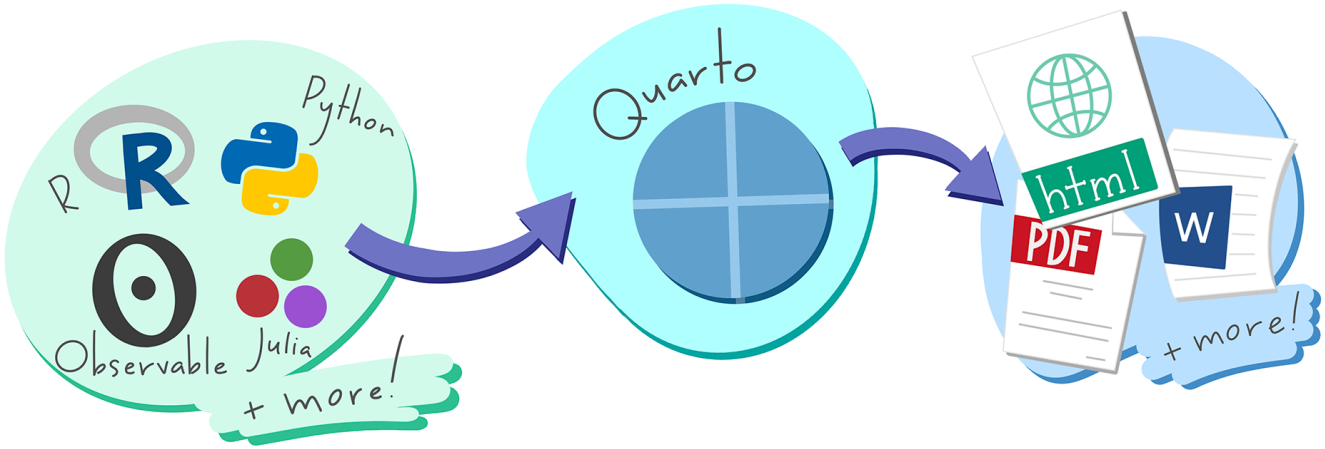
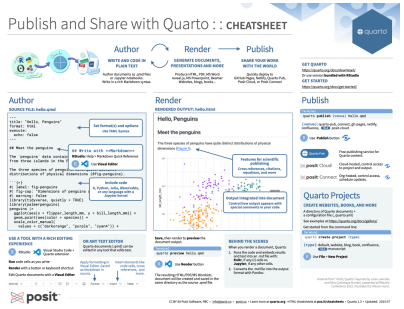
Publish and Share with Quarto :: Cheatsheet

QMD Edition

Overview



Download PDF



1

- **Author**: Write and code in plain text. Author documents as .qmd files, or Jupyter notebooks. Write in a rich Markdown syntax.

- **Render**: Generate documents, presentations and more. Produce HTML, PDF, MS Word, reveal.js, MS Powerpoint, Beamer, websites, blogs, books...
- **Share**: Share your work with the world. Quickly deploy to GitHub Pages, Netlify, Quarto Pub, Posit Cloud, or Posit Connect.

Get Quarto

Get Quarto from: https://quarto.org/docs/download/

Or, use version **bundled with RStudio.**

Get Started

https://quarto.org/docs/get-started

Author

Source File: hello.qmd

```
---
title: "Hello, Penguins"
format: html
execute:
  echo: false
---

## Meet the penguins

The `penguins` data contains size measurements for
penguins from three islands in the Palmer Archipelago,
Antarctica.

The three species of penguins have quite distinct
distributions of physical dimensions (@fig-penguins).
```

````
```{r}
#| label: fig-penguins
#| fig-cap: "Dimensions of penguins across three species."
#| warning: false
library(tidyverse, quietly = TRUE)
library(palmerpenguins)
penguins |>
  ggplot(aes(x = flipper_length_mm, y = bill_length_mm)) +
  geom_point(aes(color = species)) +
  scale_color_manual(
    values = c("darkorange", "purple", "cyan4")) +
  theme_minimal()
```
````

Highlights in the source file

- Set format(s) and options. Use YAML Syntax.

```
---
title: "Hello, Penguins"
format: html
execute:
  echo: false
---
```

- `## Write with **Markdown**`

  RStudio: Help > Markdown Quick Reference

  RStudio & VS Code: Use the **Visual Editor**

````
## Meet the penguins

The `penguins` data contains size measurements for
penguins from three islands in the Palmer Archipelago,
Antarctica.
````

```
The three species of penguins have quite distinct
distributions of physical dimensions (@fig-penguins).
```

- Include code. R, Python, Julia, Observable, or any language with a Jupyter kernel.

````
```{r}
#| label: fig-penguins
#| fig-cap: "Dimensions of penguins across three species."
#| warning: false
library(tidyverse, quietly = TRUE)
library(palmerpenguins)
penguins |>
  ggplot(aes(x = flipper_length_mm, y = bill_length_mm)) +
  geom_point(aes(color = species)) +
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    values = c("darkorange", "purple", "cyan4")) +
  theme_minimal()
```
````

Use a tool with a rich authoring experience

RStudio, or
Visual Studio Code + Quarto extension

- **Run** code cells as you write
- **Render** with a button or keyboard shortcut
- Edit Quarto documents with a **Visual Editor**

  - Apply formatting in Visual Editor. Saved as Markdown in source.
  - Insert elements like code cells, cross references, and more.

Or any text editor

Quarto documents (.qmd) can be edited in any tool that edits text.

Render

Save, then render to **preview** the document output.

Terminal

```
quarto preview hello.qmd
```

RStudio: Use **Render** button 

VS Code: Use **Preview** button

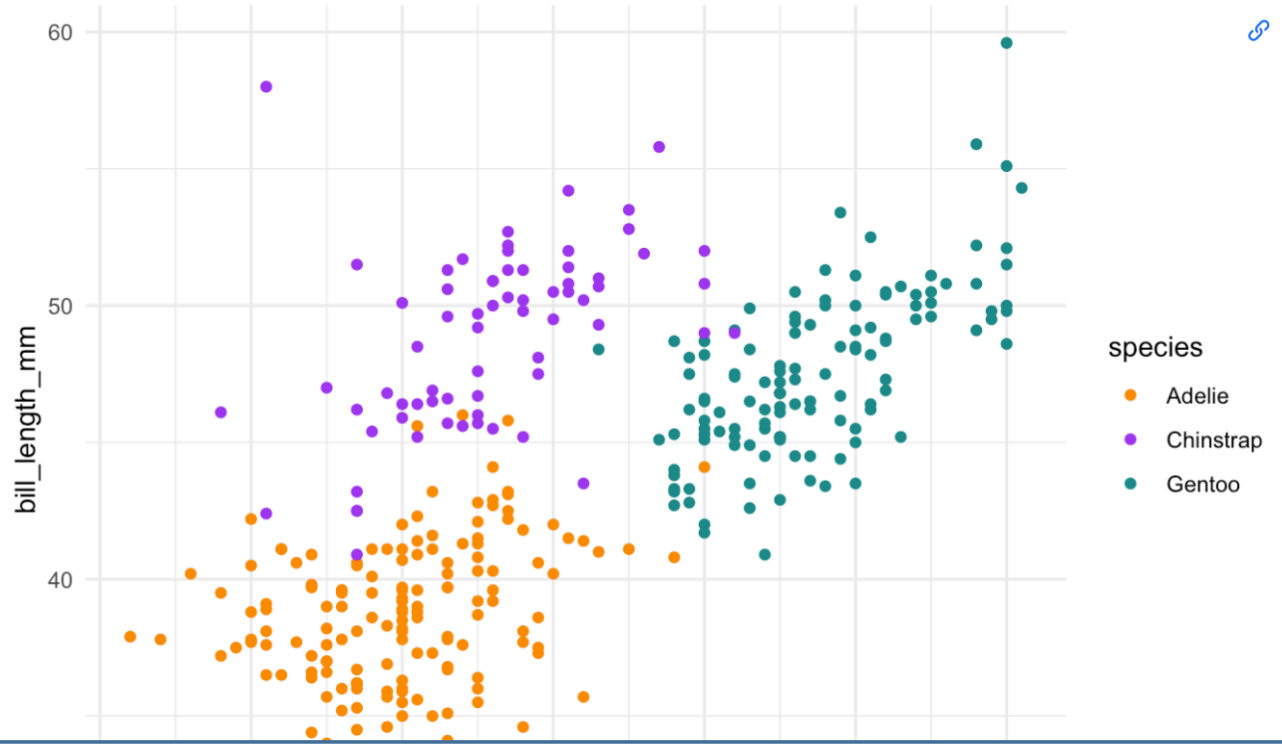
The resulting HTML/PDF/MS Word/etc. document will be created and saved in the same directory as the source .qmd file.

Rendered output: hello.html

Hello, Penguins

Meet the penguins

The three species of penguins have quite distinct distributions of physical dimensions (Figure 1).



Highlights in the rendered output

- Features for scientific publishing. Cross references, citations, equations, and more.
- Output integrated into document. Control how output appears with special comments in your code.

Behind the Scenes

When you render a document, Quarto:

1. Runs the code and embeds results and text into an .md file with:
   - **Knitr**, if any `{r}` cells, or
   - **Jupyter**, if any other cells.
2. Converts the .md file into the output format with Pandoc.

Publish

```
Terminal
quarto publish {venue} hello.qmd
```

`{venue}`: quarto-pub, connect, gh-pages, netlify, confluence, posit-cloud

RStudio: Use **Publish** button 

- **Quarto Pub** Free publishing service for Quarto content.
- **Posit Cloud** Cloud-hosted, control access to project and output. 
- **Posit Connect** Org-hosted, control access, schedule updates. 

Quarto Projects

Create websites, books and more

A directory of Quarto documents + a configuration file (`_quarto.yml`)

See examples at: https://quarto.org/docs/gallery/

Get started from the command line:

```
Terminal
quarto create project {type}
```

`{type}` : default, website, blog, book, confluence, manuscript

RStudio: Use **File** > **New Project**

Include Code

Code Cells

Code cells start with ```` ```{language} ```` , and end with ```` ``` ```` .

RStudio & VS Code: Use **Insert Code Chunk/Cell**.

````
```{r}
#| label: chunk-id
```
````

````
```{python}
#| label: chunk-id
```
````

Other languages: `{julia}` , `{ojs}`

Add code cell options with `#|` comments.

Cell options control **execution**, figures, tables, layout and more. See them all at:
https://quarto.org/docs/reference/cells/

Execution Options

Option	Default	Effects
`echo`	`true`	`false`: hide code in output `fenced`: include code cell syntax
`eval`	`true`	`false`: don't run code
`include`	`true`	`false`: don't include code or results
`output`	`true`	`false`: don't include results `asis`: treat results as raw markdown
`warning`	`true`	`false`: don't include warnings in output
`error`	`false`	`true`: include error in output and continue with render

Set execution options at the **cell level**:

````
```{r}
#| echo: false
```
````

````
```{python}
#| echo: false
```
````

Set options in code cells with `#|` comments and YAML syntax: `key: value`.

Or globally in the YAML header with the **execute** option:

```
---
execute:
  echo: false
---
```

Inline Code

Use computed values directly in text sections. Code is evaluated at render and results appear as text.

Knitr	Jupyter	Output
Value is `` `r 2 + 2` ``.	Value is `` `{python} 2 + 2` ``.	Value is 4.

Set Formats and Options

Set Format Options

```yaml
---
title: "My Document"
format:
  html:
    code-fold: true
    toc: true
---
```

- Indent format 2 spaces
- Indent options 4 spaces

Multiple Formats

```yaml
---
title: "My Document"
toc: true
format:
  html:
    code-fold: true
  pdf: default
---
```

- Top-level options (e.g. `toc`) apply to all formats

Common values for `format`: html, pdf[2], docx, odt, rtf, gfm, pptx, revealjs, beamer [3]

Render **all** formats:

```
Terminal
quarto render hello.qmd
```

Render a **specific** format:

```
Terminal
quarto render hello.qmd --to pdf
```

Output Options Table

Important Options. The first column is the option name, an "X" in the next three columns indicates whether the option applies to the format, the fourth column decribes the options and possible values, the final column indicates whether the options can also be set in a code cell.

Option	html/revealjs	pdf/beamer	docx/pptx	Description	cell level?
Navigation					
toc	X	X	X	Add a table of contents (true or false)	
toc-depth	X	X	X	Lowest level of headings to add to table of contents (e.g. 2, 3)	
anchor-sections	X			Show section anchors on mouse hover (true or false)	
Style					
highlight-style	X	X	X	Syntax highlighting theme (e.g. arrow, pygments, kate, zenburn)	

Option	html/revealjs	pdf/beamer	docx/pptx	Description	cell level?
mainfont, monofont	X	X		Font name. HTML: sets CSS `font-family`; LaTeX: via fontspec package	
theme	X			Bootswatch theme name (e.g. cosmo, darkly, solar etc.)	
css	X			CSS or SCSS file to use to style the document (e.g.	
reference-doc			X	docx/pptx file containing template styles (e.g. file.docx, file.pptx)	
NA					
include-in-header	X	X		Files of content to include in header of output	

Option	html/revealjs	pdf/beamer	docx/pptx	Description	cell level?
				document, also **include-before-body**, **include-after-body**	
keep-md	X	X	X	Keep intermediate files (true or false), also **keep-tex**, **keep-ipynb**	
LaTeX					
documentclass		X		LaTeX document class, set document options with **classoption**	
pdf-engine		X		LaTeX engine to produce PDF output (xelatex, pdflatex, lualatex)	
cite-method		X		Method used to format citations (citeproc,	

Option	html/revealjs	pdf/beamer	docx/pptx	Description	cell level?
				natbib, biblatex)	
Code					
code-fold	X			Let readers toggle the display of R code (false, true, or show)	X
code-tools	X			Add menu for hiding, showing, and downloading code (true or false)	
code-overflow	X			Display of wide code (scroll, or wrap)	X
Figures					
fig-align	X	X	docx only	Alignment of figures (default, left, right, center)	X
fig-width, fig-height	X	X	X	Default width and height for figures in inches	Knitr only

Option	html/revealjs	pdf/beamer	docx/pptx	Description	cell level?
fig-format	X	X	X	Format for Matplotlib or R figures (retina, png, jpeg, svg, or pdf)	

Visit https://quarto.org/docs/reference/ to see all options by format

Add Content

Figures

Markdown

```
![CAP](image.png){#fig-LABEL fig-alt="ALT"}
```

Computation

````
```{python}
#| label: fig-LABEL
#| fig-cap: CAP
#| fig-alt: ALT
{{ plot code here }}
```
````

Or `{r}`

Tables

Markdown

```
|object | radius|
|:------|------:|
|Sun    | 696000|
|Earth  |   6371|

: CAPTION {#tbl-LABEL}
```

Computation

Output a markdown table or an HTML table from your code.

Knitr

Use `knitr::kable()` to produce markdown:

````
```{r}
#| label: tbl-LABEL
#| tbl-cap: CAPTION

knitr::kable(head(cars))
```
````

Also see the R packages: gt, flextable, kableExtra.

Jupyter

Add `Markdown()` to Markdown output:

````
```{python}
#| label: tbl-LABEL
#| tbl-cap: CAPTION
import pandas as pd, tabulate
from IPython.display import Markdown
df = pd.DataFrame({"A": [1, 2],
                   "B": [1, 2]})
Markdown(df.to_markdown(index=False))
```
````

Cross References

1. **Add labels:**
   - **Code cell:** add option `label: prefix-LABEL`
   - **Markdown:** add attribute `#prefix-LABEL`
2. **Add references:** `@prefix-LABEL`, e.g.

```
You can see in @fig-scatterplot, that...
```

prefix	**Renders**
fig-	Figure 1
tbl-	Table 1
eq-	Equation 1
sec-	Section 1

Citations

1. Add bibliography **file** to the YAML header:

```
---
bibliography: references.bib
---
```

2. Add citations: `[@citation]`, or `@citation`

RStudio & VS Code: Use **Insert Citations** dialog in the Visual Editor. Build your bibliography file from your Zotero library, DOI, Crossref, DataCite, or PubMed.

Callouts

```
::: {.callout-tip}
## Title

Text
:::
```

Instead of `tip` use one of: `note`, `caution`, `warning`, or `important`:

tip

note

caution

warning

important

Shortcodes

```
{{< include _file.qmd >}}
```

```
{{< embed file.ipynb#id >}}
```

```
{{< video video.mp4 >}}
```

Learn more at quarto.org.

Quarto 1.4

Updated: 2024-05.

Footnotes

1. Artwork from “Hello, Quarto” keynote by Julia Lowndes and Mine Çetinkaya-Rundel, presented at RStudio Conference 2022. Illustrated by Allison Horst. ↩
2. PDFs and Beamer slides require LaTeX, use:

```
Terminal
quarto install tinytex
```

↩

3. PDFs and Beamer slides require LaTeX, use:

```
Terminal
quarto install tinytex
```

↩