Package ‘pak’

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Version 0.1.2

Title Another Approach to Package Installation

Description The goal of ‘pak’ is to make package installation faster and more reliable. In particular, it performs all HTTP operations in parallel, so metadata resolution and package downloads are fast. Metadata and package files are cached on the local disk as well. ‘pak’ has a dependency solver, so it finds version conflicts before performing the installation. This version of ‘pak’ supports CRAN, ‘Bioconductor’ and ‘GitHub’ packages as well.

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Encoding UTF-8

LazyData true

ByteCompile true

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Depends R (>= 3.2)

Suggests covr, mockery, pingr, testthat, withr

URL https://pak.r-lib.org/

BugReports https://github.com/r-lib/pak/issues

NeedsCompilation no

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lib_status

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lib_status  Status of packages in a library

Description

Status of packages in a library

Usage

lib_status(lib = .libPaths()[1])

Arguments

lib Path to library.

Value

Data frame (tibble) the contains data about the packages installed in the library.
local_install

Install a package tree

Description
Installs a package tree (or source package file), together with its dependencies.

Usage
local_install(root = ".", lib = .libPaths()[1], upgrade = FALSE, ask = interactive())

Arguments
- **root**: Path to the package tree.
- **lib**: Package library to install the packages to. Note that all dependent packages will be installed here, even if they are already installed in another library.
- **upgrade**: Whether to upgrade already installed packages to the latest available version. If this is FALSE, then only packages that need updates to satisfy version requirements, will be updated. If it is TRUE, all specified or dependent packages will be updated to the latest available version.
- **ask**: Whether to ask for confirmation.

Details
local_install() is equivalent to pkg_install("local::.").

Value
Data frame, with information about the installed package(s).

See Also
Other local package trees: **local_install_deps**, **local_install_dev_deps**, **local_package_trees**

local_install_deps
Install the dependencies of a package tree

Description
Installs the hard dependencies of a package tree (or source package file), without installing the package tree itself.
local_install_dev_deps

**Usage**

`local_install_dev_deps(root = ".", lib = .libPaths()[1], upgrade = FALSE, ask = interactive())`

**Arguments**

- **root**: Path to the package tree.
- **lib**: Package library to install the packages to. Note that all dependent packages will be installed here, even if they are already installed in another library.
- **upgrade**: Whether to upgrade already installed packages to the latest available version. If this is `FALSE`, then only packages that need updates to satisfy version requirements, will be updated. If it is `TRUE`, all specified or dependent packages will be updated to the latest available version.
- **ask**: Whether to ask for confirmation.

**Details**

Note that development (and optional) dependencies, under Suggests in DESCRIPTION, are not installed. If you want to install them as well, use `local_install_dev_deps()`.

**Value**

Data frame, with information about the installed package(s).

**See Also**

Other local package trees: `local_install_dev_deps`, `local_install`, `local_package_trees`
Arguments

- **root**: Path to the package tree.
- **lib**: Package library to install the packages to. Note that all dependent packages will be installed here, even if they are already installed in another library.
- **upgrade**: Whether to upgrade already installed packages to the latest available version. If this is FALSE, then only packages that need updates to satisfy version requirements, will be updated. If it is TRUE, all specified or dependent packages will be updated to the latest available version.
- **ask**: Whether to ask for confirmation.

See Also

Other local package trees: *local_install_deps*, *local_install*, *local_package_trees*

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**local_package_trees**

Local package trees

Description

pak can install packages from local package trees. This is convenient for package development. See the following functions:

- **local_install()** installs a package from a package tree and all of its (hard) dependencies (i.e. Includes, Depends, LinkingTo).
- **local_install_deps()** installs all hard dependencies of a package.
- **local_install_dev_deps()** installs all hard and soft dependencies of a package. This function is intended for active package development.

Details

Note that the last two functions do not install the package in the specified package tree itself, only its dependencies. This is convenient if the package itself is loaded via some other means, e.g. devtools::load_all(), for development.

See Also

Other local package trees: *local_install_deps*, *local_install_dev_deps*, *local_install*
Description

Clean up pak caches and/or the pak library

Usage

pak_cleanup(package_cache = TRUE, metadata_cache = TRUE,
             pak_lib = TRUE, force = FALSE)

Arguments

  package_cache  Whether to clean up the cache of package files.
  metadata_cache Whether to clean up the cache of package meta data.
  pak_lib        Whether to clean up the pak package library.
  force          Do not ask for confirmation. Note that to use this function in non-interactive
                 mode, you have to specify force = FALSE.

See Also

Other pak housekeeping: pak_private_library, pak_setup, pak_sitrep

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Description

Package sources

Standard packages

pak can install packages from various package sources. By default, a package name without the
specification of its source, refers to a CRAN or Bioconductor package. pak calls these standard
packages. For example:

```r
## CRAN package
pkg_install("glue")
## BioC package
pkg_install("limma")
```

When considering a standard package, the calling version of R is used to determine the available
source and binary packages on CRAN and the Bioconductor repositories.
The full specification of standard packages is simply
[standard::]<package>

If you know the exact source of the package, you can also write

cran::<package>
bioc::<package>

GitHub packages

pak can install packages from GitHub repositories. Any package that is specified in the user/repo notation is taken to be a GitHub package. For example:

```r
## Package from GitHub
pkg_install("r-lib/glue")
```

The full specification of GitHub packages is

```
<package>[@<commitish> | @<pull> | @[*]release]
```

- `<package>` is the name of the package. If this is missing, the name of the package must match the name of the repository.
- `<username>`: GitHub user or organization name.
- `<repo>`: repository name.
- `<subdir>`: If the R package is in a subdirectory within the repository.
- `<commitish>`: A branch name, git tag or SHA hash, to specify the branch, tag or commit to download or install.
- `<pull>`: Pull request number, to install the branch that corresponds to a pull request.
- The `@*release` string can be used to install the latest release.

Local package trees

pak can install packages from package trees. You can either use the `local_install()` function for this, or specify the local::<package> source. E.g. these are equivalent:

```r
local_install("/path/to/my/package")
pkg_install("local::/path/to/my/package")
```

The local::<package> form is handy if you want to mix it with other package specifications, e.g. to install a local package, and another standard package:

```r
pkg_install(c("local::/path/to/my/package", "testthat"))
```
The Remotes field

You can mark any regular dependency defined in the Depends, Imports, Suggests or Enhances fields as being installed from a remote location by adding the remote location to Remotes in your DESCRIPTION file. This will cause pak to download and install them from the specified location, instead of CRAN.

The remote dependencies specified in Remotes is a comma separated list of package sources:

Remotes: <pkg-source-1>, <pkg-source-2>, [ ... ]

Note that you will still need add the package to one of the regular dependency fields, i.e. Imports, Suggests, etc. Here is a concrete example that specifies the r-lib/glue package:

Imports: glue
Remotes: `r-lib/glue, 
  r-lib/htr@v0.4, 
  klutometis/roxygen#142, 
  r-lib/testthat@c67018fa4970

The CRAN and Bioconductor repositories do not support the Remotes field, so you need to remove this field, before submitting your package to either of them.

The package dependency solver

pak contains a package dependency solver, that makes sure that the package source and version requirements of all packages are satisfied, before starting an installation. For CRAN and BioC packages this is usually automatic, because these repositories are generally in a consistent state. If packages depend on other other package sources, however, this is not the case.

Here is an example of a conflict detected:

> pak::pkg_install(c("r-lib/pkgcache@conflict", "r-lib/cli@message"))
Error: Cannot install packages:
  * Cannot install ‘r-lib/pkgcache@conflict’.
    - Cannot install dependency r-lib/cli@master
  * Cannot install ‘r-lib/cli@master’.
  - Conflicts r-lib/cli@message

r-lib/pkgcache@conflict depends on the master branch of r-lib/cli, whereas, we explicitly requested the message branch. Since it cannot install both versions into a single library, pak quits.

When pak considers a package for installation, and the package is given with its name only, (e.g. as a dependency of another package), then the package may have any package source. This is necessary, because one R package library may contain only at most one version of a package with a given name.

pak’s behavior is best explained via an example. Assume that you are installing a local package (see below), e.g. local::, and the local package depends on pkgA and user/pkgB, the latter being a package from GitHub (see below), and that pkgA also depends on pkgB. Now pak must install pkgB and user/pkgB. In this case pak interprets pkgB as a package from any package source, instead of a standard package, so installing user/pkgB satisfies both requirements.
Note that that `crAN::pkgb` and `user/pkgb` requirements result a conflict that pak cannot resolve. This is because the first one must be a CRAN package, and the second one must be a GitHub package, and two different packages with the same cannot be installed into an R package library.

**See Also**

Other package functions: `pkg_install`, `pkg_remove`, `pkg_status`

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**pak_private_library**

_The pak private library_

**Description**

pak is an R package, and needs other R packages to do its job. These dependencies should be kept separate from the user’s "regular" package libraries, to avoid the situation when pak needs a different version of a package than the one in the regular library.

**Details**

To accomplish this, pak keeps all of its dependencies in a separate library. This library is usually in the user’s cache directory.

pak creates and updates its private library, as needed: every time pak cannot load a package from the private library, including the obvious case when the user does not have a private library, pak will create one.

You can use `pak_sitrep()` to list the location of the pak private library, and `pak_cleanup()` to clean it up.

**See Also**

Other pak housekeeping: `pak_cleanup`, `pak_setup`, `pak_sitrep`

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**pak_setup**

_Install pak's dependencies into its private library_

**Description**

To avoid interference between your regular R packages and pak's dependencies, pak works off a private library, which can be created by `pak_setup()`.

**Usage**

```r
pak_setup(mode = c("auto", "download", "copy"), quiet = FALSE)
```
**Arguments**

- **mode**  
  Where to get the packages from. "download" will try to download them from CRAN. "copy" will try to copy them from your current "regular" package library. "auto" will try to copy first, and if that fails, then it tries to download.

- **quiet**  
  Whether to omit messages.

**Value**

The path to the private library, invisibly.

**See Also**

Other pak housekeeping: `pak_cleanup`, `pak_private_library`, `pak_sitrep`
pkg_install

Description

Install a package and its dependencies, into a single package library.

Usage

pkg_install(pkg, lib = .libPaths()[[1L]], upgrade = FALSE, ask = interactive())

Arguments

pkg Package names or remote package specifications to install.
lib Package library to install the packages to. Note that all dependent packages will the be installed here, even if they are already installed in another library.
upgrade Whether to upgrade already installed packages to the latest available version. If this is FALSE, then only packages that need updates to satisfy version requirements, will be updated. If it is TRUE, all specified or dependent packages will be updated to the latest available version.
ask Whether to ask for confirmation.

Value

Data frame, with information about the installed package(s).

See Also

Other package functions: pak_package_sources, pkg_remove, pkg_status

Examples

## Not run:
pkg_install("dplyr")
pkg_install("dplyr", upgrade = TRUE)

## Package from GitHub
pkg_install("r-lib/pkgconfig")

## End(Not run)
pkg_remove

Remove installed packages

Description

Remove installed packages

Usage

pkg_remove(pkg, lib = .libPaths()[[1L]])

Arguments

pkg A character vector of packages to remove.
lib library to remove packages from

See Also

Other package functions: pak_package_sources, pkg_install, pkg_status

pkg_status

Display installed locations of a package

Description

Display installed locations of a package

Usage

pkg_status(pkg, lib = .libPaths())

Arguments

pkg Name of an installed package to display status for.
lib One or more library paths to lookup package status in.

See Also

Other package functions: pak_package_sources, pkg_install, pkg_remove

Examples

## Not run:
pkg_status("MASS")

## End(Not run)
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