

# Kasten Manual

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for version 0.2, last updated 6 July 2025

Qiyang Sun

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This manual is for Kasten (version 0.2, last updated 6 July 2025), 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

To be written.

## 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 MELPA (not yet published) and use-package

If MELPA is in the package archives, simply:

```
M-x package-install <RET> kasten <RET>
```

If using ‘use-package’, add the following to the Emacs configuration file (such as ‘init.el’):

```
(use-package kasten
  :ensure t
  :defer t
  :commands (kasten))
```

### 5.2 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>
```

### 5.3 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

### **TODO: outdated**

Launch Kasten with M-x `kasten` <RET>

Inside the ‘`*Kasten*`’ buffer:

- Hit ‘<RET>’ to open the selected note.
- Hit ‘/’ to search notes.
- Hit ‘g’ to refresh the notes list.

One may want to add more key bindings to ‘`kasten-mode-map`’.

## 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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