



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:

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**

superscript²

~~strikethrough~~

[link](#)

Header 1

Header 2

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endash: –

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horizontal rule (or slide break):

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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. <code>engine = 'python'</code> . Run <code>names(knitr::knit_engines\$get())</code> to see supported languages. |
| eval | TRUE | If <code>FALSE</code> , knitr will not run the code in the code chunk. |
| include | TRUE | If <code>FALSE</code> , knitr will run the chunk but not include the chunk in the final document. |
| purl | TRUE | If <code>FALSE</code> , knitr will not include the chunk when running <code>purl()</code> to extract the source code. |
| Results | | |
| collapse | FALSE | If <code>TRUE</code> , knitr will collapse all the source and output blocks created by the chunk into a single block. |
| echo | TRUE | If <code>FALSE</code> , knitr will not display the code in the code chunk above it's results in the final document. |
| results | 'markup' | If <code>'hide'</code> , knitr will not display the code's results in the final document. If <code>'hold'</code> , knitr will delay displaying all output pieces until the end of the chunk. If <code>'asis'</code> , knitr will pass through results without reformatting them (useful if results return raw HTML, etc.) |
| error | TRUE | If <code>FALSE</code> , knitr will not display any error messages generated by the code. |
| message | TRUE | If <code>FALSE</code> , knitr will not display any messages generated by the code. |
| warning | TRUE | If <code>FALSE</code> , knitr will not display any warning messages generated by the code. |
| Code Decoration | | |
| background | '#F7F7F7' | A background color for chunks in LaTeX output. |
| comment | '##' | A character string. Knitr will append the string to the start of each line of results in the final document. |
| highlight | TRUE | If <code>TRUE</code> , knitr will highlight the source code in the final output. |
| prompt | FALSE | If <code>TRUE</code> , knitr will add <code>></code> to the start of each line of code displayed in the final document. |
| size | 'normalsize' | Fontsize for LaTeX output. |
| strip.white | TRUE | If <code>TRUE</code> , knitr will remove white spaces that appear at the beginning or end of a code chunk. |
| tidy | FALSE | If <code>TRUE</code> , knitr will tidy code chunks for display with the <code>tidy_source()</code> function in the <code>formatR</code> package. |



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Chunk options (Continued)

| option | default value | description |
|------------------------------------|-----------------|--|
| Chunks | | |
| opts.label | NULL | The label of options set in <code>knitr::opts_template()</code> to use with the chunk. |
| R.options | NULL | Local R options to use with the chunk. Options are set with <code>options()</code> 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 <code>lazyload()</code> to load objects in chunk. If FALSE , knitr will use <code>load()</code> 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 <code>animate</code> 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. <code>dev='CairoPDF'</code> . |
| dev.args | NULL | Arguments to be passed to the device, e.g. <code>dev.args=list(bg='yellow', pointsize=10)</code> . |
| 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 <code>tikzDevice::tikz()</code> 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. <code>fig.ext='png'</code> . |
| 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 <code>showtext::showtext.begin()</code> 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. <code>8\\linewidth, 50px</code> |
| resize.height, resize.width | NULL | The width and height to resize tike graphics in LaTeX, passed to <code>\resizebox{}}{}</code> . |
| sanitize | FALSE | If TRUE , knitr will sanitize tike graphics for LaTeX. |



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| Templates | Basic YAML | Template options | Latex options | Interactive Docs |
|-----------------------|---------------------|-------------------|----------------------|---------------------|
| html_document | --- | --- | --- | --- |
| pdf_document | title: "A Web Doc" | title: "Chapters" | title: "My PDF" | title: "Slides" |
| word_document | author: "John Doe" | output: | output: pdf_document | output: |
| md_document | date: "May 1, 2015" | html_document: | fontsize: 11pt | slidy_presentation: |
| ioslides_presentation | output: md_document | toc: true | geometry: margin=1in | incremental: true |
| slidy_presentation | --- | toc_depth: 2 | --- | runtime: shiny |
| beamer_presentation | --- | --- | --- | --- |

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

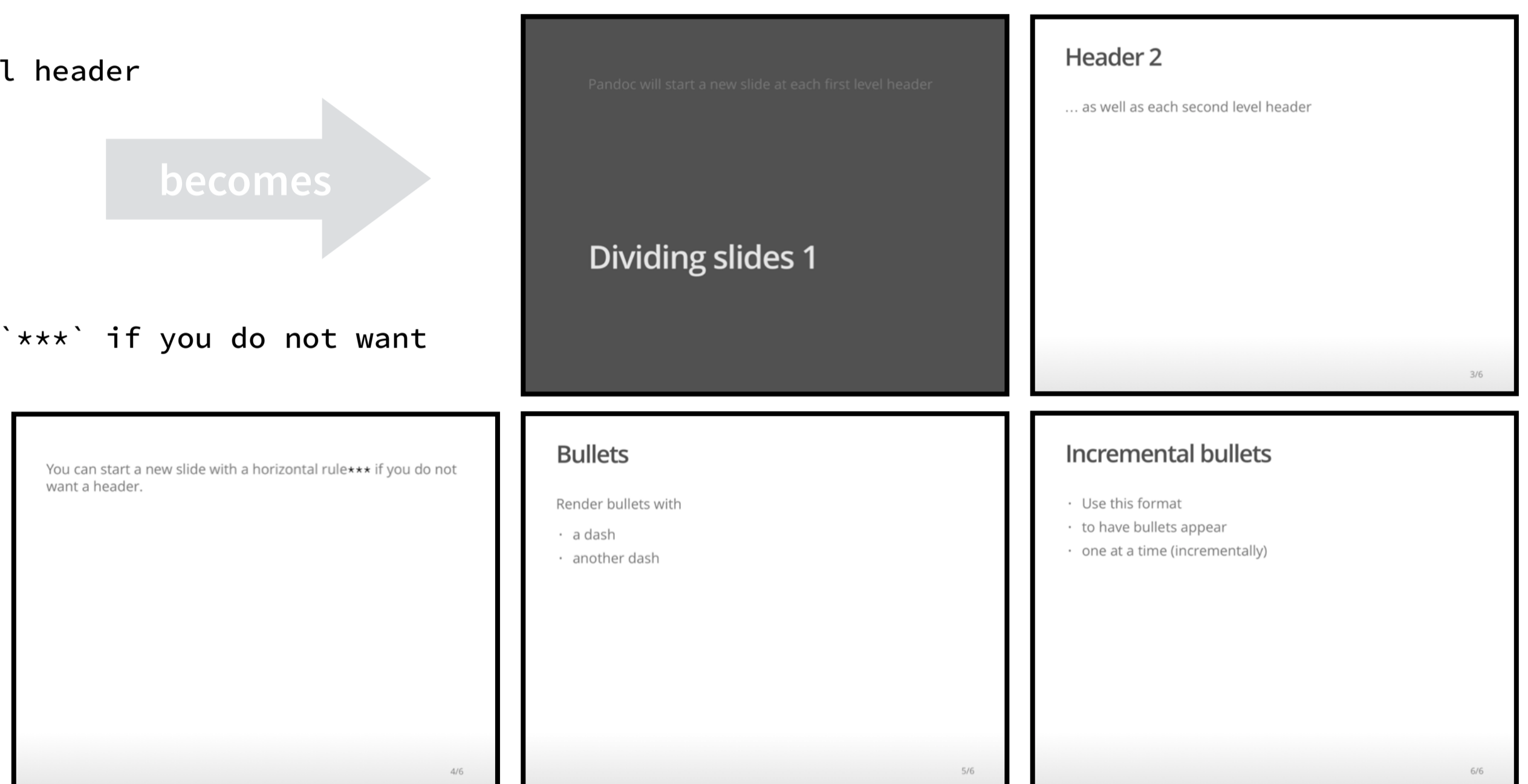
Incremental bullets

>- 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., <code>colortheme: "dolphin"</code>). |
| css | X | | | | X | X | | Filepath to CSS style to use to style document (e.g., <code>css: styles.css</code>). |
| duration | | | | | | X | | Add a countdown timer (in minutes) to footer of slides (e.g., <code>duration: 45</code>). |
| fig_caption | X | X | X | | X | X | X | Should figures be rendered with captions? |
| fig_crop | | X | | | | | X | Should <code>pdfcrop</code> 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., <code>fig_retina: 2</code>). |
| 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., <code>font_adjustment: -1</code>). |
| fonttheme | | | | | | | X | Beamer font theme to use (e.g., <code>fonttheme: "structurebold"</code>). |
| footer | | | | | | X | | Text to add to footer of each slide (e.g., <code>footer: "Copyright (c) 2014 RStudio"</code>). |
| 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., <code>in_header: header.html</code>). |
| -before_body | X | X | | | X | X | X | File of content to place before document body (e.g., <code>before_body:</code> |
| -after_body | X | X | | | X | X | X | File of content to place after document body (e.g., <code>after_body: doc_suffix.html</code>). |
| incremental | | | | | X | X | X | Should bullets appear one at a time (on presenter mouse clicks)? |
| keep_md | X | | | | X | X | | Save a copy of <code>.md</code> file that contains knitr output (in addition to the <code>.Rmd</code> and HTML files)? |
| keep_tex | | X | | | | | X | Save a copy of <code>.tex</code> file that contains knitr output (in addition to the <code>.Rmd</code> and PDF files)? |
| latex_engine | | X | | | | | | Engine to render latex. Should be one of "pdflatex", "xelatex", and "lua ^l atex". |
| lib_dir | X | | | | X | X | | Directory of dependency files to use (Bootstrap, MathJax, etc.) (e.g., <code>lib_dir: libs</code>). |
| logo | | | | | X | | | File path to a logo (at least 128 x 128) to add to presentation (e.g., <code>logo: logo.png</code>). |
| mathjax | X | | | | X | X | | Set to <code>local</code> 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., <code>number_sections: true</code>). |
| pandoc_args | X | X | X | X | X | X | X | Arguments to pass to Pandoc (e.g., <code>pandoc_args: ["--title-prefix", "Foo"]</code>). |
| preserve_yaml | | | | X | | | | Preserve YAML front matter in final document? |
| reference_docx | | | X | | | | | A <code>.docx</code> file whose styles should be copied to use (e.g., <code>reference_docx:</code> |
| self_contained | X | | | | X | X | | Embed dependencies into the doc? Set to <code>false</code> to keep dependencies in external files. |
| slide_level | | | | | | | X | The lowest heading level that defines individual slides (e.g., <code>slide_level: 2</code>). |
| 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., <code>template:</code> |
| 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., <code>toc: true</code>). |
| toc_depth | X | X | | X | | | | The lowest level of headings to add to table of contents (e.g., <code>toc_depth: 2</code>). |
| 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? |