

# Kasten Manual

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for version 0.2, last updated 2025-07-08

Qiyang Sun

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This manual is for Kasten (version 0.2, last updated 2025-07-08), which is an Emacs package for managing Zettelkasten-style notes.

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# 1 Synopsis

‘Kasten’ is an Emacs (<https://www.gnu.org/software/emacs/>) package designed to provide a focused and efficient browsing experience for Zettelkasten (<https://zettelkasten.de/>)-style notes.

Kasten is inspired by Deft (<https://melpa.org/#/deft>) and Zetteldeft (<https://melpa.org/#/zetteldeft>).

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## 3 Concepts

“Zettelkasten” is a note-taking and personal knowledge management system intensively used by Niklas Luhmann et al. In Zettelkasten, notes should be atomic, connected through meaningful links.

The introduction to Zettelkasten method can be found online, such as <https://zettelkasten.de/> and <https://en.wikipedia.org/wiki/Zettelkasten>. Readers may wish to refer to the literature as the Kasten Manual does not provide a detailed introduction to the Zettelkasten methodology itself.

Kasten is inspired by Zetteldeft, a Zettelkasten system on top of Deft. Deft is a note browsing system inspired by Notational Velocity.

Kasten designed based on the following ideas in mind.

- The system should be highly customisable.
- The system should be fast.
- Each note has a unique ID as its filename, typically derived from the creation time.
- Notes can be linked to each other by inserting IDs.
- Notes can be tagged. A note may have zero, one or many tags.
- Notes can be categorised. A note may have zero or one category. This is against the Zettelkasten principles, but Kasten users should have the right to category their notes should they wish to, for example, if they have their own philosophies of knowledge management.

## 4 Features

This package has the following main features:

- Browse notes with titles, categories and IDs displayed.
  - Titles are indexed by looking for a ‘`#+title:`’ pattern (customisable).
  - Categories are indexed by looking for a ‘`#+category:`’ pattern (customisable).
  - The index can be configured to update automatically.
- Deft-like live search available.
- Title and category filters for advanced search.
- Note searching significantly faster than `deft`.
  - Heavy content search ‘`consult-ripgrep`’ (needs package `consult` (<https://melpa.org/#/consult>), customisable).
  - Limited use of ‘`string-match`’ (`C-h f string-match` RET).
- ID format fully customisable (with the ability to include sanitised title).
- Followable note IDs for easy navigation.
- ID changable with auto-update references.
- Insert tags and note IDs with auto-completion support.
- Backlink searching to find references between notes.
- Functions to get note path and attachment directory path for integration with other packages.
- Customisable user interface.

## 5 Installation

### 5.1 Tarball

1. Download the latest release tarball and signature (`*.sig`) from the GitHub Releases page (<https://github.com/iamsqy/kasten/releases>).
2. Verify PGP signature.
 

```
# 2.1 Receive the maintainer's PGP key
gpg --keyserver keyserver.ubuntu.com --recv-keys F8AD5243C3CFB24E
# 2.2 Verify
gpg --verify /path/to/kasten.tar.gz
# if the output is not "gpg: Good signature from...", then STOP!
```
3. GitHub does not allow uploading `.tar` files in Release. If the file has extension `.tar.gz`, extract it.
 

```
gzip -d /path/to/kasten.tar.gz
```
4. In Emacs, run `M-x package-install-file <RET> /path/to/kasten.tar <RET>`

### 5.2 Manual Installation

Clone or download `kasten.el` and place it in the `'load-path'`. Then add the following to the Emacs configuration file (such as `'init.el'`):

```
(require 'kasten)
```



## 6 Usage

### 6.1 Kasten Major Mode and Kasten Minor Mode

Kasten major mode (`'kasten-mode'`) is for note browsing, filtering and editing, similar to Deft. Kasten minor mode (`'kasten-minor-mode'`) is for invoking Kasten methods whilst visiting a note. For Kasten major mode map and usage, see Section 6.2 [Kasten Major Mode], page 6.

**kasten** [Command]  
Launch Kasten major mode with *M-x kasten* RET.

Kasten minor mode is enabled by default if the note buffer is created by Kasten. Kasten minor mode has a lighter `'Kt'` (customisable). For Kasten minor mode map and usage, see Section 6.3 [Kasten Minor Mode], page 7.

**kasten-minor-mode** [Command]  
Toggle `kasten-minor-mode` for current buffer.

Refer to the Emacs Lisp code for detailed function and variable documentations.

### 6.2 Kasten Major Mode

**RET** (`kasten-open-file`)  
Open the note file on the current line by matching filename.

**/** (`kasten-live-search`)  
Live search notes by title, category or ID.

**?** (`kasten-filters-edit`)  
Open a buffer for editing the Kasten filters.

**g** (`kasten-refresh`)  
Refresh

**s** (`kasten-search`)  
Search using `'kasten-search-function'`.

**t** (`kasten-search-tag`)  
Prompt and search for a tag.

**n** (`kasten-create-new-note`)  
Create and open a new Kasten note.

#### 6.2.1 Live Search

#### 6.2.2 Filters

### 6.3 Kasten Minor Mode

*C-c C-k k* (`kasten`)

Back to Kasten major mode.

*C-c C-k b* (`kasten-show-backlinks-current-note`)

Show all notes that link to the current note by ID.

*C-c C-k i* (`kasten-insert-id`)

Prompt to insert an ID referencing a note.

*C-c C-k I* (`kasten-change-id`)

Change occurrences of OLD-ID to a new ID in all note files.

For each file that contains OLD-ID, ask whether to replace it.

*C-c C-k n* (`kasten-create-new-note-at-point`)

Create a new note linked from the current one.

Insert ID at point and add a backlink from the new note to the current one.

*C-c C-k t* (`kasten-insert-tag`)

Prompt to insert an existing or new tag at point.

*C-c C-k T* (`kasten-search-tag`)

Prompt and search for a tag.

## 7 Customisation

### TODO: outdated

Kasten is customisable using ‘customize’, via *M-x customize-group* RET *kasten* RET or GUI.

Alternatively, one can customise Kasten in the Emacs configuration file (such as ‘init.el’, or under ‘use-package’). Below are *default* configurations.

```
;; Directory containing your notes
;; Kasten recursively finds all notes under kasten-directory
(setq kasten-directory (expand-file-name "~/jrn/"))

;; File extensions to include in search
;; E.g., Org mode files, text files, and (La)TeX files
(setq kasten-file-extensions '("org" "txt" "tex"))

;; Function used for searching within the Kasten directory
;; If consult-ripgrep is not ideal, one may change here
(setq kasten-search-function #'consult-ripgrep)

;; Regexp to match the title of a note
;; Matches `\\#+title:' , `\\#+TITLE:' , `\\#+Title:', ...
(setq kasten-title-regexp "^#\\+[tT][iI][tT][lL][eE]: *\\(.*\\)$")

;; Max position of the title of a note
;; Reduce if slow
(setq kasten-title-max-pos 4096)

;; Regexp to match a tag of a note
;; Matches `\\#foobar'
(setq kasten-tag-regexp "#\\([[:alnum:]_]+\\)")

;; Max position of the title of a note
;; Reduce if slow
(setq kasten-tag-max-pos 65536)

;; Regexp for the tag char (for consult-ripgrep to understand)
;; `\\x23' is `\\#' in PCRE
(setq kasten-tag-first-char-regexp "\\x23")

;; Leading symbol for ID
;; May be longer than 1 char
(setq kasten-id-symbol "$")

;; Regexp to match the ID
;; Matches `\\$20250229-2333'
(setq kasten-id-regexp "$\\([0-9]\\{8\\}-[0-9]\\{4\\}\\)$")
```

```
;; Buffer title
;; If you don't like `Kasten' as the name
(setq kasten-buffer-title "Kasten\n")

;; Auto refresh
;; If non-nil, automatically refresh Kasten buffer when files change
(setq kasten-auto-refresh t)
```

## 8 Benchmark

1000 files (~5.9G) are generated using the following script to benchmark Kasten.

```
#!/bin/bash
for i in {1..1000}; do
    dd if=/dev/urandom bs=1k count=4096 of="random_${i}.bin" status=none
    base64 -i "random_${i}.bin" -o "random_${i}.txt"
    rm "random_${i}.bin"
done
```

The following benchmark is obtained by *M-x benchmark*. Variables ‘gc-cons-threshold’ and ‘gc-cons-percentage’ are set to 16000000 and 0.1, accordingly.

Package	Form	Elapsed Time	Garbage Collections
Deft	‘(deft)’	148.025919s	86
Kasten	‘(kasten)’	0.682055s	1

## 9 Contributing

Contributions and bug reports are welcome! Please open issues or pull requests on the GitHub repository.

Users are encouraged to report any significant slowness of Kasten! If possible, please include the following information, but please **do not include any sensitive information**:

- Emacs version (*M-x emacs-version* RET)
- Kasten version
- Operating system ('`uname -a`')
- Number of indexed files ('`ls -l /path/to/notes | wc -l`')
- Total size of indexed files ('`du -sh /path/to/notes`')
- Profiler report (*M-x profiler-start* RET RET, perform action, *M-x profiler-stop* RET, and then *M-x profiler-report* RET)
- Benchmark of the slow function (*M-x benchmark* RET followed by the function and RET)

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