# Package 'librarian'

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Title Install, Update, Load Packages from CRAN, 'GitHub', and

'Bioconductor' in One Step

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<b>Description</b> Automatically install, update, and load 'CRAN', 'GitHub', and 'Bioconductor' packages in a single function call. By accepting bare unquoted names for packages, it's easy to add or remove packages from the list.					
JRL https://github.com/DesiQuintans/librarian					
<pre>BugReports https://github.com/DesiQuintans/librarian/issues</pre>					
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browse\_cran

Search for CRAN packages by keyword/regex

# Description

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Inspired by my mysterious inability to remember what the RColorBrewer package is actually called. Lets you find relevant CRAN packages right from your terminal.

# Usage

```
browse_cran(query, fuzzy = FALSE, echo = TRUE, ignore.case = TRUE)
```

# Arguments

query	(Character) A string to grep() for.
fuzzy	(Logical) If TRUE, enables fuzzy orderless matching. Every word in query (i.e. every group of characters separated with a space) will be wrapped with a lookaround (?=*KEYWORD). This will match keywords regardless of the order in which those words appear.
echo	(Logical) If TRUE, print the results to the console.
ignore.case	(Logical) If TRUE, ignore upper/lowercase differences while searching.

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#### **Details**

When browse\_cran() is run for the first time in a new session, it will take about 6-12 seconds to download and cache CRAN data. This only happens once per session; subsequent calls will use the cached copy.

#### Value

Invisibly returns a dataframe of the packages that matched the query together with their descriptions. Prints results to the console.

# **Examples**

```
browse_cran("colorbrewer") # Search by keyword
#> RColorBrewer
       Provides color schemes for maps (and other graphics) designed by Cynthia
#>
#>
       Brewer as described at http://colorbrewer2.org
#>
#> Redmonder
       Provide color schemes for maps (and other graphics) based on the color
#>
       palettes of several Microsoft(r) products.
browse_cran("zero-inflat.*?(abund|count)") # Search by regular expression
#> hurdlr
       When considering count data, it is often the case that many more zero
#>
#>
       counts than would be expected of some given distribution are observed.
# And five other matches...
browse_cran("network twitter api", fuzzy = TRUE) # Order-agnostic (fuzzy) search
#> RKlout
       An interface of R to Klout API v2.
```

 ${\sf check\_attached}$ 

Check if packages are attached

### **Description**

Check if packages are attached

# Usage

```
check_attached(...)
```

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# **Arguments**

... (Dots) Package names as bare names, strings, or a character vector. If left empty, lists all attached packages.

### Value

If dots is empty, a character vector of all attached packages. Otherwise, return a named logical vector where TRUE means the package is attached

# **Examples**

```
## Not run:
check_attached()

#> [1] "librarian" "testthat" "magrittr" "stats" ...
check_attached(c("utils", "stats"))

#> utils stats
#> TRUE TRUE
check_attached("datasets", "base", fakepkg)

#> datasets base fakepkg
#> TRUE TRUE FALSE

## End(Not run)
```

check\_installed

Check if packages are installed

# **Description**

Check if packages are installed

# Usage

```
check_installed(...)
```

# Arguments

. . . (Dots) Package names as bare names, strings, or a character vector. If left empty, lists all installed packages.

#### Value

If dots is empty, a character vector of all installed packages. Otherwise, return a named logical vector where TRUE means the package is installed.

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### **Examples**

```
## Not run:
check_installed()

#> [1] "addinslist" "antiword" " ape" "assertthat" ...
check_installed(c("utils", "stats"))

#> utils stats
#> TRUE TRUE

check_installed("datasets", "base", fakepkg)

#> datasets base fakepkg
#> TRUE TRUE FALSE

## End(Not run)
```

check\_pkg\_status

Check if packages are installed or attached

# Description

Check if packages are installed or attached

### Usage

```
check_pkg_status(..., status, use_list = FALSE)
```

# **Arguments**

... (Dots) Package names as bare names, strings, or a vector of strings. If left blank,

returns a list of all packages that are installed/attached depending on the value

of status.

status (Character) "installed" checks if packages are installed. "attached" checks

if packages are currently attached.

use\_list (Logical) If TRUE, a character vector of package names was passed in ...1, so

use that as the results list. This is for programming use; nse\_dots() already detects if a char vector of length > 1 is in ...1 and uses it as the package list automatically, but it does not do that for char vectors of length 1 because the

user can offer a mix of names and strings to . . . as a convenience.

#### Value

If dots is empty, a character vector of package names. Otherwise, return a named logical vector where TRUE means the package is installed or attached, depending on the value of status.

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collapse\_vec

Collapse a vector

# Description

I use this internally for turning a vector of package names into a string.

### Usage

```
collapse_vec(..., wrap = "'", collapse = ", ", unique = TRUE)
```

# **Arguments**

... (...) Vectors that will be concatenated and coerced to Character.

wrap (Character) Placed at the left and right sides of each vector element.

collapse (Character) Placed between each element of the original vector(s).

unique (Logical) If TRUE, duplicate entries in . . . will be removed.

# Value

A string.

# Examples

```
## Not run:
collapse_vec(month.abb)
#> [1] "'Jan', 'Feb', 'Mar', 'Apr', 'May', 'Jun', 'Jul', 'Aug', 'Sep', 'Oct', 'Nov', 'Dec'"
## End(Not run)
```

dots1\_is\_pkglist

*Is the 1st 'dots' arg a character vector with length > 1?* 

# **Description**

Is the 1st 'dots' arg a character vector with length > 1?

### Usage

```
dots1_is_pkglist(...)
```

# **Arguments**

... (Dots)

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# Value

TRUE if . . 1 is a vector or list with length > 1.

# **Examples**

```
## Not run:
dots1_is_pkglist()

#> [1] FALSE

dots1_is_pkglist("hello", "hey", "hi")

#> [1] FALSE

dots1_is_pkglist(c("hello", "hey"), "hi")

#> [1] TRUE

dots1_is_pkglist(c(hello, hey), "hi")

#> [1] FALSE

# A common programming scenario:
pkg_list <- c("only_one_package")
dots1_is_pkglist(pkg_list)

#> [1] TRUE

## End(Not run)
```

dots\_is\_empty

Did the user pass arguments inside dots?

# **Description**

Did the user pass arguments inside dots?

### Usage

```
dots_is_empty(...)
```

# **Arguments**

```
... (Dots)
```

# Value

TRUE (dots is empty) or FALSE (dots is not empty).

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# Examples

```
## Not run:
is_dots_empty(package, names, here)
#> [1] FALSE
## End(Not run)
```

 ${\tt dots\_length}$ 

How many items are in dots?

# Description

How many items are in dots?

# Usage

```
dots_length(...)
```

# Arguments

```
... (Dots)
```

# Value

An integer

# **Examples**

```
## Not run:
dots_length(package, names, here)
#> [1] 3
## End(Not run)
```

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fuzzy\_needle

Turn a list of words into a fuzzy regex

### **Description**

A fuzzy regex is one that will match search terms in any order by using PERL lookaround. This is very slow, but often worth the cost to get more complete results.

# Usage

```
fuzzy_needle(vec)
```

# Arguments

vec

(Character) A string containing space-separated keywords to search for.

### Value

A string where each word has been wrapped as a lookaround term.

# **Examples**

```
## Not run:
fuzzy_needle("network centrality")
#> [1] "(?=.*network)(?=.*centrality)"
## End(Not run)
```

is\_valid\_url

Assert that a URL is complete and valid

# **Description**

Assert that a URL is complete and valid

### Usage

```
is_valid_url(string)
```

# Arguments

string

(Character) A URL to check.

# **Details**

The regex I use is "@stephenhay" from https://mathiasbynens.be/demo/url-regex because it's the shortest regex that matches every CRAN mirror at https://cran.r-project.org/mirrors.html.

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# Value

A logical value, TRUE if the URL is valid, FALSE if otherwise.

## **Examples**

```
## Not run:
is_valid_url("http://rstudio.com")
## End(Not run)
```

lib\_paths

Changing and viewing the package search paths

# **Description**

View and edit the list of folders that R will look inside when trying to find a package. Add an existing folder, create and add a new folder, or shuffle a folder to the front of the list so that it is used as the default installation location for new packages in the current session.

# Usage

```
lib_paths(path, make_path = TRUE, ask = TRUE)
```

# **Arguments**

path	(Character, or omit) A path to add to the library search path. Can be an absolute
	or relative path. If path has more than one element, only the first one will
	be kept. Tilde expansion is performed on the input, but wildcard expansion

(globbing) is not. If path is omitted, return the current library search path.

make\_path (Logical) If TRUE, create path's directory structure if it doesn't exist.

ask (Logical) If TRUE, ask before creating path's directory structure if make\_path =

TRUE. Ignored if make\_path = FALSE.

#### Value

A character vector of the folders on the library search path. If path was not omitted, it will be the first element.

# **Examples**

```
lib_paths()
#> [1] "D:/R/R-3.5.2/library"
lib_paths(file.path(tempdir(), "newlibraryfolder"), ask = FALSE)
#> [1] "C:/Users/.../Temp/Rtmp0Qbvgo/newlibraryfolder"
```

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```
#> [2] "D:/R/R-3.5.2/library"
```

lib\_startup

Set packages and library paths to automatically start-up with R

# Description

This function tells R to load packages and library folders at the start of every session (or on a perproject basis). It's best to keep this auto-load list to a minimum so that you don't forget to explicitly install/attach packages in scripts that need them.

# Usage

```
lib_startup(..., lib = lib_paths(), global = TRUE)
```

## **Arguments**

	(Names) Packages as bare names. For packages that come from GitHub, you can keep the username/package format, or omit the username and provide just the package name. If you leave blank, R will only load its default packages (see Details).
lib	(Character) The path where packages are installed. Can be an absolute or relative path. If path has more than one element, only the first one will be kept. Tilde expansion is performed on the input, but wildcard expansion (globbing) is not. Defaults to the current library search path.
global	(Logical) If TRUE, write these settings to a .Rprofile file in the home directory (on Windows, the My Documents folder). If FALSE, write them to a .Rprofile file that is in the current directory (i.e. the RStudio project's folder, or the current working directory). See Details for more.

#### **Details**

R's startup order is mentioned in ?Startup, but briefly:

- 1. R tries to load the environmental variables file (Renviron.site)
- 2. R tries to load the site-wide profile (Rprofile.site)
- 3. R tries to load the user profile (.Rprofile), first in the current directory, and then in the user's home directory (on Windows, the My Documents folder). **Only one of these files is sourced into the workspace.**

Omitting ... makes R load only its default packages. If these are not set in an environmental variable (R\_DEFAULT\_PACKAGES), then R will default to loading these packages: datasets, utils, grDevices, graphics, stats, and methods.

make\_dirs

# Value

A message listing the values that were written to the .Rprofile file.

# **Examples**

```
#> lib_startup(librarian, magrittr, lib = "C:/Dropbox/My R Library")
```

list\_dependencies

List the dependencies of selected packages

# **Description**

List the dependencies of selected packages

# Usage

```
list_dependencies(of_pkgs, which = c("Depends", "Imports"))
```

# **Arguments**

of\_pkgs

(Character) Packages whose dependencies will be found.

which

(Character) The types of dependencies to find.

#### Value

A character vector of package names. Note that all dependencies of all requested packages will be placed into the one vector.

make\_dirs

Build a path, creating subfolders if needed

# **Description**

Whereas base::file.path() only concatenates strings to build a path, make\_dirs() *also* makes sure those folders exist.

#### Usage

```
make_dirs(...)
```

#### **Arguments**

... (Character) Arguments to send to file.path(). You can provide a complete path as a single string, or incrementally build a path with many strings.

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# Value

(Character) A file path. Automatically adds trailing slashes if required.

### **Authors**

• Desi Quintans (http://www.desiquintans.com)

### **Source**

• Desiderata package (https://github.com/DesiQuintans/desiderata)

# **Examples**

```
## Not run:
make_dirs(tempdir(), "newfolder")

#> [1] "C:/Users/.../Temp/RtmpSwZA8X/newfolder"

## End(Not run)
```

nse\_dots

Convert dots to package names

# **Description**

Convert dots to package names

# Usage

```
nse_dots(..., keep_user = FALSE)
```

# **Arguments**

... (Dots) Package names provided as bare names or strings (of length 1). If a

character vector is provided as the first argument, it will be used and all other

arguments in dots will be ignored.

keep\_user (Logical) If FALSE, omit the username from a GitHub package reference.

### Value

A character vector.

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### **Examples**

```
## Not run:
nse_dots(dplyr, DesiQuintans/desiderata, keep_user = FALSE)

#> [1] "dplyr" "desiderata"

nse_dots(dplyr, DesiQuintans/desiderata, keep_user = TRUE)

#> [1] "dplyr" "DesiQuintans/desiderata"

## End(Not run)
```

reshelf

Detach and then reattach packages to the search path

# **Description**

Convenience shortcut for force-unshelfing packages and then shelfing them again.

# Usage

```
reshelf(...)
```

# **Arguments**

(Names) Packages as bare names. For packages that come from GitHub, you can keep the username/package format, or omit the username and provide just the package name.

#### Value

Invisibly returns a named logical vector, where the names are the packages requested in ... and TRUE means that the package was successfully attached.

# **Examples**

```
reshelf(datasets)
# reshelf() returns invisibly; bind its output to a variable or access the .Last.value.
print(.Last.value)
#> datasets
#> TRUE
```

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sentence

Keep the first sentence of a string.

# **Description**

Keep the first sentence of a string.

### Usage

```
sentence(string)
```

# Arguments

```
string (Character) A string.
```

### Value

The string with only the first sentence.

# **Examples**

```
## Not run:
sentence("This is a sentence. And this is another sentence.")

#> [1] "This is a sentence."

sentence("This is just one sentence.")

#> [1] "This is just one sentence."

sentence("Is this a sentence? Or is this one. Maybe this one! What if there are lots of sentences?")

#> [1] "Is this a sentence?

## End(Not run)
```

shelf

Attach packages to the search path, installing them from CRAN, GitHub, or Bioconductor if needed

# Description

Attach packages to the search path, installing them from CRAN, GitHub, or Bioconductor if needed

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#### Usage

```
shelf(
...,
  lib = NULL,
  update_all = FALSE,
  quiet = FALSE,
  ask = TRUE,
  cran_repo = getOption("repos"),
  bioc_repo = character()
)
```

#### Arguments

lib

 (Names) Packages as bare names. If the package is from GitHub, include both
the username and package name as UserName/package (see examples).

(Character) By R convention, packages are installed to the first folder in your library search path (lib\_paths()). Here, you can set a specific folder to install new packages to instead. If the folder doesn't exist, you will be prompted to create it if ask = TRUE, otherwise it will be silently created. Can be an absolute or relative path. Tilde expansion is performed on the input, but wildcard expansion (globbing) is not. If lib has more than one element, only the first one will be

kept. See the 'Details' section below for more information.

update\_all (Logical) If TRUE, the packages will be re-installed even if they are already in

your library.

quiet (Logical) If TRUE, suppresses most warnings and messages.

ask (Logical) If TRUE, and lib points to a folder that doesn't exist, ask before creat-

ing the folder. If FALSE, the folder will be created silently.

cran\_repo (Character) In RStudio, a default CRAN repo can be set via Options > Packages

> Default CRAN Mirror). Otherwise, provide the URL to CRAN or one of its

mirrors. If an invalid URL is given, defaults to https://cran.r-project.org.

bioc\_repo (Character) If you use Bioconductor, you can set the repo URLs for it here. De-

faults to Bioconductor's defaults (view them with BiocInstaller::biocinstallRepos()).

#### **Details**

You may choose to organise your library into folders to hold packages for different tasks or projects. If you specify a lib folder, it will be created (if needed) and attached to the package search path. R will look for packages by working through the package search path in order. You can view the folders that are on this path by calling lib\_paths() with no arguments.

If you specify a new lib and use the argument update\_all = TRUE to force an already-installed package to reinstall, a new copy of that package will be made in lib and then loaded from there. This means that you can potentially have several copies of the same package across many folders on your machine, each a different version. This allows you to maintain a different library folder for different projects, so that updated packages in Project B will not affect the package versions you rely on for Project A.

shhh

# Value

Invisibly returns a named logical vector, where the names are the packages requested in ... and TRUE means that the package was successfully installed and attached.

# **Examples**

```
shelf(fortunes, DesiQuintans/emptyRpackage, cowsay, lib = tempdir(), update_all = TRUE)
# shelf() returns invisibly; bind its output to a variable or access the .Last.value.
print(.Last.value)
#> fortunes emptyRpackage cowsay
#> TRUE TRUE TRUE
```

shhh

Suppresses console output, including printing

# **Description**

This is copied from my personal package, desiderata.

# Usage

shhh(expr)

### **Arguments**

expr

(Expression) An expression to evaluate.

# Value

Evaluates expr.

stock

Install packages from CRAN, GitHub, or Bioconductor if needed/wanted

# **Description**

Install packages from CRAN, GitHub, or Bioconductor if needed/wanted

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#### Usage

```
stock(
    ...,
    lib = NULL,
    update_all = FALSE,
    quiet = FALSE,
    ask = TRUE,
    cran_repo = getOption("repos"),
    bioc_repo = character()
)
```

#### **Arguments**

 (Names) Packages as bare names. If the package is from GitHub, include both
the username and package name as UserName/package (see examples).

(Character) By R convention, packages are installed to the first folder in your library search path (lib\_paths()). Here, you can set a specific folder to install new packages to instead. If the folder doesn't exist, you will be prompted to create it if ask = TRUE, otherwise it will be silently created. Can be an absolute or relative path. Tilde expansion is performed on the input, but wildcard expansion (globbing) is not. If lib has more than one element, only the first one will be

kept. See the 'Details' section below for more information.

update\_all (Logical) If TRUE, the packages will be re-installed even if they are already in

your library.

quiet (Logical) If TRUE, suppresses most warnings and messages.

ask (Logical) If TRUE, and lib points to a folder that doesn't exist, ask before creat-

ing the folder. If FALSE, the folder will be created silently.

cran\_repo (Character) In RStudio, a default CRAN repo can be set via Options > Packages

> Default CRAN Mirror). Otherwise, provide the URL to CRAN or one of its

mirrors. If an invalid URL is given, defaults to https://cran.r-project.org.

bioc\_repo (Character) If you use Bioconductor, you can set the repo URLs for it here. De-

faults to Bioconductor's defaults (view them with BiocInstaller::biocinstallRepos()).

#### **Details**

You may choose to organise your library into folders to hold packages for different tasks or projects. If you specify a lib folder, it will be created (if needed) and attached to the package search path. R will look for packages by working through the package search path in order. You can view the folders that are on this path by calling lib\_paths() with no arguments.

If you specify a new lib and use the argument update\_all = TRUE to force an already-installed package to reinstall, a new copy of that package will be made in lib and then loaded from there. This means that you can potentially have several copies of the same package across many folders on your machine, each a different version. This allows you to maintain a different library folder for different projects, so that updated packages in Project B will not affect the package versions you rely on for Project A.

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# Value

Invisibly returns a named logical vector, where the names are the packages requested in ... and TRUE means that the package was successfully installed.

# **Examples**

tell\_user

Messages for the user

# Description

Messages for the user

### Usage

```
tell_user(message, ...)
```

# **Arguments**

```
message (Character) An identifier string for a message.
... (Dots) Data to pass into the message for sprintf().
```

### Value

A string.

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### **Examples**

```
## Not run:
message(tell_user("not allowed to make path", "C:/fakefolder"))
## End(Not run)
```

unshelf

Detach (unload) packages from the search path

# **Description**

Packages can be detached by themselves, with their dependencies safely (i.e. as long as those dependencies are not being used by other packages), or with their dependencies unsafely (regardless of whether those dependencies are still needed). All non-default packages can be detached at once too, including Librarian itself.

# Usage

```
unshelf(
  . . . ,
  everything = FALSE,
  also_depends = FALSE,
  safe = TRUE,
  quiet = TRUE
)
```

# **Arguments**

(Names) Packages as bare names. For packages that come from GitHub, you can keep the username/package format, or omit the username and provide just the package name. (Logical) If TRUE, detach every non-default package including librarian. Any everything names in . . . are ignored. The default packages can be listed with getOption("defaultPackages"). (Logical) If TRUE, also detach the dependencies of the packages listed in . . . . also\_depends This can be slow. safe

(Logical) If TRUE, packages won't be detached if they are needed by other pack-

ages that are **not** listed in . . . .

quiet (Logical) If FALSE, show a message when packages can't be detached because

they are still needed by other packages.

# Value

Invisibly returns a named logical vector, where the names are the packages and TRUE means that the package was successfully detached.

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# **Examples**

```
# These are the same:
#> unshelf(janitor, desiderata, purrr)
#> unshelf(janitor, DesiQuintans/desiderata, purrr)
# unshelf() returns invisibly; bind its output to a variable or access the .Last.value.
#> print(.Last.value)
                 janitor
#> desiderata
                              purrr
        TRUE
                    TRUE
                               TRUE
#> unshelf(everything = TRUE)
#> print(.Last.value)
#> librarian testthat
#> TRUE
            TRUE
```

wrap\_text

Produce a nicely-wrapped paragraph for console printing

# **Description**

Wrapping text needs to be done separately from actually printing it with stop or warning or message. This is because these functions typically also print some information about the environment where they were called.

# Usage

```
wrap_text(...)
```

# **Arguments**

... Vectors to be coerced to Character.

#### Value

The text in . . . will be collapsed and wrapped.

# **Examples**

```
## Not run:
wrapped <-
wrap_text(
    "Lorem ipsum dolor sit amet, ornare justo condimentum",
    "et sit lorem! Himenaeos, vel et sodales sit.",</pre>
```

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```
"Eu nulla. Magna ullamcorper nascetur placerat platea.\n\n",
    "Eleifend semper velit sed aliquam, ut ligula non commodo.")

cat(wrapped)

#> Lorem ipsum dolor sit amet, ornare justo condimentum et sit lorem!

#> Himenaeos, vel et sodales sit. Eu nulla. Magna ullamcorper
    nascetur placerat platea.

#>
#> Eleifend semper velit sed aliquam, ut ligula non commodo.

## End(Not run)
```

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