R Markdown Reference Guide

Learn more about R Markdown at rmarkdown.rstudio.com
Learn more about Interactive Docs at shiny.rstudio.com/articles

Contents:

1. **Markdown Syntax**
2. Knitr chunk options
3. Pandoc options

Syntax

```
Plain text

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

*italics* and _italics_

**bold** and __bold__

superscript^2^

~~strikethrough~~

[link](www.rstudio.com)

# Header 1

## Header 2

### Header 3

#### Header 4

##### Header 5

###### Header 6

endash: --

emdash: ---

ellipsis: ...

inline equation: $A = \pi*r^{2}$

image: ![](path/to/smallorb.png)

horizontal rule (or slide break):

***

> block quote

* unordered list
* item 2
    + sub-item 1
    + sub-item 2

1. ordered list
2. item 2
    + sub-item 1
    + sub-item 2

Table Header   | Second Header
-------------- | --------------
Table Cell     | Cell 2
Cell 3         | Cell 4
```

Becomes

Plain text

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

italics and *italics*

bold and **bold**

superscript^2

~~strikethrough~~

link

Header 1

Header 2

Header 3

Header 4

Header 5

Header 6

endash: –

emdash: —

ellipsis: …

inline equation: $A = \pi * r^2$

image:

horizontal rule (or slide break):

> block quote

- unordered list
- item 2
    - sub-item 1
    - sub-item 2

1. ordered list
2. item 2
    - sub-item 1
    - sub-item 2

Table Header	Second Header
Table Cell	Cell 2
Cell 3	Cell 4

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Syntax	Becomes

Make a code chunk with three back ticks followed by an r in braces. End the chunk with three back ticks:
 	
``{r}
paste("Hello", "World!")
``
	Make a code chunk with three back ticks followed by an r in braces. End the chunk with three back ticks:
	
	`paste("Hello", "World!")`
	
	`## [1] "Hello World!"`

Place code inline with a single back ticks. The first back tick must be followed by an R, like this `r paste("Hello", "World!")`.	Place code inline with a single back ticks. The first back tick must be followed by an R, like this Hello World!.

Add chunk options within braces. For example, `echo=FALSE` will prevent source code from being displayed:
 	
``{r eval=TRUE, echo=FALSE}
paste("Hello", "World!")
``
	Add chunk options within braces. For example, `echo=FALSE` will prevent source code from being displayed:
	
	`## [1] "Hello World!"`

Learn more about chunk options at http://yihui.name/knitr/options

Chunk options

option	default value	description
Code evaluation		
child	NULL	A character vector of filenames. Knitr will knit the files and place them into the main document.
code	NULL	Set to R code. Knitr will replace the code in the chunk with the code in the code option.
engine	'R'	Knitr will evaluate the chunk in the named language, e.g. **engine = 'python'**. Run **names(knitr::knit_engines$get())** to see supported languages.
eval	TRUE	If **FALSE**, knitr will not run the code in the code chunk.
include	TRUE	If **FALSE**, knitr will run the chunk but not include the chunk in the final document.
purl	TRUE	If **FALSE**, knitr will not include the chunk when running **purl()** to extract the source code.
Results		
collapse	FALSE	If **TRUE**, knitr will collapse all the source and output blocks created by the chunk into a single block.
echo	TRUE	If **FALSE**, knitr will not display the code in the code chunk above it's results in the final document.
results	'markup'	If **'hide'**, knitr will not display the code's results in the final document. If **'hold'**, knitr will delay displaying all output pieces until the end of the chunk. If **'asis'**, knitr will pass through results without reformatting them (useful if results return raw HTML, etc.)
error	TRUE	If **FALSE**, knitr will not display any error messages generated by the code.
message	TRUE	If **FALSE**, knitr will not display any messages generated by the code.
warning	TRUE	If **FALSE**, knitr will not display any warning messages generated by the code.
Code Decoration		
comment	'##'	A character string. Knitr will append the string to the start of each line of results in the final document.
highlight	TRUE	If **TRUE**, knitr will highlight the source code in the final output.
prompt	FALSE	If **TRUE**, knitr will add > to the start of each line of code displayed in the final document.
strip.white	TRUE	If **TRUE**, knitr will remove white spaces that appear at the beginning or end of a code chunk.
tidy	FALSE	If **TRUE**, knitr will tidy code chunks for display with the **tidy_source()** function in the **formatR** package.

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Chunk options (Continued)

option	default value	description
Chunks		
opts.label	NULL	The label of options set in **knitr:: opts_template()** to use with the chunk.
R.options	NULL	Local R options to use with the chunk. Options are set with **options()** at start of chunk. Defaults are restored at end.
ref.label	NULL	A character vector of labels of the chunks from which the code of the current chunk is inherited.
Cache		
autodep	FALSE	If **TRUE**, knitr will attempt to figure out dependencies between chunks automatically by analyzing object names.
cache	FALSE	If **TRUE**, knitr will cache the results to reuse in future knits. Knitr will reuse the results until the code chunk is altered.
cache.comments	NULL	If **FALSE**, knitr will not rerun the chunk if only a code comment has changed.
cache.lazy	TRUE	If **TRUE**, knitr will use **lazyload()** to load objects in chunk. If **FALSE**, knitr will use **load()** to load objects in chunk.
cache.path	'cache/'	A file path to the directory to store cached results in. Path should begin in the directory that the .Rmd file is saved in.
cache.vars	NULL	A character vector of object names to cache if you do not wish to cache each object in the chunk.
dependson	NULL	A character vector of chunk labels to specify which other chunks a chunk depends on. Knitr will update a cached chunk if its dependencies change.
Animation		
anipots	'controls,loop'	Extra options for animations (see the **animate** package).
interval	1	The number of seconds to pause between animation frames.
Plots		
dev	'png'	The R function name that will be used as a graphical device to record plots, e.g. **dev='CairoPDF'**.
dev.args	NULL	Arguments to be passed to the device, e.g. **dev.args=list(bg='yellow', pointsize=10)**.
dpi	72	A number for knitr to use as the dots per inch (dpi) in graphics (when applicable).
external	TRUE	If **TRUE**, knitr will externalize tikz graphics to save LaTex compilation time (only for the **tikzDevice::tikz()** device).
fig.align	'default'	How to align graphics in the final document. One of 'left', 'right', or 'center'.
fig.cap	NULL	A character string to be used as a figure caption in LaTex.
fig.env	'figure'	The Latex environment for figures.
fig.ext	NULL	The file extension for figure output, e.g. **fig.ext='png'**.
fig.height, fig.width	7	The width and height to use in R for plots created by the chunk (in inches).
fig.keep	'high'	If **'high'**, knitr will merge low-level changes into high level plots. If **'all'**, knitr will keep all plots (low-level changes may produce new plots). If **'first'**, knitr will keep the first plot only. If **'last'**, knitr will keep the last plot only. If **'none'**, knitr will discard all plots.
fig.lp	'fig:'	A prefix to be used for figure labels in latex.
fig.path	'figure/'	A file path to the directory where knitr should store the graphics files created by the chunk.
fig.pos	''	A character string to be used as the figure position arrangement in LaTex.
fig.process	NULL	A function to post-process a figure file. Should take a filename and return a filename of a new figure source.
fig.retina	1	Dpi multiplier for displaying HTML output on retina screens.
fig.scap	NULL	A character string to be used as a short figure caption.
fig.subcap	NULL	A character string to be used as captions in sub-figures in LaTex.
fig.show	'asis'	If **'hide'**, knitr will generate the plots created in the chunk, but not include them in the final document. If **'hold'**, knitr will delay displaying the plots created by the chunk until the end of the chunk. If **'animate'**, knitr will combine all of the plots created by the chunk into an animation.
fig.showtext	NULL	If **TRUE**, knitr will call **showtext::showtext.begin()** before drawing plots.
out.extra	NULL	A character string of extra options for figures to be passed to LaTex or HTML.
out.height, out.width	NULL	The width and height to scale plots to in the final output. Can be in units recognized by output, e.g. **8\\linewidth, 50px**
resize.height, resize.width	NULL	The width and height to resize tike graphics in LaTex, passed to **\resizebox{}{}.**
sanitize	FALSE	If **TRUE**, knitr will sanitize tike graphics for LaTex.

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Templates

html_document
pdf_document
word_document
md_document
ioslides_presentation
slidy_presentation
beamer_presentation

Basic YAML

```
---
title: "A Web Doc"
author: "John Doe"
date: "May 1, 2015"
output: md_document
---
```

Template options

```
---
title: "Chapters"
output:
  html_document:
    toc: true
    toc_depth: 2
---
```

Latex options

```
---
title: "My PDF"
output: pdf_document
fontsize: 11pt
geometry: margin=1in
---
```

Interactive Docs

```
---
title: "Slides"
output:
  slidy_presentation:
    incremental: true
runtime: shiny
---
```

Syntax for slide formats (ioslides, slidy, beamer)

```
# Dividing slides 1

Pandoc will start a new slide at each first level header

## Header 2

… as well as each second level header

***

You can start a new slide with a horizontal rule`***` if you do not want
a header.

## Bullets

Render bullets with

- a dash
- another dash

## Incremental bullets

>- Use this format
>- to have bullets appear
>- one at a time (incrementally)
```

becomes

Slide display modes

*Press a key below during presentation to enter display mode. Press **esc** to exit display mode.*

ioslides

- **f** - enable fullscreen mode
- **w** - toggle widescreen mode
- **o** - enable overview mode
- **h** - enable code highlight mode
- **p** - show presenter notes

slidy

- **C** - show table of contents
- **F** - toggle display of the footer
- **A** - toggle display of current vs all slides
- **S** - make fonts smaller
- **B** - make fonts bigger

Top level options to customize LaTex (pdf) output

option	description
lang	Document language code
fontsize	Font size (e.g. 10pt, 11pt, 12 pt)
documentclass	Latex document class (e.g. article)
classoption	Option for document class (e.g. oneside); may be repeated
geometry	Options for geometry class (e.g. margin=1in); may be repeated
mainfont, sansfont, monofont, mathfont	Document fonts (works only with xelatex and lualatex, see the latex_engine option)
linkcolor, urlcolor, citecolor	Color for internal, external, and citation links (red, green, magenta, cyan, blue, black)

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option	html	pdf	word	md	ioslides	slidy	beamer	description
colortheme							X	Beamer color theme to use (e.g., `colortheme: "dolphin"`).
css	X				X	X		Filepath to CSS style to use to style document (e.g., `css: styles.css`).
duration						X		Add a countdown timer (in minutes) to footer of slides (e.g., `duration: 45`).
fig_caption	X	X	X		X	X	X	Should figures be rendered with captions?
fig_crop		X					X	Should pdfcrop utility be automatically applied to figures (when available)?
fig_height	X	X	X	X	X	X	X	Default figure height (in inches) for document.
fig_retina	X			X	X	X		Scaling to perform for retina displays (e.g., `fig_retina: 2`).
fig_width	X	X	X	X	X	X	X	Default figure width (in inches) for document.
font_adjustmen						X		Increase or decrease font size for entire presentation (e.g., `font_adjustment: -1`).
fonttheme							X	Beamer font theme to use (e.g., `fonttheme: "structurebold"`).
footer						X		Text to add to footer of each slide (e.g., `footer: "Copyright (c) 2014 RStudio"`).
highlight	X	X				X	X	Syntax highlighting style (e.g. `"tango"`, `"pygments"`, `"kate"`, `"zenburn"`, and
includes	X	X		X	X	X	X	See below
-in_header	X	X			X	X	X	File of content to place in document header (e.g., `in_header: header.html`).
-before_body	X	X			X	X	X	File of content to place before document body (e.g., `before_body:`
-after_body	X	X			X	X	X	File of content to place after document body (e.g., `after_body: doc_suffix.html`).
incremental					X	X	X	Should bullets appear one at a time (on presenter mouse clicks)?
keep_md	X				X	X		Save a copy of .md file that contains knitr output (in addition to the .Rmd and HTML files)?
keep_tex		X					X	Save a copy of .tex file that contains knitr output (in addition to the .Rmd and PDF files)?
latex_engine		X						Engine to render latex. Should be one of `"pdflatex"`, `"xelatex"`, and `"lualatex"`.
lib_dir	X				X	X		Directory of dependency files to use (Bootstrap, MathJax, etc.) (e.g., `lib_dir: libs`).
logo					X			File path to a logo (at least 128 x 128) to add to presentation (e.g., `logo: logo.png`).
mathjax	X				X	X		Set to `local` or a URL to use a local/URL version of MathJax to render equations
number_section	X	X						Add section numbering to headers (e.g., `number_sections: true`).
pandoc_args	X	X	X	X	X	X	X	Arguments to pass to Pandoc (e.g., `pandoc_args: ["--title-prefix", "Foo"]`).
preserve_yaml				X				Preserve YAML front matter in final document?
reference_docx			X					A .docx file whose styles should be copied to use (e.g., `reference_docx:`
self_contained	X				X	X		Embed dependencies into the doc? Set to `false` to keep dependencies in external files.
slide_level							X	The lowest heading level that defines individual slides (e.g., `slide_level: 2`).
smaller					X			Use the smaller font size in the presentation?
smart	X				X	X		Convert straight quotes to curly, dashes to em-dashes, … to ellipses, and so on?
template	X	X				X	X	Pandoc template to use when rendering file (e.g., `template:`
theme	X						X	Bootswatch or Beamer theme to use for page. Valid bootswatch themes include `"cerulean"`, `"journal"`, `"flatly"`, `"readable"`, `"spacelab"`, `"united"`, and `"cosmo"`.
toc	X	X		X			X	Add a table of contents at start of document? (e.g., `toc: true`).
toc_depth	X	X		X				The lowest level of headings to add to table of contents (e.g., `toc_depth: 2`).
transition					X			Speed of slide transitions should be `"slower"`, `"faster"` or a number in seconds.
variant				X				The flavor of markdown to use; one of `"markdown"`, `"markdown_strict"`, `"markdown_github"`, `"markdown_mmd"`, and `"markdown_phpextra"`
widescreen					X			Display presentation in widescreen format?

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