

Databases

MongoDB, PostgreSQL, MariaDB, MySQL...

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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

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 |
|-----|---------|------|--------|----------|-----------------------------|--|
| 10 | main | 5433 | down | postgres | /var/lib/postgresql/10/main | /var/log/postgresql/postgresql-10-main.log |

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

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: