THIS NOTES WILL PROVIDE A BRIEF IDEA ABOUT THE INSTALLATION OF POSTGRESQL USING RPM PACKAGES.
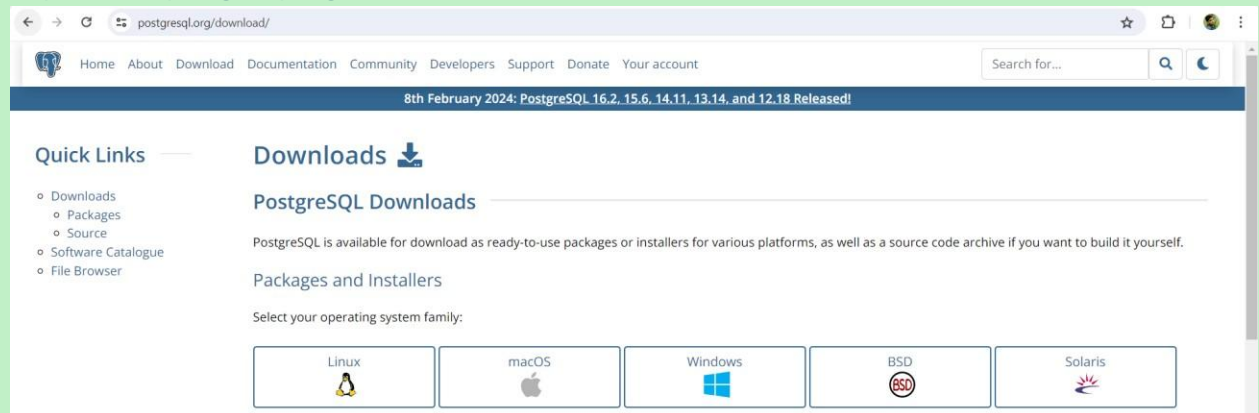
THINGS MAY VARY DEPENDING ON THE OS CONFIGURATION

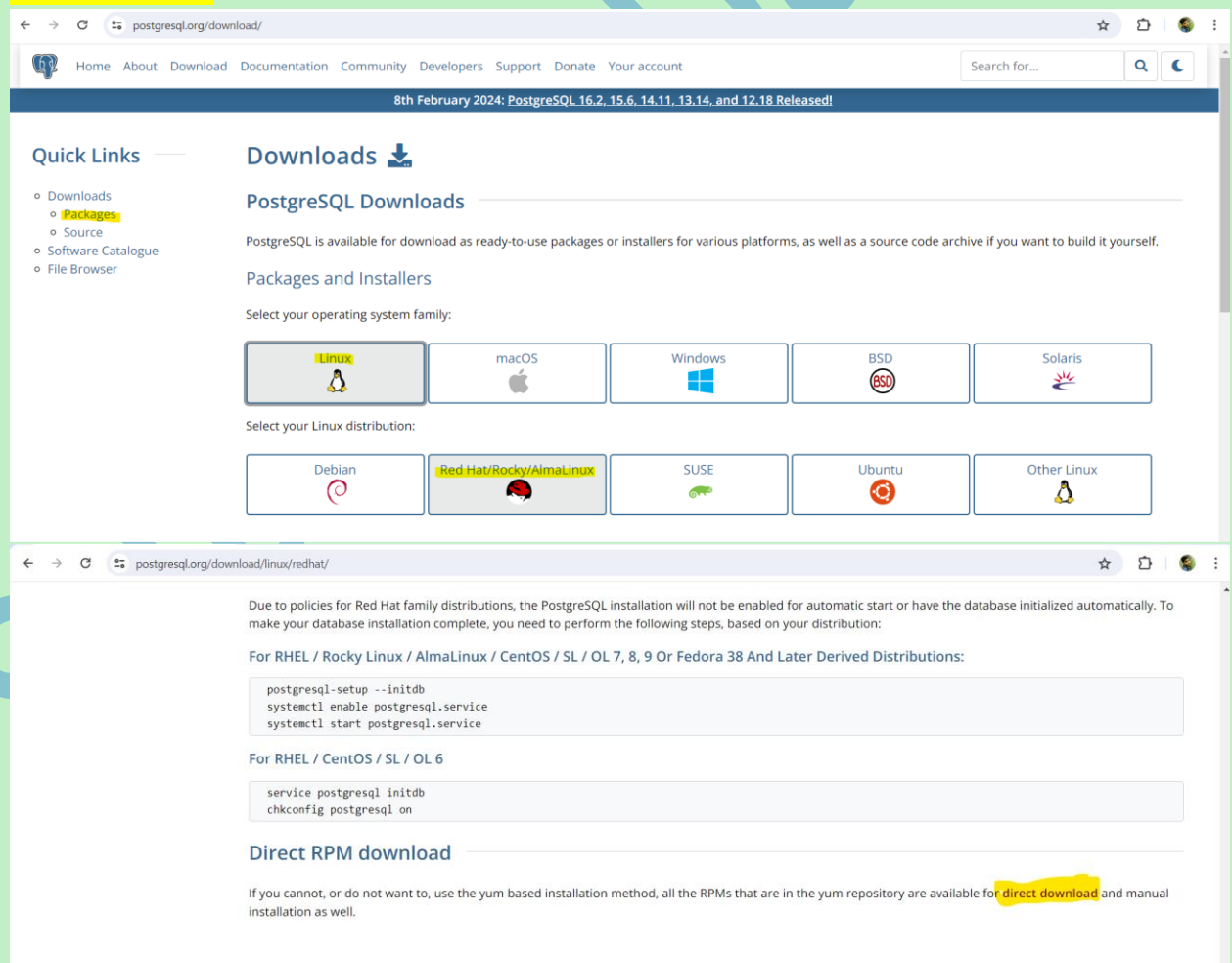Prepared By: Subham Dash

# PostgreSQL

# Installation

# Using

# RPM

# Packages

1. Go to the PostgreSQL Download site
   https://www.postgresql.org/download/



2. Select Package installation, choose the OS family, scroll down to bottom and click on directdownload.



https://yum.postgresql.org/rpmchart/

3. Select the required PostgreSQL version



## PostgreSQL 15

Browse the entire set of repositories for PostgreSQL 15.

| OS/Arch | Status |
| --- | --- |
| RHEL / Rocky Linux / AlmaLinux 9 - x86_64 | Available |
| RHEL / Rocky Linux / AlmaLinux 9 - aarch64 | Available |
| RHEL / Rocky Linux / AlmaLinux 8 - x86_64 | Available |
| RHEL / Rocky Linux / AlmaLinux 8 - aarch64 | Available |
| RHEL / CentOS 7 - x86_64 | Available |
| RHEL / CentOS 7 - aarch64 | Available |
| RHEL / CentOS 7 - ppc64le | Available |
| Fedora 39 - x86_64 | Available |
| Fedora 38 - x86_64 | Available |

4. Download the 4 RPM packages (PGDG, CONTRIB, LIB, SERVER)



`postgresql15-15.6-1PGDG.rhel9.x86_64.rpm`

wget https://download.postgresql.org/pub/repos/yum/15/redhat/rhel-9-x86_64/postgresql15-15.6-1PGDG.rhel9.x86_64.rpm

`postgresql15-contrib-15.6-1PGDG.rhel9.x86_64.rpm`

wget https://download.postgresql.org/pub/repos/yum/15/redhat/rhel-9-x86_64/postgresql15- contrib-15.6-1PGDG.rhel9.x86_64.rpm

```
[root@localhost packages]# wget https://download.postgresql.org/pub/repos/yum/15/redhat/rhel-9-x86_64/postgresql15-contrib-15.6-1PGDG.rhel9.x86_64.rpm
--2024-04-28 18:10:22--  https://download.postgresql.org/pub/repos/yum/15/redhat/rhel-9-x86_64/postgresql15-contrib-15.6-1PGDG.rhel9.x86_64.rpm
Resolving download.postgresql.org (download.postgresql.org)... 217.196.149.55, 87.238.57.227, 72.32.157.246, ...
Connecting to download.postgresql.org (download.postgresql.org)|217.196.149.55|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 732632 (715K) [application/x-redhat-package-manager]
Saving to: 'postgresql15-contrib-15.6-1PGDG.rhel9.x86_64.rpm'

postgresql15-contrib-15.6-1PGDG.rhel9.x86_64.rp 100%[===================================================================================================================>] 715.46K  1.06MB/s    in 0.7s

2024-04-28 18:10:24 (1.06 MB/s) - 'postgresql15-contrib-15.6-1PGDG.rhel9.x86_64.rpm' saved [732632/732632]
```

`postgresql15-libs-15.6-1PGDG.rhel9.x86_64.rpm`

wget https://download.postgresql.org/pub/repos/yum/15/redhat/rhel-9-x86_64/postgresql15-libs- 15.6-1PGDG.rhel9.x86_64.rpm

```
[root@localhost packages]# wget https://download.postgresql.org/pub/repos/yum/15/redhat/rhel-9-x86_64/postgresql15-libs-15.6-1PGDG.rhel9.x86_64.rpm
--2024-04-28 18:11:09--  https://download.postgresql.org/pub/repos/yum/15/redhat/rhel-9-x86_64/postgresql15-libs-15.6-1PGDG.rhel9.x86_64.rpm
Resolving download.postgresql.org (download.postgresql.org)... 72.32.157.246, 147.75.85.69, 217.196.149.55, ...
Connecting to download.postgresql.org (download.postgresql.org)|72.32.157.246|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 304386 (297K) [application/x-redhat-package-manager]
Saving to: 'postgresql15-libs-15.6-1PGDG.rhel9.x86_64.rpm'

postgresql15-libs-15.6-1PGDG.rhel9.x86_64.rpm   100%[===================================================================================================================>] 297.25K   355KB/s    in 0.8s

2024-04-28 18:11:11 (355 KB/s) - 'postgresql15-libs-15.6-1PGDG.rhel9.x86_64.rpm' saved [304386/304386]
```

`postgresql15-server-15.6-1PGDG.rhel9.x86_64.rpm`

wget https://download.postgresql.org/pub/repos/yum/15/redhat/rhel-9-x86_64/postgresql15- server-15.6-1PGDG.rhel9.x86_64.rpm

```
[root@localhost packages]# wget https://download.postgresql.org/pub/repos/yum/15/redhat/rhel-9-x86_64/postgresql15-server-15.6-1PGDG.rhel9.x86_64.rpm
--2024-04-28 18:12:03--  https://download.postgresql.org/pub/repos/yum/15/redhat/rhel-9-x86_64/postgresql15-server-15.6-1PGDG.rhel9.x86_64.rpm
Resolving download.postgresql.org (download.postgresql.org)... 72.32.157.246, 217.196.149.55, 147.75.85.69, ...
Connecting to download.postgresql.org (download.postgresql.org)|72.32.157.246|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 6383991 (6.1M) [application/x-redhat-package-manager]
Saving to: 'postgresql15-server-15.6-1PGDG.rhel9.x86_64.rpm'

postgresql15-server-15.6-1PGDG.rhel9.x86_64.rpm 100%[===================================================================================================================>]   6.09M  2.20MB/s    in 2.8s

2024-04-28 18:12:07 (2.20 MB/s) - 'postgresql15-server-15.6-1PGDG.rhel9.x86_64.rpm' saved [6383991/6383991]
```

5. Check the downloaded packages

```
[root@localhost packages]# pwd
/PostreSQL/packages
[root@localhost packages]# ls -lrth
total 8.6M
-rw-r--r--. 1 root root 298K Feb  8 02:15 postgresql15-libs-15.6-1PGDG.rhel9.x86_64.rpm
-rw-r--r--. 1 root root 6.1M Feb  8 02:16 postgresql15-server-15.6-1PGDG.rhel9.x86_64.rpm
-rw-r--r--. 1 root root 1.6M Feb  8 02:16 postgresql15-15.6-1PGDG.rhel9.x86_64.rpm
-rw-r--r--. 1 root root 716K Feb  8 02:16 postgresql15-contrib-15.6-1PGDG.rhel9.x86_64.rpm
[root@localhost packages]#
```

6. Install the RPM packages

```
[root@localhost packages]# rpm -ivh postgresql15-libs-15.6-1PGDG.rhel9.x86_64.rpm postgresql15-server-15.6-1PGDG.rhel9.x86_64.rpm postgresql15-15.6-1PGDG.rhel9.x86_64.rpm postgresql15-contr
ib-15.6-1PGDG.rhel9.x86_64.rpm
warning: postgresql15-libs-15.6-1PGDG.rhel9.x86_64.rpm: Header V4 RSA/SHA256 Signature, key ID 08b40d20: NOKEY
Verifying...                        ################################# [100%]
Preparing...                        ################################# [100%]
Updating / installing...
   1:postgresql15-libs-15.6-1PGDG.rhel################################# [ 25%]
   2:postgresql15-15.6-1PGDG.rhel9    ################################# [ 50%]
   3:postgresql15-server-15.6-1PGDG.rh################################# [ 75%]
   4:postgresql15-contrib-15.6-1PGDG.r################################# [100%]
[root@localhost packages]#
```

rpm -ivh postgresql15-15.6-1PGDG.rhel9.x86_64.rpm
rpm -ivh postgresql15-contrib-15.6-1PGDG.rhel9.x86_64.rpm
rpm -ivh postgresql15-libs-15.6-1PGDG.rhel9.x86_64.rpm
rpm -ivh postgresql15-server-15.6-1PGDG.rhel9.x86_64.rpm

7. Give data directory permission and ownership to postgres user

Data directory: /PostreSQL/data
chown -R postgres:postgres /PostreSQL/data/
chmod -R 700 /PostgreSQL/data/

8. Switch user to postgres

su – postgres

```
[root@localhost data]# su - postgres
[postgres@localhost ~]$
```

9. Initializing database using initdb utility

/usr/pgsql-15/bin/initdb -D /PostreSQL/data/

```
[postgres@localhost ~]$ /usr/pgsql-15/bin/initdb -D /PostreSQL/data/
The files belonging to this database system will be owned by user "postgres".
This user must also own the server process.

The database cluster will be initialized with locale "en_IN.UTF-8".
The default database encoding has accordingly been set to "UTF8".
The default text search configuration will be set to "english".

Data page checksums are disabled.

fixing permissions on existing directory /PostreSQL/data ... ok
creating subdirectories ... ok
selecting dynamic shared memory implementation ... posix
selecting default max_connections ... 100
selecting default shared_buffers ... 128MB
selecting default time zone ... Asia/Kolkata
creating configuration files ... ok
running bootstrap script ... ok
performing post-bootstrap initialization ... ok
syncing data to disk ... ok

initdb: warning: enabling "trust" authentication for local connections
initdb: hint: You can change this by editing pg_hba.conf or using the option -A, or --auth-local and --auth-host, the next time you run initdb.
```

## 10. Configuring some basic database parameters

# DB Version: 15
# OS Type: linux
# DB Type: web
# Total Memory (RAM): 32 GB
# Data Storage: ssd

max_connections = 200
shared_buffers = 8GB
effective_cache_size = 24GB
maintenance_work_mem = 2GB

checkpoint_completion_target = 0.9
wal_buffers = 16MB
default_statistics_target = 100

random_page_cost = 1.1                          huge_pages = try
effective_io_concurrency = 200                  min_wal_size = 1GB
work_mem = 20971kB                              max_wal_size = 4GB

11. Start the PostgreSQL server

```
Success. You can now start the database server using:

    /usr/pgsql-15/bin/pg_ctl -D /PostreSQL/data/ -l logfile start
```

```
[postgres@localhost ~]$ /usr/pgsql-15/bin/pg_ctl -D /PostreSQL/data/ -l logfile start
waiting for server to start.... done
server started
```

12. Login to the console

Psql -U postgres -d postgres

-U -> Username
-d -> Database name

```
[postgres@localhost ~]$ psql -U postgres -d postgres
psql (15.6)
Type "help" for help.

postgres=#
```