



Installing PostgreSQL on Windows

Topics to be covered:

- Installing PostgreSQL on windows 10 devices
- Basic command line options

What is PostgreSQL?

PostgreSQL, also known as Postgres, is a free and open-source relational database management system emphasizing extensibility and SQL compliance.

[PostgreSQL Installation Link](#)

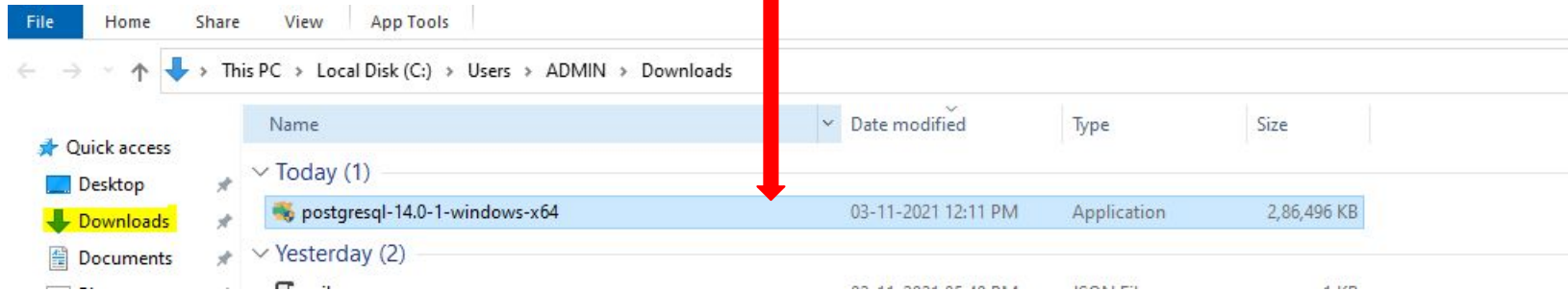
PostgreSQL Database Download

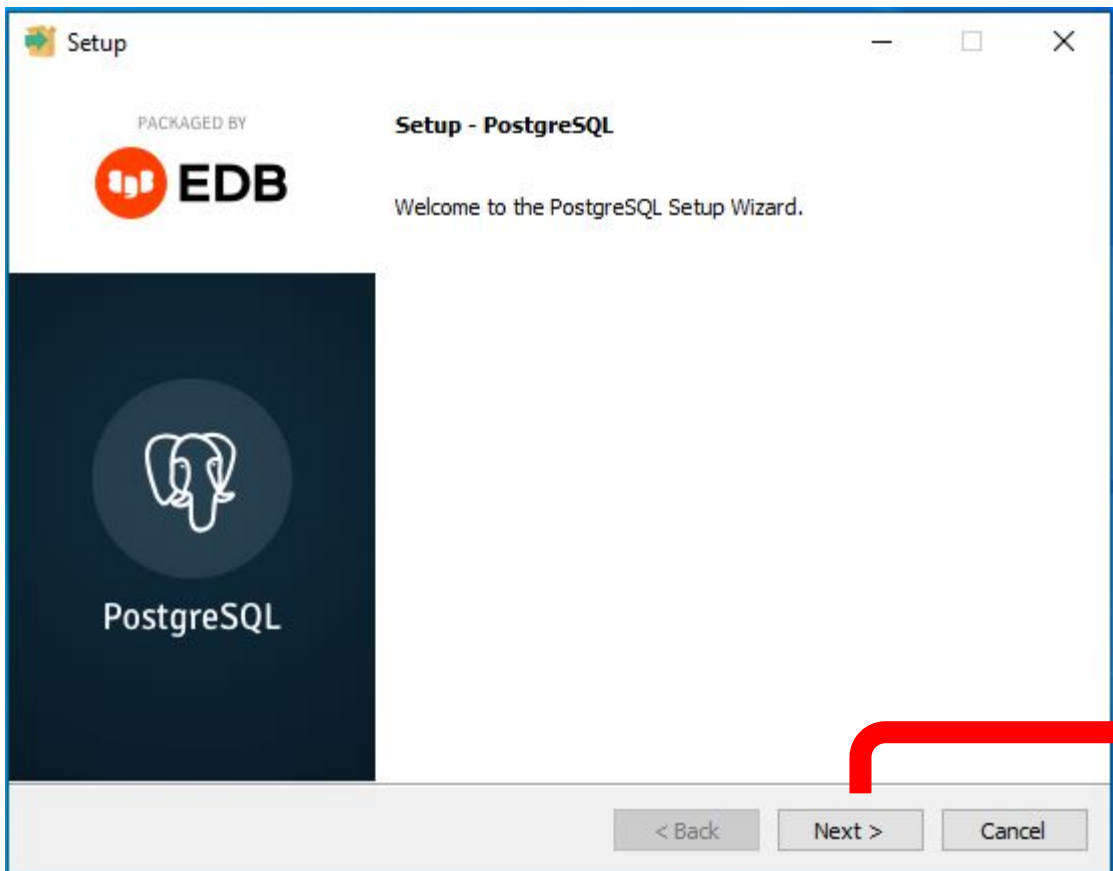
Click here
if you have
a 64 bit OS

Version	Linux x86-64	Linux x86-32	Mac OS X	Windows x86-64	Windows x86-32
14	N/A	N/A	Download	Download	N/A
13.4	N/A	N/A	Download	Download	N/A
12.8	N/A	N/A	Download	Download	N/A
11.13	N/A	N/A	Download	Download	N/A
10.18	Download	Download	Download	Download	Download
9.6.23	Download	Download	Download	Download	Download
9.5.25 (Not Supported)	Download	Download	Download	Download	Download

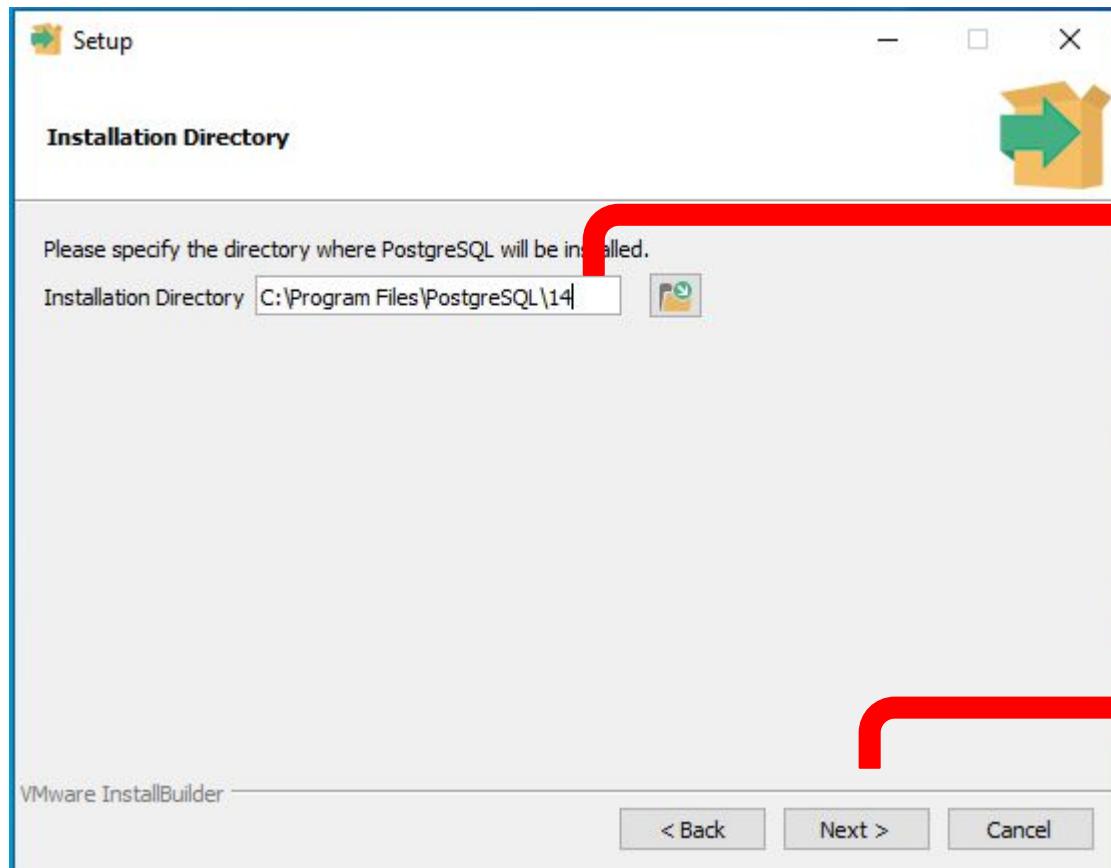
Click here
if you have
a 32 bit OS

In your Downloads folder, right click on the installer and click on Run as Administrator





We will be using all the Default settings.
Click on Next



Your application will be installed in this path

We will be using all the Default settings.
Click on Next



Setup

Select Components



Select the components you want to install; clear the components you do not want to install. Click Next when you are ready to continue.

- ☒ PostgreSQL Server
- ☒ pgAdmin 4
- ☒ Stack Builder
- ☒ Command Line Tools

Click on a component to get a detailed description

VMware InstallBuilder

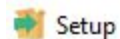
< Back

Next >

Cancel

We will install all the components at this time

We will be using all the Default settings.
Click on Next



Setup



Data Directory

Please select a directory under which to store your data.

Data Directory



VMware InstallBuilder

< Back

Next >

Cancel

We will be using all the Default settings.
Click on Next

Setup

Password

Please provide a password for the database superuser (postgres).

Password

Retype password

VMware InstallBuilder

< Back Next > Cancel

Enter a suitable password here
You will need this password to login
to your database
Make a note of this password



Setup



Port

Please select the port number the server should listen on.

Port

VMware InstallBuilder

< Back

Next >

Cancel

This is the default port.

Make sure that no other application is using this port

The database server will listen on this port

We will be using all the Default settings.
Click on Next




Setup



Advanced Options



Select the locale to be used by the new database cluster.

Locale [Default locale] 

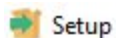
Click on Next

VMware InstallBuilder

< Back

Next >

Cancel



Setup



Pre Installation Summary

The following settings will be used for the installation::

Installation Directory: C:\Program Files\PostgreSQL\14
Server Installation Directory: C:\Program Files\PostgreSQL\14
Data Directory: C:\Program Files\PostgreSQL\14\data
Database Port: 5432
Database Superuser: postgres
Operating System Account: NT AUTHORITY\NetworkService
Database Service: postgresql-x64-14
Command Line Tools Installation Directory: C:\Program Files\PostgreSQL\14
pgAdmin4 Installation Directory: C:\Program Files\PostgreSQL\14\pgAdmin 4
Stack Builder Installation Directory: C:\Program Files\PostgreSQL\14

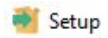
Click on Next

/Mware InstallBuilder

< Back

Next >

Cancel



Setup



Ready to Install

Setup is now ready to begin installing PostgreSQL on your computer.

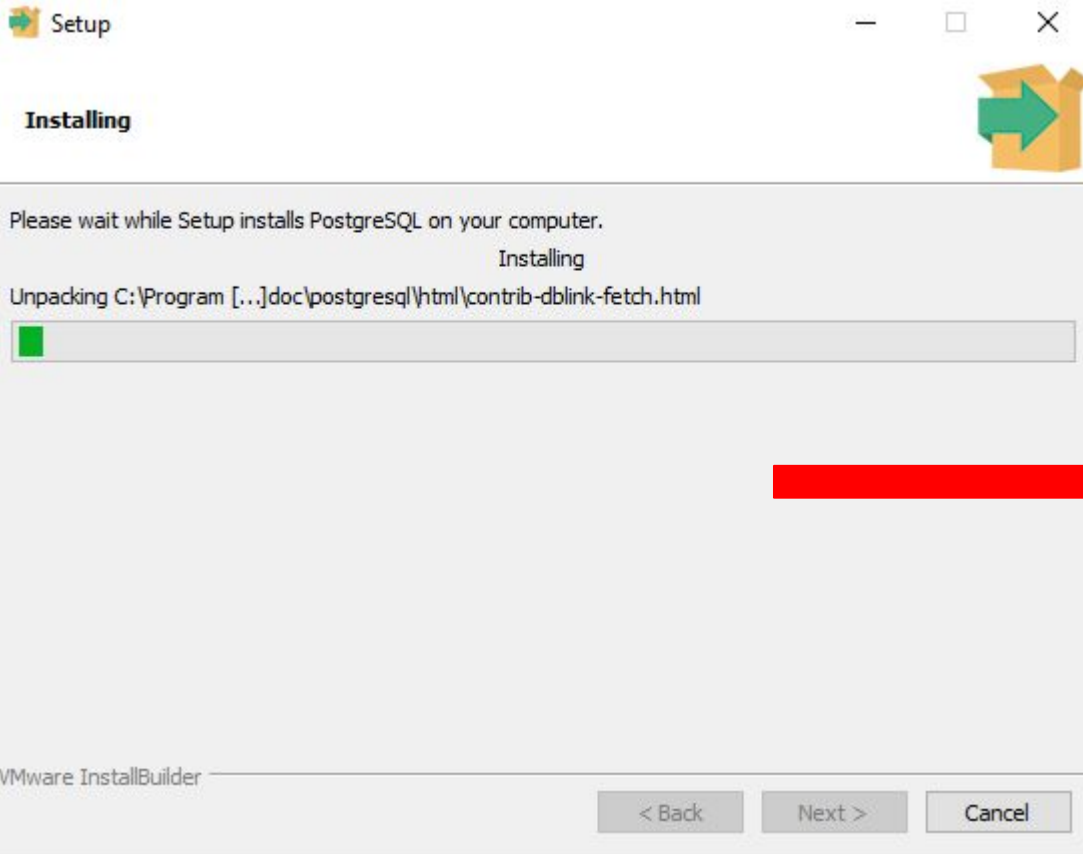
VMware InstallBuilder

< Back

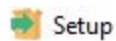
Next >

Cancel

Click on Next



Installation could take around 5-10 minutes based on your machine performance



PACKAGED BY



Completing the PostgreSQL Setup Wizard

Setup has finished installing PostgreSQL on your computer.

Launch Stack Builder at exit?

- ☐ Stack Builder may be used to download and install additional tools, drivers and applications to complement your PostgreSQL installation.

Uncheck this box

PostgreSQL

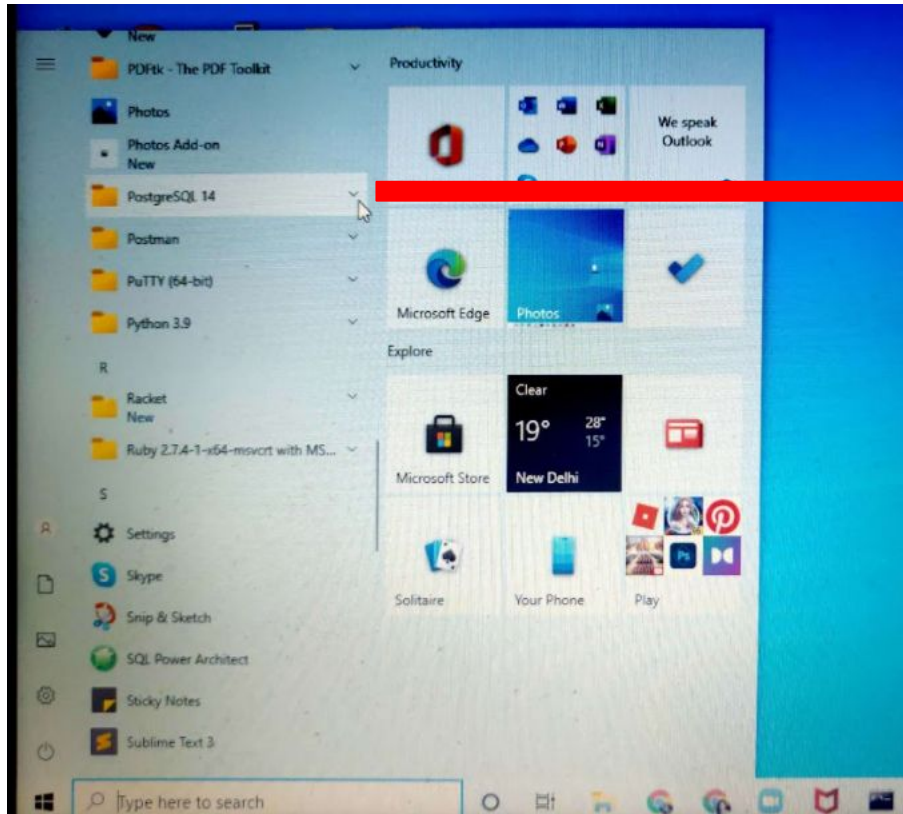
Click on Finish

< Back

Finish

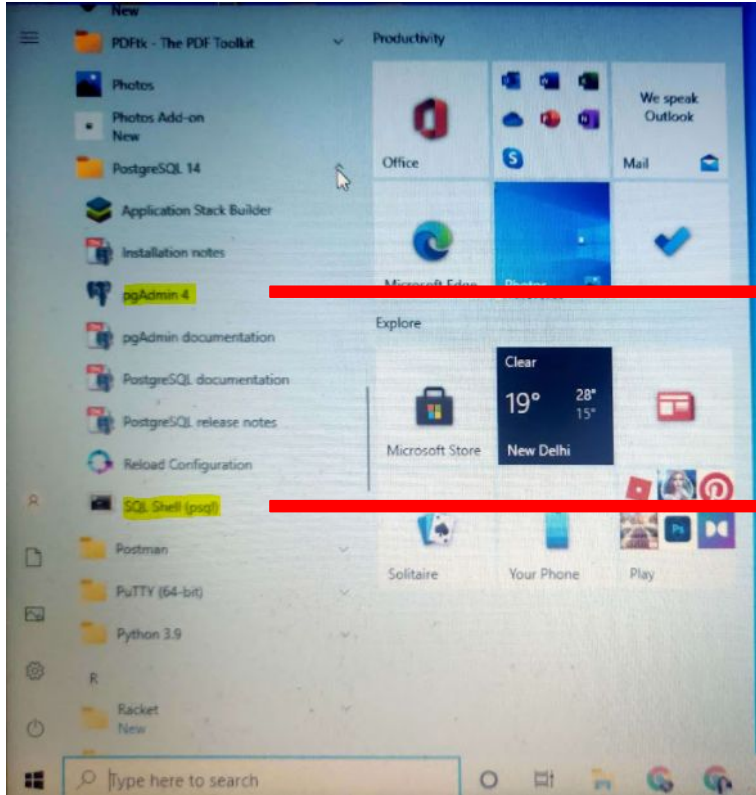
Cancel

In your Start Menu (Click on the windows icon on your taskbar), search for PostgreSQL 14



For 64 bit OS: PostgreSQL 14
For 32 bit OS: PostgreSQL 10.8

Click on the arrow beside PostgreSQL 14 to expand the options




pgAdmin 4:

pgAdmin is a web-based GUI tool used to interact with the Postgres database sessions, both locally and remote servers as well.

SQL Shell (psql):

psql is a terminal-based front-end to PostgreSQL. It enables you to type in queries interactively, issue them to PostgreSQL, and see the query results. Alternatively, input can be from a file or from command line arguments.

SQL Shell (psql)

 SQL Shell (psql)

```
Server [localhost]:  
Database [postgres]:  
Port [5432]:  
Username [postgres]:  
Password for user postgres: _____  
psql (14.0)  
WARNING: Console code page (850) differs from Windows code page (1252)  
         8-bit characters might not work correctly. See psql reference  
         page "Notes for Windows users" for details.  
Type "help" for help. _____
```

Enter the password that was set during installation (See slide11)

This warning can be ignored!

`\l` command lists all the databases that exist on your machine

```
postgres=# \l
```

List of databases					
Name	Owner	Encoding	Collate	Ctype	Access privileges
postgres	postgres	UTF8	English_India.1252	English_India.1252	
template0	postgres	UTF8	English_India.1252	English_India.1252	=c/postgres + postgres=CTc/postgres
template1	postgres	UTF8	English_India.1252	English_India.1252	=c/postgres + postgres=CTc/postgres
(3 rows)					

Default Database created at the time of installation

Command to create a new database named 'mydb'

Note: Do not forget the semi colon at the end!

```
postgres=# create database mydb;  
CREATE DATABASE  
postgres=# \l
```

List of databases					
Name	Owner	Encoding	Collate	Ctype	Access privileges
mydb	postgres	UTF8	English_India.1252	English_India.1252	
postgres	postgres	UTF8	English_India.1252	English_India.1252	
template0	postgres	UTF8	English_India.1252	English_India.1252	=c/postgres + postgres=CTc/postgres
template1	postgres	UTF8	English_India.1252	English_India.1252	=c/postgres + postgres=CTc/postgres
(4 rows)					

\l command lists the new database 'mydb' that was created using the above command

```
postgres=# create user testuser with password 'pass';
```

```
CREATE ROLE
```

```
postgres=# \c mydb
```

```
You are now connected to database "mydb" as user "postgres".
```

```
mydb=# \c postgres
```

```
You are now connected to database "postgres" as user "postgres".
```

```
postgres=# \c mydb
```

```
You are now connected to database "mydb" as user "postgres".
```

```
mydb=# create schema demo;
```

```
CREATE SCHEMA
```

```
mydb=# create table demo.test(firstname CHAR(10), lastname CHAR(20));
```

```
CREATE TABLE
```

```
mydb=# \d demo.test;
```

```
Table "demo.test"
Column |      Type      | Collation | Nullable | Default
-----+-----+-----+-----+-----
firstname | character(10) |          |          |
lastname  | character(20) |          |          |
```

```
mydb=# select * from demo.test;
```

```
firstname | lastname
```

```
-----+-----
```

```
(0 rows)
```

```
mydb=# insert into demo.test values('John','Doe');
```

```
INSERT 0 1
```

```
mydb=# select * from demo.test;
```

```
firstname | lastname
```

```
-----+-----
```

```
John      | Doe
```

```
(1 row)
```

Command to create a new user 'testuser' with password 'pass'

Command to connect to a DB: `\c <DB name>`

Schema to manage your tables and views. Default schema **public**

Command to create table:

`create <schema_name.table_name> (column1 type,column2 type,
... constraints)`

Command to describe table: `\d <schema_name.table_name>`

Command to display specific columns in a table:

`select column_name from <schema_name.table_name>`

Command to display all columns in a table:

`select * from <schema_name.table_name>`

Command to insert data in a table:

`Insert into <schema_name.table_name> values(value1, value2..)`

Adding constraints like Primary Key after the table has been created

```
mydb=# alter table demo.test
mydb=# ADD constraint test_pk PRIMARY KEY (firstname);
ALTER TABLE
mydb=# \d demo.test
```

Table "demo.test"				
Column	Type	Collation	Nullable	Default
firstname	character(10)		not null	
lastname	character(20)			

Indexes:

```
"test_pk" PRIMARY KEY, btree (firstname)
```


PgAdmin 4 screenshots

The screenshot displays the PgAdmin 4 web interface. On the left, the 'Browser' pane shows a tree structure of database objects. A red arrow points from the 'postgres' database entry to a red box labeled 'Default DB'. Another red arrow points from the 'mydb' database entry to a red box labeled 'Newly created DB'. The main pane shows the 'Database sessions' dashboard with various metrics and a 'Server activity' table.

Browser

- Servers (1)
 - PostgreSQL 14
 - Databases (2)
 - mydb
 - postgres
 - Login/Group Roles (13)
 - pg_database_owner
 - pg_execute_server_program
 - pg_monitor
 - pg_read_all_data
 - pg_read_all_settings
 - pg_read_all_stats
 - pg_read_server_files
 - pg_signal_backend
 - pg_stat_scan_tables
 - pg_write_all_data
 - pg_write_server_files
 - postgres
 - testuser
 - Tablespaces

Database sessions

	Total	Active	Idle	Transactions per seco
1				1
0				0

Tuples in

	Inserts	Updates	Delete
1			
0			

Tuples out

	Fetches	Returned
1		
0		

Server activity

Sessions						
		PID	User	Application	Client	Backend start
✖	■	8700	postgres	pgAdmin 4 - DB:postgres	::1	2021-11-03 13:37:26 EDT

pgAdmin 4

File Object Tools Help

Browser

Servers (1)

- PostgreSQL 14
 - Databases (2)
 - mydb
 - Casts
 - Catalogs
 - Event Triggers
 - Extensions
 - Foreign Data Wrappers
 - Languages
 - Publications
 - Schemas (2)
 - demo
 - public
 - Subscriptions
 - postgres
 - Login/Group Roles (13)
 - postgres

Database sessions

Tuples in

Inserts Updates Delete

demo

public

Newly created schema

Default Schema

- ▼ Databases (2)
 - ▼ mydb
 - > Casts
 - > Catalogs
 - > Event Triggers
 - > Extensions
 - > Foreign Data Wrappers
 - > Languages
 - > Publications
 - ▼ Schemas (2)
 - ▼ demo
 - > Collations
 - > Domains
 - > FTS Configurations
 - > FTS Dictionaries
 - > FTS Parsers
 - > FTS Templates
 - > Foreign Tables
 - > Functions
 - > Materialized Views
 - > Procedures
 - > Sequences
 - ▼ Tables (1)
 - ▼ test
 - ▼ Columns (2)
 - firstname
 - lastname

Newly created
table



Tuples in

Inserts Up

1

0

Server activity

Sessions

Locks

Prepared Tra

			PID	User
✖	■	▶	1488	postgres
✖	■	▶	13832	postgres

In case of any questions/doubts, you can:

- Post your questions on edstem
- Email at tfb9946@nyu.edu