

Authentication and Authorization in Postgres

pg_hba.conf File

Rules can be added to the pg_hba.conf file to configure host-based authentication.

The entries all follow the same format:

```
connection_type db user address auth_method  
[auth_options]
```

The example entry shows an entry that will:

- allow SSL connections
- to database db_example
- for members of g_example group
- on the same network as the server
- and use sha-256 password authentication.

```
# entry format  
connection_type db user address  
auth_method [auth_options]  
  
# example entry  
hostssl db_example +g_example samenet  
scram-sha-256
```

Server Configuration: postgresql.conf File

The listen_addresses , port , and ssl parameters in the postgresql.conf file can be updated to ensure secure server configuration.

- The listen_addresses parameter controls what IP addresses are allowed to connect to the server.
- The port parameter is the port the Postgres server listens on.
- The ssl parameter determines whether or not the server will support SSL connections.

```
listen_addresses = 'localhost'  
port = 5432  
ssl = off
```

CREATE ROLE and Least Privilege

In SQL, the CREATE ROLE command can be used to help create an access control that follows the **principle of least privilege**.

CREATE ROLE follows the format CREATE ROLE role_name [options]; .

The code example shows a command that creates a role named p_customers_read which can read the customer table.

```
CREATE ROLE p_customers_read;
```

GRANT and Least Privilege

In SQL, the GRANT command can be used to create an access control system that follows the **principle of least privilege**.

GRANT has two formats:

- GRANT PERMISSION ON table TO role; which grants permissions to a role
- GRANT p_example TO g_example; which assigns the permissions of the first role to the second role

The example code gives the p_customers_read role permission to SELECT items in the customers table.

```
GRANT SELECT ON customers TO  
p_customers_read;
```

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