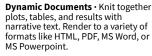
rmarkdown:: cheat sheet

What is rmarkdown?



.Rmd files · Develop your code and ideas side-by-side in a single document. Run code as individual chunks or as an entire document.



Reproducible Research · Upload, link to, or attach your report to share. Anyone can read or run your code to reproduce your work.

Workflow

- Open a **new .Rmd file** in the RStudio IDE by going to File > New File > R Markdown.
- 2 Embed code in chunks. Run code by line, by chunk, or all at once.
- Write text and add tables, figures, images, and citations. Format with Markdown syntax or the RStudio Visual Markdown Editor.
- 4 Set output format(s) and options in the YAML header. Customize themes or add parameters to execute or add interactivity with Shiny.
- Save and render the whole document. Knit periodically to preview your work as you write.
- 6 Share your work!

SOURCE EDITOR

VISUAL EDITOR

R Markdown

OPTION

echo

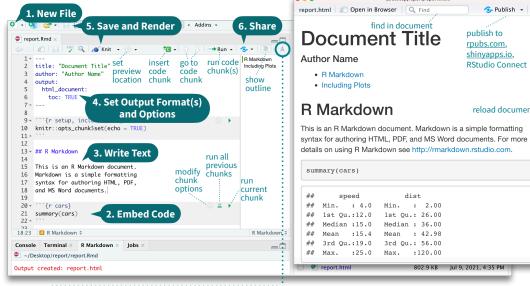
error

eval

include

report.Rmd

Normal -



insert citations

This is an R Markdown document. Markdown is a simple formatting

EFFECTS

run code in chunk

syntax for authoring HTML, PDF, and MS Word documents.

DEFAULT

TRUE

TRUF

⊕e -

display code in output document

TRUE (display error messages in doc)

include chunk in doc after running

FALSE (stop render when error occurs)



Insert Citations

RENDERED OUTPUT

Author Name

summary(cars)

##

speed

Min. : 4.0

1st Qu.:12.0

Median :15.0

3rd Ou.:19.0

:15.4

:25.0

R Markdown

Including Plots

find in document

Create citations from a bibliography file, a Zotero library, or from DOI references.

dist

Min. : 2.00

1st Ou.: 26.00

Median : 36.00

3rd Ou.: 56.00

:120.00

BUILD YOUR BIBLIOGRAPHY

• Add BibTeX or CSL bibliographies to the YAML header.

title: "My Document" bibliography: references.bib link-citations: TRUE

- If Zotero is installed locally, your main library will automatically be available.
- Add citations by DOI by searching "from DOI" in the Insert Citation dialog.

INSERT CITATIONS

- · Access the Insert Citations dialog in the Visual Editor by clicking the @ symbol in the toolbar or by clicking
- Add citations with markdown syntax by typing [@cite]



Write with Markdown



The syntax on the left renders as the output on the right.

Plain text.

... file path to output document

publish to

rpubs.com,

shinyapps.io,

RStudio Connect

reload document

◆ Publish
◆

End a line with two spaces to start a new paragraph.

Also end with a backslash\ to make a new line. *italics* and **bold**

superscript^2^/subscript~2~ ~~strikethrough~~

escaped: * _ \\ endash: --. emdash: ---

Header 1 ## Header 2

Header 6

- unordered list
- item 2 - item 2a (indent 1 tab)
- item 2b
- 1. ordered list 2. item 2
- item 2a (indent 1 tab)
- item 2b

k url>

[This is a link.](link url) [This is another link][id].

At the end of the document: fidl: link url

![Caption](image.png) or ![Caption][id2] At the end of the document:

[id2]: image.png

verbatim code

multiple lines of verbatim code

> block quotes

equation: $e^{i \neq i} = 0$ equation block:

\$\$E = mc^{2}\$\$ horizontal rule:

Right Left Default Center
: : ::
12 12 12 12
123 123 123 123
1111111

Plain text.

End a line with two spaces to start a new paragraph. Also end with a backslash

to make a new line.

italics and bold

superscript2/subscript2 strikethrough

escaped: * _ \ endash: -, emdash: -

Header 1 Header 2

Header 6

- · unordered list
- item 2
- item 2a (indent 1 tab)
- item 2b
- 1. ordered list
- 2 item 2
- · item 2a (indent 1 tab)
- item 2b

http://www.rstudio.com/ This is a link.

This is another link



Caption

verbatim code

multiple lines of verbatim code

block quotes

equation: $e^{i\pi} + 1 = 0$ equation block:

 $E = mc^2$

horizontal rule

Right	Left	Default	Center
12	12	12	12
123	123	123	123
1	1	1	1

HTML Tabsets # Results {.tabset} ## Plots text

Tables more text

Results				
	Plots	Tables		
	text			

Embed Code with knitr

CODE CHUNKS

Surround code chunks with ```{r} and ``` or use the Insert Code Chunk button. Add a chunk label and/or chunk options inside the curly braces after r.

```{r chunk-label, include=FALSE} summary(mtcars)

### **SET GLOBAL OPTIONS**

Set options for the entire document in the first chunk.

```{r include=FALSE} knitr::opts\_chunk\$set(message = FALSE)

INLINE CODE

Insert 'r <code>' into text sections. Code is evaluated at render and results appear as text.

"Built with `r getRversion()`" --> "Built with 4.1.0"



Set Output Formats and their Options in YAML

Use the document's YAML header to set an **output format** and customize it with **output options**.

title: "My Document"
author: "Author Name"
output:
html_document:
toc: TRUE
indent options 4 characters

| OUTPUT FORMAT | CREATES | | | |
|--|------------------------------|--|--|--|
| html_document | .html | | | |
| pdf_document* | .pdf | | | |
| word_document | Microsoft Word (.docx) | | | |
| powerpoint_presentation | Microsoft Powerpoint (.pptx) | | | |
| odt_document | OpenDocument Text | | | |
| rtf_document | Rich Text Format | | | |
| md_document | Markdown | | | |
| github_document | Markdown for Github | | | |
| ioslides_presentation | ioslides HTML slides | | | |
| slidy_presentation | Slidy HTML slides | | | |
| beamer_presentation* | Beamer slides | | | |
| * Requires LaTeX, use tinytex::install_tinytex() | | | | |

| IMPORTANT OPTIONS | DESCRIPTION | H | PDF | MS | MS |
|--|--|---|-----|----|----|
| anchor_sections | Show section anchors on mouse hover (TRUE or FALSE) | Χ | | | |
| citation_package | The LaTeX package to process citations ("default", "natbib", "biblatex") | | Χ | | |
| code_download | Give readers an option to download the .Rmd source code (TRUE or FALSE) | Χ | | | |
| code_folding | Let readers to toggle the display of R code ("none", "hide", or "show") | Χ | | | |
| css | CSS or SCSS file to use to style document (e.g. "style.css") | Χ | | | |
| dev | Graphics device to use for figure output (e.g. "png", "pdf") | Χ | Χ | | |
| df_print | Method for printing data frames ("default", "kable", "tibble", "paged") | Χ | Χ | Χ | Χ |
| fig_caption | Should figures be rendered with captions (TRUE or FALSE) | Χ | Χ | Χ | Χ |
| highlight | Syntax highlighting ("tango", "pygments", "kate", "zenburn", "textmate") | Χ | Χ | Χ | |
| includes | File of content to place in doc ("in_header", "before_body", "after_body") | Χ | Χ | | |
| keep_md | Keep the Markdown .md file generated by knitting (TRUE or FALSE) | Χ | Χ | Χ | Χ |
| keep_tex | Keep the intermediate TEX file used to convert to PDF (TRUE or FALSE) | | Χ | | |
| latex_engine | LaTeX engine for producing PDF output ("pdflatex", "xelatex", or "lualatex") | | Χ | | |
| reference_docx/_doc | docx/pptx file containing styles to copy in the output (e.g. "file.docx", "file.pptx") | | | Χ | Χ |
| theme | Theme options (see Bootswatch and Custom Themes below) | Χ | | | |
| toc | Add a table of contents at start of document (TRUE or FALSE) | Χ | Χ | Χ | Χ |
| toc_depth | The lowest level of headings to add to table of contents (e.g. 2, 3) | Χ | Χ | Χ | Χ |
| toc_float | Float the table of contents to the left of the main document content (TRUE or FALSE) | Χ | | | |
| Use ?<output format=""></output> to see all of a format's options, e.g. ?html_document | | | | | |

Render

AL: Word PPT

When you render a document, rmarkdown:

- Runs the code and embeds results and text into an .md file with knitr.
- 2. Converts the .md file into the output format with Pandoc.



Save, then **Knit** to preview the document output. The resulting HTML/PDF/MS Word/etc. document will be created and saved in the same directory as the .Rmd file.

Use **rmarkdown::render()** to render/knit in the R console. See **?render** for available options.

Share

Publish on RStudio Connect

to share R Markdown documents securely, schedule automatic

updates, and interact with parameters in real time. rstudio.com/products/connect/

More Header Options

Also see flexdashboard, bookdown, distill, and blogdown.

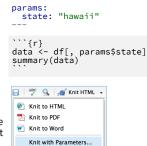
PARAMETERS

Parameterize your documents to reuse with new inputs (e.g., data, values, etc.).

1. Add parameters in the header as sub-values of params.

2. Call parameters in code using params\$<name>.

3. **Set parameters** with Knit with Parameters or the params argument of **render()**.



REUSABLE TEMPLATES

- Create a new package with a inst/rmarkdown/ templates directory.
- Add a folder containing template.yaml (below) and skeleton.Rmd (template contents).

name: "My Template"

Install the package to access template by going to File > New R Markdown > From Template.

BOOTSWATCH THEMES

Customize HTML documents with Bootswatch themes from the **bslib** package using the theme output option.

Use **bslib::bootswatch_themes()** to list available themes.



```
title: "Document Title"
author: "Author Name"
output:
html_document:
theme:
bootswatch: solar
```

CUSTOM THEMES

Customize individual HTML elements using bslib variables. Use **?bs_theme** to see more variables.

output:
 html_document:
 theme:
 bg: "#121212"
 fg: "#E4E4E4"
 base_font:
 google: "Prompt"

More on **bslib** at **pkgs.rstudio.com/bslib/**.

STYLING WITH CSS AND SCSS

Add CSS and SCSS to your document by adding a path to a file with the **css** option in the YAML header.

title: "My Document"
author: "Author Name"
output:
html_document:
css: "style.css"

Apply CSS styling by writing HTML tags directly or:

· Use markdown to apply style attributes inline.

Bracketed Span
A [green]{.my-color} word.

Fenced Div
::: {.my-color}
All of these words
are green.
:::
All of these words
are green.

 Use the Visual Editor. Go to Format > Div/Span and add CSS styling directly with Edit Attributes.

.my-css-tag This is a div with some text in it.

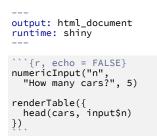
INTERACTIVITY

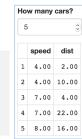
Turn your report into an interactive Shiny document in 4 steps:



ŕmarkdown

- 1. Add runtime: shiny to the YAML header.
- 2. Call Shiny input functions to embed input objects.
- 3. Call Shiny render functions to embed reactive output.
- Render with rmarkdown::run() or click Run Document in RStudio IDE.





Also see Shiny Prerendered for better performance. rmarkdown.rstudio.com/ authoring shiny prerendered

Embed a complete app into your document with shiny::shinyAppDir(). More at <u>bookdown.org/yihui/rmarkdown/shiny-embedded.html</u>.

