

Package: replacer (via r-universe)

October 16, 2024

Title A Value Replacement Utility

Version 1.0.2

Date 2022-08-19

Description Updates values within csv format data files using a custom, User-built csv format lookup file. Based on 'data.table' package.

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Imports data.table(>= 1.14.0)

Depends R(>= 4.1.0)

Suggests knitr, kableExtra, rmarkdown, carData, testthat (>= 3.0.0), checkmate, tinytest

Encoding UTF-8

RoxygenNote 7.2.1

VignetteBuilder knitr

Collate 'bReplace.R' 'con2fcoales.R' 'valReplacement.R' 'whichDups.R'

Config/testthat/edition 3

NeedsCompilation no

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Date/Publication 2022-08-19 23:10:02 UTC

Repository <https://drag05.r-universe.dev>

RemoteUrl <https://github.com/cran/replacer>

RemoteRef HEAD

RemoteSha 4a7065b77a23979cc296226cd014fa59f42c45fc

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bReplace	<i>Batch-file value replacement</i>
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Description

User-intended function to process a list of pairs of data files and associated lookup files listed in this order.

Usage

```
bReplace(dir, x, save = TRUE, msgs = FALSE)
```

Arguments

dir	Quoted character of length = 1 describing the path to the directory containing the data and associated lookup files, with either forward or double backward slash and no end slash (e.g. " <i>C:/path/to/directory</i> ").
x	List of character vectors each of length 2 containing full names of the data file and the associated lookup file, as described in replaceVals .
save	Logical, default TRUE: save results to directory; FALSE: display only.
msgs	Logical, default FALSE: suppress messages. TRUE: print a named list containing messages specific to each run.

Value

A named list displaying updated data and multiple replacement count tables. Also, updated csv files which are saved to *dir*.

Note

In examples, please leave argument *save* to FALSE. Otherwise, copy all content of folder "extdata" found in the installed package root into a directory on your machine. Use the absolute path to this directory as *dir* argument.

See Also

[replaceVals](#)

Examples

```
if (interactive()) {
# A list of data/lookup names:
fs = list(c('data.csv', 'lookup.csv')
          , c("data_unique.csv", "lookup_unique.csv")
          , c('data_id.csv', 'lookupNA.csv')
          , c('data_id.csv', 'lookupDUP.csv')
          , c('chile.csv', 'chile_nadup.csv')
          , c('data_id.csv', 'lookup_id.csv')
          , c('data_id.csv', 'lookup_idsimple.csv')
          , c('chile.csv', 'chile_id.csv')
        )
##Not run:
dir = system.file("extdata", package = "replacer")
bReplace(dir, fs, save = FALSE, msgs = TRUE)
}
```

con2fcoales

Helper for coalescing vectors of different types

Description

This helper prevents the error in [fcoalesce](#) when attempting to coalesce two vectors of different data type (double/integer).

Usage

```
con2fcoales(u, z)
```

Arguments

u, z Vectors of equal length and of different data types (e.g. double and integer). Missing values are accepted.

Value

A double data type vector of same length as the arguments.

 replaceVals

User-intended wrapper for single-file replacements

Description

The function sends the prepared data.tables to [sReplace](#), receives updated data, displays a list of updated data and of counts of multiple replacements and saves updated data to disk (see Details).

Usage

```
replaceVals(dir, ..., save = TRUE)
```

Arguments

dir	Quoted character of length = 1 describing the path to the directory containing the data and associated lookup files, with either forward or double backward slash and no end slash (e.g. "C:/path/to/directory").
...	Not used when file names are "data.csv", "lookup.csv". Otherwise, custom names including file extension, within quotation marks, such as "<data_name>.csv", "<lookup_name>.csv", entered in this order! .
save	Logical, default TRUE: save results to <i>dir</i> . FALSE: display only. See Note below.

Details

The workflow:

Tasks:

The function reads the data/lookup pair converting each file to "data.table" class, performs conformance checks on associated lookup, removes uninvolved data columns and non-standard lookup columns. Upon return from [sReplace](#), re-structures updated result in the original format, saves the updated data to *dir* and displays a one-run named list containing updated data along with counts of duplicated and/or missing values replacements requests.

Messages:

The function displays messages and comments regarding the internal workflow. It is recommended reading these messages/comments as first troubleshooting step since they are specific to each file pair and request type. To suppress messages, wrap the function with [suppressMessages](#). The vignette contains definitions of terms.

Value

A named list containing updated data and multiple replacement counts. Also, a csv file saved in the same directory, under the name updated_<data_name>using<lookup_name>.csv.

Note

In examples, please leave argument *save* to FALSE. Otherwise, copy all content of folder "extdata" found in the installed package root into a directory on your machine. Use the absolute path to this directory as *dir* argument.

See Also

[bReplace](#), [sReplace](#)

Examples

```
## Not run: datasets with default names "data.csv", "lookup.csv" located in *dir*

if (interactive()) {
  dir = system.file("extdata", package = "replacer")
  replaceVals(dir, save = FALSE)

  ## no messages (not recommended!)
  suppressMessages(replaceVals(dir, save = FALSE))
}
```

sReplace

Helper function for value replacement

Description

The function is not intended for direct use. Once called by [replaceVals](#) it firstly checks for index presence in lookup. Upon the result of this check, the function moves along the branches of a decision tree (see Details).

Usage

```
sReplace(x, y0, uv)
```

Arguments

<code>x, y0</code>	Data.tables
<code>uv</code>	Character vector or list of same length as x, containing unique names of involved columns in data.

Details

The function starts by checking the presence of a User-made index in lookup.

If the index is found absent:

The function calls the helper `whichDups` to find the duplicated values in data. Also, looks for missing values set for *multiple* replacements and for eventual splits on missing data. In case of mixed *simple/multiple* requests the function splits lookup into maximum 3 subsets: one for *simple* replacements, for which it creates an internal index, one for *multiple replacements* of duplicated values for which it creates an internal index, and one for *multiple replacements* of missing values for which an internal index is not necessary.

Index for multiple replacements of duplicated values:

The internal index contains row numbers corresponding to all the elements of distinct subsets of duplicated values found within each involved data column and loops the function `data.table::set()` to perform replacements on these columns.

No Index for multiple replacements of missing values:

As mentioned above, no index is created for multiple replacements of missing values as there is only one generic value per data column. The missing values data subset is then *reshaped*, and the columns are *coalesced* (see `data.table` Manual) with corresponding data columns, for each generic value entered in lookup.

Index For Unique Values:

As stated above, simple replacements of unique values without User-made index are possible. Once the internal index created, the subset is *reshaped*, *joined* with the data on index and the corresponding columns are *coalesced*.

If the index is found present:

The function subsets the lookup using the special index values **0** and/or **NA** (or empty). At maximum, 3 subsets of lookup are formed as above. The replacement process is similar with the process used for absent index with the difference that simple replacements already have User-made index.

Value replacement:

Following the decision tree described above, the function calls utility's helpers and functions imported from the `data.table` package to process all lookup requests, in one single run.

Value

A named list containing updated involved columns in `x`, count of multiple replacements of duplicated values (if requested), count of multiple replacements of missing values (if requested).

See Also

[dcast](#), [fcoalesce](#), [merge](#), [set](#)

whichDups

Find duplicated values in data

Description

The function finds duplicated values in each column of the data file. Although not intended for direct use, it can be applied to a data file once converted into "data.table" class.

Usage

```
whichDups(x)
```

Arguments

x A `data.table`.

Value

A named character vector. Data columns containing distinct sets of duplicated values have the names indexed.

Examples

```
if (interactive()) {  
  
  dir = system.file('extdata', package = 'replacer')  
  setwd(dir)  
  
  x = data.table::fread('data.csv', na.strings = c(NA_character_, ''))  
  
  whichDups(x)  
  
}
```

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