

# Package ‘replacer’

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**Title** A Value Replacement Utility

**Version** 1.0.2

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

**License** GPL-3

**Imports** data.table(>= 1.14.0)

**Depends** R(>= 4.1.0)

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checkmate, tinytest

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**VignetteBuilder** knitr

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**Config/testthat/edition** 3

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bReplace

*Batch-file value replacement*


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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 <a href="#">replaceVals</a> .
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)
}

```

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con2fcoales

*Helper for coalescing vectors of different types*


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### 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.

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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

<code>dir</code>	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. <code>"C:/path/to/directory"</code> ).
<code>...</code>	Not used when file names are <code>"data.csv"</code> , <code>"lookup.csv"</code> . Otherwise, custom names including file extension, within quotation marks, such as <code>"&lt;data_name&gt;.csv"</code> , <code>"&lt;lookup_name&gt;.csv"</code> , <b>entered in this order!</b> .
<code>save</code>	Logical, default TRUE: save results to <code>dir</code> . 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</code> , <code>y0</code>	Data.tables
<code>uv</code>	Character vector or list of same length as <code>x</code> , 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](#)

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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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