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

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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_0.12.18    stringi_1.2.3   rmarkdown_1.10
[13] knitr_1.20      stringr_1.3.1   digest_0.6.15   rlang_0.2.1     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", s
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