

# Installing PostgreSQL Server and pgAdmin

Documentation for current versions of PostgreSQL can be found here: <https://www.postgresql.org/docs/14/index.html>

## 1 Installation on Windows

### PostgreSQL Installation

1. Download the Installer: Download the PostgreSQL installer for Windows from the official website: <https://www.postgresql.org/download/windows/>
2. Run the Installer. Follow the prompts to choose the installation directory and set a password for the postgres user. Make sure all additional components like pgAdmin and Stack Builder etc are selected.
3. Specify the port- keep the default value (5432). Once installation completes
4. Start PostgreSQL: PostgreSQL will run as a Windows service. You can manage it via the Windows Services Manager.
5. Use the installed **pgAdmin** or the **psql** command-line tool to interact with the database and perform the following:

#### I. Using pgAdmin GUI:

- (a) From the left sidebar right-click **PostgreSQL XX → Create → Database**.

#### II. Using SQL Shell:

- (a) Run the **SQL Shell (psql)** from applications.
- (b) Follow prompts to connect to the localhost server with the default database using the username and password created during setup. You should now see a **postgres=#** prompt.
- (c) Create a database with **CREATE DATABASE mydb**
- (d) Switch to your DB with **\c mydb**

## 2 Installation on Mac

### 2.1 Method 1- Using Homebrew

Install PostgreSQL via Homebrew (a package manager for macOS):

```
1 brew install postgresql
```

Start the service:

```
1 brew services start postgresql
```

Install pgAdmin:

```
1 brew install --cask pgadmin4
```

## 2.2 Using the Installer

1. Download and run the PostgreSQL installer for macOS from <https://www.postgresql.org/download/macosx/>. Run the installer and follow the setup wizard, similar to Windows. Use the psql command to interact with the database.
2. Download and run pgAdmin installer from <https://www.pgadmin.org/download/>

The following steps should be identical between MAC and Linux.

## 3 Installation on Linux

1. Update system packages:

```
1 sudo apt update && sudo apt upgrade -y
```

2. Install PostgreSQL and associated tools:

```
1 sudo apt install postgresql postgresql-contrib -y
```

Check if PostgreSQL is installed and running: The status should say **active (exited)**

```
1 sudo systemctl status postgresql
```

If not, start the service: `sudo systemctl start postgresql`

3. Enable PostgreSQL to Start on Boot (Optional): `sudo systemctl enable postgresql`

4. When PostgreSQL is installed, it creates a default system user and database role named *postgres*. This user has administrative privileges and can perform any action on the database server. This helps separate it from the system-wide *sudo* user. Switch to this user with:

```
1 sudo -i -u postgres
```

5. Access the PostgreSQL shell: `psql`. To exit the shell type `\q`.

6. Create a new database user: `createuser --interactive`. Follow the prompts to setup.

7. Create a new database: `createdb mydatabase`

### 3.1 Install pgAdmin

pgAdmin is a web-based GUI for managing PostgreSQL databases. Import the pgAdmin public key, add the repository, and install with:

```
1 curl https://www.pgadmin.org/static/packages_pgadmin_org.pub | sudo gpg --dearmor -o /usr/share/keyrings/pgadmin.gpg
2 echo "deb [signed-by=/usr/share/keyrings/pgadmin.gpg] https://ftp.postgresql.org/pub/pgadmin/pgadmin4/apt/$(lsb_release -cs) pgadmin4 main" | sudo tee /etc/apt/sources.list.d/pgadmin4.list
3 sudo apt install pgadmin4-desktop -y
```

For the web mode:

```
1 sudo apt install pgadmin4-web -y
```

Configure it- follow the prompts to set up an email and password for accessing the web interface.

```
1 sudo /usr/pgadmin4/bin/setup-web.sh
```

### **3.2 Access pgAdmin**

- For the desktop mode, launch it from your application menu.
- For the web mode, open a browser and go to <http://127.0.0.1/pgadmin4>.

### **3.3 Connect pgAdmin to PostgreSQL**

1. Open pgAdmin and log in.
2. Right-click on **Servers** in the left panel and select **Create → Server**.
3. In the **General** tab, provide a name for the server.
4. In the **Connection** tab:
  - Hostname/Address: `localhost`
  - Port: 5432
  - Maintenance Database: `postgres`
  - Username: `postgres` (or the user you created earlier)
  - Password: The password for the `postgres` user.
5. Click **Save** to connect.

### **3.4 Test the Setup**

- Use pgAdmin to create a database, run queries, and manage your PostgreSQL server.
- Use the `psql` command-line tool to verify database functionality.