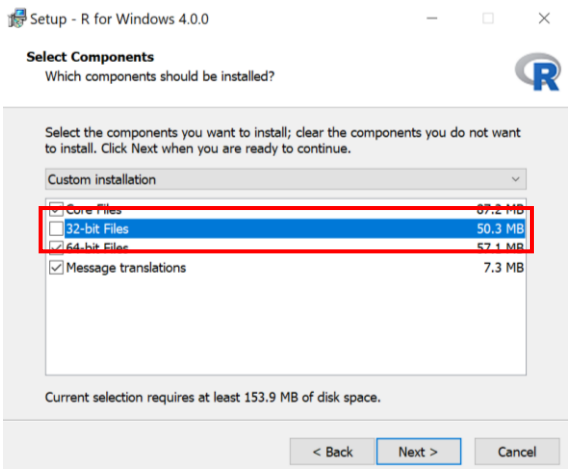
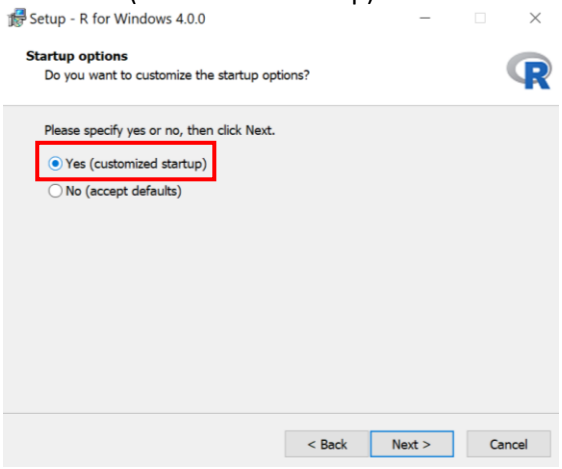
# Installation instructions for R

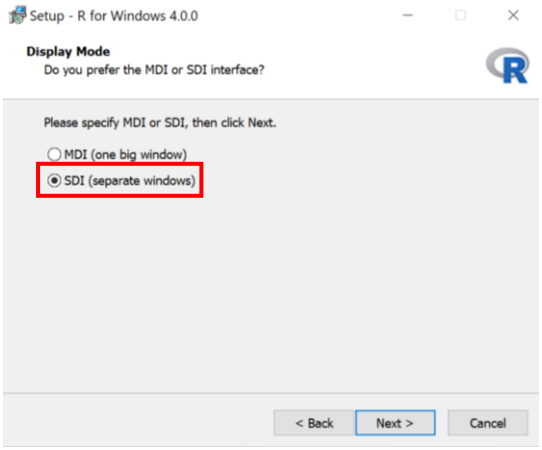
After launching the install ”exe” and approving installation select your languate preference in the pop up box and OK then the “Next >” button in the next box.

Uncheck the 32-bit Files box and select Next >




Select Yes (customized startup) Next > and then SDI (separate windows) Next >

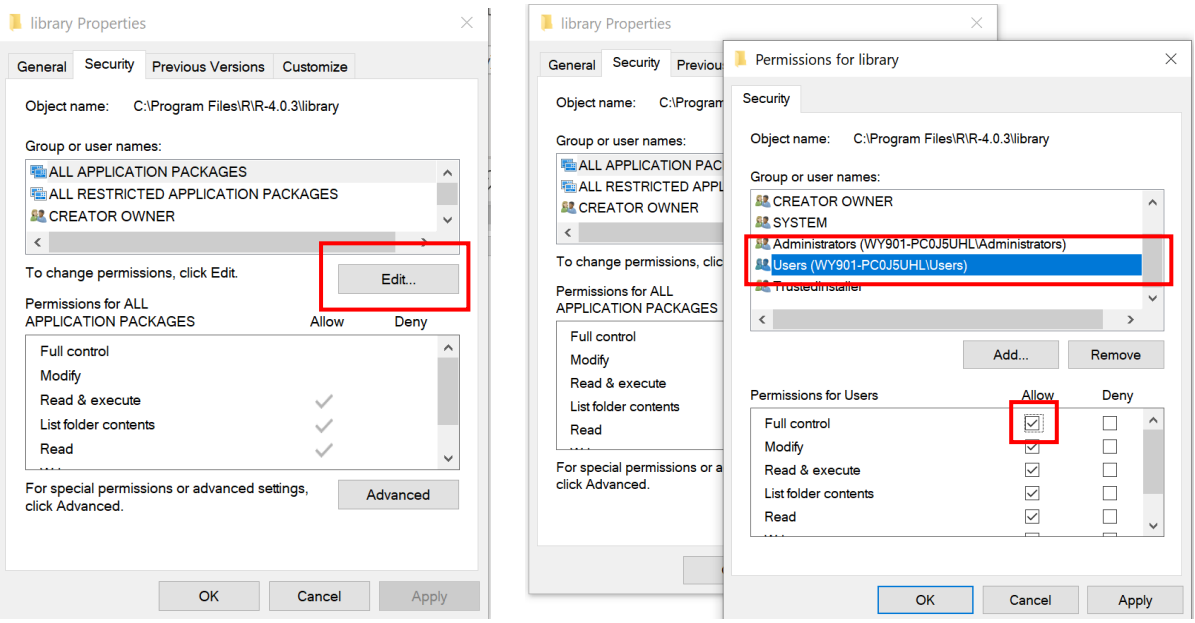



After this, you can then just approve the defaults.

# Installing libraries instructions

First, if using windows, change permissions to the library directory. Navigate to R's install directory eg., "C:\Program Files\R\R-4.0.3" and right click on the library directory, select "Properties" and then click the "security" tab on top. In the resulting dialog, click the "Edit" button




Select "Users (computer name)" in the upper box and then the Allow check box for Full control in the lower box. Then click "Apply" and wait until permissions are applied to the sub directories (with a new install and a small number of subdirectories, you may not even see a pop up box), then click OK out of the dialogue and you are done.

Now, we can install packages. First, we set our library path and the CRAN mirror.

```
# set library path and CRAN mirror
.Library.site <- file.path(chartr("\\", "/", R.home()), "library")
.libPaths(file.path(chartr("\\", "/", R.home()), "library"))
local({r <- getOption("repos")
       r["CRAN"] <- "https://ftp.osuosl.org/pub/cran/"
       options(repos=r)})
```

We can using install.packages to install new libraries

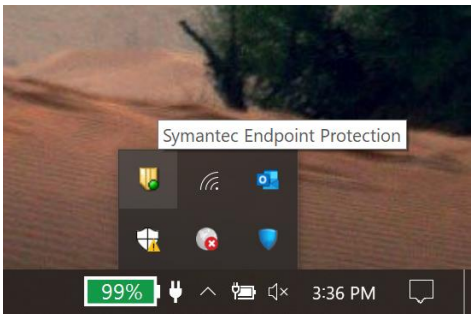
```
install.packages( c("devtools", "deldir", "forecast", "GeNetIt", "igraph",
  "randomForest", "raster", "rfUtilities", "rgdal","rgeos",
  "rts", "sf", "sp", "spatial", "spatialEco", "spatstat",
  "spdep", "maptools", "RANN", "RColorBrewer", "Matrix",
  "nlme", "SDMTools", "vegan", "spgwr", "yaImpute",
  "classInt", "cluster", "e1071", "rgl", "rms",
  "exactextractr", "landscapemetrics") )
```

You likely want to also install RTools (https://cran.r-project.org/bin/windows/Rtools/). This will allow you to install packages from source from sites like GitHub as well as before source is available on CRAN. The RTools software is a lightweight install that provides a compiler for R and compiled source code (eg., C++, Fortran). If an R package is in a source format you will also need RTools for compiling the package and installing the library. This is also essential software for building packages and performing the necessary CRAN checks.

Here is an example of installing an R package that is only available on GitHub that has associated C++ code. You will not be able to do this without RTools installed.

```
devtools::install_github("jeffreyevans/landmetrics")
  library(landmetrics)
```

The Symantec Endpoint Protection virus software has a firewall that can interfere with installing packages. You can temporally disable it by going to your system tray and clicking on the Symantec icon to launch the software.




Under Network and Host Exploit Mitigation click on the “Options” button and select “Change settings…”

Then in the new window uncheck the Firewall option and click OK. This will turn off the firewall. After a time the software will automatically turn it back on but, you can manually turn it back on by just rechecking the box.