# Setting up a Linux Ubuntu server with Moodle

# Step 1: Prepare the Server

## Install Ubuntu Server:

* + Download the latest version of Ubuntu Server from [the official site](https://ubuntu.com/download/server).
  + Create an installation media (USB drive or DVD).
  + Boot the server from this media and follow the instructions to install Ubuntu Server.
  + Configure the network, time zone, and partitions as needed.

# Step 2: Update the System

Once Ubuntu is installed, update your system to ensure you have the latest security patches and software updates.

sudo apt update

sudo apt upgrade -y

# Step 3: Install Prerequisites

Moodle requires several software components to function properly:

* Apache (web server)
* MySQL/MariaDB (database)
* PHP (scripting language)

Install these components with the following command:

sudo apt install apache2 mysql-server php libapache2-mod-php php-mysql php-xml php-curl php-zip php-gd php-intl php-xmlrpc php-soap php-mbstring php-ldap unzip -y

# Step 4: Configure MySQL/MariaDB

1. **Secure the MySQL installation**:

sudo mysql\_secure\_installation

* Answer the questions to secure your installation, including setting the root password.

1. **Create a database for Moodle**:

sudo mysql -u root -p

* Log in with the root password.
* Create the database and user for Moodle:

CREATE DATABASE moodle DEFAULT CHARACTER SET utf8mb4 COLLATE utf8mb4\_unicode\_ci;

CREATE USER 'moodleuser'@'localhost' IDENTIFIED BY 'password';

GRANT ALL PRIVILEGES ON moodle.\* TO 'moodleuser'@'localhost';

FLUSH PRIVILEGES;

EXIT;

# Step 5: Download and Unpack Moodle

1. **Download the latest version of Moodle**:

cd /opt

sudo wget https://download.moodle.org/stable310/moodle-latest-310.tgz

1. **Unpack Moodle**:

sudo tar -zxvf moodle-latest-310.tgz

1. **Move Moodle to the web directory**:

sudo mv moodle /var/www/html/moodle

1. **Create a data directory for Moodle**:

sudo mkdir /var/www/moodledata

sudo chown -R www-data:www-data /var/www/moodledata

sudo chmod -R 777 /var/www/moodledata

1. **Set permissions for Moodle**:

sudo chown -R www-data:www-data /var/www/html/moodle

sudo chmod -R 755 /var/www/html/moodle

# Step 6: Configure Apache

1. **Create a configuration file for Moodle**:

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

1. **Add the following configuration**:

<VirtualHost \*:80>

ServerAdmin admin@example.com

DocumentRoot /var/www/html/moodle

ServerName example.com

ServerAlias www.example.com

<Directory /var/www/html/moodle/>

Options +FollowSymlinks

AllowOverride All

Require all granted

</Directory>

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

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

<Directory /var/www/moodledata/>

Require all granted

</Directory>

</VirtualHost>

1. **Enable the Moodle site and necessary Apache modules**:

sudo a2ensite moodle.conf

sudo a2enmod rewrite

sudo systemctl restart apache2

# Step 7: Complete Moodle Installation

1. **Access the Moodle web interface**:
   * Open your web browser and go to http://example.com (replace example.com with your domain name or server IP address).
   * Follow the on-screen instructions to complete the installation.
2. **Configure the database**:
   * Database type: mariadb (or mysql)
   * Host server: localhost
   * Database name: moodle
   * User: moodleuser
   * Password: password

# Step 8: Configure Moodle Settings

Once the installation is complete, you need to configure Moodle settings, such as:

* Create an administrator account.
* Configure email settings.
* Set up courses and modules.

**Step 9: Synchronize with the Central Server**

1. **Configure an API to fetch student data**:
   * Write scripts to interact with the central server’s API.
   * Schedule a cron job to run these scripts every night.
2. **Example synchronization script**:

#!/bin/bash

# Script to synchronize student data from the central server

# Variables

API\_URL="https://api.centrale.com/etudiants"

LOCAL\_DATA\_PATH="/var/www/moodledata/etudiants.json"

# Fetch data from the API

curl -o $LOCAL\_DATA\_PATH $API\_URL

# Import data into Moodle (you can use Moodle CLI tools or other scripts)

# Execute the PHP script to import the data

php /var/www/html/moodle/admin/cli/sync\_students.php --data=$LOCAL\_DATA\_PATH

1. **Schedule the cron job**:

sudo crontab -e

Add the following line to run the script every night at 2 AM:

0 2 \* \* \* /path/to/sync\_script.sh