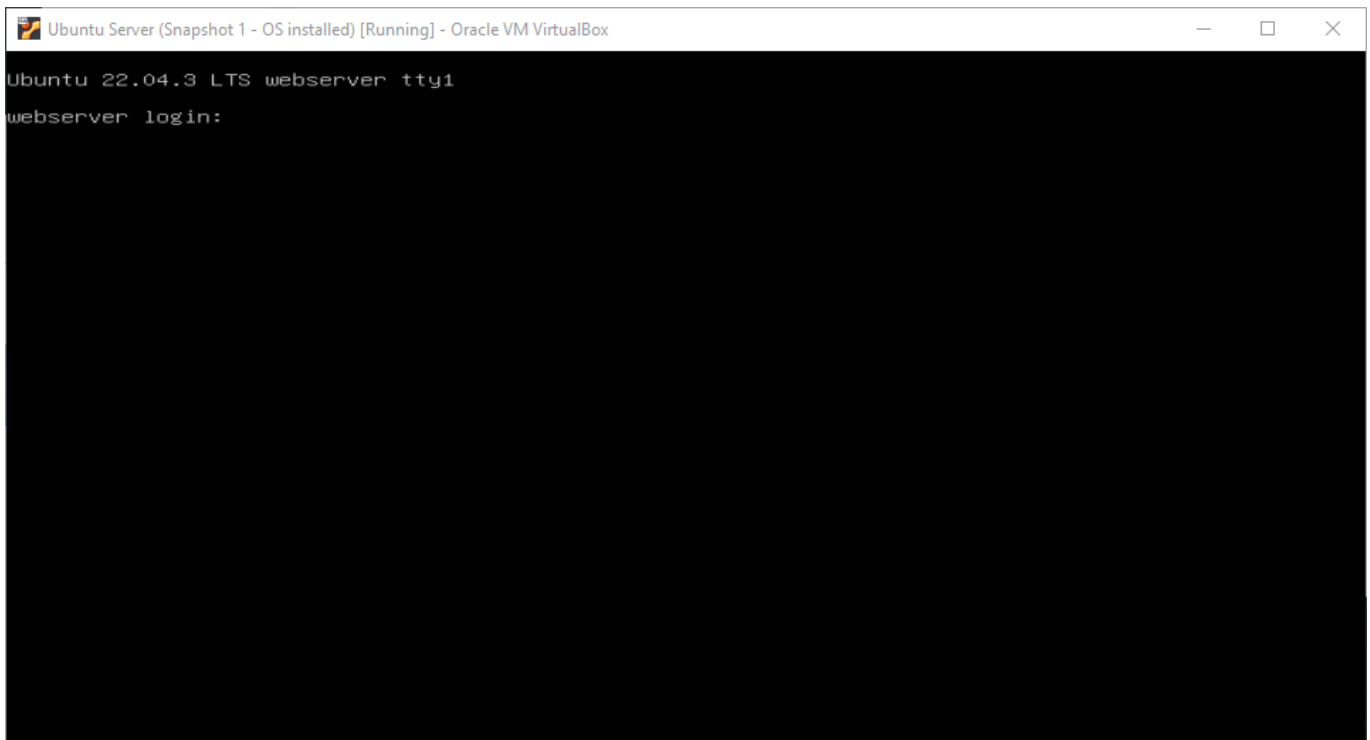# Deliverable 2

1. What are the server hardware specifications (virtual machine settings)? Take a screenshot - don't type it!

Ubuntu Server - Settings

General
System
Display
Storage
Audio
Network
Serial Ports
USB
Shared Folders
User Interface

System

Motherboard | Processor | Acceleration

Base Memory: 4096 MB

4 MB   65536 MB

Boot Order:
☑ ⦿ Optical
☑ Hard Disk
☐ Floppy
☐ Network

Chipset: PIIX3 ▾

TPM: None ▾

Pointing Device: USB Tablet ▾

Extended Features: ☑ Enable I/O APIC
☑ Enable Hardware Clock in UTC Time
☐ Enable EFI (special OSes only)
☐ Enable Secure Boot

⟳ Reset Keys to Default

OK   Cancel   Help

Ubuntu Server - Settings

General
System
Display
Storage
Audio
Network
Serial Ports
USB
Shared Folders
User Interface

System

Motherboard | Processor | Acceleration

Processors: 2

1 CPU   24 CPUs

Execution Cap: 100%

1%   100%

Extended Features: ☐ Enable PAE/NX
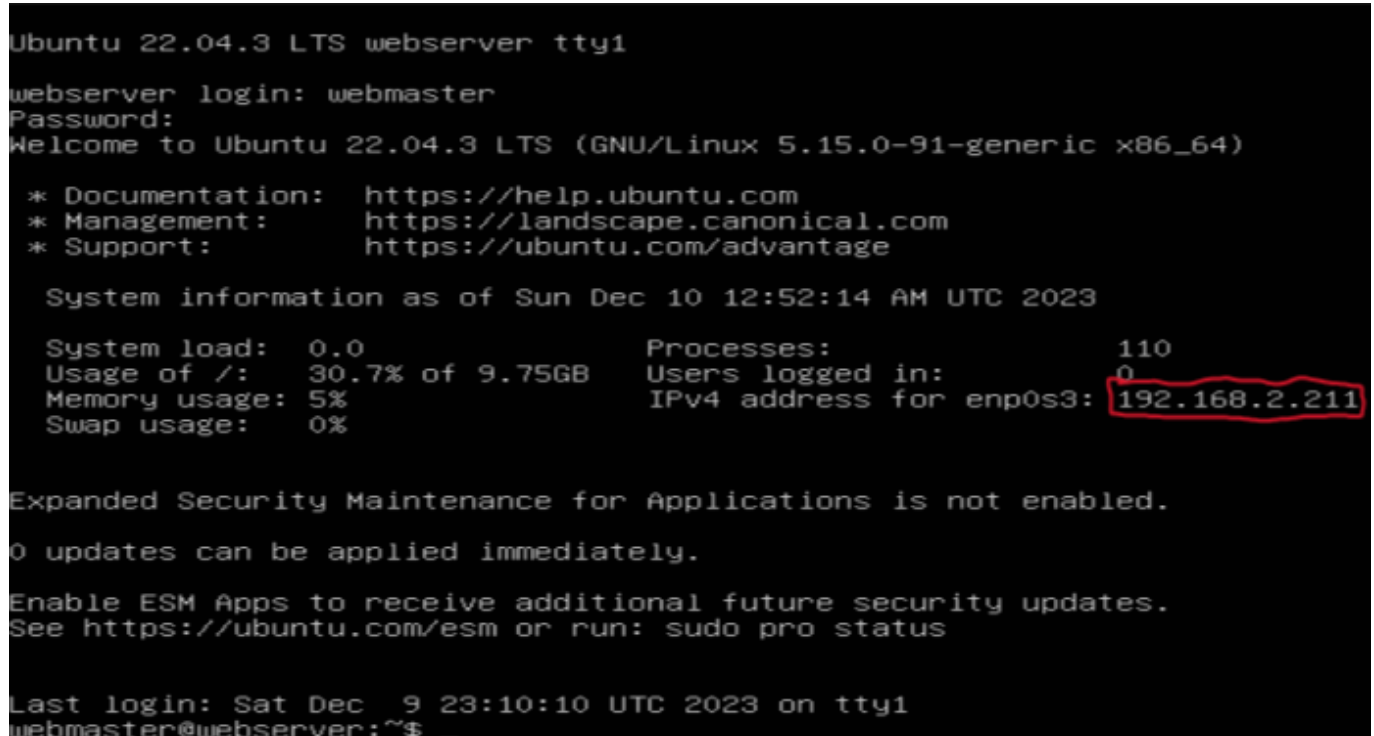☐ Enable Nested VT-x/AMD-V

OK   Cancel   Help

2. What is Ubuntu server log in screen? Take screenshot - do not type it!

3. What is the IP address of your Ubuntu Server Virtual Machine?

IP address: 192.168.2.211

4. How do you enable the Ubuntu Firewall?

```
sudo ufw enable
```

```
Last login: Sat Dec  9 23:10:10 UTC 2023 on tty1
webmaster@webserver:~$ sudo ufw enable
[sudo] password for webmaster:
Firewall is active and enabled on system startup
webmaster@webserver:~$
```

5. How do you check if the Ubuntu Firewall is running?

```
sudo ufw status
```

```
webmaster@webserver:~$ sudo ufw status
Status: active

To                         Action      From
--                         ------      ----
Apache                     ALLOW       Anywhere
OpenSSH                    ALLOW       Anywhere
Apache (v6)                ALLOW       Anywhere (v6)
OpenSSH (v6)               ALLOW       Anywhere (v6)

webmaster@webserver:~$
```

6. How do you disable the Ubuntu Firewall?

```
sudo ufw disable
```

```
webmaster@webserver:~$ sudo ufw disable
Firewall stopped and disabled on system startup
webmaster@webserver:~$ _
```

7. How do you add Apache to the Firewall?

```
sudo ufw allow 'Apache'
```

```
webmaster@webserver:~$ sudo ufw allow 'Apache'
[sudo] password for webmaster:
Skipping adding existing rule
Skipping adding existing rule (v6)
webmaster@webserver:~$
```

8. What is the command you used to install Apache?

```
sudo apt install apache -y
```

```
webmaster@webserver:~$ sudo apt install apache2 -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
apache2 is already the newest version (2.4.52-1ubuntu4.7).
0 upgraded, 0 newly installed, 0 to remove and 4 not upgraded.
webmaster@webserver:~$
```

9. What is the command you use to check if Apache is running?

```
sysemctl status apache2 --no-pager
```

```
webmaster@webserver:~$ systemctl status apache2 --no-pager
● apache2.service - The Apache HTTP Server
     Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)
     Active: active (running) since Tue 2023-12-12 00:14:15 UTC; 2h 36min ago
       Docs: https://httpd.apache.org/docs/2.4/
    Process: 714 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
    Process: 869 ExecReload=/usr/sbin/apachectl graceful (code=exited, status=0/SUCCESS)
   Main PID: 791 (apache2)
      Tasks: 55 (limit: 4558)
     Memory: 7.6M
        CPU: 286ms
     CGroup: /system.slice/apache2.service
             ├─791 /usr/sbin/apache2 -k start
             ├─873 /usr/sbin/apache2 -k start
             └─874 /usr/sbin/apache2 -k start

Dec 12 00:14:15 webserver systemd[1]: Starting The Apache HTTP Server...
Dec 12 00:14:15 webserver systemd[1]: Started The Apache HTTP Server.
Dec 12 00:14:15 webserver systemd[1]: Reloading The Apache HTTP Server...
Dec 12 00:14:15 webserver systemd[1]: Reloaded The Apache HTTP Server.
webmaster@webserver:~$
```

10. What is the command you use to stop Apache?

`sudo systemctl stop apache2`

```
webmaster@webserver:~$ sudo systemctl stop apache2
[sudo] password for webmaster:
webmaster@webserver:~$
```

11. What is the command you use to restart Apache?

`sudo systemctl restart apache2 ssh`

```
webmaster@webserver:~$ sudo systemctl restart apache2 ssh
webmaster@webserver:~$
```

12. What is the command used to test Apache configuration?

`sudo apachectl -t`

```
webmaster@webserver:~$ sudo apachectl -t
[sudo] password for webmaster:
Syntax OK
webmaster@webserver:~$ _
```

13. What is the command used to check the installed version of Apache?

`sudo apache2 -y`

```
webmaster@webserver:~$ sudo apache2 -v
Server version: Apache/2.4.52 (Ubuntu)
Server built:   2023-10-26T13:44:44
webmaster@webserver:~$ _
```

14. What are the most common commands to troubleshoot Apache errors? Provide a brief description of each command.

`systemctl` - Used to control and interact with Linux services via the `systemd` service manager. The `systemctl` command will query `systemd` for the state of Apache's processes. `journalctl` - Used to query and view the logs that are generated by `systemd`. `journalctl` displays logs from `systemd` that

describe the Apache service itself, from startup to shutdown, along with any process errors that may be encountered along the way. `apachectl` - When troubleshooting, this command is used to check Apache's configuration. `apachectl` is an invaluable tool to help detect and diagnose Apache configuration problems.

15. Which are Apache Log Files, and what are they used for? Provide examples and screenshots.

```
sudo tail -n 2 /var/log/apache2/error.log
```


Deliverable 2 Result