

LAB2 Ubuntu Configuration

linux

sudo -i

adduser boss

usermod -aG sudo boss

```
devuser@server:~$ sudo -i
root@server:~# adduser non
Adding user `non' ...
Adding new group `non' (1001) ...
Adding new user `non' (1001) with group `non' ...
The home directory `/home/non' already exists. Not copying from `/etc/skel'.
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for non
Enter the new value, or press ENTER for the default
    Full Name []: teerapong
    Room Number []: 1
    Work Phone []:
    Home Phone []:
    Other []:
Is the information correct? [Y/n] y
root@server:~# usermod -aG sudo non
```

ufw allow OpenSSH

ufw enable

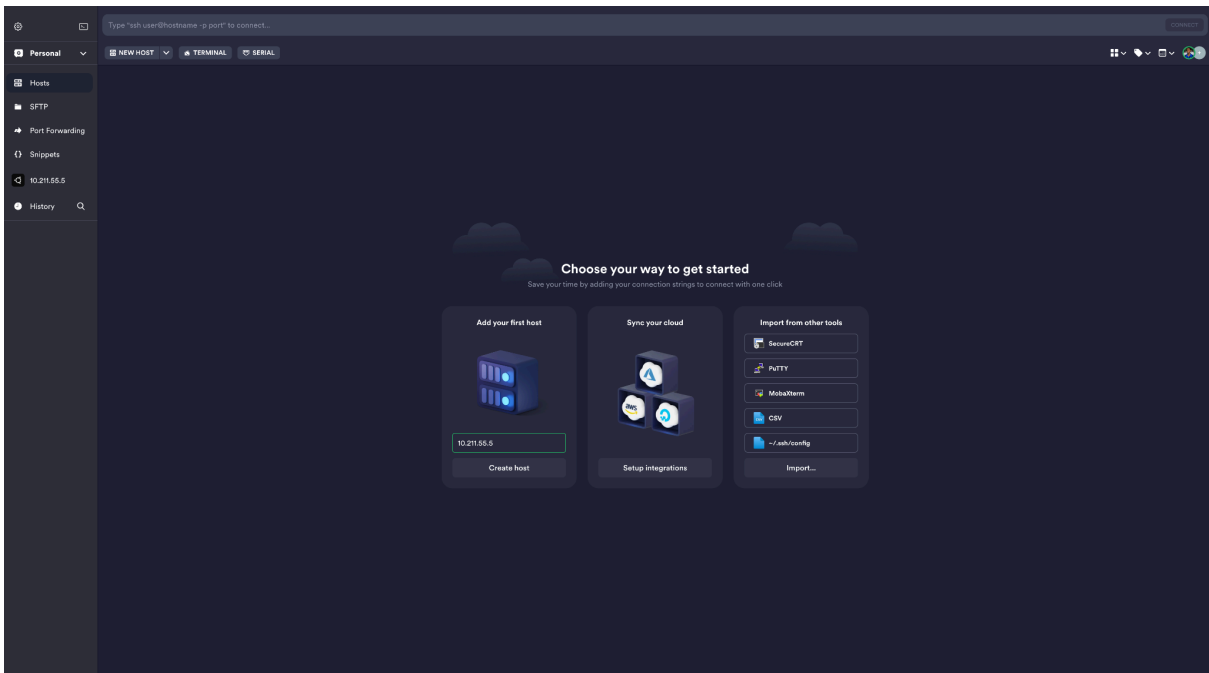
(ufw app list)

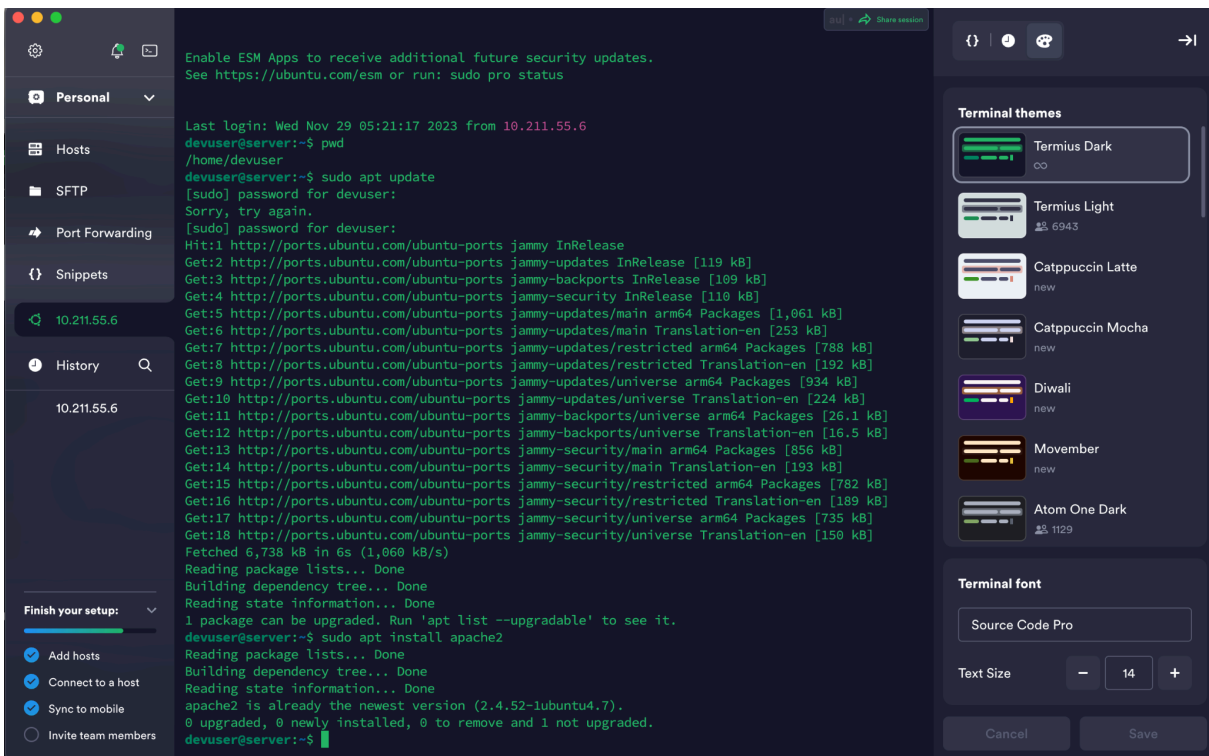
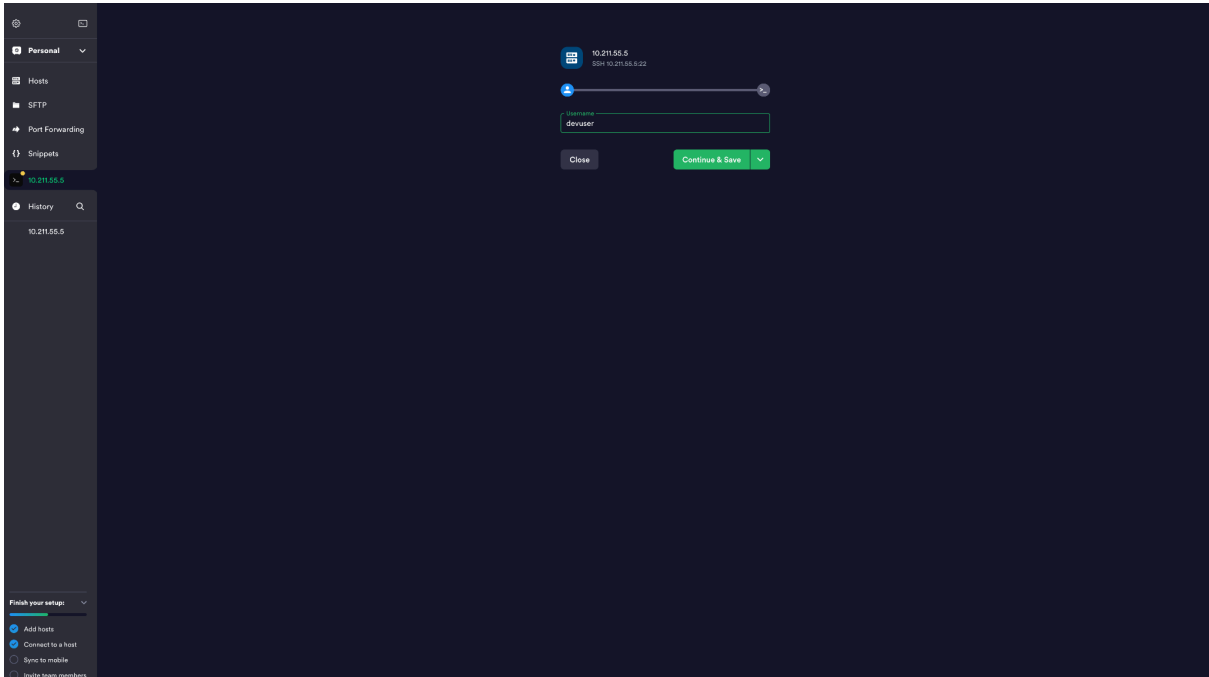
(ufw status)

```
root@server:~# ufw app list
Available applications:
  Apache
  Apache Full
  Apache Secure
  OpenSSH
root@server:~# ufw status
Status: active

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

Terminus



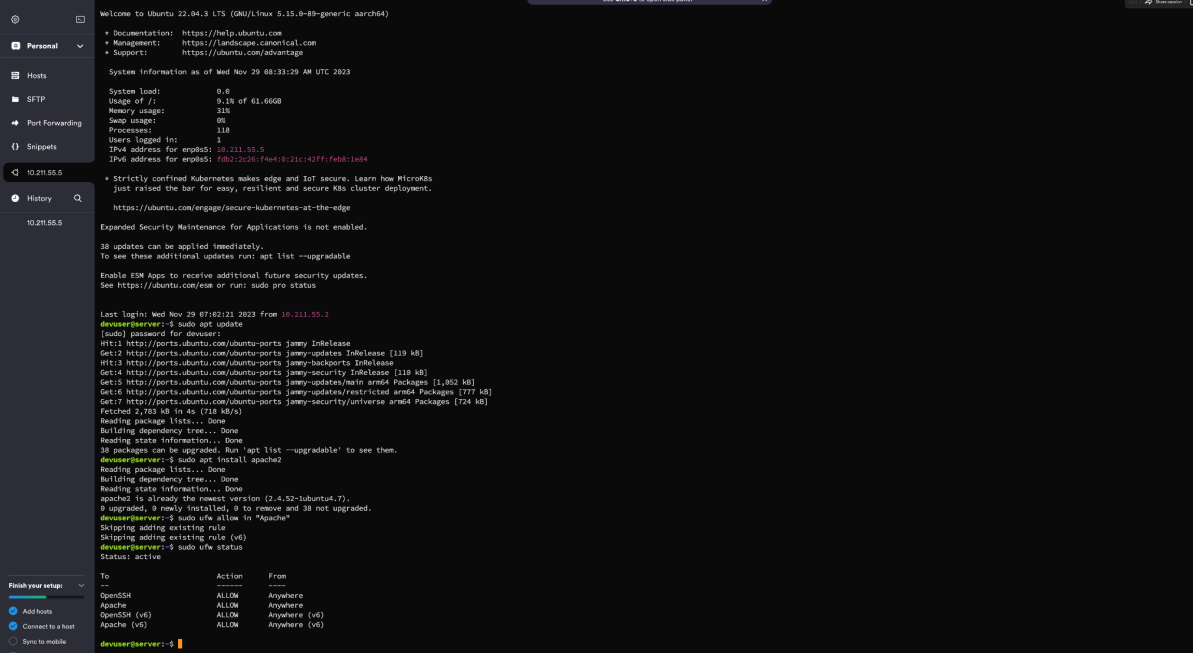


sudo apt update

sudo apt install apache2

sudo ufw allow in "Apache"

(sudo ufw status)



```
Welcome to Ubuntu 22.04.3 LTS (GNU/Linux 5.15.0-49-generic aarch64)

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

System information as of Wed Nov 29 08:33:29 AM UTC 2023

System load: 0.6
Usage of /: 9.1% of 61.46GB
Memory usage: 31%
Swap usage: 0%
Processes: 118
Users logged in: 1
IPv4 address for enp1s5: 10.211.55.2
IPv4 address for enp1s6: fdb2:1c26:f4e1b:21c::42ff:febb:1a04

 * 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.

38 updates can be applied immediately.
To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo apt update

Last login: Wed Nov 29 07:02:21 2023 from 10.211.55.2
devuser@server:~$ sudo apt update
[sudo] password for devuser:
Hit:1 http://ports.ubuntu.com/ubuntu-ports jammy InRelease
Get:2 http://ports.ubuntu.com/ubuntu-ports jammy-updates InRelease [119 kB]
Hit:3 http://ports.ubuntu.com/ubuntu-ports jammy-backports InRelease
Get:4 http://ports.ubuntu.com/ubuntu-ports jammy-security InRelease [119 kB]
Get:5 http://ports.ubuntu.com/ubuntu-ports jammy-updates/main arm64 Packages [1,952 kB]
Get:6 http://ports.ubuntu.com/ubuntu-ports jammy-updates/restricted arm64 Packages [777 kB]
Get:7 http://ports.ubuntu.com/ubuntu-ports jammy-security/universe arm64 Packages [724 kB]
Fetched 2,763 kB in 4s (718 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
36 packages can be upgraded. Run 'apt list --upgradable' to see them.
devuser@server:~$ sudo apt install apache2
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
apache2 is already the newest version (2.4.52-1ubuntu0.7).
0 upgraded, 0 newly installed, 0 to remove and 36 not upgraded.
devuser@server:~$ sudo ufw allow in "Apache"
Skipping adding existing rule
Skipping adding existing rule (v6)
devuser@server:~$ sudo ufw status
Status: active

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

(Check Apache2 : http:// < your ip >)



Ubuntu

Apache2 Default Page

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` and is managed using `systemd`, so to start/stop the service use `systemctl start apache2` and `systemctl stop apache2`, and use `systemctl status apache2` and `journalctl -u apache2` to check status. `system` and `apache2ctl` can also be used for service management if desired. **Calling `/usr/bin/apache2` directly will not work** with the default configuration.

Document Roots

By default, Ubuntu does not allow access through the web browser to *any* file outside of those located in `/var/www`, **public_html** directories (when enabled) and `/usr/share` (for web applications). If your site is using a web document root located elsewhere (such as in `/srv`) you may need to whitelist your document root directory in

```
sudo apt install mysql-server
```

```
sudo mysql
```

```
ALTER USER 'root'@'localhost' IDENTIFIED WITH  
mysql_native_password BY 'P@ssw0rd@2023';  
exit
```

```
devuser@server:~$ sudo apt install mysql-server  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
mysql-server is already the newest version (8.0.35-0ubuntu0.22.04.1).  
0 upgraded, 0 newly installed, 0 to remove and 38 not upgraded.  
devuser@server:~$ sudo mysql
```

```
Welcome to the MySQL monitor.  Commands end with ; or \g.  
Your MySQL connection id is 13  
Server version: 8.0.35-0ubuntu0.22.04.1 (Ubuntu)  
  
Copyright (c) 2000, 2023, Oracle and/or its affiliates.  
  
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affiliates. Other names may be trademarks of their respective  
owners.  
  
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.  
  
mysql> ALTER USER 'root'@'localhost' IDENTIFIED WITH mysql_native_password BY 'P@ssw0rd';  
Query OK, 0 rows affected (0.02 sec)  
  
mysql> exit  
Bye  
devuser@server:~$
```

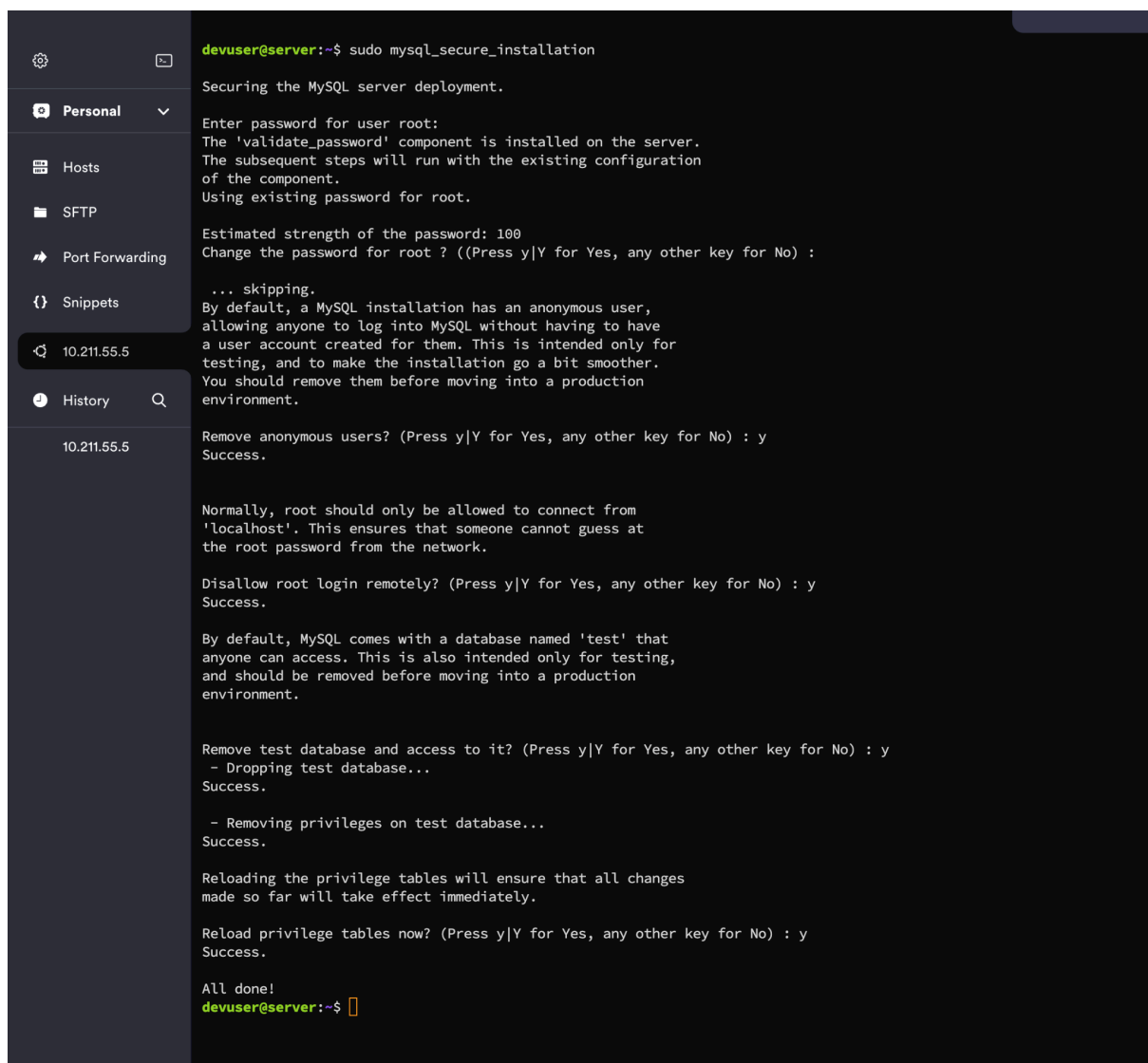
login mysql : `sudo mysql -u root -p`

```
devuser@server:~$ sudo mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 13
Server version: 8.0.35-0ubuntu0.22.04.1 (Ubuntu)

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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
```



```
devuser@server:~$ sudo mysql_secure_installation

Securing the MySQL server deployment.

Enter password for user root:
The 'validate_password' component is installed on the server.
The subsequent steps will run with the existing configuration
of the component.
Using existing password for root.

Estimated strength of the password: 100
Change the password for root ? ((Press y|Y for Yes, any other key for No) :

... skipping.
By default, a MySQL installation has an anonymous user,
allowing anyone to log into MySQL without having to have
a user account created for them. This is intended only for
testing, and to make the installation go a bit smoother.
You should remove them before moving into a production
environment.

Remove anonymous users? (Press y|Y for Yes, any other key for No) : y
Success.

Normally, root should only be allowed to connect from
'localhost'. This ensures that someone cannot guess at
the root password from the network.

Disallow root login remotely? (Press y|Y for Yes, any other key for No) : y
Success.

By default, MySQL comes with a database named 'test' that
anyone can access. This is also intended only for testing,
and should be removed before moving into a production
environment.

Remove test database and access to it? (Press y|Y for Yes, any other key for No) : y
- Dropping test database...
Success.

- Removing privileges on test database...
Success.

Reloading the privilege tables will ensure that all changes
made so far will take effect immediately.

Reload privilege tables now? (Press y|Y for Yes, any other key for No) : y
Success.

All done!
devuser@server:~$
```

```
sudo apt install php libapache2-mod-php php-mysql  
(php -v)
```

```
devuser@server:~$ sudo apt install php libapache2-mod-php php-mysql  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
libapache2-mod-php is already the newest version (2:8.1+92ubuntu1).  
php is already the newest version (2:8.1+92ubuntu1).  
php-mysql is already the newest version (2:8.1+92ubuntu1).  
0 upgraded, 0 newly installed, 0 to remove and 38 not upgraded.  
devuser@server:~$ php -v  
PHP 8.1.2-1ubuntu2.14 (cli) (built: Aug 18 2023 11:41:11) (NTS)  
Copyright (c) The PHP Group  
Zend Engine v4.1.2, Copyright (c) Zend Technologies  
    with Zend OPcache v8.1.2-1ubuntu2.14, Copyright (c), by Zend Technologies  
devuser@server:~$
```

```
cd /var/www/  
sudo mkdir lab2  
sudo chown -R $USER:$USER lab2  
sudo nano info.php  
(more info.php)
```



```
devuser@server:~$ cd /var/www/  
devuser@server:/var/www$ sudo mkdir Lab2  
devuser@server:/var/www$ sudo chown -R $USER:$USER Lab2  
devuser@server:/var/www$ sudo nano info.php  
devuser@server:/var/www$ more info.php  
<?php  
phpinfo();  
devuser@server:/var/www$
```

sudo nano /etc/apache2/sites-available/your_domain.conf

```
devuser@server:~$ sudo nano /etc/apache2/sites-available/Lab2.conf  
devuser@server:~$
```

```
<VirtualHost *:80>  
    ServerName Lab2  
    ServerAlias www.lab2.com  
    ServerAdmin webmaster@localhost  
    DocumentRoot /var/www/lab2  
    ErrorLog ${APACHE_LOG_DIR}/error.log  
    CustomLog ${APACHE_LOG_DIR}/access.log combined  
</VirtualHost>
```

```
GNU nano 6.2
<VirtualHost *:80>
    ServerName Lab2
    ServerAlias www.Lab2.com
    ServerAdmin webmaster@localhost
    DocumentRoot /var/www/Lab2
    ErrorLog ${APACHE_LOG_DIR}/error.log
    CustomLog ${APACHE_LOG_DIR}/access.log combined
</VirtualHost>
```

sudo a2ensite lab2

sudo nano /etc/apache2/sites-available/000-default.conf (don't edit)

sudo a2dissite 000-default

sudo apache2ctl configtest

systemctl reload apache2

nano /var/www/lab2/index.html

```
devuser@server:~$ nano /var/www/Lab2/index.html
devuser@server:~$
```

<html>

<head>

```
<title>your_domain website</title>
</head>
<body>
  <h1>Hello World!</h1>

  <p>This is the landing page of
<strong>your_domain</strong>.</p>
</body>
</html>
```

```
GNU nano 6.2
<html>
  <head>
    <title>Lab2 website</title>
  </head>
  <body>
    <h1>Hello World!</h1>

    <p>This is the landing page of <strong>Lab2</strong>.</p>
  </body>
</html>
```

sudo nano /etc/apache2/mods-enabled/dir.conf

```
devuser@server:~$ sudo nano /etc/apache2/mods-enabled/dir.conf
devuser@server:~$
```

```
GNU nano 6.2
<IfModule mod_dir.c>
    DirectoryIndex index.php index.html index.cgi index.pl index.php index.xhtml index.htm
</IfModule>

# vim: syntax=apache ts=4 sw=4 sts=4 sr noet
```

sudo mysql -u root -p

CREATE DATABASE Lab2;

CREATE USER 'user'@'%' IDENTIFIED BY 'P@ssw0rd';

GRANT ALL ON Lab2.* TO 'user'@'%';

exit

```
devuser@server:~$ sudo mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 11
Server version: 8.0.35-0ubuntu0.22.04.1 (Ubuntu)

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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> CREATE DATABASE lab2;
Query OK, 1 row affected (0.01 sec)

mysql> CREATE USER 'user'@'%' IDENTIFIED BY 'P@ssw0rd';
Query OK, 0 rows affected (0.02 sec)

mysql> GRANT ALL ON Lab2.* TO 'user'@'%';
Query OK, 0 rows affected (0.00 sec)

mysql> exit
Bye
devuser@server:~$
```

```
mysql -u user -p
```

```
(SHOW DATABASE;)
```

```
CREATE TABLE example_database.todo_list (item_id INT  
AUTO_INCREMENT,content VARCHAR(255),PRIMARY  
KEY(item_id));
```

```
devuser@server:~$ mysql -u user -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 18
Server version: 8.0.35-0ubuntu0.22.04.1 (Ubuntu)

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> SHOW DATABASES;
+-----+
| Database |
+-----+
| Lab2      |
| information_schema |
| performance_schema |
+-----+
3 rows in set (0.01 sec)

mysql> CREATE TABLE Lab2.todo_list ( item_id INT AUTO_INCREMENT, content VARCHAR(255), PRIMARY KEY(item_id) );
Query OK, 0 rows affected (0.02 sec)

mysql> INSERT INTO Lab2.todo_list (content) VALUES ("My 1 important item");
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO Lab2.todo_list (content) VALUES ("My 2 important item");
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO Lab2.todo_list (content) VALUES ("My 3 important item");
Query OK, 1 row affected (0.00 sec)

mysql> SELECT * FROM Lab2.todo_list;
+-----+-----+
| item_id | content |
+-----+-----+
| 1       | My 1 important item |
| 2       | My 2 important item |
| 3       | My 3 important item |
+-----+-----+
3 rows in set (0.00 sec)

mysql> exit
Bye
devuser@server:~$ nano /var/www/Lab2/todo_list.php
devuser@server:~$
```

```
<?php
```

```
$user = "user";
```

```
$password = "P@ssw0rd";
```

```
$database = "Lab2";
```

```
$table = "todo_list";
```

```
try {
```

```
    $db = new PDO("mysql:host=localhost;dbname=$database",  
$user, $password);
```

```
    echo "<h2>TODO</h2><ol>";
```

```
    foreach($db->query("SELECT content FROM $table") as  
$row) {
```

```
        echo "<li>" . $row['content'] . "</li>";
```

```
    }
```

```
    echo "</ol>";
```

```
} catch (PDOException $e) {
```

```
    print "Error!: " . $e->getMessage() . "<br/>";
```

```
    die();
```

```
}
```

```
GNU nano 6.2
<?php
$user = "user";
$password = "P@ssw0rd";
$database = "Lab2";
$table = "todo_list";

try {
    $db = new PDO("mysql:host=localhost;dbname=$database", $user, $password);
    echo "<h2>TODO</h2><ol>";
    foreach($db->query("SELECT content FROM $table") as $row) {
        echo "<li>" . $row['content'] . "</li>";
    }
    echo "</ol>";
} catch (PDOException $e) {
    print "Error!: " . $e->getMessage() . "<br/>";
    die();
}
```

**LAB2สร้างไฟล์ Lab-1_xxx และ Lab-2_xxx และ
ตรวจเช็ค *xxx = เลข 3 ตัวท้ายขอรหัส นศ.***

**สร้างไฟล์ Lab-1_xxx และ Lab-2_xxx และตรวจเช็ค
*xxx = เลข 3 ตัวท้ายขอรหัส นศ.***

Step 1 — Creating the Directory Structure

สร้างไฟล์ Lab-1_xxx และ Lab-2_xxx

sudo mkdir -p /var/www/Lab-1_030/public_html

sudo mkdir -p /var/www/Lab-2_030/public_html

Step 2 — Granting Permissions

sudo chown -R \$USER:\$USER

/var/www//Lab-1_030/public_html

```
sudo chown -R $USER:$USER  
/var/www/Lab-2_030/public_html  
sudo chmod -R 755 /var/www
```

Step 3 — Creating Default Pages for Each Virtual Host

เปิดและสร้าง `index.html`

```
nano /var/www/Lab-1_030/public_html/index.html
```

```
<html>  
<head>  
  <title>Welcome to /Lab-1_030!</title>  
</head>  
<body>  
  <h1>Success! The /Lab-1_030 virtual host is  
working!</h1>  
</body>  
</html>
```

จากนั้น คัดลอกไฟล์นี้เพื่อใช้เป็นฐานสำหรับไซต์ที่สอง
ของคุณโดยพิมพ์:

```
cp /var/www/Lab-1_030/public_html/index.html  
/var/www/Lab-2_030/public_html/index.html
```

จากนั้นเปิดไฟล์ใหม่นี้และแก้ไขข้อมูล

nano

/var/www/your_domain_2/public_html/index.html

```
<html>
```

```
<head>
```

```
<title>Welcome to /Lab-2_030!</title>
```

```
</head>
```

```
<body>
```

```
<h1>Success! The /Lab-2_030 virtual host is  
working!</h1>
```

```
</body>
```

```
</html>
```

Step 4 — Creating New Virtual Host Files

```
sudo cp /etc/apache2/sites-available/000-default.conf  
/etc/apache2/sites-available/Lab-1_030.conf
```

```
sudo nano /etc/apache2/sites-available//Lab-1_030.conf
```

```
<VirtualHost *:80>
```

```
...
```

```
ServerAdmin admin@your_domain_1
```

```
ServerName lab2-1_030
```

```
ServerAlias www.lab2-1_030
```

```
DocumentRoot
```

```
/var/www/your_domain_1/public_html
```

...

ErrorLog \${APACHE_LOG_DIR}/error.log

CustomLog \${APACHE_LOG_DIR}/access.log

combined

...

</VirtualHost>

sudo cp /etc/apache2/sites-available/lab2-1_030.conf

/etc/apache2/sites-available/lab2-2_030.conf

sudo nano /etc/apache2/sites-available/lab2-2_030.conf

<VirtualHost *:80>

...

ServerAdmin admin@your_domain_1

ServerName lab2-2_030

ServerAlias www.lab2-2_030

DocumentRoot

/var/www/your_domain_1/public_html

...

ErrorLog \${APACHE_LOG_DIR}/error.log

CustomLog \${APACHE_LOG_DIR}/access.log

combined

...

</VirtualHost>

Step 5 — Enabling the New Virtual Host Files

ใช้คำสั่งต่อไปนี้เพื่อเปิดใช้งานเว็บไซต์เสมือน

```
sudo a2ensite lab2-1_030.conf
```

```
sudo a2ensite lab2-2_030.conf
```

```
sudo a2dissite 000-default.conf
```

```
sudo apache2ctl configtest
```

```
sudo systemctl restart apache2
```

```
sudo systemctl status apache2
```

Step 6 — Setting Up Local Hosts File

แก้ไขไฟล์ในเครื่อง

```
sudo nano /etc/hosts
```

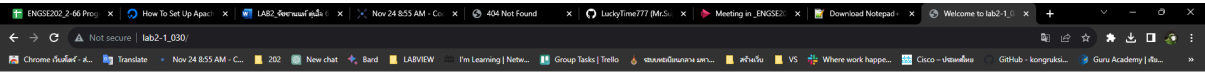
notepad %windir%\system32\drivers\etc\hosts

```
# Copyright (c) 1993-2009 Microsoft Corp.
#
# This is a sample HOSTS file used by Microsoft TCP/IP for Windows.
#
# This file contains the mappings of IP addresses to host names. Each
# entry should be kept on an individual line. The IP address should
# be placed in the first column followed by the corresponding host name.
# The IP address and the host name should be separated by at least one
# space.
#
# Additionally, comments (such as these) may be inserted on individual
# lines or following the machine name denoted by a '#' symbol.
#
# For example:
#
#       102.54.94.97      rhino.acme.com          # source server
#       38.25.63.10     x.acme.com              # x client host
#
# localhost name resolution is handled within DNS itself.
#       127.0.0.1        localhost
#       ::1              localhost
192.168.1.134 lab2-1_030
192.168.1.134 lab2-2_030
```

Step 7 — Testing Your Results

ทดสอบ Domain

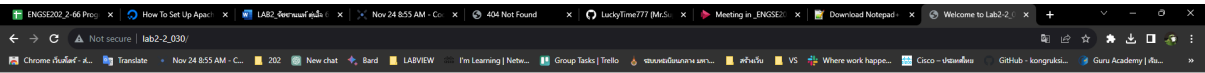
Lab2-1_030



Success! The lab2-1_030 virtual host is working!



Lab2-1_030



Success! Lab2-2_030 virtual host is working!

