

Instructions for running the individual-based Dynamic Energy Budget *Schistosoma* population model (SIDEB) on Mac OSX

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Contents

Overview	3
Required files	3
Set system to run C toolchain	3
Java tests	3
Run RNetLogo	3
Install rJava	4
Install JGR	4
References	4

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R version: 3.5.0

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This document can be found at <https://github.com/darwinanddavis/SchistoIBM/tree/master/mac>

R session info

R version 3.5.0 (2018-04-23)

Platform: x86_64-apple-darwin15.6.0 (64-bit)

Running under: OS X El Capitan 10.11.6

Matrix products: default

BLAS: /Library/Frameworks/R.framework/Versions/3.5/Resources/lib/libRblas.0.dylib

LAPACK: /Library/Frameworks/R.framework/Versions/3.5/Resources/lib/libRlapack.dylib

locale:

[1] en_US.UTF-8/en_US.UTF-8/en_US.UTF-8/C/en_US.UTF-8/en_US.UTF-8

attached base packages:

[1] stats graphics grDevices utils datasets methods base

loaded via a namespace (and not attached):

[1]	compiler_3.5.0	backports_1.1.2	magrittr_1.5	rprojroot_1.3-2	tools_3.5.0	htmltools_0.3.6
[7]	pillar_1.2.3	tibble_1.4.2	yaml_2.2.0	Rcpp_0.12.19	stringi_1.2.3	rmarkdown_1.10
[13]	knitr_1.20	stringr_1.3.1	digest_0.6.15	rlang_0.3.0.1	evaluate_0.10.1	

Overview

Follow the instructions to run the simulation model from R or RStudio. All reports and bugs should be addressed to matthew.malishev@gmail.com.

Required files

Files required for running the simulation are outlined below and will be automatically loaded from the [Schistosoma IBM Github page](#) when running the model:

```
DEB_IBM.R
DEB_INF_GUTS_IBM.nlogo
FullStarve_shrink_production2.Rda
IndividualModel_IBM.c
IndividualModel_IBM.so
IndividualModel_IBM.o
```

Set system to run C toolchain

1. Follow the steps for compiling a toolchain and running C code in R outlined at [Installing compiler toolchain for Mac OSX](#). See also [4] if the above steps don't work. Thanks to the www.thecoatlessprofessor.com.

Java tests

Diagnostics for testing you have the correct version of Java on your computer. Tests are sequential (from [5]).

1. Open R and run the following code.

```
# test java is working
require(RCurl)
script <- getURL("https://raw.githubusercontent.com/darwinanddavis/SchistoIBM/master/mac/java_test.R", )
eval(parse(text = script))
capture.output(errorlist()) # read error message from java_test.R output
```

If you get an R error message e.g. `Error in .jnew ...` or an error beginning with `Failed Test ...`, move onto “[Install JGR](#)”. Otherwise, continue to [Run RNetLogo](#).

Run RNetLogo

Load the ‘DEB_IBM.R’ file into your R session. Follow the instructions to load the model and execute the simulation.

If you see the following rJava error in your R session, proceed to step [Install rJava](#):

```
Error : .onLoad failed in loadNamespace() for 'rJava', details:
  call: dyn.load(file, DLLpath = DLLpath, ...)
  error: unable to load shared object ...
.
.
.
```

Install rJava

Open Terminal (*Applications > Terminal*) and run the following in Terminal (sourced from [1] and [2])

```
sudo ln -s $(/usr/libexec/java_home)/jre/lib/server/libjvm.dylib /usr/local/lib
```

Now re-run the ‘DEB_IBM.R’ code in R.

The following error in R when executing `NLStart()` means you have successfully navigated the rJava errors, but are running into a Java issue that’s preventing R from generating the NetLogo GUI from R:

```
java.awt.HeadlessException
  at java.awt.GraphicsEnvironment.checkHeadless(GraphicsEnvironment.java:204)
  at java.awt.Window.<init>(Window.java:536)
  at java.awt.Frame.<init>(Frame.java:420)
  at java.awt.Frame.<init>(Frame.java:385)
  at javax.swing.SwingUtilities$SharedOwnerFrame.<init>(SwingUtilities.java:1758)
.
.
.
```

For the above error, the `NLStart()` function should run successfully with `gui=F`, which launches a headless GUI mode.

```
NLStart(nl.path,gui=F,nl.jarname = paste0("netlogo-",ver_nl,".jar")) # open netlogo w/o gui
```

If the above steps don’t work, move onto [Install JGR](#).

Install JGR

1. Check you have the latest version of [Java/Oracle](#).
2. Install JGR by running the following code in your R session (from [3]):

```
install.packages('JGR',, 'http://www.rforge.net/')
library(JGR)
JGR::JGR()
```

Now load the ‘DEB_IBM.R’ file into your JGR session to run the simulation model.

For up to date troubleshooting running RNetLogo on R v. 6.0 or higher, see [Running Netlogo 6.0.+](#).

References

- ¹ [rJava load error in RStudio/R after “upgrading” to OSX Yosemite](#)
- ² [Run rJava with RStudio using OSX 10.10](#)
- ³ [Installing JGR](#)
- ⁴ [GCC compiler in R](#)
- ⁵ [Test for working version of Java on your computer](#)