

Installing BORIS

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The R package `LauModel` utilises `boost` C++ libraries to generate the Markov chains for Bayesian implementation of Lau model (Lau et al., 2015; Firestone et al., 2019).

To utilise `boost` and run BORIS from Windows and OS X binaries (i.e. `BORIS_x.x.x.zip` or `BORIS_x.x.x.tgz`), standard installation of the packages `Rcpp` and `BH` is sufficient.

In this manual, we explain installation of required external tools to compile and run BORIS from source on Windows. Once these additional libraries are installed and the required paths are set, installation of BORIS should be a straightforward task.

Instructions for comiling from source on a Windows Computer

To compile and run BORIS from source on a Windows computer, `Rtools` must be installed on the computer and environment variables for the system Path must be correctly specified.

The important steps and tricks of installation are overviewed below. Users that need more detailed, step-by-step installation instructions are referred to the `Rtools` and `Boost` online documentation.

Instructions for Installing Rtools

Install the latest frozen version of `Rtools` from [here](#).

The main point to be careful on is that **the installation path should not contain any spaces**. By default, it can be installed in `C:\textbackslash Rtools` on your computer.

On the **Select components** page of installation, make sure that the `R toolchain` and `tools for running CMD` boxes *are checked*.

On the **Select additional tasks** page make sure that the box to edit the system PATH *is checked*.

Straightforward instructions are [available here](#).

Add the directory paths (not including any spaces) containing both R and `Rtools` at the top of your list of *system path* variable. Go to the **Advanced system settings** on Windows and then click on **Environment Variables**, find and edit the path variable under the **System variables**. The order of the directory paths should be the same as shown below:

`C:\Rtools\bin; C:\Program Files\R\R-x.x.x\bin; Additional paths`

Instructions for comiling from source on a Mac Computer

To compile and run BORIS from source on a Mac computer, try installing the latest version of R, `knitr` and `devtools`. `MacTeX` may also be required to compile the package vignettes and is available from [here](#).

References

Firestone, S.M., Hayama, Y., Lau, M.S., Yamamoto, T., Nishi, T., Bradhurst, R.A., Demirhan, H., Stevenson, M.A., Tsutsui, T., under peer review. Bayesian transmission network reconstruction for foot-and-mouth disease outbreaks incorporating farm-level covariates. *Proceedings of the Royal Society B: Biological Sciences*.

Lau, M. S., G. Marion, G. Streftaris and G. Gibson, 2015: A systematic Bayesian integration of epidemiological and genetic data. *PLoS Comput. Biol.*, 11, e1004633.