



## To store backup files on the EC2 server itself, you need to:

Run `pg_basebackup` **on the EC2 server itself**, backing up the local PostgreSQL data directory to a folder on the EC2 instance. explain clearly how to do it

To run `pg_basebackup` on your **EC2 server itself** and store backup files locally on the EC2 instance, follow these clear, step-by-step instructions:

### Prerequisites

- PostgreSQL 15 is installed and running on the EC2 server.
- You have shell (SSH) access to the EC2 instance as a user with permissions to run PostgreSQL commands (`postgres` user or `sudo` privileged).
- The PostgreSQL server is configured to allow replication connections locally.

### Step 1: Configure PostgreSQL for Replication (if not already done)

1. Edit PostgreSQL configuration file `postgresql.conf` (typical location:

`/var/lib/pgsql/15/data/postgresql.conf` or `/var/lib/pgsql/data/postgresql.conf`):

```
sudo vi /var/lib/pgsql/15/data/postgresql.conf
```

Add or change the following lines:

```
wal_level = replica
max_wal_senders = 5
```

2. Make sure PostgreSQL allows local replication connections in `pg_hba.conf`:

```
sudo vi /var/lib/pgsql/15/data/pg_hba.conf
```

Add the line if missing (allows local replication connections):

```
local    replication    all                                trust
```

3. Restart PostgreSQL service to apply changes:

```
sudo systemctl restart postgresql-15
```

## Step 2: Create a Directory for Backup Storage on EC2

Choose or create a directory where backups will be saved:

```
sudo mkdir -p /var/lib/pgsql/15/backups  
sudo chown postgres:postgres /var/lib/pgsql/15/backups
```

## Step 3: Run `pg_basebackup` on EC2 to Take a Backup

Switch to the `postgres` user:

```
sudo su - postgres
```

Run `pg_basebackup`, specifying the backup directory:

```
pg_basebackup -D /var/lib/pgsql/15/backups -F tar -X stream -P
```

Explanation of options:

- `-D /var/lib/pgsql/15/backups`: Directory on EC2 where backup files will be stored.
- `-F tar`: Create backup in tar format (optional; you can omit to get plain file system directory).
- `-X stream`: Stream WAL files for consistent backup.
- `-P`: Show progress.

## Step 4: Verify Backup Files

After the command completes, your backup files will be stored on the EC2 in `/var/lib/pgsql/15/backups`.

Use:

```
ls -lh /var/lib/pgsql/15/backups
```

to list backup files.

## Summary

- You configure PostgreSQL to allow replication locally.
- Create a backup storage directory with proper permissions.
- Run `pg_basebackup` **on EC2 itself** as the `postgres` user.
- Backup files will be stored locally on the EC2 instance for safekeeping.

If you want, I can also help you automate this backup process (e.g., via cron) or with restoring from backups later.