

# Databases

MongoDB, PostgreSQL, MariaDB, MySQL...

- PostgreSQL - Operation
  - Upgrade PostgreSQL on Ubuntu

# PostgreSQL - Operation

# Upgrade PostgreSQL on Ubuntu

In this example we're upgrade psql from version 10 to version 11.

## Install the new version

```
root@srv01:~# apt install postgresql-11
```

## List psql clusters

```
root@srv01:~# pg_lsclusters
```

Ver	Cluster	Port	Status	Owner	Data directory	Log file
10	main	5432	down	postgres	/var/lib/postgresql/10/main	/var/log/postgresql/postgresql-10-main.log
11	main	5433	online	postgres	/var/lib/postgresql/11/main	/var/log/postgresql/postgresql-11-main.log

## Backup psql

```
root@srv01:~# su - postgres
postgres@srv01:~$ pg_dumpall > psql_dump.sql
```

## Stop the old cluster

```
root@srv01:~# pg_ctlcluster 10 main stop
```

# Drop the new created cluster

```
root@srv01:~# pg_dropcluster --stop 11 main
```

## Upgrade the old Cluster

```
root@srv01:~# pg_upgradecluster -m upgrade 10 main
Disabling connections to the old cluster during upgrade...
Restarting old cluster with restricted connections...
Stopping old cluster...
Creating new PostgreSQL cluster 11/main ...
/usr/lib/postgresql/11/bin/initdb -D /var/lib/postgresql/11/main --auth-local peer --auth-host md5 --encoding UTF8
--lc-collate en_US.UTF-8 --lc-ctype en_US.UTF-8
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\_US.UTF-8".

The default text search configuration will be set to "english".

Data page checksums are disabled.

```
fixing permissions on existing directory /var/lib/postgresql/11/main ... ok
creating subdirectories ... ok
selecting default max_connections ... 100
selecting default shared_buffers ... 128MB
selecting dynamic shared memory implementation ... posix
creating configuration files ... ok
running bootstrap script ... ok
performing post-bootstrap initialization ... ok
syncing data to disk ... ok
```

Success. You can now start the database server using:

```
/usr/lib/postgresql/11/bin/pg_ctl -D /var/lib/postgresql/11/main -l logfile start
```

Ver	Cluster	Port	Status	Owner	Data directory	Log file
11	main	5433	down	postgres	/var/lib/postgresql/11/main	/var/log/postgresql/postgresql-11-main.log

```
/usr/lib/postgresql/11/bin/pg_upgrade -b /usr/lib/postgresql/10/bin -B /usr/lib/postgresql/11/bin -p 5432 -P 5433 -
d /etc/postgresql/10/main -D /etc/postgresql/11/main
```

Finding the real data directory for the source cluster      ok

Finding the real data directory for the target cluster      ok

Performing Consistency Checks

-----  
Checking cluster versions                                      ok

Checking database user is the install user                      ok

Checking database connection settings                          ok

Checking for prepared transactions                              ok

Checking for reg\* data types in user tables                    ok

Checking for contrib/isn with bigint-passing mismatch          ok

Creating dump of global objects                                  ok

Creating dump of database schemas

ok

Checking for presence of required libraries                    ok

Checking database user is the install user                      ok

Checking for prepared transactions                              ok

If pg\_upgrade fails after this point, you must re-initdb the  
new cluster before continuing.

Performing Upgrade

-----  
Analyzing all rows in the new cluster                            ok

Freezing all rows in the new cluster                            ok

Deleting files from new pg\_xact                                  ok

Copying old pg\_xact to new server                                ok

Setting next transaction ID and epoch for new cluster          ok

Deleting files from new pg\_multixact/offsets                    ok

Copying old pg\_multixact/offsets to new server                  ok

Deleting files from new pg\_multixact/members                   ok

Copying old pg\_multixact/members to new server                  ok

Setting next multixact ID and offset for new cluster          ok

Resetting WAL archives    ok

Setting frozenxid and minmxid counters in new cluster          ok

Restoring global objects in the new cluster                    ok

Restoring database schemas in the new cluster

ok

Copying user relation files

ok

Setting next OID for new cluster

ok

Sync data directory to disk

ok

Creating script to analyze new cluster

ok

Creating script to delete old cluster

ok

Upgrade Complete

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Optimizer statistics are not transferred by pg\_upgrade so,  
once you start the new server, consider running:

```
./analyze_new_cluster.sh
```

Running this script will delete the old cluster's data files:

```
./delete_old_cluster.sh
```

pg\_upgrade output scripts are in /var/log/postgresql/pg\_upgradecluster-10-11-main.5n35

Re-enabling connections to the old cluster...

Copying old configuration files...

Copying old start.conf...

Copying old pg\_ctl.conf...

Disabling automatic startup of old cluster...

Configuring old cluster to use a different port (5433)...

Success. Please check that the upgraded cluster works. If it does,  
you can remove the old cluster with

```
pg_dropcluster 10 main
```

Ver	Cluster	Port	Status	Owner	Data directory	Log file
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10	main	5433	down	postgres	/var/lib/postgresql/10/main	/var/log/postgresql/postgresql-10-main.log
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Ver	Cluster	Port	Status	Owner	Data directory	Log file
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11	main	5432	down	postgres	/var/lib/postgresql/11/main	/var/log/postgresql/postgresql-11-main.log
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## Start new cluster

```
root@srv01:~# pg_ctlcluster 11 main start
```

## Post Checks

Check is the new cluster is working properly, when ready delete the old cluster

```
root@srv01:~# apt-get autoremove --purge postgresql-10
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages will be REMOVED:
  postgresql-10*
0 upgraded, 0 newly installed, 1 to remove and 0 not upgraded.
After this operation, 23.5 MB disk space will be freed.
Do you want to continue? [Y/n]
(Reading database ... 39243 files and directories currently installed.)
Removing postgresql-10 (10.6-1.pgdg16.04+1) ...
Purging configuration files for postgresql-10 (10.6-1.pgdg16.04+1) ...
Dropping cluster main...
Processing triggers for postgresql-common (197.pgdg16.04+1) ...
Building PostgreSQL dictionaries from installed myspell/hunspell packages...
Removing obsolete dictionary files:
```