

Kasten Manual

for version 0.90.0, last updated 2025-07-09

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This manual is for Kasten (version 0.90.0, last updated 2025-07-09), 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>).

2 Copying

- Kasten is not part of GNU Emacs.
- Kasten is free software.
- Kasten Manual is free documentation.

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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 is designed base 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 is 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. For Kasten major mode map and usage, see Section 6.2 [Kasten Major Mode], page 6. Kasten minor mode (`'kasten-minor-mode'`) is for invoking Kasten methods whilst visiting a note. For Kasten minor mode map and usage, see Section 6.3 [Kasten Minor Mode], page 7.

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).

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

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

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

In a Live Search, one can type anywhere to search titles, categories and IDs. It is unnecessary to place the point into the text box—a temporary key map is used to handle input, supporting letters, symbols and non-ASCII characters. Case is insensitive.

C-g (`kasten--quit-live-search`)
ESC ESC ESC (`kasten--quit-live-search`)
Quit live search and reset to normal Kasten.

DEL Delete the last input character.

RET (kasten-open-file)

Open the note file on the current line by matching filename.

A letter ‘s’ will appear next to Kasten buffer title indicating Live Search is activated.

6.2.2 Filters

With Filters, one can filter titles and/or categories.

By invoking ‘**kasten-filters-edit**’, a new buffer ‘***Kasten Filters***’ is created. This buffer is in **kasten-filters-mode**, for users to edit filters.

Lines starting with a ‘%’ symbol are read-only comments. Lines starting with a ‘#’ are read-only headers which will be parsed.

Title filters

Enter titles one per line. Case is insensitive. A note will be displayed if it has at least one title filter as its substring. Use of Emacs regular expressions is allowed. Leave this field empty to keep all notes.

Category filters

Enter categories one per line. Case is sensitive. A note will be displayed if it has a category and the category is exactly one of the category filters. Leave this field empty to keep all notes.

Mode Logic operator for the filter operation. May be either ‘and’ or ‘or’. If only one of the title filters and category filters is needed, use ‘and’.

Kasten-Filters mode has the following key bindings.

C-c C-c (kasten-filters-save-and-kill)

Try to parse the buffer contents and apply them to Kasten filters, then kill this buffer and delete the selected window.

C-c C-k (kill-buffer-and-window)

Kill the Kasten-Filters buffer and delete the selected window; discard any changes to the filters.

C-c C-t (kasten-filters--toggle-the-mode)

Toggle the mode on the current line between ‘or’ and ‘and’. Only valid if the point is placed on the mode text (placed on the text ‘or’ or ‘and’).

A letter ‘f’ will appear next to Kasten buffer title indicating Kasten Filters are activated.

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

7.1 Customisable Variables

Kasten is customisable using ‘customize’, via *M-x customize-group* RET *kasten* RET. Alternatively, one may use `setq`. For example, to change the variable ‘`kasten-directory`’ to ‘`~/notes`’ using `setq`, one may add the following code to their Emacs configuration file (such as ‘`init.el`’, preferably under ‘`use-package`’).

```
(setq kasten-directory (expand-file-name "~/notes/"))
```

Default values in the manual may be evaluated, simplified or slightly modified. Please refer to the source code and search for ‘`defcustom`’.

kasten-directory [Variable]

Note directory.

Default value: ‘`~/jrn/`’.

kasten-file-extensions [Variable]

List of searchable file extensions for Kasten.

Default value: ‘`("org" "txt" "tex")`’.

kasten-default-extension [Variable]

Default extension for new notes.

Default value: ‘`org`’.

kasten-note-title-template [Variable]

Template for new notes.

Default value: ‘`#+title:`’.

kasten-index-hidden-files [Variable]

If non-nil, include dot files when indexing. May cause problem if backup files present in the directory.

Default value: ‘`nil`’.

kasten-search-function [Variable]

Function used for searching within the Kasten directory.

Default value: ‘`consult-ripgrep`’.

kasten-title-regexp [Variable]

Regexp to match the title of a note.

Default value: ‘`"^#\++[tT][iI][tT][lL][eE]: *\+(.*\+)$"`’.

kasten-title-max-pos [Variable]

Max position of the title of a note. Depth for Kasten to match ‘`kasten-title-regexp`’.

Default value: ‘`4096`’.

kasten-category-regexp [Variable]

Regexp to match the category of a note.

Default value: ‘`"^#\++[cC][aA][tT][eE][gG][oO][rR][yY]: *\+(.*\+)$"`’.

- kasten-empty-category-placeholder** [Variable]
If non-empty, display in category field for uncategorised notes. Leave empty to omit empty category for uncategorised notes.
Default value: `""`.
- kasten-category-max-pos** [Variable]
Max position of the category of a note. Depth for Kasten to match `'kasten-category-regexp'`.
Default value: `'4096'`.
- kasten-title-category-split** [Variable]
Split title and category in Kasten view.
Default value: `" --- "`.
- kasten-tag-regexp** [Variable]
Regex to match a tag of a note.
Default value: `"#\\[[:alnum:]-]+\\"`.
- kasten-tag-max-pos** [Variable]
Max position of the title of a note. Depth for Kasten to match `'kasten-tag-regexp'`.
Default value: `'65536'`.
- kasten-tag-symbol** [Variable]
Leading symbol for tag.
Default value: `"#"`.
- kasten-tag-first-char-regexp** [Variable]
Regex for the tag char to make `'kasten-search-function'` understand.
If using `'consult-ripgrep'`, use `'\x23'` instead of `'#'`.
Default value: `"\x23"`.
- kasten-id-symbol** [Variable]
Leading symbol for ID.
Default value: `"§"`.
- kasten-id-format** [Variable]
Time format for generating ID. Use `'%E'` for shortened title. See man page `'strftime(3)'` for wildcards.
Default value: `"%y%m%d-%H%M-%E"`.
- kasten-folder-timeformat** [Variable]
Time format for folder. See man page `'strftime(3)'` for wildcards.
Default value: `"%Y%m"`.
- kasten-id-clash-time-inc** [Variable]
Time interval to increment if the time-based ID clashes, in seconds. Set to 60 for 1 minute.
Default value: `'60'`.

kasten-id-regexp	[Variable]
Regexp for an ID in a note.	
Default value: ‘“§\\([0-9]\\{6\\}-[0-9]\\{4\\}\\)”’.	
kasten-backlink-comment	[Variable]
Insert before backlink ID when creating new note at point.	
Default value: ‘#+backlink:’.	
kasten-buffer-title	[Variable]
Kasten mode buffer title.	
Default value: ‘"Kasten"’.	
kasten-minor-mode-lighter	[Variable]
Function used for searching within the Kasten directory.	
Default value: ‘Kt’.	
kasten-auto-refresh	[Variable]
If non-nil, automatically refresh Kasten buffer when files change.	
Default value: ‘t’.	

7.2 Customisable Functions and Hooks

If the ID contains title (for example, using ‘§250229-23 332. 2. -foo’ as ID of the note created on 2025-02-29 at 23:33 titled ‘foo’), one can customise how to convert the note title to a safer string which can be used as part of the filename.

kasten-safetitle-function	[Variable]
Function to convert a title to a safe short string.	
Default value: ‘kasten--default-safetitle’.	
kasten--default-safetitle	[Function]
Default safetitle function to convert TITLE to max 8 char string.	

7.3 Customisable Faces

kasten-buffer-title-face	[User Option]
Face for the Kasten buffer title.	
Default attributes: ‘((:family . unspecified) (:foundry . unspecified) (:width . unspecified) (:height . unspecified) (:weight . unspecified) (:slant . unspecified) (:underline . unspecified) (:overline . unspecified) (:extend . unspecified) (:strike-through . unspecified) (:box . unspecified) (:inverse-video . unspecified) (:foreground . unspecified) (:background . unspecified) (:stipple . unspecified) (:inherit . unspecified))’	
kasten-file-title-face	[User Option]
Face for file titles in Kasten.	

```

Default attributes: '(:family . unspecified) (:foundry . unspecified)
(:width . unspecified) (:height . unspecified) (:weight . unspecified)
(:slant . unspecified) (:underline . unspecified) (:overline .
unspecified) (:extend . unspecified) (:strike-through . unspecified)
(:box . unspecified) (:inverse-video . unspecified) (:foreground .
unspecified) (:background . unspecified) (:stipple . unspecified)
(:inherit . unspecified))'

```

kasten-title-category-split-face [User Option]

Face for title category split in Kasten.

```

Default attributes: '(:family . unspecified) (:foundry . unspecified)
(:width . unspecified) (:height . unspecified) (:weight . unspecified)
(:slant . unspecified) (:underline . unspecified) (:overline .
unspecified) (:extend . unspecified) (:strike-through . unspecified)
(:box . unspecified) (:inverse-video . unspecified) (:foreground .
unspecified) (:background . unspecified) (:stipple . unspecified)
(:inherit . unspecified))'

```

kasten-file-category-face [User Option]

Face for categories in Kasten.

```

Default attributes: '(:family . unspecified) (:foundry . unspecified)
(:width . unspecified) (:height . unspecified) (:weight . unspecified)
(:slant . unspecified) (:underline . unspecified) (:overline .
unspecified) (:extend . unspecified) (:strike-through . unspecified)
(:box . unspecified) (:inverse-video . unspecified) (:foreground .
unspecified) (:background . unspecified) (:stipple . unspecified)
(:inherit . unspecified))'

```

kasten-file-name-face [User Option]

Face for filenames in Kasten.

```

Default attributes: '(:family . unspecified) (:foundry . unspecified)
(:width . unspecified) (:height . unspecified) (:weight . unspecified)
(:slant . unspecified) (:underline . unspecified) (:overline .
unspecified) (:extend . unspecified) (:strike-through . unspecified)
(:box . unspecified) (:inverse-video . unspecified) (:foreground .
unspecified) (:background . unspecified) (:stipple . unspecified)
(:inherit . unspecified))'

```

kasten-live-search-edit-face [User Option]

Face for categories in Kasten.

```

Default attributes: '(:family . unspecified) (:foundry . unspecified)
(:width . unspecified) (:height . unspecified) (:weight . unspecified)
(:slant . unspecified) (:underline . unspecified) (:overline .
unspecified) (:extend . unspecified) (:strike-through . unspecified)
(:box . unspecified) (:inverse-video . unspecified) (:foreground .
unspecified) (:background . unspecified) (:stipple . unspecified)
(:inherit . unspecified))'

```

kasten-button-face

[User Option]

Face for categories in Kasten.

```
Default attributes: '(:family . unspecified) (:foundry . unspecified)
(:width . unspecified) (:height . unspecified) (:weight . unspecified)
(:slant . unspecified) (:underline . unspecified) (:overline .
unspecified) (:extend . unspecified) (:strike-through . unspecified)
(:box . unspecified) (:inverse-video . unspecified) (:foreground .
unspecified) (:background . unspecified) (:stipple . unspecified)
(:inherit . unspecified))'
```

The prompt text ‘Live search:’ in Live Search uses default face ‘shadow’.

In Kasten Filters, lines start with ‘%’ use ‘font-lock-comment-face’; lines start with ‘#’ use ‘font-lock-keyword-face’.

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* using Emacs 30.1, on an Apple Darwin machine with Apple SSD. 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
Kasten	‘(kasten-change-id "oldid")’	11.295669s	0

9 Contributing

Contributions and bug reports are welcome! For code contributions, please open pull requests on GitHub. For general issues (except security concerns), please open issues on GitHub.

9.1 Reporting Slowness

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 -1 /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)

9.2 Reporting Security Concerns

If you found any vulnerabilities or would like to report any security concerns, please **do not** use any public channels. Please contact the package author via email. Please **sign** and **encrypt** your email with PGP¹. **Encrypted plain text email** MIMEs are preferred (do not use `multipart/alternative` to include HTML copies of the email).

Key Server

`hkps://keyserver.ubuntu.com (https://keyserver.ubuntu.com/)`

Email Address

`iamsqy at outlok dot cm2`

Key ID F8AD5243C3CFB24E

Primary key fingerprint

`548E 2320 AFD8 0063 1C76 274C F8AD 5243 C3CF B24E`

¹ Pretty Good Privacy (https://en.wikipedia.org/wiki/Pretty_Good_Privacy), see also GnuPG (<https://gnupg.org>)

² Please replace 'at', 'dot', etc. to actual symbols and characters.

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Appendix C Too Long; Didn't Read

1. Install Kasten (not yet published).

```
(use-package kasten)
```

2. Customise.

```
;; Below configurations are not default values.
(setq kasten-directory (expand-file-name "~/notes/"))
      kasten-file-extensions '("org" "txt" "tex")
      kasten-title-max-pos 2048
      kasten-tag-max-pos 8192
      kasten-id-symbol "$"
      kasten-id-regexp "$\\([0-9]\\{8\\}-[0-9]\\{4\\}\\)"
      kasten-auto-refresh t)
```

3. Launch Kasten with *M-x kasten* RET.