

Follow these steps to set up a `pgvector`-enabled PostgreSQL database using Docker:

Pull the pgvector Docker image:

Download the official `pgvector` image with PostgreSQL 16 by running:

```
docker pull pgvector/pgvector:pg16
```

Create a Docker volume for persistent storage

Create a volume to store the PostgreSQL data, so the database state persists even if the container stops:

bash

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```
docker volume create pgvector-data
```

Run the pgvector container

Start the `pgvector` container and map the PostgreSQL port (5432) to your local machine:

```
docker run --name pgvector-container -e POSTGRES_PASSWORD=password  
-p 5432:5432 -v pgvector-data:/var/lib/postgresql/data -d  
pgvector/pgvector:pg16
```

- **POSTGRES_PASSWORD:** Set the password for the PostgreSQL `postgres` user.
- **-p 5432:5432:** Maps port 5432 on your machine to the container.

Get the container's IP address

To connect to the container from external tools like pgAdmin, you need to get the container's IP address. Run the following command:

```
docker inspect -f  
'{{range.NetworkSettings.Networks}}{{.IPAddress}}{{end}}'  
pgvector-container
```

This will output the IP address of the running `pgvector` container.

pgAdmin Setup

Now that `pgvector` is running, you can set up `pgAdmin` to manage the PostgreSQL database:

Pull the pgAdmin Docker image

Download the official `pgAdmin` image by running:

bash

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```
docker pull dpage/pgadmin4
```

Run the pgAdmin container

Start the `pgAdmin` container, mapping its internal port (`80`) to your local port (`5050`):

```
docker run --name pgadmin-container -p 5050:80 -e
PGADMIN_DEFAULT_EMAIL=user@domain.com -e
PGADMIN_DEFAULT_PASSWORD=password -d dpage/pgadmin4
```

- **PGADMIN_DEFAULT_EMAIL**: Set the default admin email for logging into pgAdmin.
- **PGADMIN_DEFAULT_PASSWORD**: Set the default admin password.

Access pgAdmin

Once the `pgAdmin` container is running, open your browser and navigate to <http://localhost:5050>. Use the default email and password you set to log in.

Connecting pgAdmin to pgvector

After setting up both `pgvector` and `pgAdmin`, follow these steps to connect `pgAdmin` to your `pgvector` database:

1. **Add a new server in pgAdmin:**
 - Open `pgAdmin` in your browser (<http://localhost:5050>).
 - In the `pgAdmin` dashboard, right-click on `Servers` in the left sidebar and select **Create > Server**.
2. **Configure the connection:**
 - In the `General` tab, give your server a name (e.g., `pgvector-server`).
 - Switch to the `Connection` tab and provide the following details:
 - **Host**: Use the IP address you retrieved from the `docker inspect` command.
 - **Port**: `5432`
 - **Username**: `postgres`
 - **Password**: The password you set when running the `pgvector` container.
3. **Save and connect:**
 - Click **Save**. If everything is set up correctly, `pgAdmin` will connect to your `pgvector` database, and you can manage it from the `pgAdmin` interface.