

LiveSQL, PostgreSQL Installation

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1. Oracle LiveSQL (FreeSQL)

2. PostgreSQL

What is Oracle LiveSQL?

- <https://freesql.com/>
- Free, browser-based SQL environment (no local DB install)
- Run SQL & PL/SQL in a hosted Oracle Database
- Great for labs, demos, and sharing runnable scripts
- Not ideal for: production workloads, long-running jobs
- **An Oracle account is required to create or modify tables.**

What is Oracle LiveSQL?

The screenshot shows the Oracle LiveSQL web interface. The top navigation bar includes the 'FreeSQL' logo, 'Worksheet' and 'Library' tabs, a 'Run Current Statement' button with a play icon and a tooltip 'Executes only the SQL statement at the cursor', a user profile '23ai', and links for 'Connect with Java', 'Help and Feedback', and 'Sign Out'.

On the left, the 'Navigator' sidebar is highlighted with a red box. It contains a 'My Schema' dropdown, a 'Tables' dropdown, and a 'Search objects' input field. A red box around the 'Run Script' button (a play icon with a document) has a tooltip 'Executes the entire script in the worksheet'. Below the main editor, the 'Query result' tab is highlighted with a red box, showing a 'Download' button and a tooltip 'Displays the output of your executed query (result rows, messages, and execution status)'.

The main editor area is labeled 'SQL Worksheet: The main editor where you write and edit SQL queries'. The right sidebar, titled 'Library', shows a search bar and two featured items: a 'Tutorial' titled 'SQL Macros - Creating parameteris...' and a 'Script' titled 'How to Make Reusable SQL Pattern...'. Both items show their creation date as '5 years ago' and their execution statistics.

What is Oracle LiveSQL?

Example Screen

The screenshot displays the Oracle LiveSQL web interface. The top navigation bar includes the 'FreeSQL' logo, tabs for 'Worksheet' and 'Library', a '23ai' dropdown, a 'Connect to the Database' button, and links for 'Help and Feedback' and 'Sign Out'.

On the left, the 'Navigator' pane shows a tree structure with 'My Schema' and 'Tables'. A search bar labeled 'Search objects' is present, and a table named 'DEPT' is listed under the 'Tables' section.

The main workspace is titled '[SQL Worksheet]*'. It contains a SQL editor with the following code:

```
1 CREATE TABLE DEPT (  
2   DEPTNO NUMBER(2) CONSTRAINT PK_DEPT PRIMARY KEY,  
3   DNAME VARCHAR2(14),  
4   LOC VARCHAR2(13)  
5 );
```

Below the editor, the 'Script output' tab is active, showing the execution results:

```
SQL> CREATE TABLE DEPT (  
      DEPTNO NUMBER(2) CONSTRAINT PK_DEPT PRIMARY KEY,  
      DNAME VARCHAR2(14),  
      LOC VARCHAR2(13)...  
Show more...
```

Below the output, a message states 'Table DEPT created.' and the execution time is shown as 'Elapsed: 00:00:00.025'.

What is PostgreSQL?

- PostgreSQL is a free, open-source **relational database management system (RDBMS)**.
- It supports **SQL** and follows **ACID** principles for reliable data storage and transactions.
- It is widely used in industry and academia for applications ranging from small projects to large-scale systems.
- It offers rich features such as **indexes, constraints, views and extensions**.

What is Docker?

- **Docker** is a platform for packaging and running software in **containers**.
- Containers bundle an application with its dependencies, so it runs **consistently across different environments**.
- Docker makes setup fast and repeatable, without installing complex software directly on your machine.
- It is commonly used for development, testing, and deployment workflows.

Install Docker and PostgreSQL

- Download and install Docker Desktop: <https://www.docker.com/products/docker-desktop/>
- Copy & paste below commands to download and start PostgreSQL in a Docker container.

```
$ docker pull postgres:16
$ docker run --name pg-lab \
  -e POSTGRES_USER=lab \
  -e POSTGRES_PASSWORD=1234 \
  -e POSTGRES_DB=db \
  -d postgres:16
$ docker exec -it pg-lab psql -U lab -d db
```

```
(base) 2 base kyong ~/Desktop docker pull postgres:16
16: Pulling from library/postgres
ec2a79bda533: Pull complete
0c71b46e8c99: Pull complete
15b2fd756711: Pull complete
1fd242339bc8: Pull complete
aa19b916d154: Pull complete
8cbeed11a99d: Pull complete
107ddec246f8: Pull complete
73df170eac42: Pull complete
eaa471b9c1c5: Pull complete
a47938761da3: Pull complete
2ae15a201602: Pull complete
b5f374a236c0: Pull complete
26b9f2cade02: Pull complete
8bb8fef25c32: Pull complete
7b60fee860be: Download complete
ae4d81614315: Download complete
Digest: sha256:056b54f00419b49289227ab12d09df508543883f407fe9935a2cec430ef8aa8d
Status: Downloaded newer image for postgres:16
docker.io/library/postgres:16
(base) 2 base kyong ~/Desktop docker run --name pg-lab \
> -e POSTGRES_USER=lab \
> -e POSTGRES_PASSWORD=1234 \
> -e POSTGRES_DB=db \
> -d postgres:16
32a99faeecd358d4dcfb6fb3eb7236a3de78cf2484a2a0bec81169e3056f0e04
(base) 2 base kyong ~/Desktop docker exec -it pg-lab psql -U lab -d db
psql (16.11 (Debian 16.11-1.pgdg13+1))
Type "help" for help.

db=#
```

Screenshot

Run PostgreSQL

- how to exit: type “exit” (postgres=# exit)
- Test sql
 - postgres=# SELECT version();
- Commands
 - \h: help
 - \dt: list of tables
 - \du: user roles
 - \q: quit
 - run command with + (ex: \dt+) for more details