

pgAdmin 4 Setup Guide

What is pgAdmin?

pgAdmin4 is a free, open-source web-based GUI tool for managing PostgreSQL databases. It allows you to:

- Browse databases, tables, and data visually
- Run SQL queries
- Create and modify tables
- Monitor database performance
- Export/import data

Connection Setup

Step 1: First Launch

When pgAdmin4 first opens, it will:

1. Open in your browser automatically
2. Ask you to set a master password (used to encrypt saved passwords)
3. Set any password you like - this is just for pgAdmin, not PostgreSQL

Step 2: Add Server Connection

1. **Right-click "Servers"** in the left sidebar
2. Select "**Register**" → "**Server**"

Step 3: Configure Connection

General Tab:

- Name: **Local PostgreSQL** (or any name you prefer)

Connection Tab:

- Host name/address: **localhost**
- Port: **5432**
- Maintenance database: **postgres**
- Username: **aerloki** (your macOS username)
- Password: *Leave empty* (no password for local Homebrew PostgreSQL)
- Save password: Check this box

Advanced Tab (optional):

- DB restriction: **ecommerce** (to show only your e-commerce database)

Click **Save**

Browsing Your E-commerce Database

Once connected, navigate through the tree:

```
Servers
└ Local PostgreSQL (localhost:5432)
  └ Databases
    └ ecommerce
      └ Schemas
        └ public
          └ Tables
            └ users (3 test users)
            └ products (12 products with ASINs)
            └ orders (empty for now)
            └ order_items (empty for now)
```

Viewing Data

To view table data:

1. Expand **Tables** in the tree
2. Right-click on a table (e.g., **products**)
3. Select "**View/Edit Data**" → "**All Rows**"

To run SQL queries:

1. Click on database name **ecommerce**
2. Click **Tools** → **Query Tool** (or press **Alt+Shift+Q**)
3. Type your query:

```
-- View all products
SELECT * FROM products;

-- View products by category
SELECT * FROM products WHERE category = 'Electronics';

-- View all users
SELECT * FROM users;

-- Search products
SELECT * FROM products WHERE name ILIKE '%kindle%';
```

4. Click **Execute** (▶ button) or press **F5**

Useful Queries for Your E-commerce App

```

-- Count products by category
SELECT category, COUNT(*) as count
FROM products
GROUP BY category
ORDER BY count DESC;

-- Products under $50
SELECT name, price, asin
FROM products
WHERE price < 50
ORDER BY price;

-- Products with low stock (under 100)
SELECT name, stock, category
FROM products
WHERE stock < 100
ORDER BY stock;

-- View user details
SELECT email, name, address
FROM users;

-- Find product by ASIN
SELECT * FROM products
WHERE asin = 'B08N5WRwNW';

```

Adding Your Own Products

You can add products directly in pgAdmin:

1. Right-click **products** table
2. Select "**View/Edit Data**" → "**All Rows**"
3. In the data grid, click "+" button (Add row)
4. Fill in the fields:
 - ASIN: Unique identifier (e.g., **B0CUSTOM1**)
 - Name: Product name
 - Description: Product description
 - Price: Decimal price (e.g., **29.99**)
 - Stock: Integer quantity
 - Category: Category name
 - Image URL: Link to product image
 - Available: **true** or **false**
5. Click **Save** ( button)

Tips

- **Refresh button** (): Refreshes the tree view
- **SQL tab**: Shows SQL queries pgAdmin generates

- **Messages tab:** Shows query results and errors
- **Export:** Right-click table → **Import/Export** to export to CSV
- **Backup:** Right-click database → **Backup** to create backups

Troubleshooting

"Could not connect to server"

- PostgreSQL service not running
- Solution: `brew services start postgresql@16`

"Password authentication failed"

- Wrong username in connection settings
- Use username: `aerloki` (your macOS user)
- Leave password blank

"Database does not exist"

- Navigate to `postgres` database first
- Then look for `ecommerce` database in the list

Quick Access

pgAdmin URL: `http://localhost:52607` (or similar, opens automatically)

Database: ecommerce

Host: localhost:5432

Username: aerloki

Password: (none)

Your Database Structure

```
products table:  
- id (bigint, auto-increment)  
- asin (varchar, unique)  
- name (varchar)  
- description (text)  
- price (decimal)  
- stock (integer)  
- image_url (varchar)  
- category (varchar)  
- available (boolean)
```

```
users table:  
- id (bigint, auto-increment)  
- email (varchar, unique)  
- name (varchar)  
- password (varchar)  
- address (varchar)
```

- phone_number (varchar)

orders table:

- id (bigint, auto-increment)
- user_id (bigint, foreign key)
- total_amount (decimal)
- order_date (timestamp)
- status (enum)
- shipping_address (varchar)

order_items table:

- id (bigint, auto-increment)
- order_id (bigint, foreign key)
- product_id (bigint, foreign key)
- quantity (integer)
- price (decimal)