

# Reproducible Documents with `{ rmarkdown }`

Some general tips and good practice

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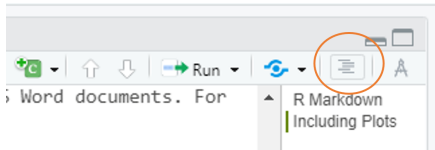


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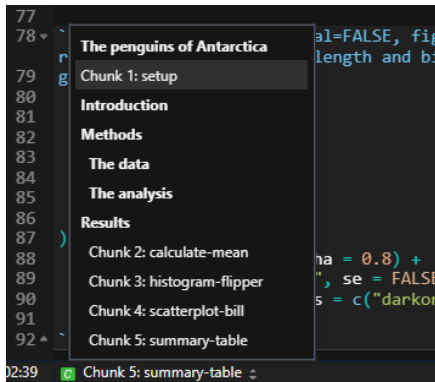
# Tip 1: Keep your document clean

.Rmd documents can quickly become large and messy. To keep them clean, you can

- Use headers to mark sections in your document
- Navigate the file using the document outline



- Use names for your code chunks
- Navigate code chunks with the code and document outline (bottom left of script)



## Tip 2: Source large data preparation scripts

- Related to Tip 1
- If it's not necessary for the document, do data preparation in a separate R Script
- Place that R Script in the project where the `.Rmd` is located
- Then source the script in a code chunk:

```
```{r prepare-data, warning=TRUE, message=TRUE}  
source("path/to/script.R")  
```
```

- This runs all the R code in `script.R` and loads the results into the `.Rmd` document

# Tip 3: Split larger documents into multiple `.Rmd` files

- Related to Tip 1
- Write separate `.Rmd` files e.g. for Introduction, Methods and Results
- Have on main `.Rmd` file that
  - Combines the sections into one
  - Controls YAML options of the output
- You can load an `.Rmd` file into another one using the `child` chunk option

```
```{r load-child, child="path/to/child.Rmd"}```
```

# Tip 3: Split larger documents into multiple .Rmd files

- 3 separate files `Introduction.Rmd`, `Methods.Rmd`, `Results.Rmd`
- The separate files control everything that happens on the lower levels of the documents, e.g.

## **## First results**

```
```{r result-plot, fig.width=3}
plot(1:10, 1:10)
```
```

- `Main.Rmd` (see right) controls
  - YAML options
  - Global setup options
  - Includes the sections via the `child` option

```
---
title: "My paper"
author: "Selina Baldauf"
output:
  pdf_document:
    toc: true
---

```{r global-setup, include = FALSE}
knitr::opts_chunk$set(echo = FALSE)
```

# Introduction

```{r intro, child="Introduction.Rmd"}
```

# Methods

```{r methods, child="Methods.Rmd"}
```

# Results

```{r results, child="Results.Rmd"}
```
```

# Tip 4: Read through some online resources

- Read or scroll through some R Markdown books or tutorials to
  - See what is possible with R Markdown
  - Find things that are relevant for your own documents
- I recommend to start with the two books:
  - [R Markdown Cookbook](#)
  - [R Markdown - The Definitive Guide](#)
- You can also find some [resources on the workshop website](#)

# Tip 5: Use a project oriented workflow

- One directory with all files relevant for project
  - Scripts, data, plots, documents, ...
- An RStudio project is just a normal directory with an `*.Rproj` file
- Advantages of using RStudio projects
  - Easy to navigate in R Studio (`File` pane)
  - Easy to find and access scripts in RStudio
  - Project root is working directory
  - Open multiple projects simultaneously in separate RStudio instances

```
Project
|
|- data
|
|- doc
|   |
|   |- analysis.Rmd
|   |- publication.Rmd
|- analysis
|   |
|   |- clean_data.R
|   |- statistics.R
|- *.RProj
```

Example project structure

# Tip 5: Use a project oriented workflow

Create a project from scratch:

1. `File -> New Project -> New Directory -> New Project`
2. Enter a directory name (this will be the name of your project)
3. Choose the Directory where the project should be initiated
4. `Create Project`