imag 0.10.0

User Documentation

December 2019

Contents

1 Introduction

This document is the user documentation for imag, the personal information management suite for the commandline.

Basically: This is Hobby stuff. Expect incompleteness, outdated documentation, false statements and generally read with grain of salt.

If you have any objections, suggestions for improvements, bugs, etc, please file them (See Section 8). A way to reach out to the imag project maintainer(s) is described in the Section 8 section.

1.1 The Problem

The problem this project tries to solve is to provide a modular commandline application for personal information management.

It targets "power users" or "commandline users", uses plain text as a storage format and tries to be as scriptable as possible. imag offers the ability to link data from different "PIM aspects" (such as "diary", "contacts" and "bookmark" for example).

One major goal of imag is to make the PIM data traverseable and queryable. For example: a wiki article can be linked to an appointment which is linked to a todo which is linked to a note which is linked to a contact.

imag wants to offer an all-in-one scriptable modular commandline personal information management suite for all PIM aspects one could possibly think of. Because imag uses plain text (TOML headers for structured data and plain text which can be rendered using markdown, for example, for continuous text) the user is always able to access their data without the imag tools at hand.

1.2 The Approach

The approach "imag" takes on solving this problem is to store content in a "store" and persisting content in a unified way. Meta-information is attached to the content which can be used to store structured data. This can be used to implement a variety of "domain modules" using the store. While content is stored in *one* place, imag does not duplicate content. imag does not copy or move icalendar files, emails, vcard files, music or movies to the store, but tries to remember the actual files are and stores meta-information about them in the store.

Detailed explanation on this approach follows in the chapters of this work.

1.3 Implementation

The program is written in the Rust programming language.

The program consists of libraries which can be re-used by other projects to implement and adapt imag functionality. An external program may use a library of the imag distribution to store content in the store of imag and make it visible to imag this way.

This is a technical detail a user does not necessarily need to know, but as imag is intended for power-users anyways, we would say it fits here.

1.4 Alternative Projects

imag is not the only project which tries to solve that particular problem. For example there is org mode for the emacs text editor. There is also zim, a desktop wiki editor which is intended to be used for a personal wiki.

The difference between imag and the mentioned projects is: * emacs orgmode is (from what I know and see) for *orgabizing* things. imag is intended not only for organizing, but also for recording, tracking and querying. * zim is a wiki, which could be used for PIM but is not specialized for it. Recording habits might be possible, but not that simple as with imag

imag is not there yet, though. Some parts can be used, though it is far away from being feature-complete.

In addition: imag is text-editor independent and other tools than imag might be used to access data stored in the imag store. For example, one could “grep”, “awk” and “sed” entries without much hassle and even write bash scripts for automatically filling imag entries with data.

2 Architecture of the imag code

The imag codebase has a rather simple overall architecture. In this chapter the types of crates, architecture of an imag module and the type structure are described.

2.1 Crate types

There are different types of crates in the imag world:

- “core” crates:
  - libimagstore - The imag store is the abstraction over the filesystem. It provides primitives to get, write and manipulate store entries and their header information.
  - libimagrt - The runtime library, which provides default argument parser setup, interfacing with STDIN/STDOUT, configuration loading and parsing. Simply put: It provides the runtime for a imag commandline application.
  - libimagerror - Error handling library for handling errors the imag way. Used in all other crates, even the store itself. It also offers functionality to log and trace errors as well as exiting the application, if necessary. (Note: This library might be removed in the future.)
- “entry” crates: “Entry” crates provide extensional functionality for the types from libimagstore. For example, there is “libimagentrylink” which provides functionality to link two entries in the store.

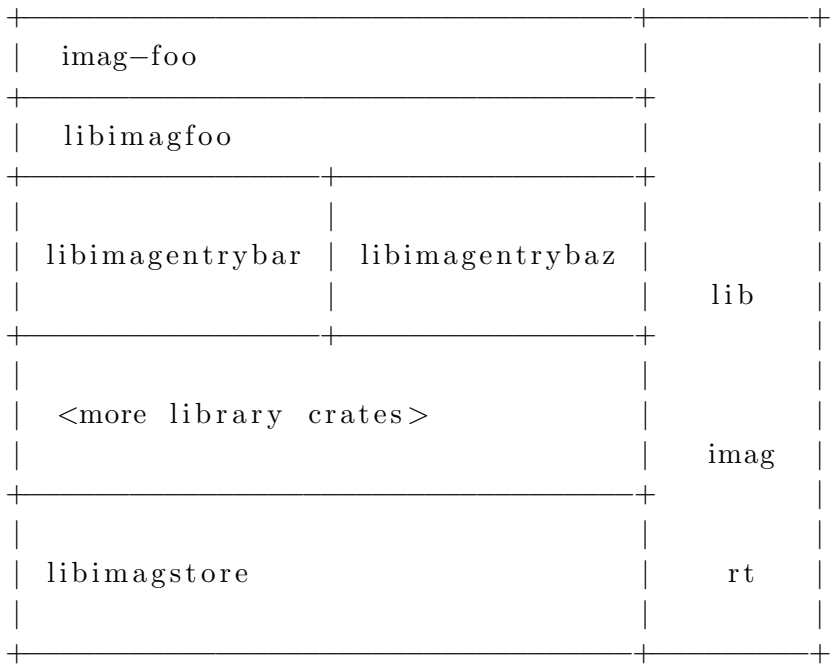
- "domain" crates offer end-user functionality for a imag domain, for example "libimagtodo" provides functionality to track todos.
- "etc"/"util" crates for simple utilities.

These are all libraries. There are also binary crates in the imag project (though they are technically *also* library crates):

- "core" binary crates, which implement core functionality of imag, such as commandline interfaces for tagging, linking, ... entries as well as querying them from the store and altering their data.
- "domain" binary crates, which implement a domain such as "todo" handling or "calendar" handling.

2.2 Architecture of an imag module

With the things from above, a module could have the following architecture:



External dependencies are not listed in this graphic.

The foundation of all imag modules is the store, as one can see in the visualization from above. Above the store level, entry libraries and domain libraries are used to implement functionality. The highest level of all imag modules is the commandline interface on top of the domain library. In between can be any number of entry extension libraries, or none if not needed. libimagrt is used by the binary to construct the runtime, which itself constructs and initializes the Store, so this library is used in the full stack more or less.

Theoretically, the commandline interface crate could be replaced to build a terminal user interface, graphical user interface or web interface.

2.3 Types

The imag core, hence the libimagstore and libimagrt, provide a set of types that a user (as in a library writer) should be aware of.

First of all, there is the Runtime type which is provided by the libimagrt. It provides basic access to whether debugging or verbosity is enabled as well as the most important core object: The Store.

The Store type is provided by the libimagstore library, the heart of everything.

When interacting with the store, two types are visible: FileLockEntry and Entry whereas the former derefs to the latter, which basically means that the former wraps the latter. The FileLockEntry is a necessary wrapper for ensuring that when working concurrently with the store, an entry is only *borrowed* once from the store. It also ensures that the object is alive as long as the store is.

The Entry type provides functionality like reading the actual content, its header and so on. Extensions for its functionality are implemented on this type, not on the FileLockEntry.

The Entry provides access to its header, which is a toml::Value, where toml is the toml-rs crate (external project). Convenience functionality is provided via the toml−query crate, an external project which was initiated and extracted from the imag project.

3 The Store

The store is where all the good things happen. The store is basically just a directory on the filesystem imag manages and keeps its state in.

One could say that the store is simply a database, and it really is. We opted to go for plain text, though, as we believe that plain text is the only sane way to do such a thing, especially because the amount of data which is to be expected in this domain is in the lower Megabytes range and even if it is *really* much won't exceed the Gigabytes ever.

Having a storage format which is plain-text based is the superior approach, as text editors will always be there.

A user should always be able to read her data without great effort and putting everything in a *real* database like sqlite or even postgresql would need a user to install additional software just to read his own data. We don't want that. Text is readable until the worlds end and we think it is therefore better to store the data in plain text.

The following sections describe the store and the file format we use to store data. One may skip the following sections, they are included for users who want to dig into the store with their editors.

3.1 File Format

The contents of the store are encoded in UTF-8. A normal text editor (like vim or the other one) will always be sufficient to dig into the store and modify files. For simple viewing even a pager (like less) is sufficient.

Each entry in the store consists of two parts:

1. Header
2. Content

The following section describe their purpose.

3.1.1 Header Format

The header format is where imag stores its data. The header is an area at the top of every file which is seperated from the content part by three dashes (−−−). Between these three dashes there is structured data. imag uses TOML as data format for this structured data.

The header can contain any amount of data, but modules (see Section 6) are restricted (by convention) in their way of altering the data.

Normally there are several sections in the header. One section ([imag]) is always present, it is automatically created by the store and contains a version field, which tells imag which version this file was created with. The store automatically verifies that it is compatible (satisfying semver) with the version of imag an entry was created with, and if it is not, it fails loading the entry.

Other sections are named like the modules which created them. Every module is allowed to store arbitrary data under its own section and a module may never read or write other sections than its own.

3.1.2 Content Format

The content is the part of the file where the user is free to enter any textual content. The content may be rendered as Markdown or other markup format for the users convenience. The store does never expect any specific markup.

Technically it would be possible that the content part of a file is used to store binary data. We don't want this, though, as it is contrary to the goals of imag.

3.1.3 Example

An example for a file in the store follows.

```
---
[imag]
version = "0.10.0"

[note]
name = "foo"
```

```
[link]
internal = ["some/other/imag/entry"]
---

This is an example text, written by the user.
```

3.2 File organization

The "Entries" are stored as files in the "Store", which is a directory the user has access to. The store may exist in the users Home-directory or any other directory the user has read-write-access to.

Each module stores its data in an own subdirectory in the store, by convention.

The path to a file in the store is named "Store id" (or short "ID") and we refer to it by using the store location as root. So if the store exists in /home/user/.imag/store/, a file with the storepath example.file is (on the filesystem) located at /home/user/.imag/store/example.file.

By convention, each libimagentry<name> and libimag<name> module stores its entries in in <name>/.

So, the pattern for the storepath is

```
<module name>/<optional sub-folders>/<file name>
```

Any number of subdirectories may be used, so creating folder hierarchies is possible and valid. A file "example" for a module "module" could be stored in sub-folders like this:

```
module/some/sub/folder/example
```

The above is not enforced or a strict rule, but rather a "rule of thumb".

3.3 Backends

The store itself also has a backend. This backend is the "filesystem abstraction" code.

Note: This is a very core thing. Casual users might want to skip this section.

3.3.1 Problem

First, we had a compiletime backend for the store. This means that the actual filesystem operations were compiled into the store either as real filesystem operations (in a normal debug or release build) but as a in-memory variant in the 'test' case. So tests did not hit the filesystem when running. This gave us us the possibility to run tests concurrently with multiple stores that did not interfere with each other.

This approach worked perfectly well until we started to test not the store itself but crates that depend on the store implementation. When running tests in a crate that depends

on the store, the store itself was compiled with the filesystem-hitting-backend. This was problematic, as tests could not be implemented without hitting the filesystem and mess up other currently-running tests.

Hence we implemented store backends.

3.3.2 Implementation

The filesystem is abstracted via a trait FileAbstraction which contains the essential functions for working with the filesystem.

Two implementations are provided in the code:

- FSFileAbstraction
- InMemoryFileAbstraction

whereas the first actually works with the filesystem and the latter works with an in-memory HashMap that is used as filesystem.

Further, the trait FileAbstractionInstance was introduced for functions which are executed on actual instances of content from the filesystem, which was previousely tied into the general abstraction mechanism.

So, the FileAbstraction trait is for working with the filesystem, the FileAbstractionInstance trait is for working with instances of content from the filesystem (speak: actual Files).

In case of the FSFileAbstractionInstance, which is the implementation of the FileAbstractionInstance for the actual filesystem-hitting code, the underlying resource is managed like with the old code before. The InMemoryFileAbstractionInstance implementation is corrosponding to the InMemoryFileAbstraction implementation - for the in-memory “filesystem”.

4 Conventions, best practices

This section explains conventions used in the imag codebase. It is mainly focused on developers, but a user may read it for getting to know how imag works.

Lets work our way up from the store and how to extend it to the commandline user interface.

4.1 Versioning

All imag crates are versioned with the same version number until we reach some ”1.0.0” version. This means that all imag tools are only tested for compatibility with libraries and such if their version numbers match. It might not be possible to import one imag library in version 0.3.0 and another one in 0.4.0 and make them work together. It also means that if new tools are introduced into the imag codebase, they might start with their first version not at 0.1.0 but at something like 0.5.0.

4.2 Store and Entry functionality

A Entry does not offer much functionality by itself. So its the job of libraries to *extend* its functionality. This should never be done by wrapping the Entry type itself but by providing and implementing an extension trait on it.

Same goes for extending the Store type: never wrap it, always provide an extension trait for it.

These two rules ensure that the type does not lose any functionality from a wrapping. Deref could do that, but not over muliple levels, so extension traits it is. It also most likely results in functions inside the extension trait which all return a Result<_, _>.

4.3 Libraries

In the next few sections, conventions and best practices for writing a imag library are written down.

A developer of imag should read this carefully, a user may skip this section or cross-read it for better understanding of the imag project.

4.3.1 Library naming

Libraries which provide functionality for entries or the store but no domain-functionality should be named "libimagentrything" whereas "thing" stands for what the library provides.

All domain libraries should be prefixed with "libimag".

4.3.2 Library scope

A library should never introduce utility functionality which could be useful for other libraries as well. If there is no such functionality available, the "libimagutil" or "libimagentryutil" might be a place where such a function would go to.

If a library has to introduce free functions in its public interface, one should think hard whether this is really necessary.

4.3.3 Library error types/kinds

Libraries must use "failure" to create error objects.

4.3.4 Libraries with commandline frontends

Libraries with commandline frontends provide end-user functionality. They are called "domain" libraries. Normally, they depend on one or more "libimagentrything" libraries. They should be named "libimagthing", though. For example: "libimagdiary", "libimagtimetrack" or "libimagwiki", whereas the commandline frontends would be "imag-diary", "imag-timetrack" and "imag-wiki", respectively.

If such a library needs to depend on another "libimagthing", for example if "libimagdiary" needs to depend on "libimagnote", one should think about this and whether the functionality could be outsourced to a more general "libimagentrything".

4.3.5 Library testing

All libraries should be tested as much as possible. Sometimes it may not be possible without a lot of effort, but still: more tests = better!

4.4 Commandline tools

The commandline tools are the CLI-frontends for their respective libraries. So libimagdiary has a CLI frontend imag−diary.

Those CLI frontends use functionality from libimagrt to build a commandline interface which is consistent with the rest of the ecosystem.

Commandline applications use the runtime interfaces for receiving IDs from the CLI or IDs which are piped into the application. Commandline applications use the 'stdin'/'stdout'/'stderr' wrappers provided by the runtime (see section below).

Commandline applications are *only* interactive when specified by the user (normally via a −−interactive flag). An application *must* provide the full functionality via its commandline interface, thus it is not allowed to provide functionality which is only usable in interactive mode.

4.4.1 IO

There are minor restrictions how imag tools should do IO. A good rule of thumb is (but most certainly only applicable when programming an imag tool in Rust): use libimagrt to do IO of any kind.

For more information, or if not using Rust as programming language: the documentation of libimagrt describes how IO should happen (which output stream to use, how input should be done).

5 Writing an imag module

So you want to write a module for imag. That's nice.

This guide helps you getting started. It also can help you understanding how imag modules work, so even if you do not want to write a full new module, but extend or alter one, this guide may help you.

5.1 Data layout

First, you have to think about what data you want to store. What functionality do you want to provide and what data that creates.

In this example, we're writing a module that stores numbers. We're writing the appropriate library for that as well as a commandline frontend.

5.2 libimagnumberstorage

We're writing a libimagnumberstorage which provides the core functionality of our module: Storing numbers.

That library can then be used by other library authors and by the commandline interface implementation.

5.2.1 Setup

So what do we need to do to write this library:

1. Create a new "lib" crate. Because we're writing a "domain" library, we're doing this in the lib/domain subdirectory: cd lib/domain; cargo new --lib libimagnumberstorage.
2. After creating the library, we have to add the new library to the /Cargo.toml field and add the missing metadata in the new /lib/domain/libimagnumberstorage/Cargo.toml file.

That was the setup part. Now we can implement our functionality. For that, we need to *extend* two types from libimagstore, so we have our first dependency here.

5.2.2 Dependencies to other libraries

3. Put libimagstore as a dependency in the /lib/domain/libimagnumberstorage/Cargo.toml file. By using libimagstore = { version = "0.10.0", path = "../../../lib/core/libimagstore" } we automatically get all the goodness of Cargo, so that releases automagically work as expected, but when developing locally, the local version of libimagstore is used. Of course, the version has to be the latest released version.
4. For error handling, we also need to import libimagerror.
5. For easy header-editing, we import toml and toml-query.
6. For error-type creating, we import error-chain.

5.2.3 Interface

7. Then, we have to *extend* two types:
    1. libimagstore::store::Store has to be extended so we can implement a CRUD interface for our special entries.
    2. libimagstore::store::Entry has to be extended so we can get our stored numbers in a convenient way.

Our interface should roughly look like this:

```
store.get_stored_number("5") -> Result<FileLockEntry, _>
store.store_number("5")      -> Result<FileLockEntry, _>
store.delete_number("5")     -> Result<(), _>
```

You notice that the Store returns FileLockEntry objects rather than Entry objects. And that's ok. A FileLockEntry is a Entry, but ensures that we are the only ones editing that entry. So, we have to implement our number-storing-interface on Entry as well:

```
entry.get_number() -> Result<usize>
entry.set_number(usize) -> Result<()>
```

All those "extensions" are implemented as traits which are then implemented for Store and Entry.

Normally, we create new files for that, as well as for the error types we need:

- /lib/domain/libimagnumberstorage/src/store.rs
- /lib/domain/libimagnumberstorage/src/entry.rs
- /lib/domain/libimagnumberstorage/src/error.rs

where store.rs contains a trait NumberStorage and entry.rs contains a trait NumberEntry. error.rs contains the invocation of the error_chain!{} macro. Error types from libimagstore and others are linked in.

6 Modules

A module is a functionality of the program. There is a huge list of modules available in the imag core distribution.

Some of the modules shipped with imag cover core functionality such as linking, tagging or references to files outside of the store or even the store interface itself. Others cover things like diary, notes, wiki or bookmarks. These are also called "domains".

We try really hard to offer a consistent commandline user interface over all of these modules.

The following sections describe each module in detail, including its purpose and its provided functionality.

6.1 Bookmarks

The Bookmarks module is for keeping URLs as bookmarks, tagging and categorizing them and finally also open them in the browser.

6.2 Category

A tool to create categories and set/get them for entries.

The difference between a category and a tag is that a category must exist before it can be used and all entries of a category are linked to the "category entry" internally.

6.3 Diary

The diary module is for keeping your diary notes.

The diary module giv3s you the possibility to write your diary in imag. It offers daily, hourly and minutely entries (the latter beeing more like a private tumble-blog).

Exporting the diary is possible, so one can write it in markdown and later pass that to pandoc, if desired, to generate a website or book from it.

6.4 Edit

The imag−edit command is for simply editing store entries with the $EDITOR.

It is based on libimagentryedit (Section 7.8).

6.5 Entry

Plumbing tool for modifying and querying structured data in entries.

6.6 Init

This is the only imag−∗ command which does *not* set up a runtime and check whether the store is available. This command can be used to set up a imag store.

It also puts a default configuration in the right place and initializes a git repository, if there is a `git` command in $PATH (via calling git on the commandline, not via `libgit2` or some other library).

6.7 Link

The linking module imag−link is one of the plumbing modules. It offers the possibility to link entries in the store.

It also offers the functionality to link to external sources. This functionality *can* be used to link to external URLs, but the bookmarking module should be used to do this (see Section 6.1).

The linking module offers functionality to add, remove and list both internal (store entry to store entry) and external (store entry to URL) links.

6.7.1 Internal linking

6.7.2 External linking

A store entry can only have *one* external link. Therefor, when you create an external link, the linking module creates a new entry in the store which links to this URL. The linking module then links you entry with this new entry by using an internal link. This way one entry can have multiple external links attached to it and external links are deduplicated automatically.

6.8 Log

The “imag-log” module is a lightweight interface to the “imag-diary” command.

It is intended as a tumbeblog-like diary, where one does not care to fire up an editor and type in a long text, but rather type a few words and forget about it:

6.8.1 Usage

Logs can be created via an entry in the configuration file in the section log:

```
[log]
logs = ["work", "hobby", "music"]
default = "hobby"
```

The default key is required and the name which is used here *must* appear in the logs array.

In the above configuration snippet, the logs work, hobby and music are created. The user may now log to one of these logs with:

```
imag log --to <logname> "Some message"
# or
imag log -t <logname> "Some message"
# or, to the default log:
imag log "Some message"
```

Logs can be read by naming the log:

```
imag log show work
```

which prints one log per line (including time it was logged).

6.9 Mails

NOTE: This is mostly a todo-list for the imag−mail command. Nothing shown here is implemented. This “documentation-to-be” should be moved to imag−mail −−help eventually. This list might be incomplete, details might be not possible to implement in the way described or other dragons.

Target audience: People who want to implement imag−mail.

The Mails module implements a commandline email client. Emails can be written (via $EDITOR) and viewed, also in threads. Emails can be crawled for creating new contacts.

A Text User Interface is not planned, but might be there at some point.

The mail module implements a minimal Email client. It does not handle IMAP syncing or SMTP things, it is just a *viewer* for emails (a MUA).

The goal of the initial implementation is only a CLI, not a TUI like mutt offers, for example (but that might be implemented later). As this is an imag module, it also creates references to mails inside the imag store which can be used by other tools then (for example imag−link to link an entry with a mail - or the imag entry representing that mail).

So this module offers functionality to read (Maildir) mailboxes, search for and list mails and mail-threads and reply to mails (by spawning the $EDITOR).

Outgoing mails are pushed to a special directory and can later on be send via imag−mail which calls a MTA (for example msmtp) and also creates store entries for the outgoing mails.

6.9.1 Configuration

The following configuration variables are available for the imag-mail command:

- mail.defaultaccount: The name of the default account to use if the commandline parameters do not specify which account to use. The name must be in the mail.accounts array.
- mail.accounts: An array of account configuration. Each element in the array is a table of the following key-value pairs:
  - name: the name of the account. Names must be unique. Required.
  - outgoingbox: Path to mailbox to use for outgoing email. Required.
  - draftbox: Path to mailbox to use for outgoing email. Required.
  - sentbox: Path to mailbox to use for sent email. Required. maildirroot‘: Path to folder where all mailboxes for this account are located. Required.
  - fetchcommand: What commandline to invoke for fetching mails for this account. Optional - if not used, the global mail.fetchcommand will be used.
  - postfetchcommand: What commandline to invoke after fetching mails for this account. Optional - if not used, the global mail.postfetchcommand will be used.
  - sendcommand: What commandline to invoke for sending mails for this account. Optional - if not used, the global mail.sendcommand will be used.
  - postsendcommand: What commandline to invoke after sending mails for this account. Optional - if not used, the global mail.postsendcommand will be used.
- mail.fetchcommand: Command to use for fetching mail if no account-specific command was specified Available variables:
  - {{accountname}} - name of the account to fetch mail for.
  - {{boxes}} - a list of maildir paths to the boxes to fetch email for. imag provides primitives to transform this array. An example configuration for fetching with offlineimap might look like this: offlineimap −a {{accountname}} −f {{concatsep ”,” (replace ”/h
    to concatenate all boxes with a comma after removing a prefix. For a complete

list of transformation functions, the −−help flag shall be consulted. For more complicated transformations a bash/ruby/python script might be appropriate.

- mail.postfetchcommand: Command to use after fetching mail if no account-specific command was specified Available variables: Same as mail.fetchcommand.
- mail.postsendcommand: Command to use after sending mail if no account-specific command was specified Available variables: Same as mail.sendcommand.
- mail.sendcommand: Command to use for sending mail if no account-specific command was specified
  - {{accountname}} - name of the account to fetch mail for.
  - {{ mailfile }} - The path of the mail to send

6.9.2 CLI

The CLI of the imag-mail module is planned as follows:

- imag mail

  -A, –account - Specify the “account” to use for the opperation by name. If none is specified, the configuration is searched for a default command.

- imag mail track [opts...] Track a new mail, mail file passed as path

- imag mail scan [opts...] Scan a maildir and track all untracked mails

  –refind - re-find messages. Loads all messages which are known to imag and compares identifiers, to update the imag-internal cache if a mail got moved. Without this flag, a modified email file might be added to the imag store again, even if there's another entry in the imag store refering to the same file.

- imag mail list <args...> List mails in a given mailbox for a given account or the default account

  -S, –style - print messages in a certain style Available: - ‘linewise’ - ‘thread’

  -g, –grep - Filter by grepping for a pattern in body and subject

  -d, –daterange - Filter by date(range)

  -F, –filter - Filter by passed filter

  ```
  --thread      - Print only messages from the same thread as the found o
  ```

  –format= - Format mails for showing. –format always colorizes output (specify color in config) except when using –no-pager or piping output.

  ```
  When --tree is passed, the format is applied to the
  fragment _after_ the tree graphic.

  Default mode is 'default'.
  ```

```
Modes:
  - 'subject': <Subject>
  - 'simple': <From>: <Subject>
  - 'default': <Date> - <From>: <Subject>
  - 'fmt:<fmt>' format with passed format

Additional formats can be specified via the configuratio
file. If a format has the same name as a predefined one
the config overrides the predefined formats.
```

–color - Colorize output (default). –no-color - Do never colorize output.

- imag mail show <args...> Show mail(s) - either in pager or by printing them to stdout.

  Mails are specified by message id or imag entry

  –refind - If a imag entry is passed but the mail file is not there, try to re-find it.

  –refind-in - Same as –refind, but a path to a Maildir or a tree of Maildirs might be passed to narrow down search space.

  -C, –concat - Open all mails in one pager (by concatenating them) instead of one pager per message.

  –pager - Use pager to show mails (default).

  –no-pager - Do not use pager to show mails.

  –multipager - Pass all mails as arguments to one pager call instead of calling the pager on each mail individually (default). Only possible with –pager.

  –no-multipager - Disable –multipager. Only possible with –pager.

  –format= - Format mails for showing. –format always colorizes emails (specify color in config) except when using –no-pager or piping output.

```
Modes:
  - 'simple': Remove headers, except
      From, To, Cc, Subject, Date,
      Message-Id/References/In-Reply-To
  - 'simple-imag': Same as 'simple' but also show imag
    entry id.
  - 'print': Show everything
  - 'full': Show everything and add imag entry id
  - 'minimal': Remove headers, except From, To, Cc, Sub
  - 'tiny': Remove headers, except From, To, Subject
  - 'fmt:<fmt>' format with passed format

Additional formats can be specified via the configuratio
file. If a format has the same name as a predefined one
the config overrides the predefined formats.
```

–no-format - Disable all formatting (same as –pretty=print and disabling color output).

–color - Colorize output (default). –no-color - Do never colorize output.

- imag mail new <args...> Craft a new mail and safe it in the folder

  Requires configuration:

  - mail.accounts.[.draftbox]
  - mail.accounts.[.outgoingbox]

    –outbox - Specify the outbox for where the new mail should be stored in, if it is not given in the config (or to override it)

    –to - Specify to whom to send. If the specified string does not contain a valid email address, imag contact find is used to find the email address (if not suppressed via –no-autofind). Multiple allowed.

    –cc - Specify to whom to send in CC. If the specified string does not contain a valid email address, imag contact find is used to find the email address (if not suppressed via –no-autofind). Multiple allowed.

    –bcc - Specify to whom to send in BCC. If the specified string does not contain a valid email address, imag contact find is used to find the email address (if not suppressed via –no-autofind). Multiple allowed.

  –no-autofind - Do not automatically find contacts with imag contact find.

  ```
  --fcc       - Specify to store a copy of the mail somewhere.
                Multiple allowed.

  --subject   - Specify subject.

  --gpg-sign  - Sign with gpg.

  --gpg-crypt - Crypt with gpg to all recipients.

  --no-track  - Do not track new mailfile with imag.
  ```

  -D, –draft - Do not safe in “outgoing” box but rather in “draft” box.

- imag mail compose <args...> Same as ‘new’.
- imag mail fetch <args...> Fetch emails

  Requires configuration:

  - mail.fetchcommand or mail.accounts[.fetchcommand]
  - mail.postfetchcommand or mail.accounts[.postfetchcommand] (optional)

  –all - Fetch for all accounts –boxes - Fetch only some boxes (does not work with –all)

- imag mail send <args...> Send emails from the outgoing folder, also move them to 'sent' boxes

  Requires configuration:

  - mail.accounts.[.outgoingbox]
  - mail.accounts.[.sentbox]
  - mail.sendcommand or mail.accounts[.sendcommand]
  - mail.postsendcommand or mail.accounts[.postsendcommand] (optional)

  –outbox - Specify the outbox for where the mails that are about to be send are stored in, if it is not given in the config (or to override it).

  –sentbox - Specify the sentbox for where the sent mails should be moved after sending them, if it is not given in the config (or to override it).

  –no-move-sent - Do not move mail to the "sent" folder after sending it.

  –confirm - Confirm each mail before sending (default).

  –no-confirm - Do not confirm each mail before sending.

  –no-track - Do not track mailfile with imag. Does only work if imag mail new was invoked with −−no−track (so that the mail is not tracked already).

- imag mail mv Move a mail to another mailbox

  –thread - Move the complete thread of emails belonging to the specified mail.

  –no-track - Do not track new mailfile with imag. Does not work if mailfile is already tracked with imag.

- imag mail find <args...> Search for a mail (by header field (msgid, from, to, cc, subject, date, date-range), body, ...)

  –msgid –no-msgid –from –no-from –to –no-to –cc –no-cc –subject –no-subject –date –no-date –body –no-body –daterange - Toggle where to look at

  –print-entryid - Print imag entry id when finding mail –no-print-entryid - Do not print imag entry id when finding mail (default).

  –print= - What to print for the found mails. Valid values: - msgid - subject - from - cc - to - date - filepath (default)

- imag mail reply <args...> Reply to an email.

  Requires configuration: mail.accounts[.outgoingbox]

  Specify the mail to reply to by msgid, filepath or imag entry id.

  –add-to –add-cc –add-bcc - Add another recipient. Multiple allowed.

  –no-track - Do not track new mailfile with imag.

6.9.3 Format specifiers

The imag−mail command supports formatting output automatically and via predefined formats in the configuration file or by passing formatting specifications via CLI.

The available formatting variables are:

- H: The complete message header as key-value-table
- subject: The subject of the message
- date: The date field of the message
- body: The body of the message
- from: The sender of the message
- to: The address of the receipient of message
- fancyfromto: The address of the sender of the message, or, if the sender was you, the receipient (prefixed with F: or T: respecively).

6.10 Notes

The Notes module is intended to keep notes. These notes can be inserted as plain text, markdown or other markup languages.

The notes module offers:

- adding, removing and settings of tags
- listing notes, optionally filtered by
  - tags
  - grepping through note content and listing
    - the matches
    - files with matches
- opening a note via xdg−open (rendered as HTML if content is written in a markup language)

6.11 Reference

The Reference module.

6.12 Store

The Store module.

6.13 Tagging

The Tagging module.

A valid tag matches the regex [a−zA−Z][0−9a−zA−Z]∗.

6.14 Timetrack

The Timetrack module implements a timewarrior-like timetracking functionality for imag.

Each timetracking is a 'tag' which can be started and stopped. These tags are *no* tags as in imag-tag, but timetracking-tags.

Summaries can be printed, also filtered by tags if desired.

6.15 Todo

The "todo" module implements a task manager.

6.16 View

The View module.

6.17 Wiki

The Wiki module provides a personal wiki implementation.

The wiki entries are markdown-formatted files in the imag store. All entries are automatically searched for links and those links are automatically added to the header (or as external link, depending on the format).

Wiki entries can have no or one category and a arbitrary number of tags. Entries can be listed (as a "tree" shape) and filtered by content, category and tag.

7 Libraries

This section of the documentation is only relevant for developers and you might skip it if you're only a user of the imag tool.

The following sections contain a short documentation on what the several libraries are supposed to do. It is generated from the README.md files of each library and only gives a general overview what can be done with the library. For a more comprehensive documentation of the library, one might consult the appropriate documentation generated from the source of the library itself.

The documentation of the libraries is sorted *alphabetically*.

7.1 libimagbookmark

This library crate implements functionality for bookmarks.

It uses libimagentrylink to create external links and therefor deduplicates equivalent external links (libimagentrylink deduplicates - you cannot store two different store entries for https://imag−pim.org in the store).

It supports bookmark collections and all basic functionality that one might need.

7.2 libimagcalendar

This library helps tracking (vcard) events in imag.

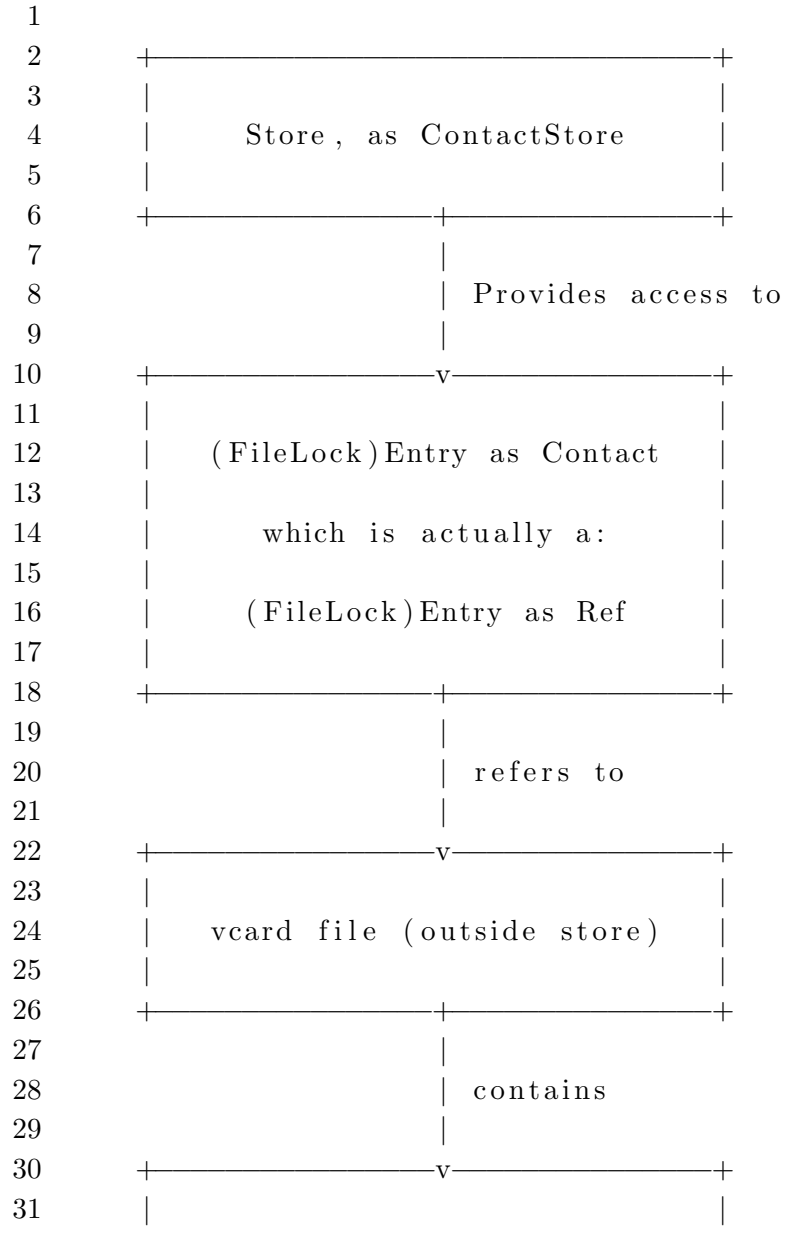
It does nothing more than create one imag entry per VEVENT UID, giving the user the ability to "link" to each event individually.

It uses the libimagentryref library for refering to the actual file holding the data.

7.3 libimagcontacts

The contact library basically only creates references to the actual vcard files, though it also can parse (via the vobject crate) the information and return it from an entry directly.

The architecture of indirections is as follows:



```
32      |              vcard data           |
33      |                                   |
34      +-----------------------------------+
```

7.4 libimagdiary

This library crates implements a full diary.

One can have one or more diaries in the store, each diary can have unlimited entries.

The diary provides *daily*, *hourly* and even *minutely* diary entries. For twitter-like log keeping, have a look at "libimaglog", though.

7.5 libimagentryannotation

This library provides annotation functionality for entries.

Annotations are normal Store entries, but their header at annotation.is_annotation is set to true.

Annotations are linked to an entry (as in libimagentrylink).

7.5.1 Library functionality

The library features two traits: One to extend an Entry with annotation functionality and another one for extending the Store with functionality to get annotations of an entry and all annotations in the store.

7.6 libimagentrycategory

This library provides category functionality for entries.

7.7 libimagentrydatetime

Provides date/time functionality for entries.

7.8 libimagentryedit

Provides edit (as in spawning an $EDITOR) functionality for entries.

7.9 libimagentryfilter

Helper library to filter lists of entries by certain predicated. Offers filters for filtering by header values and other predicates.

A commandline-to-filter DSL is planned for this, so commandline applications can use this to implement a uniform filter interface.

7.10 libimagentrylink

Linking library for linking entries with other entries.

7.11 libimagentrymarkdown

Helper crate to add useful functionality in a wrapper around hoedown for imag.

Adds functionality to extract links, parse content into HTML and other things which might be useful for markdown rendering in imag.

7.12 libimagentryref

This library crate contains functionality to generate *references* within the imag store.

7.12.1 Problem

The problem this library solves is the following: A user wants to refer to a file which exists on her filesystem from within imag. But unfortunately, the user has several devices and the filesystem layout (the way the $HOME is organized) is not the same on every device. With this library, the user is able to refer to a file, but without specifying the whole path.

Each device can have a different "base path", files are re-found via their hashes and file names, assuming that the files are equal on different devices or have at least the same name.

7.12.2 User Story / Usecase

Alice has a music library on her workstation and on her notebook. On her workstation, the music collection is at home/alice/music, on the notebook, it exists in /home/al/media/music.

From within imag, alice wants to create a link to a file $music_store/Psy_trance_2018_yearmix.mp3.

libimagentryref helps her, because she can provide a "base path" in the imag configuration file of each device and then link the file. imag only stores data about the file and its relative path, but not its abolute path.

When moving the imag store from the workstation to the notebook, the base path for the music collection is not /home/alice/music anymore, but /home/al/media/music and imag can find the file automatically.

7.12.3 Solution, Details

libimagentryref does store the following data:

```
[ref]
basepath = "music"
is_ref = true # marker that this entry is actually a "ref"
relpath = "Psy_trance_2018_yearmix.mp3"
```

```
[ref.hash]
sha1 = "<sha1 hash of the file>"
```

The filehash is stored so that libimagentryref can re-find the file whenever it was moved. The sha1 key is added to be able to upgrade hashes later to other hashing algorithms. relpath is the part of the path that when joined with the "base" path from the configuration results in the full path of the file for the current machine. The "collection" key hints to the configuration key in the imag config file.

The configuration section for the collections looks like this:

```
[ref.basepathes]
music = "/home/alice/music"
documents = "/home/alice/doc"
```

libimagentryref provides functionality to get the file. libimagentryref also offers functionality to find files *only* using their filename (x)or filehash and correct the filehash or filename respectively (automatically or explicitely).

7.12.4 Limits

As soon as the file is renamed *and* modified, this fails. This does also not cover the use case where the same file has different names on different machines.

7.13 libimagentrytag

Library for tagging entries. Used in "imag-tag" but should be used in all other modules which contain tagging functionality, so the backend and frontend look the same for all modules.

7.14 libimagentryutil

This library contains utilities for working with libimagstore :: store :: Entry objects where the functionality does not necessarily belong into libimagstore.

7.15 libimagentryview

Provides viewing (as in piping to stdout, opening in $EDITOR or in $BROWSER) functionality for entries.

7.16 libimagerror

In imag, we do not panic.

Whatever we do, if we fail as hard as possible, the end-user should *never ever* see a backtrace from a panic!().

Anyways, the user *might* see a error trace generated by imag. That is because imag is software for power-users, for nerds (I use the term "nerd" because for me it is a good thing - I do not want to offend anyone by using it). This target group can read backtraces without getting confused. IO Error and Permission denied Error are things that nerds can understand and they already know what to do in the most obvious cases (such as Permission denied Error).

This library crate is for generating error types and handle them in a nice way. It can be seen as mini-framework inside imag which was written to work with error types in a specified way. All imag crates *must* use this library if they can return errors in any way, except the libimagutil - which is for the most basic utilities.

7.17 libimaghabit

The habit library implements a habit tracker.

A habit can be instantiated with a name and a time-period in which it should be fullfilled (eg. daily, ever 3 days, weekly...).

The module offers ways to generate statistics about habits.

7.18 libimaginteraction

A crate for more general interaction with the user (interactive commandline interface).

Offers functions for asking the user Y/N questions, for (numeric) values, etc.

7.19 libimaglog

A small extension over libimagdiary which strips down the functionality of libimagdiary to some defaults for writing a log (a tumbleblog like diary) with rather short messages.

Provides only basic functionality over libimagdiary, most notably the "log.is_log" header entry, so the imag−log CLI can distinguish between "logs" and "diary entries".

7.20 libimagmails

The mail library implements everything that is needed for being used to implement a mail reader (MUA).

It therefor provides reading mailboxes, getting related content or mails, saving attachments to external locations, crafting new mails and responses,...

It also offers, natively, ways to search for mails (which are represented as imag entries).

For more information on the domain of the imag−mail command, look at the documentation of the Section 6.9 module.

7.21 libimagnotes

7.22 libimagrt

This library provides utility functionality for the modules and the binary frontends, such as reading and parsing the configuration file, a builder helper for the commandline interface and such.

It also contains the store object and creates it from configuration.

the libimagrt::runtime::Runtime object is the first complex object that comes to live in a imag binary.

7.22.1 IO with libimagrt

libimagrt also provides IO primitives which should be used by all imag tools and libraries:

The IO story in imag is pretty easy. As imag is mainly a CLI tool, IO is either stdout or stderr and stdin.

Output libimagrt provides getters for an output stream for "normal" output, like logging, status information, etc. It also provides an output for "touched entries".

Whenever an imag tool touches an entry in any way (either reading or writing), it should report this to libimagrt. libimagrt then does "the right thing" which is printing it to stdout or swallowing the output. Normal output (logging, status information, explicitely queried information) goes to the right sink automatically, that is:

- If the user provides the appropriate flags, normal output goes to stderr and "touched entries" go to stdout. This allows a user to 'chain' imag calls.
- If the user does not provide these flags, normal output goes to stdout (for piping to other tools, e.g. grep) and "touched entries" are not printed.
- stdin can be used for reading store-ids which shall be processed by an imag tool. For example imag−tag can receive a list of entries to add tags to via stdin like this: echo some/entry some/other | imag tag −I add sometag.

With these two settings in place, calls to imag can be chained and mixed with external tools pretty easily:

```
imag -O ids where 'some.header == 1' | \
imag -I -O tag add foo               | \
imag -I -O category set bar          | \
fzf                                  | \
imag -I tag add baz
```

The first line gets all imag entries where some.header equals 1. The touched entries are printed to stdout (−O). The second line tags all entries which are passed via stdin (−I)

with foo and prints them to stdout (−O) The third line sets the category for all entries which are passed via stdin with bar and prints them to stdout. The fourth line calls the fzf program and lets the user select one entry and the last line reads that entry via stdin and tags it with baz.

Automatically detecting the appropriate input/output settings is possible, but hidden behind a environment-flag, as it is considered experimental. To test this, set IMAG_IO_EXPERIMENTAL=1 in your environment. Note that stdin may be detected as "store id stream" when it is actually not. libimagrt can take care of this when passing −−interactive.

Input libimagrt also provides primitives for input. As documented in the paragraph on "Output", imag tools may get store ids passed via stdin. Hence, imag tools may/can not interactive when passing store ids via stdin. libimagrt provides functionality to query data from the user. These functions automatically fail if the user passes store-ids via stdin.

The next paragraph documents the details of this and may be skipped.

The user tells imag that stdin contains store-ids by setting the −I (−−ids−in) flag on the commandline. If that flag is given, the interactive functionality of libimagrt automatically returns an Err(_) which can be used to tell the user what happened and exit the program accordingly. The user may also provide −−interactive to tell imag via libimagrt that stdin is indeed not a stream of store-ids even if a pipe is detected.

7.23 libimagstore

The store is the heart of everything. Here lives the data, the complexity and the performance bottleneck.

The store offeres read/write access to all entries.

The store itself does not offer functionality, but has a commandline interface "imag-store" which can do basic things with the store.

7.24 libimagtimetrack

A library for tracking time events in the imag store.

7.24.1 Store format

Events are stored with a store id like this:

```
/timetrack/<insert-date-year>/<insert-date-month>/<insert-date-day>/<insert
```

Timetrackings contain

- a comment (optional, free text)
- a start date
- an end date

- a tag

by default and might be extended with more header fields as one likes.

The header of a timetrack "work" entry looks like this:

```
[event]
tag = "work"
start = "2017-01-02T03:04:05"
end = "2017-01-02T06:07:08"
```

Normal tags (as in libimagentrytag) are explicitely *not* used for tagging, so the user has the possibility to use normal tags on these entries as well.

The tag field is of type string, as for one tag, one entry is created. This way, one can track overlapping tags, as in:

```
imag timetrack start foo
imag timetrack start bar
imag timetrack stop foo
imag timetrack start baz
imag timetrack stop bar
imag timetrack stop baz
```

The end field is, of course, only set if the event already ended.

7.24.2 Library functionality

The library uses the libimagentrydatetime::datepath::DatePathBuilder for building StoreId objects.

The library offers two central traits:

- TimeTrackStore, which extends a Store object with functionality to create FileLockEntry objects with a certain setting that is used for time-tracking, and
- TimeTracking, which extends Entry with helper functions to query the entry-metadata that is used for the time tracking functionality

The library does *not* provide functionality to implement imag-timetrack or so, as the core functionality is already given and the commandline application can implement the missing bits in few lines of code.

Aggregating functionality might be provided at a later point in time.

7.25 libimagtodo

The library for the todo module which provides functionality to implement/implements a todomanager in imag.

7.25.1 Implementation details

One todo entry is stored as one imag entry. The ID of the imag entry is generated by appending a unique ID (UUID) to "todo/".

The unique ID identifies the todo entry.

Stored data A todo entry stores the following information:

- The (UU)ID of the todo entry
- A status of the todo entry. Valid values are: "deleted", "done", "pending"
- An optional "scheduled" date/datetime
- An optional "hidden" value, which specifies a date in the future where this todo entry should show up.
- An optional "due" date/datetime
- A "priority"-level, either "h", "m", "l"

The description of the todo entry is stored as plain text.

Data not stored Some data is explicitely *not* stored by the library because there are other libraries fullfilling that purpose. These are:

- Related todos, which can be done via libimagentrylink
- Tags, which can be done with libimagentrytag
- Category, which can be done with libimagentrycategory
- Project belonging, which can be done with libimagentrylink (by linking to a project file - note that "project" is a domain not yet implemented by imag)
- Annotations, which can be stored with libimagentryannotation

Header format The header partial for libimagtodo is as follows:

```
[todo]
uuid = "string"
status = "enum { 'deleted', 'done', 'pending' }"
scheduled = "<NaiveDateTime>" // optional
hidden = "<NaiveDateTime>" // optional
due = "<NaiveDateTime>" // optional
priority = "enum { 'h', 'm', 'l' }" // optional
```

Functionality The provided functionality of this library includes, but is not limited to:

- Creating
- Deleting
- Get/Retrieving

- Getting data about the todo
  - Reading metadata: scheduled, due, waiting, prio, uuid, status,...
  - Related (via libimagentrylink) todo entries

7.26 libimagutil

Utility library. Does not depend on other imag crates.

7.27 libimagwiki

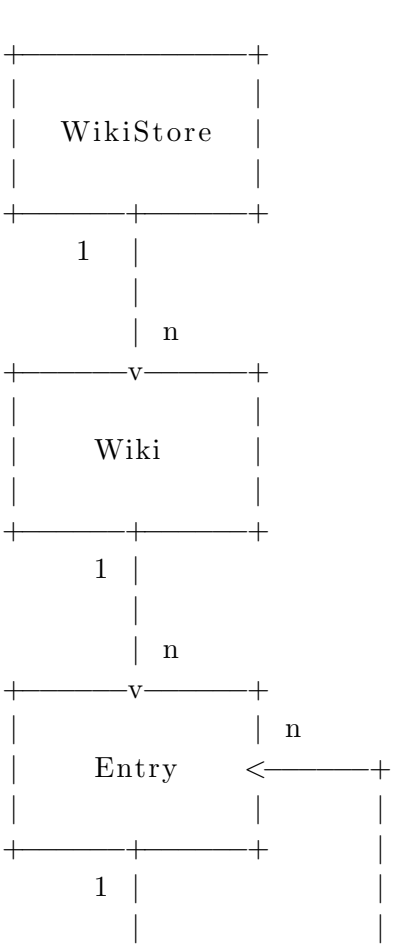
The wiki library implements a complete wiki for personal use.

This basically is a note-taking functionality combined with linking.

7.27.1 Layout

The basic structure and layout is as simple as it gets:

/wiki holds all wikis. The default wiki is /wiki/default. Below that there are entries. Entries can be in sub-collections, so /wiki/default/cars/mustang could be an entry.



The store offers an interface to get a Wiki. The wiki offers an interface to get entries from it.

Each Entry might link to a number of other entries *within the same wiki*. Cross-linking from one wiki entry to an entry of another wiki is technically possible, but not supported by the Entry itself (also read below).

When creating a new wiki, the main page is automatically created.

7.27.2 Autolinking

The Entry structure offers an interface which can be used to automatically detect links in the markdown. The links are then automatically linked (as in libimagentrylink).

8 Contributing to imag

So you want to contribute to imag! Thank you, that's awesome!

All contributors agree to the developer certificate of origin by contributing to imag.

Feel free to contact us via our mailinglist and/or submit patches via mail (use git format−patch and git send−email, always add a cover letter to describe your submission). You don't have to send patches via mail, though. As long as I can git pull your changes (without having to login or register at the remote) or git am your patchset, I'm fine. I'd encourage you, though, to use git-send-email or at least git-request-pull

Make sure to test-compile your patchset and run tests if there are any for the code you changed.

8.1 Prerequisites

The prerequisites are simple: cargo and rustc in current version (stable) or newer (we do not use nighly features though).

Build dependencies for building are listed in the default.nix file, though you do not have to have the nix package manager installed to build imag. Everything else will be done by cargo.

8.2 Commit guidelines

Make sure your patchset does not contain "Fixup" commits when publishing it, but feel free to send "Fixup" commits in the review process. If squashing fails I will come back to you.

Also ensure that each commit has a "Signed-off-by:" line. By adding that line, you agree to our developer certificate of origin. If you do not add the "Signed-off-by:" line, I reserve the right to kindly reject your patch.

8.3 Code of Conduct

We use the same code of conduct as the rust community does.

Basically: Be kind, encourage others to ask questions - you are encouraged to ask questions as well!

8.4 Developer Certificate of Origin

```
Developer Certificate of Origin
Version 1.1

Copyright (C) 2004, 2006 The Linux Foundation and its contributors.
660 York Street, Suite 102,
San Francisco, CA 94110 USA

Everyone is permitted to copy and distribute verbatim copies of this
license document, but changing it is not allowed.


Developer's Certificate of Origin 1.1

By making a contribution to this project, I certify that:

(a) The contribution was created in whole or in part by me and I
    have the right to submit it under the open source license
    indicated in the file; or

(b) The contribution is based upon previous work that, to the best
    of my knowledge, is covered under an appropriate open source
    license and I have the right under that license to submit that
    work with modifications, whether created in whole or in part
    by me, under the same open source license (unless I am
    permitted to submit under a different license), as indicated
    in the file; or

(c) The contribution was provided directly to me by some other
    person who certified (a), (b) or (c) and I have not modified
    it.

(d) I understand and agree that this project and the contribution
    are public and that a record of the contribution (including all
    personal information I submit with it, including my sign-off) is
    maintained indefinitely and may be redistributed consistent with
    this project or the open source license(s) involved.
```

9 Changelog

This section contains the changelog.

Some things, like typo fixes, version string updates and such are not stated in the changelog (though updating of dependencies is). Please note that we do not have a "Breaking changes" section as we are in Version 0.y.z and thus we can break the API like we want and need to.

9.1 0.10.0

Some things cannot linked to because many commis were necessary for introducing them to the imag codebase:

- All binary crates propagate errors to their main() function now rather than calling exit() somewhere in between.
- Clippy linting was enabled for the repository
- UI testing was introduced, though not many binaries are tested yet.
- 49b0b3a41 Unsafe code was forbidden in the codebase
- 0f32471a0 –ignore-ids argument on all CLIs (via runtime feature)
- 03e086426 Annotations (imag-annotate) are now unnamed.
- 06185fc44 New CLI tool: imag-header
- a6ad19a14 The StoreId type was rewritten for less complexity
- c562f3522 libimagentryref was rewritten
- 44896327e The code for the libimagmail and related crates was rewritten
- ac914b27e libimagmail uses another hashing mechanism now
- a4bcefe66 The module-entry-path functionality was rewritten
- 0283c3af7 Fix: The PathIterBuilder should ensure that the iterator does not yield directories
- a41048601 libimagentryref exports a toml_query::Partial now for getting configuration easily
- 1861f6545 libimagcontact uses libimagentryref now
- 99576bf5b libimagnotification was removed
- d561bef93 Fix: The imag binary ignores binaries with ".d" suffix
- cf9b29484 The "edit" command for imag-contact was added
- 0ec080fc7 imag-ref can list dead references now

- e8e031f3c imag-markdown was added to print markdown representation of entries
- 51daf2850 imag-timetrack can show the duration now
- 6264e2cb5 Fix: libimagentrylink can now no longer set() links
- f21b6e53a libimagentrylink was split into libimagentrylink and libimagentryurl
- 56f8aecdb Link annotation support was removed from libimagentrylink
- 57039654c libimagentrytag got a complete overhaul
- a9bde370a Fix: imag-log sorts by date when showing multiple logs
- 6b8c236b6 libimaghabit does not copy the comment of the template to the instance of a habit anymore
- d53e30645 imag-diagnostics can output more data now
- d8df96ad1 imag-create was added for creating entries
- 33c355cd4 libimagentrylink has a feature to check whether one entry is linked to another
- 712eda074 libimagcalendar was added
- b7e996ccf imag-calendar was added
- 7a0654465 Preparations for compiling imag into a single binary and provide commandline

  completions for all imag binaries
- 1f858cf4b imag-link got an option for directional linking
- ead9438c4 libimagtodo was rewritten from scratch and so was imag-todo
- 1a25bd2da imag-todo got a new taskwarrior-import functionality
- 1a25bd2da imag-tag got a filtering feature
- 7d340bb52 imag-todo for a output-format feature
- 49eb0c13e imag-todo can read ids from stdin
- 48943aa93 imag-bookmark does no longer contain the concept of “collections”
- 3e016d901 imag-bookmark can now call a command to open links
- 1809f4d4e libimagruntime ignores IO-errors when reporting touched ids
- 1c5a81d5b cargo-deny was enabled for the repository

These are just the major changes. From v0.9.0 to v0.10.0, more than 650 smaller changes and fixes where added to the codebase as well. All in all, over 700 commits were added to the master branch since v0.9.0.

9.2 0.9.3

Bugfix release for fixing:

- Removed an import which was already there and fails with the current beta compiler
- Fix a negation error in the config aggregation in imag-log
- Dependency specification fail in 0.9.2 where everything did not depend on 0.9.2 but 0.9.1

9.3 0.9.2

Bugfix release for fixing:

- Fix a function that checks a flag. If the flag is not there, it should be "not set".
- Fix to not ignore errors when collecting links in libimagentrylink
- Remove buildscripts because imag was not installable from crates.io with buildscripts.

9.4 0.9.1

Bugfix release for fixing:

- Fix off by one error in error tracing
- Fix negation error in imag-habit filtering mechanism
- Fix config override mechanism
- "status" subcommand might not be present in imag-habit, but standard command should work anyways
- We go to the next month, not to the current one (off by one error)
- 'start-time' cannot be None in imag-timetrack, clap ensures that
- Do not use deprecated StoreId::exists() function in libimagentrycategory

9.5 0.9.0

- f912d3e7f3 Fix: Duplicated printing of output in imag log show −−all The problem was that the used Diary::diary_names() iterator does not call unique() on its output. That decision was made because the return type would get more complicated with that feature. The fix was to call Itertools :: unique() on the iterator.

- 851db4abe4 Do not use rust-crypto anymore, but other crates A contribution from newpavlov. Thank you very much!

- 5b82d53fd2 Optimize libimagstore filesystem backend This optimization changes the backend so that the files are not held open. The files are now read whenever they are requested, then they are cached and are written back on "Store::update()" (which is also called when the store is dropped). This change allows us now to read more files into memory than there are FDs for the process (which was a problem with really large stores and, for example, imag-diagnostics.

- 6a81c0afd1 Update rust compiler for travis
- ccbc2b2672 Add progress bar for imag-diagnostic tool, so that a user can see that something is happening.
- a101e777f3 Update dependencies Dependencies of these imag crates where updated: Binaries:
  - imag
  - imag-contact
  - imag-edit
  - imag-git
  - imag-grep
  - imag-habit
  - imag-link
  - imag-timetrack
  - imag-view
  - imag-wiki

  Libraries:
  - libimagbookmark
  - libimagcontact
  - libimagentryfilter
  - libimagentrytag
  - libimagentryview
  - libimagerror
  - libimaginteraction
  - libimagmail
  - libimagrt
  - libimagstore
  - libimagtimeui
  - libimagtodo
  - libimagutil
  - libimagwiki
- 9bce68b1bf Optimized the libimagstore Store :: entries () interface to have the possibility to limit the filesystem access to subdirectories in the store path, so that IO operations are minimized.
- a749d97a16 Switched the whole ecosystem to use failure for error handling.
- ecf4cead93 Introduced the runtime IO system, which can now be used to chain imag calls like so: imag ids | imag tag add "foobar".

In the process of these major changes, small bugfixes and improvements were applied to the codebase. Too much to list all of them here, though.

The merge messages of the respective feature branches contain more details on the changes.

9.6 0.8.0

After the last release (0.7.0), we changed how we keep our changelog from manual adding things to the list, to using git −notes. Hence, there's no categorization anymore.

- Add imag(https://git.imag-pim.org/imag/commit/?id=imag)diary functionality to list existing diaries
- libimagentryviews StdoutViewer is now able to wrap lines
- imag−view can wrap output now
- imag tag is now able to read store ids from stdin
- libimagrt automatically suggests "imag init" if config is not found
- A changelog-generation script was added to the scripts/ directory
- Fix: libimagdiary did not return the youngest, but the oldest entry id on :: get_youngest_entry_id().
- Fix: imag-view should not always wrap the text, only if -w is passed
- Fix: imag−log show should order by date
- imag does not inherit stdout if detecting imag command versions.
- The Store :: retrieve_for_module() function was removed.
- imag−git was added, a convenient way to call git in the imag RTP.
- libimagentryview was refactored. The crate was refactored so that the "sink" - the thing the view should be written to - can be passed.
- A imag−view feature was added where markdown output can be formatted nicely for the terminal
- The libimagstore lib got its stdio backend removed.

  First, imag store dump was removed as it was based on this feature. Then, libimagrt got the ability removed to change the store backend to stdio. After that, we were able to remove the stdio backend and the JSON mapper functionality that came with it.

  This shrinked the codebase about 1kloc.

  The imag store dump feature can be reimplemented rather simply, if desired.
- imag−view is now able to seperate printed entries with a user-defined character (default: "-")
- Fix: Deny non-absolute import pathes in imag-contact
- libimagcontact is not based on libimagentryref anymore

  This is because we encountered a serious problem: When syncing contacts with an external tool (for example vdirsyncer), the files are renamed on the other host. Syncing

the imag store to the other device now creates dead links, as the path stored by the ref is not valid anymore.

Now that libimagcontact is not based on libimagentryref anymore, this issue does not exist anymore. libimagcontact stores all contact information inside the store now.

imag-contact was rewritten for that change.

- Fix: imag-contact does only require the name field, all others are optional now
- Fix: imag-contact automatically creates a UID now
- libimagcategory was rewritten

  It creates entries for categories now and automatically links categorized entries to the "category" entries.

  Its codebase got a bit simpler with these changes, despite the increase of functionality.
- imag−contact automatically generates/warns about missing file extension
- libimagcontact does export email properties now.

  imag−contact reads email properties and can output them in its JSON output. This is helpful for passing email adresses to external tools like mutt.
- libimagentrygps and imag−gps work with 64 bit signed values now

  Both the library and the command use i64 (64 bit signed) for GPS value fragments now.

  Also: The imag−gps tool does not require a "second" value fragment now, it defaults to 0 (zero) if not present.
- The filters dependency was updated to 0.3
- libimagentryfilter filters headers not with a failable filter.
- imag−diary has no longer an edit command. imag−edit shall be used instead.
- libimagtodo got a error handling refactoring, so that more chaining happens.
- Errors in libimagstore contain more details in the error message about what StoreId caused the error Unused errors were removed.
- The Store API got functions to get data about the internal cache and flush it
- imag-diagnostics flushes the cache each 100 entries processed
- The iterator interface of libimagstore was refactored

  Originally, the iterator interface of libimagstore did not return errors which could happen during the construction of a StoreId object. This was refactored, effectively changing the StoreIdIterator type to not iterate over StoreId anymore, but over Result<StoreId, StoreError>. That cause a lot of changes in the overall iterator interface. All iterator extensions (like . into_get_iter () for example) had to be rewritten to be applicable on iterators over Result<StoreId, E> where E is a generic that can be constructed From<StoreError>.

This all was triggered by the fact that Store::entries() did a .collect::<Vec<_>>() call, which is time consuming. Consider a tool which calls Store::entries() and then only use the first 10 entries returned (for some user-facing output for example). This would effectively cause the complexe store to be accessed (on the filesystem level), which could be thousands of entries. All relevant pathes would have been written to memory and then be filtered for the first 10. Not very optimized.

After this was done, the store interface changed. This caused a lot of changes in almost all crates.

Internally, in the store, the FileAbstraction object is not passed around in a Box anymore, but in an Arc, as a intermediate (store-private) iterator type needs to access the backend for file-system level checks. This is not user-facing.

In the process, the Store::reset_backend() interface was removed (as this is no longer supported and should've been removed already). Rewriting it just for the sake of this patch and then removing it would've been to difficult and time- consuming, hence it was simply removed during that patchset.

The overall performance was somewhat improved by this patchset. A rather non-scientifically performed test shows increased performance in debug builds (but slowing down in release builds).

The test was done on master before the merge and after the merge, with a debug build and a release build. Each time, imag−ids was executed 10 times with its output piped to /dev/null. The local store used for this contained 5743 entries during the measurements and was not changed in between. time showed the following data (real, user, sys):

Before, Debug build:

```
0,075;0,052;0,023
0,077;0,051;0,026
0,083;0,063;0,020
0,079;0,054;0,025
0,076;0,057;0,019
0,077;0,059;0,017
0,074;0,052;0,022
0,077;0,045;0,032
0,080;0,060;0,020
0,080;0,058;0,022
```

After, Debug build:

```
0,071;0,050;0,021
0,073;0,053;0,021
0,075;0,060;0,015
0,076;0,047;0,029
0,072;0,055;0,018
```

```
0,077;0,061;0,016
0,071;0,053;0,019
0,070;0,053;0,016
0,074;0,050;0,025
0,076;0,052;0,024
```

Before, Release build:

```
0,034;0,015;0,019
0,034;0,017;0,017
0,034;0,019;0,015
0,033;0,012;0,022
0,034;0,011;0,023
0,034;0,015;0,019
0,034;0,010;0,024
0,033;0,015;0,018
0,037;0,017;0,020
0,033;0,013;0,021
```

After, Release build:

```
0,037;0,015;0,022
0,036;0,016;0,020
0,036;0,018;0,018
0,036;0,014;0,022
0,036;0,015;0,021
0,036;0,018;0,018
0,037;0,016;0,020
0,036;0,018;0,018
0,039;0,015;0,023
0,037;0,016;0,021
```

- The Store::walk() function was removed.
- imag-ids got the ability to filter by header

  The language introduced here is subject to change, but a good first step into the direction of a generic filter language.

  Language documentation was added as well and is printed with imag ids --help.
- imag-category was added
- The standard CLI interface in libimagrt was updated and validations were added

9.7 0.7.1

Bugfix release for fixing:

- libimagdiary did not return the youngest, but the oldest entry id on ::get_youngest_entry_id().
- imag−view should not always wrap the text, only if -w is passed
- imag−log show should order by date
- imag does not inherit stdout if detecting imag command versions.
- imag−contact import does only allow absolute pathes
- imag−contact has most fields optional now, only name is required
- imag−contact automatically creates UID
- imag−contact automatically generates/warns about missing file extension

9.8 0.7.0

- Major changes
  - imag−timetrack list −−from/−−to now have kairos support - that means that complex −−from/−−to arguments (like yesterday or today−2weeks) are now possible
  - libimagerror got a major refactoring and uses ChainedError from error−chain for logging errors now.
  - libimagentryref and all libraries using it were rewritten. libimagentryref was rewritten to make its API simpler and yet more powerful. Also because it used to put entries under a "ref" collection in the store, but users of the library really should be be able to put entries under custom collections.
  - imag store ids was replaced by imag ids.
  - libimagentrylist was removed. Its functionality was inconvenient to use and ugly to implement. Its API was cumbersome. Listing of entries shall be implemented without it.
  - libimagcontact is now able to fetch all contacts from the store.
  - libimagcontact takes the hash from the vcard object (UID) now.
  - imag−contact got a find command, which matches in fullname, email and address and either shows or lists the found contacts
  - imag−contact list and imag−contact find is now able to print the output as JSON.
  - imag−edit can now read store ids from stdin, so imag ids | fzf | imag edit −I is now a thing.
  - imag ids does not print the path of the store. Can be turned on using commandline flag.
  - imag−habit today −−done and imag−habit status −−done was added for showing habits which are already done.
  - libimagrt allows external subcommands now in the default clap app builder helper. It also provides a helper for handling unknown subcommands: Runtime::handle_unknown_su
    See docs for details.
  - imag−link list prints output in ascii-table now, use −−plain to print as plain text.
  - The build script automatically generates autocomplete scripts for bash, fish and zsh now when compiling the imag command.
  - libimagwiki and imag−wiki were introduced.

- Minor changes
  - A license-checker was included into the CI setup, which checks whether all ".rs"-files have the license header at the top of the file
  - imag−link does not allow linking the entry to itself
  - imag sorts available commands alphabetically now
  - imag has a new subcommand help for consistency with other tools
  - imag−grep does not print grep statistics when only files with matches are listed
  - The "Ok" output which was printed on success was removed from all commands
  - imag−log show was aliased to imag−log list
  - imag−∗ −−version shows git describe output if binary was compiled in "debug" mode.
  - imag−diary supports "daily" diaries now.
  - imag−contact joins multiple emails with "," now
  - imag−tag commandline was rewritten for positional arguments.
  - libimagrt automatically takes "rt.editor" into account when building editor object
  - libimagentryref got a utility function for making an entry a ref.
  - libimaghabit got Habit:: instance_exists_for_date ()
  - imag contact find understands −−format now.
  - imag contact uses "," as seperator for output of lists of values.
  - imag contact find −−id / −−full−id was added for printing Store Id / Filepath of found contacts.
  - imag view can now view multiple entries at once
  - imag view −I reads store ids from stdin now.
  - libimagstore iterators have less restricting lifetimes now
  - libimagentrygrep was introduced, a crate for seaching in the header/content parts of an entry.
  - imag−ids can now filter by collection
  - All crates use "clap" with the "wrap_help" feature now.
- Bugfixes
  - imag does not panic anymore when piping and breaking that pipe, for example like with imag store ids | head −n 1. For that, libimagerror got a Result extension which can translate errors into exit codes and one for unwrapping or exiting with the Err(i32) from the result.
  - libimagdiary did not add the header markers on diary entries.
  - imag−diary used the default diary rather than the CLI setting. Now it rather uses the CLI setting and only if that is not present, it uses the default.
  - libimagerror printed errors with write!() rather than writeln!() when tracing.
  - A parsing error in libimagstore, which caused the parsing of entries with a line "—" in the content part to fail, was fixed.
  - The patch explained by the point above introduced a bug which caused entries to be read as a single line, which was fixed as well.
  - imag−diary create −−timed did not work as expected
  - libimagstore got another fix with the file parsing, as the std :: str :: Lines iterator

takes empty lines as no lines.
- libimagentryedit fixed to inherit stdin and stderr to child process for editor command.
- libimagrt produced the editor command without taking arguments into account.
- libimagentryref got a fix where the buffer for the hash calculation was not allocated properly.
- libimagstore :: store :: Store :: create overwrote existing entries.
- libimaghabit :: habit :: HabitTemplate did not link new instances.
- imag−init creates ~/.imag but not ~/.imag/store.
- libimagrt got a bugfix in the editor command setup where command arguments were not processed correctly which could result in calling the editor with an empty argument (vim " ").
- imag−grep did not count in all cases.
- libimagdiary sorts entries by date when viewing/listing them.
- A libimagentryref bug was fixed where the wrong variable was passed as path to the referenced file, causing all tools based on this lib to break.
- libimagrt had a bug where the logging level was set to "Info" as soon as "–verbose" was passed, but the value of "–verbose" was not even checked.

9.9 0.6.4

Bugfix release for fixing:

- libimagrt produced the editor command without taking arguments into account.
- imag−init creates ~/.imag but not ~/.imag/store.
- Fix editor setup in libimagrt to use /dev/tty as stdin for editor, so terminal-editors do not trash the terminal

9.10 0.6.3

Bugfix release for fixing:

- libimagstore got another fix with the file parsing, as the std :: str :: Lines iterator takes empty lines as no lines.

9.11 0.6.2

Bugfix release for fixing:

- imag−diary did not recognize the "-d DIARY" setting.
- A parsing error in libimagstore, which caused the parsing of entries with a line "—" in the content part to fail, was fixed.
- The bugfix above introduced another bug which caused entries to be rewritten in one line when accessing them. This was fixed.

- imag−diary did not properly set “minute” and “second” when creating “hourly” or “minutely” entries.
- Version numbers for all crates as well as in the docs were updated to “0.6.2”.

9.12 0.6.1

Bugfix release for fixing two severe bugs in imag−init:

- imag−init created the git directory inside the imag directory. Fixed by defaulting to {imag directory}/.git.
- imag−init was buggy as it did not include the imagrc.toml file in the release, thus building it from crates.io failed

9.13 0.6.0

- Major changes
  - The config infrastructure of libimagstore was removed, as it was unused.
  - The iterators of libimagstore were improved and are now abstract over all iterator types. For example, all iterators over StoreId can now be transformed into a StoreGetIterator.
  - imag−log was introduced
  - imag−init was introduced
  - libimagdiary supports second-granularity now.
  - libimagstore :: store :: Store :: retrieve_copy was renamed to libimagstore :: store :: Store :: get_copy, which describes the semantics of the function way better.
  - libimagentryutil was introduced, a library for helpers for libimagstore :: store :: Entry handling and writing extension-writing.
  - imag−edit was introduced
  - imag−diary got second-granularity support in the CLI.
- Minor changes
  - Internals were refactored from matching all the things into function chaining
  - The toml−query dependency was updated to 0.5.0
  - imag−timetrack list lists with a table now
  - imag−timetrack stop now stops all running tags if none are specified
  - The toml−query dependency was updated to 0.6.0
  - ResultExt::map_err_trace_exit () was removed in favour of ResultExt::map_err_trace_exit_unwrap().
  - imag−view shows content by default now. Use −C to hide the content.
  - kairos dependency was updated to 0.1.0
- Bugfixes
  - libimagbookmark contained a type which wrapped a FileLockEntry from libimagstore. This was considered a bug and was fixed.
  - We depended on a crate which was licensed as GPLv2, which would yield imag GPL as well. The dependency was removed.

  - The imag crate prints the “command filed” error message to stderr now. It also prefixes the subcommand with imag−<command> for better user experience.
  - libimagnotes did not set the note name in the header of the note.
  - imag−mv automatically fixes links when moving an entry in the store.
  - imag−log listed non-log entries (normal diary entries) before, was changed to only list log entries.

9.14 0.5.0

- Major changes
  - imag−counter and libimagcounter was removed.
  - imag−mv was introduced
  - imag−view uses positional args now
  - imag−view uses the configuration file now to find the command to call for viewing the entry. This way one can view the entry in an editor or the browser or on the toaster.
  - The logger is now able to handle multiple destinations (file and “-” for stderr)
  - imag−store can dump all storeids now
  - imag−annotate was introduced
  - imag−diagnostics was added
  - The runtime does not read the config file for editor settings anymore. Specifying an editor either via CLI or via the $EDITOR environment variable still possible.
  - imag−contact was added (with basic contact support so far).
  - imag−habit was introduced
  - imag−link commandline was redesigned to be easier but with the same features.
- Minor changes
  - libimagentryannotation got a rewrite, is not based on libimagnotes anymore. This is minor because libimagentryanntation is not yet used by any other crate.
  - imag now reads the IMAG_RTP environment variable before trying to access $HOME/.imag for its runtimepath.
  - libimagnotification was introduced, though not yet integrated into the CLI tools
- Bugfixes
  - Store :: entries () does not yield StoreIds which point to directories anymore, only StoreIds pointing to files.
- Stats
  - 227 commits
  - 51 merge-commits / 176 non-merge commits
  - 2 contributors
  - 186 files changed
  - 6707 insertions(+) / 3255 deletions(-)

9.15 0.4.0

- Major changes
  - The libimagstore::toml_ext module was removed. The toml_query crate should be used as a replacement. Its interface only differs in few places from the old libimagstore::toml_ext interface.
  - The codebase was moved to a more tree-ish approach, where several subdirectories were introduced for different types of crates
  - The documentation got a major overhaul and was partly rewritten
  - The logger is now configurable via the config file.
  - The error handling of the whole codebase is based on the error_chain now. libimagerror only contains convenience functionality, no error-generating macros or such things anymore.
  - imag-diary can now use a configuration in the imagrc.toml file where for each diary there is a config whether entries should be created minutely or hourly (or daily, which is when specifying nothing).
- New
  - libimagentrygps was introduced
  - imag-gps was introduced
  - imag-grep was introduced
  - The imag command now passes all arguments properly to the called subcommand
- Fixed bugs
  - The config loading in libimagrt was fixed.
  - libimagentrylink used imag as the location for putting links in entries. This is not allowed because this namespace is reserved for the store itself. This bug was fixed, links are now located in the links namespace in the header of an entry.
  - Store::delete() did only check the store-internal cache whether an entry exists, but not the filesystem. This was fixed.
- Minor changes
  - If building from a nix-shell, the mozilla rust overlay is expected to be present
  - Unused imports in the codebase were removed
  - Compiler Warnings were fixed
  - We specify inter-dependencies via path and variable now, so one can build the 0.3.0 release from the checkout of the codebase.
  - The imag binary was refactored and rewritten, the crossbeam dependency was removed.
  - The Makefile was removed as cargo is powerful enough to fit our needs
  - libimagstore::storeid::StoreId::is_in_collection() was added
  - The libimagentrylink is now rudimentarily tested
  - We compile with rustc 1.17, 1.18, .., nightly
  - The imag-store binary now uses positional arguments in its CLI
  - The "toml-query" dependency was updated to 0.3.1

  - imag−timetrack track is now able to parse “now”, date-only start/stop dates and date-time start/stop times.
  - libimagnotes does not longer wrap store types but extend them.
  - imag−notes uses positional arguments now.
  - libimagentrylist does not export a CLI helper module anymore.

- Stats
  - ˜325 commits
  - 82 merge-commits / 243 non-merge commits
  - 2 contributors
  - 447 files changed
  - 9749 insertions(+) / 7806 deletions(-) (Surely because of the reorganization of the entire codebase)

9.16 0.3.0

Note: As this file was written *after* the 0.3.0 release, we simply list the merges here instead of explaining what changed.

- Merges
  - d14c972 matthiasbeyer/release-commits-import
  - f6a1c7d matthiasbeyer/make-check
  - 0404b24 matthiasbeyer/update-deps
  - 85e95d1 matthiasbeyer/readme-rewrite
  - fa64c2d matthiasbeyer/libimagstore/store-id-cmp-without-base
  - 0a04081 matthiasbeyer/cargo-rustc-codegen-units
  - a4db420 matthiasbeyer/cargo-workspaces
  - 8bacdb4 matthiasbeyer/libimagref/remove-unused
  - 13c57aa matthiasbeyer/imag-link/reduce-unwraps
  - e70fdc6 matthiasbeyer/libimagentrytag/remove-impl-tagable-on-fle
  - 1db063f Stebalien/master
  - a6a7e43 mario-kr/add_shell-completion
  - 002c50a matthiasbeyer/clap-completion
  - b210b0e matthiasbeyer/libimagstore/entry-eq
  - fe1c577 matthiasbeyer/libimagstore/extract-toml-functionality
  - 4ca560a matthiasbeyer/travis-use-old-rustc
  - 0310c21 rnestler/libimagdiary/refactor_from_store_id
  - 9714028 matthiasbeyer/clap-recommend-versions
  - 2003efd matthiasbeyer/imag-mail/init
  - 7c7aad9 matthiasbeyer/libimagentrylink/fix-docu-typo
  - 0dd8498 matthiasbeyer/update-deps
  - 9375c71 matthiasbeyer/makefile-check-outdated
  - 23a80ee matthiasbeyer/imag-link/external-link-remove-arg
  - 4a821d7 matthiasbeyer/rust-beta-remove-top-level-cargotoml
  - 0cf5640 mario-kr/add_workspace-support

- c96e129 matthiasbeyer/libimagrt/logger-pub
- 2c4946a matthiasbeyer/remove-for-focus-shift
- 9d7a26b matthiasbeyer/libimagrt/dbg-fileline-opt
- 6dbecbd matthiasbeyer/libimagrt/config-types-pub
- 03a90c9 matthiasbeyer/cleanup-bash-compl-gen
- 6f564b5 matthiasbeyer/love-to-defaultnix
- ce36b38 matthiasbeyer/fix-imag-bin-build
- cd684b0 matthiasbeyer/travis-opt
- 636bfbb matthiasbeyer/imag-link/list-internal-only
- 1e3193e matthiasbeyer/imag-ruby
- 71e1a4c matthiasbeyer/libimagerror/fix-warnings
- b03d1b5 matthiasbeyer/libimagstore/fix-warnings
- 0a417aa matthiasbeyer/libimagruby/fix-warnings
- 55ea7f8 matthiasbeyer/readme-updates
- ddc49de matthiasbeyer/libimagruby/fix-macro
- df0fa43 matthiasbeyer/imag-tag/remove-warning
- 3c7edcf matthiasbeyer/update-regex
- 15b3567 matthiasbeyer/workspace-fix-missing-doc
- 6585677 matthiasbeyer/libimagentryfilter/remove-unused-import
- 2ca89b7 matthiasbeyer/workspace-fix
- 63ffbf6 matthiasbeyer/libimagstore/eliminate-header-type
- 3ffedec matthiasbeyer/remove-warnings
- 4d1282d matthiasbeyer/libimagruby/impl-retrieve-for-mod
- c43538d matthiasbeyer/ruby-build-setup
- 2beb795 matthiasbeyer/revert-871-ruby-build-setup
- b67b6f5 matthiasbeyer/libimagstore/doc
- dc1c473 matthiasbeyer/libimag-todos
- bb126d5 matthiasbeyer/libimagruby/api-brush
- b50334c matthiasbeyer/libimagrt/doc
- 54655b9 matthiasbeyer/libimaginteraction/unpub-fn
- e33e5d2 matthiasbeyer/libimagannotation/init
- f3af9e0 matthiasbeyer/clap-bump
- ef07c2c matthiasbeyer/libimagstore/verify-panic
- a0f581b matthiasbeyer/libimagentryedit/dont-impl-for-fle
- 84bcdc6 matthiasbeyer/libimagnote/note-doesnt-need-to-be-tagable
- 85cb954 matthiasbeyer/less-fold-more-defresult
- c4bd98a mario-kr/makefile_use_workspaces
- 3a0166b matthiasbeyer/libimagruby/error-types
- 5d4ef8e matthiasbeyer/libimagstore/non-consuming-update
- e615ec0 matthiasbeyer/add-libruby-travis-dep
- 63faf06 matthiasbeyer/fix-warnings
- 6f6368e matthiasbeyer/travis-fixes
- 9396acc matthiasbeyer/superceed-898
- 6fa281a matthiasbeyer/redo-ruby-build-setup
- 5b93f38 matthiasbeyer/libimagstore/storeid-exists-interface-result

- 03f17b8 matthiasbeyer/libimagentrylink/annotations
- 25a3518 matthiasbeyer/libimagentrylink/fix-exists
- 7e3c946 matthiasbeyer/libimagutil/fix
- 8eaead5 matthiasbeyer/fix-build-quick
- 241f975 matthiasbeyer/libimagentryedit/remove-unused-imports
- c74c26c matthiasbeyer/fix-readme-links
- 878162f matthiasbeyer/libimagstore/store-id-tests
- 1da56c6 matthiasbeyer/prepare-0.3.0
- 4257ec1 matthiasbeyer/update-toml
- a5857fa matthiasbeyer/libimagstore/configuration-tests
- 4ba1943 matthiasbeyer/add-dep-ismatch
- 5ba2568 asuivelentine/master
- dd24ce8 matthiasbeyer/revert-854
- bb9ff5b matthiasbeyer/remove-hooks
- 08f43c8 matthiasbeyer/update-toml-query
- 16a12af matthiasbeyer/libimagentrydate/init
- 1b15d45 matthiasbeyer/libimagentrydate/fix-header-location
- 4fff92e matthiasbeyer/libimagmail/use-email-crate
- ef82b2a matthiasbeyer/add-missing-license-header
- 15b77ac matthiasbeyer/libimagentrytag/clap-validators
- a9d2d7c matthiasbeyer/libimagstore/fs-memory-backend-as-dependency-injection
- c4d4fe9 matthiasbeyer/libimagstore/remove-todo-comment
- 71e3d3d matthiasbeyer/libimagentrytag/validator-helper-enhancement
- bc95c56 matthiasbeyer/libimagstore/fs-abstraction-pub
- f487550 matthiasbeyer/libimagstore/storeid-local-part-altering
- cd99873 matthiasbeyer/libimagstore/io-backend
- e75c37f matthiasbeyer/libimagstore/io-backend-knows-format
- d33b435 matthiasbeyer/libimagstore/all-entries
- f8ed679 matthiasbeyer/libimagstore/backend-replacement
- 2c97d6f matthiasbeyer/libimagstore/embellishments
- 17bab5b matthiasbeyer/libimagstore/fixes
- 2b77064 matthiasbeyer/libimagrt/fixes
- c9d03fc matthiasbeyer/update-travis
- 22a4dc0 matthiasbeyer/libimagrt/cleanup
- b47972b matthiasbeyer/imag-store-dump
- 1b88c22 matthiasbeyer/libimagentrycategory/init
- 7dea53c matthiasbeyer/libimagannotation/add-doc
- c71b707 matthiasbeyer/libimagannotation/add-is_annotation
- b3e7f09 matthiasbeyer/libimagtimetrack
- c75cfe4 matthiasbeyer/imag-link/fix-panic
- e80608c matthiasbeyer/libimagstore/fix-file-length-setting
- b4d0398 matthiasbeyer/imag-link/export-consistency-check
- f041fb3 matthiasbeyer/fix-dep-rustc-version
- 297eeb1 matthiasbeyer/remove-nix-deps
- bee4e06 irobert91/imag-link/rewrite-tests

  - afc5d1f matthiasbeyer/update-toml-query
  - 58047d3 matthiasbeyer/libimagtimetrack-to-libimagentrytimetrack
  - 3c07f47 matthiasbeyer/libimagtimetrack/more-features
  - 3767d8d matthiasbeyer/update-chrono
  - c9360a4 matthiasbeyer/imag-link/test-utils-to-libimagutil
  - e4f8d4e matthiasbeyer/imag-tag/tests
  - fc5bbc3 matthiasbeyer/libimagstore/glob-iterator-fix
  - ec1c1e8 matthiasbeyer/bin-refactor
  - 4b07c21 matthiasbeyer/todo
  - 057d919 matthiasbeyer/imag-timetrack
  - 0f436d5 matthiasbeyer/doc-overhaul
  - a1289cc matthiasbeyer/update-readme

- Stats:

  - 127 merged branches
  - 8 contributors

9.17 0.2.0

- Complete rewrite of 0.1.0 with new architecture and "modules" instead of monolithic approach. Can be considered first version.

9.18 0.1.0

- Initial version, nothing special.