

Installation

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28th April 2016

R version

This package requires RStudio and R version 3.2.0 or above.

Getting / updating R

You can download the most recent version of R by going to <https://cran.r-project.org/> and selecting :

Download R for Windows > base > Download R 3.2.5 for Windows

and run the .exe file that downloads. Note that you can download any version of R that is at least version 3.2.0 or greater. If you are using a Mac then follow the on-screen instructions for downloading R for a Mac.

Getting RStudio

Although you can install and use the stpca package in R, some of the instructions in the tutorial documents (such as how to set your working directory) have been written assuming you are using RStudio. You can download the open source (i.e. free) version of this by going to

<https://www.rstudio.com/products/rstudio/>

and scrolling down until you find the “Download RStudio Desktop” button. Select this and then click on the version you would like to download. If you are using a Windows PC then you will want to choose an option from the “Installers” list that looks like: RStudio 0.99.896 - Windows Vista/7/8/10. This will download a .exe file which you can then run to install RStudio. If you are using a Mac then choose a suitable option.

Installing the package

Now open up RStudio and install the stpca package as follows:

The stpca package is available in 2 formats: stpca_0.1.tar.gz and stpca_0.1.zip.

You can install the package using either of these files - they will both give the same result but the .zip file will only work on a Windows PC and the .tar.gz file will not work if your R packages are stored on a network drive (see the end of this section for further details). Try using the .zip file first, and if that doesn't work, try the .tar.gz file.

If you are asked to download “Rtools” during installation then please do so by following the on-screen instructions.

WARNING: the installation of necessary R packages can take around half an hour to complete, so you might want to make a cup of tea while waiting for this to run!

Install all of the packages on which the stpca package depends by copying and pasting the following into the RStudio console window, and pressing “Enter” on your keyboard:

```
install.packages("knitr")
install.packages("maptools")
install.packages("rmarkdown")
install.packages("expm")
install.packages("GWmodel")
install.packages("matrixcalc")
install.packages("missMDA")
install.packages("SSN")
install.packages("geoR")
install.packages("sampling")
```

All of these packages are available on CRAN. If you are asked to download any other packages from CRAN then please do this too. Next, install the stpca package in RStudio by going to the Tools menu and selecting

Tools > Install packages

In the top dropdown menu, select

Package archive file

Now browse to either the stpca_0.1.tar.gz file or the stpca_0.1.zip file and select

Install

You should now be able to load the stpca package into your workspace using

```
library(stpca)
```

If a message appears saying that some packages are not available, then download these packages by typing `install.packages("package.name")` in the console window in RStudio, replacing "package.name" with the missing package, and hit "Enter".

Accessing the help files

You can access the menu for the help files for the stpca package by typing the following in the console window in RStudio, and pressing "Enter" on your keyboard:

```
help(package="stpca")
```

You can click on any of the functions in the list to see the corresponding help file, or select "User guides, package vignettes and other documentation" to access the tutorial documents.

If you know the name of the function whose help file you wish to access, the `completeData` function for example, then you can find that help file directly by typing the following into the RStudio console window:

```
?completeData
```

Possible reasons for problem installing from the .tar.gz file

One reason you might not be able to install from the .tar.gz file is because R won't let you install from a .tar.gz (or source) file if the first entry after running

```
.libPaths()
```

begins with `\\`, meaning that the folder where your installed libraries are stored is located on a network drive. You can only install `.tar.gz` files to a drive that begins with a letter, such as `C:/`. You can find instructions online to create/change your `R_LIBS_USER` path which will involve creating a folder in a lettered drive (eg. `C:/myRlibraries`) which will allow you to install the `.tar.gz` file. You will need to do this if you are using a Mac but can't install the `.tar.gz` file as the `.zip` file can only be installed on Windows PC's.