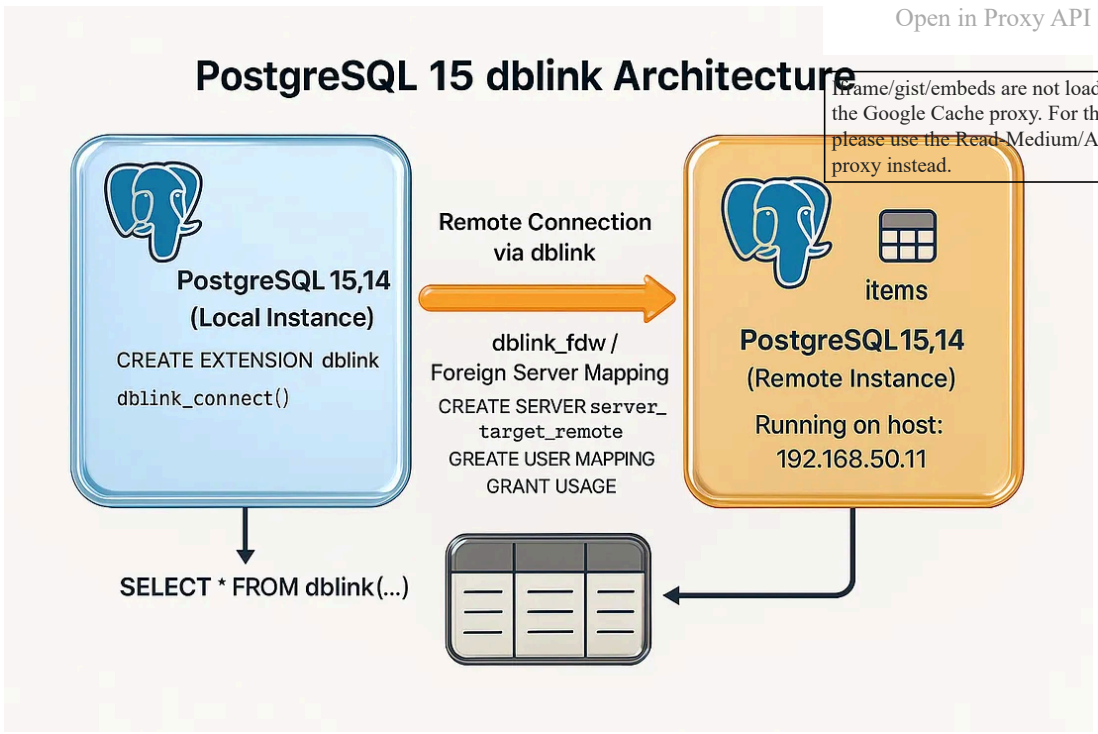
Step-by-Step Guide: Installing and Using the dblink Extension PostgreSQL 15

Jeyaram Ayyalusamy Following 6 min read · 9 hours ago



PostgreSQL is widely recognized for its robustness and flexibility as an open-source relational database system. One of the features that makes it highly versatile is the support for **extensions**, which add functionality beyond the core database.

Among these, the **dblink extension** is especially powerful. It allows you to connect one PostgreSQL database to another and query remote data directly — without replication, backup restores, or complex ETL (Extract, Transform, Load) jobs.

In this guide, we'll walk through how to:

- Install the `dblink` extension on **PostgreSQL 15.14**
- Enable it inside your database
- Configure a remote connection
- Query data seamlessly from another PostgreSQL instance

Let's get started.

1. Confirming PostgreSQL Version

The first step is to make sure you are running **PostgreSQL 15.14**. This matters because extensions and contrib packages are version-specific.

Connect to PostgreSQL and check the server version:

```
SHOW server_version;
```

```
postgres=# SHOW server_version;
 server_version
----------------
 15.14
(1 row)
```

If the version matches `15.14`, you're good to go. If not, ensure that you upgrade or install the correct version before proceeding.

2. Installing the Contrib Package

The `dblink` extension is part of the **contrib package** (postgresql-contrib), which contains optional but widely used modules. On a Linux system that uses YUM (such as Oracle Linux or CentOS 7), you can install it with:

```
[root@ggnode1 ~]# sudo yum install postgresql15-contrib
```

During installation, the package manager resolves dependencies. You might notice it also installs supporting Python libraries:

```
[root@ggnode1 dbs]# sudo yum install postgresql15-contrib    # or: sudo yum inst
ol7_UEKR6
ol7_addons
ol7_developer
ol7_developer_EPEL
ol7_latest
ol7_optional_latest
ol7_software_collections
pgdg-common/7Server/x86_64/signature
pgdg-common/7Server/x86_64/signature
pgdg12/7Server/x86_64/signature
pgdg12/7Server/x86_64/signature
pgdg13/7Server/x86_64/signature
pgdg13/7Server/x86_64/signature
pgdg14/7Server/x86_64/signature
pgdg14/7Server/x86_64/signature
pgdg15/7Server/x86_64/signature
pgdg15/7Server/x86_64/signature
Resolving Dependencies
--> Running transaction check
---> Package postgresql15-contrib.x86_64 0:15.14-1PGDG.rhel7 will be installed
--> Processing Dependency: libpython3.6m.so.1.0()(64bit) for package: postgresql
--> Running transaction check
---> Package python3-libs.x86_64 0:3.6.8-21.0.1.el7_9 will be installed
--> Processing Dependency: python(abi) = 3.6 for package: python3-libs-3.6.8-21.
--> Running transaction check
---> Package python3.x86_64 0:3.6.8-21.0.1.el7_9 will be installed
--> Processing Dependency: python3-pip for package: python3-3.6.8-21.0.1.el7_9.x
--> Processing Dependency: python3-setuptools for package: python3-3.6.8-21.0.1.
--> Running transaction check
---> Package python3-pip.noarch 0:9.0.3-8.0.3.el7 will be installed
---> Package python3-setuptools.noarch 0:39.2.0-10.0.3.el7 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

================================================================================
 Package                                          Arch
================================================================================
Installing:
 postgresql15-contrib                             x86_64
Installing for dependencies:
 python3                                          x86_64
```

```
 python3-libs                                    x86_64
 python3-pip                                     noarch
 python3-setuptools                              noarch

Transaction Summary
================================================================================
Install  1 Package (+4 Dependent packages)

Total download size: 10 M
Installed size: 50 M
Is this ok [y/d/N]: y
Downloading packages:
(1/5): python3-3.6.8-21.0.1.el7_9.x86_64.rpm
(2/5): postgresql15-contrib-15.14-1PGDG.rhel7.x86_64.rpm
(3/5): python3-pip-9.0.3-8.0.3.el7.noarch.rpm
(4/5): python3-setuptools-39.2.0-10.0.3.el7.noarch.rpm
(5/5): python3-libs-3.6.8-21.0.1.el7_9.x86_64.rpm
--------------------------------------------------------------------------------
Total
```

When prompted, type **y** to proceed. After downloading and installing the package, `dblink` becomes available for use.

3. Verifying dblink Files

Once installation is complete, confirm that the necessary files exist on your system. These files represent the extension definition and its library:

```
ls /usr/pgsql-15/share/extension/dblink.control
```

```
[root@ggnode1 ~]# ls /usr/pgsql-15/share/extension/dblink.control
/usr/pgsql-15/share/extension/dblink.control
[root@ggnode1 ~]#
```

```
ls /usr/pgsql-15/lib/dblink.so
```

```
[root@ggnode1 ~]# ls /usr/pgsql-15/lib/dblink.so
/usr/pgsql-15/lib/dblink.so
[root@ggnode1 ~]#
```

- **dblink.control**: Metadata file that describes the extension.
- **dblink.so**: Shared library providing the actual functionality.

If both files are present, installation was successful.

4. Enabling the Extension in PostgreSQL

With the contrib package installed, you can enable `dblink` inside your PostgreSQL database.

Run the following command:

```
CREATE EXTENSION dblink;
```

```
postgres=# CREATE EXTENSION dblink;
CREATE EXTENSION
```

You can verify that it has been enabled by listing installed extensions:

```
\dx dblink
```

```
postgres=# \dx dblink
                                List of installed extensions
  Name  | Version | Schema |                          Description
--------+---------+--------+---------------------------------------------------------
 dblink | 1.2     | public | connect to other PostgreSQL databases from within a
(1 row)
```

To double-check, you can query available extensions and their versions:

```
SELECT name, default_version, installed_version
FROM pg_available_extensions
WHERE name = 'dblink';
```

```
postgres=# SELECT name, default_version, installed_version
postgres-# FROM pg_available_extensions
postgres-# WHERE name = 'dblink';
  name  | default_version | installed_version
--------+-----------------+-------------------
 dblink | 1.2             | 1.2
(1 row)
```

At this point, the extension is fully active and ready for configuration.

5. Configuring a Remote Connection

The real power of `dblink` lies in its ability to connect to remote PostgreSQL instances. To achieve this, you must first define a **foreign server** and map it to a user.

Step 1: Create a Foreign Server

```
CREATE SERVER server_target_remote FOREIGN DATA WRAPPER dblink_fdw
OPTIONS (host '192.168.50.11', dbname 'postgres', port '5432');
```

```
postgres=# CREATE SERVER server_target_remote FOREIGN DATA WRAPPER dblink_fdw
OPTIONS (host '192.168.50.11', dbname 'postgres', port '5432');
CREATE SERVER
```

Here's what the options mean:

- `host` : IP address of the remote server
- `dbname` : Name of the remote database
- `port` : Port on which PostgreSQL is running (default is 5432)

Step 2: Create User Mapping

Now map your local user to a remote user, including credentials:

```
CREATE USER MAPPING FOR current_user SERVER server_target_remote
OPTIONS (user 'postgres', password 'oracle123');
```

```
postgres=# CREATE USER MAPPING FOR current_user SERVER server_target_remote
OPTIONS (user 'postgres', password 'oracle123');
CREATE USER MAPPING
```

This ensures that whenever the current user connects via `dblink`, PostgreSQL knows which credentials to use on the remote server.

Step 3: Grant Usage

Finally, grant permission to the local user for using the foreign server:

```
GRANT USAGE ON FOREIGN SERVER server_target_remote TO current_user;
```

```
postgres=# GRANT USAGE ON FOREIGN SERVER server_target_remote TO current_user;
GRANT
```

6. Connecting to the Remote Database

With the server and mapping in place, establish a connection:

```
SELECT dblink_connect('conn_db_link', 'server_target_remote');
```

```
postgres=# SELECT dblink_connect('conn_db_link', 'server_target_remote');
 dblink_connect
----------------
 OK
(1 row)
```

- `conn_db_link` : The connection name you assign locally.
- `server_target_remote` : The foreign server created earlier.

A response of `OK` means the connection was successful.

7. Querying Remote Data

Once connected, you can query remote tables as if they were part of your local database. For example:

```
SELECT *
FROM dblink('conn_db_link', 'SELECT item_id, quantity, price FROM items')
AS result(item_id INT, quantity INT, price NUMERIC(10,2));
```

This query returns results directly from the remote `items` table:

```
postgres=# SELECT *
FROM dblink('conn_db_link', 'SELECT item_id, quantity, price FROM items')
AS result(item_id INT, quantity INT, price NUMERIC(10,2));
 item_id  | quantity | price
----------+----------+--------
  9093121 |      297 | 395.80
  9093122 |      640 | 226.10
  9093123 |      238 | 173.32
  9093124 |      200 |  80.91
  9093125 |       18 | 222.13
  9093126 |      945 | 101.12
  9093127 |      419 | 192.06
  9093128 |      739 | 493.85
  9093129 |      755 | 163.90
  9093130 |      374 |  69.76
  9093131 |      613 | 339.56
  9093132 |      923 |  75.71
  9093133 |      917 | 461.97
  9093134 |      916 | 156.12
  9093135 |      719 | 433.66
```

This is incredibly useful for scenarios where you need to:

- Consolidate reporting across multiple databases
- Migrate data incrementally

- Validate remote datasets without exporting them

8. Wrapping Up

The `dblink` extension is one of the simplest yet most effective ways to query across multiple PostgreSQL databases.

In this walkthrough, you learned how to:

1. Verify your PostgreSQL version (15.14)
2. Install the `postgresql15-contrib` package
3. Check that the necessary extension files exist
4. Enable the extension with `CREATE EXTENSION`
5. Configure a foreign server and user mapping
6. Establish a connection with `dblink_connect`
7. Query remote data directly from within your local session

By following these steps, you can extend PostgreSQL's capabilities beyond a single instance and unlock cross-database functionality for analytics, troubleshooting, or even lightweight data integration.

✨ Tip: While `dblink` is very useful, remember to use it wisely. For complex or frequent cross-database operations, consider **Foreign Data Wrappers (FDW)** like `postgres_fdw`, which offer better integration and performance tuning.

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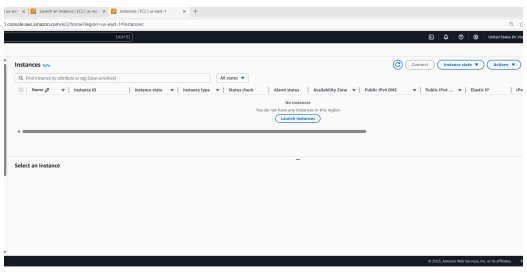

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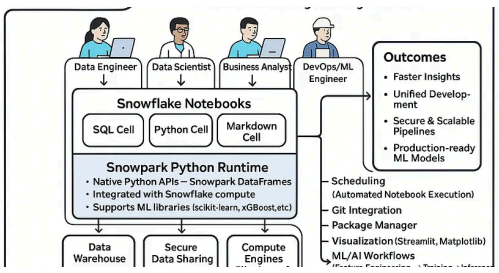

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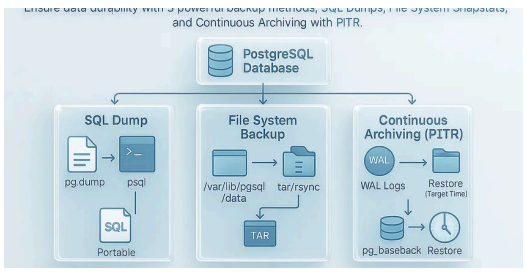

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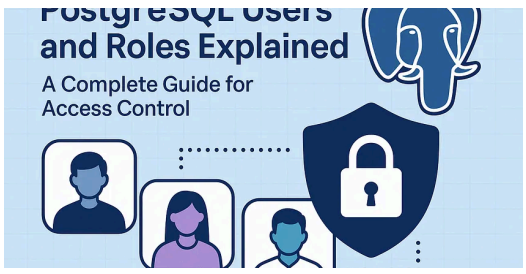

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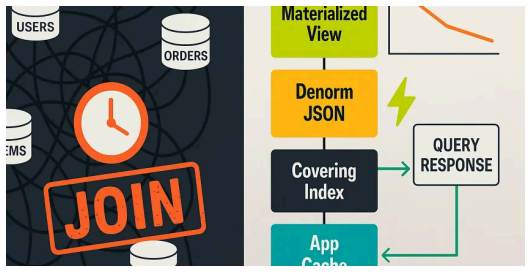

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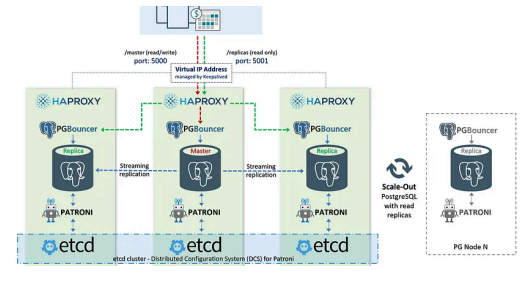

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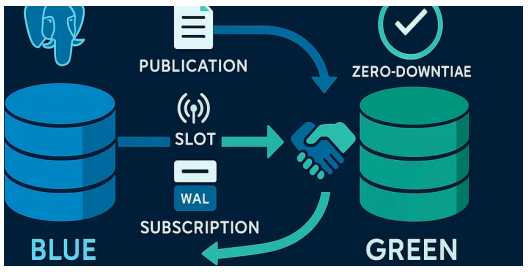

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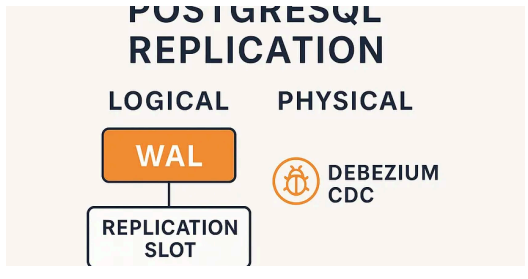

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