Package ‘pkgmaker’

May 3, 2023

Type Package

Title Development Utilities for R Packages

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Description Provides some low-level utilities to use for package development. It currently provides managers for multiple package specific options and registries, vignette, unit test and bibtex related utilities. It serves as a base package for packages like 'NMF', 'RcppOctave', 'doRNG', and as an incubator package for other general purposes utilities, that will eventually be packaged separately. It is still under heavy development and changes in the interface(s) are more than likely to happen.

License GPL (>= 2)

URL https://renozao.github.io/pkgmaker/

BugReports https://github.com/renozao/pkgmaker/issues

LazyLoad yes

Encoding UTF-8

Depends R (>= 3.0.0), methods, stats, registry

Imports tools, grDevices, utils, graphics, codetools, digest, stringr, xtable, withr, assertthat

Suggests devtools (>= 0.8), roxygen2, RUnit, testthat, knitr, rmarkdown, markdown (>= 1.3), yaml, Biobase, datasets, rbibutils (>= 1.3)

Collate 'bibtex.R' 'colors.R' 'data.R' 'namespace.R' 'utils.R' 'devutils.R' 'files.R' 'graphics.R' 'options.R' 'logging.R' 'unitTests.R' 'is.R' 'knitr.R' 'registry.R' 'package-extra.R' 'package.R' 'packages.R' 'project.R' 'rd.R' 'user.R' 'vignette.R' 'with.r'

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Description

Generates a wrapper function that silences the output, messages, and/or warnings of a given function.

Usage

\[
\text{.silenceF}(f, \text{level} = 7L)
\]

Arguments

- \(f\) function to silence
- \(\text{level}\) a single numeric (integer) that indicates the silencing level, which encodes the set of output to be silenced.

It is interpreted like unix permission bit system, where each bit of the binary expression of the silencing level corresponds to a given type of output:

- 0: nothing silenced;
- 1: \textit{stdout};
- 2: \textit{stderr} messages;
- 4: \textit{stderr} warnings.

For example, level 3 = 2 + 1 means silencing \textit{stdout} and \textit{stderr}, while 5 = 3 + 2 means silencing \textit{stderr} messages and warnings, but not outputs to \textit{stdout}. The default value is 7 = 4 + 2 + 1, which silences all output.

Negative values are supported and mean "silence everything except the corresponding type", e.g., level = -1 silences all except \textit{stdout} (computed as the binary complementary of 7, i.e. 7 - 1 = 5 = 3 + 2). See examples.

Value

a function
Examples

```r
f <- function(){
cat("stdout message\n")
message("stderr message")
warning("stderr warning", immediate. = TRUE)
}

# example of generated wrapper
g <- .silenceF(f)

# use of silencing level
for(l in 7:-7){ message("\nLevel: ", l); .silenceF(f, l)() }

# inline functions
ifun <- .silenceF(function(){ f(); invisible(1) })
ifun()
ifun <- .silenceF(function(){ f(); 1 })
ifun()
ifun <- .silenceF(function(){ f(); 1 }, 2L)
ifun()
```

addnames

### Generating Names

#### Description

Generates names or dimnames for objects.

#### Usage

```r
addnames(x, ...)
```

## Default S3 method:

```r
addnames(x, ...)
```

## S3 method for class 'vector'

```r
addnames(x, prefix = "x", sep = "", ...)
```

## S3 method for class 'array'

```r
addnames(x, prefix = letters[1:length(dim(x))], sep = "", ...)
```

## S3 method for class 'matrix'

```r
addnames(x, prefix = c("row", "col"), ...)
```
addToLogger

Arguments

- `x` object whose names are generated.
- `...` extra arguments to allow extension and passed to the next method.
- `prefix` prefix string to use. A vector can be used to specify a prefix for each dimension of `x`. Names are build as `<prefix><sep><index>`.
- `sep` separator used between the prefix and the numeric index.

Value

the input object updated with names.

---

**addToLogger**

*Enhancing RUnit Logger*

Description

Adds a function or a local variable to RUnit global logger.

Usage

```
addToLogger(name, value, logger = NULL)
```

Arguments

- `name` name of the function or variable to add
- `value` object to append to the logger. If `value` is a function it is added to the list and is accessible via `.testLogger$name`. If `value` is a variable it is added to the local environment and is therefore accessible in all logging functions.
- `logger` an optional RUnit logger object. If missing or `NULL`, the object `.testLogger` is searched in `.GlobalEnv` – and an error is thrown if it does not exist.

Value

the modified logger object. Note that the global object is also modified if `logger` is `NULL`. 
Description

Prepend/append paths to the library path list, using .libPaths.

Usage

add_lib(..., append = FALSE)

Arguments

... paths to add to .libPath
append logical that indicates that the paths should be appended rather than prepended.

Details

This function is meant to be more convenient than .libPaths, which requires more writing if one wants to:

- sequentially add libraries;
- append and not prepend new path(s);
- keep the standard user library in the search path.

Value

Returns the new set of library paths.

Examples

ol <- .libPaths()
# called sequentially, .libPaths only add the last library
show( .libPaths(‘.’) )
show( .libPaths(tempdir()) )
# restore
.libPaths(ol)

# .libPaths does not keep the standard user library
show( .libPaths() )
show( .libPaths(‘.’) )
# restore
.libPaths(ol)

# with add_lib
show( add_lib(‘.’) )
show( add_lib(tempdir()) )
show( add_lib(‘..’, append=TRUE) )
# restore
.libPaths(old)

## alphacol

### Description

`alphacol` adds an alpha value to a colour specification and convert to a hexadecimal colour string.

### Usage

```r
alphacol(col, alpha = FALSE)
```

### Arguments

- **col**: vector of any of the three kinds of R color specifications, i.e., either a color name (as listed by `colors()`), a hexadecimal string of the form "#rrggbbaa" (see `rgb`), or a positive integer `i` meaning `palette()[i]`.
- **alpha**: logical value indicating whether the alpha channel (opacity) values should be returned.

### Value

A character vector of color specifications.

### Examples

```r
# Alphas
alphacol('red')  # do nothing
alphacol('red', 10)
alphacol('#aabbcc', 5)
alphacol(4, 5)
```
**askUser**

*User Queries*

**Description**

This function is an improved version of `userQuery` from Bioconductor **Biobase** package, which asks the user about some task that needs her intervention to proceed, e.g., ask if one should perform a computation, install a package, etc.

**Usage**

```r
askUser(
  msg,
  allowed = c("y", "n"),
  idefault = "n",
  default = "n",
  case.sensitive = FALSE
)
```

**Arguments**

- `msg`  The output message
- `allowed`  Allowed input from the user
- `idefault`  default response in interactive mode. This answer will be in upper case in the question and will be the one returned if the user simply hits return.
- `default`  default response in non-interactive mode.
  - If `NA`, then the user is forced to provide an answer, even in non-interactive mode (e.g., when run through Rscript).
- `case.sensitive`  Is the response case sensitive? Defaults to `FALSE`

**Value**

the character string typed/agreed by the user or directly the default answer in non-interactive mode.

---

**bibtex**  

*Bibtex Utilities*

**Description**

Utility functions to work with BiBTeX files.

**Usage**

```r
packageReferenceFile(PACKAGE = NULL, check = FALSE)

package_bibliography(PACKAGE = NULL, action = c("path", "copy", "load"))
```
cgetAnywhere

Arguments

<table>
<thead>
<tr>
<th>PACKAGE</th>
<th>package name. If NULL, then the name of the calling package is used.</th>
</tr>
</thead>
<tbody>
<tr>
<td>check</td>
<td>logical that indicates if the result should be an empty string if the bibliography file (or package) does not exist.</td>
</tr>
<tr>
<td>action</td>
<td>single character string that specifies the action to be performed:</td>
</tr>
<tr>
<td></td>
<td>• 'path': return the path to the bibliography file. It returns an empty character string if the file does not exist.</td>
</tr>
<tr>
<td></td>
<td>• 'copy': copy the bibliography file to the current directory, overwriting any existing REFERENCES.bib file.</td>
</tr>
<tr>
<td></td>
<td>• 'load': load the bibliography file and return a list of utils::bibentry objects. It returns NULL if the file does not exist.</td>
</tr>
</tbody>
</table>

Value

• packageReferenceFile: returns the path to the REFERENCES file as a character string.
• package_bibliography: returns the bibliography as a bibtex list object, as returned by rbibutils::readBib.

Functions

• packageReferenceFile(): returns the path to a package REFERENCES.bib file.
• package_bibliography(): returns the bibliography associated with a package. This can

Examples

packageReferenceFile('pkgmaker')
packageReferenceFile('pkgmaker', check = TRUE)

cgetAnywhere

Description

Similar to getAnywhere, but looks for the value of its argument.

Usage

cgetAnywhere(x)

Arguments

x  a single character string
**Value**

The value of `getAnywhere`.

---

**charmap**

**Substituting Strings Against a Mapping Table**

**Description**

Match the elements of a character vectors against a mapping table, that can specify multiple exact or partial matches.

**Usage**

```
charmap(x, maps, nomatch = NULL, partial = FALSE, rev = FALSE)
```

**Arguments**

- `x` character vector to match
- `maps` mapping tables. May be a character vector, a list of character vectors or a function.
- `nomatch` character string to be used for non-matched elements of `x`. If NULL, these elements are left unchanged.
- `partial` logical that indicates if partial matches are allowed, in which case mappings are used as regular expressions.
- `rev` logical that indicates if the mapping should be interpreted in the reverse way.

**Value**

A character vector.

---

**checkWarning**

**Extra Check Functions for RUnit**

**Description**

`checkWarning` checks if a warning is generated by an expression, and optionally follows an expected regular expression pattern.

**Usage**

```
checkWarning(expr, expected = TRUE, msg = NULL)
```
Arguments

expr  an R expression
expected  expected value as regular expression pattern. If a logical, then it specifies if a warning is expected or not.
For backward compatibility, a NULL value is equivalent to TRUE.
msg  informative message to add to the error in case of failure

Value

- checkWarning returns TRUE is the check is successful.

Examples

# check warnings
checkWarning({ warning('ah ah'); 3})
checkWarning({ warning('ah oh ah'); 3}, 'oh')
try( checkWarning(3) )
try( checkWarning({ warning('ah ah'); 3}, 'warn you') )

citecmd  Citing Package References

Description

Create a citation command from package specific BibTex entries, suitable to be used in Rd files or Latex documents. The entries are looked in a file named REFERENCES.bib in the package’s root directory (i.e. inst/ in development mode).

Usage

citecmd(key, ..., REFERENCES = NULL)

Arguments

key  character vector of BibTex keys
...  extra arguments passed to format.bibentry.
REFERENCES  package or bibentry specification

Value

a character string containing the text formated BibTex entries
### Description

Compile Source Files from a Development Package

### Usage

```r
compile_src(pkg = NULL, load = TRUE)
```

### Arguments

- **pkg**: the name of the package to compile
- **load**: a logical indicating whether the compiled library should be loaded after the compilation (default) or not.

### Value

Returns nothing. Used for its side effect of compiling source files.

### CRAN

#### Main CRAN Mirror URL

**Description**

CRAN simply contains the URL of CRAN main mirror ([https://cran.r-project.org](https://cran.r-project.org)), and aims at simplifying its use, e.g., in calls to `install.packages`.

**Usage**

`CRAN`

**Format**

An object of class `character` of length 1.

**Examples**

```r
install.packages('pkgmaker', repos=CRAN)
```
**digest_function**  
*Compute Function Digest Hash*

**Description**
Computes a digest hash of the body and signature of a function. Note that the hash is not affected by attributes or the function’s environment.

**Usage**
digest_function(fun, n = Inf)

**Arguments**
- `fun`: a function
- `n`: a single numeric that indicates the length of the hash.

**Details**
The hash itself is computed using `digest::digest`.

**Value**
a character string

---

**exitCheck**  
*Exit Error Checks*

**Description**
exitCheck provides a mechanism to distinguish the exit status in `on.exit` expressions.

**Usage**
extCheck()

**Details**
It generates a function that is used within a function’s body to "flag" normal exits and in its `on.exit` expression to check the exit status of a function. Note that it will correctly detect errors only if all normal exit are wrapped into a call to it.

**Value**
Either `x` or the success status when called without arguments.
Examples

```r
# define some function
f <- function(err){

  # initialise an error checker
  success <- exitCheck()

  # do something on exit that depends on the error status
  on.exit({
    if(success()) cat("Exit with no error: do nothing\n")
    else cat("Exit with error: cleaning up the mess ...\n")
  })

  # throw an error here
  if( err ) stop('There is an error')

  success(1+1)
}

# without error
f(FALSE)

# with error
try( f(TRUE) )
```

**expand_list**  
*Expanding Lists*

**Description**

`expand_list` expands a named list with a given set of default items, if these are not already in the list, partially matching their names.

**Usage**

```r
expand_list(x, ..., .exact = TRUE, .names = !.exact)
```

```r
expand_dots(..., .exclude = NULL)
```

**Arguments**

- `x`  
  input list

- `...`  
  extra named arguments defining the default items. A list of default values can also be passed as a a single unnamed argument.

- `.exact`  
  logical that indicates if the names in `x` should be partially matched against the defaults.
\texttt{expand_list}

- \texttt{.names} logical that only used when \texttt{.exact=FALSE} and indicates that the names of items in \texttt{x} that partially match some defaults should be expanded in the returned list.
- \texttt{.exclude} optional character vector of argument names to exclude from expansion.

\textbf{Value}

a list

\textbf{Functions}

- \texttt{expand_dots()}: expands the \ldots arguments of the function in which it is called with default values, using \texttt{expand_list}. It can only be called from inside a function.

\textbf{Examples}

```r
expand_list(list(a=1, b=2), c=3)
expand_list(list(a=1, b=2, c=4), c=3)
# with a list
expand_list(list(a=1, b=2), list(c=3, d=10))
# no partial match
expand_list(list(a=1, b=2, c=5), cd=3)
# partial match with names expanded
expand_list(list(a=1, b=2, c=5, cd=3, .exact=FALSE))
# partial match without expanding names
expand_list(list(a=1, b=2, c=5, cd=3, .exact=FALSE, .names=FALSE))

# works also inside a function to expand a call with default arguments
f <- function(...){
  cl <- match.call()
  expand_list(cl, list(a=3, b=4), .exact=FALSE)
}
f()
f(c=1)
f(a=2)
f(c=1, a=2)

# expanding dot arguments
f <- function(...){
  expand_dots(list(a=2, bcd="Var", xxx=20), .exclude="xxx")
}

# add default value for all arguments
f()
# add default value for \texttt{bcd} only
f(a=10)
# expand names
f(a=10, b=4)
```
Exposing Object Attributes

Description

The function ExposeAttribute creates an S3 object that exposes all attributes of any R object, by making them accessible via methods $ and/or $<-. 

Usage

ExposeAttribute(object, ..., .MODE = "rw", .VALUE = FALSE)

attr_mode(x)

attr_mode(x) <- value

Arguments

object any R object whose attributes need to be exposed

... attributes, and optionally their respective values or access permissions. See argument value of attr_mode for details on the way of specifying these.

.MODE access mode:

“r”: (read-only) only method $ is defined

“w”: (write-only) only method $<- is defined

“rw”: (read-write) both methods $ and $<- are defined

.VALUE logical that indicates if the values of named arguments in ... should be considered as attribute assignments, i.e. that the result object has these attributes set with the specified values. In this case all these attributes will have the access permission as defined by argument .MODE.

x an ExposeAttribute object

value replacement value for mode. It can be NULL to remove the ExposeAttribute wrapper, a single character string to define a permission for all attributes (e.g., 'rw' or 'r'), or a list specifying access permission for specific attributes or classes of attributes defined by regular expressions. For example, list(a='r', b='w', `bla`la.*='rw') set attribute 'a' as read-only, attribute 'b' as write-only, all attributes that start with 'bla'la' in read-write access.

Value

ExposeAttribute returns an S3 object of class ExposeAttribute.
**extractLocalFun**  
*Extracting Local Function Definition*

**Description**

`extractLocalFun` Extracts local function from wrapper functions of the following type, typically used in S4 methods:

```r
function(a, b, {...}){
  .local <- function(a, b, c, d, {...}){
    .local(a, b, {...})
  }
  .local(a, b, {...})
}
```

Works for methods that are created (setMethod) as a wrapper function to an internal function named `.local`.

**Usage**

```r
extractLocalFun(f)
allFormals(f)
```

**Arguments**

- `f` definition of the wrapper function

**Value**

- a function
- a paired list like the one returned by `formals`.

---

**factor2character**  
*Converting Factors to Character Vectors*

**Description**

Converts all factor variables to character vectors in a data.frame or phenotypic data.

**Usage**

```r
factor2character(x)
```

**Arguments**

- `x` data.frame or ExpressionSet object

**Value**

- an object of the same class as `x`.
**file_extension**

**Extract File Extension**

**Description**

Extract File Extension

**Usage**

```r
file_extension(x, ext = NULL)
```

**Arguments**

- `x`  
  path as a character vector.

- `ext`  
  extension to append instead of the original extension.

**Value**

a character vector.

**Examples**

```r
defile_extension('alpha.txt')
file_extension(paste('aa.tt', 1:5, sep=''))
# change extension
file_extension(paste('aa.tt', 1:5, sep=''), 'pdf')
file_extension(paste('aatt', 1:5, sep=''), 'pdf')
```

---

**find_devpackage**

**Find Path to Development Package Root Directory**

**Description**

Development packages are looked-up according to rules defined in a file .Rpackages in the user’s home directory.

**Usage**

```r
find_devpackage(x, error = TRUE)
```

**Arguments**

- `x`  
  name of the development package to lookup.

- `error`  
  logical that indicates if an error is thrown when the project root directory could not be found.
Value

A character string containing the path to the package.

Specification of package path

Package paths are specified in a list with:

- unnamed elements: character strings give path to directories to lookup for sub-directories that match exactly the package’s name;
- named element containing character strings: these are paths that are looked up only for packages that match the element name. If the element name contains any of the characters *?()$^\[\]., then it is matched using regular expression.

getLoadingNamespace  Namespace Development Functions

Description

getLoadingNamespace returns information about the loading namespace. It is a wrapper to loadingNamespaceInfo, that does not throw an error.

Usage

getLoadingNamespace(env = FALSE, info = FALSE, nodev = FALSE)

isLoadingNamespace(ns, nodev = FALSE)

isNamespaceLoaded2(ns)

isDevNamespace(ns)

addNamespaceExport(x)
	ns_get(x, ns = NULL, ...)

Arguments

env  logical that indicates that the namespace’s environment (i.e. the namespace itself) should be returned.
info  logical that indicates that the complete information list should be returned
nodev  logical that indicates if loading devtools namespace should be discarded.
ns  the name of a namespace or a namespace whose loading state is tested. If missing isLoadingNamespace test if any namespace is being loaded.
x  character vector containing the names of R objects to export in the loading namespace.
...  extra arguments passed to get0.
Value

the name of the loading namespace if env and info are FALSE, an environment if env=TRUE, a list with elements pkgname and libname if info=TRUE.

• isLoadingNamespace returns a logical flag.
• isNamespaceLoaded2 returns a logical flag.
• isDevNamespace returns a logical flag.
• ns_get returns the requested object or NULL if not found.

Functions

• isLoadingNamespace(): Tests if a namespace is being loaded.
• isNamespaceLoaded2(): tests if a given namespace is loaded, without loading it, contrary to isNamespace. It is similar to isNamespaceLoaded – which it uses – but also accepts environments.
• isDevNamespace(): tests the – current – namespace is a devtools namespace.
• addNamespaceExport(): Dynamically adds exported objects into the loading namespace.
• ns_get(): gets an object from a given namespace.

---

gfile

Open a File Graphic Device

Description

Opens a graphic device depending on the file extension.

Usage

gfile(filename, width, height, ...)

Arguments

filename path to the image file to create.
width output width
height output height
... other arguments passed to the relevant device function such as png or pdf.
importFrom grDevices bmp jpeg pdf png svg tiff

Value

The value of the called device function.
Description

Utility Functions for Graphics

mfrow returns a 2-long numeric vector suitable to use in `par(mfrow=x)`, that will arrange n panels in a single plot.

Usage

```r
mfrow(n)
```

Arguments

- `n` number of plots to be arranged.

Value

- a 2-long numeric vector that can be passed to `par(mfrow = <value>)`.

Examples

```r
mfrow(1)
mfrow(2)
mfrow(3)
mfrow(4)
mfrow(10)
```

Description

This function is identical to `hasArg`, except that it accepts the argument name as a character string. This avoids to have a check NOTE about invisible binding variable.

Usage

```r
hasArg2(name)
```

Arguments

- `name` the name of an argument as a character string.
**Value**

A logical flag.

**Examples**

```r
f <- function(...){ hasEnvar('abc') }
f(a=1)
f(abc=1)
f(b=1)
```

---

**Description**

Tells if some environment variable(s) are defined.

**Usage**

```r
hasEnvar(x)
```

**Arguments**

- `x` environment variable name, as a character vector.

**Value**

A logical flag.

**Examples**

```r
hasEnvar('$_R_CHECK_TIMINGS_')
hasEnvar('ABCD')
```
\textbf{inSweave} \hspace{1cm} \textit{Identifying Sweave Run}

\textbf{Description}

Tells if the current code is being executed within a Sweave document.

\textbf{Usage}

\begin{verbatim}
inSweave()
\end{verbatim}

\textbf{Value}

TRUE or FALSE

\textbf{Examples}

\begin{verbatim}
# Not in a Sweave document
inSweave()

# Within a Sweave document
\end{verbatim}

\textbf{irequire} \hspace{1cm} \textit{Require a Package with User Interaction}

\textbf{Description}

Like base \texttt{require}, \texttt{irequire} tries to find and load a package, but in an interactive way, i.e. offering the user to install it if not found.

\textbf{Usage}

\begin{verbatim}
irequire(
    package, 
    lib = NULL,
    ..., 
    load = TRUE,
    msg = NULL,
    quiet = TRUE,
    prependLF = FALSE,
    ptype = c("CRAN-like", "BioC", "BioCsoft", "BioCann"),
    autoinstall = !interactive()
)
\end{verbatim}
isCRANcheck

Arguments

package
name of the package

lib
path to the directory (library) where the package is to be looked for and installed if agreed by the user.

... extra arguments passed to `install.packages`.

load
a logical that indicates if the package should be loaded, possibly after installation.

msg
message to display in case the package is not found when first trying to load/find it. This message is appended to the string "Package '<packagename>' is required".

quiet
logical that indicates if loading a package should be done quietly with `require.quiet` or normally with `require`.

prependLF
logical that indicates if the message should start at a new line.

ptype

autoinstall
logical that indicates if missing packages should just be installed without asking with the user, which is the default in non-interactive sessions.

Value

TRUE if the package was successfully loaded/found (installed), FALSE otherwise.

See Also

Other require: `require.quiet()`

---

isCRANcheck Package Check Utils

Description

isCRANcheck tries to identify if one is running CRAN-like checks.

Usage

isCRANcheck(...) 

isCRAN_timing()

isCHECK()
isCRANcheck

Arguments

... each argument specifies a set of tests to do using an AND operator. The final result tests if any of the test set is true. Possible values are:

'timing' Check if the environment variable _R_CHECK_TIMINGS_ is set, as with the flag '--timing' was set.
'cran' Check if the environment variable _R_CHECK_CRAN_INCOMING_ is set, as with the flag '--as-cran' was set.

Details

Currently isCRANcheck returns TRUE if the check is run with either environment variable _R_CHECK_TIMINGS_ (as set by flag '--timings') or _R_CHECK_CRAN_INCOMING_ (as set by flag '--as-cran').

Warning: the checks performed on CRAN check machines are on purpose not always run with such flags, so that users cannot effectively "trick" the checks. As a result, there is no guarantee this function effectively identifies such checks. If really needed for honest reasons, CRAN recommends users rely on custom dedicated environment variables to enable specific tests or examples.

Value

A logical flag.

Functions

- isCRAN_timing(): tells if one is running CRAN check with flag '--timing'.
- isCHECK(): tries harder to test if running under R CMD check. It will definitely identifies check runs for:
  - unit tests that use the unified unit test framework defined by pkgmaker (see utest);
  - examples that are run with option _R_CHECK_RUNNING_EXAMPLES_=TRUE, which is automatically set for man pages generated with a fork of roxygen2 (see References).

Currently, isCHECK checks both CRAN expected flags, the value of environment variable _R_CHECK_RUNNING_UTESTS_, and the value of option _R_CHECK_RUNNING_EXAMPLES_. It will return TRUE if any of these environment variables is set to anything not equivalent to FALSE, or if the option is TRUE. For example, the function utest sets it to the name of the package being checked (_R_CHECK_RUNNING_UTESTS_=<pkgname>), but unit tests run as part of unit tests vignettes are run with _R_CHECK_RUNNING_UTESTS_=FALSE, so that all tests are run and reported when generating them.

References

Adapted from the function CRAN in the fda package.

https://github.com/renozao/roxygen

Examples

isCHECK()
**Description**

Testing Object Type

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>is.NA</code></td>
<td>Tests if a variable is exactly NA</td>
</tr>
<tr>
<td><code>isFALSE</code></td>
<td>Tests if a variable is exactly FALSE</td>
</tr>
<tr>
<td><code>isNumber</code></td>
<td>Tests if a variable is a single number</td>
</tr>
<tr>
<td><code>isReal</code></td>
<td>Tests if a variable is a single real number</td>
</tr>
<tr>
<td><code>isInteger</code></td>
<td>Tests if an object is a single integer</td>
</tr>
<tr>
<td><code>isString</code></td>
<td>Tests if an object is a character string.</td>
</tr>
<tr>
<td><code>is.dir</code></td>
<td>Tests if a filename is a directory.</td>
</tr>
<tr>
<td><code>is.file</code></td>
<td>Tests if a filename is a file.</td>
</tr>
<tr>
<td><code>hasNames</code></td>
<td>Tests if an object has names.</td>
</tr>
</tbody>
</table>

**Usage**

- `is.NA(x)`
- `isFALSE(x)`
- `isNumber(x)`
- `isReal(x)`
- `isInteger(x)`
- `isString(x, y, ignore.case = FALSE)`
- `is.dir(x)`
- `is.file(x)`
- `hasNames(x, all = FALSE)`

**Arguments**

- `x`: an R object
- `y`: character string to compare with.
- `ignore.case`: logical that indicates if the comparison should be case sensitistive.
- `all`: logical that indicates if the object needs all names non empty
iterCount

Simple Text Iteration Counter

Description
Simple Text Iteration Counter

Usage
iterCount(n = 100, i0 = 0L, title = "Iterations", extra = NULL, verbose = TRUE)

Arguments
- `n`: number of total steps
- `i0`: starting step
- `title`: character string to use as title
- `extra`: character vector providing extra text to add at each step
- `verbose`: logical that toggles the counter

Value
A function that can be used to increment progress.

Examples

```r
progress <- iterCount(LETTERS)
res <- sapply(LETTERS, function(x){
  Sys.sleep(.1)
  progress()
})
# terminate counter
i_end <- progress(NULL)
i_end
```
Description

knit_ex is a utility function for running small knitr examples, e.g., to illustrate functionalities or issues.

hook_backspace is a chunk hook that enables the use of backspace characters in the output (e.g., as used in progress bars), and still obtain a final output as in the console.

Usage

knit_ex(x, ..., quiet = TRUE, open = FALSE)

hook_try(before, options, envir)

hook_backspace()

hook_toggle()

Arguments

x text to knit as a character vector

... arguments passed to knit2html or knit

quiet logical that indicates if knitting should be quiet (no progress bars etc.).

open logical, only used when x is in .Rmd format, that indicates if the generated document result should be open in a browse, instead of being printed on screen. Not that a browser will not open in non-interactive sessions, and the result will be returned invisibly.

before logical that indicates when the hook is being called: before or after the chunk is processed.

options list of current knitr chunk options

envir environment where the chunk is evaluated

Value

knit_ex returns the generated code, although invisibly when open=TRUE.

- hook_try returns a function.

- hook_backspace returns a function.

- hook_toggle: returns a hook function.
Functions

- hook_try(): is a knitr hook to enable showing error messages thrown by `try`. The function is not meant to be called directly, but only registered using `knitr::knit_hooks` (see details on this dedicated man page).

  This simply defines a function `try` in `envir` that prints the error message if any, and is called instead of base `try`.

- hook_toggle(): a chunk hook that adds clickable elements to toggle *individual* code chunks in HTML documents generated from .Rmd files.

Examples

```r
library(knitr)
kniex("1 + 1")

library(knitr)

# standard error message is caught
kniex("stop(‘ah ah’)")

# with try the error is output on stderr but not caught by knitr
kniex("try( stop(‘ah ah’) )")

# no message caught
kniex(""
^^{r, include = FALSE}
kniit_hooks$set(try = pkgmaker::hook_try)
^^^

^^{r, try=TRUE}
try( stop(‘ah ah’) )
^^^")

# Correctly formatting backspaces in chunk outputs
tmp <- tempfile(fileext = "_.Rmd")
cat(file = tmp, 
^^^^{r, include = FALSE}
library(knitr)
kniit_hooks$set(backspace = pkgmaker::hook_backspace())
^^^
Default knitr does not handle backspace and adds a special character:
^^^^{r}
cat(’abc\bd’)
^^^

Using the hook backspace solves the issue:
```r
## Declare chunk hook:
library(knitr)
knit_hooks$set(toggle = hook_toggle())

## The R code of this chunk can be toggled on/off, and starts visible:
print(1:10)

## The R code of this chunk can be toggled on/off, and starts hidden:
print(1:10)

## This is a plain chunk that cannot be toggled on/off:
print(1:10)

## Now all chunks can be toggled and start visible:
opts_chunk$set(toggle = TRUE)
```
latex_preamble

\^\^\^\^\^{}
\^\^\^\^\^{}(r)
sample(5)
\^\^\^\^\^{}

To disable the toggle link, one can pass anything except TRUE/FALSE:
\^\^\^\^\^{}(r, toggle = NA)
sample(5)
\^\^\^\^\^{}

", open = FALSE)

latex_preamble  LaTeX Utilities for Vignettes

Description

latex_preamble outputs/returns LaTeX command definitions to be put in the preamble of vignettes.

Usage

latex_preamble(
    PACKAGE,
    R = TRUE,
    CRAN = TRUE,
    Bioconductor = TRUE,
    GEO = TRUE,
    ArrayExpress = TRUE,
    biblatex = FALSE,
    only = FALSE,
    file = ""
)

latex_bibliography(PACKAGE, file = "")

Arguments

<table>
<thead>
<tr>
<th>PACKAGE</th>
<th>package name</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>logical that indicate if general R commands should be added (e.g. package names, inline R code format commands)</td>
</tr>
<tr>
<td>CRAN</td>
<td>logical that indicate if general CRAN commands should be added (e.g. CRAN package citations)</td>
</tr>
</tbody>
</table>
Bioconductor logical that indicate if general Bioconductor commands should be added (e.g. Bioc package citations)

GEO logical that indicate if general GEOmnibus commands should be added (e.g. urls to GEO datasets)

ArrayExpress logical that indicate if general ArrayExpress commands should be added (e.g. urls to ArrayExpress datasets)

biblatex logical that indicates if a \bibliography command should be added to include references from the package’s REFERENCES.bib file.

only a logical that indicates if the only the commands whose dedicated argument is not missing should be considered.

file connection where to print. If NULL the result is returned silently.

Details

Argument PACKAGE is not required for latex_preamble, but must be correctly specified to ensure biblatex=TRUE generates the correct bibliography command.

Value

A character string or nothing and output the command to stdout.

Functions

- latex_bibliography(): latex_bibliography prints or return a LaTeX command that includes a package bibliography file if it exists.

Examples

latex_preamble()
l tidy_preamble(R=TRUE, only=TRUE)
l tidy_preamble(R=FALSE, CRAN=FALSE, GEO=FALSE)
l tidy_preamble(GEO=TRUE, only=TRUE)

list.data

Description

Lists data objects that are shipped within package(s).

Usage

list.data(package = NULL)
Arguments

package a single character string that specifies the name of a particular package where to look for data objects.

Value

a data.frame object with columns:

• package: name of the package that holds the data object.
• data: name of the key to use in utils::data or ldata to load the data object.
• object: name of the (sub-)object that is contained in the data object.

See Also

utils::data, ldata

Examples

# list all data objects
head(list.data())

# list all data objects in package 'datasets'
subset(list.data("datasets"), data %in% "beavers")

Description

Lists binary library files in a directory

Usage

list.libs(dir, ..., all.platforms = FALSE)

libname(x)

Arguments

dir directory
... extra arguments passed to list.files.
all.platforms a logical that indicates whether to list library files for the current platform only (default) or all platforms (Unix, Windows, Mac).
x a filename
load_all_file

Value

a character vector

Functions

• `libname()`: extracts library names from a path, removing the directory part of the path, as well as the platform specific library extension.

Examples

```r
libname('mylib.so')
libname('/some/path/somewhere/mylib.dll')
```

load_all_file

Generate a Loading Script for Development Packages

Description

Writes a script file that contains code that loads a given development package.

Usage

```r
load_all_file(path = path.package(package), package, dest = NULL)
```

Arguments

- `path`: a character string that contains the path to the development package.
- `package`: the name of the package for which the loading script must be generated. It must be a package that has already been loaded with `devtools::load_all` in the current session, so that its path can be retrieved.
- `dest`: the path to script file to create (as a character string). If not provided, then the script is written in a temporary .R file with prefix "load_all_<pkgname>".

Details

This is useful when we want to load a development package in batchtools registries:

```r
library(devtools)
library(batchtools)

load_all("path/to/pkgA")
makeRegistry(..., source = load_all_file("pkgA"))
```

Value

a character string that contains the path to the script file.
load_project

**Load Development Package**

**Description**

Load Development Package

**Usage**

```r
load_project(
  pkg,
  reset = FALSE,
  ..., 
  utests = TRUE,
  verbose = FALSE,
  addlib = TRUE,
  character.only = FALSE,
  try.library = FALSE
)

library_project(...)```

**Arguments**

- **pkg** name of the package/project to load.
- **reset** logical that indicates if the package should be reloaded (passed to `load_all`.
- **...** other arguments passed to `load_all`.
- **utests** logical that indicates if an environment containing the unit test functions should be created. If `TRUE` this environment is accessible at `pkgname::UnitTests$test.filename.r$function.name`.
- **verbose** logical that indicates if log messages should be printed.
- **addlib** logical that indicates if the `lib/` sub-directory, if it exists, should be prepended to the library path. This enables to control the version of the loaded dependencies.
- **character.only** logical that indicates if argument `pkg` should be evaluated or taken litteral.
- **try.library** logical that indicates if projects that could not be found should be looked up in the installed packages.

**Value**

Invisibly the package object of the loaded package.

**Functions**

- `library_project()`: shortcut for `load_project(..., try.library = TRUE)`, to load project code from installed library if not found as a development project. All its arguments are passed to `load_project`. 

lverbose \hspace{1cm} \textit{Logging Feature}

\textbf{Description}

\texttt{lverbose} returns/sets the current verbosity level.

\textbf{Usage}

\texttt{lverbose(val, global = FALSE)}

\texttt{lsilent()}

\texttt{is.verbose()}

\texttt{lmessage(level, \ldots, appendLF = TRUE, sep = "", force = FALSE)}

\texttt{vmessage(\ldots)}

\texttt{log_append(\ldots)}

\textbf{Arguments}

\begin{itemize}
  \item \texttt{val}: logical/numeric value that sets the verbosity level.
  \item \texttt{global} \hspace{1.5cm} \text{logical that indicates if the verbose level of all log handlers should be set to \texttt{val}.}
  \item \texttt{level} \hspace{1.5cm} \text{verbosity level threshold (numeric value) above which the message should be printed out. This threshold is compared with the current verbosity level as returned by \texttt{lverbose}.}
  \item \texttt{\ldots} \hspace{1.5cm} \text{parts of a character message that are concatenated and passed to the current logger's write function.}
  \item \texttt{appendLF} \hspace{1.5cm} \text{logical indicating if an endline character should be appended at the end of the message.}
  \item \texttt{sep} \hspace{1.5cm} \text{separation character, used when concatenating all arguments in \ldots.}
  \item \texttt{force} \hspace{1.5cm} \text{logical that indicates if one should output messages or return a non null logger, even if the verbose mode is not high enough.}
\end{itemize}

\textbf{Value}

the old verbose level

\textbf{Functions}

- \texttt{lsilent()}: tells if all verbose messages are silenced.
- \texttt{is.verbose()}: tells if verbosity is on, i.e. at level greater than 0.
• `lmessage()`: prints out a message (on stdout) if the verbosity level is greater than a given value.
• `vmessage()`: prints out a log message (at level 1) using the current logger, typically on stdout. It is a shortcut for `lmessage(1L, ...)`
• `log_append()`: directly appends some message to the current log line.

---

**makeFakeVignette**

*Generate a Fake Vignette*

**Description**

Generate a Fake Vignette

**Usage**

```r
makeFakeVignette(src, out, PACKAGE = NULL)
```

**Arguments**

- `src`: original Sweave file
- `out`: output file
- `PACKAGE`: package name where to look the source vignette

**Value**

No return value, called to create a vignette file.

---

**makeUnitVignette**

*Make Vignette for Unit Tests*

**Description**

Builds a vignette for unit tests in a package using the `utest` and a template vignette file.

**Usage**

```r
makeUnitVignette(
  pkg,
  file = paste(pkg, "-unitTests.pdf", sep = ""),
  ..., 
  check = FALSE
)
```
**make_vignette_auxfiles**

*Generate RMarkdown Vignette Auxiliary Files*

**Description**

Generate RMarkdown Vignette Auxiliary Files

**Usage**

```r
make_vignette_auxfiles(
  PACKAGE,
  input = NULL,
  bibfile = "library.bib",
  Rpkg.prefix = "Rpackage_",
  ...
)
```

**Arguments**

- **PACKAGE**
  - package name
- **input**
  - vignette source file. If NULL then the current file is obtained via a call to `knitr::current_input`.
- **bibfile**
  - output file for R package citations.
- **Rpkg.prefix**
  - prefix to use when generating the bibtex entries of cited R packages. If `Rpkg.prefix` = `Rpackage_`, then Rmardown citations should be `@Rpackage_mypkg`.
- **...**
  - other arguments passed to `latex_preamble`

**Details**

To use this feature add the following in your YAML header:

```yaml
header-includes:
  - \input{"r pkgmaker::make_vignette_auxfiles('pkgmaker')\"}
```

bibliography: library.bib
messagef

Value
Path to the preamble file.

Description
Generate a formatted diagnostic message. This function is a shortcut for `message(sprintf(...))`.

Usage
```
messagef(fmt, ..., domain = NULL, appendLF = TRUE)
wnote(..., immediate. = TRUE)
```

Arguments
- `fmt` a character vector of format strings, each of up to 8192 bytes.
- `...` values to be passed into `fmt`. Only logical, integer, real and character vectors are supported, but some coercion will be done: see the ‘Details’ section. Up to 100.
- `domain` see `gettext`. If `NA`, messages will not be translated, see also the note in `stop`.
- `appendLF` logical: should messages given as a character string have a newline appended?
- `immediate.` logical, indicating if the call should be output immediately, even if `getOption("warn")` <= 0.

Value
Returns nothing. Used for their side effects of printing messages/warnings.

Functions
- `wnote()`: throws a simple note as an immediate warning. It is a shortcut for `warning(..., immediate. = TRUE, call. = FALSE)`.

See Also
`sprintf`, `message`

Examples
```
messagef("Hello %s number %i", 'world', 4)
```
mkoptions

Quick Option-like Feature

Description

mkoptions is a function that returns a function that behaves like options, with an attached internal/local list of key-value pairs.

Usage

mkoptions(...)

.options(..., .DATA)

Arguments

... list of keys or key-value pairs. For mkoptions these define initial/default key-value pairs.

.DATA a list or an environment with an element .options.

Value

mkoptions returns a function.

Functions

- .options(): is a low-level function that mimics the behaviour of the base function options, given a set of key-value pairs. It is the workhorse function used in mkoptions and package-specific option sets (see setupPackageOptions)

See Also

setupPackageOptions

Examples

f <- mkoptions(a=3, b=list(1,2,3))
str(f())
f('a')
f('b')
str(old <- f(a = 10))
str(f())
f(old)
str(f())
**Alternative S4 Constructor**

**Description**

An alternative version of `new` to create objects based on a list of values.

**Usage**

```
new2(class, 

Arguments

- **class**  
  Class name to instantiate

- **...**  
  Extra arguments from which slot values are extracted by exact matching of names.

**Value**

An S4 object.

**Examples**

```r
setClass('A', contain='character', representation(x='numeric', y='character'))

# identical behaviour with standard calls
identical(new('A'), new2('A'))
identical(new('A', x=1), new2('A', x=1))

# but if passing that are names not slots
identical(new('A'), new2('A', b=1))
identical(new('A', x=1), new2('A', x=1, b=3))
identical(new('A', x=1), new2('A', x=1, b=3))

# standard 'new' would coerce first unnamed argument into parent of 'A' (i.e. 'character')
new('A', list(x=1))
new('A', list(x=1, y='other'))
# 'new2' rather use it to initialise the slots it can find in the list
identical(new('A', x=1), new2('A', list(x=1)))
identical(new('A', x=1, y='other'), new2('A', list(x=1, y='other')))```
oneoffVariable  

One-off Global Variables

Description

Defines a function that allow to get/assign a global variable whose value is ensured to be reset after each access.

Usage

oneoffVariable(default = NULL)

Arguments

default  

default value to which the global variable is reset after each access. Default is NULL.

Value

a function with one argument (value) that provides get/set access to a global variable. If called with a value, it assigns this value to the global variable. If called with no argument, it returns the current value of the global variable and reset it to its default value – as defined at its creation.

Examples

```
x <- oneoffVariable(0)  
# returns default value  
x()  
# assign a value  
x(3)  
# get the value  
x()  
# second call returns default value again  
x()
```

onLoad  

Default Load/Unload Functions

Description

Default Load/Unload Functions
Usage

onLoad(libname = NULL, pkgname, chname = packageName())
onUnload(libpath)

Arguments

libname a character string giving the library directory where the package defining the namespace was found.
pkgname a character string giving the name of the package.
chname a character string naming a DLL (also known as a dynamic shared object or library) to load.
libpath a character string giving the complete path to the package.

Value

Returns nothing, used only for their side-effects.

Examples

# in a package namespace:
.onLoad <- function(libname=NULL, pkgname){
  pkgmaker::onLoad(libname, pkgname)
}

# in a package namespace:
.onUnload <- function(libpath){
  pkgmaker::onUnload(libpath)
}

---

option_symlink option_symlink creates a symbolic link to option x.

Description

option_symlink creates a symbolic link to option x.

is_option_symlink tests if x is a symbolic link option.

option_symlink_target returns the end target option of a symbolic link option x.

as.package_options creates an object such as the ones used to stores package specific options.

The method [[ is equivalent to options() or getOption(...): e.g. obj[[ ]] returns the list of options defined in obj, and obj[['abc']] returns the value of option 'abc'.
packageOptions provides access to package specific options from a given package that were defined with setupPackageOptions, and behaves as the base function options.

listPackageOptions returns the names of all option currently defined with setupPackageOptions.

Usage

option_symlink(x)

is_option_symlink(x, opts)

option_symlink_target(x, opts)

as.package_options(..., defaults = NULL)

## S3 method for class 'package_options'
x[[...]]

packageOptions(..., PACKAGE = packageName())

listPackageOptions()

Arguments

x a character string, a list or an object of class package_options.

opts a list of options

... Arguments passed on to base::options

defaults NULL or a list of default options with their values.

PACKAGE a package name

Value

• packageOptions returns a list of package-specific options.

• listPackageOptions returns a character vector (possibly empty).

Examples

listPackageOptions()
orderVersion  

**Ordering Version Numbers**  

**Description**  

Orders a vector of version numbers, in natural order.  

**Usage**  

`orderVersion(x, ... , decreasing = FALSE)`  

`sortVersion(x, ... )`  

**Arguments**  

- `x`  
  a character vector of version numbers  

- `...`  
  extra parameters passed to `orderVersion` and `order`  

- `decreasing`  
  a logical that indicates if the ordering should be decreasing  

**Value**  

A character vector.  

**Examples**  

```r  
v <- c("1.0", "1.03", "1.2")  
order(v)  
orderVersion(v)  

sort(v)  
sortVersion(v)  
```

---

packageData  

**Loading Package Data**  

**Description**  

Loads package data using `data`, but allows the user to avoid NOTEs for a ‘non visible binding variable’ to be thrown when checking a package. This is possible because this function returns the loaded data.
packageData

Usage

packageData(
  list,
  envir = .GlobalEnv,
  ..., 
  options = NULL,
  stringsAsFactors = getOption("stringsAsFactors")
)

ldata(list, ..., package = NULL, error = TRUE, simplify = TRUE)

Arguments

list character vector containing the names of the data to load.
envir the environment where the data should be loaded.
... other arguments eventually passed to data.
options list of R options to set before calling data. This may be useful the data is shipped as an R script.
stringsAsFactors logical that indicates if character columns of tabular data should be converted into factors.
package a character vector giving the package(s) to look in for data sets, or NULL.
  By default, all packages in the search path are used, then the ‘data’ subdirectory (if present) of the current working directory.
error a logical that indicates whether an error should be thrown if the requested data cannot be found.
simplify logical that indicates if queries of one object only (i.e. argument list is of length one) should return the data object itself.

Value

the loaded data.

Functions

• ldata(): loads a package data in the parent frame. It is a shortcut for packageData(list, ..., envir=parent.frame()).

Examples

## Not run:
mydata <- packageData('mydata')

## End(Not run)
# in a package source => won’t issue a NOTE
myfunction <- function(){
  mydata <- ldata('mydata')
}

---

**packageEnv**  
*Package Development Utilities*

**Description**

`packageEnv` is a slight modification from `topenv`, which returns the top environment, which in the case of development packages is the environment into which the source files are loaded by `load_all`.

**Usage**

```r
packageEnv(pkg, skip = FALSE, verbose = FALSE)
topns_name(n = 1L, strict = TRUE, unique = TRUE)
topns(strict = TRUE)
packageName(envir = packageEnv(), .Global = FALSE, rm.prefix = TRUE)
str_ns(envir = packageEnv())
packagePath(..., package = NULL, lib.loc = NULL, check = TRUE)
isPackageInstalled(..., lib.loc = NULL)
```  

**Arguments**

- **pkg**  
  package name. If missing the environment of the runtime caller package is returned.

- **skip**  
  a logical that indicates if the calling namespace should be skipped.

- **verbose**  
  logical that toggles verbosity

- **n**  
  number of namespaces to return

- **strict**  
  a logical that indicates if the global environment should be considered as a valid namespace.

- **unique**  
  logical that indicates if the result should be reduced to contain only one occurrence of each namespace.

- **envir**  
  environment where to start looking for a package name. The default is to use the **runtime** calling package environment.
.Global   a logical that indicates if calls from the global environment should throw an error (FALSE: default) or the string 'R_GlobalEnv'.

rm.prefix logical that indicates if an eventual prefix `package:' should be removed from the returned string.

... arguments passed to file.path.

package   optional name of an installed package

lib.loc   path to a library of R packages where to search the package

check   logical that indicates if an error should be thrown if the path to the package root directory cannot be found. If this is the case and check = FALSE, then the function returns NULL.

x package specified by its installation/development path or its name as 'package:*'.

quiet   a logical that indicate if an error should be thrown if a package is not found. It is also passed to find.package.

extract logical that indicates if DESCRIPTION of package source files should be extracted. In this case there will be no valid path.

Value

- packageEnv returns an environment
- topns_name returns the name of the namespace a character string.
- topns returns an environment.
- packageName returns a character string
- packagePath returns a character string.
- as_package returns a package object like devtools::as.package.

Functions

- topns_name(): returns the name of the runtime sequence of top namespace(s), i.e. the name of the top calling package(s), from top to bottom.
  The top namespace is is not necessarily the namespace where topns_name is effectively called. This is useful for packages that define functions that need to access the calling namespace, even from calls nested into calls to another function from the same package – in which case topenv would not give the desired environment.
- topns(): returns the runtime top namespace, i.e. the namespace of the top calling package, possibly skipping the namespace where topns is effectively called. This is useful for packages that define functions that need to access the calling namespace, even from calls nested into calls to another function from the same package – in which case topenv would not give the desired environment.
- packageName(): returns the current package’s name. It was made internal from version 0.16, since the package utils exported its own packageName function in R-3.0.0.
- str_ns(): formats a package environment/namespace for log/info messages.
• packagePath(): returns the current package’s root directory, which is its installation/loading
directory in the case of an installed package, or its source directory served by devtools.

• isPackageInstalled(): checks if a package is installed.
  – isPackageInstalled returns a logical flag.

• as_package(): an enhanced version of as.package, that is not exported not to mask the
original function. It could eventually be incorporated into devtools itself. Extra arguments
in ... are passed to find.package.

---

**packageReference**

**Package References**

---

**Description**

Create a citation string from package specific BibTex entries, suitable to be used in Rd files. The
entries are looked in a file named REFERENCES.bib in the package’s root directory (i.e. inst/ in
development mode).

**Usage**

packageReference(key, short = FALSE, PACKAGE = NULL)

**Arguments**

- **key**
  character vector of BibTex keys

- **short**
  logical that indicates if the reference should be shorten as First Author et al. if
  it has more than one author.

- **PACKAGE**
  package in which the BiBTeX entry is defined.

**Value**

a character string containing the text formatted BibTex entries

---

**packageRegistry**

**Package Registry**

---

**Description**

packageRegistry provides ways to create query package specific registries.
Usage

packageRegistry(
  regname = NULL,
  quiet = FALSE,
  entry = FALSE,
  update = !entry,
  package = topenv(parent.frame())
)

dasthan(rega = NULL, package = NULL, primary = FALSE)

hasPackageRegistry(regname = NULL, package)

setPackageRegistry(
  regname,
  regobj,
  description = "",
  entrydesc = NA,
  ...
  package = topenv(parent.frame()),
  overwrite = FALSE
)

setPackageRegistryEntry(
  regname,
  key,
  ...
  overwrite = FALSE,
  verbose = FALSE,
  where = topenv(parent.frame()),
  msg = NULL
)

Arguments

regname | Name of a sub-registry, used as its identifier.
quiet | a logical that indicates that one should return the (meta-)registry if it exists, or NULL otherwise, without throwing any error.
entry | logical that indicates if the corresponding meta registry entry should be directly returned, without any other processing.
update | logical that indicates if the package registry should be updated, by adding/removing entries from other loaded/unloaded packages.
package | package where to store or look for the registry.
primary | logical that indicates if only primary registries should be listed.
regobj | a registry object or a single character string that indicates the class of the objects that are stored in the sub-registry. See details for the list of the sub-registry's fields in this latter case.
description short description line about the registry. It is recommended to provide such
description as it makes clearer the purpose of the registry. This description is
shown when the registry object is printed/formatted/listed.

entrydesc human readable description that is used in log messages when registering/removing
entries.

overwrite a logical that indicate if an existing registry with the same should be overwritten
if it exists.

key entry identifier.

verbose a logical that indicates if verbosity should be toggle on.

where package name or namespace that owns the registry.

msg addon message to print at the end of the output log line, when verbose=TRUE.

Details

Package registries are organised in a meta-registry (a registry of registries) within a package’s
namespace. Each registry can be used to store sets of built-in or user-defined objects in an organised
way, e.g. algorithms or datasets.

A package meta-registry is a registry object, whose entries are registry objects themselves. A
sub-registry entry is defined by the following fields:

key The sub-registry’s accession key/identifier (a character string).
regobj The sub-registry itself (a registry object)
description Human readable description of the purpose of the registry (a character string)
description Short human readable description of the type of entries (a character string)
package owner package, which is forced to be the package in which the meta registry is defined.
parent The name of the package that holds the parent registry, which we call the primary package.
This field is non empty for cross-package registries, i.e. registries that derive from primary
package’s own registry. Their entries are defined when (lazy-)loading the dependent package’s
namespace.

Note that this function cannot be called from the global environment, but from a package names-
pace, e.g., when a package is lazy-loaded on installation or loaded via the function load_all from
the devtools package.

Value

a registry object or NULL (see argument quiet).

Functions

- packageRegistries(): lists registries from loaded packages.
- hasPackageRegistry(): tells if a given package has a meta-registry or a given registry.
- `setPackageRegistry()`: creates a package-specific registry within a package. Each package sub-registry has its own set of fields. Sub-registries defined by passing a character string in argument `regobj` of `setPackageRegistry` have the following fields: 'key' and 'object'.
- `setPackageRegistryEntry()`: adds an entry in a package registry.

---

<table>
<thead>
<tr>
<th>function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>packageTestEnv</code></td>
<td>Returns the package internal environment where unit tests are stored.</td>
</tr>
</tbody>
</table>

**Description**

Returns the package internal environment where unit tests are stored.

**Usage**

`packageTestEnv(pkg)`

**Arguments**

- `pkg` package name. If missing the caller's package is assumed.

**Value**

An environment.

---

<table>
<thead>
<tr>
<th>function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>parsePackageCitation</code></td>
<td>Formatting Package Citations in Sweave/knitr Documents</td>
</tr>
</tbody>
</table>

**Description**

Formatting Package Citations in Sweave/knitr Documents

**Usage**

`parsePackageCitation(x)`

**Arguments**

- `x` output document, as a single string.

**Value**

A character vector of citation references.
Deprecation in pkgmaker

Description

These functions have been deprecated and will be defunct in the next release.

Usage

requirePackage(pkg, ...)

Arguments

pkg    package name to load.
...   extra arguments

Value

• requirePackage: returned no value, called to load a package.

Postponing Actions

Description

This function implement a mechanism to postpone actions, which can be executed at a later stage. This is useful when developing packages, where actions that need to be run in the \texttt{.onLoad} function but can be defined close to their context.

Usage

postponeAction(
expr,
key = digest(tempfile()),
group = NULL,
envir = topns(strict = FALSE),
verbose = getOption("actions.verbose", getOption("verbose")))

runPostponedAction(
group = NULL,
verbose = getOption("actions.verbose", getOption("verbose")))
Arguments

- **expr**: expression that define the action to postpone. Currently only functions are supported.
- **key**: identifier for this specific action. It should be unique across the postponed actions from the same group.
- **group**: optional parent action group. This enables to define meaningful sets of actions that can be run all at once.
- **envir**: environment in which the action should be executed. Currently not used.
- **verbose**: logical that toggles verbose messages.

Value

`postponeAction` returns the names of the postponed actions.

Examples

```r
opt <- options(actions.verbose=2)

# define actions
postponeAction(function(){print(10)}, "print")
postponeAction(function(){print(1:10)}, "more")
postponeAction()

# execute actions
runPostponedAction()
runPostponedAction()

# restore options
options(opt)
```

quickinstall | Quick Installation of a Source Package

Description

Builds and install a minimal version of a package from its source directory.

Usage

```r
quickinstall(
  path,
  destdir = NULL,
  vignettes = FALSE,
  force = TRUE,
  ...,  
  lib.loc = if (!is.null(destdir)) TRUE
)
```
**Arguments**

- **path**: path to the package source directory
- **destdir**: installation directory. If NULL, the package is installed in the default installation library. If NA, the package is installed in a temporary directory, whose path is returned as a value.
- **vignettes**: logical that indicates if the vignettes should be rebuilt and installed.
- **force**: logical that indicates if the package should be installed even if a previous installation exists in the installation library.
- **...**: extra arguments passed to R.CMD
- **lib.loc**: library specification. If TRUE then the installation directory destdir is added to the default library paths. This can be useful if dependencies are installed in this directory. If NULL, then the default library path is left unchanged.

**Value**

quickinstall returns the path of the library where the package was installed.

---

**R.exec**

* Executing R Commands

**Description**

Functions to execute R commands.

**Usage**

R.exec(..., lib.loc = NULL)

R.CMD(cmd, ...)

R.SHLIB(libname, ...)

**Arguments**

- **...**: extra arguments that are concatenated and appended to the command.
- **lib.loc**: logical that indicates if the current library locations should be used. If a character vector, then it is used as the library path specification.
- **cmd**: command to run, e.g. ‘check’ or ‘INSTALL’.
- **libname**: name of the output compiled library

**Value**

Returns the value of executing the R command via system.
Functions

- `R.exec()`: executes a single R command via `system2`.
- `R.CMD()`: executes R CMD commands.
- `R.SHLIB()`: executes R CMD SHLIB commands.

---

**RdSection2latex**  
*Format Rd Sections into LaTeX*

**Description**

This function extract sections from Rd files and convert them into LaTeX code. This can be useful to include Rd text into vignettes, hence keeping them up to date.

**Usage**

```r
RdSection2latex(topic, package, i = 1L, notitle = TRUE)
```

**Arguments**

- `topic`: Rd topic
- `package`: package in which to search the topic
- `i`: index of the section to format
- `notitle`: logical that indicates if the section’s title should be removed

**Value**

Nothing, just prints the LaTeX code on console.

**Example section**

This is a nice section, with a bullet list:

- tata
- toto

**Examples**

```r
RdSection2latex('RdSection2latex', package = 'pkgmaker')
```
read.yaml_section  

Reads YAML Options Embedded into a File

Description

Reads YAML Options Embedded into a File

Usage

read.yaml_section(section, file = "~/.Rprofile", text = NULL)

Arguments

section  

section name to lookup in the file. In the file this defined by paired tags "#<section_name>", "#/section_name>", or a single tag "#<section_name@file_path>" that redirect to a YAML file.

file  

path to the file to parse. Default is to parse the user’s .Rprofile.

text  

text to parse. If provided, then argument file is not used.

Value

Returns a list representation of the YAML header

regfetch  

Finds an entry in a registry.

Description

This function provides extra control on how entries are queried from a registry object.

Usage

regfetch(
  regobj,
  ...,
  all = FALSE,
  error = TRUE,
  exact = FALSE,
  KEYS = NULL,
  verbose = FALSE,
  entry = FALSE,
  msg = NULL
)

pkgreg_fetch(regname, ..., msg = NULL, where = toenv(parent.frame()))
pkgreg_remove(
  regname,
  ...,  
  msg = NULL,
  where = toplevel(parent.frame()),
  quiet = FALSE
)

Arguments

regobj  a registry object

...  key value(s) to look up. If multiple indexes are used, then the primary key should come first.

all  logical to indicate if hidden keys (starting with a ".") should be returned and output in message.

error  a logical that indicates if an error should be thrown if the key has no match or multiple matches

exact  a logical that indicates if matching should be exact or partial. Note that if exact matches exist then they are returned, independently of the value of exact.

KEYS  alternative way of passing the key value(s). If not missing, then arguments in ... are discarded.

verbose  a logical that indicates if verbosity should be toggle on

entry  a logical that indicates if the

msg  a header to use in case of error.

regname  Name of a sub-registry, used as its identifier.

where  package name or namespace that owns the registry.

quiet  a logical that indicates if the operation should be performed quietly, without throwing errors or warnings.

Value

regfetch returns a registry entry.

Functions

• pkgreg_fetch(): fetches entries in a package registry, as set up by setPackageRegistry.
  It loads the requested package registry and uses regfetch to retrieve data from it.

• pkgreg_remove(): removes an entry from a package registry.
render_notes  Renders rmarkdown Documents Using User Default Options

Description

Renders rmarkdown Documents Using User Default Options

Usage

```r
render_notes(
  input,
  output_format = NULL,
  output_options = NULL,
  ..., 
  .config = NULL
)
```

Arguments

- **input**: The input file to be rendered. This can be an R script (.R), an R Markdown document (.Rmd), or a plain markdown document.
- **output_format**: The R Markdown output format to convert to. The option "all" will render all formats defined within the file. The option can be the name of a format (e.g. "html_document") and that will render the document to that single format. One can also use a vector of format names to render to multiple formats. Alternatively, you can pass an output format object (e.g. `html_document()`). If using `NULL` then the output format is the first one defined in the YAML frontmatter in the input file (this defaults to HTML if no format is specified there). If you pass an output format object to `output_format`, the options specified in the YAML header or `_output.yml` will be ignored and you must explicitly set all the options you want when you construct the object. If you pass a string, the output format will use the output parameters in the YAML header or `_output.yml`.
- **output_options**: List of output options that can override the options specified in metadata (e.g. `could be used to force self_contained or mathjax = "local"`). Note that this is only valid when the output format is read from metadata (i.e. not a custom format object passed to `output_format`).
- **...**: other arguments passed to `render`
- **.config**: location of the default options (a YAML file). Default behaviour is to look for file `'.rmarkdown.yaml' in the user's home directory, or, if missing, for a yaml section `rmarkdown::render` in the user's R profile.

Value

the path to the rendered file, like `rmarkdown::render`. 
**reorder_columns**  

See Also

- read.yaml_section

---

```r
reorder_columns(x, target, decreasing = FALSE)
```

**Arguments**

- `x` an object with columns, such as a matrix or a data.frame, or from a class that support subsetting via `x[, i, drop = FALSE]` and has a method `colnames`.
- `target` a character or named numeric vector that specifies the column prefered order. If a numeric vector, then its names are assumed to correspond to columns, and its values determine the target order – according to argument `decreasing`.
- `decreasing` logical that indicates in which direction a numeric target vector should be ordered.

**Details**

Column names will be reordered so that their order match the one in `target`. Any column that does not appear in `target` will be put after those that are listed in `target`.

**Value**

an object of the same type and dimension

---

**require.quiet**  

Description

require.quiet silently requires a package, and qrequire is an alias to require.quiet.

Loading Packages
require.quiet

Usage

require.quiet(...)
$qrequire(...)
$qlibrary(...)
$mrequire(msg, package, lib.loc = NULL, quietly = FALSE)

Arguments

... extra arguments passed to library or require.
msg error message to use, to which is appended the string 'requires package <pkg>' to build the error message.
package name of the package to load.
lib.loc a character vector describing the location of R library trees to search through, or NULL. The default value of NULL corresponds to all libraries currently known to .libPaths(). Non-existent library trees are silently ignored.
quietly a logical. If TRUE, no message confirming package attaching is printed, and most often, no errors/warnings are printed if package attaching fails.

Value

No return value, called to load packages.

Functions

• qlibrary(): silently loads a package.
• mrequire(): tries loading a package with base require and stops with a – custom – error message if it fails to do so.

See Also

Other require: irequire()

Examples

$mrequire('Running this example', 'stringr')
try( mrequire('Doing impossible things', 'notapackage') )
requireRUnit  

**Load RUnit Compatible Package**

**Description**

Loads the package responsible for the implementation of the RUnit framework, choosing amongst ‘RUnitX’, ‘svUnit’ and ‘RUnit’.

**Usage**

```r
requireRUnit(...)```

**Arguments**

... arguments not used.

**Value**

nothing

---

**rnw**  

**Utilities for Vignettes**

**Description**

rnw provides a unified interface to run vignettes that detects the type of vignette (Sweave or knitr), and which Sweave driver to use (either automatically or from an embedded command `\VignetteDriver` command).

**Usage**

```r
rnw(x, file = NULL, ..., raw = FALSE)

isManualVignette()

as.rnw(x, ..., load = TRUE)

rnwCompiler(x, verbose = TRUE)

rnwWrapper(x, verbose = TRUE)

rnwDriver(x)

rnwIncludes(x)

rnwChildren(x)```
vignetteMakefile(
  package = NULL,
  skip = NULL,
  print = TRUE,
  template = NULL,
  temp = FALSE,
  checkMode = isCHECK() || vignetteCheckMode(),
  user = NULL,
  tests = TRUE
)

compactVignettes(paths, ...)

Arguments

x  vignette source file specification as a path or a rnw object.
file  output file
...  extra arguments passed to as.rnw that can be used to force certain building parameters.
raw  a logical that indicates if the raw result for the compilation should be returned, instead of the result file path.
load  logical to indicate if all the object’s properties should loaded, which is done by parsing the file and look up for specific tags.
verbose  logical that toggles verbosity
package  package name. If NULL, a DESCRIPTION file is looked for one directory up: this meant to work when building a vignette directly from a package’s ‘vignettes’ sub-directory.
skip  Vignette files to skip (basename).
print  logical that specifies if the path should be printed or only returned.
template  template Makefile to use. The default is to use the file “vignette.mk” shipped with the package pkgmaker and can be found in its install root directory.
temp  logical that indicates if the generated makefile should using a temporary filename (TRUE), or simply named “vignette.mk”
checkMode  logical that indicates if the vignettes should be generated as in a CRAN check (TRUE) or in development mode, in which case pdflatex, bibtex, and, optionally, qpdf are required.
user  character vector containing usernames that enforce checkMode=TRUE, if the function is called from within their session.
tests  logical that enables the compilation of a vignette that gathers all unit test results. Note that this means that all unit tests are run before generating the vignette. However, unit tests are not (re)-run at this stage when the vignettes are built when checking the package with R CMD check.
paths  A character vector of paths to PDF files, or a length-one character vector naming a directory, when all ‘.pdf’ files in that directory will be used.
runVignette

Compile a Vignette Object

Description

Compile a Vignette Object

Usage

runVignette(x, ...)

Arguments

x an object that represents a vignette
...
other arguments passed down to the relevant method.

Value

Returns the value returned by the vignette compiler.
**Rversion**  
*Complete R version*

**Description**

Returns the complete R version, e.g. 2.15.0

**Usage**

Rversion()

**Value**

A character string.

**Examples**

Rversion()

---

**setBiocMirror**  
*Setting Mirrors and Repositories*

**Description**

setBiocMirror sets all Bioconductor repositories (software, data, annotation, etc.). so that they are directly available to install.packages. It differs from chooseBioCmirror in that it effectively enables the repositories.

**Usage**

```r
setBiocMirror(
  url = "http://www.bioconductor.org",
  version = NULL,
  unique = TRUE
)
```

getBiocMirror()

getBiocRepos(url = "http://www.bioconductor.org", version = NULL)

setCRANMirror(url = CRAN, unique = TRUE)```
Arguments

url or Bioconductor mirror url
version version number
unique logical that indicate if duplicated urls or names should be removed.

Value

setBiocMirror returns the old set of Bioc repositories.

Functions

- getBiocMirror(): is a shortcut for getOption('BioC_mirror'), which returns the current Bioconductor mirror as used by biocLite.
- getBiocRepos(): returns urls to all Bioconductor repositories on a given mirror.
- setCRANMirror(): sets the preferred CRAN mirror.

Description

Automatic S4 Class for Registry Entries

Usage

setClassRegistry(registry, Class, ...)

Arguments

registry a registry object
Class name of the class to generate
... extra arguments passed to setClass.

Value

No return value, called to declare a registry class.
setPackageExtraHandler

*Install/Run Extra Things After Standard Package Installation*

**Description**

These functions define a framework to register actions for which default sets of arguments can be defined when (lazy-)loading a package, and run later on, e.g., after the package is installed using dedicated commands.

`setPackageExtraHandler` defines main action handler functions, for which actions are defined as a set of arguments and registered using `setPackageExtra`.

**Usage**

```r
setPackageExtraHandler(handler, fun, ...)
packageExtraHandler(handler = NULL, ...)
setPackageExtra(handler, extra, ...)
packageExtra(handler = NULL, extra = NULL, package = NULL, .wrap = FALSE)
packageExtraRunner(handler)
install.extras(
    package,
    extra = NULL,
    handler = NULL,
    ...,
    .verbose = getOption("verbose")
)
install.extrapackages(
    package,
    extra = NULL,
    handler = NULL,
    ...,
    .verbose = getOption("verbose")
)
```

**Arguments**

- `handler` name of a handler, e.g., `install`. It must be unique across all handlers registered by any other packages.
- `fun` handler function that will be called with the arguments registered with `packageExtra(name, ...)`
extra arguments passed to internal function calls. In packageExtraHandler, these are passed to pkgreg_fetch.

In setPackageExtra, these define default arguments for the handler function. These are overwritten by arguments in the call to runner function if any.

extra name of the extra action.

package package name where to store/look for the internal registries. End users should not need to use this argument.

.wrap logical that indicates if a function that runs the extra action should be returned or only the default arguments

.verbose logical that indicates if verbose messages about the extra actions being run should be displayed.

Value

the runner function associated with the newly registered handler, as built by packageExtraRunner.

Functions

- packageExtraHandler(): retrieves a given handler from the registry.
- setPackageExtra(): registers extra actions for a given handler.
  
  For example, calling setPackageExtra('install', pkgs='non_CRAN_pkg', repos='http://non-standard-repo') in a source file of package 'myPkg' registers the call install.packages('non_CRAN_pkg', repos='http://non-standard-repo', ...) in a registry internal to the package. All calls to setPackageExtra('install', ...) can then be run by the user, as a post installation step via install.extrapackages('myPkg', ...).

- packageExtra(): retrieve a given extra action, either as its registry entry, or as a function that would perform the given action.

- packageExtraRunner(): defines a function to run all or some of the actions registered for a given handler in a given package. For example, the function install.extrapackages is the runner defined for the extra handler 'install' via packageExtraRunner('install').

- install.extras(): runs all extra actions registered for a given package.

- install.extrapackages(): install sets of packages that can enhance a package, but may not be available from CRAN.

  It is defined as the extra handler for the extra action handler 'install.packages'. All arguments in ... are passed to install.packages. By default, packages that are already installed are not re-installed. An extra argument force allows to force their installation. The packages are loaded if their installation is successful.
Description

The following functions to access/set the options from the set are assigned in envir:

Usage

```r
setupPackageOptions(
  ..., 
  NAME = NULL, 
  ENVIR = topenv(parent.frame()), 
  RESET = isLoadingNamespace()
)
```

Arguments

- `...`: a single named list or named arguments that provide the default options and their values.
- `NAME`: name of the set of options. This is used as a prefix for the name of the associated global option: package:<name>.
- `ENVIR`: environment where the option wrapper functions will be defined. No function is defined if ENVIR=NULL
- `RESET`: a logical that indicates whether the option set should overwrite one that already exists if necessary. The default is FALSE (i.e. no reset), except when loading a namespace, either from an installed package or a development package – with devtools. If FALSE, an error is thrown if trying to setup options with the same name.

Details

- `<subset>Options`
- `<subset>GetOption`

Value

Returns an object of class `package_options`. 

**setupPackageOptions**

---

Package Specific Options
**simpleRegistry**

**Simple Package Registry**

**Description**
Simple Package Registry

**Usage**
simpleRegistry(name, envir = topenv(parent.frame()), verbose = FALSE)

**Arguments**
- **name**: name of the registry object, with which it will be assigned in `envir`.
- **envir**: environment where to store the registry object. Defaults to the caller's top environment.
- **verbose**: logical that toggle a verbose message when the object is first created.

**Value**
a simple registry object that is similar to an R5 object.

---

**source_files**

**Source Multiple Files**

**Description**
Vectorised version of `source`.

**Usage**
source_files(x, pattern = NULL, ...)

**Arguments**
- **x**: character vector containing filenames
- **pattern**: an optional regular expression. Only file names which match the regular expression will be returned.
- **...**: extra arguments passed to `source`.

**Value**
the return value of running `source` on each individual file.
Description

Computes which characters differ between two strings.

Usage

str_diff(x, y)

Arguments

x a single string
y a single string

Value

an integer vector containing the index of all mis-matched characters in the first string.

Examples

# strings to compare
x <- "once upon a time"
y <- "once upon a time there was"
z <- "once upon two times"

# diff: x - y
d <- str_diff(x, y)
d
str(d)

# other comparisons
str_diff(y, x)
str_diff(x, x)
str_diff(x, z)
str_diff(y, z)
str_out

**Formatting Utilities**

### Description

str_out formats character vectors for use in show methods or error/warning messages.

### Usage

```r
str_out(
  x,
  max = 3L,
  quote = is.character(x),
  use.names = FALSE,
  sep = " ",
  total = FALSE
)

str_desc(object, exdent = 0L)

str_fun(object)

str_class(x, max = Inf, ...)

str_pkg(pkg, lib.loc = NULL)

str_md5sum(x)

str_hash(x, algo = "md5")

str_dim(x, dims = dim(x))

str_bs(x)
```

### Arguments

- **x**: character vector
- **max**: maximum number of values to appear in the list. If x has more elements than max, a "..." suffix is appended.
- **quote**: a logical indicating whether the values should be quoted with single quotes (defaults) or not.
- **use.names**: a logical indicating whether names should be added to the list as NAME=VAL, ... or not (default).
- **sep**: separator character
- **total**: logical that indicates if the total number of elements should be appended to the formatted string as "'a', ... 'z' (<N> total)".
object  an R object
exdent  extra indentation passed to str_wrap, and used if the output should spread over more than one lines.
...  other arguments passed to str_out.
pkg  package name
lib.loc  path to a library of R packages
algo  The algorithms to be used; currently available choices are md5, which is also the default, sha1, crc32, sha256, sha512, xxhash32, xxhash64, murmur32, spookyhash and blake3.
dims  a numeric vector of dimensions. Default is to use the input object dimensions (via function dims())

Value

a single character string

- str_bs returns a character string.

Functions

- str_desc(): builds formatted string from a list of complex values.
- str_fun(): extracts and formats a function signature. It typically formats the output capture.output(args(object)).
- str_class(): outputs the class(es) of an object using str_out.
- str_pkg(): formats a package name and version
- str_md5sum(): computes md5sum on character vector using md5sum.
- str_hash(): computes hash of a character vector using digest.
- str_dim(): builds a string that describes the dimension of an object, in the form n x m for 2D-objects, n x m x p for 3D-objects, and so on.
- str_bs(): substitutes backspace characters (\b) to produce a character string as it would be displayed in the console.

Author(s)

Renaud Gaujoux

str_bs was adapted from a proposal from Yihui Xie.

Examples

```r
x <- letters[1:10]
str_out(x)
str_out(x, 8)
str_out(x, Inf)
str_out(x, quote=FALSE)
str_out(x, total = TRUE)
```
```r
str_fun(install.packages)
str_class(matrix())

# Backspace substitution
str_bs("abc")
str_bs("abc\b")
str_bs("abc\b\b")
str_bs("abc\bd")
str_bs("abc\b\bde\b")

# more complex example
x <- "bab\nc\bd\babc\b\bd"
cat(x, "\n")
y <- str.bs(x)
y
cat(y, "\n")

<table>
<thead>
<tr>
<th>sVariable</th>
<th>Global Static Variable</th>
</tr>
</thead>
</table>

**Description**

`sVariable` defines a function that acts as a global static variable.

**Usage**

`sVariable(default = NULL)`

**Arguments**

- **default**
  - default value for the static variable.

**Value**

A function that can be used to set/get the static variable.

**Examples**

```r
# define variable
x <- sVariable(1)
# get value (default)
x()
# set new value: return old value
old <- x(3)
old
# get new value
x()
```
Sys.getenv_value  System Environment Variables

Description

System Environment Variables

Usage

 Sys.getenv_value(name, raw = FALSE)

Arguments

name  variable name as a character string.

raw  logical that indicates if one should return the raw value or the conversion of any false value to FALSE.

Value

the value of the environment variable as a character string or NA is the variable is not defined at all.

Examples

 # undefined returns FALSE
 Sys.getenv_value('TOTO')
 # raw undefined returns NA
 Sys.getenv_value('TOTO', raw = TRUE)

 Sys.setenv(TOTO='bla')
 Sys.getenv_value('TOTO')

 # anything false-like returns FALSE
 Sys.setenv(TOTO='false'); Sys.getenv_value('TOTO')
 Sys.setenv(TOTO='0'); Sys.getenv_value('TOTO')

 # cleanup
 Sys.unsetenv('TOTO')
Description

System Call Stack Utilities

Usage

sys.function_digest(n = NULL)

sys.function_nframe(fun)

sys.function_frame(fun)

sys.source_file()

Arguments

n            a single frame
fun          the function object to find in the call stack.

Value

- sys.function_digest returns a character vector of length n.
- sys.function_nframe returns a integer vector.
- sys.function_frame returns an environment.

Functions

- sys.function_digest(): computes digest hash for each function in the call stack.
- sys.function_nframe(): returns the index of the frame that calls a given function.
- sys.function_frame(): returns the frame that calls a given function.
- sys.source_file(): returns path to the script that is being sourced either by base::source or base::sys.source.
testRversion  

Testing R Version

Description

Compares current R version with a given target version, which may be useful for implementing version dependent code.

Usage

testRversion(x, test = 1L)

Arguments

x  
target version to compare with.

test  
numeric value that indicates the comparison to be carried out. The comparison is based on the result from utils::compareVersion(R.version, x):

• 1: is R.version > x?
• 0: is R.version = x?
• -1: is R.version < x?

Value

a logical

Examples

testRversion("2.14")
testRversion("2.15")
testRversion("10")
testRversion("10", test = -1)
testRversion("< 10")
testRversion(Rversion())
testRversion(paste0(='=', Rversion()))

unit.test  

Embedded Unit Tests

Description

The function unit.test provides a way to write unit tests embedded within package source files. These tests are stored and organised in the package namespace, and can be run using the unified interface provided by the function link{utest}. Both Runit and testthat tests are supported – and automatically detected.
**unlist_**

**Usage**

unit.test(x, expr, framework = NULL, envir = parent.frame())

**Arguments**

- **x**: single character string used as test identifier/label
- **expr**: expression containing the actual test commands. It is not evaluated, but only stored in the package namespace.
- **framework**: Unit test framework
- **envir**: the definition environment of object x.

**Value**

a test function with no arguments that wrapping around expr

---

**unlist_** — Flatten a List Conserving Names

**Description**

unlist_ is a replacement for base::unlist that does not mangle the names.

**Usage**

unlist_(x, recursive = TRUE, use.names = TRUE, what.names = "inherited")

**Arguments**

- **x**, **recursive**, **use.names**
  
  See ?unlist.

- **what.names**: "inherited" or "full".

**Details**

Use this function if you don't like the mangled names returned by the standard unlist function from the base package. Using unlist with annotation data is dangerous and it is highly recommended to use unlist_ instead.

**Value**

A vector.

**Author(s)**

Herve Pages
**unlist_with_sep**

*Flattens All List Levels Using Separated Names*

**Description**

Flattens All List Levels Using Separated Names

**Usage**

```r
unlist_with_sep(x, sep = "/", use.names = TRUE, depth = Inf)
```

**Arguments**

- `x`: a list object, usually containing other lists – of lists.
- `sep`: character string used to separate each component of the final element names.
- `use.names`: logical that indicates if the original names of each the successive nested list elements should be used to build the final names of the result list.
- `depth`: maximum number of levels to unlist. Root level is 1L.

**Value**

a vector of the same type as the inner vector elements of the input list.
Examples

```r
x <- list(X = list(a = 1,
                   b = list(b.1 = 2,
                           b.2 = list(b.2.1 = 4,
                                       b.2.2 = data.frame()),
                           b.3 = 3),
                   c = matrix()))
unlist_with_sep(x)
unlist_with_sep(x, '###')
```

Description

The package-specific user data base directory is the sub-directory `R-data/`, located in the user's home or within a directory defined by global option `userData.path`.

If in interactive mode, and the base directory does not exist yet, the user is asked if it should be created in his home directory. Otherwise, or if the user does not allow the creation in his home, this directory is created in the current R session's temporary directory.

Usage

```
userData(..., create = NULL, package = topenv(parent.frame()))
```

Arguments

- `...`: path parts passed to `file.path` to be appended to the main path.
- `create`: logical that indicates if the base directory should be created if it does not exist. Note that directories – and files – under the base directory are not automatically created. The user should therefore care of it in the caller function if necessary. If `create=TRUE`, then the base directory is forced to be created in the user's home directory. If `create=FALSE`, then the base directory is never created.
- `package`: name of the package associated with the user data path. It is used to prefix the path, within the user R data directory.

Value

Path to the user data directory.

See Also

`tempdir`
userIs

Checking R User

Description
Tests if the current R user is amongst a given set of users.

Usage
userIs(user)

Arguments
user the usernames to check for, as a character vector.

Value
A logical flag

using_something

Execute code in temporarily altered environment.

Description
These functions were extracted from the devtools package to make them available without a dependency to devtools.

Usage
using_envvar(new, code, action = "replace")
using_env(new, code)
using_locale(new, code)
using_collate(new, code)
using_dir(new, code)
using_libpaths(new, code)
using_lib(new, code)
using_options(new, code)
using_par(new, code)
using_path(new, code, add = TRUE, prepend = FALSE)
Arguments

new values for setting
code code to execute in that environment
action (for using_envvar only): should new values "replace","suffix","prefix" existing environmental variables with the same name.
add Combine with existing values? Currently for using_path only. If FALSE all existing paths are overwritten, which you don’t usually want.
prepend logical that indicates if the new paths should be added in front of the current ones.

Details

- using_dir: working directory
- using_collate: collation order
- using_envvar: environmental variables
- using_libpaths: library paths, replacing current libpaths
- using_lib: library paths, prepending to current libpaths
- using_locale: any locale setting
- using_options: options
- using_path: PATH environment variable
- using_par: graphics parameters

Value

Nothing, used for side effect.

Deprecation

using_env will be deprecated in devtools 1.2 and removed in devtools 1.3

Author(s)

Hadley Wickham

Examples

getwd()
using_dir(tempdir(), getwd())
getwd()

Sys.getenv("HADLEY")
using_envvar(c("HADLEY" = 2), Sys.getenv("HADLEY"))
Sys.getenv("HADLEY")

using_envvar(c("A" = 1),
using_envvar(c("A" = 2), action = "suffix", Sys.getenv("A"))
)
Running Unit Tests

Description

Run unit tests in a variety of settings. This is still very experimental.

Usage

```
utest(x, ...)  
  # S4 method for signature 'function'
  utest(x, run = TRUE)  
  # S4 method for signature 'character'
  utest(  
    x,  
    filter = "^runit.\[rR]$",  
    fun = "^test\\".,  
    ...,  
    testdir = "tests",  
    framework = c("RUnit", "testthat"),  
    quiet = Sys.getenv("RCMDCHECK") != "FALSE",  
    lib.loc = NULL
  )  
  # S4 method for signature 'RUnitTestSuite'
  utest(x, ..., quiet = FALSE, outdir = NULL)
```

Arguments

- **x**: object to which a unit test is attached
- **...**: extra arguments to allow extensions and are passed to the unit framework running functions.
- **run**: a logical that indicates if the unit test should be run
- **filter**: pattern to match files that contain the definition of the unit tests functions to run.
- **fun**: pattern to match the test functions to run.
- **testdir**: directory where to look for the test files
- **framework**: unit test framework
- **quiet**: a logical that indicates if the tests should be run silently
- **lib.loc**: path to a library where installed packages are searched for. Used is of the form x='package:*'.
- **outdir**: output directory
utestFramework

Value
Returns the result object returned by the unit-test suite executer.

Methods (by class)
- utest(`function`): Run the unit test associated to a function.
- utest(character): Run a package test suite
- utest(RUnitTestSuite): Runs a RUnit test suite

utestFramework  Inferring Unit Test Framework

Description
Inferring Unit Test Framework

Usage
utestFramework(x, eval = FALSE)

Arguments
x an filename, a function or the body of a function
eval a logical that indicates if the value of x should be used.

Value
the name of the framework as a character string or NULL if it could not be detected.

utestPath  Unit Tests Result Directory

Description
Returns the path to the directory where the results of unit tests are stored. This path is used by utest to save unit test results, which are read by makeUnitVignette to update the unit test vignette when running R CMD check.

Usage
utestPath(...)

Arguments
... extra arguments passed to packagePath, e.g., package.
Value

The path to the unit-test results.

Description

Build a Windows Binary Package

Usage

winbuild(path, outdir = ".", verbose = TRUE)

Arguments

path  path to a source or already installed package
outdir  output directory
verbose  logical or numeric that indicates the verbosity level

Value

Invisibly returns the full path to the generated zip file.

Examples

## Not run:

# from source directory
winbuild('path/to/package/source/dir/')
# from tar ball
winbuild('PKG_1.0.tar.gz')

## End(Not run)
write.bib  Defunct Functions in pkgmaker

Description

These functions have been defunct or superseded by other functions.

Usage

write.bib(...)

Arguments

... extra arguments

Value

- write.bib: returns no value, called to write a bib file.

write.pkgbib  Generate a Bibtex File from Package Citations

Description

Generates a Bibtex file from a list of packages or all the installed packages. It is useful for adding relevant citations in Sweave documents.

Usage

write.pkgbib(
  entry = NULL,
  file = "Rpackages.bib",
  prefix = "",
  append = FALSE,
  verbose = TRUE
)

Arguments

tentry a bibentry object or a character vector of package names. If NULL, then the list of all installed packages is used.

tfile output Bibtex file. It can be specified as a filename (as a single character string), NULL for stdout, or a link{connection} object. If file is a character string, an extension `.bib` is appended if not already present.

tprefix character string to prepend to the generated packages’ Bibtex key.
append a logical that indicates that the Bibtex entries should be added to the file. If FALSE (default), the file is overwritten.

verbose a logical to toggle verbosity. If file=NULL, verbosity is forced off.

**Details**

Multiple citations are handled by adding a numeric suffix to the Bibtex key (other than the first/main citation) as "<pkgname>%i" (e.g. pkg, pkg2, pkg3).

**Value**

the list of Bibtex objects – invisibly.

**Note**

The Old version of this function write.bib has now been integrated by Romain Francois in the bibtex package.

**Author(s)**

Renaud Gaujoux, based on the function Rpackages.bib from Achim Zeileis (see References).

**References**


**See Also**

link{connection}, link{bibentry}

**Examples**

```r
write.pkgbib(c('rbibutils', 'utils', 'tools'), file='references')
bibs <- rbibutils::readBib('references.bib', "UTF-8")
write.pkgbib(bibs, 'references2.bib')
bibs2 <- rbibutils::readBib('references.bib', "UTF-8")
identical(bibs, bibs2)
#
```

```r
# write to stdout()
write.pkgbib(c('rbibutils', 'utils', 'tools'), file=NULL)
#
```

```r
# clean up
unlink(c('references.bib', 'references2.bib'))
```
writeUnitVignette  Writes Unit Tests Vignette

Description

Writes a vignette that contains the results from running unit test suites.

Usage

writeUnitVignette(pkg, file, results = NULL, check = FALSE)

Arguments

pkg       Package name
file      Output Sweave (.Rnw) file
results   result file or output character vector
check     logical that indicates the call was made from R CMD check, in which case the vignette is updated only if results of unit tests can be found in the unit test output directory, where they would have been generated by utest.

Value

Path to the vignette file.
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