CEBMS TECHNICAL DOCUMENTATION

This document serves as both technical and Standard Operation procedure for CEBMS.

INSTALLATION & Setup

Ceb installation on production server is under **/var/ww/html/default**

SERVER REQUIREMENTS

The CEBMS has a few system requirements. Of course, all of these requirements are satisfied by the **Laravel Homestead** virtual machine, so it's highly recommended that you use Homestead as your local CEBMS development environment.

However, if you are not using Homestead, you will need to make sure your server meets the following requirements:

- PHP >= 5.6.4
- OpenSSL PHP Extension
- PDO PHP Extension
- Mbstring PHP Extension
- Tokenizer PHP Extension
- XML PHP Extension

Configuration

Public Directory

After installing CEBMS, you should configure your web server's document / web root to be the `public` directory. The `index.php` in this directory serves as the front controller for all HTTP requests entering your application.

Configuration Files

All of the configuration files for the CEBMS are stored in the `config` directory. Each option is documented, so feel free to look through the files and get familiar with the options available to you.

Directory Permissions

After installing CEBMS, you may need to configure some permissions. Directories within the `storage` and the `bootstrap/cache` directories should be writable by your web server or CEBMS will not run. If you are using the **Homestead** virtual machine, these permissions should already be set.

Application Key

The next thing you should do after installing CEBMS is set your application key to a random string. If you installed CEBMS via Composer, this key has already been set for you by the `php artisan key:generate` command.

Typically, this string should be 32 characters long. The key can be set in the .env environment file. If you have not renamed the .env.example file to .env, you should do that now. **If the application key is not set, your user sessions and other encrypted data will not be secure!**

Environment Configuration

It is often helpful to have different configuration values based on the environment the application is running in. For example, you may wish to use a different cache driver locally than you do on your production server.

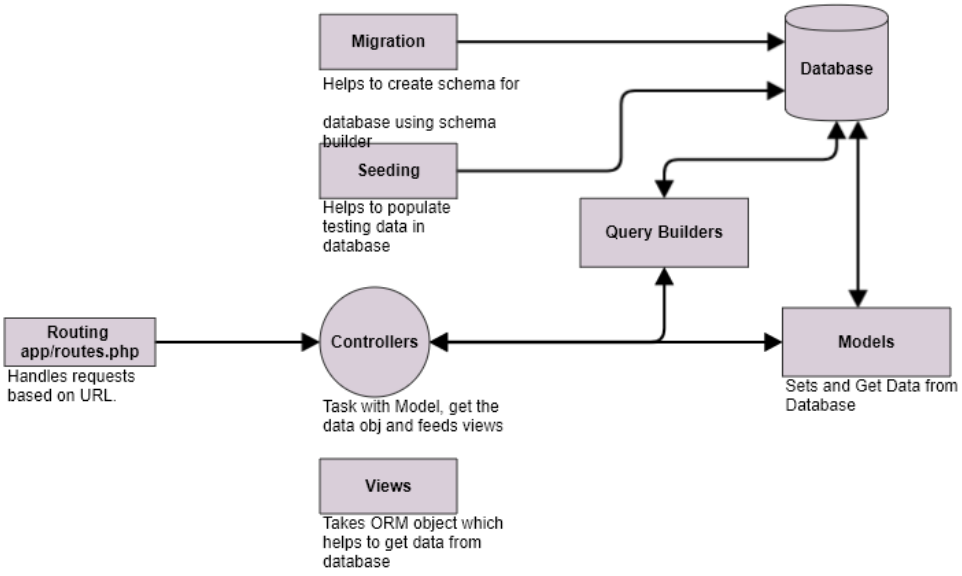
To make this a cinch, CEBMS utilizes the DotEnv PHP library by Vance Lucas. In a fresh CEBMS installation, the root directory of your application will contain a .env.example file. If you install CEBMS via Composer, this file will automatically be renamed to .env. Otherwise, you should rename the file manually. For Instance this file contains all you database configuration and other standard configurations.

Additional Configuration

CEBMS needs almost no other configuration out of the box. You are free to get started! However, you may wish to review the config/app.php file and its documentation. It contains several options such as timezone and locale that you may wish to change according to your application.

APPLICATION HIGH LEVEL ARCHITECTURE

Below diagram shows how CEBMS handles requests or in otherwords below diagram shows the request lifecycle for CEBMS. This is high level, things like Factories, services events and domains are not covered in below schema



DATABASE STRUCTURE

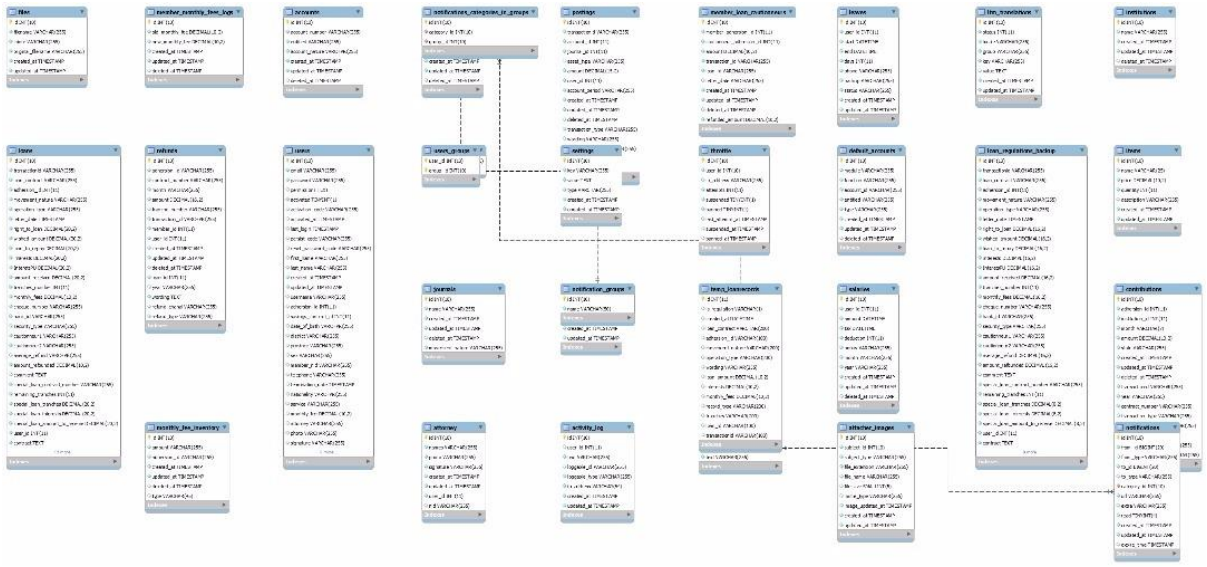
CEBMS is composed by many database as shown on below schema, CEBMS database is compatible with Mysql. If you try to install it or use is on no mysql database instance, it may work but we haven't tested it yet on another database which is not Mysql. Therefore we recommend you to use MySql as your database engine.

CEBMS is made by 33 main tables as shown on below list.

1. accounts
2. activity_log
3. attacher_images
4. attorney
5. contributions
6. default_accounts
7. files
8. groups
9. institutions
10. items
11. journals
12. leaves
13. loan_rates
14. loan_regulations_backup
15. loans
16. ltm_translations
17. member_loan_cautionneurs
18. member_monthly_fees_logs
19. membershipfees
20. migrations
21. monthly_fee_inventory
22. notification_categories
23. notification_groups
24. notifications
25. notifications_categories_in_groups
26. postings
27. refunds
28. salaries
29. settings
30. temp_loanrecords
31. throttle
32. users
33. users_groups

Please note that CEBMS keeps session and cache data using file drive, therefore it doesn't have to connect to database to build the session. However it will need database to make authentication.

Database Diagram



Logs & Monitoring

In every application or software, there are exception that happens based on various events that are happing in the system. Some of those exception are not displayed on the user interface to be viewed by him as they are purely technical errors and in most cases they can be comprehended by people with technical skills. Those information indicates the application health or if there is any critical part of the system that needs technical attention.

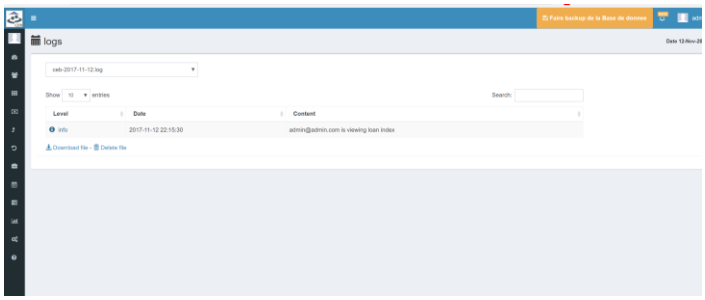
CEBMS logs every technical error that happens within it. And those error can be found in files that are store in **storage/logs/filename-date.log**. These files are stored with the dates so that they can be easly navigated through. Without headache.

Below is the picture with the directory with logs files.

```
C:\laragon\www\[redacted]\storage\logs (master) [redacted]  0:08:57.84
λ ls
ceb-2017-10-25.log  ceb-2017-11-04.log  ceb-2017-11-07.log
```

View logs from user interface

You don't need to always go to the files to get logs or error that happened. In the CEBMS you can use the web interface under the menu called logs (***This requires administrator privileges)*** and browser, search through logs.

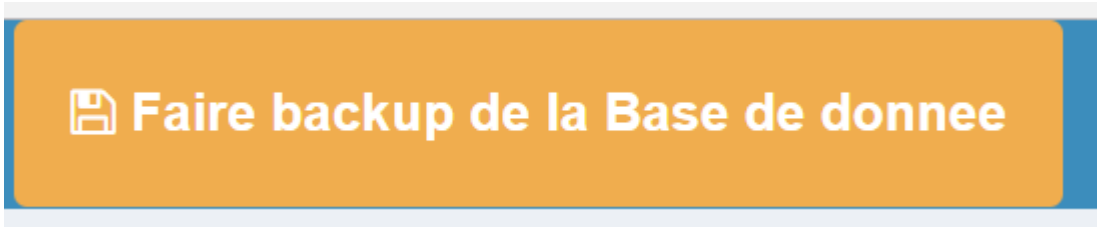


Backup & Restoration

Backup if very important for any application. Not only keeping them, but also being able to restore them when necessary. In the case of CEBMS, it is advised to make backup every day after work.

Doing manual backup

Currently CEBMS does automatic backup and send files to the cloud (DropBox). CEBMS does backup of both files and database. However you may want to do your own backup (Most preferabiliy when there is issue with internet.) Then you will be required to do this backup manually by logging on the CEBMS UI. And look at the top menu then click on yellow Button.



Automated backup.

Everyday at 20:30 CEBMS does automatic backup of its files and database, then send them to the cloud (DropBox, **Yearly subscribed 1TB**). This backup does not need manual interventions. The only thing advised is to provide the proper emails to be notified when the backup is done. This notifications helps to know the status of backup before it's too late.

Others / Security

CEBMS is using a domain name. This domain name is controlled by a domain controller. But the servers of the CEBMS are hosted in University of Rwanda infrastructure.

Also you may need know how to install and renew SSL. This requirement is essential as it helps CEBMS stay at the top of the security threats. This SSL is yearly renewable, We recommend that you start renew the process of renewing one month before.