

# How can I manage R packages?

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Managing R packages refers to the process of installing, updating, and removing packages in the R programming language. Packages are collections of functions, data, and documentation that extend the capabilities of R. To manage packages, one must first access the CRAN (Comprehensive R Archive Network) repository, which contains a vast collection of R packages. From there, they can use the R console or a package management tool to install, update, and remove packages as needed. Proper management of R packages is essential for efficient and effective data analysis and programming in R.

## How can I manage R packages? | R FAQ

**R is a statistical software made up of many user-written packages. The base version of R that is downloaded allows the user to get started in R, but anyone performing data analysis will quickly exhaust the capabilities of base R and need to install additional packages. Here are some basic commands for managing R packages.**

**Which packages do I already have?**

**To see what packages are installed, use the `installed.packages()` command. This will return a matrix with a row for each package that has been installed. Below, we look at the first 5 rows of this matrix.**

**installed.packages()****Package LibPath Version Priority**

**base "base" "C:/PROGRA~1/r/R-211~1.1/library"  
"2.11.1" "base"**

**boot "boot" "C:/PROGRA~1/r/R-211~1.1/library" "1.2-42"  
"recommended"**

**car "car" "C:/PROGRA~1/r/R-211~1.1/library" "2.0-2" NA**

**class "class" "C:/PROGRA~1/r/R-211~1.1/library"  
"7.3-2" "recommended"**

**cluster "cluster" "C:/PROGRA~1/r/R-211~1.1/library"  
"1.12.3" "recommended"**

**Depends Imports LinkingTo**

**base NA NA NA**

**boot "R (>= 2.9.0), graphics, stats" NA NA**

**car "R (>= 2.1.1), stats, graphics, MASS, nnet, survival"  
NA NA**

**class "R (>= 2.5.0), stats, utils" "MASS" NA**

**cluster "R (>= 2.9.0), stats, graphics, utils" NA NA**

**Suggests Enhances OS\_type License Built**

**base NA NA NA "Part of R 2.11.1" "2.11.1"**

**boot "survival" NA NA "Unlimited" "2.11.1"**

**car "alr3, leaps, lmtest, sandwich, mgcv, rgl" NA NA  
"GPL (>= 2)" "2.11.1"**

```
class NA NA NA "GPL-2 | GPL-3" "2.11.1"  
cluster NA NA NA "GPL (>= 2)" "2.11.1"
```

From this output, we will first focus on the **Package** and **Priority**

**columns**. The **Package** column gives the name of the package and the

**Priority** column indicates what is needed to use functions from the package.

Have I installed a specific package?

Sometimes, you might want to know if you have already installed a specific

package. Let's say we want to check if we have installed the package "boot".

Instead of checking the entire list of installed packages, we can do the following.

```
a<-installed.packages()  
packages<-a  
is.element("boot", packages)
```

**TRUE**

How can I add or delete packages?

Any package that does not appear in the installed packages matrix must be installed and loaded before its functions can be used. A package can be installed using `install.packages("<package name>")`. A package can be removed using `remove.packages("<package name>")`.

What packages are available?

The list of available R packages is constantly growing. The actual list can be obtained using `available.packages()`. This returns a matrix with a row for each package.

```
p  
2553 12
```

```
p  
Package Version Priority Depends Imports  
ACCLMA "ACCLMA" "1.0" NA NA NA  
ADGofTest "ADGofTest" "0.1" NA NA NA
```

**AER** "AER" "1.1-7" NA "R (>= 2.5.0), stats, car (>= 2.0-1),  
Formula (>= 0.2-0),nlmtest, sandwich, strucchange,  
survival, zoo" "stats"

**AGSDest** "AGSDest" "1.0" NA "lgbounds" NA

**AICcmodavg** "AICcmodavg" "1.11" NA NA NA

**LinkingTo**

**ACCLMA** NA

**ADGofTest** NA

**AER** NA

**AGSDest** NA

**AICcmodavg** NA

**Suggests**

**ACCLMA** NA

**ADGofTest** NA

**AER** "boot, dynlm, effects, foreign, ineq, KernSmooth,  
lattice,nMASS, mlogit, nlme, nnet, np, plm, pscl,  
quantreg, ROCR,nsampleSelection, scatterplot3d,  
systemfit, rgl, truncreg,ntseries, urca"

**AGSDest** NA

**AICcmodavg** "lme4, MASS, nlme, nnet"

**Enhances OS\_type License File Repository**

**ACCLMA** NA NA "GPL-2" NA

"http://cran.stat.ucla.edu/bin/windows/contrib/2.11"

**ADGofTest** NA NA "GPL" NA

```

"http://cran.stat.ucla.edu/bin/windows/contrib/2.11"
AER      NA      NA      "GPL-2"      NA
"http://cran.stat.ucla.edu/bin/windows/contrib/2.11"
AGSDest  NA      NA      "GPL (>= 2)" NA
"http://cran.stat.ucla.edu/bin/windows/contrib/2.11"
AICcmoavg NA     NA     "GPL (>= 2)" NA
"http://cran.stat.ucla.edu/bin/windows/contrib/2.11"

```

These first five (of 2,553) available packages illustrate that the package names are often acronyms and rarely reveal what the package functions do.

A list of the packages available through CRAN including a short package description can be found at [CRAN's Contributed Packages page](#).

What functions and datasets are in a package?

It is easy to access some quick documentation for a package from R with the `help` command. This opens an R window with package information followed by a list of functions and datasets.

```
help(package="MASS")
```



```

R Documentation for package 'MASS'

Information on package 'MASS'

Description:

Package:           MASS
Priority:          recommended
Version:          7.3-6
Date:             2010-05-19
Depends:          R (>= 2.10.1), grDevices, graphics, stats, utils
Suggests:         lattice, nlme, survival
Author:           S original by Venables & Ripley. R port by Brian Ripley <ripley@stats.ox.ac.uk>
                  and Albrecht Gebhardt.
Maintainer:       Brian Ripley <ripley@stats.ox.ac.uk>
Description:      Functions and datasets to support Venables and Ripley, 'Modern Applied Statist
Title:            Main Package of Venables and Ripley's MASS
License:          GPL-2 | GPL-3
URL:              http://www.stats.ox.ac.uk/pub/MASS4/
LazyLoad:         yes
LazyData:         yes
Packaged:         2010-05-20 20:16:54 UTC; ripley
Repository:       CRAN
Date/Publication: 2010-05-22 07:32:13
Built:            R 2.11.1; i386-pc-mingw32; 2010-05-31 12:37:38 UTC; windows

Index:

Functions:
=====

Null           Null Spaces of Matrices
addterm        Try All One-Term Additions to a Model
anova.negbin   Likelihood Ratio Tests for Negative Binomial GLMs
area           Adaptive Numerical Integration
bandwidth.nrd  Bandwidth for density() via Normal Reference
                Distribution
bcv            Biased Cross-Validation for Bandwidth Selection
boxcox         Box-Cox Transformations for Linear Models
con2tr         Convert Lists to Data Frames for use by Trellis
confint-MASS   Confidence Intervals for Model Parameters
contr.sdif     Successive Differences Contrast Coding
corresp        Simple Correspondence Analysis
cov.rob        Resistant Estimation of Multivariate Location and

```

Once a package is loaded, the help command can also be used with all functions and datasets listed here, e.g. `help(Null)`.