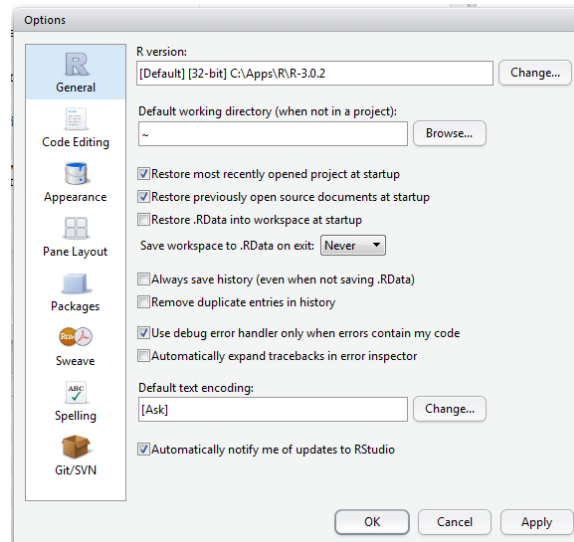
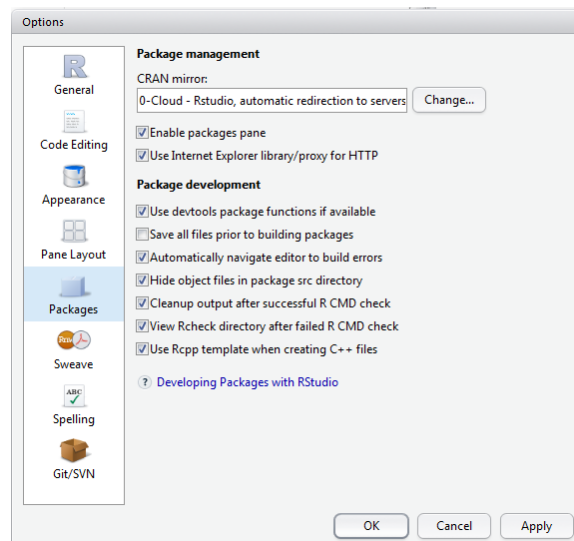


Preparing RStudio

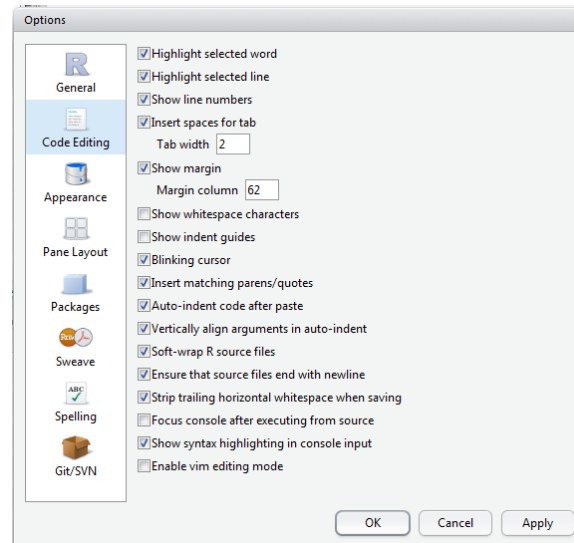
1. Open RStudio.
2. Select the “Tools” menu and then the “Global Options” submenu. In the ensuing dialog box select the “General” icon on the left (this should already be selected).



- Depending on your installation, the R version should read “[Default][32-bit]” followed by the path to the R program (as shown in the dialog box above). If you installed the 64-bit version of R then select the “Change...” button and then select “use your machine’s default version of R64 (64-bit)”.
 - You can either leave the other selections at their defaults or change them as you see fit (my preferences are shown in the dialog box above). However, I strongly urge you to un-select “Restore .RData into workspace at startup”.
3. Select the “Packages” icon in the “options” dialog box opened above. It is useful to set a CRAN mirror in this dialog box. I prefer the “0-Cloud - Rstudio ...” option but you may want to choose a location nearer to you (through the “change” button). All other options can remain at their defaults.



4. Select the “Code Editing” icon in the “Options” dialog box opened above. I suggest, in addition to the default selections, selecting the “Highlight selected line”, “Show margin”, and “Show syntax highlighting in console input.”

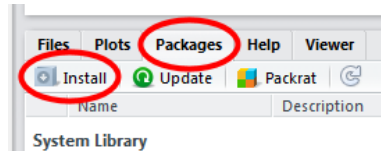


5. No other options need to be set for our purposes. Press “OK.”

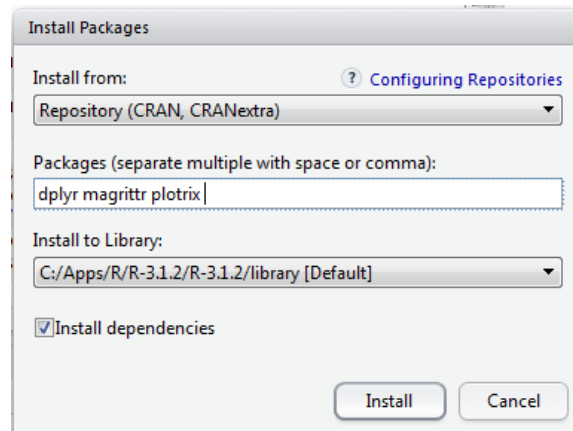
Installing R Packages from CRAN

R can be extended with external packages. In this workshop, we will use several packages that are distributed via CRAN. These packages are installed by following these directions.

1. Open RStudio (if not already open).
2. Select the “Packages” tab in the lower-right pane and then the “Install” button/graphic.



3. Type the name of the packages to be installed in the “Packages (separate multiple packages with a space or comma):” box. Make sure the “Install dependencies” option is checked. For this workshop we will need the *dplyr*, *magrittr*, and *plotrix* packages.

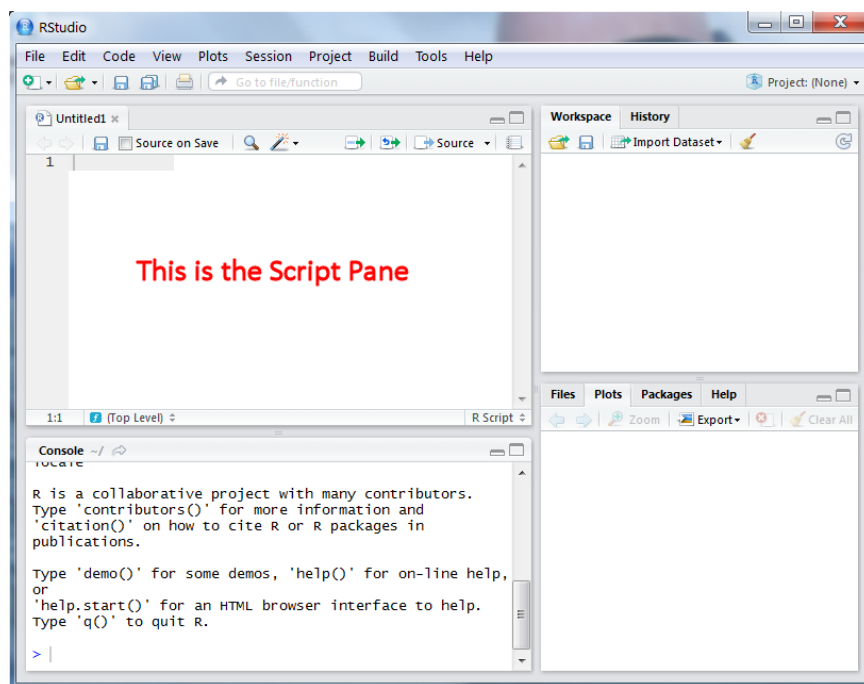


4. Press “Install”. RStudio should now install these packages plus all packages that these depend on. This may take several minutes and you should see several “package ‘xxx’ successfully unpacked and MD5 sums checked” messages.
 - Depending on your privileges on your machine, you may get a warning at this point about a library that “is not writable” and then be prompted with a dialog box asking you “Would you like to use a personal library instead?” You can select “Yes” on this dialog box. A second dialog box will appear with a question that starts with “Would you like to create a personal library.” You can also select “Yes” on this dialog box.

Installing FSA and fishWiDNR from RForge.net

The FSA and fishWiDNR packages are special purpose packages that we will use in this workshop that have not been officially released on CRAN. These packages are available in RForge.net repositories and can be installed following these directions. *Note that about 10% of installations on Windows machines will result in some sort of error when following these directions. In these cases, see the directions in the “Troubleshooting the Installation of the FSA Package” section following these directions.*

1. Open RStudio (if not already open).
2. Open a new R script pane by selecting the “New” icon to the far left on the RStudio toolbar (📄) and choosing “R script” in the ensuing list (alternatively, use the <CTRL> + <Shift> + N keystrokes or select the File.. New.. R Script menu items). This will open a blank script in the upper-left pane of the RStudio window (below the toolbar, above the “Console” pane).

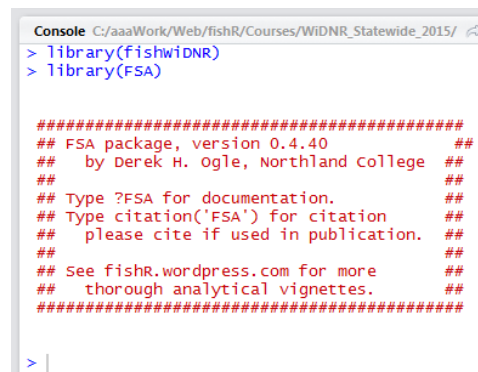


3. In the R script pane, type the following code exactly:.

```
source("http://www.rforge.net/fishWiDNR/InstallfishWiDNR.R")
```

4. With the cursor on the line just typed, press the “Run” button (👉) near the far right of the “R Script” pane toolbar (alternatively press <CTRL> + <Enter>). This will “send” the R command to the Console pane. RStudio should now download the FishWiDNR and FSA packages and all associated dependencies. This may take several minutes with a finish noted by an R prompt (a “greater than”) symbol in the Console pane.
 - Depending on your privileges on your machine, you may get a warning at this point about a library that “is not writable” and then be prompted with a dialog box asking you “Would you like to use a personal library instead?” You can select “Yes” on this dialog box. A second dialog box will appear with a question that starts with “Would you like to create a personal library.” You can also select “Yes” on this dialog box.
5. Start a new line in the R script pane and type `library(fishWiDNR)`. With the cursor on the line, press the “Run” button. Start a new line in the R script pane and type `library(FSA)`. With the cursor on the line, press the “Run” button. The end of your Console pane should look like that below (the

version number may be different). If you received an error after running `library(FSA)`, then see the next section.

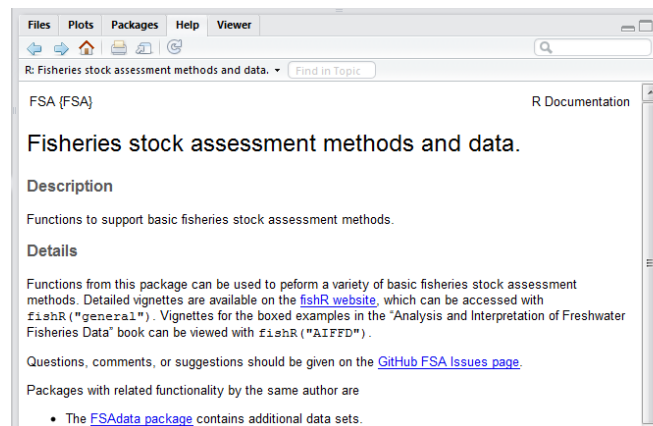


```
Console C:/aaaWork/Web/fishR/Courses/WiDNR_Statewide_2015/
> library(fishwidnr)
> library(FSA)

#####
## FSA package, version 0.4.40      ##
## by Derek H. Ogle, Northland College ##
##                                ##
## Type ?FSA for documentation.    ##
## Type citation('FSA') for citation ##
## please cite if used in publication. ##
##                                ##
## See fishR.wordpress.com for more ##
## thorough analytical vignettes.   ##
#####

> |
```

6. Start a new line in the R script pane and type `?FSA`. With the cursor on the line, press the “Run” button. A help page that looks like that shown below should appear in the “Help” pane in the lower-right corner of the RStudio window. If this help page appears, then the installation is complete and correct. If the help page does not appear, then see the next section.



Troubleshooting the Installation of the FSA Package.

The FSA package is not yet an official R package and, thus, the installation is non-standard. My experience suggests that about 10% of installations on Windows machines will result in some sort of error that will cause the FSA package to not be installed properly. For example, two typical errors that may be shown in the R console after submitting the `source()` line from above are shown below.

```
trying URL 'http://streaming.stat.iastate.edu/CRAN/bin/windows/contrib/3.0/gtools_3.2.1.zip'
Warning in install.packages :
  cannot open: HTTP status was '404 Not Found'
Error in download.file(url, destfile, method, mode = "wb", ...) :
  cannot open URL 'http://streaming.stat.iastate.edu/CRAN/bin/windows/contrib/3.0/gtools_3.2.1.zip'
Warning in install.packages :
  download of package 'gtools' failed

Warning: dependency 'multcomp' is not available
trying URL 'http://www.rforge.net/src/contrib/FSA_0.4.3.tar.gz'
Content type 'application/x-gzip' length 643745 bytes (628 Kb)
opened URL
downloaded 628 Kb

ERROR: dependency 'multcomp' is not available for package 'FSA'
```

The first error above indicates that the `gtools` package was not installed and the second error shows that the `multcomp` package was not installed.

Another typical error is a warning that starts with “unable to move temporary installation” and will include a specific package name.

If these specific errors occur, then one may need to follow the directions from the previous section to “manually” install the packages mentioned in the errors or warnings and then run the `source()` line again.

Questions?

If you have any questions please contact Derek Ogle at dogle@northland.edu. Please make sure to include your operating systems (Windows PC, Mac, Linux/Unix) when contacting me with questions.

A small percentage of users will have trouble automatically installing the FSA package (and the packages that it depends on) to their computer (see the previous section). If you are in this small group, then send me a message indicating your operating system and pasting the “error results” from the Console pane (lower-left pane in RStudio) into the e-mail message.