

Package ‘hashr’

July 22, 2020

Maintainer Mark van der Loo <mark.vanderloo@gmail.com>

License GPL-3

Title Hash R Objects to Integers Fast

LazyData no

Type Package

LazyLoad yes

Description Apply an adaptation of the SuperFastHash algorithm to any R object. Hash whole R objects or, for vectors or lists, hash R objects to obtain a set of hash values that is stored in a structure equivalent to the input. See <<http://www.azillionmonkeys.com/qed/hash.html>> for a description of the hash algorithm.

Version 0.1.3

URL <https://github.com/markvanderloo/hashr>

BugReports <https://github.com/markvanderloo/hashr/issues>

Suggests tinytest

RoxygenNote 7.1.0

Encoding UTF-8

NeedsCompilation yes

Author Mark van der Loo [aut, cre],
Paul Hsieh [ctb]

Repository CRAN

Date/Publication 2020-07-22 21:10:18 UTC

R topics documented:

hashr-package	2
hash	2

Index	5
--------------	----------

hashr-package *Hash R Objects Quickly*

Description

This package exports Paul Hsieh's SuperFastHash C-code to R. It can be used to hash either whole R objects or, for vectors or lists, R objects can be hashed recursively so one obtains a set of hash values that is stored in a structure equivalent to the input.

hash *Hash R objects to 32bit integers*

Description

Hash R objects to 32bit integers

Usage

```
hash(x, ...)
```

Default S3 method:
hash(x, ...)

S3 method for class 'character'
hash(
 x,
 recursive = TRUE,
 what = c("string", "pointer"),
 nthread = getOption("hashr_num_thread"),
 ...
)

S3 method for class 'list'
hash(x, recursive = TRUE, nthread = getOption("hashr_num_thread"), ...)

Arguments

x	Object to hash
...	Arguments to be passed to other methods. In particular, for the default method, these arguments are passed to serialize .
recursive	hash each element separately?
what	Hash the string or the pointer to the string (faster, but not reproducible over R sessions)
nthread	maximum number of threads used.

Details

The default method `serializes` the input to a single `raw` vector which is then hashed to a single signed integer. This is also true for character vectors when `recursive=FALSE`. When `recursive=TRUE` each element of a character vector is hashed separately, based on the underlying char representation in C.

Parallelization

On systems supporting openMP, this function is able to use multiple cores. By default, a sensible number of cores is chosen. See the entry on [OpenMP Support](#) in the writing R extensions manual to check whether your system supports it.

Hash function

The hash function used is Paul Hsieh's SuperFastHash function which is described on his [website](#). As the title of the algorithm suggests, this hashing algorithm is not aimed to be used as a secure hash, and it is probably a bad idea to use it for that purpose.

Examples

```
# hash some complicated R object (not a list).
m <- lm(height ~ weight, data=women)
hash(m)

# hash a character vector element by element:
x <- c("Call any vegetable"
      , "and the chances are good"
      , "that the vegetable will respond to you")
hash(x)

# hash a character vector as one object:
hash(x, recursive=FALSE)

# hash a list recursively
L <- strsplit(x, " ")
hash(L)

# recursive really means recursive, so nested lists are recursed over:
L <- list(
  x = 10
  , y = list(
    foo = "bob"
    , bar = lm(Sepal.Width ~ Sepal.Length, data=iris)
  )
)

hash(L)
hash(L, recursive=FALSE)
```


Index

hash, [2](#)
hashr-package, [2](#)
raw, [3](#)
serialize, [2, 3](#)