**LAMP Installation Guide**

<https://howtoraspberrypi.com/how-to-install-web-server-raspberry-pi-lamp/>

LAMP is an acronym for Linux, Apache, MySQL, and PHP.

For installation of the LAMP system, open the terminal.

**Linux:**

**Installation**

1. Use the following commands to install updates.

$ sudo apt-get update

1. Upgrade the Linux operating system.

$ sudo apt-get upgrade

1. Enter **Y** to continue upgrading.

**Apache Web Server:**

**Installation:**

1. Type following command will install apache into the terminal.

$ sudo apt install apache2

1. Enter the following commands:

$ sudo chown -R pi:www-data /var/www/html

$ sudo chomd -R 770 /var/www/html

The above commands allow you to gain rights to the apache file to manage your sites.

**Test if Apache Web Server is working:**

1. Find the IP address.

$ sudo ifconfig

1. Look for ***eth0:flags…*** line directly under your last command. The next line will say ***inet …***, the number right of ***inet*** is your IP address. See Figure 1.
2. Open the Internet Browser and enter http://(your IP address). See Figure 2 for reference.

**Setup root password for an Apache Web Server**

1. Install the apache utilities using the commands below. You now have access to the *htpasswd* command.

sudo apt-get install apache2-utils

1. Specify the user for which you would like to create a password. Enter your name where yourname is indicated below. Your name will serve as the username.

sudo htpasswd -c /etc/apache2/.htpasswd yourname

1. When prompted to enter password.

New password: **password**.

1. Open the virtual host file for apache. The below command will allow you to open the virtual host file to edit.

sudo nano /etc/apache2/sites-enabled/000-default.conf

1. Edit the */etc/apache2/sites-enabled/000-default.conf file*. The writing in red is the information that must be added to the file.

<VirtualHost \*:80>

 ServerAdmin webmaster@localhost

 DocumentRoot /var/www/html

 ErrorLog ${APACHE\_LOG\_DIR}/error.log

 CustomLog ${APACHE\_LOG\_DIR}/access.log combined

 <Directory "/var/www/html">

 AuthType Basic

 AuthName "Restricted Content"

 AuthUserFile /etc/apache2/.htpasswd

 Require valid-user

 </Directory>

</VirtualHost>

1. Save the file using **Ctrl+X,** then press **Y**.
2. Restart apache.

sudo service apache2 restart

1. Find the IP address of you raspberry pi.

$ hostname -I

1. Open the Internet browser and search for your web server using http:/*(your IP address)****.***
2. Enter your login credentials.

**Edit/view your index.html file:**

1. Type the following command to open the index file.

$ sudo nano index.html

1. Exit the file editor by entering **Ctrl+X.**

**MySQL:**

**Installation:**

*MySQL will give a response if command is accepted.*

1. Install MySQL by using the following command:

$ sudo apt install mysql-server

Enter **Y** to continue installing.

1. Open MYSQL.

$ sudo mysql -u root

1. Set root password by using the commands listed below.

> DROP USER ‘root’@’localhost’;

> CREATE USER ‘root’@’localhost’ IDENTIFIED BY ‘password’;

> GRANT ALL PRIVILEGES ON \*.\* TO ‘root’@’localhost’;

1. Type **Ctrl+C.**

*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*If there are any problems changing the password use the following commands to reinstall MySQL.*

$ sudo apt-get remove --purge mysql-server mysql-client mysql-common -y

*You will be prompted to delete all database files. Select* ***Yes*** *to delete all information.*

$ sudo apt-get autoremove -y

sudo apt-get autoclean

$ sudo find / -iname 'mysql\*' -exec rm -rf {} \;

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***Create a database:***

1. Create a new database. Use should receive the response “Query OK…”.

> CREATE DATABASE studentDB;

1. Indicate which database to use by using the below command. Use should receive the response “Database changed”.

> USE studentDB;

1. Insert a table.

> CREATE TABLE Schedule1 (StudentID int, SectionID int, CourseName varchar(255), ClassTime varchar(255));

1. Add data to your table by using the following command:

> INSERT INTO Schedule1 (StudentID, SectionID, CourseName, ClassTime)

 -> VALUES (11123, 12345, “Calculus I”, “1:00 p.m. – 1:50 p.m.”);

> INSERT INTO Schedule1 (StudentID, SectionID, CourseName, ClassTime)

 -> VALUES (11123, 23456, “Biology 101”, “10:00 a.m. – 10:50 a.m.”);

> INSERT INTO Schedule1 (StudentID, SectionID, CourseName, ClassTime)

 -> VALUES (11123, 34567, “World History”, “11:00 a.m. – 11:50 a.m.”);

1. Use the following query to view the studentDB database table, Schedule.

> SELECT \* FROM Schedule1;

1. Exit the database.

> exit;