ITT420: NETWORK AND SYSTEM ADMINISTRATION
LAB EXERCISE 5

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At the end of this lab exercise students should be able to:

- Installation and Configuration of HTTP Server (CentOS and Ubuntu).

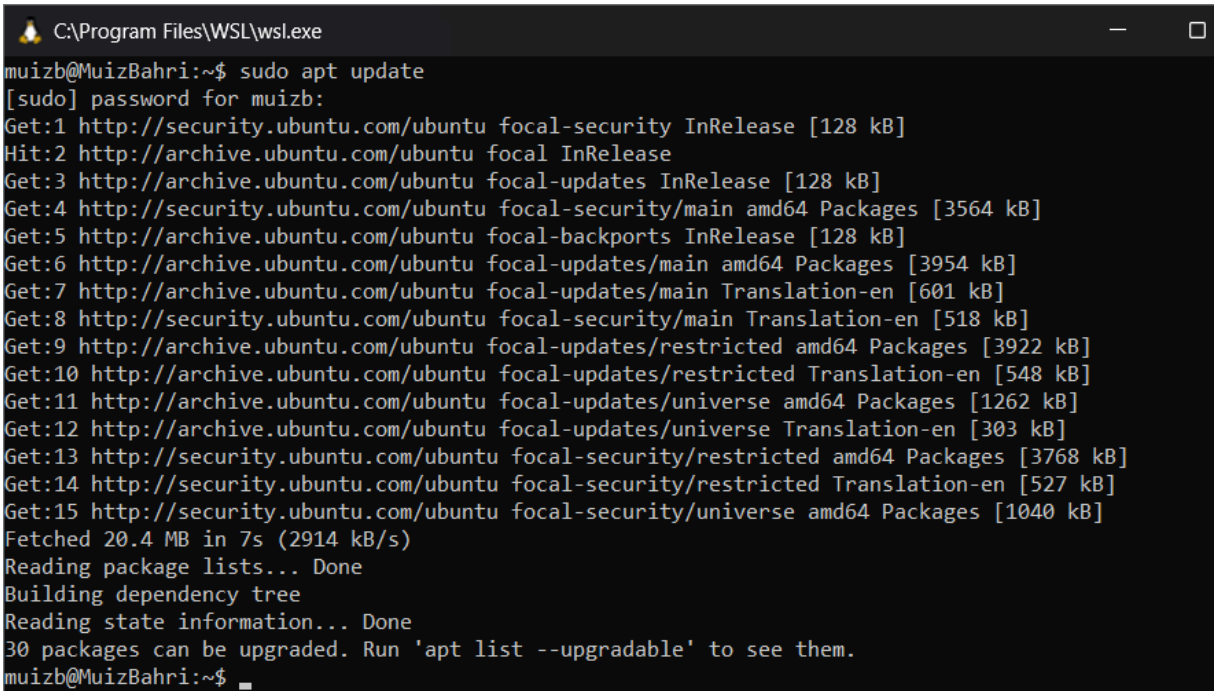
Complete this lab exercise before the end of the lab session. Produce and submit three pages of evidence of completion of this task.

Description: The Apache HTTP server is the most widely-used web server in the world. It provides many powerful features, including dynamically loadable modules, robust media support, and extensive integration with other popular software.
The Apache HTTP Server Project is an effort to develop and maintain an open-source HTTP server for modern operating systems including UNIX and Windows. The goal of this project is to provide a secure, efficient and extensible server that provides HTTP services in sync with the current HTTP standards.
The Apache HTTP Server ("httpd") was launched in 1995 and it has been the most popular web server on the Internet since April 1996. It has celebrated its 25th birthday as a project in February 2020.

Installation steps to be followed (Ubuntu):

1. Installing Apache
   Apache is available within Ubuntu's default software repositories, so you can install it using conventional package management tools.
   Update your local package index:

```
sudo apt update
```



   Install the apache2 package:

```
sudo apt install apache2
```

```
muizb@MuizBahri:~$ sudo apt install apache2 -y
Reading package lists... Done
Building dependency tree
Reading state information... Done
apache2 is already the newest version (2.4.41-4ubuntu3.23).
0 upgraded, 0 newly installed, 0 to remove and 30 not upgraded.
muizb@MuizBahri:~$
```

2. Configuration of firewall

```
sudo ufw allow 'Apache
```

```
muizb@MuizBahri:~$ sudo ufw allow 'Apache'
Rules updated
Rules updated (v6)
muizb@MuizBahri:~$
```

```
muizb@MuizBahri:~$ sudo ufw status
Status: inactive
muizb@MuizBahri:~$
```

3. Checking Web Server

Check with the systemd init system to make sure the service is running by typing:

```
sudo systemctl status apache2
```

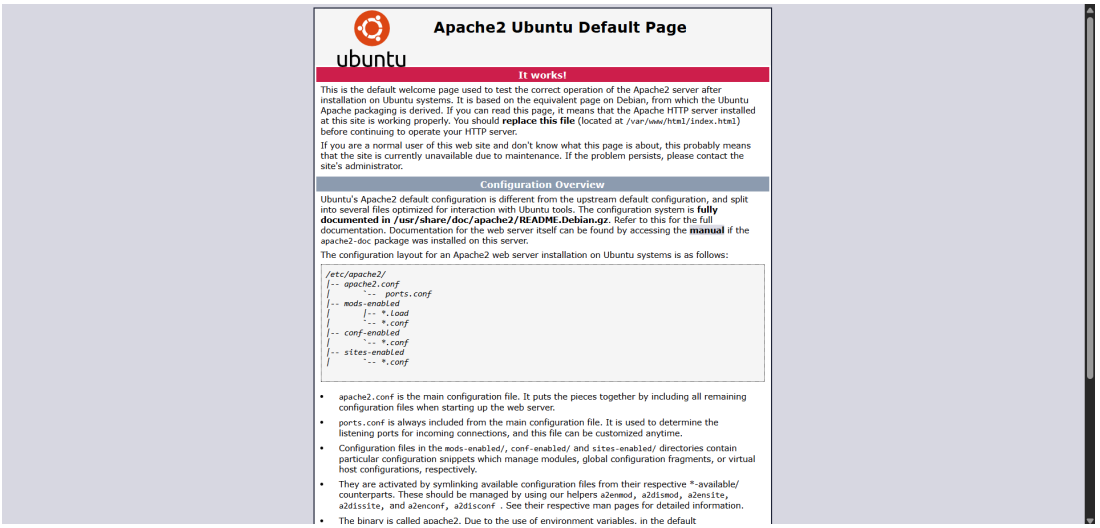
Access the default Apache landing page to confirm that the software is running properly through your IP address:

```
http://your_server_ip
```

```
muizb@MuizBahri:~$ sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
     Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)
     Active: active (running) since Tue 2025-06-10 10:39:28 +08; 3min 9s ago
       Docs: https://httpd.apache.org/docs/2.4/
    Process: 376 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
   Main PID: 435 (apache2)
      Tasks: 55 (limit: 19009)
     Memory: 19.7M
     CGroup: /system.slice/apache2.service
             ├─435 /usr/sbin/apache2 -k start
             ├─436 /usr/sbin/apache2 -k start
             └─437 /usr/sbin/apache2 -k start

Jun 10 10:39:28 MuizBahri systemd[1]: Starting The Apache HTTP Server...
Jun 10 10:39:28 MuizBahri systemd[1]: Started The Apache HTTP Server.
```

```
muizb@MuizBahri:~$ hostname -I
172.19.7.62
muizb@MuizBahri:~$
```



Apache2 Ubuntu Default Page

ubuntu

It works!

This is the default welcome page used to test the correct operation of the Apache2 server after installation on Ubuntu systems. It is based on the equivalent page on Debian, from which the Ubuntu Apache packaging is derived. If you can read this page, it means that the Apache HTTP server installed at this site is working properly. You should **replace this file** (located at `/var/www/html/index.html`) before continuing to operate your HTTP server.

If you are a normal user of this web site and don't know what this page is about, this probably means that the site is currently unavailable due to maintenance. If the problem persists, please contact the site's administrator.

Configuration Overview

Ubuntu's Apache2 default configuration is different from the upstream default configuration, and split into several files optimized for interaction with Ubuntu tools. The configuration system is **fully documented in /usr/share/doc/apache2/README.Debian.gz**. Refer to this for the full documentation. Documentation for the web server itself can be found by accessing the **manual** if the `apache2-doc` package was installed on this server.

The configuration layout for an Apache2 web server installation on Ubuntu systems is as follows:

```
/etc/apache2/
|-- apache2.conf
|       `--  ports.conf
|-- mods-enabled
|       |-- *.load
|       `-- *.conf
|-- conf-enabled
|       `-- *.conf
|-- sites-enabled
|       `-- *.conf
```

- `apache2.conf` is the main configuration file. It puts the pieces together by including all remaining configuration files when starting up the web server.
- `ports.conf` is always included from the main configuration file. It is used to determine the listening ports for incoming connections, and this file can be customized anytime.
- Configuration files in the `mods-enabled/`, `conf-enabled/` and `sites-enabled/` directories contain particular configuration snippets which manage modules, global configuration fragments, or virtual host configurations, respectively.
- They are activated by symlinking available configuration files from their respective *-available/ counterparts. These should be managed by using our helpers `a2enmod`, `a2dismod`, `a2ensite`, `a2dissite`, and `a2enconf`, `a2disconf` . See their respective man pages for detailed information.
- The binary is called apache2. Due to the use of environment variables, in the default