Database administrators: start here

Where database administrators start with Exponential. The six supported engines in one paragraph, a first fifteen minutes, the rules every DBA keeps, and a map of every page for database administrators, from engine...

Source file: `doc/eng-us/help/database-administrators/database-administrators-start-here.md` Last changed 2026-11-04
https://doc.exponential.earth/learninminutes/exphelp/viewer/help/database-administrators/database-administrators-start-here.md

This section of the help is for **database administrators**: the people who create, secure, back up, upgrade, tune and monitor the database of an Exponential site, whether they run one site or many, on SQLite, PostgreSQL, MongoDB, MariaDB, Oracle or MySQL. It describes the database layer exactly as the 6.0.x kernel implements it, with the settings, scripts and files you will use, and says plainly where something needs an extension or does not exist.

Every fact on these pages was checked against the code, the settings files and the project's documentation, chiefly Database support and chapter 9 of the installation guide. Each page names its sources.

Contents

1. Exponential's database in one paragraph
2. Your first fifteen minutes
3. Six rules for every database
4. Map of the database administrator pages
5. Pages from other audiences you will use
6. Finding these pages again

Exponential's database in one paragraph

Exponential is a free and open source PHP content management system; its content repository lives in one database reached through the kernel class `eZDB` and one of five drivers. Six databases are supported, in this order of preference: **1. SQLite 3** (the default, one file, for a site on one machine) · **2. PostgreSQL** (the recommended server) · **3. MongoDB** (through an adapter, with documented limits) · **4. MariaDB** · **5. Oracle** (19c and later, through the `ezoracle` extension) · **6. MySQL**. Microsoft SQL Server is known to be possible with additional work at this time. The schema is kept in an engine-neutral `.dba` format and changed by per-engine update files. Uploaded files, settings and caches are not in the database.

Your first fifteen minutes

1. **Find the engine** (2 minutes): **Setup > System information**, Database card, or `php bin/php/console exp:ini get site.ini/DatabaseSettings/DatabaseImplementation --allow-root-user`.
2. **Read the layer** (5 minutes): The database layer in one page.

3. **Read your engine's setup page** (5 minutes): from the map below.
4. **Check the backups** (3 minutes): Backups per engine.

Then follow the reading path.

Six rules for every database

1. **Never edit shipped files.** Settings go into `settings/override/`; schema changes come from update files.
2. **One account per site, least privilege, never `root`.** (Accounts)
3. **UTF-8 everywhere**: `utf8mb4`, `UTF8`, `AL32UTF8`. (Character sets)
4. **Back up the database and the files together, and test the restore.** (Backups)
5. **After any write outside Exponential, clear the caches**, the SQL query cache included. (Query cache)
6. **After a settings change, clear the INI cache and restart Velocity's workers.** (Changing settings)

Map of the database administrator pages

Orientation

Page	What it helps you do
The database layer in one page	Understand eZDB, the drivers, the schema handlers and what is stored where
Supported engines and versions	State supported versions and know what CI tests
Choosing an engine	Pick the right database for a site
PHP extensions per engine	Make sure every PHP has the driver extension
The DatabaseSettings reference	Look up every connection setting
Reading and changing database settings	Read the value in effect and change it safely

Engines

Page	What it helps you do
SQLite 3 for database administrators	Understand the driver, its files, PRAGMAs and WAL
SQLite: the write queue and locking	Handle concurrent publishing and lock timeouts
SQLite maintenance	Run ANALYZE, VACUUM, WAL checkpoints and integrity checks
SQLite files, ownership and permissions	Set up the files so every process can write them
Setting up PostgreSQL, Operating PostgreSQL	Create the database, pgcrypto, sequences and case
Setting up MySQL and MariaDB	Create the database and the account
MySQL and MariaDB: utf8mb4, the connection charset and InnoDB	Get character sets and table types right

Page	What it helps you do
MySQL and MariaDB read replicas	Send reads to replicas
Setting up MongoDB, MongoDB: limits and operations	Run MongoDB and know what the adapter cannot do
Setting up Oracle with ezoracle	Prepare an Oracle schema
Oracle: persistent connections, DRCP and tuning	Pool and tune Oracle sessions
Oracle maintenance commands and cronjobs	Use the ext:ezoracle commands and cronjobs
Microsoft SQL Server: status for DBAs	Answer the SQL Server question correctly

Security and schema

Page	What it helps you do
Character sets and collations	Create UTF-8 databases and handle case
Database accounts and privileges	Grant the least privileges that work
Securing the database	Protect credentials, network access and backups
The .dba schema format and the shipped schema files	Know where the schema comes from
Schema tools: dump, insert and diff	Use ezsqldumpschema, ezsqlinsertschema and ezsqldiff
The tables a database administrator should know	Find your way in the kernel's tables

Backups, upgrades and moves

Page	What it helps you do
Backups per engine	Back up each engine consistently
Restoring a database	Restore and test restores
Upgrades and the SQL update files	Apply the right update files in the right order
Applying the 6.0.15 database update	Bring a 6.0.x database to 6.0.15
Checking the schema after an upgrade	Verify the schema with the upgrade check and ezsqldiff
Moving a site to another engine	Change the database engine of a running site

Operations and performance

Page	What it helps you do
Sessions in the database	Decide where sessions live and clean them up
The built-in search index tables	Look after the search index and its queue
Housekeeping: cronjobs and queue tables	Keep queues moving and tables tidy
The SQL query cache	Use the query cache safely
Finding slow queries	Find the statements that make a page slow
Performance and scaling	Apply the levers in the right order

Page	What it helps you do
Clustering: DFS and its metadata database	Run the database side of a multi-server cluster
Monitoring the database	Set up checks and alerts

Troubleshooting and reference

Page	What it helps you do
Troubleshooting database errors	Go from a symptom to its fix
Database error codes and messages	Read error numbers and messages
Reviewing extension SQL for every engine	Approve an extension for a non-MySQL site
Database FAQ	Get quick answers
Checklists for database administrators	Follow a routine step by step
Glossary for database administrators	Look up a term
A reading path for database administrators	Learn the pages in a sensible order

Pages from other audiences you will use

Page	Why a database administrator reads it
Database support	The project's support statement for every engine
Chapter 9, Databases	The operator's reference behind these pages
Admin tour, Logging into the admin	Find Setup > System information, Upgrade check, Sessions and Cronjobs
Security hardening	The security of the whole site
Operating a site, Upgrading, Upgrade check, System information, Sessions, Cronjobs, Caches	The administrators' guides your work touches
Hosting companies: start here	The hosting side: servers, panels, backups, runbooks
Databases in the official order, Database backups per engine, Changing the database engine, Clustering and shared storage	The same topics from a host's point of view
When something goes wrong	Where to get help
Free documentation	What you may do with these pages

Finding these pages again

- In the help, filter by the audience **Database administrators** or the category **Database administration**, or open **All pages** and the folder `database-administrators`.
- Each page has **Edit on GitHub**. If a fact here is wrong or out of date, tell us there or on the software tracker.

Related pages

- The database layer in one page
- A reading path for database administrators
- Database FAQ
- Migrations on hosted sites, Migrations
- Free documentation: this page is free to copy, translate and improve under the GNU FDL 1.3.

> **Become an Exponential Partner**
>
> Partners share their information, provide funding, contribute back and develop the products with us, and that is how Exponential grows. A partner website and dashboard are planned for mid-2027: please become a partner today to speed up our growth rate and land new features faster.
>
> Partners: start here | How to apply

Exponential Copyright © 1998-2026 Exponential Foundation and 7x
Permission is granted to copy, distribute and/or modify this document under the terms of the GNU Free Documentation License, Version 1.3 or any later version published by the Free Software Foundation; with no Invariant Sections, no Front-Cover Texts, and no Back-Cover Texts. A copy of the license is included in the section entitled "GNU Free Documentation License".
This documentation is free documentation, licensed under the GNU Free Documentation License 1.3 or later:
https://www.gnu.org/licenses/fdl-1.3.html.