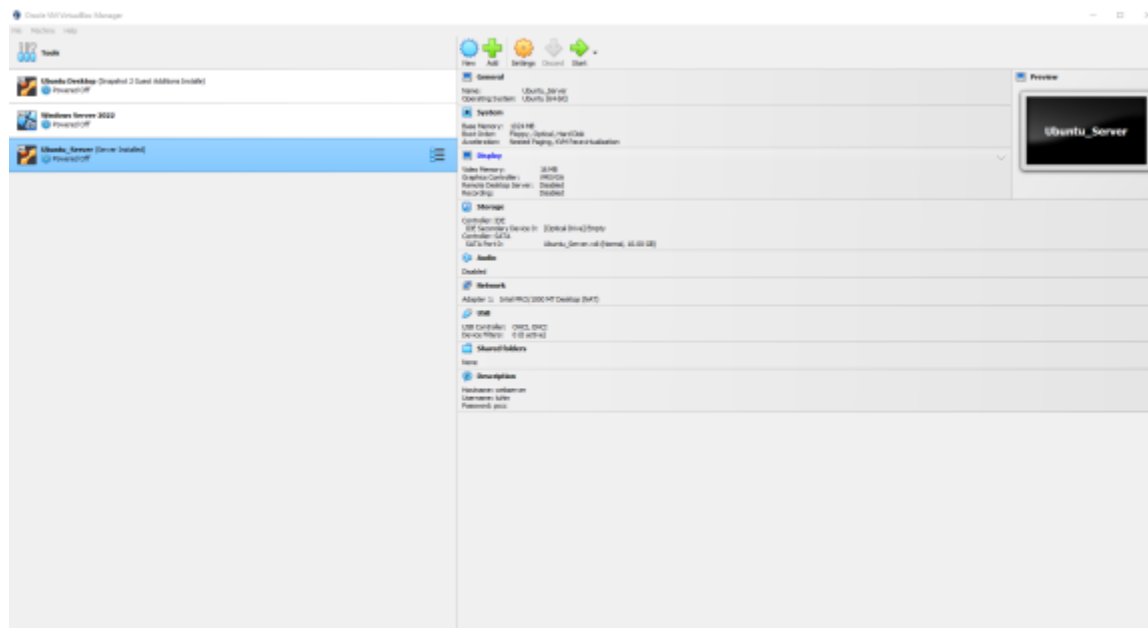


# Deliverable 2 Submission

## Virtual Machine Hardware Configuration



## Server Login

```

Ubuntu 22.04.2 LTS webserver tty1

webserver login: [ 25.049866] cloud-init[820]: cloud-init v. 23.1.2-0ubuntu0~22.04.1 running 'modules:config' at Sun, 07 May 2023 22:59:45 +0000. Up 28.90 seconds.
[ 30.127916] cloud-init[857]: cloud-init v. 23.1.2-0ubuntu0~22.04.1 running 'modules:final' at Sun, 07 May 2023 22:59:47 +0000. Up 30.04 seconds.
[ 30.237826] cloud-init[857]: cloud-init v. 23.1.2-0ubuntu0~22.04.1 finished at Sun, 07 May 2023 22:59:47 +0000. DataSource DataSourceNone. Up 30.27 seconds
[ 30.238675] cloud-init[857]: 2023-05-07 22:59:47.295 - _init_.py[WARNING]: User failed to set kdatasources
tjhin
Password:
Welcome to Ubuntu 22.04.2 LTS (GNU/Linux 5.15.0-71-generic x86_64)

+ Documentation:  https://help.ubuntu.com
+ Management:    https://landscape.canonical.com
+ Support:        https://ubuntu.com/advantage

System information disabled due to load higher than 1.0

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 apt status

Last login: Sun May  7 22:45:32 UTC 2023 on tty1
tjhin@webserver:~$

```

## SSH Login

```

mthussan@CIS106:~$ ssh tuhin@172.16.0.10
tuhin@172.16.0.10's password:
Welcome to Ubuntu 22.04.2 LTS (GNU/Linux 5.15.0-71-generic x86_64)

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

System information as of Mon May  8 02:38:08 PM UTC 2023

System load:  0.33056640625      Processes:           109
Usage of /:   53.1% of 8.02GB    Users logged in:    0
Memory usage: 23%               IPv4 address for enp0s3: 172.16.0.10
Swap usage:   0%

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: Mon May  8 00:23:27 2023 from 172.16.0.11
tuhin@webserver:~$

```

## Systemctl Commands

This is a screenshot of the 'systemctl status apache2 --no-pager' command:

```

tuhin@webserver:~$ systemctl status apache2 --no-pager
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enable)
   Active: active (running) since Mon 2023-05-08 14:34:48 UTC; 19min ago
     Docs: https://httpd.apache.org/docs/2.4/
  Main PID: 771 (apache2)
    Tasks: 55 (limit: 1026)
   Memory: 7.8M
      CPU: 110ms
   CGroup: /system.slice/apache2.service
           └─771 /usr/sbin/apache2 -k start
             └─773 /usr/sbin/apache2 -k start
               └─774 /usr/sbin/apache2 -k start

May 08 14:34:43 webserver systemd[1]: Starting The Apache HTTP Server...
May 08 14:34:48 webserver apachectl[750]: AH00558: apache2: Could not reliably det...sage
May 08 14:34:48 webserver systemd[1]: Started The Apache HTTP Server.
Hint: Some lines were ellipsized, use -l to show in full.

```

This is a screenshot of the 'systemctl status sshd --no-pager' command:

```
tuhin@webserver:~$ systemctl status sshd --no-pager
● ssh.service - OpenBSD Secure Shell server
   Loaded: loaded (/lib/systemd/system/ssh.service; enabled; vendor preset: enabled)
   Active: active (running) since Mon 2023-05-08 14:34:45 UTC; 20min ago
     Docs: man:sshd(8)
           man:sshd_config(5)
  Main PID: 753 (sshd)
    Tasks: 1 (limit: 1026)
   Memory: 7.6M
      CPU: 77ms
   CGroup: /system.slice/ssh.service
           └─753 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

May 08 14:34:43 webserver systemd[1]: Starting OpenBSD Secure Shell server...
May 08 14:34:45 webserver sshd[753]: Server listening on 0.0.0.0 port 22.
May 08 14:34:45 webserver sshd[753]: Server listening on :: port 22.
May 08 14:34:45 webserver systemd[1]: Started OpenBSD Secure Shell server.
May 08 14:38:07 webserver sshd[1065]: Accepted password for tuhin from 172.16.0.1... ssh2
May 08 14:38:07 webserver sshd[1065]: pam_unix(sshd:session): session opened for ...id=0)
Hint: Some lines were ellipsized, use -l to show in full.
```

This is a screenshot of the 'systemctl status ufw --no-pager' command:

```
tuhin@webserver:~$ systemctl status ufw --no-pager
● ufw.service - Uncomplicated firewall
   Loaded: loaded (/lib/systemd/system/ufw.service; enabled; vendor preset: enabled)
   Active: active (exited) since Mon 2023-05-08 14:34:33 UTC; 20min ago
     Docs: man:ufw(8)
  Main PID: 562 (code=exited, status=0/SUCCESS)
      CPU: 64ms

May 08 14:34:30 webserver systemd[1]: Starting Uncomplicated firewall...
May 08 14:34:33 webserver systemd[1]: Finished Uncomplicated firewall.
tuhin@webserver:~$
```

## Log Files

This is a screenshot of the Apache log file: access.log:

```
tuhin@webserver:~$ sudo tail -f /var/log/apache2/access.log
[sudo] password for tuhin:
172.16.0.4 - - [08/May/2023:00:18:45 +0000] "GET /assets/img/testimonials-2.jpg HTTP/1.1" 200 193798 "http://172.16.0.10/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/112.0.0.0 Safari/537.36"
172.16.0.4 - - [08/May/2023:00:18:45 +0000] "GET /assets/img/testimonials-3.jpg HTTP/1.1" 200 250552 "http://172.16.0.10/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/112.0.0.0 Safari/537.36"
172.16.0.4 - - [08/May/2023:00:18:45 +0000] "GET /js/scripts.js HTTP/1.1" 200 573 "http://172.16.0.10/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/112.0.0.0 Safari/537.36"
172.16.0.4 - - [08/May/2023:00:18:45 +0000] "GET /assets/img/bg-showcase-1.jpg HTTP/1.1" 200 305129 "http://172.16.0.10/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/112.0.0.0 Safari/537.36"
172.16.0.4 - - [08/May/2023:00:18:45 +0000] "GET /assets/img/bg-showcase-2.jpg HTTP/1.1" 200 197639 "http://172.16.0.10/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/112.0.0.0 Safari/537.36"
172.16.0.4 - - [08/May/2023:00:18:45 +0000] "GET /assets/img/bg-showcase-3.jpg HTTP/1.1" 200 36323 "http://172.16.0.10/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/112.0.0.0 Safari/537.36"
172.16.0.4 - - [08/May/2023:00:18:45 +0000] "GET /assets/img/bg-masthead.jpg HTTP/1.1" 200 961447 "http://172.16.0.10/css/styles.css" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/112.0.0.0 Safari/537.36"
172.16.0.4 - - [08/May/2023:00:18:45 +0000] "GET /assets/favicon.ico HTTP/1.1" 200 23764 "http://172.16.0.10/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/112.0.0.0 Safari/537.36"
172.16.0.4 - - [08/May/2023:00:19:37 +0000] "-" 408 0 "-" "-"
172.16.0.4 - - [08/May/2023:00:19:37 +0000] "-" 408 0 "-" "-"
```

This is a screenshot of the Apache log file: error.log:

```
tuhin@webserver:~$ sudo tail -f /var/log/apache2/error.log
[sudo] password for tuhin:
[Mon May 08 00:00:10.060655 2023] [core:notice] [pid 763:tid 140349786789760] AH00094: Command line: '/usr/sbin/apache2'
[Mon May 08 00:04:49.477698 2023] [mpm_event:notice] [pid 763:tid 140349786789760] AH00492: caught SIGWINCH, shutting down gracefully
[Mon May 08 00:04:49.531778 2023] [mpm_event:notice] [pid 1298:tid 140326648555392] AH00489: Apache/2.4.52 (Ubuntu) configured -- resuming normal operations
[Mon May 08 00:04:49.531866 2023] [core:notice] [pid 1298:tid 140326648555392] AH00094: Command line: '/usr/sbin/apache2'
[Mon May 08 00:06:39.289848 2023] [mpm_event:notice] [pid 1298:tid 140326648555392] AH00492: caught SIGWINCH, shutting down gracefully
[Mon May 08 00:12:04.672463 2023] [mpm_event:notice] [pid 764:tid 139856183953280] AH00489: Apache/2.4.52 (Ubuntu) configured -- resuming normal operations
[Mon May 08 00:12:04.720056 2023] [core:notice] [pid 764:tid 139856183953280] AH00094: Command line: '/usr/sbin/apache2'
[Mon May 08 00:23:40.765355 2023] [mpm_event:notice] [pid 764:tid 139856183953280] AH00492: caught SIGWINCH, shutting down gracefully
[Mon May 08 14:34:48.556732 2023] [mpm_event:notice] [pid 771:tid 139629566392192] AH00489: Apache/2.4.52 (Ubuntu) configured -- resuming normal operations
[Mon May 08 14:34:48.606130 2023] [core:notice] [pid 771:tid 139629566392192] AH00094: Command line: '/usr/sbin/apache2'
```

This is a screenshot of the SSH log file: auth.log:

```
tuhin@webserver:~$ sudo tail -f /var/log/auth.log
[sudo] password for tuhin:
May  8 15:01:12 webserver systemd-logind[712]: Session 3 logged out. Waiting for
processes to exit.
May  8 15:01:12 webserver sudo: pam_unix(sudo:session): session closed for user
root
May  8 15:01:12 webserver systemd-logind[712]: Removed session 3.
May  8 15:01:22 webserver systemd: pam_unix(systemd-user:session): session close
d for user tuhin
May  8 15:01:24 webserver sshd[1279]: Accepted password for tuhin from 172.16.0.
11 port 50496 ssh2
May  8 15:01:24 webserver sshd[1279]: pam_unix(sshd:session): session opened for
user tuhin(uid=1000) by (uid=0)
May  8 15:01:24 webserver systemd-logind[712]: New session 5 of user tuhin.
May  8 15:01:24 webserver systemd: pam_unix(systemd-user:session): session opene
d for user tuhin(uid=1000) by (uid=0)
May  8 15:01:39 webserver sudo:    tuhin : TTY=pts/0 ; PWD=/home/tuhin ; USER=ro
ot ; COMMAND=/usr/bin/tail -f /var/log/auth.log
May  8 15:01:39 webserver sudo: pam_unix(sudo:session): session opened for user
root(uid=0) by tuhin(uid=1000)
```

## Configuration

This is a screenshot of the sites-available config file:

```
GNU nano 6.2                                website.conf
<VirtualHost *:80>
    ServerAdmin webmaster@localhost
    ServerName website
    ServerAlias www.website
    DocumentRoot /var/www/website
    ErrorLog ${APACHE_LOG_DIR}/error.log
    CustomLog ${APACHE_LOG_DIR}/access.log combined
</VirtualHost>
```

```
[ Read 8 lines ]
^G Help      ^O Write Out ^W Where Is  ^K Cut      ^T Execute  ^C Location
^X Exit      ^R Read File ^\ Replace  ^U Paste    ^J Justify  ^_ Go To Line
```



This is a screenshot of the apache2.conf:

```
GNU nano 6.2 /etc/apache2/apache2.conf
# This is the main Apache server configuration file.  It contains the
# configuration directives that give the server its instructions.
# See http://httpd.apache.org/docs/2.4/ for detailed information about
# the directives and /usr/share/doc/apache2/README.Debian about Debian specific
# hints.
#
# Summary of how the Apache 2 configuration works in Debian:
# The Apache 2 web server configuration in Debian is quite different to
# upstream's suggested way to configure the web server. This is because Debian's
# default Apache2 installation attempts to make adding and removing modules,
# virtual hosts, and extra configuration directives as flexible as possible, in
# order to make automating the changes and administering the server as easy as
# possible.
#
# It is split into several files forming the configuration hierarchy outlined
# below, all located in the /etc/apache2/ directory:
#
#     /etc/apache2/
#     |-- apache2.conf
#
^G Help      ^O Write Out ^W Where Is  ^K Cut       ^T Execute   ^C Location
^X Exit      ^R Read File ^\ Replace   ^U Paste     ^J Justify   ^_ Go To Line
```

## Server IP Address and Website Access

This is a screenshot of the server's IP:

```
tuhin@webserver:~$ 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
        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 08:00:27:91:ea:9d brd ff:ff:ff:ff:ff:ff
    inet 172.16.0.10/24 metric 100 brd 172.16.0.255 scope global dynamic enp0s3
        valid_lft 84164sec preferred_lft 84164sec
    inet6 fe80::a00:27ff:fe91:ea9d/64 scope link
        valid_lft forever preferred_lft forever
tuhin@webserver:~$
```

This is a screenshot of the created website being accessed:

