

Using advanced features of code notebooks

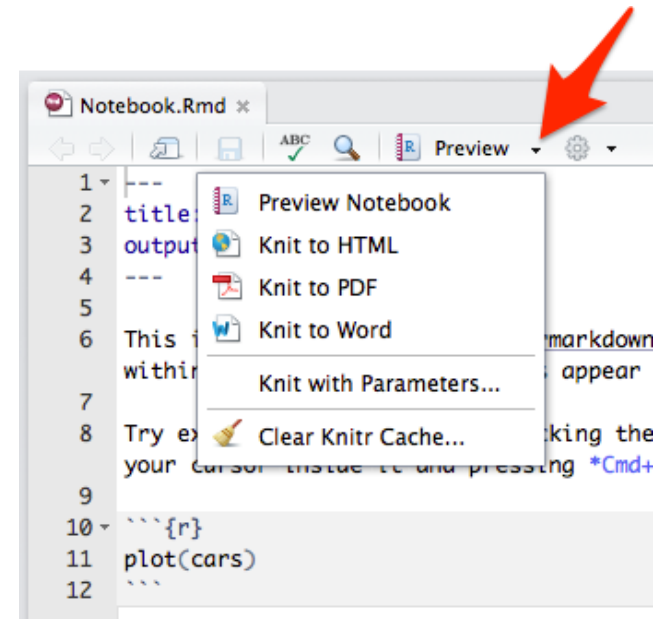
Publishing and sharing a code notebook

- Offline publishing
- Online publishing

Publish your R Notebook: Offline

Your R Notebook may be exported as

- HTML (Website)
- PDF (LaTeX required)
- Microsoft Word (Microsoft Office required)



- The exported file is stored in your working directory.

Install program for rendering to PDF – MiKTeX

1. To render R Markdown files to PDF you have to download TeX for Windows:

<http://miktex.org/2.9/setup>

2. Afterwards use the following command in your R script to set the environmental variable “Path”:

```
Sys.setenv(PATH = paste(Sys.getenv("PATH"),  
  "~/MiKTeX 2.9/miktex/bin/x64", sep=.Platform$path.sep))
```

This step is not always
required

3. Klick "Yes" when R asks permission to use MiKTeX.
4. Restart R.

For Mac OS: <http://tug.org/mactex/> and only a restart is needed

Two options for publishing online

Rpubs

RPubs

- Easy way to share your R markdown files with the **public**.
- Free, but you need an account.

Note: everything you publish on Rpubs.com can be seen (and used by everyone).

Rstudio Connect



- Commercial platform.
- Professional features:
 - Access control.
 - Scheduled Report updates.
 - Automatic report mailings.
 - "IT ready" and scalable.
- Starting at 14'995\$/year.

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Publish your R Notebook Online

7

RStudio

Click here to publish online

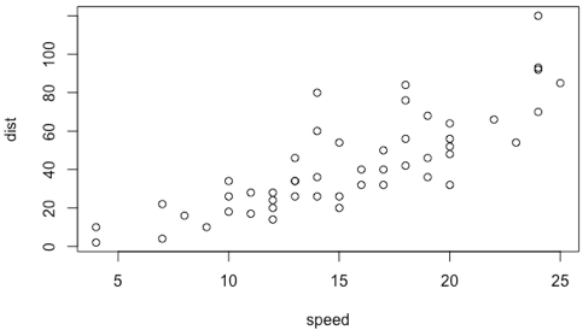
```
1 ---
2 title: "R Notebook"
3 output:
4   html_notebook: default
5   html_document: default
6   pdf_document: default
7   word_document: default
8 ---
9
10 This is an [R Markdown](http://rmarkdown.rstudio.com) Notebook. When you execute code within the notebook, the results appear beneath the code.
11
12 Try executing this chunk by clicking the *Run* button within the chunk or by placing your cursor inside it and pressing *Cmd+Shift+Enter*.
13
14 ```{r}
15 plot(cars)
16 ```
```

R Notebook

This is an [R Markdown](http://rmarkdown.rstudio.com) Notebook. When you execute code within the notebook, the results appear beneath the code.

Try executing this chunk by clicking the *Run* button within the chunk or by placing your cursor inside it and pressing *Cmd+Shift+Enter*.


plot(cars)



The scatter plot shows the relationship between speed (x-axis, 0 to 25) and distance (y-axis, 0 to 100) for various cars. The data points show a positive correlation, with distance increasing as speed increases. The plot is titled 'plot(cars)' and has a 'Hide' button next to it.

Advanced features:

Look at the R Markdown homepage for an overview

R Markdown from  RStudio

Get Started Gallery Formats Articles Book References

Gallery

Check out the range of outputs and formats you can create using R Markdown.

Documents

With R Markdown, you write a single .Rmd file and then use it to render finished output in a variety of formats.


Greatest NYT Interactive — Now Reusable with iCharts

Discoveries and iCharts

How powerful is the R Markdown ecosystem when combined with the iCharts package? The answer is: very powerful. The iCharts package allows you to create interactive charts that can be embedded in R Markdown documents. This is a great way to make your R Markdown documents more engaging and informative.

Interactive Shiny Report

How can you create an interactive report using R Markdown? The answer is: by using the shiny package. The shiny package allows you to create interactive web applications that can be embedded in R Markdown documents. This is a great way to make your R Markdown documents more engaging and informative.



HTML

HTML documents for web publishing.

A Pandoc Markdown Article Starter and Template

Discoveries

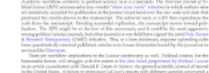
This document provides an introduction to the Pandoc ecosystem for the R Markdown ecosystem. It shows how to use Pandoc to convert R Markdown documents to other formats like PDF, HTML, and Word. It also shows how to use Pandoc to convert other formats to R Markdown.

Discoveries

Discoveries is a package that provides a set of templates for R Markdown documents. It includes templates for articles, reports, and presentations. It also includes a set of styles that can be used to customize the look of your R Markdown documents.

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PDF

PDF documents for printing. [Example Code](#)

A Microsoft Word document

Discoveries


This document provides an introduction to the Microsoft Word ecosystem for the R Markdown ecosystem. It shows how to use the rmarkdown package to convert R Markdown documents to Word documents. It also shows how to use the rmarkdown package to convert Word documents to R Markdown.

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Microsoft Word

Microsoft Word documents for Office workflows.

Tufte Handout

Discoveries


This document provides an introduction to the Tufte Handout ecosystem for the R Markdown ecosystem. It shows how to use the rmarkdown package to convert R Markdown documents to Tufte Handout documents. It also shows how to use the rmarkdown package to convert Tufte Handout documents to R Markdown.

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Handouts

Tufte styled documents for handouts. [Example Code](#)

Interactive Documents

Combine R Markdown with htmlwidgets or the shiny package to make interactive documents.



HTML Widgets

Add interactive graphics with htmlwidgets, such as the leaflet map widget.

UNCCG Data Report

Discoveries


This document provides an introduction to the UNCCG Data Report ecosystem for the R Markdown ecosystem. It shows how to use the rmarkdown package to convert R Markdown documents to UNCCG Data Report documents. It also shows how to use the rmarkdown package to convert UNCCG Data Report documents to R Markdown.

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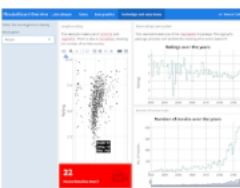
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HTML Widgets

Embed htmlwidgets such as dygraphs and datatables directly into your reports.



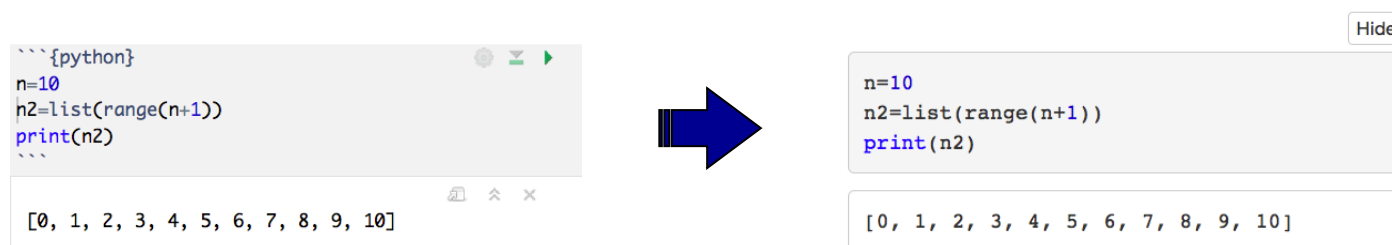
Shiny

Shiny components and htmlwidgets will work in any HTML based output, such as a file, slide show or dashboard.

Advanced features:

Embed Python code into your R Notebook

Insert Python code as chunks:



````{python}`

python code here

`````

1 Add display options here i.e.
`{python, warning = TRUE}`

2 Use one back-tick for inline code

“3 back-ticks + {python}
code
3 back-ticks”

➤ **Note:** You may also integrate SQL code chunks.

Advanced features:

Embed YouTube Video

Goal: Render HTML directly in your notebook and thus embed images and other media.

Example: Include YouTube videos in your website.

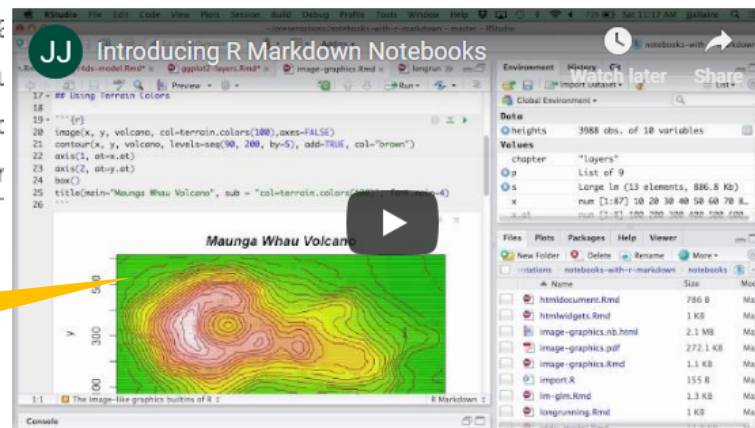
Step 1: Go on YouTube, select a video and select "Share">"Embed" and copy the HTML code.

Step 2: Paste the HTML code in the Notebook.

Embed Video

```
<iframe width="560" height="315"
src="https://www.youtube.com/embed/zNz
Z1PfUDNk" frameborder="0"
allow="accelerometer; autoplay; encrypted-media; gyroscope;
in-picture" allowfullscreen>
```

You can play the video directly from your notebook



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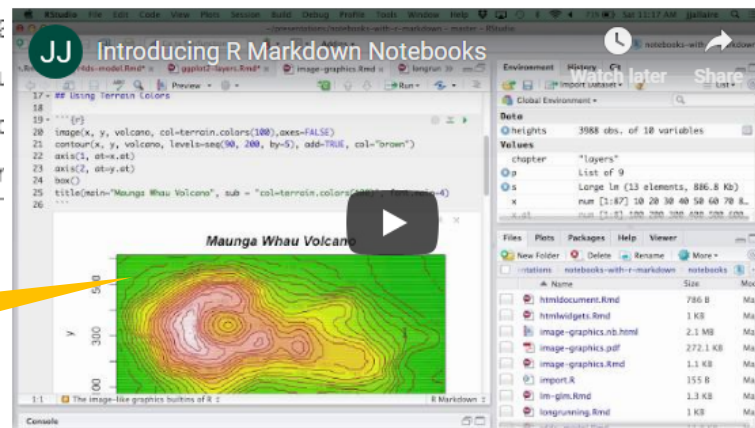
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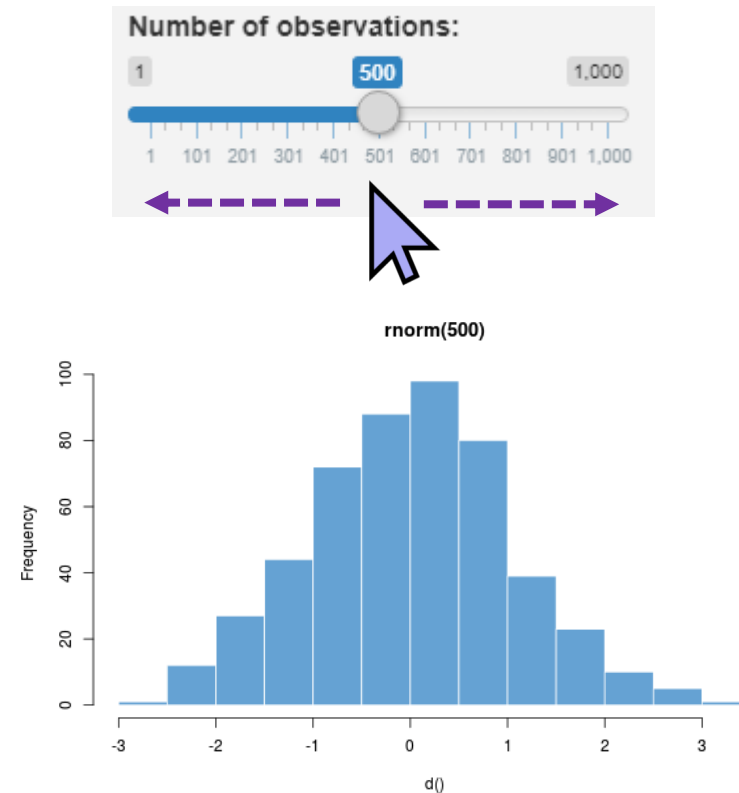
```
<iframe width="560" height="315"
src="https://www.youtube.com/embed/zNz
Z1PfUDNk" frameborder="0"
allow="accelerometer; autoplay; encrypted-media; gyroscope;
in-picture" allowfullscreen>
```

You can play the video directly from your notebook



Advanced features: Interactive widgets

- Control parameters of R Code manually
- Generate interactive visualizations
- Provide "lightweight apps"



<https://shiny.rstudio.com>

R Notebooks in the cloud: Use the service of Microsoft, etc.

- Microsoft Azure Notebooks:

<https://notebooks.azure.com>

Microsoft Azure Notebooks Preview Sign In

Libraries What's New Status Help

Featured: Dr. Garth Wells' Eng101 @ Cambridge University

Plot iris data using matplotlib/seaborn

Interactive coding in your browser

Free, in the cloud, powered by Jupyter

Get Started

Powerful Languages Numerous Charting Libraries Built for Sharing

Use the languages of Data Science

Azure Notebooks provides execution environments for Python 2, Python 3, F#, and R.

Featured Libraries

- Introduction to Python
Learn the basics of Python 3 in Azure Notebooks. Learn Python syntax, standard data types, as
- Introduction to R
Get a brief introduction to charting and graphing capabilities of R in the Jupyter
- Introduction to F#
Get a brief introduction to using F# in the Jupyter Notebook.
- Introduction to Python3
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