PostgreSQL for hosts

PostgreSQL, the recommended database server for Exponential, from a host's point of view: versions, the database owner rule, the pgcrypto extension, settings, installing with exp:install, sequences, backups and the...

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This page is for system administrators at a hosting company who provide PostgreSQL databases for Exponential sites. It answers: which PostgreSQL versions to run, how to create each site's database and user so the installer succeeds, what the `pgcrypto` extension has to do with it, and how to back up and troubleshoot. PostgreSQL is second in the official order and the recommended database server. Sources: Database support and chapter 9.4.

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Why PostgreSQL

The project calls PostgreSQL the recommended database server: strict SQL, row-level locking, replication and point-in-time recovery of its own, and a database test job in the project's CI on every push (PostgreSQL 15). It is the first choice when a site needs a database server, for example when several web servers share one database (Database support).

Versions and extension

Item	Value	Source
Wizard floor	8.0	`eZSetupDatabaseMap()` in `kernel/setup/ezsetupcommon.php`
Practical minimum	**13**	the installer creates `pgcrypto`, a trusted extension from PostgreSQL 13 on
From 15 on	the site's user must own the database	PostgreSQL no longer lets other users create tables in `public`

Item	Value	Source
Seen working	13.23 on the development server; 15 in CI	versions
PHP extension	`pgsql` (`php-pgsql`, `php<version>-pgsql`)	

Run a release your vendor still supports with security fixes. The wizard floor is not a recommendation.

Creating a database per site

The installers do not create databases or users. Create both before the install, and make the site's user the **owner** of its database:

Shell

```
sudo -u postgres createuser --pwprompt <customer>
sudo -u postgres createdb --owner=<customer> --encoding=UTF8 --template=template0 <customer>
```

`template0` lets you choose the encoding regardless of the server's default. A panel that creates PostgreSQL databases may set a different owner or encoding; check your panel's documentation and compare with the commands above (Databases and users in control panels).

> **Tip**
> One database and one user per site, the user owning the database, is the simplest model for isolation between customers and for moving a site later.

pgcrypto

The driver computes MD5 with `digest()` from `pgcrypto`. The installer runs `CREATE EXTENSION IF NOT EXISTS pgcrypto`; as a trusted extension (PostgreSQL 13 and later) the database owner may create it. If the server lacks it, install your distribution's PostgreSQL contrib package, then as the owner or a superuser:

Shell

```
sudo -u postgres psql -d <customer> -c 'CREATE EXTENSION IF NOT EXISTS pgcrypto;'
```

When it is missing, the setup wizard says: "The 'digest' function is not available in your database, and Exponential cannot run without it."

> **Note**
> Install the contrib package on every PostgreSQL server you offer to Exponential customers. It is the one server-side prerequisite the site's user cannot fix alone.

Settings and install

INI

```ini
[DatabaseSettings]
DatabaseImplementation=ezpostgresql
Server=localhost
Port=5432
User=<customer>
Password=<the password>
Database=<customer>
UsePersistentConnection=disabled
```

The installers write this to `settings/override/site.ini.append.php`. A console install, with the password from the environment so it stays out of the shell history:

Shell

```
EXP_INSTALL_DB_PASSWORD='<the password>' php bin/php/console exp:install --apply --db=pgsql \
    --db-host=127.0.0.1 --db-name=<customer> --db-user=<customer> --allow-root-user
```

`--db=postgresql` and `--db=postgres` are accepted too; the kickstarter takes `[database_choice]` `Type=pgsql`. The setup wizard prefills port 5432 and user `postgres` (`settings/setup.ini` `DefaultPort_pgsql`, `DefaultUser_pgsql`). `UsePersistentConnection=enabled` uses `pg_pconnect` instead of `pg_connect`; under Velocity each persistent worker keeps its connection anyway.

Sequences

Auto-increment columns use sequences named `<table>_<column>_seq`. After loading data with explicit ids (an import, a restore of selected tables), correct them, or the next insert fails with a duplicate key:

SQL

```sql
SELECT setval('ezcontentobject_id_seq', (SELECT max(id) FROM ezcontentobject));
```

The schema installer does this itself after it loads data.

Backups

Shell

```
pg_dump -U <customer> -Fc <customer> > <customer>.dump
pg_restore -U <customer> -d <customer> --clean <customer>.dump
```

A complete backup also contains `var/storage`, `settings/override` and `settings/siteaccess`. Switch on maintenance mode for a restore and clear every cache afterwards (Backup and restore). Point-in-time recovery and replication are PostgreSQL's own features; configure them with the PostgreSQL documentation.

Problems and their causes

Symptom	Cause
"The 'digest' function is not available ..." in the wizard	`pgcrypto` could not be created; install the contrib package and create the extension

Symptom	Cause
Connection refused	`listen_addresses` in `postgresql.conf`, or a missing line in `pg_hba.conf`
Permission denied creating tables	the site's user does not own the database (PostgreSQL 15 and later)
Duplicate key on insert after an import	sequences behind their tables; correct them as above
An extension's SQL fails on PostgreSQL only	MySQL syntax such as backtick quoting (cross-engine notes)
No page loads, `error.log` says "Database implementation not supported"	a mistyped `DatabaseImplementation`

Checklist

- ☐ A supported PostgreSQL release, 13 or later, with the contrib package installed.
- ☐ One database per site, encoding `UTF8`, owned by the site's user.
- ☐ `pgsql` in the web and the command line PHP.
- ☐ `pg_hba.conf` allows the site's user from the web servers only.
- ☐ `pg_dump` backups scheduled and a restore tested.

Related pages

- Databases in the official order
- Database support: PostgreSQL
- Chapter 9.4: PostgreSQL
- Database backups per engine
- Several web nodes
- Free documentation: this page is free to copy, translate and improve under the GNU FDL 1.3.

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