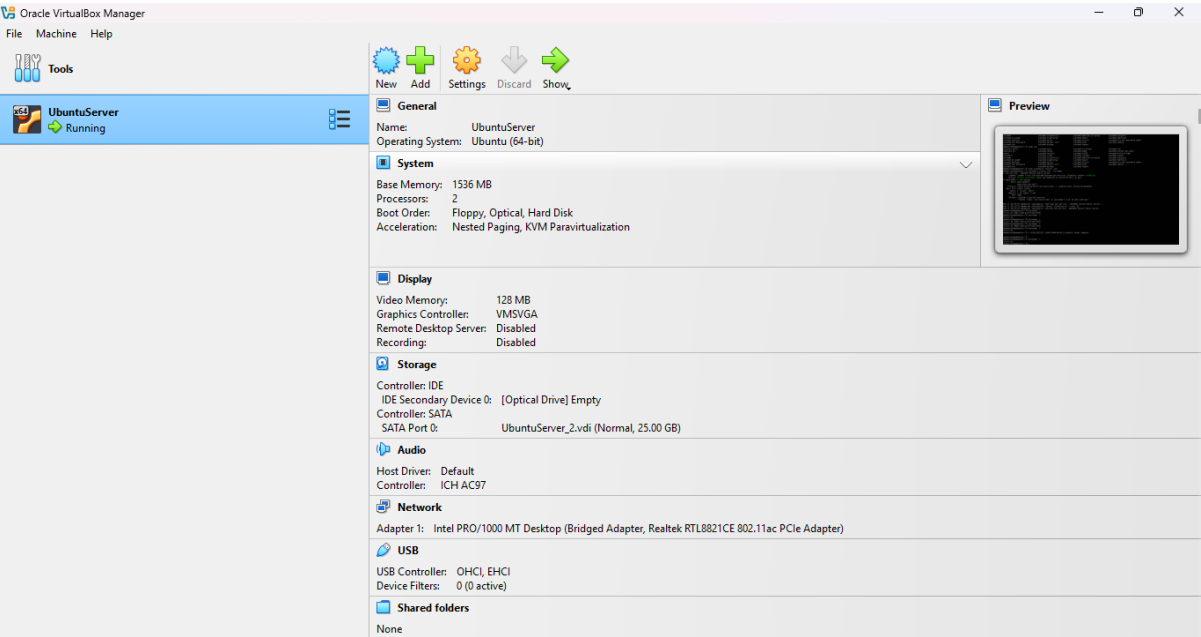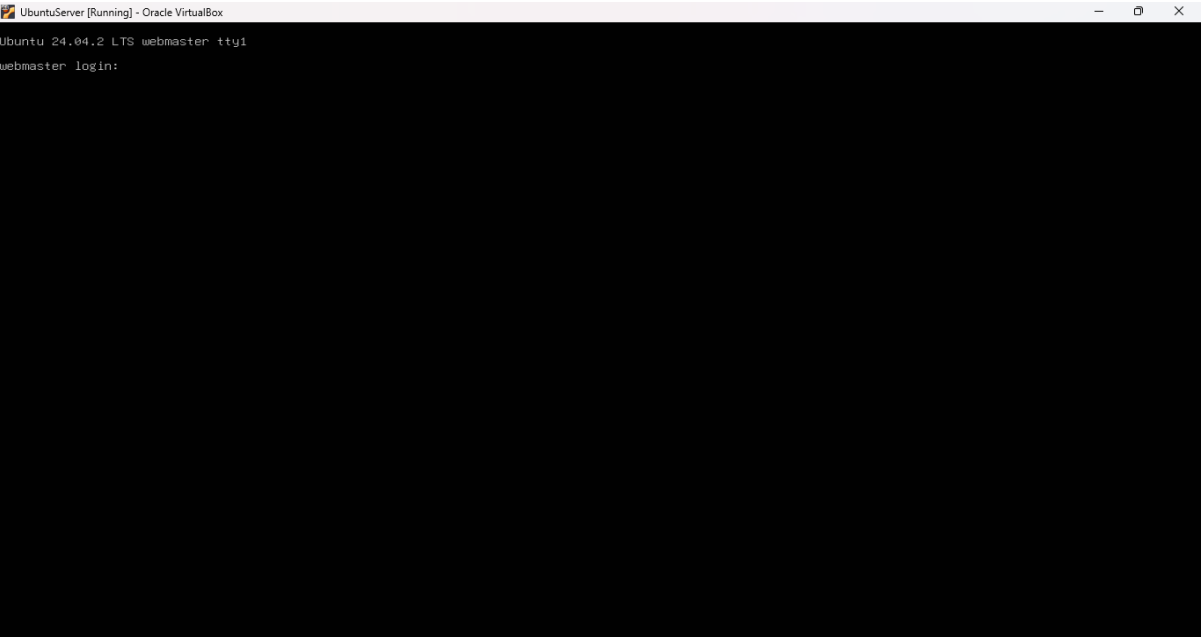# Deliverable 2 Submission

Server Specifications

Ubuntu Login Screen

Questions

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

You can use the command:

```
ip
```

Definition: `ip` is a utility to show and manipulate routing, devices, policy routing, and tunnels.
Syntax: `ip [options] object [command]`
Examples:

```
ip a
```

Screenshot

```
webmaster@webmaster:~$ 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 noprefixroute
       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 08:00:27:62:99:c8 brd ff:ff:ff:ff:ff:ff
    inet 10.0.0.33/24 metric 100 brd 10.0.0.255 scope global dynamic enp0s3
       valid_lft 85826sec preferred_lft 85826sec
    inet6 fe80::a00:27ff:fe62:99c8/64 scope link
       valid_lft forever preferred_lft forever
webmaster@webmaster:~$
```

```
ip addr show
```

Screenshot

```
webmaster@webmaster:~$ ip addr show
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 noprefixroute
       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 08:00:27:62:99:c8 brd ff:ff:ff:ff:ff:ff
    inet 10.0.0.33/24 metric 100 brd 10.0.0.255 scope global dynamic enp0s3
       valid_lft 85752sec preferred_lft 85752sec
    inet6 fe80::a00:27ff:fe62:99c8/64 scope link
       valid_lft forever preferred_lft forever
webmaster@webmaster:~$
```

4. How do you enable the Ubuntu Firewall?

```
sudo ufw enable
```

Screenshot

```
webmaster@webmaster:~$ sudo ufw enable
[sudo] password for webmaster:
Command may disrupt existing ssh connections. Proceed with operation (y|
n)? y
Firewall is active and enabled on system startup
webmaster@webmaster:~$
```

Definition: ufw stands for Uncomplicated Firewall, a frontend for iptables.

Syntax: ufw [command] [rule]

Examples:

```
sudo ufw enable
```

Screenshot

```
webmaster@webmaster:~$ sudo ufw enable
[sudo] password for webmaster:
Command may disrupt existing ssh connections. Proceed with operation (y|
n)? y
Firewall is active and enabled on system startup
webmaster@webmaster:~$
```

```
sudo ufw allow ssh
```

Screenshot

```
webmaster@webmaster:~$ sudo ufw allow ssh
Rule added
Rule added (v6)
webmaster@webmaster:~$
```

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

```
sudo ufw status
```

Screenshot

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

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

webmaster@webmaster:~$
```

6. How do you disable the Ubuntu Firewall?

```
sudo ufw disable
```

Screenshot

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

7. How do you add Apache to the Firewall?

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

Screenshot

```
webmaster@webmaster:~$ sudo ufw allow 'Apache'
Skipping adding existing rule
Skipping adding existing rule (v6)
webmaster@webmaster:~$
```

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

```
sudo apt install apache2
```

Screenshot

```
webmaster@webmaster:~$ sudo apt install apache2
[sudo] password for webmaster:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
apache2 is already the newest version (2.4.58-1ubuntu8.6).
0 upgraded, 0 newly installed, 0 to remove and 1 not upgraded.
webmaster@webmaster:~$
```

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

```
sudo systemctl status apache2
```

Screenshot

```
webmaster@webmaster:~$ sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
     Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; >
     Active: active (running) since Sun 2025-05-11 14:51:49 UTC; 1h 49m>
       Docs: https://httpd.apache.org/docs/2.4/
    Process: 859 ExecStart=/usr/sbin/apachectl start (code=exited, stat>
   Main PID: 898 (apache2)
      Tasks: 55 (limit: 1667)
     Memory: 7.4M (peak: 7.8M)
        CPU: 256ms
     CGroup: /system.slice/apache2.service
             ├─898 /usr/sbin/apache2 -k start
             ├─900 /usr/sbin/apache2 -k start
             └─916 /usr/sbin/apache2 -k start

May 11 14:51:49 webmaster systemd[1]: Starting apache2.service - The Ap>
May 11 14:51:49 webmaster systemd[1]: Started apache2.service - The Apa>
lines 1-16/16 (END)
webmaster@webmaster:~$
```

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

```
sudo systemctl stop apache2
```

Screenshot

```
webmaster@webmaster:~$ sudo systemctl stop apache2
webmaster@webmaster:~$
```

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

```
sudo systemctl restart apache2
```

Screenshot

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

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

```
sudo apache2ctl configtest
```

Screenshot

```
webmaster@webmaster:~$ sudo apache2ctl configtest
Syntax OK
webmaster@webmaster:~$ 
```

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

```
apache2 -v
```

Screenshot

```
webmaster@webmaster:~$ apache2 -v
Server version: Apache/2.4.58 (Ubuntu)
Server built:   2025-04-03T14:36:49
webmaster@webmaster:~$ 
```

14. What are the most common commands to troubleshoot Apache errors?

- `journalctl -xe`: Shows systemd logs, including Apache errors
- `tail /var/log/apache2/error.log`: Shows the most recent Apache error messages
- `systemctl status apache2`: Displays current Apache status and recent log entries

Examples:

```
sudo journalctl -xe
sudo tail /var/log/apache2/error.log
sudo systemctl status apache2
```
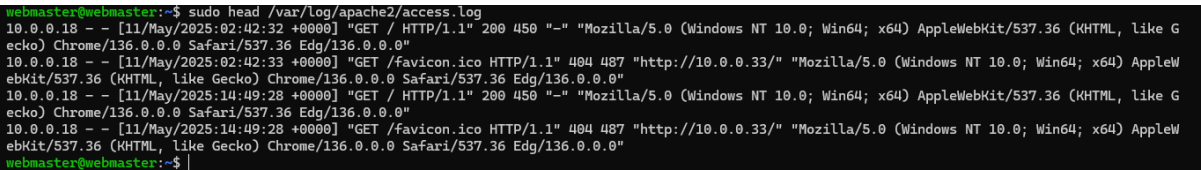
---

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

File	Description
`/var/log/apache2/access.log`	Contains all requests processed by Apache
`/var/log/apache2/error.log`	Contains all Apache errors

Example commands:

```
sudo head /var/log/apache2/access.log
```

Screenshot

```
webmaster@webmaster:~$ sudo head /var/log/apache2/access.log
10.0.0.18 - - [11/May/2025:02:42:32 +0000] "GET / HTTP/1.1" 200 450 "-" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like G
ecko) Chrome/136.0.0.0 Safari/537.36 Edg/136.0.0.0"
10.0.0.18 - - [11/May/2025:02:42:33 +0000] "GET /favicon.ico HTTP/1.1" 404 487 "http://10.0.0.33/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleW
ebKit/537.36 (KHTML, like Gecko) Chrome/136.0.0.0 Safari/537.36 Edg/136.0.0.0"
10.0.0.18 - - [11/May/2025:14:49:28 +0000] "GET / HTTP/1.1" 200 450 "-" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like G
ecko) Chrome/136.0.0.0 Safari/537.36 Edg/136.0.0.0"
10.0.0.18 - - [11/May/2025:14:49:28 +0000] "GET /favicon.ico HTTP/1.1" 404 487 "http://10.0.0.33/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleW
ebKit/537.36 (KHTML, like Gecko) Chrome/136.0.0.0 Safari/537.36 Edg/136.0.0.0"
webmaster@webmaster:~$
```

```
sudo tail /var/log/apache2/error.log
```

Screenshots

```
webmaster@webmaster:~$ sudo tail /var/log/apache2/error.log
[Sun May 11 01:35:51.034096 2025] [core:notice] [pid 15880:tid 1233442283678592] AH00094: Command line: '/usr/sbin/apache2'
[Sun May 11 02:42:10.707609 2025] [mpm_event:notice] [pid 15880:tid 1233442283678592] AH00492: caught SIGWINCH, shutting down gracefully
[Sun May 11 02:42:10.822413 2025] [mpm_event:notice] [pid 16851:tid 132683667720064] AH00489: Apache/2.4.58 (Ubuntu) configured -- resuming normal o
perations
[Sun May 11 02:42:10.822489 2025] [core:notice] [pid 16851:tid 132683667720064] AH00094: Command line: '/usr/sbin/apache2'
[Sun May 11 14:51:43.007281 2025] [mpm_event:notice] [pid 16851:tid 132683667720064] AH00492: caught SIGWINCH, shutting down gracefully
[Sun May 11 14:51:49.714553 2025] [mpm_event:notice] [pid 898:tid 123203379255168] AH00489: Apache/2.4.58 (Ubuntu) configured -- resuming normal ope
rations
[Sun May 11 14:51:49.717721 2025] [core:notice] [pid 898:tid 123203379255168] AH00094: Command line: '/usr/sbin/apache2'
[Sun May 11 16:42:28.977109 2025] [mpm_event:notice] [pid 898:tid 123203379255168] AH00492: caught SIGWINCH, shutting down gracefully
[Sun May 11 16:43:08.308249 2025] [mpm_event:notice] [pid 2257:tid 135586438731648] AH00489: Apache/2.4.58 (Ubuntu) configured -- resuming normal op
erations
[Sun May 11 16:43:08.308380 2025] [core:notice] [pid 2257:tid 135586438731648] AH00094: Command line: '/usr/sbin/apache2'
webmaster@webmaster:~$
```