



Installing R Packages

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R Packages

- When you download R from the Comprehensive R Archive Network (CRAN), you get that ``base" R system
- The base R system comes with basic functionality; implements the R language
- One reason R is so useful is the large collection of packages that extend the basic functionality of R
- R packages are developed and published by the larger R community

Obtaining R Packages

- The primary location for obtaining R packages is [CRAN](#)
- For biological applications, many packages are available from the [Bioconductor Project](#)
- You can obtain information about the available packages on CRAN with the `available.packages()` function

```
a <- available.packages()  
head(rownames(a), 3) ## Show the names of the first few packages
```

```
## [1] "A3"      "abc"      "abcdeFBA"
```

- There are approximately 5200 packages on CRAN covering a wide range of topics
- A list of some topics is available through the [Task Views](#) link, which groups together many R packages related to a given topic

Installing an R Package

- Packages can be installed with the `install.packages()` function in R
- To install a single package, pass the name of the package to the `install.packages()` function as the first argument
- The following code installs the **slidify** package from CRAN

```
install.packages("slidify")
```

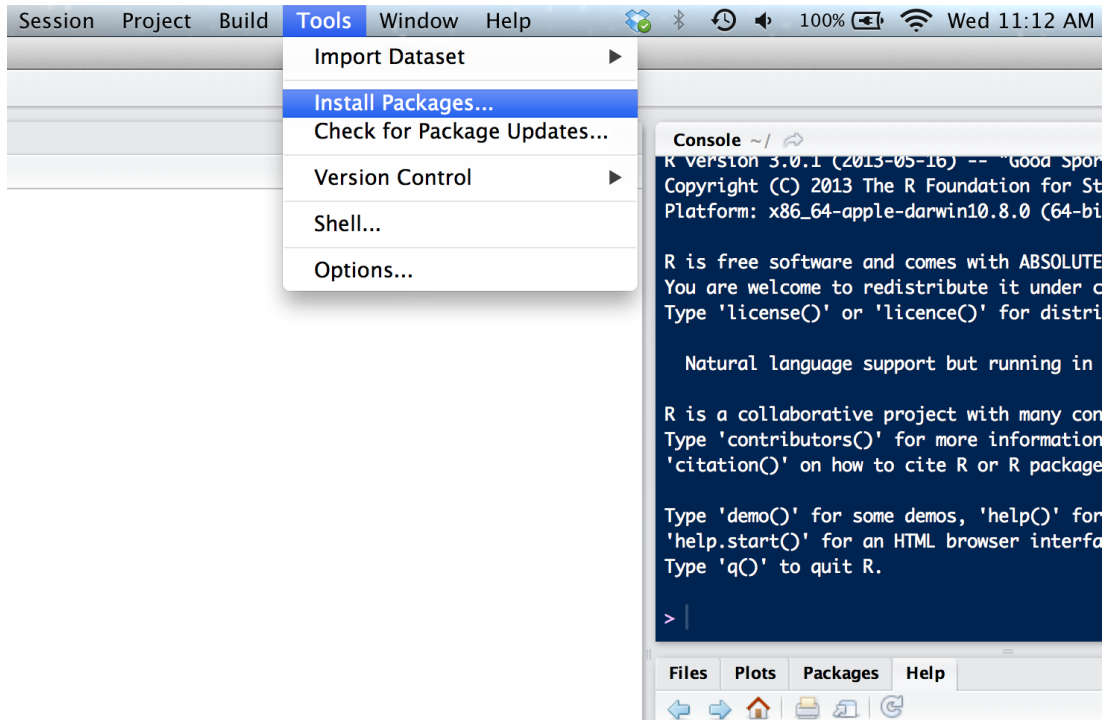
- This command downloads the **slidify** package from CRAN and installs it on your computer
- Any packages on which this package depends will also be downloaded and installed

Installing an R Package

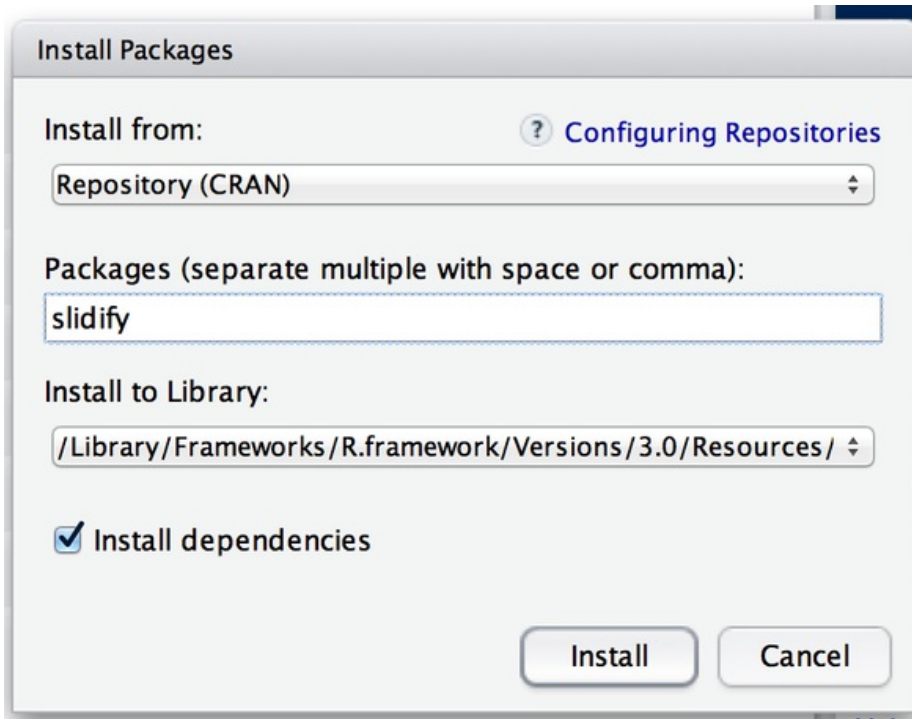
- You can install multiple R packages at once with a single call to `install.packages()`
- Place the names of the R packages in a character vector

```
install.packages(c("slidify", "ggplot2", "devtools"))
```

Installing an R Package in RStudio



Installing an R Package in RStudio



Installing an R Package from Bioconductor

- To get the basic installer and basic set of R packages (warning, will install multiple packages)

```
source("http://bioconductor.org/biocLite.R")  
biocLite()
```

- Place the names of the R packages in a character vector

```
biocLite(c("GenomicFeatures", "AnnotationDbi"))
```

<http://www.bioconductor.org/install/>

Loading R Packages

- Installing a package does not make it immediately available to you in R; you must load the package
- The `library()` function is used to **load** packages into R
- The following code is used to load the **ggplot2** package into R

```
library(ggplot2)
```

- Any packages that need to be loaded as dependencies will be loaded first, before the named package is loaded
- NOTE: Do not put the package name in quotes!
- Some packages produce messages when they are loaded (but some don't)

Loading R Packages

After loading a package, the functions exported by that package will be attached to the top of the `search()` list (after the workspace)

```
library(ggplot2)  
search()
```

```
## [1] ".GlobalEnv"      "package:kernlab"  "package:caret"  
## [4] "package:lattice" "package:ggplot2"  "package:makeslides"  
## [7] "package:knitr"    "package:slidify"  "tools:rstudio"  
## [10] "package:stats"    "package:graphics" "package:grDevices"  
## [13] "package:utils"    "package:datasets" "package:methods"  
## [16] "Autoloads"        "package:base"
```

Summary

- R packages provide a powerful mechanism for extending the functionality of R
- R packages can be obtained from CRAN or other repositories
- The `install.packages()` can be used to install packages at the R console
- The `library()` function loads packages that have been installed so that you may access the functionality in the package