Setting up Oracle with ezoracle

How to prepare Oracle Database for an Exponential site with the ezoracle extension - requirements (19c or later, AL32UTF8, oci8 and an Oracle client), the grants printed by ora-grant.php, the connect string forms, the...

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This page is for Oracle database administrators who prepare a schema for an Exponential site. Oracle support comes from the `ezoracle` extension (version 2.3.7, required by `composer.json` as `~2.3.7`, so it is in `extension/ezoracle` of every installation and activated only for sites that use Oracle). It provides the driver `eZOracleDB`, the schema handler `eZOracleSchema`, console commands and cronjobs. This page answers: what is required, which grants the account needs, how to connect and install, and which Oracle behaviors matter. Sources: 9.6 Oracle 19c and later and the extension's own `README.md` and `INSTALL` in `extension/ezoracle/`.

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Requirements

- **Exponential 6.0.15 or later**; earlier versions do not offer Oracle in the installers.
- **Oracle Database 19c or later**; the wizard checks 19.0. The driver uses `STANDARD_HASH` and `OFFSET`/`FETCH`. Tested with Oracle AI Database 26ai Free (23.26). The project's support statement names 19c as the minimum (Database support); the extension's `README.md` describes a fallback path for 11.2 and 12.1 that is covered by its unit tests only. Plan with 19c.
- Database character set **AL32UTF8**. The driver connects in AL32UTF8; `NLS_LANG` is not needed.
- PHP 8.0 to 8.5 with **oci8** (PECL oci8 3.4 for PHP 8.4 and 8.5, 3.2 for 8.1 to 8.3), built against an Oracle client; the Instant Client is enough (PHP extensions per engine).
- Oracle is not in the project's CI; Oracle-only kernel tests skip on other engines. Test upgrades on a staging copy.

Create the account

The account may create sessions, tables, views, triggers, sequences and procedures. The extension prints the SQL for a DBA to run:

Shell

```
ORACLE_NEW_PASSWORD='<a strong password>' php extension/ezoracle/bin/php/ora-grant.php exponentia
l - USERS
```

`-` takes the password from `ORACLE_NEW_PASSWORD`, so it does not appear in the process list; `USERS` is the tablespace. The same is available as `php bin/php/console ext:ezoracle:ora-grant`. Read the printed SQL, then run it as a DBA. For the `health` and `report` commands, also grant `SELECT_CATALOG_ROLE`: they read `V$` views, and without the role the affected checks say so.

Connect strings

`site.ini [DatabaseSettings] Database` is the connect string; `Server` and `Port` are not used by this driver. It may be:

- Easy Connect: `127.0.0.1:1521/FREEPDB1`;
- Easy Connect Plus: `tcp://host:port/service?connect_timeout=5`;
- a TNS alias (with `TNS_ADMIN` set for every process);
- a full `(DESCRIPTION=...)` descriptor.

`ezoracle.ini [ConnectionSettings]` can build a descriptor over several listeners instead (Oracle: persistent connections, DRCP and tuning).

Install

Shell

```
EXP_INSTALL_DB_PASSWORD='<the password>' php bin/php/console exp:install --apply --db=oracle \
    --db-host=127.0.0.1 --db-port=1521 --db-name=FREEPDB1 --db-user=exponential --allow-root-user
```

`--db-name` is the service name (default `FREEPDB1`); `host:port/service` is built from it. A full connect string or `@<tns alias>` is used as given. `--db=oci8` and `--db=ezoracle` are accepted too. The installers activate the extension for the new site. In the setup wizard Oracle appears when `oci8` is loaded and `extension/ezoracle` is present. For the kickstarter set `[database_choice] Type=oci8` and the connect string as `Database`.

The settings

INI

```ini
[DatabaseSettings]
DatabaseImplementation=ezoracle
User=exponential
Password=<the password>
Database=127.0.0.1:1521/FREEPDB1
Charset=utf-8
# Oracle stores '' as NULL; enabled returns '' for NULL in text columns
OracleEmptyStringForNull=disabled
# enabled: ALTER SESSION SET NLS_COMP=LINGUISTIC NLS_SORT=<sort>
OracleCaseInsensitive=disabled
OracleCaseInsensitiveSort=BINARY_CI

[ExtensionSettings]
ActiveExtensions[]=ezoracle
```

Oracle's own behaviors

Behavior	Effect on Exponential	What to do
`''` is stored as NULL	An empty string comes back as NULL	`OracleEmptyStringForNull=enabled` returns `''` for text columns
Strings compare binary (with case)	A login or lookup written for MySQL finds nothing in another case	`OracleCaseInsensitive=enabled`, then create linguistic indexes with `ext:ezoracle:ci-indexes --create`
`AS` is allowed only before a column alias	`ORA-00933` in an extension's SQL that writes `AS` before a table alias	Fix the extension (Reviewing extension SQL)

The driver runs one `ALTER SESSION SET` on every connect (number format, length semantics, `CURSOR_SHARING`, and the NLS settings when `OracleCaseInsensitive` is on); see The SQL query cache for how it treats that statement.

Checklist

- ☐ Oracle 19c or later, character set `AL32UTF8`.
- ☐ `oci8` loaded in every PHP the site uses; client libraries found by PHP-FPM, Velocity and cron.
- ☐ The account has the grants from `ora-grant.php`, plus `SELECT_CATALOG_ROLE` for health reports.
- ☐ `ezoracle` is in `ActiveExtensions[]`.
- ☐ Decisions taken on `OracleEmptyStringForNull` and `OracleCaseInsensitive`.
- ☐ Data Pump backups scheduled (Backups per engine).

Related pages

- Oracle: persistent connections, DRCP and tuning
- Oracle maintenance commands and cronjobs
- Oracle for hosts

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