
📘 MySQL Installation, Configuration & Client Setup Guide (Ubuntu)

🔹 1. Update the System

sudo apt update && sudo apt upgrade -y

🔹 2. Install MySQL Server

sudo apt install mysql-server -y

Verify installation:

mysql --version

🔹 3. Start & Enable MySQL Service

sudo systemctl start mysql
sudo systemctl enable mysql
sudo systemctl status mysql

🔹 4. Secure MySQL Installation

sudo mysql_secure_installation

Steps:

- Set root password
- Remove anonymous users
- Disallow remote root login
- Remove test database
- Reload privileges

🔹 5. Accessing MySQL

sudo mysql

(Optional: enable root password login)

ALTER USER 'root'@'localhost' IDENTIFIED WITH mysql_native_password BY 'RootPassword123!';
FLUSH PRIVILEGES;

Login with:

mysql -u root -p

🔹 6. Configure Remote Access

Edit:

sudo nano /etc/mysql/mysql.conf.d/mysqld.cnf

Change:

bind-address = 127.0.0.1

to:

bind-address = 0.0.0.0

Restart:

sudo systemctl restart mysql

🔹 7. Firewall Rules

sudo ufw allow 3306/tcp
sudo ufw reload

If in **AWS/Azure/Hostinger**, open **port 3306** in the security group/firewall for the **specific client IP(s)**.

🔹 8. Database & User Management

Create Database

CREATE DATABASE mydb;

Create User for Any Host

CREATE USER 'appuser'@'%' IDENTIFIED BY 'StrongPassword123!';
GRANT ALL PRIVILEGES ON mydb.* TO 'appuser'@'%';
FLUSH PRIVILEGES;

Create User for Specific IPs

CREATE USER 'appuser'@'1.2.3.4' IDENTIFIED BY 'StrongPassword123!';
GRANT ALL PRIVILEGES ON mydb.* TO 'appuser'@1.2.3.4';

CREATE USER 'appuser'@'5.6.7.8' IDENTIFIED BY 'StrongPassword123!';
GRANT ALL PRIVILEGES ON mydb.* TO 'appuser'@'5.6.7.8';

FLUSH PRIVILEGES;

Read-Only User for sys DB

```
CREATE USER 'readonly'@'%' IDENTIFIED BY 'ReadOnlyPass!';
GRANT SELECT ON sys.* TO 'readonly'@'%';
FLUSH PRIVILEGES;
```

Modify Existing User (awsuser)

```
REVOKE ALL PRIVILEGES, GRANT OPTION FROM 'awsuser'@'%';
GRANT SELECT, INSERT, UPDATE, DELETE ON mydb.* TO 'awsuser'@'%';
FLUSH PRIVILEGES;
```

🔹 9. Create a Sample Table

```
USE mydb;

CREATE TABLE users (
    id INT AUTO_INCREMENT PRIMARY KEY,
    username VARCHAR(50) NOT NULL UNIQUE,
    email VARCHAR(100) NOT NULL UNIQUE,
    password VARCHAR(255) NOT NULL,
    created_at TIMESTAMP DEFAULT CURRENT_TIMESTAMP,
    updated_at TIMESTAMP DEFAULT CURRENT_TIMESTAMP ON UPDATE
CURRENT_TIMESTAMP
);

INSERT INTO users (username, email, password)
VALUES
('alice', 'alice@example.com', 'password123'),
('bob', 'bob@example.com', 'securepass');
```

Check:

```
SELECT * FROM users;
```

🔹 10. Install MySQL Client on Remote Server (AWS EC2)

On the AWS EC2 server (Ubuntu):

```
sudo apt update
sudo apt install mysql-client -y
```

Verify:

mysql --version

🔹 11. Connect to Remote MySQL Server

From AWS EC2 (MySQL client):

mysql -h <MYSQL_SERVER_PUBLIC_IP> -u appuser -p mydb

- Replace `<MYSQL_SERVER_PUBLIC_IP>` with the actual **server IP** (or domain if DNS is configured).
- Enter the password when prompted.

🔹 12. Best Practices

- Use **Elastic IPs** in AWS so your client/server IP doesn't change.
- Restrict user access by **IP** whenever possible.
- Never grant `ALL PRIVILEGES` on `*.*` unless absolutely necessary.
- Use **VPN / Private Peering** instead of exposing port 3306 to the public internet.
- Monitor with `sys` schema and `performance_schema`.
- Always hash application user passwords before storing.

✅ Now you have both the **MySQL Server** and **MySQL Client** setup instructions — full cycle from installation to secure remote connection.