Package 'reproducibleRchunks'

October 22, 2026

Title Automated Reproducibility Checks for R Markdown Documents

Version 1.2.1

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

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Encoding UTF-8

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

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

Config/testthat/edition 3

Language en-US

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

VignetteBuilder knitr

Config/roxygen2/version 8.0.0

NeedsCompilation no

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Repository CRAN

Date/Publication 2026-10-22 11:10:08 UTC

Contents

gather_package_names 2
get_all_metadata_files 2
get_num_reproducibility_errors 3
get_reproducibility_summary 3
hash 4
isReproducible 4

load_repro_data 5
reproducibleR 6
reset 7
save_repro_data 7
use_github_action 8

Index **9**

`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

envir	Environment to retrieve data from. This defaults to an internal package namespace.

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

envir	Environment to retrieve data from. This defaults to an internal package namespace.

Value

Returns a data.frame with three columns.

hash *Create a fingerprint of an objext*

Description

This function calls `digest` with the default hashing algorithm as set in the package.

Usage

```
hash(x, canonical_attributes = TRUE, digits = default_digits())
```

Arguments

`x`	Object. An arbitrary R object which will be serialized and fingerprinted.
`canonical_attributes`	Boolean. Determines whether the canonical form of the attributes should be used.
`digits`	Numeric/Boolean. If FALSE or NULL, no rounding is applied. Otherwise rounding up to the number of digits.

Details

By default, the function hashes a canonical objec representation: Across R versions, attribute order of objects seems not to be consistent, so attributes are sorted by name first. Further, numeric variables are rounded to a given precision.

Examples

```
hash( c(1,2,3,4,5) )
```

isReproducible *Test reproducibility of an R Markdown file*

Description

Test reproducibility of an R Markdown file

Usage

```
isReproducible(
  filename,
  resetOptions = TRUE,
  engine = c("auto", "knitr", "rmarkdown", "quarto"),
  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 *Loading reproducibility data*

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.

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()

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use_github_action *Add GitHub Action to test reproducibility*

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.

Index

gather_package_names, 2
get_all_metadata_files, 2
get_num_reproducibility_errors, 3
get_reproducibility_summary, 3

hash, 4

isReproducible, 4
isReproducible(), *8*

knit_engines, *6*

load_repro_data, 5
load_repro_data(), *8*

reproducibleR, 6
reset, 7

save_repro_data, 7
save_repro_data(), *5*

use_github_action, 8