Implementation of GNU social v3's core backend

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Abstract

A modern implementation of GNU social, a decentralized social network, with the Symfony framework, maintaining social's principles of extensibility and accessibility. To this end, we rely on an event system and forego traditional OOP design, opting not to use global state, but to give static access to all necessary components.

Preface

This project was developed as part of Google Summer of Code 2020, for the GNU foundation. I was mentored by Diogo Cordeiro and Alexei Sorokin, who I'd like to thank for the help they provided. They both were extremely helpful and available at a moment's notice, to answer any question, or point to some resource, if they didn't happen to know it themselves. The daily report system turned out to be more helpful than I initially though, allowing for easy time and task keeping. I'm therefore helpful that they required it. Additionally, they were never pushy or causing stress. I think they did a fenomenal job and I likely wouldn't have been able to finish the tasks otherwise.

Mentor's Page

1 Introduction

GNU social is a federated social network, with a long history, so it was fundamental for this project to maintain compatibility with it's older versions, making migrating as easy as possible, while also keeping said compatibility with other software on the Free Network.

With that in mind, a complete rewrite with a completely different framework poses some challenges, which were deemed necessary due to the age of some of the code, as well as some design decisions in previous versions that made it hard to modernize 'in place'. Therefore, we opted to use the Symfony framework, as it seemed to be the more robust and well documented option. However, the way in which Symfony expects to be used is very different from the design we had in mind; thankfully, it is never overly prescriptive and allows for a great deal of flexibility.

We opted to maintain the design philosophies of previous versions, while expanding on these where appropriate. These philosophies include the separation from the application core and modules, which are comprised of mandatory components and optional plugins, that communicate through an event system. This allows for great configurability and extensibility, as well as making dependency direction unambiguous, since the core never handles any plugin. This also allows for easily swapping parts of the application, which was possible only in some cases in previous versions, as the idea of this type of separation was not introduced at the beginning of the initial development cycle, leading to some parts that are semantically plugins still being tied to the core, as is the case for parts of OStatus and caching.

Nonetheless, GNU social still has a lot of good design decisions, and seems to be the only software in the Free Network concerned with maintaining compatibility (through keeping OStatus, for instance), and accessibility, both to those with any impairment, those who can't or don't want to use JavaScript and those who can't afford a dedicated server and use shared hosting. GNU social didn't have developers for a rather long period of time, so it now needs to play catch up, to some extent, with other software, but this focus allows GNU social to differentiate itself significantly, making updating it a worthwhile project.

This report aims to walkthrough the decisions made, their reasoning, as well as provide an explanation of how it all works together.

2 Methodology

For this project we mainly considered Symfony and Laravel, as the two most widely used PHP frameworks. We considered a change of language, but due to the wide availability of PHP hosting, we decided it wouldn't be wise to do so, as we want to make running this software as easy and affordable as possible. Looking through and reading about Laravel, it seemed to be a more 'hip' choice, but this option was discarded as it seemed that the documentation was not as extensive, it was more prescriptive with the way it should be used, being seemingly less adaptable, and it seemed to suggest the use of some proprietary technologies, which is clearly not a possibility, for a GNU project. This left us with Symfony, and it didn't seem like a bad choice at all. The documentation was useful, although lacking at times, requiring reading the code, the community was sometimes helpful in answering questions, although some were ignored. That is to say that while now everything was extremely easy and smooth sailing, Symfony was a good choice for this project.

A big divergence between Symfony and GNU social, however, is the fact that Symfony expects a more object oriented approach, leading to things such as:

```php
namespace App\Controller;

use Symfony\Bundle\FrameworkBundle\Controller\AbstractController;
use Symfony\Component\HttpFoundation\Response;
use Symfony\Component\Routing\Annotation\Route;
use Symfony\Contracts\Translation\TranslatorInterface;

class Example extends AbstractController
{
    /**
     * @Route("/", name="example")
     * @param TranslatorInterface $translator
     * @return Response
     */
    public function index(TranslatorInterface $translator):
    Response
    {
        $translated = $translator->trans('Example message', [],
    null, 'sk');

        return new Response($translated);
    }
}
```

From this short example, we can identify four things that wouldn't work well with our approach: the use of annotations (`@Route`), the use of dependency injection, the use of an object oriented interface, and the fact that a `Response` object must be returned. There's nothing intrinsically wrong with this, but we felt that the use of annotations would make having plugins harder and since dependency injection requires each class that wants to use a service have a constructor and keep track of them separately, a lot of duplication would happen. We, therefore, opted for the following:

```php
namespace App\Controller;

use App\Core\Controller;
use function App\Core\Trans\_m;
use Symfony\Bundle\FrameworkBundle\Controller\AbstractController;

class Example extends AbstractController
{
    public function index()
    {
        return _m('Example message');
    }
}
```

As can be seen, we opt to use static global access to services, as well as separating the responsibility of defining routes and of determining the correct language to use to their own place. The reason this is important is that it makes services accessible to modules without them having to worry about their details. The name `_m` for the translation function was chosen to keep the same name as in previous versions, where this name was chosen in analogy to gettext's _ (underscore) function.

3   Results

This project was deemed a success by my mentors, though, as was predicted, will still require significant work to get to where previous versions were. However, v2 development is currently wrapping up, and all focus will move to v3.

This summer we managed to have a big part of a single-instance version of the software working, with the core having most of the features needed to implement the rest. This includes module loading, the event system, database table definition loading, a translation framework and many development comforts, such as static access to Symfony's components and wrappers for a more declarative rather than object oriented interface.

For a more detailed description of how the code works, checkout the file `DOCUMENTATION/DEVELOPERS/code_walkthrough.md`. What follows is a brief summary of this file.

The application's entrypoint is the file `public/index.php`, where in the `Kernel` is instantiated and the application started. The framework initializes a lot of the parts, but relevant to us is the `src/Core/GNUsocial.php` file, which grabs and makes available all the needed services and initializes our side of the framework. This include loading modules, registering events and initializing the static service accessors. Routing information is loaded from all files in `src/Routes` folder and from module's `add_route` event handlers, with a similar interface to that of previous versions. Table definitions are loaded from `src/Entity` and all `Entity` subfolders of modules, by invoking the `schemaDef` static function, which has the same declarative interface as was used before. Translation and form definition also follows a fluent declarative approach, where, in the case of translation, it's possible to use an array-encoded tree to represent ICU message formatting.

4 Discussion and conclusion

We've set ourselves up, with this project, to more easily develop GNU social, which should grant us better performance, easier contributing and overall revitalize GNU social development. The community was very enthusiastic and supportive all along the way. I'd personally like to thank all community members who contributed with suggestions and insight, particularly ThndrBvr, who not only sponsored another project, but also gave us a lot of great suggestions.

5 Conflicts of interest

The author has a vested interest in inclusiveness and Free Software, which no doubt shaped some decisions.

6 Appendices

6.1 Commits

1 d1c70cb13b [CORE] Make avatars be served with the same mechanism as attachments
2 13e8445083 [SensitiveContent] Fix bug where having this plugin activated would
    not size thumbnails correctly
3 6c844315aa [CORE] Fix 'Array and string offset access syntax with curly braces is
    deprecated' in AuthCryptModule and DirectionDetectorPlugin
4 7e83ddf80e [FIX] Fix 'Trying to access array offset on value of type null' in
    AntiBrutePlugin and SimpleCaptchaPlugin when using scripts
5 477c357f11 [MEDIA] Move AttachmentAction::sendFile to common_send_file This fixed
    the wrong content type and status code returned by the Avatar action
6 5e14f18c83 [NOTICE][UI] Fix bug: Option to message "Everyone at site" when using
    private instance
7 e576b7c447 [V3] Big Crunch
8 4c36f56afe [V3] Big Bang
9 075034ed4f [COMPOSER] Update composer packages
10 47f5a8d0bf [DOCKER] Added preliminary docker container
11 b9568f0911 [DOCKER] Updated dockerfile to add memcached
12 4236975cfd [CORE][ROUTES] Example route
13 e5fe08a055 [CORE][EVENTS] Bring existing Events and Boostrapper back
14 f0b0cd01be [CORE][I18N] Port the translation system to rely on symfony's
15 154992ea4e [CORE][I18N] Fix the translation system
16 c72cf14d3d [COMPOSER] Update composer dependencies
17 160e974a0f [DOCTRINE][SCHEMADEF] Create a new metadata driver to allow us to
    continue using static schemaDef functions
18 71d8a87263 [DOCTRINE] Configure cli-config for doctrine console and ensure
    DATABASE is set to UTF-8
19 1ca02f7c82 [CORE][DOCTRINE] Implement SchemaDefDriver, which transforms the old
    syntax from to doctrine's metadata
20 1e167833ee [DOCTRINE][SCHEMADEF] Small refactoring
21 e4554c939d [DOCTRINE][SCRIPT] Created a script to generate the class fields and
    accessors from the schema definition
22 18ecb25031 [CS-FIXER] Updated cs-fixer rules and added a temporary exception to
    the src/Entity folder (awaiting pr merge)
23 9dbe56d3fd [CORE][SCHEMADEF] Clean up SchemaDef compiler pass
24 dd44b8e091 [CORE][EXTENSIONS] Added extension (modules, plugins) loading and test
    plugin, which is able to handle events
25 0ebce42eae [CORE][COMMAND] Register internal structures on command event
26 dd4621d954 [COMMAND][EVENTS] Added command to list events and handlers, and
    search by regex
27 c460fd1118 [CORE][ROUTES] Implemented custom router, with an interface similar to
    the old one, which allows routes to be seperated into files
28 75c5b617fd [DOCUMENTATION] Document All The Things!
29 f0f879d82d [MODULES] Rename extensions to modules, add example plugin, change
    plugin location
30 489e5803da [TOOLS] Add command which imports a file with it's history
31 a8cde51f3d [DATABASE] Remove testing entity
32 b890b12f6c [CORE][DATABASE] Import old classes folder into src/Entity
33 7ad9a6fa91 [TOOLS] Add script used to port from old class files to entities
34 883dc754f5 [COMMON] Added toCamelCase and toSnakeCase functions
35 e4b74a6aaf [DATABASE] Extracted schemaDef method from old files and refactored
    onto new files
36 b6e74cda42 [FORMATTING] Changed license block format to allow folding
37 1f8e1e07b2 [DATABASE] Removed calls to common_config
38 e63aa4d971 [TOOLS] Change autocode tag to allow editor folding
39 0ae748ba9e [TOOLS][AUTOCODE] Fixed generate_entities script
40 e814ee3359 [DATABASE][AUTOCODE] Autogenerated fields, setters and getters for
    each entity
41 a31eb882a2 [MODULES] Fix small error in modules manager
42 f86ed43986 [DATABASE] Add missing table names
43 9b210fe698 [SCHEMADEF] Bug fixes

```
44  aa785c2155 [TOOLS] Fix the generate_entities_fields script
45  2316c20b11 [DATABASE][AUTOCODE] Update autocode to use DateTimeInterface instead
       of DateTime
46  51190d4baf [TOOLS][CS-FIX] Altered some php-cs-fix rules
47  ef53c0547c [DATABASE] Changed the type of the 'id' field of the ProfileList table
        from serial to int, as doctrine complains otherwise
48  93c002025f [GITIGNORE] Add file folder to gitignore
49  0cd0e1bdbe [UTIL] Wrote HTML library to convert arrays to html
50  c6f22acd6c [DOCUMENTATION][TOOLS] Wrote a tool to generate entity diagrams from
       the database definition
51  5549bf2f05 [DOCUMENTATION] Added generated diagram
52  5aef0b7cfa [TOOLS][DOCUMENTATION] Improvements to entity generation script
53  40a01751a5 [TOOLS][SSL] Added bin/boostrap_certificates.sh, allowing for easy
       configuration of SSL certificates with Let's Encrypt
54  9e0a9f5120 [TOOLS] Added script to configure the installation and to bootstrap
       certificate creation with Let's Encrypt
55  5759c7a159 [DOCKER] Fixed docker environment to properly configure the app
       environment
56  253a5131e6 [TOOLS][DOCKER] Further fixes in the docker environment and fixed the
       install script
57  cc06ab8d19 [TOOLS] Updated install script to also support mariadb
58  3848f6dc0d [DOCUMENTATION] Added install documentation
59  8818177482 [DOCUMENTATION] Added a code walkthrough document, which explains how
       the codebase works
60  6fc48fe340 [DOCKER] Small fixes to docker setup, imported from V2
61  29fefa16db [DOCUMENTATION] Import installation instructions for installing
       without docker from V2
62  820d2409d4 [DOCUMENTATION] Updated INSTALL.md to reflect the fact that a CNAME
       record can be used directly
63  fed0d686eb [CORE] Rename GNU social constants
64  89e47f4b3b [FORMATTING] Cherry-pick of Diogo's 763
       ac735c0758624ebd5957993dc0676b865927a
65  e02f12da94 [CORE][UTIL] Moved classes from util to core And splitted up Common
66  bb9bafa566 [ASSETS] Import old favicon.ico
67  8e01d36ffc [DATABASE][CONFIG] Bring default configs from V2 and implement
       DATABASE wrapper
68  bbeb7b82f5 [DATABASE][CONFIG] Loading defaults into database, doctrine static
       wrapper
69  9098c0baeb [DOCKER] Change postgres data path to the correct one
70  ab5c7d8611 [DATABASE] Postgres doesn't understand '0000-00-00 00:00:00' for
       datetime, use '-infinity'
71  280b88fd92 [DATABASE] Fix 'relation config doesn't exist'
72  84fab1cdf6 [TOOLS] Update install scripts
73  4ced2a3968 [DATABASE] Change the way defaults are loaded, bulk insert, reload
       everything in debug mode, only on http requests (not command line)
74  47dbb844a8 [GIT] Added docker-compose to gitignore, in preparation for using a
       script to generate them
75  7cfc5ddce1 [DEFAULTS] Remove deprecated defaults and convert them to snake_case
76  f7c3ee1cfd [DOCUMENTATION][DEFAULTS] Documented all defaults and updated some.
       Restructured other documentation.
77  5321aab4fe [DEPENDENCY] Added alchemy/zippy, which adds support for multiple
       archive formats. Used to allow theme uploads in zip, tar, gz, or other formats
78  028b235b04 [TOOLS] Fixed all licence blocks, to use the same, foldable, format
79  4c784edfe1 [DEFAULTS] Fix default config loading logic
80  6c15810eb0 [I18N] Fix i18n and add default domain 'Core'
81  bc9291d34e [UI][CONFIG] Added admin configuration form
82  f67c273cf3 [CORE] Refactoring core
83  da87c0a25a [ROUTES] Add static wrapper around Symfony's router
84  82df683ec3 [I18N] Refactor since rfc/use-static-function is not implemented
85  98fd84ad70 [I18N] Custom translation extractor based on Symfony's PhpExtractor,
       since we use  instead of
86  0441c414c0 [TOOLS] Improve configure script to disallow reserved database names
```

87 c822d8a39e [I18N] Added ability to call '_m_dynamic' from any class, allowing it to define translations for dynamic-valued calls to '_m'
88 2f162a2df9 [TOOLS] Small fix to composer install hook
89 4e0aa04f4d [I18N] Dumped english translation files
90 a0ac2464ca [I18N] Overhaul _m() implementation to support ICU message formats
91 740b3d536f [GIT] Updated gitignore
92 bd984d9a10 [DEPENDENCY][DEV] Added Symfony Bridge PHPUnit
93 19fb1ea34e [DEPENDENCY] Upgrade Symfony framework from 5.0 to 5.1
94 62f04c635e [AUTOLOAD] Always autoload _m file
95 6727fc786a [I18N] Small fixes. Still broken, though :')
96 d706c0409d [ROUTES] Add easier support for using TemplateController and improved documentation
97 a051291302 [I18N] Fix implementation of I18nHelper::formatICU
98 7339948a37 [TESTS][I18N] Added test for I18n::_m and I18nHelper::formatICU
99 68290ec26c [CORE][Symfony] Fixed deprecation resultant from Symfony 5.1 upgrade
100 aaeb0037d7 [FORM] Added Symfony Form wrapper
101 afd928dea0 [CORE][Event] Move GSEvent to Event, no longer a name collision
102 a4c3bcd29c [DOCUMENTATION] Fixed type annotations and documentation of Common:: size_str_to_int
103 3a271507ce [DEFAULTS] Small fixes and add check of SOCIAL_NO_RELOAD_DEFAULTS from the environment, to override the reloading of default values
104 0d638a486f [ROUTE][ADMIN][CONFIG] Add route to update values in the config table
105 672d375975 [CORE][DATABASE] Restructure the database
106 71aa6bedb3 [CORE][DATABASE] Replace zero dates with CURRENT_TIMESTAMP and add defaults to all 'created' or 'modified' This commit is a port from v2's 9 a515b9234 ([SCHEMA] Improve timestamp storage) to v3.
107 f40d4ed914 [TOOLS] Update bin/generate_entity_fields script
108 d6c79891f5 [AUTOGENERATED] Update autogenerated code
109 d3b7039d12 [MODULE] Move 'foreign' entities from core to a module
110 ea92c120c5 [TOOLS] Fix bootstrap and pre-commit scripts
111 0ed6ac068b [DEPENDENCY] Add wikimedia/composer-merge-plugin as a dependency, to allow managing plugins
112 3472b9a753 [DEPENDENCY] Update all dependencies
113 497382ae3f [GIT] Update gitignore to ignore composer.local.json, where plugin settings will be placed
114 6b0006f621 [COMMAND][DEPRECATION][FIX] Fix app:events's deprecation
115 7f255c59e5 [ROUTE] Fix routes, config_admin got deleted
116 06df14c06b [CONTROLLER] Add Controller base class, which handles rendering templates if requested HTML or json, accordingly
117 dec506776e [MODULES] Make ModulesManager check if file exists
118 dc39069a91 [CONTROLLER] Show dummy notices in main/all
119 6bf10d9b48 [DATABASE] Delete queue_item table, as queueing will be handled by messenger
120 abb69600e3 [DEPENDENCY] Add symfony/messenger as a dependency
121 36f45dc3f1 [QUEUE] Add queueing wrapper, default configuration and example usage
122 d0243abd66 [LOG][WRAPPER] Refactor log wrapper
123 c461698af3 [DEPENDENCY] Add symfony/cache as a dependency
124 6eb2622aec [CACHE] Add a static wrapper around symfony/cache
125 22077ae952 [CACHE][HTTP] Configure simple HTTP cache
126 ac84c594fa [FORMATTING][DEFAULTS] Fix formatting and remove redundant config defaults
127 d359a8f1c1 [CACHE][WRAPPER] Fix cache wrapper
128 3d399d2dd5 [TOOLS][configure] Fix to use quotation marks properly
129 06c750abde [DOCKER][PHP][EXTENSION] Add PHP ds extension to docker PHP image
130 ea27117f6a [PHP][EXTENSION][POLYFILL] Add php-ds polyfill, which is used if the native extension is not available
131 e4ade91fd5 [DEFAULTS][FIX] Fix defaults to use value from environment
132 63bcba84d6 [DOCKER] Move certbot files to hidden folder, so it's ignored by GNU global
133 32eed16691 [LIB][Util] Add Ring Buffer data structure
134 63d90a91a3 [CACHE] Extend the static wrapper to support working with lists in caches that don't natively support them

135 0f861818aa [DEFAULTS] Add modified time to config table (as value) and only reload the defaults if the file is newer
136 a9af956ac1 [DOCKER] Add msgpack and redis extensions to docker image
137 98789874ea [CACHE] Add support for multiple pools with the syntax (as an example) SOCIAL_CACHE_ADAPTER='default=redis://localhost:6379,memcached://localhost:11211;db.config=apcu://'
138 ef129c702d [DOCKER] Updated php image so redis is compiled with LZ4 compression available, as it's the fastest at decompressing and really fast at compressing . Read performance is more important, with this being used as a cache
139 b8209698cc [LIB][Util] Refactor and implement array indexing methods on RingBuffer
140 aa55558c56 [CACHE][Redis] Add special support for redis (fixed size lists), set method and general fixes
141 e423eda6b9 [DEPENDENCY] Add mock polyfill implementations of the redis and memcached extension
142 f98fdfc17a [DOCKER] Fix redis extension build process to use LZ4 and add APCu
143 d86b792c2c [CACHE] Fix usage of the redis extension
144 3f7bb7198f [DOCKER] Add redis to the docker image
145 65eb0e385f [DATABASE][WRAPPER] Update DATABASE wrapper so entity names are provided without the namespace
146 0359b40662 [DATABASE] Re-import the local_group table, as it'll be used as per the new group semantics
147 386db06592 [DATABASE][WRAPPER] Add findBy method which allows finding entities with a complex expression
148 fab02651db [DEFAULTS] Update default reserved usernames
149 d21b6f25e3 [UTIL][NICKNAME] Import nickname utilities and exceptions from v2
150 d3d8466b22 [LIB][Util] Change methods in the Common class to camelCase, add isSystemPath (previously in Nickname.php)
151 2dd3cd7bd3 [CORE][I18n][DEFAULTS] Remove I18nHelper
152 fad2a5df59 [CONFIG] Change way configuration is done to use Symfony's system instead of environment vars
153 7025dd50a4 [DEPENDENCY] Add symfony/config as a dependency
154 60d47c5535 [DATABASE] Rename user table to local_user, since doctrine shits itself otherwise ._.
155 ff2cb838f0 [AUTOGENERATED] Update autogenerated code
156 f44a202127 [TOOLS] Update shebang on scripts to use the correct php executable
157 4047466e83 [I18N] Remove support for context until it proves necessary, as it broke the code
158 0d178e1b6b [CORE] Refactor GNUsocial.php so it initializes itself as a service
159 c98a744d00 [LIB][Util] Make Common::config return the unserialized value instead of the entity
160 d8df7e9495 [LIB][Util] Remove Functional::arity as it got merged upstream as Functional\\ary
161 4e9a18ff00 [UI][SESSION] Add login and logout pages
162 7067e83c1f [DEFAULTS][FIX] Fix logic error that kept reloading the table when the file wasn't modified
163 863dc9c736 [UTIL] Update Common::config to ensure the values queried exist
164 9ef5ee8489 [DATABASE] Add role collumn to profile table
165 fe0a3a6f4b [USER] Add UserRoles
166 1516692099 [LOGIN] Implement password checking and related systems
167 a23fb56d29 [DEFAULTS] Add password hashing algorithm default settings
168 5dd156cf90 [CONTROLLER] Remove example enqueue
169 1e018bb304 [NOTIFICATION][DATABASE] Update user notification prefs table, implementation of Notification and define a base class for notification transport
170 ac22a6c401 [CONTROLLER][ROUTES] Refactor controllers to use the new base class and remove controller from the class name
171 311145ff44 [ROUTES] Change name of admin and settings routes and refactor the way they're specified
172 3710b597be [CONTROLLER][ROUTES] Refactor the base Controller to not reinvent the wheel too much and rely on Symfony's events
173 27c8efb43b [TWIG] Add twig function to output the active tag if the current route matches a given one

174 db711672f2 [CORE][ROUTES] Small refactor on entrypoint and RouteLoader
175 2b36fcab03 [COMMON][SECURITY][WRAPPER] Added security service static wrapper and Common::getUser
176 df6ee57cf5 [DEPENDENCY] Add symfonycasts/verify-email-bundle
177 adc715c224 [TOOLS] Update generate fields script to output default values
178 6c4f39fe1c [FIX] Fix bug in DATABASE.php, since findBy can return different types
179 04e8d7efbf [MAILER][WRAPPER] Add mailer wrapper that respects the configuration
180 73c489b244 [DATABASE] Update LocalUser table to not have a numerical id, add is_email_verified and fix getProfile accordingly
181 959aadf55e [FORM][WRAPPER] Merge argument options, not replace
182 95d0f6e9a4 [DATABASE] Fix typo in profile table and add a constructor
183 6b06b9c9ff [DATABASE] Fix typos in user_notification_prefs
184 6ba0536fb5 [UTIL][NICKNAME] Small refactor and remove the check between user nickname and group_alias, as these will have different semantics
185 9b66087072 [USER][UI][AUTHENTICATION] Add registration form
186 11f1d93231 [SECURITY] Small refactor in Authenticator.php, to remove unused services
187 c8781dc6fd [AUTOGENERATED] Update all entity fields
188 75cc043884 [I18N] Remove incomplete autogenerated translation file, to be fixed later
189 3ebfbabaab [LIB][Util] Update Common::setConfig to throw an exception if appropriate, add Formatting::{toString,toArray}
190 c14680af72 [CONTROLLER][ADMIN][CONFIG] Fix form to use static strings as keys and add labels seperately; convert input from string to appropriate type
191 d4cf641628 [SECURITY][CONTROLLER] Remove unreachable code from the Security controller
192 e610a96179 [UTIL] Update Formatting::{toString,toArray} to allow spliting by either space or comma
193 d87cfbb8bb [DATABASE] Refactor DB.php and make findBy always return an array, instead of a doctrine collection
194 0c57a8ba43 [FORM] Add Form::isRequired
195 e40b9bd537 [SELFTAGS] Add Profile::{set,get}SelfTags
196 091ea80f6d [UI][USERPANEL] Add prefilled fields, mark some as optional and handle self tags in the profile settings page
197 e6107a1d57 [UTIL][NICKNAME][FIX] Add self to constant
198 c550afd2d1 [DEPENDENCY] Add odolbeau/phone-number-bundle
199 547f7cffcb [CORE][UX] Save previous url to redirect back after registering
200 a50631d032 [UI][ROUTES] s%settings/profile%settings/personal_info%
201 25f0e1e883 [UI] Update settings/account to reflect the current values
202 a7b7aa208f [DATABASE][TOOLS] Update local_user, SchemaDefDriver and bin/generate_entity_fields to use the phone_number type (which maps to a varchar 35 and does validation)
203 b56485d403 [Controller] Update settings/avatar
204 d502cc477d [CORE][SECURITY][UX] Save previous url on /register and /logout
205 d2535fc854 [DATABASE][TOOLS] Update local_user to return the proper PhoneNumber type
206 bdb87ef3e6 [FORM] Add Form::handle which automagically creates a form, handles a request, and writes the data to the given entity and update Form::create to do some more magic as well
207 5c1594f4b9 [FORM] Add DataTransformer to and from array
208 03af4a4e34 [FORMATTING] Add option to split a string to array by both a comma and a space
209 c09daa8eb3 [DATABASE] Remove DATABASE::flush from Profile::setSelfTags
210 90c798ed48 [UI][CONTROLLER] Refactor UserPanel to use the new Form::handle method and add placeholders in the password fields
211 bce03b20f4 [DEPENDENCY] Update dependencies
212 b9088bd01e [SECURITY] Ensure ARGON2 constants are defined, or throw exception
213 41ec3be60b [MAIL] Make mailserver a required service
214 b523906112 [UI][CONTROLLER] Work on tabbed notification settings panel
215 ac70dc8f58 [UTIL] Add Common::array_remove_keys
216 8939f9e495 [UTIL][FORM] Add form transformer array <--> string
217 3b48419417 [MODULE] Renamed modules to components
218 271676fb4 [COMPOSER][MODULE] Add autoloading rules for components and plugins

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219  43b55fd3bc [COMMAND] Fix ListEvents command to properly display the callable
220  513d9c9f29 [MODULE] Added module base class
221  ea987a419e [MODULE][COMPILER] Add compiler pass responsible for loading,
        instantiating and wiring enabled modules
222  cc78bf5414 [PLUGIN] Update example plugin
223  53c612f927 [EVENT] Fix event handler and rename events to snake_case
224  4a1804930b [FRAMEWORK] Avoid double initializing the framework
225  258cfaf4cb [EVENT][ROUTES] Add event to allow modules to add routes, 'add_route'
226  9b318fdd6c [FORMATTING] Update license header in SchemaDef compiler pass
227  32771f638d [CONFIG] Cleanup services.yaml config file
228  8cd0b80a09 [UTIL] Fix and rename arrayRemoveKeys
229  aca7e031dd [MODULE] Reload modules if modified, except in production environment
230  ae54b905f7 [CONTROLLER][UI] Add notification settings form
231  87e393eb24 [COMPONENT][PLUGIN] Small refactor and add license
232  40ad4b20bb [AUTOGENERATED] Update autogenerated code
233  c75dd52735 [COMPONENT] Remove 'post on status change' option for email transport
234  fcd84af320 [COMPONENT][PLUGIN] Move Email and XMPP notification handlers from
        components to plugins, so they can be disabled
235  b4b8488d33 [PLUGIN] Remove Test plugin
236  c3e64332ac [UI][SETTINGS] User notification settings with configurable transports
        (through plugins)
237  d318de556d [DB][FILE][AVATAR] Handle deleting files, change file and avatar
        tables
238  1a197bdfbb [DB] Add entity base class to allow sharing methods such as 'create'
239  14f9c75e6a [MEDIA][AVATAR] Handle avatar validation and storage
240  39bdc6329c [JS] Whitespace cleanup
241  741d705967 [DEPENDENCIES] Update dependencies
242  ffcc1eee91 [AUTOGENERATED] Update autogenerated code
243  39a28a42f4 [AVATAR] Handle avatar upload without js and save and validate
        uploaded files
244  b50acb1903 [AVATAR] Fixed avatar upload, added avatar inline download and updated
        template and base controller
245  87bc913601 [TOOLS] Update generate_entity_fields
246  a3f358e77a [AUTOGENERATED] Update autogenerated code
247  d1e9b02345 [AVATAR] Update way avatar is sent, to use proper symfony responses,
        make config('site', 's_static_delivery') into a boolean
248  41d5538498 [SECURITY] Refactor
249  07b6b2cd85 [MEDIA][EXCEPTIONS] Fix errors and deprecations
250  1c24acf532 [EXCEPTION] Add ServerException and inherit previous throwable
251  b263fc3d11 [ROUTES] Add redirect from root to main/all, link from header to root,
        and change parameter order on RouteLoader::connect
252  8e81ff5530 [LocalUser] Fix missing extend
253  ef5fa9a7f5 [CORE] Data Representation and Modelling refactor
254  bfda94d26c [CORE][DB] Fix uses of db tables after previous restructure
255  e0986dfbdc [TOOLS] Fix bin/generate_entity_fields
256  e743e90a2a [AUTOGENERATED] Update autogenerated code
257  5a596bdf79 [DEPENDENCY] Update dependencies
258  10e21f4fbb [COMMAND] Fix 'bin/console doctrine:database:create' by only loading
        defaults if we have a connection
259  f3d7d4b90b [SECURITY] Wrap getUser in a try catch, in case the user doesn't exist
260  451a1f097a [UTIL][Common] Implement 'isSystemPath'
261  2b0ee10a23 [STREAM][NetworkPublic] Add skeleton of public timeline and posting
262  d71a35af53 [CONTROLLER][AdminPanel] Add missing use statement
263  f051452e0c [UTIL][Common] Fix import
264  59b9b3cae4 [MEDIA] Move avatar fetching and adding to ouput to media component
265  43f33fa5a9 [MODULE][Posting] Add Posting module, which handles notice posting
266  b6b11fea4d [Media] Move code from media.php to utils.php
267  e8690bf30b [DB] Add 'dql' method to wrap 'createQuery' and replace 'Gsactor' with
        'GSActor'
268  4c7becc08b [Media] Use utils
269  278b60f88b [UserPanel] Fix upload of avatar
270  7074ca7b77 [DB][DEFAULTS] Add avatar/default
271  63a56c80d0 [DB][AVATAR] Remove extraneous slash
```

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272 1658e10606 [DB][File] Remove timestamp, add actor_id
273 c930c97207 [MODULE][Left][UI][TAGS] Add Left module which handles fetching tags
       and followers, fix self tags
274 1970a48015 [ENTITY] Add Entity base class to all entities
275 fa813be9bc [UI][LEFT] Add link to settings on avatar and personal info
276 a093cf0ac9 [UI][CACHE][DB] Add follow counts to left panel, caching the results;
       change follow table
277 e8db19f032 [DB][FOLLOW] Change Follow table
278 26248bba6b [WRAPPER][HTTPClient] Static wrapper around Symfony's HTTP Client
279 1ac8668bb3 [CONTROLLER] Stop propagation of kernel.controller so notices aren't
       posted 5 times. Not sure why it happens otherwise
280 191d3dd82a [UI][FAQ] Fix static pages
281 7d5159a23c [UI][LEFT] Add # before selftags, and link
282 cf6d9984fe [UI][ACCOUNT][SETTINGS] Hack to fix error related to phone number,
       until a solution is found upstream
283 8d6c9e73ee [UI][SELFTAGS] Display 'none' if the user doesn't have selftags
284 687f63e255 [SECURITY] Fix error in user registering where password wasn't hashed
285 581f3eff9e [UI][MEDIA] Add actor avatar in feed timeline
286 9e666ea5b3 [MEDIA][CACHE] Cache avatar queries and delete stale values; small
       refactoring
287 24eafc3d56 [DEPENDENCY] Add tgalopin/html-sanitizer-bundle and transitively
       tgalopin/html-sanitizer
288 c0ef6a0911 [UI][NOTE] Post and see attachments
289 4ec4888a71 [MEDIA] Only try to get an avatar if a user is logged in
290 da3dc47763 [DB][MEDIA] Small database structure changes
291 5a322f8bb8 [UI][TWIG] Small UI cleanup and change twig 'active' function to check
        for starts with, rather than equals
292 4755ff7062 [ActivityPub] Initial cleanup, removing 'die' statements, and ignoring
        the subfolders
293 48f88dcf1f [DB][MODULES][ActivityPub] Cleanup table definitions
294 b27806c211 [MODULE] Fix avatars not loading
295 f702130d69 [CACHE] Fix bug in list caching
```

6.2 Daily Reports

```
1 Small fixes and improving docker containers
2 Improving docker container
3 Fixing docker environment and automatic configuration scripts
4 Writing a V3 installation instruction and code walkthrough document, backporting
     docker setup to v2
5 Helping students setup V3, correcting and reviewing V3 commits
6 Helping students setup V3, reviewing V3 commits, some refactoring work
7 Import commits by Diogo to add option to use self signed certificates,
     refactoring, rebased on nightly, changed author email
8 Studying Doctrine's documentation
9 Investigating how to use doctrine with symfony, prototyping, and helping Susanna
     setup her dev environment
10 Load default config values into database, small tweaks to docker and
     SchemaDefDriver
11 Implement database config defaults loading, help Eliseu and Susanna setup their
     dev environments
12 Updated install tools and optimized DB default loading
13 Documented all config options, added alchemy/zippy
14 Studying other software's docker configuration and codebases
15 Studying OpenID, OAuth and SASL protocol, for potential Single-Sign-On
16 Help Susanna setup her V2 instance, updating PR to upstream `functional-php`
17 Help Susanna setup her V2 instance, and Eliseu understand how to implement
     templates
18 Admin configuration panel and updating code around default configuration
19 Add admin config form and display previous value. Studying Pleroma API
20 Refactoring core, use dropdown in admin config panel, add custom message
     extractor, contributing to upstream Functional
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21 Updated configure script, helped Susanna. Added method to dump dynamic-valued calls to _m and dumped english files
22 Studying ICU message format to improve the implementation of the translation facilities, testing
23 Upgrade dependencies, fixed autoloading for _m and trying to fix the tests (the framework isn't loaded the same way)
24 Fixed bugs in I18n _m implementation, trying to fix tests
25 Meeting helping Eliseu and planning various things
26 Support for TemplateController and Symfony/Translation PR #37371, helping Eliseu, working on ICU format
27 Added testing and implementation for _m and formatICU
28 Add admin site config page
29 Review database structure
30 Finish database review, open rfc, update script and autogenerated code
31 Helping Eliseu and investing a potential Doctrine bug
32 Investigate Doctrine bug, fix database restructure commit, changed zero dates to CURRENT_TIMESTAMP, fixed Elise's rebase and last commit; researching how to implement queueing (symfony messenger) and investivating avatar 404 bug
33 Design discussion with Diogo, updating dependencies, adding wikimedia/composer-merge-plugin as a dep., fix deprecated use of class, fix routes, add controller base class, dummy notices
34 Implement and test queue wrapper. Investigating http caching. Configure HTTP cache, add cache wrapper, refactor log wrapper
35 Miscellaneous fixes, add ds extension and ring buffer data structure
36 Add msgpack and redis extensions to docker image, add support for multiple cache pools
37 Discussion with Diogo regarding next steps on the software's architecture design
38 Discussion with Diogo about ways to handle UI events. Added special support for redis to the cache. Fixes and refactoring
39 Review enhanncement tagged issues with Diogo and decide what to implement in v3
40 Fixing redis extension use lz4 build failure, adding a redis polyfill placeholder, to allow autoloading the necessary classes if the extension isn't installed. Discussion with Diogo and Eliseu about the features for v3. Fix use of redis
41 Trying to understand how to implement doctrine caching, fixing symfony translator PR, so it's hopefully accepted, update DB wrapper so entity names are provided without the namespace
42 Design meeting with Diogo
43 Studying how to implement login with Symfony, and social's v2 implementation, reading about best practices about password storage
44 Start implementing user login and supporting systems
45 A lot of fixing and refactoring, rename user table, add login and logout functionality, implement password hashing
46 Rebasing with Eliseu, helping him setup afterwards, design meeting with Eliseu and Diogo. Implement backbone for notification and refactor controllers. Add twig 'active' function, Common::getUser
47 Implement registration and bug fixes; fix controllers, refactors and stuff
48 Add phone number to user table, update user panel controller
49 Add Form::handle which automagically creates a form, handles a request, and writes the data to the given entity; Help Eliseu with avatar cropper, submit bug report to phone-number-bundle
50 Start implementing tabbednotification settings panel
51 Attempting to update the ExtensionManager, but can't dynamically load classes, asked on symfony slack, awaiying an answer
52 Figured out how to make symfony/composer stop complaining about not having a use statement.
53 Trying to get events to work with modules. Events and most of the thing is working, can't use controllers in modules. Got controllers sorted and committed everything
54 Fix plugins, make notification settings work, help Eliseu rebase
55 Handle avatar upload. Fixes and displaying avatar
56 Refactoring and finishing avatar upload
57 Design meeting with Diogo and start of implementation of feeds and data model
58 Data Representation and Modeling refactor, rebase with Eliseu, fixes

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59  Implement rudimentary network public feed, fixes and refactors and trying to
        figure out how to make a composite unique key
60  UI improvements; HTTP Client wrapper, fix notes getting posted 5 times; fix
        static pages, investigating error with phone number form, since maintainer
        replied
61  Investigating phone number error upstream, small hack fix, small UI fixes
62  Uploading and seeing attachments
63  Rebasing, studying AP plugin, start fixing it; help Eliseu
64  Fixes, helping Eliseu, reasearch adding entity loading to plugins, add note
        replying, start note favourite
65  Start implemeting favorites and recycles, researching Doctrine plugin enitites;
        meeting with Diogo about federation in v3
66  Helping Eliseu with favorites and repeats, reviewing all code, adding docs
67  Implementing replies, refactoring, documentation, discussion with Diogo and
        Eliseu about next steps
68  Further cleanup and documentation, improving replies implementation, start
        implementing all-encompassing activity table",
69  Continuing implementation of activity table, cleanup queries
70  Attemting to add javascript-handled replies, fixing avatar cropping script and
        displaying images in timelines
71  Fixing home timeline query, adding native query wrapper, call with Eliseu,
        writing documentation and technical report
72  Finishing up documentation and technical report. Small bug fixes
```