

How can I install and update R packages?

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Installing and updating R packages is a crucial step in utilizing the R programming language for data analysis and statistical computing. To install a new package, the user can use the "install.packages()" function and specify the package name within the parentheses. This will download and install the package from the Comprehensive R Archive Network (CRAN). Alternatively, the user can also use the "install.packages()" function with the URL of the package's source file to install from a local source.

To update existing packages, the user can use the "update.packages()" function, which will check for updates and prompt the user to select which packages to update. Alternatively, the "install.packages()" function can also be used with the "update" parameter to automatically update all packages.

It is recommended to regularly check for updates and install the latest versions of packages to ensure optimal performance and access to new features. Additionally, it is important to note that some packages may have dependencies or require specific versions of R, so it is essential to read the package documentation before installation.

Use `install.packages("package_name")` to install package(s) in R and use `update.packages("package_name")` to update an already existing package(s). In this [R programming](#) article, I will explain how to install and update a single or multiple R package by installing [dplyr package](#) and [data.table package](#) from terminal and RStudio.

R packages are collections of pre-compiled and well-tested re-usable functions that are developed by the community. Packages are the basic blocks to extending and improving existing R base functionalities. All these R packages are present in the [CRAN](#) package repository which features almost 18000 plus packages and many more are publicly available through the internet.

1. Syntax of install.packages()

Following is the syntax of `install.packages()` function.

```
#Syntax of install.packages()  
install.packages(x)
```

Here, `x` can be a single package name or a vector to install multiple packages.

2. Install R Packages

In order to install R packages, you can run the following command from the R terminal or from the RStudio. The following example installs the [dplyr package](#) into the R environment from the R

terminal. When you are running from the terminal it prompts you with the mirrors to select, select the mirror that is closest to you to install.

```
#Install dplyr package
install.packages("dplyr")
```

When you install it from the terminal, you should see the following output.

```
trying URL 'https://cloud.r-project.org/bin/macosx/big-sur-arm64/contrib/4.2/dplyr_1.0.9.tgz'
Content type 'application/x-gzip' length 1325158 bytes (1.3 MB)
=====
downloaded 1.3 MB

The downloaded binary packages are in
  /var/folders/zv/47c0hhqx7c3228588sfr_dyh000gp/T//Rtmp02kw4N/downloaded_
packages
Warning message:
In doTryCatch(return(expr), name, parentenv, handler) :
  unable to load shared object '/Library/Frameworks/R.framework/Resources/modules/R_X11.so':
  dlopen(/Library/Frameworks/R.framework/Resources/modules/R_X11.so, 0x0006): Library not loaded: /opt/X11/lib/libSM.6.dylib
  Referenced from: /Library/Frameworks/R.framework/Versions/4.2-arm64/Resources/modules/R_X11.so
  Reason: tried: '/opt/X11/lib/libSM.6.dylib' (no such file), '/Library/Frameworks/R.framework/Resources/lib/libSM.6.dylib' (no such file), '/Library/Java/JavaVirtualMachines/jdk-17.0.1+12/Contents/Home/lib/server/libSM.6.dylib' (no such file)
> |
```

Install R

package

3. Install Multiple Packages

To install multiple packages use the `vector` with all the packages you wanted, to create a vector use `c()`. The following examples install `dplyr` and `data.table` packages. With this you don't have to write the same statement again and again for each install, this comes in handy and helps reduce code by writing single-line statements.

```
# Install Multiple Packages
install.packages(c("dplyr", "data.table"))
```

4. Update R Packages

To update an R package use `update.packages()` function. The following example updates the `dplyr` package with the latest version. Alternatively, you can also remove the R package and install it again.

```
# Update dplyr package
update.packages("dplyr")
```

Run the update package command from the R terminal as shown in below.

```
[(base) admin@naveens-MBP ~ % R
R version 4.2.0 (2022-04-22) -- "Vigorous Calisthenics"
Copyright (C) 2022 The R Foundation for Statistical Computing
Platform: aarch64-apple-darwin20 (64-bit)

R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.

Natural language support but running in an English locale

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

[Previously saved workspace restored]
[> update.packages("dplyr")
--- Please select a CRAN mirror for use in this session ---
Secure CRAN mirrors

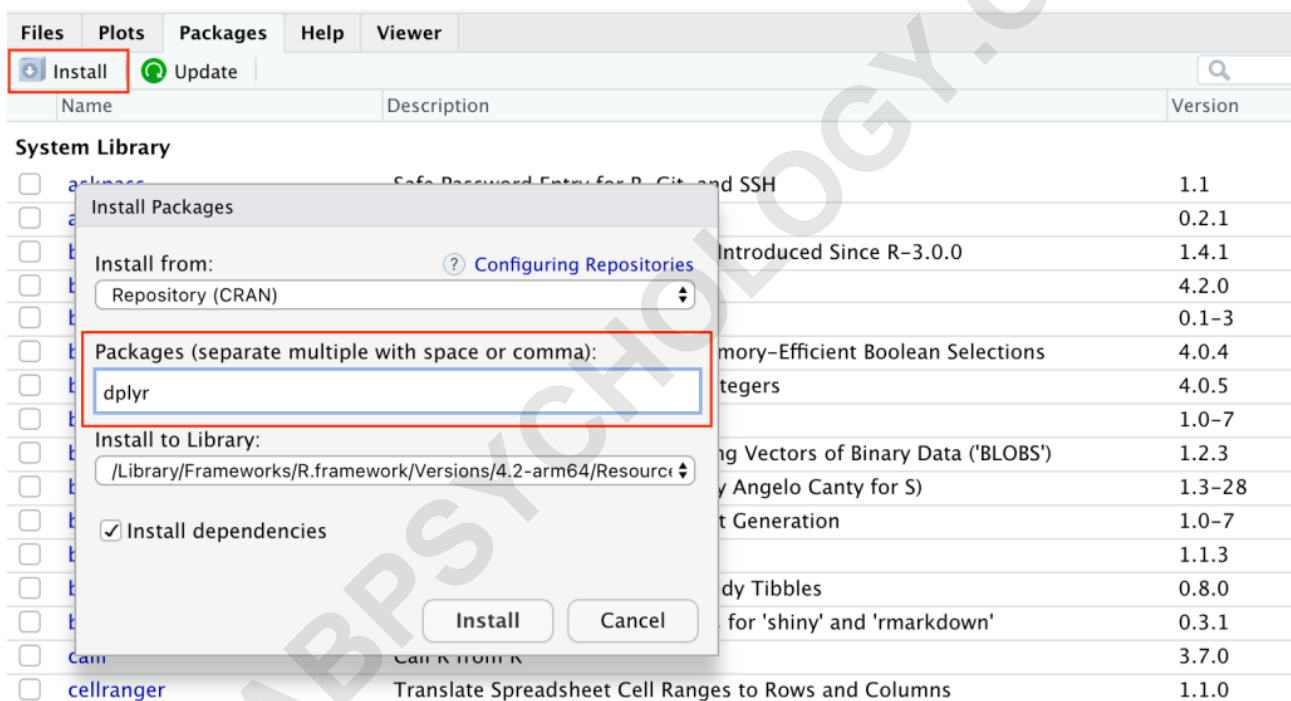
1: 0-Cloud [https]
2: Australia (Canberra) [https]
3: Australia (Melbourne 1) [https]
4: Australia (Melbourne 2) [https]
```

Update R package

5. Install R Packages from RStudio

If you prefer a graphical user interface to install R packages, both RStudio and the RGui are supported. In RStudio you will find it at **Tools -> Install Package** or select the **Packages -> Install**, this brings up a pop-up window to type the package you want to install.

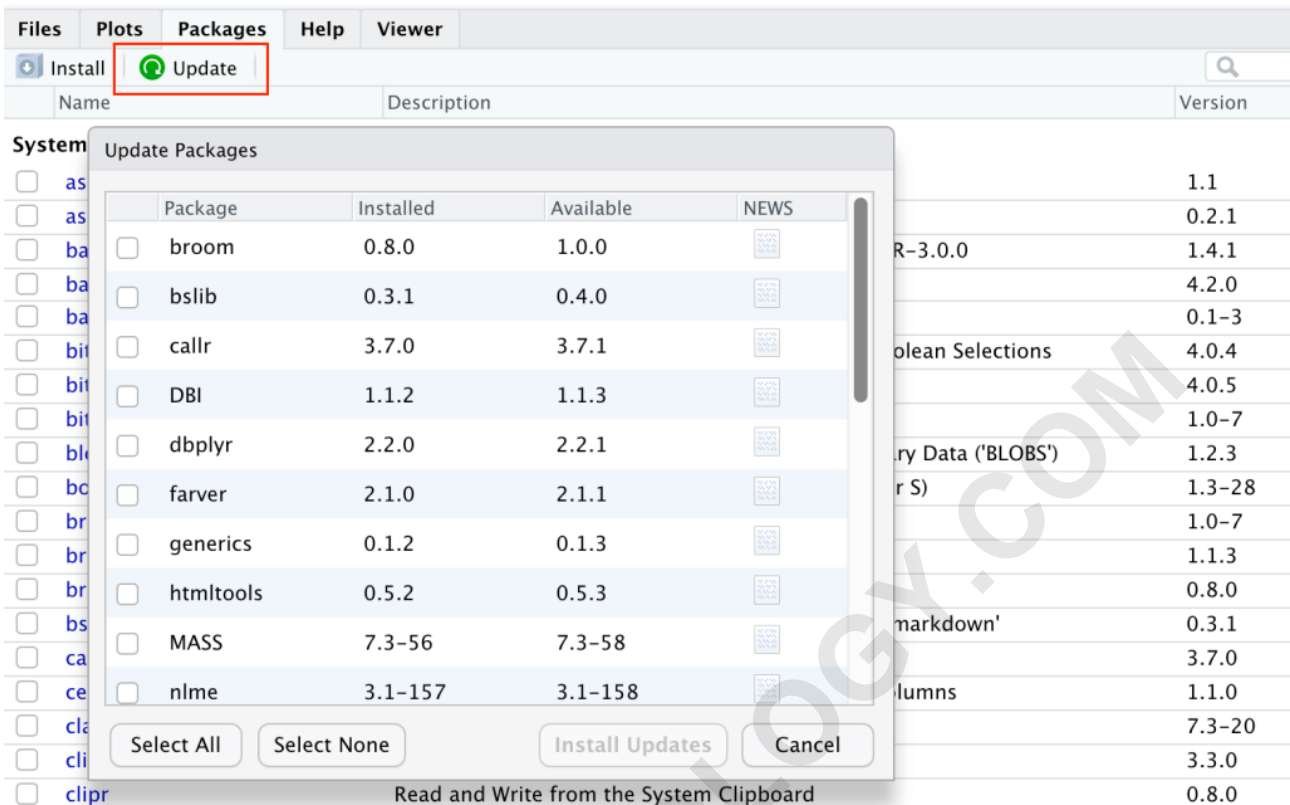
With RStudio GUI you have an option to select like, from which repository you want to install, whether to install dependencies and where to install. If you don't have GUI, I would recommend installing RStudio to write [R Programming](#).



Install package from RStudio

6. Update R Package from RStudio

Similarly, to update an R package(s) from RStudio use **Tools -> Check for Update Package** or select the **Packages -> Update**. This will bring up a pop-up window similar to the below with the package name, installed version, and available new version. select the package you wanted to update and click on the **Install Updates** button.



Update package from RStudio

7. Conclusion

In this article, you have learned how to install and update single and multiple packages from the R terminal and RStudio.

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