Sweave: Frequently Asked Questions

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Contents

1 Sweave Basics

1.1 Where can I find the manual and other information on Sweave?

Package Sweave contains this FAQ and the Sweave manual as package vignettes:

```
R> vignette(package="Sweave")

Vignettes in package 'Sweave':

Sweave-FAQ              Sweave: Frequently Asked Questions (source,
                        pdf)
Sweave-manual           Sweave User Manual (source, pdf)
```

Additional publications like the CompStat paper and the 2-part miniseries from R News (Issues 2/3 and 2/3) can be found at

`http://www.stat.uni-muenchen.de/~leisch/Sweave`

1.2 How do I cite Sweave in publications?

Enter the command `citation("Sweave")` at the R prompt to obtain up-to-date references:

```
R> citation("Sweave")

To cite Sweave in publications use:

  Friedrich Leisch: Dynamic generation of statistical reports using
  literate data analysis. In W. Haerdle and B. Roenz, editors, Compstat
  2002 - Proceedings in Computational Statistics, pages 575--580.
  Physika Verlag, Heidelberg, Germany, 2002. ISBN 3-7908-1517-9.

A BibTeX entry for LaTeX users is

  @InProceedings{,
    author = {Friedrich Leisch},
    title = {Sweave: Dynamic Generation of Statistical Reports Using Literate Data Analysis},
    booktitle = {Compstat 2002 --- Proceedings in Computational Statistics},
    pages = {575--580},
    year = {2002},
    editor = {Wolfgang Haerdle and Bernd Roenz},
    publisher = {Physica Verlag, Heidelberg},
    note = {ISBN 3-7908-1517-9},
  }

A copy of the paper can be obtained from
http://www.stat.uni-muenchen.de/~leisch/Sweave
```

1.3 Can I run Sweave directly from a shell?

E.g., for writing makefiles it can be useful to run Sweave directly from a shell rather than manually start R and then run Sweave. This can easily be done using commands of form

```
R CMD Sweave myfile.Rnw
```

using R 2.5.0 or newer. A more elaborate solution which also includes automatically running `latex` has been written by Gregor Gorjanc and is available from every CRAN mirror at `http://cran.R-project.org/contrib/extra/scripts/`.

1.4 LaTeX environments Schunk, Sinput and Soutput are undefined.

Older versions of Sweave automatically inserted a statement of form

```
\usepackage{/path/to/Rhome/share/texmf/Sweave.sty}
```

into the .tex file if no `\usepackage{Sweave}` statement was found. This creates problems when the path contains blank or special characters, and hence is no longer done. Please copy the file Sweave.sty to a place where LaTeX finds it and insert an explicit

```
\usepackage{Sweave}
```

into the preamble of every Sweave document. Of course you can also use any other means to define environments Schunk, Sinput and Soutput. To locate Sweave.sty on your computer, you can use the following command:

```
R> system.file("texmf","Sweave.sty",package="Sweave")

[1] "/home/Leisch/lib/R/Sweave/texmf/Sweave.sty"
```

The subdirectory share/texmf of your R installation also contains a copy of the style file.

2 Graphics

2.1 Why does LaTeX not find my EPS and PDF graphic files when the filename contains a dot?

Sweave uses the standard LaTeX package `graphicx` to handle graphic files, which automatically uses EPS files for standard LaTeX and PDF files for PDFLaTeX, if the name of the input file has no extension, i.e., contains no dots. Hence, you may run into trouble with graphics handling if the name of your Sweave file contains extra dots: foo.Rnw is OK, while foo.bar.Rnw is not. If you need only one version of the figures, use one of the following:

```
\SweaveOpts{eps=FALSE}
\SweaveOpts{pdf=FALSE}
```

2.2 Why does Sweave by default create both EPS and PDF graphic files?

The LaTeX package `graphicx` needs EPS files for plain LaTeX, but PDF files for PDFLaTeX (the latter can also handle PNG and JPEG files). Sweave automatically creates graphics in EPS and PDF format, such that the user can freely run `latex` or `pdflatex` on the final document as needed.

2.3 Empty figure chunks give LaTeX errors.

When a code chunk with `fig=true` does not call any plotting functions invalid EPS and PDF files are created. Sweave cannot know if the code in a figure chunk actually plotted something or not, so it will try to include the graphics, which is bound to fail.

2.4 Why do R lattice graphics not work?

The commands in package `lattice` have different behavior than the standard plot commands in the `graphics` package: lattice commands return an object of class `"trellis"`, the actual plotting is performed by the `print` method for the class. Encapsulating calls to lattice functions in `print()` statements should do the trick, e.g.:

```
<<fig=TRUE>>=
library(lattice)
print(bwplot(1:10))
@
```

should work. Future versions of Sweave may have more automated means to deal with trellis graphics.

2.5 How can I get Black & White lattice graphics?

What is the most elegant way to specify that strip panels are to have transparent backgrounds and graphs are to be in black and white when lattice is being used with Sweave? I would prefer a global option that stays in effect for multiple plots.

Answer by Deepayan Sarkar: I'd do something like this as part of the initialization:

```
library(lattice)
ltheme <- canonical.theme(color = FALSE)     ## in-built B&W theme
ltheme$strip.background$col <- "transparent" ## change strip bg
lattice.options(default.theme = ltheme)      ## set as default
```

2.6 Creating several figures from one figure chunk does not work

Consider that you want to create several graphs in a loop similar to

```
<<fig=TRUE>>
for (i in 1:4) plot(rnorm(100)+i)
@
```

This will currently **not** work, because Sweave allows **only one graph** per figure chunk. The simple reason is that Sweave opens a postscript device before executing the code and closes it afterwards. If you need to plot in a loop, you have to program it along the lines of

```
<<results=tex,echo=FALSE>>=
for(i in 1:4){
  file=paste("myfile", i, ".eps", sep="")
  postscript(file=file, paper="special", width=6, height=6)
  plot(rnorm(100)+i)
  dev.off()
  cat("\\includegraphics{", file, "}\n\n", sep="")
}
@
```

2.7 How can I place all those auto-generated graphics files in a subdirectory rather than the same directory as the Sweave file?

After

```
\SweaveOpts{prefix.string=foo/bar}
```

Sweave will place all figures in subdirectory `foo` and their name will start with `bar` (instead of the name of the Sweave file). The subdirectory `foo` should exist before you run Sweave.

2.8 How can I set default `par()` settings for figure chunks?

Because each EPS and PDF file opens a new device, using `par()` has only an effect if it is used inside a figure chunk. If you want to use the same settings for a series of figures, it is easier to use a hook function than repeating the same `par()` statement in each figure chunk.

The effect of

```
options(SweaveHooks=list(fig=function() par(bg="red", fg="blue")))
```

should be easy to spot. Do not forget to remove the hook at the end of the Sweave file unless you want to use it as a global option for all Sweave files.

3 Formatting

3.1 How can I change the formatting of S input and output chunks?

Sweave uses the `fancyvrb` package for formatting all S code and text output. `fancyvrb` is a very powerful and flexible package that allows fine control for layouting text in verbatim environments. If you want to change the default layout, simply read the `fancyvrb` documentation and modify the definitions of the `Sinput` and `Soutput` environments in Sweave.sty, respectively.

3.2 How can I change the line length of S input and output?

Sweave respects the usual way of specifying the desired line length in S, namely `options(width)`. E.g., after `options(width=40)` lines will be formatted to have at most 40 characters (if possible).

3.3 Why does Sweave delete all comments from the R code? Why does it mess up line breaks for continuation lines?

In order to know where to insert output in the code, Sweave runs all code through the R parser. The "input lines" you see are the result from running the code through `parse()` and `deparse()`, which by default discards all comments and reformats line breaks. If you want to keep the original formatting together with all comments, simply set

```
\SweaveOpts{keep.source=TRUE}
```

using R 2.5.0 or newer.

4 Miscellaneous

4.1 Can I use Sweave for OpenOffice files?

Package `odfWeave` provides an Sweave implementation which uses OpenOffice rather than LaTeXfor word processing.

4.2 Can I use Sweave for Microsoft Word files?

No.

4.3 Can I use Sweave for HTML files?

Package `R2HTML` provides a driver for using Sweave in combination with HTML rather than LaTeX.

4.4 After loading package `R2HTML` Sweave doesn't work properly!

Package `R2HTML` registers an Sweave driver for HTML files, and after that the Syntax for HTML is in the search list before the default syntax.

```
options(SweaveSyntax="SweaveSyntaxNoweb")
```

or calling Sweave like

```
Sweave(..., syntax="SweaveSyntaxNoweb")
```

ensures the default syntax even after loading `R2HTML`.

4.5 How can I get Emacs to automatically recognize files in Sweave format?

Recent versions of ESS (Emacs speaks statistics, `http://ess.R-project.org`) automatically recognize files with extension `.Rnw` as Sweave files and turn on the correct modes. Please follow the instructions on the ESS homepage on how to install ESS on your computer.