

# 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

```
GRANT SELECT ON customers TO
```

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.

```
p_customers_read;
```



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