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Minor upgrade is like upgrading from 9.6 version to 9.7 version. For minor upgrade, You just need to upgrade the rpms. Which We will do that in another article.

<https://yum.postgresql.org/rpmchart/> (<https://yum.postgresql.org/rpmchart/>)

Make sure to install the rpms in below sequence only. Otherwise you will dependency errors.



d6bc76b1-0625-b151-7285-0181fff1251a-62127!

ansible ([https://dbaclass.com/article-<sup>5</sup>  
category/ansible/](https://dbaclass.com/article-category/ansible/))

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CLOUD ([https://dbaclass.com/article-<sup>16</sup>  
category/cloud/](https://dbaclass.com/article-category/cloud/))

DATABASE  
(<https://dbaclass.com/article-category/database/>)

```
---> Package postgresql14-libs.x86_64 0:14.2-1PGDG.rhel7 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

=====
Package Arch Version
Repository Size
=====
Installing:
 postgresql14-libs x86_64 14.2-1PGDG.rhel7
/postgresql14-libs-14.2-1PGDG.rhel7.x86_64 919 k

Transaction Summary
=====
Install 1 Package

Total size: 919 k
Installed size: 919 k
Is this ok [y/d/N]: y
Downloading packages:
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
Warning: RPMDB altered outside of yum.
Installing : postgresql14-libs-14.2-1PGDG.rhel7.x86_64
1/1
Verifying : postgresql14-libs-14.2-1PGDG.rhel7.x86_64
1/1
rhel-7-server-rpms/7Server/x86_64/productid
| 2.1 kB 00:00:00

Installed:
 postgresql14-libs.x86_64 0:14.2-1PGDG.rhel7

Complete!
[root@dbahost14 pg_12]# yum install postgresql14-14.2-1PGDG.rhel7.x86_64.rpm
Loaded plugins: langpacks, product-id, search-disabled-repos, subscription-manager
Examining postgresql14-14.2-1PGDG.rhel7.x86_64.rpm: postgresql14-14.2-1PGDG.rhel7.x86_64
Marking postgresql14-14.2-1PGDG.rhel7.x86_64.rpm to be installed
Resolving Dependencies
--> Running transaction check
---> Package postgresql14.x86_64 0:14.2-1PGDG.rhel7 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

=====
Package Arch Version
Repository Size
=====
Installing:
 postgresql14 x86_64 14.2-1PGDG.rhel7
/postgresql14-14.2-1PGDG.rhel7.x86_64 7.8 M

Transaction Summary
=====
Install 1 Package

Total size: 7.8 M
Installed size: 7.8 M
Is this ok [y/d/N]: y
Downloading packages:
Running transaction check
Running transaction test
```

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```
is not a symlink
failed to link /usr/bin/createdb -> /etc/alternatives/pgsql-createdb: /usr/bin/createdb exists and it is
not a symlink
failed to link /usr/bin/createuser -> /etc/alternatives/pgsql-createuser: /usr/bin/createuser exists and
it is not a symlink
failed to link /usr/bin/dropdb -> /etc/alternatives/pgsql-dropdb: /usr/bin/dropdb exists and it is not a
symlink
failed to link /usr/bin/dropuser -> /etc/alternatives/pgsql-dropuser: /usr/bin/dropuser exists and it is
not a symlink
failed to link /usr/bin/pg_dump -> /etc/alternatives/pgsql-pg_dump: /usr/bin/pg_dump exists and it is not
a symlink
failed to link /usr/bin/pg_dumpall -> /etc/alternatives/pgsql-pg_dumpall: /usr/bin/pg_dumpall exists and
it is not a symlink
failed to link /usr/bin/pg_restore -> /etc/alternatives/pgsql-pg_restore: /usr/bin/pg_restore exists and
it is not a symlink
failed to link /usr/bin/reindexdb -> /etc/alternatives/pgsql-reindexdb: /usr/bin/reindexdb exists and it
is not a symlink
failed to link /usr/bin/vacuumdb -> /etc/alternatives/pgsql-vacuumdb: /usr/bin/vacuumdb exists and it is
not a symlink
Verifying : postgresql14-14.2-1PGDG.rhel7.x86_64
1/1

Installed:
  postgresql14.x86_64 0:14.2-1PGDG.rhel7

Complete!

[root@dbahost14 pg_12]# yum install postgresql14-server-14.2-1PGDG.rhel7.x86_64.rpm
Loaded plugins: langpacks, product-id, search-disabled-repos, subscription-manager
Examining postgresql14-server-14.2-1PGDG.rhel7.x86_64.rpm: postgresql14-server-14.2-1PGDG.rhel7.x86_64
Marking postgresql14-server-14.2-1PGDG.rhel7.x86_64.rpm to be installed
Resolving Dependencies
--> Running transaction check
----> Package postgresql14-server.x86_64 0:14.2-1PGDG.rhel7 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

=====
Package                               Arch          Version
Repository                             Size
=====
Installing:
  postgresql14-server                  x86_64        14.2-1PGDG.rhel7
/postgresql14-server-14.2-1PGDG.rhel7.x86_64                22 M

Transaction Summary
=====
Install 1 Package

Total size: 22 M
Installed size: 22 M
Is this ok [y/d/N]: y
Downloading packages:
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : postgresql14-server-14.2-1PGDG.rhel7.x86_64
1/1
Verifying : postgresql14-server-14.2-1PGDG.rhel7.x86_64
1/1

Installed:
  postgresql14-server.x86_64 0:14.2-1PGDG.rhel7

Complete!
[root@dbahost14 pg_12]# yum install postgresql14-contrib-14.2-1PGDG.rhel7.x86_64.rpm
Loaded plugins: langpacks, product-id, search-disabled-repos, subscription-manager
```

database-from-11g-to-12c-manually/

109704 16

Upgrade database from 12.1.0.2 to 12.2.0.1

(https://dbaclass.com/article/upgrade-database-from-12-1-0-2-to-12-2-0-1/)

81999 9

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80764 3

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ORA-24247: network access denied by access control list (ACL)

(https://dbaclass.com/article/ora-24247-network-access-denied-by-access-control-list-acl/)

50173 0

```
Dependencies Resolved

=====
Package                               Arch                               Version
Repository                             Size
=====
Installing:
 postgresql14-contrib                 x86_64                             14.2-1PGDG.rhel7
 /postgresql14-contrib-14.2-1PGDG.rhel7.x86_64                2.4 M

Transaction Summary
=====
Install 1 Package

Total size: 2.4 M
Installed size: 2.4 M
Is this ok [y/d/N]: y
Downloading packages:
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : postgresql14-contrib-14.2-1PGDG.rhel7.x86_64
1/1
  Verifying   : postgresql14-contrib-14.2-1PGDG.rhel7.x86_64
1/1

Installed:
 postgresql14-contrib.x86_64 0:14.2-1PGDG.rhel7

Complete!
[root@dbahost14 pg_12]#
```

Tags

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2. Initialise the postgres 14 version cluster.

```
-bash-4.2$ /usr/pgsql-14/bin/initdb -D /var/lib/pgsql/14/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_US.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 /var/lib/pgsql/14/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/Riyadh
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
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.

Success. You can now start the database server using:

./pg_ctl -D /var/lib/pgsql/14/data -l logfile start
```

3. Run the postgres upgrade with check option.

it will not do the actual upgrade , it will do the precheck.

[Tag/Expdp/](#)

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Failure, exiting

```
-- To avoid this error, go to /tmp location and run the command again.
-bash-4.2$ pwd
/usr/pgsql-14/bin
-bash-4.2$ cd /tmp
-bash-4.2$ /usr/pgsql-14/bin/pg_upgrade -d /var/lib/pgsql/12/data -D /var/lib/pgsql/14/data -b /usr/pgsq
l-12/bin -B /usr/pgsql-14/bin -c
Performing Consistency Checks on Old Live Server
-----
Checking cluster versions                                ok
Checking database user is the install user              ok
Checking database connection settings                   ok
Checking for prepared transactions                      ok
Checking for system-defined composite types in user tables ok
Checking for reg* data types in user tables             ok
Checking for contrib/isn with bigint-passing mismatch   ok
Checking for user-defined encoding conversions          ok
Checking for user-defined postfix operators             ok
Checking for presence of required libraries             ok
Checking database user is the install user              ok
Checking for prepared transactions                      ok
Checking for new cluster tablespace directories         ok

*Clusters are compatible*

-- Alternatively you can mention --link option

-bash-4.2$ /usr/pgsql-14/bin/pg_upgrade -d /var/lib/pgsql/12/data -D /var/lib/pgsql/14/data -b /usr/pgsq
l-12/bin -B /usr/pgsql-14/bin --link --check
Performing Consistency Checks on Old Live Server
-----
Checking cluster versions                                ok
Checking database user is the install user              ok
Checking database connection settings                   ok
Checking for prepared transactions                      ok
Checking for system-defined composite types in user tables ok
Checking for reg* data types in user tables             ok
Checking for contrib/isn with bigint-passing mismatch   ok
Checking for user-defined encoding conversions          ok
Checking for user-defined postfix operators             ok
Checking for presence of required libraries             ok
Checking database user is the install user              ok
Checking for prepared transactions                      ok
Checking for new cluster tablespace directories         ok

*Clusters are compatible*
```

**NOTE – > If you not using link option, then if your postgres cluster size is of 100 GB, then those 100GB will be copied to the new cluster. But if you are using link option, then it will just create symbolic link, Instead of copying**

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#### 4.Run the actual upgrade:

You need to shutdown the existing cluster before the starting upgrade, otherwise below error.

Failure, exiting

```
-bash-4.2$ /usr/pgsql-12/bin/pg_ctl stop -D /var/lib/pgsql/12/data
waiting for server to shut down.... done
server stopped
```

```
-bash-4.2$ /usr/pgsql-14/bin/pg_upgrade -d /var/lib/pgsql/12/data -D /var/lib/pgsql/14/data -b /usr/pgs
ql-12/bin -B /usr/pgsql-14/bin --link
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 system-defined composite types in user tables ok
Checking for reg* data types in user tables            ok
Checking for contrib/isn with bigint-passing mismatch  ok
Checking for user-defined encoding conversions         ok
Checking for user-defined postfix operators            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
Checking for new cluster tablespace directories        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 oldest XID for new cluster                    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

Adding ".old" suffix to old global/pg_control         ok
```

If you want to start the old cluster, you will need to remove the ".old" suffix from /var/lib/pgsql/12/data/global/pg\_control.old. Because "link" mode was used, the old cluster cannot be safely started once the new cluster has been started.

```
Linking user relation files                            ok

Setting next OID for new cluster                       ok
Sync data directory to disk                           ok
Creating script to delete old cluster                 ok
Checking for extension updates                        ok
```

Upgrade Complete

```
-----
Optimizer statistics are not transferred by pg_upgrade.
Once you start the new server, consider running:
    /usr/pgsql-14/bin/vacuumdb --all --analyze-in-stages
```

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

```
-bash-4.2$ /usr/pgsql-14/bin/pg_ctl start -D /var/lib/pgsql/14/data
waiting for server to start....2022-04-26 22:51:53.194 +03 [18271] LOG:  redirecting log output to logging collector process
2022-04-26 22:51:53.194 +03 [18271] HINT:  Future log output will appear in directory "log".
done
server started
```

```
postgres-# \list+
```

Name	Owner	Encoding	Collate	Ctype	Access privileges	Size	Tablespace
mig_db	postgres	UTF8	en_US.UTF-8	en_US.UTF-8		141 MB	lm_ts
postgres	postgres	UTF8	en_US.UTF-8	en_US.UTF-8		8785 kB	pg_default
template0	postgres	UTF8	en_US.UTF-8	en_US.UTF-8	=c/postgres	8633 kB	pg_default
template1	postgres	UTF8	en_US.UTF-8	en_US.UTF-8	postgres=Ctc/postgres	8633 kB	pg_default

```
(4 rows)
```

```
postgres=# select version();
```

version
PostgreSQL 14.2 on x86_64-pc-linux-gnu, compiled by gcc (GCC) 4.8.5 20150623 (Red Hat 4.8.5-44), 64-bit

```
(1 row)
```

Once your upgrade is successful, you can delete your old cluster using the script.delete\_old\_cluster.sh

```
./delete_old_cluster.sh
```



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**UPGRADE** ([HTTPS://DBAClass.COM/ARTICLE-TAG/UPGRADE/](https://dbaclass.com/article-tag/upgrade/))


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## 2 thoughts on “How to upgrade postgres to new version”



**Argo**

**Admin**

JANUARY 14, 2023 AT 6:32 AM ([HTTPS://DBAClass.COM/ARTICLE/HOW-TO-UPGRADE-POSTGRES-TO-NEW-VERSION/#COMMENT-179537](https://dbaclass.com/article/how-to-upgrade-postgres-to-new-version/#comment-179537))

I will try to do a poc on windows and share the steps.

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