

Include RSP and other non-Sweave vignettes in R packages

Henrik Bengtsson

September 18, 2013

Abstract

This document describes how to include RSP and other non-Sweave vignettes in R packages such that they appear in the R help system. As described in the first part of this document, generic support for vignettes of any format (not only Sweave) was added in R v3.0.0 making it straightforward to include vignettes of any format including RSP-embedded vignettes.

To include non-Sweave vignettes in packages to be used also in version prior to R v3.0.0 a different approach is needed. The last part of this document describes how this can be done in a way that is forward compatible with the new R v3.0.0 framework.

Keywords: R, package, vignette, static PDF

This vignette is distributed as part of the R.rsp package, which is available on CRAN.

Contents

1	Background	3
2	Vignettes in R v3.0.0 and beyond	3
3	Vignettes before R v3.0.0	3
3.1	Using the default R framework	3
3.1.1	Include static PDFs	3
3.2	Using the extended framework of the R.rsp package	4
3.2.1	Improved HTML overview of vignettes	4
3.2.2	Include RSP-embedded LaTeX vignettes	4

1 Background

When building an R package, Sweave/LaTeX vignettes are recognized by R, compiled into PDFs, which are listed along with their source in the R help system, e.g. `help.start()`. These package vignettes are also being listed online on the CRAN and Bioconductor package pages.

2 Vignettes in R v3.0.0 and beyond

Starting with R v3.0.0, it is possible to include vignettes of any vignette format in R packages (not only Sweave). This is handled via a so called *vignette engine* mechanism that utilizes so called *vignette builder* packages such as *R.rsp*, *knitr* and *noweb*. For instance, a package that wish to include RSP vignettes using the *R.rsp* package, should add the following to its *DESCRIPTION* file

```
Suggests: R.rsp (>= 0.9.9)
VignetteBuilder: R.rsp
```

and the following to each of the RSP vignettes (typically as part of an RSP comment)

```
%\VignetteEngine{R.rsp::rsp}
```

This will cause all **.rsp* vignettes to be compiled and part of the package. Similar approaches can be used for other types of vignettes, e.g. *knitr* and *noweb*. It is also possible to use a mix of vignette formats in the same package. For more details on how vignettes are included in packages, see Section ‘Writing package vignettes’ of ‘Writing R Extensions’ part of your R installation (for instance via `help.start()`).

3 Vignettes before R v3.0.0

The instructions given in this section are intended for packages that are to be built and installed on R systems prior to R v3.0.0. They are such they are forward compatible with the recent R v3.0.0 vignette framework. This makes it particularly easy to include vignettes in packages that are supposed to support both newer and older versions of R.

If your package is only intended for R v3.0.0 and beyond, none of the below applies.

3.1 Using the default R framework

Unfortunately, in versions R v2.14.0 to R v2.15.3, static PDFs are not recognized and therefore not listed. Same is true for other PDFs that are dynamically generated during build by other means, e.g. RSP-embedded LaTeX documents. Fortunately, there is a framework to include also non-Sweave vignettes, as explained next.

3.1.1 Include static PDFs

Assume you have a static PDF named *manual.pdf* that you wish to include in your package. Then place it in the *inst/doc/* directory of the package and create a corresponding *manual.Rnw* stub (in the same directory) that contains:

```
%\VignetteIndexEntry{User manual}
\documentclass{article}
\begin{document}
...
\end{document}
```

The above is a minimal valid Sweave document that is recognized by the R build system. This small addition will make the PDF vignette appear when calling `browseVignettes()` as well as in the ‘Overview of user guides and package vignettes’ section of the package HTML help page (via `help.start()`). The drawback is that also the above dummy *manual.Rnw* will be listed.

3.2 Using the extended framework of the R.rsp package

In this subsection, we describe how to dynamically build and include non-Sweave vignettes, such as, but not limited to, RSP-embedded LaTeX vignettes. In order to do this, a customized *Makefile* needs to be added to the package’s *inst/doc/* directory. The Makefile is available in the *R.rsp* package (see Appendix for its content). You can copy it to the current directory by:

```
pathname <- system.file("doc/templates/Makefile", package="R.rsp")
file.copy(pathname, to=".")
```

This Makefile, which does not have to be edited, utilizes a few utility functions that are available in the *R.rsp* package. Note that the Makefile and the utility functions are independent of the RSP markup language why it can also be used for other vignette formats. The use of a custom *inst/doc/Makefile* is described in Section ‘Writing package vignettes’ of ‘Writing R Extensions’.

3.2.1 Improved HTML overview of vignettes

By default, the R HTML help system will list links to the PDF and the Sweave source of the vignettes. This means that above approach for including static PDFs in a package will also list the Rnw stub in this listing. As explained in ‘Writing R Extensions’, it is possible to override this by providing a custom *inst/doc/index.html* file. It can be tedious to manually edit the *index.html* file. For this reason, if the *index.html* file is missing, then the above *Makefile* automatically builds one and populates it with the PDF and source files available according to what the vignette files specify (see also below).

3.2.2 Include RSP-embedded LaTeX vignettes

Assume you have an RSP-embedded LaTeX vignette named *manual.tex.rsp* that you wish to automatically build and have the PDF and the source being include in your package. In order for this to happen, it must be contain `\Vignette*{}` markup as illustrated below:

```
%\VignetteIndexEntry{User manual}
%\VignetteEngine{R.rsp::rsp}
\documentclass{article}
\begin{document}
...
\end{document}
```

Make sure these statements are given as LaTeX-style comments in your vignette source document. The `\VignetteIndexEntry{}` markup sets the title of the vignette as it will appear in the R vignette index. The `\VignetteEngine{}` markup specifies which vignette engine to use for compiling this vignette source file. This markup is actually only available in R v3.0.0, but we use it here too and somewhat imitates its behavior such that it works in any version of R. This is all taken care of by the *R.rsp* package.

Appendix

The customized Makefile

The customized Makefile that builds non-Sweave vignettes and missing `/inst/doc/index.html` files is available in *R.rsp* package directory `doc/templates/`. It should be copied “as is” to `inst/doc/` of your package. Its content is:

```
# MACRO DEFINITIONS
RM=rm -f
R=$(R_HOME)/bin/Rscript

# TARGET DEFINITIONS
all: vignettes tex index.html

# Build all vignettes that has a %\VignetteBuild{} markup
vignettes:
    "$(R)" -e "if (getRversion() < 3) R.rsp::buildNonSweaveVignettes()"

# Compile any TeX files for which a PDF is missing
tex:
    "$(R)" -e "if (packageVersion('R.rsp') >= '0.9.1') R.rsp::buildNonSweaveTeXToPdf()"

# Create an HTML vignette index page
index.html:
    "$(R)" -e "if (getRversion() < 3) R.rsp::buildPkgIndexHtml()"

# Certain LaTeX files (e.g. bib, bst, sty) must be part of the build
# such that they are available for R CMD check. These are excluded
# from the install using .Rinstignore in the top-level directory.
clean:
    $(RM) enginesMap.R
    $(RM) dummy.Rnw
    $(RM) index.html.rsp
    $(RM) *.rsp.R
    $(RM) *.tex *.aux *.bbl *.blg *.log *.out *.sty *.toc
    $(RM) -r figures/
    $(RM) Makefile
```

Example of .Rinstignore

To exclude certain vignette-related files from the R *installation* (but not from the build), one can add a *.Rinstignore* to the top-level directory of the package specifying which files to be excluded. An example of such a file is available in *R.rsp* package directory `doc/templates/` (it needs to be renamed to start with a period). Its content is:

```
# Certain LaTeX files (e.g. bib, bst, sty) must be part of the build
# such that they are available for R CMD check. These are excluded
# from the install using .Rinstignore in the top-level directory
# such as this one.
doc/.*[.](bib|bst|sty)$
```

The files used for creating this document

This document was created the RSP-embedded LaTeX vignette *NonSweaveVignettes.tex.rsp* located in the `doc/` package directory of *R.rsp*. It can manually be compiled into a PDF as:

```
pathname <- system.file("doc/NonSweaveVignettes.tex.rsp", package="R.rsp")
R.rsp::file(pathname)
```

The generated PDF can then be included into the package as a static PDF (as explained in Section 3.1.1). However, in this package we have chosen to build it dynamically during package build, by adding it to *inst/doc/* as explained above.

Session information

- R version 3.0.2 RC (2013-09-17 r63944), x86_64-w64-mingw32
- Locale: LC_COLLATE=C, LC_CTYPE=English_United States.1252, LC_MONETARY=English_United States.1252, LC_NUMERIC=C, LC_TIME=English_United States.1252
- Base packages: base, datasets, grDevices, graphics, methods, stats, utils
- Other packages: R.devices 2.6.1, R.methodsS3 1.5.1, R.oo 1.15.1, R.rsp 0.9.24, R.utils 1.27.1
- Loaded via a namespace (and not attached): tools 3.0.2

This report was automatically generated using `rfile()` of the `R.rsp` package. Total processing time after RSP-to-R translation was 0.02 secs.