Install PostgreSQL 11 on Ubuntu 20.04/18.04/16.04

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This short guide will help you to Install PostgreSQL 11 on Ubuntu 20.04/18.04/16.04. PostgreSQL Server is a robust open source and highly-extensible database server. PostgreSQL provides object-relational database system allowing you to manage extensive SQL datasets.

Key PostgreSQL 11 Enhancements:

- Improvements to partitioning functionality
- SQL stored procedures that support embedded transactions
- Improvements to parallelism
- Window functions now support all framing options shown in the SQL:2011 standard
- Optional Just-in-Time (JIT) compilation for some SQL code, speeding evaluation of expressions
- Performance improvements, including the ability to avoid a table rewrite for ALTER TABLE … ADD COLUMN with a non-null column default
- Covering indexes can now be created, using the INCLUDE clause of CREATE INDEX

For CentOS / Fedora, refer to:

How to install PostgreSQL 11 on Fedora

How to install PostgreSQL 11 on CentOS 7

How to install PostgreSQL 11 on CentOS 8 / RHEL 8

The Release page highlights all the new features available in PostgreSQL 11. Follow the steps provided in the next sections to install PostgreSQL 11 on Ubuntu 20.04/18.04/16.04.

Step 1: Update system and install dependencies

It is recommended to update your current system packages if it is a new server instance.

```
sudo apt update && sudo apt -y upgrade
sudo reboot
```

Once the system is rebooted, install `vim` and `wget` if not already installed.

```
sudo apt install -y wget vim
```

Step 2: Add PostgreSQL 11 APT repository

Before adding repository content to your Ubuntu 20.04/18.04/16.04 system, you need to import the repository signing key:

```
wget --quiet -O - https://www.postgresql.org/media/keys/ACCC4CF8.asc | su
```

After importing GPG key, add repository contents to your Ubuntu 20.04/18.04/16.04 system:

```
RELEASE=$(lsb_release -cs)
echo "deb http://apt.postgresql.org/pub/repos/apt/ ${RELEASE}"-pgdg main
```

Verify repository file contents

```
$ cat /etc/apt/sources.list.d/pgdg.list
deb http://apt.postgresql.org/pub/repos/apt/ bionic-pgdg main
```

Step 3: Install PostgreSQL 11 on Ubuntu 20.04/18.04/16.04

The last installation step is for PostgreSQL 11 packages. Run the following commands to install PostgreSQL 11 on Ubuntu 20.04/18.04/16.04.

```
sudo apt update
sudo apt -y install postgresql-11
```

Step 4: Allow access to PostgreSQL from remote hosts

By default, access to PostgreSQL database server is only from localhost.

```
$ sudo ss -tunelp | grep 5432
tcp   LISTEN  0  128   127.0.0.1:5432       0.0.0.0:*       users:(("post
```

To allow network access, edit configuration file:

```
sudo vim /etc/postgresql/11/main/postgresql.conf
```

Add below line under **CONNECTIONS AND AUTHENTICATION** section.

```
listen_addresses = '*'
```

You can also specify server IP Address

```
listen_addresses = '192.168.17.12'
```

See below screenshot.

```
#-------------------------------------------------------------------------
# CONNECTIONS AND AUTHENTICATION
#-------------------------------------------------------------------------

# - Connection Settings -

listen_addresses = '*'

#listen_addresses = 'localhost'          # what IP address(es) to listen on;
                                         # comma-separated list of addresses;
                                         # defaults to 'localhost'; use '*' for all
                                         # (change requires restart)
port = 5432                              # (change requires restart)
max_connections = 100                    # (change requires restart)
#superuser_reserved_connections = 3      # (change requires restart)
unix_socket_directories = '/var/run/postgresql' # comma-separated list of directories
                                         # (change requires restart)
#unix_socket_group = ''                  # (change requires restart)
#unix_socket_permissions = 0777          # begin with 0 to use octal notation
                                         # (change requires restart)
#bonjour = off                           # advertise server via Bonjour
                                         # (change requires restart)
#bonjour_name = ''                       # defaults to the computer name
                                         # (change requires restart)
```

Don't forget to restart `postgresql` service after making the change

```
sudo systemctl restart postgresql
```

Confirm the bind address for PostgreSQL:

```
$ sudo ss -tunelp | grep 5432
tcp    LISTEN   0        128      0.0.0.0:5432            0.0.0.0:*        users:((
```

If you have an active UFW firewall, allow port 5432

```
sudo ufw allow 5432/tcp
```

Step 5: Set PostgreSQL admin user's password and do testing

Set a password for the default admin user

```
$ sudo su - postgres
postgres@os1:~$ psql -c "alter user postgres with password 'StrongPasswor
ALTER ROLE
```

You can also add other database users:

```
createuser dbuser1
```

Add test database:

```
postgres@ubuntu-01:~$ createdb testdb -O dbuser1
```

Do a test operationg by logging in as a **dbuser1** and operating on **testdb**

```
~$ psql -l  | grep testdb
 testdb     | dbuser1  | LATIN1   | en_US   | en_US |
```

Set user password:

```
$ psql
psql (11.2 (Ubuntu 11.2-1.pgdg18.04+1))
Type "help" for help.
postgres=# alter user dbuser1 with password 'DBPassword';
ALTER ROLE
```

Create table and add some dummy data:

```
testdb=# create table test_table ( id int,first_name text, last_name text
CREATE TABLE
testdb=# insert into test_table (id,first_name,last_name) values (1,'John
INSERT 0 1
```

Show table data

```
testdb=#  select * from test_table;
 id | first_name | last_name
----+------------+-----------
  1 | John       | Doe
(1 row)
```

Drop our test table

```
testdb=# DROP TABLE test_table;
DROP TABLE
testdb=# \q
```

Drop test database

```
postgres@ubuntu-01:~$ dropdb testdb;
```

Step 6: Install Web Management Tool (Optional)

For easy administration, consider installing pgAdmin 4 onto your Ubuntu system.

How to install pgAdmin4 on Ubuntu

You have successfully installed PostgreSQL database server on Ubuntu 18.04 / Ubuntu 16.04
and performed a couple tests.

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