CREATE USER/ROLE to Add Users

by Sophia

WHAT'S COVERED

This lesson explores creating users in a database, in two parts. Specifically, this lesson will cover:

1. Roles, Users, and Groups

Roles are entities used for authentication and access control. A role can represent individual users, groups, or other entities such as services or applications. You can see what roles exist in your database by running this statement:

```
SELECT rolname
FROM pg_roles;
```

Note that the column is rolname and not rolename.

Login roles are roles assigned to users that determine their ability to connect to the database. Login roles are created using the CREATE ROLE statement with the LOGIN option. For our purposes in this course, a login role can be considered roughly equivalent to a user account.

We can also create and use group roles. Group roles are roles that represent groups of users. **Group roles** are created using the CREATE ROLE statement with the GROUP option.

KEY CONCEPT

PostgreSQL also has an organizing unit called a group, and a CREATE GROUP command, but that is normally used to manage database objects, not user accounts.

Privileges are permissions assigned to roles, such as the ability to view or edit certain tables or run certain SQL commands. We assign privileges to group roles to efficiently grant the same privileges to multiple users. You assign a group role to user accounts and then assign the permissions to the group role. Its privileges are applied to each user account in the group.

HINT

It is a best practice to apply privileges only to groups, not individual user accounts, because it simplifies administration.

TERMS TO KNOW

Role
Entity used for authentication and access control.

Login Role
A role that determines the ability of a user to connect to the database.

Group Role
A role that represents a group of users and is used to assign privileges to them.

Privilege
A permission assigned to a role, such as the ability to add or update records.

2. CREATE ROLE

To create a user account and give them permission to login, you can use the **CREATE ROLE** statement:

```
CREATE ROLE username PASSWORD 'password' LOGIN;
```

Note that the username is not in quotation marks, but the password is.

An alternative method of creating a user account with login permission is to use the CREATE USER statement with the LOGIN option:

```
CREATE USER username PASSWORD 'password' LOGIN;
```

Both methods have the same end result of creating a user account that can login. The LOGIN parameter can be placed anywhere in the statement; it does not need to be at the end.

TERM TO KNOW

CREATE ROLE
A statement that creates a new role in a PostgreSQL database.

3. Other Attributes

As you are creating new accounts with CREATE ROLE, you can optionally assign additional attributes. The SUPERUSER attribute, for example, is one that can override all access restrictions in the database. It is a role that should be used only when truly needed, as it can basically do anything in a database. It would look like this:

```
CREATE ROLE adminaccount
SUPERUSER
LOGIN
PASSWORD 'secretpassword';
```

Another type of role is one that can create other databases in PostgreSQL. For this, the CREATEDB attribute is needed:

```
CREATE ROLE dbaccount
CREATEDB
LOGIN
PASSWORD 'securePass1';
```

The VALID UNTIL attribute can also be used. This enables you to enter a date and time after which the role's password is no longer valid, and the user can no longer login. This can be useful for individuals who may only work at the company for a short time, such as a contractor.

```
CREATE ROLE contractaccount
LOGIN
PASSWORD 'securePass1'
VALID UNTIL '2027-01-01';
```

After January 1st, 2027, the password for the role contractaccount is no longer valid.

TRY IT

Your turn! Open the SQL tool by clicking on the LAUNCH DATABASE button below. Then, enter one of the examples above and see how it works. Next, try your own choices for which columns you want the query to provide.

SUMMARY

In this lesson you learned about **roles, users, and groups**, and how they are used to control authentication and access. Each individual user has their own account, which can be created with the **CREATE ROLE** or CREATE USER statement. Rather than assigning access privileges to these individual user accounts, the best practice is to create group roles and then assign privileges to the groups. You can create groups with the CREATE ROLE or CREATE GROUP statement.

As you are creating user accounts, you can optionally assign certain **other attributes** to them. Some of the common ones you saw in this lesson include PASSWORD, LOGIN, SUPERUSER, CREATEDB, and VALID UNTIL.

Source: THIS TUTORIAL WAS AUTHORED BY DR. VINCENT TRAN, PHD (2020) AND FAITHE WEMPEN (2024) FOR SOPHIA LEARNING. PLEASE SEE OUR **TERMS OF USE**.

TERMS TO KNOW

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