

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.

Dynamic Documents • Knit together plots, tables, and results with narrative text. Render to a variety of formats like HTML, PDF, MS Word, or MS Powerpoint.

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

Workflow

- 1 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.
- 3 **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.
- 5 **Save and render** the whole document. Knit periodically to preview your work as you write.
- 6 **Share your work!**

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.

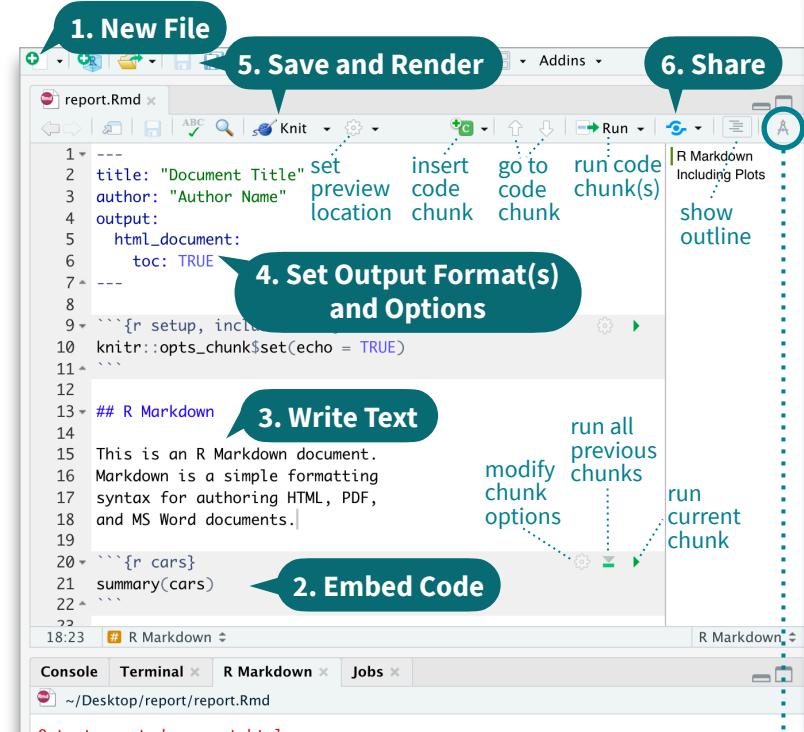
```
```{r include=FALSE}
knitr::opts_chunk$message = FALSE
```
```

INLINE CODE

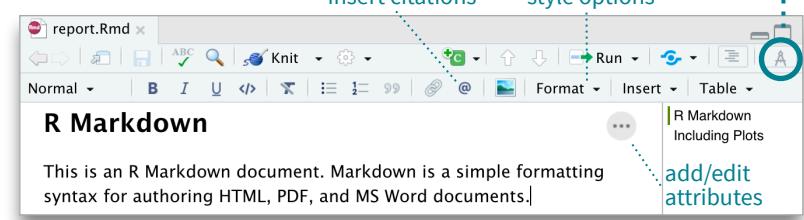
Insert `r <code>` into text sections. Code is evaluated at render and results appear as text.

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

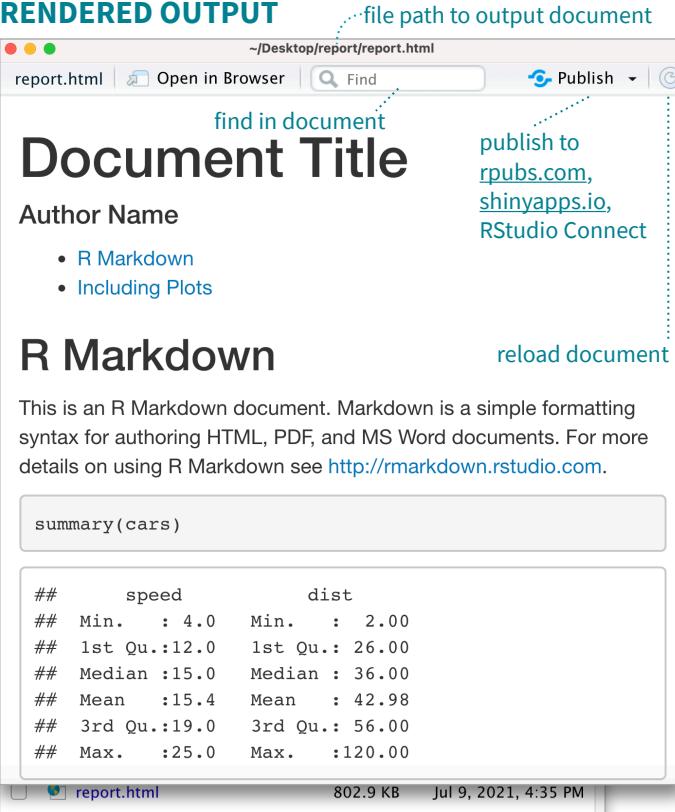
SOURCE EDITOR



VISUAL EDITOR



RENDERED OUTPUT



Write with Markdown

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

Plain text.

Plain text.

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

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

Also end with a backslash\ to make a new line.

Also end with a backslash\ to make a new line.

italics* and ****bold****

italics and **bold**

superscript²/subscript₂

superscript²/subscript₂

~~strikethrough~~

strikethrough

escaped: `*` \`

escaped: * \`

endash: --, emdash: ---

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

<link url>

[This is a link.](link url)

[This is another link][id].

This is another link.

<http://www.rstudio.com/>

This is a link.

This is another link.



Caption.

verbatim code

multiple lines of verbatim code

> block quotes

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 |

| Right | Left | Default | Center |
|-------|------|---------|--------|
| 12 | 12 | 12 | 12 |
| 123 | 123 | 123 | 123 |
| 1 | 1 | 1 | 1 |

HTML Tabsets

```
# Results {.tabset}
## Plots text
text
```

Tables

more text

Results

Plots

Tables

text





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 format 2 characters,
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()`
Also see `flexdashboard`, `bookdown`, `distill`, and `blogdown`.

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

Use `?<output format>` to see all of a format's options, e.g. `?html_document`

More Header Options

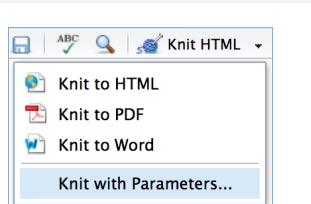
PARAMETERS

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

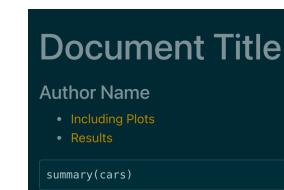
1. **Create a new package** with a `inst/rmarkdown/templates` directory.
2. **Add a folder** containing `template.yaml` (below) and `skeleton.Rmd` (template contents).
3. **Install** the package to access template by going to **File > New R Markdown > From Template**.



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.

A green 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.

Render

When you render a document, rmarkdown:

1. 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/



INTERACTIVITY

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

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.
4. Render with `rmarkdown::run()` or click **Run Document** in RStudio IDE.

```
---
```

```
output: html_document
runtime: shiny
---
```

```
```{r, echo = FALSE}
numericInput("n",
 "How many cars?", 5)
renderTable({
 head(cars, input$n)
})
```

| speed | dist  |
|-------|-------|
| 1     | 4.00  |
| 2     | 4.00  |
| 3     | 7.00  |
| 4     | 7.00  |
| 5     | 8.00  |
|       | 2.00  |
|       | 10.00 |
|       | 4.00  |
|       | 22.00 |
|       | 16.00 |

Also see Shiny Prerendered for better performance.

[rstudio.com/rmarkdown/rstudiocom/authoring\\_shiny\\_prerendered](https://rstudio.com/rmarkdown/rstudiocom/authoring_shiny_prerendered)

Embed a complete app into your document with `shiny::shinyAppDir()`. More at [bookdown.org/yihui/rmarkdown/shiny-embedded.html](https://bookdown.org/yihui/rmarkdown/shiny-embedded.html).