Saving your work

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Saving your work

You want to actually use the visualizations you make

- Save to file
  - PNG for web
  - PDF for print
  - High resolution PNG for Word (600-1200 dpi)
  - Journals often want high resolution TIFF (300+ dpi)
- Save to document
  - Create a Word file from R Markdown
  - Create a PowerPoint file from R Markdown.

Save to file

Printers in R

R allows you to save graphics by using **printers** for PDF, PNG and the like.

```
pdf('temp.pdf', width=5, height=5) # inches
ggplot(penguins, aes(bill_length_mm, body_mass_g, color=species))+
  geom_point() +
  labs(x = 'Bill length (mm)',
       y = 'Body mass (g)',
       color = 'Species')
dev.off()
```

Printers in R

R allows you to save graphics by using **printers** for PDF, PNG and the like.

```
png('temp.png', width=5, height=5, units='in', res=300) # 300 dpi
ggplot(penguins, aes(bill_length_mm, body_mass_g, color=species))+
  geom_point() +
  labs(x = 'Bill length (mm)',
       y = 'Body mass (g)',
       color = 'Species')
dev.off()
```

Printers in R

R allows you to save graphics by using **printers** for PDF, PNG and the like.

```
tiff('temp.tif', width=5, height=5, units='in', res=300, compression='lzw') # 300 dpi
ggplot(penguins, aes(bill_length_mm, body_mass_g, color=species))+
  geom_point() +
  labs(x = 'Bill length (mm)',
       y = 'Body mass (g)',
       color = 'Species')
dev.off()
```

Printers in R

Issues with tiff on a Mac

The `tiff` printer doesn't annotate the TIFF file properly, so Preview thinks it's at 72 dpi, regardless of the setting.

The workaround is to print to PDF, and convert to TIFF, either via Preview, or using the **pdftools** package.

```
pdf('temp.pdf', width=5, height=5) # inches
ggplot(penguins, aes(bill_length_mm, body_mass_g, color=species))+
  geom_point() +
  labs(x = 'Bill length (mm)',
       y = 'Body mass (g)',
       color = 'Species')
dev.off()
pdftools::pdf_convert('temp.pdf', format='tiff', dpi=300)
```

ggplot2 savings

The previous slides showed the basic R way of printing a plot to a file. **ggplot2** makes it a bit easier.

```
ggplot(penguins, aes(bill_length_mm, body_mass_g, color=species))+
  geom_point() +
  labs(x = 'Bill length (mm)',
       y = 'Body mass (g)',
       color = 'Species')
ggsave('temp.pdf', width=5, height=5)
```

`ggsave` figures out the type from the ending. If you use `temp.png` it will create a PNG file.

Note, in all of the examples, the file gets saved to the working directory (`getwd()`).

Practice

Save to PDF by default

Why?

- PDF is *infinite resolution*. As a vector format, it can be infinitely magnified.
- PNG, TIFF are raster formats, so if you magnify too much, you'll see pixels
- Convert from PDF to other raster formats saves both resolution and disk space.

Save to document

Saving to a document

From the same R Markdown where you create the plot, you can save to Word or PowerPoint (even if you don't have it on your computer) by changing the *front matter* on top (between the `---`)

- For Word, use `output: word_document`
- For PowerPoint, use `output: powerpoint_presentation`

You can also learn the excellent **officer** package to directly create Word and PowerPoint presentations from R programmatically. See the website at https://davidgohel.github.io/officer/index.html.