Package 'litedown'

April 8, 2025

Title A Lightweight Version of R Markdown

Version 0.7

Description Render R Markdown to Markdown (without using 'knitr'), and Markdown

to lightweight HTML or 'LaTeX' documents with the 'commonmark' package (instead of 'Pandoc'). Some missing Markdown features in 'commonmark' are also supported, such as raw HTML or 'LaTeX' blocks, 'LaTeX' math, superscripts, subscripts, footnotes, element attributes, and appendices, but not all 'Pandoc' Markdown features are (or will be) supported. With additional JavaScript and CSS, you can also create HTML slides and articles. This package can be viewed as a trimmed-down version of R Markdown and 'knitr'. It does not aim at rich Markdown features or a large variety of output formats (the primary formats are HTML and 'LaTeX'). Book and website projects of multiple input documents are also supported.

Depends R (>= 3.2.0)
Imports utils, commonmark (>= 1.9.5), xfun (>= 0.52)
Suggests rbibutils, rstudioapi, tinytex
License MIT + file LICENSE
URL https://github.com/yihui/litedown

BugReports https://github.com/yihui/litedown/issues

VignetteBuilder litedown

RoxygenNote 7.3.2 Encoding UTF-8 NeedsCompilation no

Type Package

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Repository CRAN

Date/Publication 2025-04-08 05:40:02 UTC

2 litedown-package

Contents

litedown-package		A lightweight version of R Markdown			
Index			19		
	•				
	roam		16		
	reactor		15		
	raw_text		14		
	pkg_desc		12		
	markdown_options		12		
	html_format		10		
	•				
	fuse_site		9		
	fuse_book		7		
	· ·				
			3		
	1 0		2		

Description

Markdown is a plain-text format that can be converted to HTML and other formats. This package can render R Markdown to Markdown, and then to an output document format. The main differences between this package and **rmarkdown** are that it does not use Pandoc or **knitr** (i.e., fewer dependencies), and it also has fewer Markdown features.

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See Also

Useful links:

- https://github.com/yihui/litedown
- Report bugs at https://github.com/yihui/litedown/issues

crack 3

crack

Parse R Markdown or R scripts

Description

Parse input into code chunks, inline code expressions, and text fragments: crack() is for parsing R Markdown, and sieve() is for R scripts.

Usage

```
crack(input, text = NULL)
sieve(input, text = NULL)
```

Arguments

input

A character vector to provide the input file path or text. If not provided, the text argument must be provided instead. The input vector will be treated as a file path if it is a single string, and points to an existing file or has a filename extension. In other cases, the vector will be treated as the text argument input. To avoid ambiguity, if a string should be treated as text input when it happens to be an existing file path or has an extension, wrap it in I(), or simply use the text argument instead.

text

A character vector as the text input. By default, it is read from the input file if provided.

Details

For R Markdown, a code chunk must start with a fence of the form ```{lang}, where lang is the language name, e.g., r or python. The body of a code chunk can start with chunk options written in "pipe comments", e.g., #| eval = TRUE, echo = FALSE (the CSV syntax) or #| eval: true (the YAML syntax). An inline code fragment is of the form `{lang} source` embedded in Markdown text.

For R scripts, text blocks are extracted by removing the leading #' tokens. All other lines are treated as R code, which can optionally be separated into chunks by consecutive lines of #| comments (chunk options are written in these comments). If no #' or #| tokens are found in the script, the script will be divided into chunks that contain smallest possible complete R expressions.

Value

A list of code chunks and text blocks:

• Code chunks are of the form list(source, type = "code_chunk", options, comments, ...): source is a character vector of the source code of a code chunk, options is a list of chunk options, and comments is a vector of pipe comments.

4 engines

• Text blocks are of the form list(source, type = "text_block", ...). If the text block does not contain any inline code, source will be a character string (lines of text concatenated by line breaks), otherwise it will be a list with members that are either character strings (normal text fragments) or lists of the form list(source, options, ...) (source is the inline code, and options contains its options specified inside `{lang, ...}`).

Both code chunks and text blocks have a list member named lines that stores their starting and ending line numbers in the input.

Note

For simplicity, sieve() does not support inline code expressions. Text after #' is treated as pure Markdown.

It is a pure coincidence that the function names crack() and sieve() weakly resemble Carson Sievert's name, but I will consider adding a class name sievert to the returned value of sieve() if Carson becomes the president of the United States someday, which may make the value radioactive and introduce a new programming paradigm named *Radioactive Programming* (in case *Reactive Programming* is no longer fun or cool).

Examples

```
library(litedown)
# parse R Markdown
res = crack(c("```{r}\n1+1\n```", "Hello, `pi` = `{r} pi` and `e` = `{r} exp(1)`!"))
str(res)
# evaluate inline code and combine results with text fragments
txt = lapply(res[[2]]$source, function(x) {
    if (is.character(x))
        x else eval(parse(text = x$source))
})
paste(unlist(txt), collapse = "")

# parse R code
res = sieve(c("#' This is _doc_.", "", "#| eval=TRUE", "# this is code", "1 + 1"))
str(res)
```

engines

Language engines

Description

Get or set language engines for evaluating code chunks and inline code.

Usage

```
engines(...)
```

Arguments

... Named values (for setting) or unnamed values (for getting).

fuse 5

Details

An engine function should have three arguments:

- x: An element in the crack() list (a code chunk or a text block).
- inline: It indicates if x is from a code chunk or inline code.
- ...: Currently unused but recommended for future compatibility (more arguments might be passed to the function).

The function should return a character value.

Value

The usage is similar to reactor(): engines('LANG') returns an engine function for the language LANG, and engines(LANG = function(x, inline = FALSE, ...) {}) sets the engine for a language.

Examples

```
litedown::engines() # built-in engines
```

fuse

Render Markdown, R Markdown, and R scripts

Description

The function fuse() extracts and runs code from code chunks and inline code expressions in R Markdown, and interweaves the results with the rest of text in the input, which is similar to what knitr::knit() and rmarkdown::render() do. It also works on R scripts in a way similar to knitr::spin(). The function fiss() extracts code from the input, and is similar to knitr::purl().

The function mark() renders Markdown to an output format via the **commonmark** package.

Usage

```
fuse(input, output = NULL, text = NULL, envir = parent.frame(), quiet = FALSE)
fiss(input, output = ".R", text = NULL)
mark(input, output = NULL, text = NULL, options = NULL, meta = list())
```

Arguments

input

A character vector to provide the input file path or text. If not provided, the text argument must be provided instead. The input vector will be treated as a file path if it is a single string, and points to an existing file or has a filename extension. In other cases, the vector will be treated as the text argument input. To avoid ambiguity, if a string should be treated as text input when it happens to be an existing file path or has an extension, wrap it in I(), or simply use the text argument instead.

6 fuse

output

An output file path or a filename extension (e.g., .html, .tex, .xml, .man, .markdown, or .txt). In the latter case, the output file path will use the extension on the same base filename as the input file if the input is a file. If output is not character (e.g., NA), the results will be returned as a character vector instead of being written to a file. If output is NULL or an extension, and the input is a file path, the output file path will have the same base name as the input file, with an extension corresponding to the output format. The output format is retrieved from the first value in the output field of the YAML metadata of the input (e.g., html will generate HTML output). The output argument can also take an output format name (possible values are html, latex, xml, man, commonmark, and text). If no output format is detected or provided, the default is HTML.

text

A character vector as the text input. By default, it is read from the input file if provided.

envir

An environment in which the code is to be evaluated. It can be accessed via fuse_env() inside fuse().

quiet

If TRUE, do not show the progress bar. If FALSE, the progress bar will be shown after a number of seconds, which can be set via a global option litedown.progress.delay (the default is 2). The progress bar output can be set via a global option litedown.progress.output (the default is stderr()).

options

Options to be passed to the renderer. See markdown_options() for details. This argument can take either a character vector of the form "+option1 option2-option3" (use + or a space to enable an option, and - to disable an option), or a list of the form list(option1 = value1, option2 = value2, ...). A string "+option1" is equivalent to list(option1 = TRUE), and "-option2" means list(option2 = FALSE). Options that do not take logical values must be specified via a list, e.g., list(width = 30).

meta

A named list of metadata. Elements in the metadata will be used to fill out the template by their names and values, e.g., list(title = ...) will replace the \$title\$ variable in the template. See the Section "YAML metadata" in the documentation for supported variables.

Value

The output file path if output is written to a file, otherwise a character vector of the rendered output (wrapped in xfun::raw_string() for clearer printing).

See Also

```
sieve(), for the syntax of R scripts to be passed to fuse().
The spec of GitHub Flavored Markdown: <a href="https://github.github.com/gfm/">https://github.github.com/gfm/</a>
```

```
library(litedown)
doc = c("```{r}", "1 + 1", "```", "", "$\\pi$ = `{r} pi`.")
fuse(doc)
fuse(doc, ".tex")
fiss(doc)
```

fuse_book 7

```
mark(c("Hello _World_!", "", "Welcome to **litedown**."))
# if input appears to be a file path but should be treated as text, use I()
mark(I("This is *not* a file.md"))
# that's equivalent to
mark(text = "This is *not* a file.md")
# output to a file
(mark("_Hello_, **World**!", output = tempfile()))
# convert to other formats
mark("Hello _World_!", ".tex")
mark("Hello _**`World`**_!", "xml")
mark("Hello _**`World`**_!", "text")
```

fuse book

Fuse multiple R Markdown documents to a single output file

Description

This is a helper function to fuse() .Rmd files and convert all their Markdown output to a single output file, which is similar to bookdown::render_book(), but one major differences is that all HTML output is written to one file, instead of one HTML file per chapter.

Usage

```
fuse_book(input = ".", output = NULL, envir = parent.frame())
```

Arguments

input

A directory or a vector of file paths. By default, all .Rmd/.md files under the current working directory are used as the input, except for filenames that start with . or _ (e.g., _foo.Rmd), or .md files with the same base names as .Rmd files (e.g., bar.md will not be used if bar.Rmd exists). For a directory input, the file search will be recursive if input ends with a slash (i.e., sub-directories will also be searched). If a file named index.Rmd or index.md exists, it will always be treated as the first input file. Input files can also be specified in the config file _litedown.yml (in the input field under book).

output

An output file path or a filename extension (e.g., .html, .tex, .xml, .man, .markdown, or .txt). In the latter case, the output file path will use the extension on the same base filename as the input file if the input is a file. If output is not character (e.g., NA), the results will be returned as a character vector instead of being written to a file. If output is NULL or an extension, and the input is a file path, the output file path will have the same base name as the input file, with an extension corresponding to the output format. The output format is retrieved from the first value in the output field of the YAML metadata of the input (e.g., html will generate HTML output). The output argument can also take an output format name (possible values are html, latex, xml, man, commonmark, and text). If no output format is detected or provided, the default is HTML.

fuse_env

envir

An environment in which the code is to be evaluated. It can be accessed via fuse_env() inside fuse().

Details

If the output format needs to be customized, the settings should be written in the config file _litedown.yml, e.g.,

```
output:
   html:
    options:
     toc:
        depth: 4
   latex:
    meta:
        documentclass: "book"
```

In addition, you can configure the book via the book field, e.g.,

```
book:
  new_session: true
  subdir: false
  pattern: "[.]R?md$"
  chapter_before: "Information before a chapter."
  chapter_after: "This chapter was generated from `$input$`."
```

The option new_session specifies whether to render each input file in the current R session or a separate new R session; chapter_before and chapter_after specify text to be added to the beginning and end of each file, respectively, which accepts some variables (e.g., \$input\$ is the current input file path).

Value

An output file path or the output content, depending on the output argument.

fuse_env The fuse() environment

Description

Get the environment passed to the envir argument of fuse(), i.e., the environment in which code chunks and inline code are evaluated.

fuse_site 9

Usage

```
fuse_env()
```

Value

When called during fuse(), it returns the envir argument value of fuse(). When called outside fuse(), it returns the global environment.

fuse_site

Fuse R Markdown documents individually under a directory

Description

Run fuse() on R Markdown documents individually to generate a website.

Usage

```
fuse_site(input = ".")
```

Arguments

input

The root directory of the site, or a vector of input file paths.

Details

If a directory contains a config file _litedown.yml, which has a YAML field site, the directory will be recognized as a site root directory. The YAML field output will be applied to all R Markdown files (an individual R Markdown file can provide its own output field in YAML to override the global config). For example:

```
rebuild: "outdated"
pattern: "[.]R?md$"
output:
html:
   meta:
    css: ["@default"]
    include_before: "[Home](/) [About](/about.html)"
   include_after: "© 2024 | [Edit]($input$)"
```

The option rebuild determines whether to rebuild .Rmd files. Possible values are:

- newfile: Build an input file if it does not have a .html output file.
- outdated: Rebuild an input file if the modification time of its .html output file is older than the input.

10 html_format

Value

Output file paths (invisibly).

get_context

Get the fuse() context

Description

A helper function to query the fuse() context (such as the input file path or the output format name) when called inside a code chunk.

Usage

```
get_context(item = NULL)
```

Arguments

item

The name of the context item.

Value

If the item is provided, return its value in the context. If NULL, the whole context (an environment) is returned.

Examples

```
litedown::get_context("input")
litedown::get_context("format")
names(litedown::get_context()) # all available items
```

html_format

Output formats in YAML metadata

Description

These functions exist only for historical reasons, and should never be called directly. They can be used to configure output formats in YAML, but you are recommended to use the file format names instead of these function names.

html_format 11

Usage

```
html_format(options = NULL, meta = NULL, template = NULL, keep_md = FALSE)

latex_format(
  options = NULL,
  meta = NULL,
  template = NULL,
  keep_md = FALSE,
  keep_tex = FALSE,
  latex_engine = "xelatex",
  citation_package = "natbib"
)
```

Arguments

```
meta, options Arguments to be passed to mark().

template A template file path.

keep_md, keep_tex

Whether to keep the intermediate '.md' and '.tex' files generated from '.Rmd'.

latex_engine The LaTeX engine to compile '.tex' to '.pdf'.

citation_package

The LaTeX package for processing citations. Possible values are none, nathib
```

The LaTeX package for processing citations. Possible values are none, natbib, and biblatex.

Details

To configure output formats in the YAML metadata of the Markdown document, simply use the output format names such as html or latex in the output field in YAML, e.g.,

```
output:
  html:
  options:
    toc: true
  keep_md: true
  latex:
    latex_engine: pdflatex
```

You can also use litedown::html_format instead of html (or litedown::latex_format instead of latex) if you like.

Note

If you want to use the Knit button in RStudio, you must add a top-level field knit: litedown:::knit to the YAML metadata. See https://yihui.org/litedown/#sec:knit-button for more information.

pkg_desc

markdown_options

Markdown rendering options

Description

A list of all options to control Markdown rendering. Options that are enabled by default are marked by a + prefix, and those disabled by default are marked by -.

Usage

```
markdown_options()
```

Details

See https://yihui.org/litedown/#sec:markdown-options for the full list of options and their documentation.

Value

A character vector of all available options.

Examples

```
# all available options
litedown::markdown_options()
```

pkg_desc

Print the package description, news, citation, manual pages, and source code

Description

Helper functions to retrieve various types of package information that can be put together as the full package documentation like a **pkgdown** website. These functions can be called inside any R Markdown document.

Usage

```
pkg_desc(name = detect_pkg())
pkg_news(
  name = detect_pkg(),
  path = detect_news(name),
  recent = 1,
  toc = TRUE,
  number_sections = TRUE,
```

pkg_desc 13

```
pkg_code(
  path = attr(detect_pkg(), "path"),
  pattern = "[.](R|c|h|f|cpp)$",
  toc = TRUE,
  number_sections = TRUE,
  link = TRUE
)

pkg_citation(name = detect_pkg())

pkg_manual(
  name = detect_pkg(),
  toc = TRUE,
  number_sections = TRUE,
  overview = TRUE,
  examples = list()
)
```

Arguments

name The package name (by default, it is automatically detected from the DESCRIPTION

file if it exists in the current working directory or upper-level directories).

path For pkg_news(), path to the NEWS.md file. If empty, news() will be called to

retrieve the news entries. For pkg_code(), path to the package root directory

that contains R/ and/or src/ subdirectories.

recent The number of recent versions to show. By default, only the latest version's

news entries are retrieved. To show the full news, set recent = 0.

news charles are rearreved. To show the rain news, set i ceeme of

toc Whether to add section headings to the document TOC (when TOC has been

enabled for the document).

number_sections

Whether to number section headings (when sections are numbered in the docu-

ment).

... Other arguments to be passed to news().

pattern A regular expression to match filenames that should be treated as source code.

link Whether to add links on the file paths of source code. By default, if a GitHub

repo link is detected from the BugReports field of the package DESCRIPTION, GitHub links will be added to file paths. You can also provide a string template containing the placeholder %s (which will be filled out with the file paths via

sprintf()), e.g., https://github.com/yihui/litedown/blob/main/%s.

overview Whether to include the package overview page, i.e., the {name}-package.Rd

page.

examples A list of arguments to be passed to xfun::record() to run examples each

help page, e.g., list(dev = 'svg', dev.args = list(height = 6)). If not a

list (e.g., FALSE), examples will not be run.

14 raw_text

Value

A character vector (HTML or Markdown) that will be printed as is inside a code chunk of an R Markdown document.

```
pkg_desc() returns an HTML table containing the package metadata.
pkg_news() returns the news entries.
pkg_code() returns the package source code under the R/ and src/ directories.
pkg_citation() returns the package citation in both the plain-text and BibTeX formats.
pkg_manual() returns all manual pages of the package in HTML.
```

Examples

```
## Not run:
litedown::pkg_desc()
litedown::pkg_news()
litedown::pkg_citation()
## End(Not run)
```

raw_text

Mark a character vector as raw output

Description

This function should be called inside a code chunk, and its effect is the same as the chunk option results = "asis". The input character vector will be written verbatim to the output (and interpreted as Markdown).

Usage

```
raw_text(x, format = NULL)
```

Arguments

x A character vector (each element will be treated as a line).

An output format name, e.g., html or latex. If provided, x will be wrapped in

a fenced code block, e.g., ```{=html}.

Value

A character vector with a special class to indicate that it should be treated as raw output.

```
litedown::raw_text(c("**This**", "_is_", "[Markdown](#)."))
litedown::raw_text("<b>Bold</b>", "html")
litedown::raw_text("\\textbf{Bold}", "latex")
```

reactor 15

reactor

Get and set chunk options

Description

Chunk options are stored in an environment returned by reactor(). Option values can be queried by passing their names to reactor(), and set by passing named values.

Usage

```
reactor(...)
```

Arguments

... Named values (for setting) or unnamed values (for getting).

Value

With no arguments, reactor() returns an environment that stores the options, which can also be used to get or set options. For example, with opts = reactor(), opts\$name returns an option value, and opts\$name = value sets an option to a value.

With named arguments, reactor() sets options and returns a list of their old values (e.g., reactor(echo = FALSE, fig.width = 8)). The returned list can be passed to reactor() later to restore the options.

With unnamed arguments, reactor() returns option values after received option names as input. If one name is received, its value is returned (e.g., reactor('echo')). If multiple names are received, a named list of values is returned (e.g., reactor(c('echo', 'fig.width'))). A special case is that if only one unnamed argument is received and it takes a list of named values, the list will be used to set options, e.g., reactor(list(echo = FALSE, fig.width = 8)), which is equivalent to reactor(echo = FALSE, fig.width = 8).

```
# get options
litedown::reactor("echo")
litedown::reactor(c("echo", "fig.width"))

# set options
old = litedown::reactor(echo = FALSE, fig.width = 8)
litedown::reactor(c("echo", "fig.width"))
litedown::reactor(old) # restore options

# use the environment directly
opts = litedown::reactor()
opts$echo
mget(c("echo", "fig.width"), opts)
ls(opts) # built-in options
```

16 timing_data

roam

Preview Markdown and R Markdown files

Description

Launch a web page to list and preview files under a directory.

Usage

```
roam(dir = ".", live = TRUE, ...)
```

Arguments

dir A directory path.

live Whether to enable live preview. If enabled, the browser page will be automati-

cally updated upon modification of local files used by the page (e.g., the Markdown file or external CSS/JS/image files). If disabled, you can manually refresh

the page to fully re-render it.

... Other arguments to be passed to xfun::new_app().

Details

Markdown files will be converted to HTML and returned to the web browser directly without writing to HTML files, to keep the directory clean during the preview. Clicking on a filename will bring up an HTML preview. To see its raw content, click on the link on its file size instead.

Value

A URL (invisibly) for the preview.

timing_data

Get the timing data of code chunks and text blocks in a document

Description

Timing can be enabled via the chunk option time = TRUE (e.g., set reactor(time = TRUE) in the first code chunk). After it is enabled, the execution time for code chunks and text blocks will be recorded. This function can be called to retrieve the timing data later in the document (e.g., in the last code chunk).

Usage

```
timing_data(threshold = 0, sort = TRUE, total = TRUE)
```

vest 17

Arguments

threshold A number (time in seconds) to subset data with. Only rows with time above this

threshold are returned.

whether to sort the data by time in the decreasing order.

total Whether to append the total time to the data.

Value

A data frame containing input file paths, line numbers, chunk labels, and time. If no timing data is available, NULL is returned.

Note

By default, the data will be cleared after each call of fuse() and will not be available outside fuse(). To store the data persistently, you can set the time option to a file path. This is necessary if you want to get the timing data for multiple input documents (such as all chapters of a book). Each document needs to point the time option to the same path. When you do not need timing any more, you will need to delete this file by yourself.

vest

Add CSS/JS assets to HTML output

Description

While CSS/JS assets can be set via the css/js keys under the meta field of the html output format in YAML, this function provides another way to add them, which can be called in a code chunk to dynamically add assets.

Usage

```
vest(feature = NULL, css = NULL, js = NULL)
```

Arguments

feature A character vector of features supported by CSS/JS, e.g., c('article', 'callout').

See the row names of litedown:::assets for all available features. Each fea-

ture will be mapped to CSS/JS.

css, js Character vectors of CSS/JS assets.

Value

A vector of <link> (CSS) or <script> (JS) tags.

18 vest

```
litedown:::assets[, -1]
# add features
litedown::vest(c("copy-button", "tabsets"))
# add css/js directly
litedown::vest(css = "@tabsets", js = c("@tabsets", "@fold-details"))
```

Index

```
crack, 3
                                                  reactor(), 5
crack(), 3, 5
                                                  roam, 16
engines, 4
                                                  sieve (crack), 3
                                                  sieve(), 3, 4, 6
fiss (fuse), 5
                                                  stderr(), 6
fuse, 5
fuse(), 6–10, 17
                                                  timing_data, 16
fuse_book, 7
                                                  vest, 17
fuse_env, 8
fuse_env(), 6, 8
                                                  xfun::new_app(), 16
fuse_site, 9
                                                  xfun::raw_string(), 6
                                                  xfun::record(), 13
get_context, 10
html_format, 10
I(), 3, 5
latex_format (html_format), 10
litedown (litedown-package), 2
litedown-package, 2
mark (fuse), 5
mark(), 11
markdown_options, 12
markdown_options(), 6
news(), 13
option, 6
pkg_citation (pkg_desc), 12
pkg_code (pkg_desc), 12
pkg_code(), 13
pkg_desc, 12
pkg_manual (pkg_desc), 12
pkg_news (pkg_desc), 12
pkg_news(), 13
raw_text, 14
reactor, 15, 16
```