Package 'pkggraph'

October 14, 2022

Type Package

Title A Consistent and Intuitive Platform to Explore the Dependencies of Packages on the Comprehensive R Archive Network Like Repositories

Version 0.2.3

Description

Interactively explore various dependencies of a package(s) (on the Comprehensive R Archive Network Like repositories) and perform analysis using tidy philosophy. Most of the functions return a 'tibble' object (enhancement of 'dataframe') which can be used for further analysis. The package offers functions to produce 'network' and 'igraph' dependency graphs. The 'plot' method produces a static plot based on 'ggnetwork' and 'plotd3' function produces an interactive D3 plot based on 'networkD3'.

```
Imports curl (>= 2.5), dplyr (>= 0.5.0), htmltools (>= 0.3.5), igraph (>= 1.0.1), intergraph (>= 2.0.2), Matrix (>= 1.2.10), networkD3 (>= 0.4), network (>= 1.13.0), RColorBrewer (>= 1.1.2), tibble (>= 1.3.0), tools, utils, plyr (>= 1.8.4)
```

Depends R (>= 3.5.0), ggnetwork (>= 0.5.1), ggplot2 (>= 2.2.1), data.table (>= 1.10.4)

License GPL-3 Encoding UTF-8 RoxygenNote 6.1.0

Suggests knitr (>= 1.15.1), rmarkdown (>= 1.4), magrittr (>= 1.5), sna (>= 2.4), statnet.common (>= 3.3.0), BiocManager (>= 1.30.4)

VignetteBuilder knitr

URL https://github.com/talegari/pkggraph

BugReports https://github.com/talegari/pkggraph/issues

NeedsCompilation no

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R topics documented:

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Description

Interactively explore various dependencies of a package(s) (on the Comprehensive R Archive Network Like repositories) and perform analysis using tidy philosophy. Most of the functions return a 'tibble' object (enhancement of 'dataframe') which can be used for further analysis. The package offers functions to produce 'network' and 'igraph' dependency graphs. The 'plot' method produces a static plot based on 'ggnetwork' and 'plotd3' function produces an interactive D3 plot based on 'networkD3'.

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Details

See the vignette for further details

Author(s)

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• Singh Nikhil <nikhilsingh2009@gmail.com>

See Also

Useful links:

- https://github.com/talegari/pkggraph
- Report bugs at https://github.com/talegari/pkggraph/issues

deptable

deptable

Description

(tibble) A tibble with three columns: 'pkg_1', 'relation' and 'pkg_2'. Every row defines a dependency. This is computed for all packages in 'packmeta'

Usage

deptable

Format

An object of class tbl_df (inherits from tbl, data.frame) with 61154 rows and 3 columns.

```
get_all_dependencies
```

Description

Get all dependencies

Usage

```
get_all_dependencies(packages, level = 1L, relation = c("Depends",
   "Imports", "LinkingTo", "Suggests", "Enhances"), strict = FALSE,
   ignore = c("datasets", "utils", "grDevices", "graphics", "stats",
   "methods"))
```

Arguments

packages	(non-empty character vector) Package names
level	(positive integer, Default = 1L) Depth of recursive dependency
relation	(character vector) Types of relations. Must be a subset of c("Depends", "Imports", "LinkingTo", "Suggests", "Enhances")
strict	(logical, Default: TRUE) Whether to consider all packages (alternately only 'relation' specific packages) when computing dependencies for the next level
ignore	package names to ignore

Value

A tibble with three columns: 'pkg_1', 'relation' and 'pkg_2'

Author(s)

Srikanth KS

See Also

```
get_all_reverse_dependencies
```

Examples

```
{\it get\_all\_reverse\_dependencies} \\ {\it get\_all\_reverse\_dependencies}
```

Description

Get all reverse dependencies

Usage

```
get_all_reverse_dependencies(packages, level = 1L,
  relation = c("Depends", "Imports", "LinkingTo", "Suggests",
  "Enhances"), strict = FALSE, ignore = c("datasets", "utils",
  "grDevices", "graphics", "stats", "methods"))
```

Arguments

packages	(non-empty character vector) Package names
level	(positive integer, Default = 1L) Depth of recursive dependency
relation	(character vector) Types of relations. Must be a subset of c("Depends", "Imports", "LinkingTo", "Suggests", "Enhances")
strict	(logical, Default: TRUE) Whether to consider all packages (alternately only 'relation' specific packages) when computing dependencies for the next level
ignore	package names to ignore

Value

A tibble with three columns: 'pkg_1', 'relation' and 'pkg_2'

Author(s)

Srikanth KS

See Also

```
get_all_dependencies
```

get_enhances

get_depends

get_depends

Description

Get dependencies

Usage

```
get_depends(packages, level = 1L)
```

Arguments

packages (non-empty character vector) Package names

level (positive integer) Depth of recursive dependency

Value

A tibble with three columns: 'pkg_1', 'relation' and 'pkg_2'

Author(s)

Srikanth KS

See Also

```
get_depends, get_imports, get_linkingto, get_suggests, get_enhances, get_all_dependencies,
get_reverse_depends
```

Examples

```
pkggraph::init(local = TRUE)
pkggraph::get_depends("glmnet")
```

get_enhances

get_enhances

Description

Get dependencies

Usage

```
get_enhances(packages, level = 1L)
```

get_imports 7

Arguments

packages (non-empty character vector) Package names

level (positive integer) Depth of recursive dependency

Value

A tibble with three columns: 'pkg_1', 'relation' and 'pkg_2'

Author(s)

Srikanth KS

See Also

```
\verb|get_depends|, \verb|get_imports|, \verb|get_linkingto|, \verb|get_suggests|, \verb|get_enhances|, \verb|get_all_dependencies|, \verb|get_reverse_enhances||
```

Examples

```
pkggraph::init(local = TRUE)
pkggraph::get_enhances("bigmemory")
```

get_imports

get_imports

Description

Get dependencies

Usage

```
get_imports(packages, level = 1L)
```

Arguments

packages (non-empty character vector) Package names

level (positive integer) Depth of recursive dependency

Value

```
A tibble with three columns: 'pkg_1', 'relation' and 'pkg_2'
```

Author(s)

Srikanth KS

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See Also

```
\verb|get_depends|, \verb|get_imports|, \verb|get_linkingto|, \verb|get_suggests|, \verb|get_enhances|, \verb|get_all_dependencies|, \verb|get_reverse_imports||
```

Examples

```
pkggraph::init(local = TRUE)
pkggraph::get_imports("dplyr")
```

get_linkingto

get_linkingto

Description

Get dependencies

Usage

```
get_linkingto(packages, level = 1L)
```

Arguments

packages (non-empty character vector) Package names

level (positive integer) Depth of recursive dependency

Value

A tibble with three columns: 'pkg_1', 'relation' and 'pkg_2'

Author(s)

Srikanth KS

See Also

```
\verb|get_depends|, \verb|get_imports|, \verb|get_linkingto|, \verb|get_suggests|, \verb|get_enhances|, \verb|get_all_dependencies|, \verb|get_reverse_linkingto|
```

```
pkggraph::init(local = TRUE)
pkggraph::get_linkingto("tibble")
```

get_neighborhood 9

|--|--|--|

Description

Obtain dependencies and reverse dependencies of packages at a given depth of recursion

Usage

```
get_neighborhood(packages, level = 1L, relation = c("Depends",
   "Imports", "LinkingTo", "Suggests", "Enhances"), strict = FALSE,
   interconnect = TRUE, ignore = c("datasets", "utils", "grDevices",
   "graphics", "stats", "methods"))
```

Arguments

packages	(non-empty character vector) Package names
level	(positive integer, Default: 1L) Depth of recursive dependency
relation	(character vector) Types of relations. Must be a subset of c("Depends", "Imports", "LinkingTo", "Suggests", "Enhances")
strict	(logical, Default: TRUE) Whether to consider all packages (alternately only 'relation' specific packages) when computing dependencies for the next level
interconnect	(flag, Default: TRUE) Whether to capture dependency among packages (of a given level) of the next level (See examples)
ignore	package names to ignore

Value

```
A tibble with three columns: 'pkg_1', 'relation' and 'pkg_2'
```

Author(s)

Srikanth KS

See Also

```
neighborhood_graph, make_neighborhood_graph
```

```
# explore first level dependencies
pkggraph::init(local = TRUE)
pkggraph::get_neighborhood("caret")

# explore second level dependencies
pkggraph::get_neighborhood("caret", level = 2)
```

```
# explore second level dependencies without
# considering dependencies from third level
pkggraph::get_neighborhood("caret", level = 2, interconnect = FALSE)
# explore first level dependencies of multiple packages
# and consider second level dependencies
get_neighborhood(c("caret", "mlr"))
# get 'imports' specific neighborhood of 'mlr' package with strict = TRUE
get_neighborhood("mlr"
                              = 2
                , level
                , strict = TRUE
                 , interconnect = FALSE
                 , relation = "Imports")
# get 'imports' specific neighborhood of 'mlr' package with strict = FALSE
get_neighborhood("mlr"
                , level
                              = 2
                , strict = FALSE
                , interconnect = FALSE
                 , relation = "Imports")
```

get_reverse_depends

Description

Get reverse dependencies

Usage

```
get_reverse_depends(packages, level = 1L)
```

Arguments

packages (non-empty character vector) Package names

level (positive integer) Depth of recursive dependency

Value

A tibble with three columns: 'pkg_1', 'relation' and 'pkg_2'

Author(s)

Srikanth KS

See Also

```
get_reverse_depends, get_reverse_imports, get_reverse_linkingto, get_reverse_suggests,
get_reverse_enhances, get_all_reverse_dependencies, get_depends
```

get_reverse_enhances 11

Examples

```
pkggraph::init(local = TRUE)
pkggraph::get_reverse_depends("utils")
```

```
get_reverse_enhances
```

Description

Get reverse dependencies

Usage

```
get_reverse_enhances(packages, level = 1L)
```

Arguments

```
packages (non-empty character vector) Package names

level (positive integer) Depth of recursive dependency
```

Value

```
A tibble with three columns: 'pkg_1', 'relation' and 'pkg_2'
```

Author(s)

Srikanth KS

See Also

```
get_reverse_depends, get_reverse_imports, get_reverse_linkingto, get_reverse_suggests,
get_reverse_enhances, get_all_reverse_dependencies, get_enhances
```

```
pkggraph::init(local = TRUE)
pkggraph::get_reverse_enhances("synchronicity")
```

```
get_reverse_imports
get_reverse_imports
```

Description

Get reverse dependencies

Usage

```
get_reverse_imports(packages, level = 1L)
```

Arguments

packages (non-empty character vector) Package names

level (positive integer) Depth of recursive dependency

Value

```
A tibble with three columns: 'pkg_1', 'relation' and 'pkg_2'
```

Author(s)

Srikanth KS

See Also

```
get_reverse_depends, get_reverse_imports, get_reverse_linkingto, get_reverse_suggests,
get_reverse_enhances, get_all_reverse_dependencies, get_imports
```

Examples

```
pkggraph::init(local = TRUE)
pkggraph::get_reverse_imports("Rcpp")
```

```
{\tt get\_reverse\_linkingto} \ \ \textit{get\_reverse\_linkingto}
```

Description

Get reverse dependencies

Usage

```
get_reverse_linkingto(packages, level = 1L)
```

get_reverse_suggests 13

Arguments

packages (non-empty character vector) Package names

level (positive integer) Depth of recursive dependency

Value

A tibble with three columns: 'pkg_1', 'relation' and 'pkg_2'

Author(s)

Srikanth KS

See Also

```
get_reverse_depends, get_reverse_imports, get_reverse_linkingto, get_reverse_suggests,
get_reverse_enhances, get_all_reverse_dependencies, get_linkingto
```

Examples

```
pkggraph::init(local = TRUE)
pkggraph::get_reverse_linkingto("BH")
```

```
get_reverse_suggests get_reverse_suggests
```

Description

Get reverse dependencies

Usage

```
get_reverse_suggests(packages, level = 1L)
```

Arguments

```
packages (non-empty character vector) Package names

level (positive integer) Depth of recursive dependency
```

Value

```
A tibble with three columns: 'pkg_1', 'relation' and 'pkg_2'
```

Author(s)

Srikanth KS

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See Also

```
get_reverse_depends, get_reverse_imports, get_reverse_linkingto, get_reverse_suggests,
get_reverse_enhances, get_all_reverse_dependencies, get_suggests
```

Examples

```
pkggraph::init(local = TRUE)
pkggraph::get_reverse_suggests("purrr")
```

get_suggests

get_suggests

Description

Get dependencies

Usage

```
get\_suggests(packages, level = 1L)
```

Arguments

packages (non-empty character vector) Package names

level (positive integer) Depth of recursive dependency

Value

A tibble with three columns: 'pkg_1', 'relation' and 'pkg_2'

Author(s)

Srikanth KS

See Also

```
\verb|get_depends|, \verb|get_imports|, \verb|get_linkingto|, \verb|get_suggests|, \verb|get_enhances|, \verb|get_all_dependencies|, \verb|get_reverse_suggests|
```

```
pkggraph::init(local = TRUE)
pkggraph::get_suggests("knitr")
```

init 15

init init

Description

Initiate the package by loading the data into parent frame. This should be done as soon as the package is loaded or attached. This creates(rewrites) new variables 'deptable' and 'packmeta' to the environment where it is run from.

Usage

```
init(local = FALSE, repository = "CRAN", ...)
```

Arguments

local

(flag, default: FALSE) If

- FALSE: Tries to to download package data from CRAN over internet and compute dependencies
- TRUE: Loads data that comes with the package corresponding to 2nd September 2017 02:04 IST

repository

(character vector, Default: "CRAN") One among c("CRAN", "BioCsoft", "BioCann", "BioCexp", "BioCextra", "omegahat"). To use a repository not in this list, set 'repository' to NULL and pass named argument called 'repos' with a valid repository address. This will be passed as is to 'utils::available.packages()'.

Additional parameters to be passed to 'available.packages()'

Value

An invisible TRUE

Author(s)

Srikanth KS

make_neighborhood_graph

make_neighborhood_graph

Description

Make a network or igraph graph object of dependencies and reverse dependencies from tibble output by functions like 'get_neighborhood', 'get_all_dependents'etc

Usage

```
make_neighborhood_graph(ndf, type = "igraph")
```

Arguments

```
ndf (tibble) Output by functions like 'get_neighborhood', 'get_all_dependents' etc
type (string, Default: "igraph") Graph object type. Either "network" or "igraph"
```

Value

A network or igraph graph object

Author(s)

Srikanth KS

See Also

```
neighborhood_graph, get_neighborhood
```

Examples

```
pkggraph::init(local = TRUE)
graph_object <- pkggraph::get_neighborhood("caret")
pkggraph::make_neighborhood_graph(graph_object)</pre>
```

neighborhood_graph

neighborhood_graph

Description

Obtain a network or igraph graph object of dependencies and reverse dependencies of packages at a given depth of recursion

Usage

```
neighborhood_graph(packages, level = 1L, type = "igraph",
  relation = c("Depends", "Imports", "LinkingTo", "Suggests",
  "Enhances"), strict = FALSE, interconnect = TRUE,
  ignore = c("datasets", "utils", "grDevices", "graphics", "stats",
  "methods"))
```

Arguments

packages (non-empty character vector) Package names

level (positive integer, Default: 1L) Depth of recursive dependency

type (string, Default: "igraph") Graph object type. Either "network" or "igraph" relation (character vector) Types of graph edges. Must be a subset of c("Depends", "Im-

ports", "LinkingTo", "Suggests", "Enhances")

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(logical, Default: TRUE) Whether to consider all packages (alternately only strict

'relation' specific packages) when computing dependencies for the next level

(flag, Default: TRUE) Whether to capture dependency among packages (of a

given level) of the next level (See examples)

ignore package names to ignore

Value

A network or igraph graph object

Author(s)

Srikanth KS

interconnect

See Also

```
get_neighborhood, make_neighborhood_graph
```

Examples

```
# explore first level dependencies
pkggraph::init(local = TRUE)
pkggraph::neighborhood_graph("caret")
# explore second level dependencies of class network
pkggraph::neighborhood_graph("caret", level = 2, type = "network")
# get 'imports' specific neighborhood of 'mlr' package with strict = TRUE
neighborhood_graph("mlr"
                  , level
                  , strict
                               = TRUE
                  , interconnect = FALSE
                  , relation = "Imports")
# get 'imports' specific neighborhood of 'mlr' package with strict = FALSE
neighborhood_graph("mlr"
                  , level
                  , strict
                            = FALSE
                  , interconnect = FALSE
                   , relation = "Imports")
```

packmeta

packmeta

Description

(A character matrix) Output of 'utils::available.packages'

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Usage

```
packmeta
```

Format

An object of class matrix with 11328 rows and 17 columns.

plot.pkggraph

plot a pkggraph object

Description

```
plot a pkggraph object
```

Usage

```
## S3 method for class 'pkggraph'
plot(x, ...)
```

Arguments

x plot object generated by neighborhood_graph or make_neighborhood_graph
... additional arguments (See details)

Details

- background: "black" or "white". Default is 'black'
- nodeImportance: "in", "out" or "both", in Node will be considered important(and increased size) if more incoming. out Node will be considered important if more outgoing. both Node importance will be calculated on both incoming and outgoing. True for all the nodes. Default is 'both'
- edgeLabel: logical. TRUE if edge label has to be shown. Default is FALSE

Author(s)

Nikhil Singh

See Also

neighborhood_graph, make_neighborhood_graph, get_neighborhood

plotd3

Examples

plotd3

plotd3

Description

D3 network of a pkggraph object

Usage

```
plotd3(x, height = 500, width = 1000)
```

Arguments

x plot object generated by neighborhood_graph or make_neighborhood_graph of type igraph
height parameter to change the height of the d3 plot. Default is 500
width parameter to change the width of the d3 plot. Default is 1000

Author(s)

Nikhil Singh

```
## Not run:
   pkggraph::init(local = TRUE)
   plot_obj <- pkggraph::neighborhood_graph("hash")
   pkggraph::plotd3(plot_obj)

plot_obj <- pkggraph::neighborhood_graph(c("hash","tidytext"))
   pkggraph::plotd3(plot_obj, height = 750, width = 1200)</pre>
```

20 relies

```
plot_obj <- pkggraph::neighborhood_graph(c("hash","Matrix"))
   pkggraph::plotd3(plot_obj)

## End(Not run)</pre>
```

relies

relies

Description

Captures recursive dependencies of these types: "Depends", "Imports", "LinkingTo"

Usage

```
relies(packages)
```

Arguments

packages

(non-empty character vector) Package names

Value

(Named list) A name is the package name from 'packages'. A Value is a character vector of all packages which the package 'relies' (Captures recursive dependencies of these types: "Depends", "Imports", "LinkingTo")

Author(s)

Srikanth KS

See Also

```
reverse_relies
```

```
pkggraph::init(local = TRUE)
pkggraph::relies("tidytext")
```

reverse_relies 21

reverse_relies

reverse_relies

Description

Captures reverse recursive dependencies of these types: "Depends", "Imports", "LinkingTo"

Usage

```
reverse_relies(packages)
```

Arguments

packages

(non-empty character vector) Package names

Value

(Named list) A name is the package name from 'packages'. A Value is a character vector of all packages which the package 'relies' (Captures reverse recursive dependencies of these types: "Depends", "Imports", "LinkingTo")

Author(s)

Srikanth KS

See Also

relies

Examples

```
pkggraph::init(local = TRUE)
pkggraph::reverse_relies("data.table")
```

%depends%

Check depends

Description

Check whether pkg_1 has a dependency on pkg_2

Usage

```
pkg_1 %depends% pkg_2
```

22 %enhances%

Arguments

pkg_1 a package name pkg_2 a package name

Value

TRUE or FALSE

Author(s)

Srikanth KS

Examples

```
pkggraph::init(local = TRUE)
"dplyr" %depends% "tibble"
```

%enhances%

Check enhances

Description

Check whether pkg_1 has a dependency on pkg_2

Usage

```
pkg_1 %enhances% pkg_2
```

Arguments

pkg_1 a package name pkg_2 a package name

Value

TRUE or FALSE

Author(s)

Srikanth KS

```
pkggraph::init(local = TRUE)
"dplyr" %enhances% "tibble"
```

%imports% 23

%imports%

Check imports

Description

Check whether pkg_1 has a dependency on pkg_2

Usage

```
pkg_1 %imports% pkg_2
```

Arguments

pkg_1 a package name pkg_2 a package name

Value

TRUE or FALSE

Author(s)

Srikanth KS

Examples

```
pkggraph::init(local = TRUE)
"dplyr" %imports% "tibble"
```

%linkingto%

Check linkingto

Description

Check whether pkg_1 has a dependency on pkg_2

Usage

```
pkg_1 %linkingto% pkg_2
```

Arguments

```
pkg_1 a package name
pkg_2 a package name
```

24 %relies%

Value

TRUE or FALSE

Author(s)

Srikanth KS

Examples

```
pkggraph::init(local = TRUE)
"dplyr" %linkingto% "tibble"
```

%relies%

Check relies

Description

Check whether a package has a recursive dependency on the other

Usage

```
pkg_1 %relies% pkg_2
```

Arguments

```
pkg_1 (string) A package name
pkg_2 (string) A package name
```

Value

```
(flag) TRUE, if 'pkg_1' 'relies' on 'pkg_2'
```

Author(s)

Srikanth KS

See Also

```
relies, reverse_relies
```

```
pkggraph::init(local = TRUE)
"dplyr" %relies% "tibble"
```

%suggests% 25

%suggests%

Check suggests

Description

Check whether pkg_1 has a dependency on pkg_2

Usage

```
pkg_1 %suggests% pkg_2
```

Arguments

```
pkg_1 a package name
pkg_2 a package name
```

Value

TRUE or FALSE

Author(s)

Srikanth KS

```
pkggraph::init(local = TRUE)
"dplyr" %suggests% "tibble"
```

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