

# Installation of the R package nestedKriging

<https://github.com/drulliere/nestedKriging>

Prior to the package installation, it is recommended that you update your system and install packages Rcpp, RcppArmadillo, RhpcBLASctl, DiceKriging (and Rtools, for Windows users). Then install the package from nestedKriging.x.x.x.tar.gz source or eventually from the windows .zip binary.

The steps below give more detailed explanations, using RStudio or using directly R.

## Recommended: installation from source

### 1. Specific instructions for Windows and Mac users

- If you use Windows operating system, you have to install Rtools (if not yet installed):  
<https://cran.r-project.org/bin/windows/Rtools>  
Rtools must be registered in the PATH (option proposed during Rtools installation). In R, you can check that Rtools is in the PATH by typing: `Sys.getenv("PATH")` .  
An alternative installation method, without Rtools, is also proposed in the next section.
- If you use Mac OS, your compiler must be recent enough and be compatible with openmp.

### 2. Install following packages from CRAN: Rcpp, RcppArmadillo, RhpcBLASctl, DiceKriging

If these packages are not yet installed, you can install them using Rstudio by selecting: *Tools, Install Packages..., Install from Repository (CRAN...)*, and typing the name(s) of the package(s) to be installed. Or you can type in R (Note: DiceKriging is only needed to run some examples):

```
install.packages("Rcpp")
install.packages("RcppArmadillo")
install.packages("RhpcBLASctl")
install.packages("DiceKriging")
```

### 3. Download the file nestedKriging\_x.x.x.tar.gz on your computer

Download the file *nestedKriging\_x.x.x.tar.gz*: you can get it from <https://github.com/drulliere/nestedKriging>

**CAUTION:** always use GitHub "download" button, never a right click download! Otherwise the file will be corrupted.

### 4. Install the tar.gz file

On RStudio, you can select: *Tools, Install Packages..., Install from Package Archive File*, and select the file *nestedKriging\_x.x.x.tar.gz* (replace x.x.x by the version number, take the latest version). Or you can type in R:

```
install.packages("yourAccessPath/nestedKriging_x.x.x.tar.gz", repos = NULL, type = "source")
```

You have to adapt the access path. It is not necessary to type this path if the working repository contains this file.

### 5. Check installation

The simplest way to run tests is to type in R:

```
library(nestedKriging)
tests_run()
```

you can also try a basic example by typing

```
example(nestedKriging)
```

See package help if you have questions on the functions of the package. You can also try some demos:

```
demo(demoA)
...
demo(demoK)
```

## Alternative for Windows users: from binary package

This does not require installing Rtools, but depends on your Windows system and in particular of your version of R. As these binary are maintained separately (for the moment), the latest version of the package may not be available for your version of R.

### 1. Install following packages from CRAN: Rcpp, RcppArmadillo, RhpcBLASctl, DiceKriging

If these packages are not yet installed, you can install them using Rstudio by selecting: *Tools, Install Packages...*, *Install from Repository (CRAN...)*, and typing the name(s) of the package(s) to be installed. Or you can type in R (Note: *DiceKriging* is only needed to run some examples):

```
install.packages("Rcpp")
install.packages("RcppArmadillo")
install.packages("RhpcBLASctl")
install.packages("DiceKriging")
```

### 2. Download the file *nestedKriging\_x.x.x.zip* on your computer

Download the file *nestedKriging\_x.x.x.zip*: you can get it from

<https://github.com/drulliere/nestedKriging/WindowsBinary>

Look in the repository corresponding to your version of R (the one that is written in the console when you open R)

**CAUTION:** always use GitHub "download" button, never a right click download! Otherwise the file will be corrupted.

### 3. Install the zip file

On RStudio, you can select: *Tools, Install Packages...*, *Install from Package Archive File*, and select the file *nestedKriging\_x.x.x.zip* (replace x.x.x by the version number, take the latest version). Or you can type in R:

```
install.packages("yourAccessPath/nestedKriging_0.1.5.zip", repos = NULL, type = "win.binary")
```

You have to adapt the access path. It is not necessary to type this access path if the working repository contains the file *nestedKriging\_x.x.x.zip*.

### 4. Check installation

The simplest way to run tests is to type in R:

```
library(nestedKriging)
tests_run()
```

you can also try a basic example by typing

```
example(nestedKriging)
```

you can also try some demos by typing one of these

```
demo(demoA)
...
demo(demoK)
```

see package help if you have questions on the functions of the package.

## Known issues at installation

If you get one of these errors:

1. **Error in getOctD(x, offset, len) : invalid octal digit**

Let me guess... you have done a right click download on gitHub... your file is corrupted. Use the download button on GitHub website, or Git commands, but never a right click download. As this is related to GitHub website (whatever the package), I cannot fix this...

2. **clang: error: unsupported option '-fopenmp'**

Let me guess... you are using Mac OS... and your compiler is not supporting OpenMp. Unfortunately I do not have a Mac, so I cannot test it in deep details, but you can try recommendations there:

<https://stackoverflow.com/questions/43555410/enable-openmp-support-in-clang-in-mac-os-x-sierra-mojave>

### **If your installation error is not reported here.**

Hmmm... sorry. Please check again what happens if you follow very precisely these installation instructions. If still not working, please send a mail to [didier.rulliere@univ-lyon1.fr](mailto:didier.rulliere@univ-lyon1.fr) ... We all receive many emails, please indicate “nestedKriging installation error” in the subject of the email, and do not be afraid if you do not receive an answer very quickly. Try to be as precise as you can (what you have done, versions, etc.)

### **If you have a non-reported issue when using the package**

Same as previously, adapt the subject of the email “nestedKriging issue”, and please send a minimal example reproducing the problem eventually with a small non-confidential dataset, if necessary.