File Structure
Faith FM Laravel + Auth0 (AuthN + AuthZ)

Group Colour Key

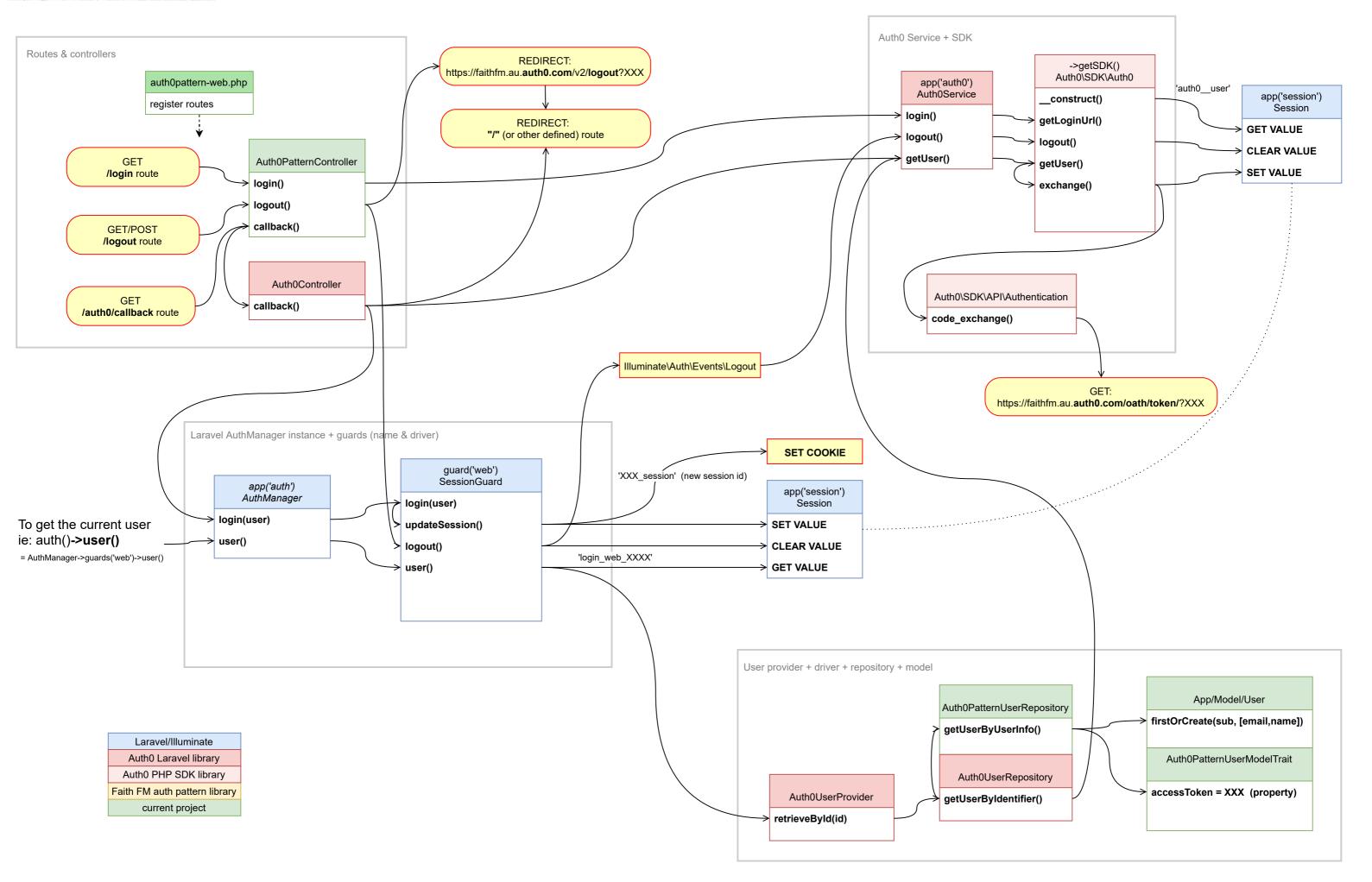| Group |
|---|
| Laravel/Illuminate |
| Auth0 Laravel library |
| Auth0 PHP SDK library |
| Faith FM pattern (cloned) |
| Faith FM pattern (templated) |
| Faith FM pattern (core library) |

by Major Group

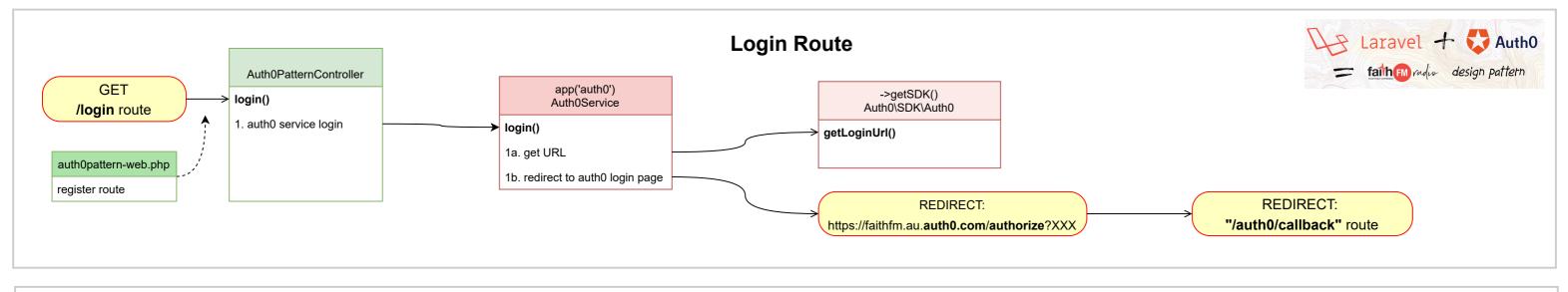| Class File	Group	Functional Area
routes/**auth0pattern-web**.php	Faith FM pattern (core library)	Routes & controllers
FaithFM/Auth0Pattern/**Auth0PatternController**.php	Faith FM pattern (cloned)	Routes & controllers
App/Models/**User**.php	Faith FM pattern (cloned)	User provider + driver + repository + model
FaithFM/Auth0Pattern/**Auth0PatternUserRepository**.php	Faith FM pattern (core library)	User provider + driver + repository + model
FaithFM/Auth0Pattern/**Auth0PatternUserModelTrait**.php	Faith FM pattern (core library)	User provider + driver + repository + model
FaithFM/Auth0Pattern/**Auth0PatternServiceProvider**.php	Faith FM pattern (core library)	(other)
database/migrations/2021_05_31_010233_**create_user_per**	Faith FM pattern (core library)	(other)
App/Repositories/**AuthPermissionList**.php	Faith FM pattern (templated)	User permissions (Gates / Authorization / AuthZ)
App/Models/**UserPermission**.php	Faith FM pattern (cloned)	User permissions (Gates / Authorization / AuthZ)
resources/js/**LaravelUserPermissions**.js	Faith FM pattern (cloned)	User permissions (Gates / Authorization / AuthZ)
Illuminate/Auth/**AuthManager**.php	Laravel/Illuminate	Laravel AuthManager instance + guards (name & driver)
Illuminate/Auth/**TokenGuard**.php	Laravel/Illuminate	Laravel AuthManager instance + guards (name & driver)
Illuminate/Auth/**SessionGuard**.php	Laravel/Illuminate	Laravel AuthManager instance + guards (name & driver)
Illuminate/Session/**Store**.php (Session)	Laravel/Illuminate	(other)
(Auth0)/controllers/**Auth0Controller**.php	Auth0 Laravel library	Routes & controllers
Auth0/Login/Repository/**Auth0UserRepository**.php	Auth0 Laravel library	User provider + driver + repository + model
Auth0/Login/**Auth0UserProvider**.php	Auth0 Laravel library	User provider + driver + repository + model
Auth0/Login/**Auth0Service**.php	Auth0 Laravel library	Auth0 Service + SDK
config/**laravel-auth0**.php	Auth0 Laravel library (templated)	Auth0 Service + SDK
auth0-php(SDK)/**Auth0**.php	Auth0 PHP SDK library	Auth0 Service + SDK
auth0-php(SDK)/API/**Authentication**.php	Auth0 PHP SDK library	Auth0 Service + SDK
Auth0/Login/**LoginServiceProvider**.php	Auth0 Laravel library	(other)

by Functional Area

Class File	Group	Functional Area
routes/**auth0pattern-web**.php	Faith FM pattern (core library)	Routes & controllers
FaithFM/Auth0Pattern/**Auth0PatternController**.php	Faith FM pattern (cloned)	Routes & controllers
(Auth0)/controllers/**Auth0Controller**.php	Auth0 Laravel library	Routes & controllers
App/Models/**User**.php	Faith FM pattern (cloned)	User provider + driver + repository + model
FaithFM/Auth0Pattern/**Auth0PatternUserRepository**.php	Faith FM pattern (cloned)	User provider + driver + repository + model
FaithFM/Auth0Pattern/**Auth0PatternUserModelTrait**.php	Faith FM pattern (core library)	User provider + driver + repository + model
Auth0/Login/Repository/**Auth0UserRepository**.php	Auth0 Laravel library	User provider + driver + repository + model
Auth0/Login/**Auth0UserProvider**.php	Auth0 Laravel library	User provider + driver + repository + model
Auth0/Login/**Auth0Service**.php	Auth0 Laravel library	Auth0 Service + SDK
config/**laravel-auth0**.php	Auth0 Laravel library (templated)	Auth0 Service + SDK
auth0-php(SDK)/**Auth0**.php	Auth0 PHP SDK library	Auth0 Service + SDK
auth0-php(SDK)/API/**Authentication**.php	Auth0 PHP SDK library	Auth0 Service + SDK
Illuminate/Auth/**AuthManager**.php	Laravel/Illuminate	Laravel AuthManager instance + guards (name & driver)
Illuminate/Auth/**TokenGuard**.php	Laravel/Illuminate	Laravel AuthManager instance + guards (name & driver)
Illuminate/Auth/**SessionGuard**.php	Laravel/Illuminate	Laravel AuthManager instance + guards (name & driver)
FaithFM/Auth0Pattern/**Auth0PatternServiceProvider**.php	Faith FM pattern (core library)	(other)
database/migrations/2021_05_31_010233_**create_user_pe**	Faith FM pattern (core library)	(other)
Illuminate/Session/**Store**.php (Session)	Laravel/Illuminate	(other)
Auth0/Login/**LoginServiceProvider**.php	Auth0 Laravel library	(other)
App/Repositories/**AuthPermissionList**.php	Faith FM pattern (templated)	User permissions (Gates / Authorization / AuthZ)
App/Models/**UserPermission**.php	Faith FM pattern (cloned)	User permissions (Gates / Authorization / AuthZ)
resources/js/**LaravelUserPermissions**.js	Faith FM pattern (cloned)	User permissions (Gates / Authorization / AuthZ)

Class Structure Summary
Faith FM Laravel + Auth0 'web' guard

Laravel + Auth0
faith FM radio design pattern

Routes & controllers

auth0pattern-web.php
register routes

GET **/login** route

GET/POST **/logout** route

GET **/auth0/callback** route

Auth0PatternController
- login()
- logout()
- callback()

Auth0Controller
- callback()

REDIRECT:
https://faithfm.au.**auth0.com**/v2/**logout**?XXX

REDIRECT:
"/" (or other defined) route

Auth0 Service + SDK

app('auth0')
Auth0Service
- login()
- logout()
- getUser()

->getSDK()
Auth0\SDK\Auth0
- __construct()
- getLoginUrl()
- logout()
- getUser()
- exchange()

'auth0__user'

app('session')
Session
- GET VALUE
- CLEAR VALUE
- SET VALUE

Auth0\SDK\API\Authentication
- code_exchange()

GET:
https://faithfm.au.**auth0.com**/oath/token/?XXX

Illuminate\Auth\Events\Logout

Laravel AuthManager instance + guards (name & driver)

app('auth')
AuthManager
- login(user)
- user()

To get the current user
ie: auth()->**user()**

= AuthManager->guards('web')->user()

guard('web')
SessionGuard
- login(user)
- updateSession()
- logout()
- user()

'XXX_session' (new session id)

SET COOKIE

app('session')
Session
- SET VALUE
- CLEAR VALUE
- GET VALUE

'login_web_XXXX'

User provider + driver + repository + model

Auth0PatternUserRepository
- getUserByUserInfo()

Auth0UserRepository
- getUserByIdentifier()

Auth0UserProvider
- retrieveById(id)

App/Model/User
- firstOrCreate(sub, [email,name])

Auth0PatternUserModelTrait
- accessToken = XXX (property)

Laravel/Illuminate
Auth0 Laravel library
Auth0 PHP SDK library
Faith FM auth pattern library
current project

Login Route

Laravel + Auth0
faithfm radio · design pattern

GET /login route

auth0pattern-web.php
register route

Auth0PatternController

login()

1. auth0 service login

app('auth0') Auth0Service

login()

1a. get URL

1b. redirect to auth0 login page

->getSDK() Auth0\SDK\Auth0

getLoginUrl()

REDIRECT:
https://faithfm.au.**auth0.com/authorize**?XXX

REDIRECT:
"/auth0/callback" route

Auth0 Callback Route

Laravel + Auth0
faithfm radio · design pattern

GET /auth0/callback route

auth0pattern-web.php
register route

Auth0Controller

callback()

1a. retrieve auth0 profile

1b. get User model by profile

1c. tell SessionGuard about it

1d. redirect back to application

REDIRECT:
"/" (or other defined) route

app('auth0') Auth0Service

getUser()

->getSDK() Auth0\SDK\Auth0

getUser()

1. get from $user property (cache)

2. exchange()???

exchange()

1a. retrieve 'code' + 'state' (GET parameters)

1b. validate 'state' (GET = COOKIE?)

1c. exchange 'code' for 'id token' and 'access token'

1d. verify+decode (RSA-encrypted) profile from 'id token'

1e. save profile to session

Auth0\SDK\API\Authentication

code_exchange()

1. HTTP (Guzzle) call to auth0's oauth/token enpoint to swap the "code" for an "access token" and "id token".
(This is part of a typical OIDC Authorization Code Flow).

GET:
https://faithfm.au.**auth0.com/oath/token/**?XXX

Auth0PatternUserRepository

getUserByUserInfo()

1a. get User model by sub

1b. (inject access token)

App/Model/User

firstOrCreate(sub, [email,name])

Auth0PatternUserModelTrait

accessToken = XXX (property)

(in-memory-only transient prop)

app('auth') AuthManager

login(user)

guard('web') SessionGuard

login(user)

1a. save user id (in a new session)

1b. save user model (internal cache)

updateSession()

1a. save user id to session

1b. clear + create a new session

'auth0__user'

app('session') Session

SET VALUE

'login_web_XXXX'

'XXX_session' (new session id)

SET COOKIE

Logout Route

Laravel + Auth0
= faith FM radio design pattern

GET/POST
/logout route

auth0pattern-web.php
register route

Auth0PatternController
logout()
1a. SessionGuard logout
1b. redirect to auth0 logout

guard('web')
SessionGuard
logout()
1a. clear id (from session)
1b. dispatch logout event
1c. clear internal variables

'login_web_XXXX'

app('session')
Session
CLEAR VALUE

Illuminate\Auth\Events\Logout

LoginServiceProvider
register event

app('auth0')
Auth0Service
logout()

->getSDK()
Auth0\SDK\Auth0
logout()
1a. clear profile (from session)
1b. clear internal variables

'auth0__user'

REDIRECT:
https://faithfm.au.**auth0.com**/v2/**logout**?XXX

REDIRECT:
"/" (or other defined) route

Retrieving a User

Faith FM Laravel + Auth0 'web' guard

To get the current user - ie: auth()**->user()**
= AuthManager->guards('web')->user()

app('auth')
AuthManager
user()

guard('web')
SessionGuard
user()
1. load from property (cache)
2a. get id from session
2b. get from provider (by id)

'login_web_XXXX'

app('session')
Session
GET VALUE

App/Model/User
firstOrCreate(sub, [email,name])

Auth0PatternUserModelTrait
accessToken = XXX (property)
(in-memory-only transient prop)

Auth0PatternUserRepository
getUserByUserInfo()
1a. get User model by sub
1b. (inject access token)

Auth0UserProvider
retrieveById(id)

Auth0UserRepository
getUserByIdentifier()
1a. get auth0 user profile from service
1b. get User model by profile

app('auth0')
Auth0Service
getUser()

->getSDK()
Auth0\SDK\Auth0
__construct()
1. ... (lots of initialisation) ...
2. $user = get profile from session

getUser()
1. get from $user property (cache)
2. try getting by exchange()???

'auth0__user'

Class Structure Summary
Laravel's 'api' guard (token-based)

Laravel + **Auth0**
faith FM radio = design pattern

To get the current user
= AuthManager->guards('api')->user()

app('auth')
AuthManager
user()

guard('api')
TokenGuard
user()
getTokenForRequest()

```
$credentials => [
    'api_token' => 'XXX',
]
```

EloquentUserProvider
retrieveByCredentials(credentials)

App/Model/User
first()->where('api_token' = 'XXX')

FROM: GET params ['api_token']
OR   form input?? ['api_token']
OR   bearer token
OR   simple password

'input_key' and 'storage_key' both default to 'api_token', but can be specified in config/Auth.php parameter

```
'guards' => [
  'api' => [
    'driver' => 'token',
    ...
    'input_key' => 'my_api_token',
    'storage_key' => 'my_api_token',
  ],
]
```