Module 4 – lesson 02: Exploring R Packages with R Markdown Templates and the Associated Components and Files

Script

In this lesson we’re going to further explore the components and files in the rticles and tufte packages that we installed in the previous lesson. If you need to, go ahead and start RStudio and open up the previous RStudio project for “Module4\_templateExamples”.

To explore the components, you need to know where on your local drive your R packages are installed. You can find this directory by clicking on Tools/Install Packages. In this window at the bottom there is a box for “Install to Library” – this is the directory location where your R packages are installed. Write this directory down or remember it. Then open a file explorer window and go to that directory location. On my computer I go to this directory

C:\Users\MKHIGGI\Documents\R\win-library\3.4

Under this directory, there is a folder for each R packages installed. Find the directory for rticles and open it. You’ll notice that in this rticles folder, there are several files (description, index, md5, namespace and news) and several folders for help, html, meta, R and rmarkdown. We won’t go into details on all of these files. Just know that these files and folders are part of the general structure of any R package. You can learn more about creating R packages with Hadley Wickham’s “R Packages” book and at his supporting website at <http://r-pkgs.had.co.nz/>

For now, click on the rmarkdown folder and then click on templates. Under this folder there is one folder for each of the R markdown templates available within the rticles package – in other words these are all of the templates we see in the RStudio window for choosing a custom template for a new R markdown file. Let’s look at the folder structure of the plos\_article template.

You’ll notice in the /plos\_article folder there is 1 file names “template.yaml” and 2 subfolders. Let’s open the “template.yaml” file in a simple text editor like notepad. This stand alone YAML file just has some simple descriptive information about the PLOS Article template. If we click on the /resources folder, it contains 1 file “template.tex” which has the LaTeX file that defines the template layout. This file can be viewed in a simple text editor but it best viewer in a LaTeX software application such as MaCTeX or MiKTeX. Let’s also look at the files in the /skeleton folder. These are the 4 files we explored in the previous lesson. Specifically, we see the skeleton.Rmd file which is the R markdown template file you created in RStudio. Associated with this R markdown file is the EPS (encapsulated postscript) file with the PLOS logo as well as the BibTeX bibliography file for citations and the associated citation style (CSL) file. So, this should give you some idea that when the R package is installed, the files in the rmarkdown/templates/ folders are what is needed to setup a customized R markdown template.

Let’s look at a couple more. In the file explorer window let’s go back up to the rticles/rmarkdown/templates folder and look at the files for the “sim\_article” for the “Statistics in Medicine Article” template. Again in this /sim\_article folder, we see a “template.yaml” file. I’m going to take a moment and switch back to RStudio and open this file in RStudio which parses this file as a YAML file which the simple notepad editor can’t do. When I open the template.yaml file in the RStudio editor, you can better see that there are 3 options defined. The name “Statistics in Medicine Article” is the 1st option. Next is a description that says “Template for creating an article for submission to Statistics in Medicine” and the last line sets create\_dir to TRUE.

[DEMO this window overlaid on the YAML shown in the editor window]

These 3 options set up what we see when we use the File/New File/R Markdown – templates window. Open this up and see these options in this window for the “Statistics in Medicine Article” template in the rticles package. The text shown in this listing of Templates is what is defined by the YAML keyword name. If you hold the mouse over the “Statistics in Medicine Article” you’ll see the longer description displayed from the YAML description option. Finally, at the bottom of the window where it asks you to type in a Name – this is the name of the folder directory you create when you click OK to create a new R markdown file for the “Statistics in Medicine Article”. This option comes from the YAML keyword create\_dir set to TRUE.

While we’re here in the RStudio Files viewer, let’s go up a few directory levels and take a look at the files in the tufte package also. In the tufte package folder, we see a very similar list of files and folder structure. We again see files called description, index, md5, namespace and news. We also see a folder for R, html, help, meta, and rmarkdown. Let’s look in the rmarkdown folder – and click on the templates folder. Here you can see 3 folders – one of each of the tufte document options – one for tufte\_html, tufte\_handout and tufte\_ctex which is the book option.

Let’s look in the tufte\_html folder. You see the same files and folder structure we’ve seen previously for the rticles templates for the PLOS and Statistics in Medicine articles. Click on the template.yaml file to view it. Take a moment and compare these options to what you see when you create a new R markdown tufte template file. [DEMO: Open window and compare overlaid with RStudio editor window]

Also look at the files in the /resources folder. In this folder we see a CSS cascading style sheet which is used when the HTML file is created using the tufte styled template. There is also a LICENSE file which says that this template is distributed using an MIT license (a basic open source copyright license) – learn more about licenses in Hadley Wickham’s R Packages book at <http://r-pkgs.had.co.nz/description.html#license> There is also another subfolder /et-book which has some specialized fonts used for the tufte styled template. We can view these here in RStudio.

Let’s go back up and also look at the files in the /skeleton folder. This has 1 file “skeleton.Rmd” which is the R markdown file that is created when you create a new R markdown file using the tufte HTML template.

So, you are getting an idea of the overall organization structure of an R package with one or more R markdown templates included. In the next lesson, you are going to build your first R package with an R markdown template.