

# Deliverable 2 Submission

## Server Specifications

The screenshot shows the Oracle VM VirtualBox Manager interface. At the top, there are icons for New (blue star), Add (green plus), Settings (orange gear), Discard (grey arrow down), and Start (green arrow right). The main area displays the configuration for a VM named "Ubuntu Server".

**General**

- Name: Ubuntu Server
- Operating System: Ubuntu (64-bit)

**System**

- Base Memory: 2048 MB
- Processors: 2
- Boot Order: Optical, Hard Disk
- Acceleration: Nested Paging, KVM Paravirtualization

**Preview**

**Display**

- Video Memory: 128 MB
- Graphics Controller: VMSVGA
- Remote Desktop Server: Disabled
- Recording: Disabled

**Storage**

- Controller: IDE
  - IDE Secondary Device 0: [Optical Drive] Empty
- Controller: SATA
  - SATA Port 0: Ubuntu Server.vdi (Normal, 15.00 GB)

**Audio**

- Disabled

## Ubuntu Login Screen

```
webmaster@webserver: ~      +  x
ssh: connect to host 192.168.0.140 port 22: Connection timed out
PS C:\Users\zanner>
PS C:\Users\zanner> ssh webmaster@192.168.1.140
webmaster@192.168.1.140's password:
Welcome to Ubuntu 22.04.3 LTS (GNU/Linux 5.15.0-91-generic x86_64)

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

System information as of Tue Dec 19 04:40:19 PM UTC 2023

System load:  0.8623046875   Processes:          121
Usage of /:   48.9% of 9.75GB  Users logged in:    0
Memory usage: 10%            IPv4 address for enp0s3: 192.168.1.140
Swap usage:   0%

* Strictly confined Kubernetes makes edge and IoT secure. Learn how MicroK8s
just raised the bar for easy, resilient and secure K8s cluster deployment.

https://ubuntu.com/engage/secure-kubernetes-at-the-edge

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: Tue Dec 19 12:34:25 2023 from 192.168.1.250
```

## Questions

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

- The IP address of the Ubuntu Server is : 192.168.1.140.

### 4. How do you enable the Ubuntu Firewall?

- To enable the Ubuntu Firewall use the following command: 'sudo ufw enable'.

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

- To check the if the Ubuntu Firewall is running use the following command: 'sudo ufw status'.

### 6. How do you disable the Ubuntu Firewall?

- To disable the Ubuntu Firewall use the following the command: 'sudo ufw disable'.

### 7. How do you add Apache to the Firewall?

- To add Apache to the Firewall use the following command: 'sudo ufw allow 'Apache''.

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

- To install Apache use the following command: 'sudo apt install apache2 -y'.

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

- To check if Apache is running use the following command: 'systemctl status apache2 --no-pager'.

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

- To stop Apache use the following command: 'sudo systemctl stop apache2'.

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

- To restart Apache use the following command: 'sudo systemctl restart apache2'.

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

- To test Apache configuration use the following command: 'sudo apache2ctl configtest'.

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

- To check the installed version of Apache use the following command: 'sudo apache2 -v'.

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

- The most common commands to troubleshoot Apache errors are:
  - Systemctl - used to control and interact with Linux services via the systemd service manager.
  - Journalctl - used to query and view the logs that are generated by systemd.
  - Apachectl - when troubleshooting, this command is used to check Apache's configuration.

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

- Apache log files are a helpful resource for troubleshooting as any error that you receive in a browser or other HTTP client will have a corresponding entry in Apache's logs. Apache will also output errors related to configuration, built-in modules, and other debugging information to its log files.

```
webmaster@webserver:~$ sudo head -n 5 /var/log/apache2/error.log
[Tue Dec 19 08:38:34.303449 2023] [mpm_event:notice] [pid 1595:tid 139765755352960] AH00489: Apache/2.4.52 (Ubuntu) configured -- resuming normal operations
[Tue Dec 19 08:38:34.303548 2023] [core:notice] [pid 1595:tid 139765755352960] AH00094: Command line: '/usr/sbin/apache2'
[Tue Dec 19 08:44:55.487864 2023] [mpm_event:notice] [pid 1595:tid 139765755352960] AH00492: caught SIGWINCH, shutting down gracefully
[Tue Dec 19 08:48:48.672909 2023] [mpm_event:notice] [pid 781:tid 140516869764992] AH00489: Apache/2.4.52 (Ubuntu) configured -- resuming normal operations
[Tue Dec 19 08:48:48.674926 2023] [core:notice] [pid 781:tid 140516869764992] AH00094: Command line: '/usr/sbin/apache2'
webmaster@webserver:~$ |
```

```
webmaster@webserver:~$ sudo tail -n 5 /var/log/apache2/error.log
[Tue Dec 19 11:58:43.596785 2023] [mpm_event:notice] [pid 785:tid 140146764978048] AH00489: Apache/2.4.52 (Ubuntu) configured -- resuming normal operations
[Tue Dec 19 11:58:43.609785 2023] [core:notice] [pid 785:tid 140146764978048] AH00094: Command line: '/usr/sbin/apache2'
[Tue Dec 19 11:59:19.258362 2023] [mpm_event:notice] [pid 785:tid 140146764978048] AH00492: caught SIGWINCH, shutting down gracefully
[Tue Dec 19 12:00:15.090442 2023] [mpm_event:notice] [pid 779:tid 140236182890368] AH00489: Apache/2.4.52 (Ubuntu) configured -- resuming normal operations
[Tue Dec 19 12:00:15.110270 2023] [core:notice] [pid 779:tid 140236182890368] AH00094: Command line: '/usr/sbin/apache2'
webmaster@webserver:~$ |
```

```
webmaster@webserver:~$ cat /var/log/apache2/error.log
[Tue Dec 19 08:38:34.303449 2023] [mpm_event:notice] [pid 1595:tid 139765755352960] AH00489: Apache/2.4.52 (Ubuntu) configured -- resuming normal operations
[Tue Dec 19 08:38:34.303548 2023] [core:notice] [pid 1595:tid 139765755352960] AH00094: Command line: '/usr/sbin/apache2'
[Tue Dec 19 08:44:55.487864 2023] [mpm_event:notice] [pid 1595:tid 139765755352960] AH00492: caught SIGWINCH, shutting down gracefully
[Tue Dec 19 08:48:48.672909 2023] [mpm_event:notice] [pid 781:tid 140516869764992] AH00489: Apache/2.4.52 (Ubuntu) configured -- resuming normal operations
[Tue Dec 19 08:48:48.674926 2023] [core:notice] [pid 781:tid 140516869764992] AH00094: Command line: '/usr/sbin/apache2'
[Tue Dec 19 09:05:36.634042 2023] [mpm_event:notice] [pid 781:tid 140516869764992] AH00492: caught SIGWINCH, shutting down gracefully
[Tue Dec 19 09:06:49.856252 2023] [mpm_event:notice] [pid 783:tid 140047560939392] AH00489: Apache/2.4.52 (Ubuntu) configured -- resuming normal operations
[Tue Dec 19 09:06:49.864186 2023] [core:notice] [pid 783:tid 140047560939392] AH00094: Command line: '/usr/sbin/apache2'
[Tue Dec 19 09:38:30.250666 2023] [mpm_event:notice] [pid 783:tid 140047560939392] AH00492: caught SIGWINCH, shutting down gracefully
[Tue Dec 19 09:38:30.331562 2023] [mpm_event:notice] [pid 1344:tid 140341340505984] AH00489: Apache/2.4.52 (Ubuntu) configured -- resuming normal operations
[Tue Dec 19 09:38:30.331714 2023] [core:notice] [pid 1344:tid 140341340505984] AH00094: Command line: '/usr/sbin/apache2'
[Tue Dec 19 09:42:20.873392 2023] [mpm_event:notice] [pid 1344:tid 140341340505984] AH00492: caught SIGWINCH, shutting down gracefully
[Tue Dec 19 09:52:21.265561 2023] [mpm_event:notice] [pid 784:tid 139833450801024] AH00489: Apache/2.4.52 (Ubuntu) configured -- resuming normal operations
[Tue Dec 19 09:52:21.267382 2023] [core:notice] [pid 784:tid 139833450801024] AH00094: Command line: '/usr/sbin/apache2'
[Tue Dec 19 10:42:58.410319 2023] [mpm_event:notice] [pid 784:tid 139833450801024] AH00492: caught SIGWINCH, shutting down gracefully
[Tue Dec 19 11:39:36.417830 2023] [mpm_event:notice] [pid 778:tid 139829177743232] AH00489: Apache/2.4.52 (Ubuntu) configured -- resuming normal operations
[Tue Dec 19 11:39:36.431540 2023] [core:notice] [pid 778:tid 139829177743232] AH00094: Command line: '/usr/sbin/apache2'
[Tue Dec 19 11:58:43.596785 2023] [mpm_event:notice] [pid 785:tid 140146764978048] AH00489: Apache/2.4.52 (Ubuntu) configured -- resuming normal operations
[Tue Dec 19 11:58:43.609785 2023] [core:notice] [pid 785:tid 140146764978048] AH00094: Command line: '/usr/sbin/apache2'
[Tue Dec 19 11:59:19.258362 2023] [mpm_event:notice] [pid 785:tid 140146764978048] AH00492: caught SIGWINCH, shutting down gracefully
[Tue Dec 19 12:00:15.090442 2023] [mpm_event:notice] [pid 779:tid 140236182890368] AH00489: Apache/2.4.52 (Ubuntu) configured -- resuming normal operations
```