

Package ‘reproducibleRchunks’

July 23, 2025

Title Automated Reproducibility Checks for R Markdown Documents

Version 1.2.0

Description Provide reproducible R chunks in R Markdown document that automatically check computational results for reproducibility. This is achieved by creating json files storing meta-data about computational results. A comprehensive tutorial to the package is available as preprint by Brandmaier & Peikert (2024, <[doi:10.31234/osf.io/3zjvf](https://doi.org/10.31234/osf.io/3zjvf)>).

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Encoding UTF-8

Imports jsonlite, knitr, digest, rstudioapi, utils, rmarkdown

Suggests spelling, MASS, psych, testthat (>= 3.0.0)

Config/testthat/edition 3

Language en-US

BugReports <https://github.com/brandmaier/reproducibleRchunks/issues>

RoxygenNote 7.3.2

VignetteBuilder knitr

NeedsCompilation no

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Repository CRAN

Date/Publication 2025-07-23 17:30:02 UTC

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gather_package_names Gather Package Names

Description

Searches all meta data in the current directory for information on what R packages are necessary to reproduce the Markdown files.

Usage

gather_package_names()

Value

A character vector of R package names.

get_all_metadata_files

find all metadata files

Description

find all metadata files

Usage

get_all_metadata_files()

`get_num_reproducibility_errors`*Get the total number of failed reproduction attempts*

Description

Get the total number of failed reproduction attempts

Usage

```
get_num_reproducibility_errors(envir = .cache)
```

Arguments

<code>envir</code>	Environment to retrieve data from. This defaults to an internal package namespace.
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Value

Returns the number of errors encountered when reproducing a Markdown document

`get_reproducibility_summary`*Get a summary about all reproduction attempts*

Description

This function returns a data frame, in which details about reproduction attempts are collected. The data frame has three columns named "Chunk", "Variable", and "Success". Every row in the data frame corresponds to one variable, for which reproducibility was tested. Chunk stores the name of the surrounding chunk, Variable stores the name of the variable, and Success is a boolean variable, which indicates whether the reproduction attempt was successful.

Usage

```
get_reproducibility_summary(envir = .cache)
```

Arguments

<code>envir</code>	Environment to retrieve data from. This defaults to an internal package namespace.
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Value

Returns a data.frame with three columns.

isReproducible	<i>Test reproducibility of an R Markdown file</i>
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Description

Test reproducibility of an R Markdown file

Usage

```
isReproducible(
  filename,
  resetOptions = TRUE,
  engine = c("knitr", "rmarkdown"),
  quiet = TRUE,
  ...
)
```

Arguments

filename	Character. An R Markdown file to check for reproducibility
resetOptions	Boolean. Should all package options be reset to defaults? TRUE by default. This avoids problems if multiple checks on multiple documents with varying options are made in a row
engine	Character. Either knitr or rmarkdown, depending on what package should be used to render the document.
quiet	Boolean. Suppress output when knitting the document.
...	Optional arguments passed down to rmarkdown::render()

load_repro_data	<i>Loading reproducibility data</i>
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Description

This function loads reproducibility meta data from a file and stores the meta information about the variable contents in the specified environment. Reproducibility meta data can be loaded from either a json (preferred) or a binary saved R object. The function returns a named list with meta information restored from file. The named elements include "hashing" indicating whether a hashing algorithm was used, "hashing_algorithm" indicating the name of the hashing algorithm, "hashing_package" indicating the name of the R package, from which the hashing algorithm was used, "hashing_package_version" indicating the package version, "digits" the numeric precision used before hashing numeric values, and "code_fingerprint" the actual hashed string of the chunk code.

Usage

```
load_repro_data(filename, envir, filetype = c("json", "rda"))
```

Arguments

filename	Character. File name to load objects from.
envir	Environment to load the objects into. By default, this is the global environment.
filetype	Character. Currently supported is json and rda.

Value

Returns a named list with meta information restored from file. See description for more details.

See Also

[save_repro_data\(\)](#)

reproducibleR

Knitr Hook

Description

This is the main RMarkdown chunk hook for processing the automated reproducibility tests of code chunks. This function is not intended to be called directly. Rather, it is expected that RStudio calls this function when rendering chunks with the label identical to this function name.

Usage

```
reproducibleR(options)
```

Arguments

options	A list of chunk options passed from the knitr engine. Usually this is just the object options passed to the engine function; see knit_engines .
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Details

This function first executes the R code from a given chunk. If a variable is declared within the scope of the chunk, meta information about the variable's content are generated. If no metadata exists, this metadata is stored in a separate file. If metadata exists, it is compared against the metadata of the reproduction attempt.

Value

A character string generated from the source code and output.

Author(s)

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Examples

```
reproducibleR(knitr::opts_chunk$merge(list(engine="reproducibleR",code="1+1")))
```

reset

Delete reproducibility files

Description

Deletes all meta data in the current directory, that is, deletes all files in the current working directory that start with `default_prefix()` and end with `default_filetype()`.

Usage

```
reset(interactive = NULL)
```

Arguments

`interactive` Logical. If TRUE (the default), the user is asked for confirmation before files are removed.

Value

Invisibly returns the vector of deleted files.

save_repro_data

Storing reproducibility data

Description

Storing reproducibility data

Usage

```
save_repro_data(
  x,
  filename,
  filetype = default_filetype(),
  envir = NULL,
  extra = NULL
)
```

Arguments

x	Object to be stored.
filename	Name (possible including full path) of the save file
filetype	Character. Currently supported is json and rda.
envir	Environment to load the objects into. By default, this is the global environment.
extra	List. Extra payload to store in the meta data

Value

No return value

See Also

[load_repro_data\(\)](#)

use_github_action	<i>Add GitHub Action to test reproducibility</i>
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Description

Creates a GitHub Actions workflow that runs [isReproducible\(\)](#) on all R Markdown files in the repository. The workflow installs pandoc so that the documents can be rendered. Depending on the result, a badge file reproducibleRchunks-badge.svg is generated indicating successful, failing or unknown reproduction status.

Usage

```
use_github_action(  
  files = NULL,  
  path = ".github/workflows/reproducibleR.yml",  
  packages = NULL  
)
```

Arguments

files	Character. File(s) that should be tested for reproducibility. If NULL, all Rmd files in the directory.
path	Path to the workflow file to create. Defaults to .github/workflows/reproducibleR.yml.
packages	Character. If NULL, necessary R packages are inferred automatically.

Value

Invisibly returns the path to the created workflow file.

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