Setting up MongoDB

How to prepare MongoDB for an Exponential site - the requirements, a user created in the site's own database with readWrite and dbAdmin, why a user is required even without access control, the settings block, the...

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This page is for database administrators who prepare MongoDB for an Exponential site. MongoDB is supported through an adapter, `expMongoDB` (`lib/ezdb/classes/expmongodb.php`), that translates the kernel's SQL-shaped calls into MongoDB operations; it arrived with 6.0.14. This page answers: what the adapter needs, how to create the user, what the settings look like, how to install and which indexes to create. Read MongoDB: limits and operations before you choose MongoDB for production. Source: 9.5 MongoDB.

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Requirements

	Minimum	Tested
PHP	8.2	8.5
MongoDB server	6.0 (the wizard checks 4.0)	8.3
PHP extension `mongodb`	1.18	2.3.3
Composer library `mongodb/mongodb`	installed by you (`composer.json` only suggests it)	`^1.21 || ^2.0` in CI

Without the library the error is `Class "MongoDB\Client" not found` (PHP extensions per engine).

Create the user

The adapter connects with the URI `mongodb://<user>:<password>@<server>:<port>/<database>`. MongoDB uses the database in the URI's path as the authentication database when no `authSource` is given, so create the user **in the site's database**:

Shell

```
mongosh --eval '
  db.getSiblingDB("exponential").createUser({
    user: "exponential",
    pwd: passwordPrompt(),
    roles: [ { role: "readWrite", db: "exponential" }, { role: "dbAdmin", db: "exponential" } ]
  })'
```

`passwordPrompt()` asks for the password instead of putting it in the shell history. `readWrite` covers the site's work; `dbAdmin` lets the schema handler (`expMongoSchema`) create collections and indexes. The database itself is created by the first write; there is no `CREATE DATABASE`.

The user is required, also on a test server without access control: the adapter always writes `<user>:<password>@` into the URI, and with an empty `User` the driver refuses it with "Failed to parse MongoDB URI: ... 'default' authentication mechanism requires a username".

The settings

INI

```
[DatabaseSettings]
DatabaseImplementation=mongodb
Server=localhost
# empty: 27017
Port=27017
User=exponential
Password=<the password>
Database=exponential
```

User name and password are URL-encoded by the adapter, so special characters are safe. One client per connection URI is kept for the life of the process, so a Velocity worker reuses its connections.

Install

On MongoDB the setup wizard's configuration step can take one to three minutes. Raise PHP-FPM's `request_terminate_timeout` before you start, or install from the console:

Shell

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

`--db=mongo` is accepted too; the kickstarter takes `[database_choice] Type=mongodb`.

Create the indexes

The kernel's queries rely on indexes that the install does not create. Without them subtree queries and URL alias lookups scan whole collections:

Shell

```
mongosh "mongodb://exponential@localhost:27017/exponential" --file bin/mongodb/create_indexes.js
```

`mongosh` asks for the password. The script holds 45 `createIndex` calls on the content, tree, URL alias and other collections, several of them unique (for example `ezcontentobject.id`,

`ezcontentobject.remote_id`, `ezcontentobject_tree.node_id`). Run it again after an upgrade that adds collections; existing indexes are left as they are by MongoDB.

Build the search index

Run the cronjobs once to build the built-in search index:

Shell

```
php runcronjobs.php --allow-root-user
```

Then schedule them like on any other engine (Housekeeping: cronjobs and queue tables).

Checklist

- ☐ PHP 8.2+, extension `mongodb` 1.18+, library `mongodb/mongodb` installed in every PHP the site uses.
- ☐ MongoDB 6.0 or later with access control enabled.
- ☐ The user exists in the site's database with `readWrite` and `dbAdmin` only.
- ☐ `bin/mongodb/create_indexes.js` was run.
- ☐ The cronjobs ran once and are scheduled.
- ☐ Backups with `mongodump` are scheduled (Backups per engine).

Related pages

- MongoDB: limits and operations
- MongoDB as the database
- MongoDB for hosts
- Free documentation: this page is free to copy, translate and improve under the GNU FDL 1.3.

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