**PostgreSQL setup**

**1. Prepare Your VM**

1. **Update the system**:

sudo apt update && sudo apt upgrade -y

1. **Install required dependencies**:

sudo apt install wget curl gnupg2 -y

**2. Add PostgreSQL Repository**

PostgreSQL provides its own repository for easy installation of the latest versions.

1. Import the PostgreSQL signing key:

curl -fsSL https://www.postgresql.org/media/keys/ACCC4CF8.asc | sudo gpg --dearmor -o /usr/share/keyrings/postgresql.gpg

1. Add the PostgreSQL 16 repository to your sources list:

echo "deb [signed-by=/usr/share/keyrings/postgresql.gpg] http://apt.postgresql.org/pub/repos/apt/ $(lsb\_release -cs)-pgdg main" | sudo tee /etc/apt/sources.list.d/pgdg.list

1. Update package lists:

sudo apt update

**3. Install PostgreSQL 16**

1. Install PostgreSQL:

sudo apt install postgresql-16 -y

1. Verify the installation:

psql --version

**4. Start and Enable PostgreSQL Service**

1. Start the PostgreSQL service:

sudo systemctl start postgresql

1. Enable it to start on boot:

sudo systemctl enable postgresql

1. Check the status:

sudo systemctl status postgresql

**5. Configure PostgreSQL**

1. **Switch to the postgres user**:

sudo -i -u postgres

1. **Access the PostgreSQL shell**:

psql

1. **Create a test database and user**:

CREATE DATABASE testdb;

CREATE USER testuser WITH ENCRYPTED PASSWORD 'testpassword';

GRANT ALL PRIVILEGES ON DATABASE testdb TO testuser;

\q

1. Exit the postgres user:

exit

**6.Configure Remote Access**

1. **Edit the PostgreSQL configuration file**:

sudo nano /etc/postgresql/16/main/postgresql.conf

Find listen\_addresses and set it to '\*':

listen\_addresses = '\*'

1. **Modify pg\_hba.conf**:

sudo nano /etc/postgresql/16/main/pg\_hba.conf

Add the following line to allow remote connections:

host all all 0.0.0.0/0 md5

1. **Restart PostgreSQL**:

sudo systemctl restart postgresql

**7. Additional Tools**

1. **Install pgAdmin**: For a GUI, you can install pgAdmin:

sudo apt install pgadmin4 -y

1. **Install psql CLI on another system** (for testing remote connections):

sudo apt install postgresql-client -y

**8. Testing Tools**

* **pgAdmin 4**: Access the database using a browser.
* **DBeaver**: A free GUI tool for database management.