

Package ‘libr’

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Type Package

Title Libraries, Data Dictionaries, and a Data Step for R

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Description Contains a set of functions to create data libraries, generate data dictionaries, and simulate a data step. The `libname()` function will load a directory of data into a library in one line of code. The `dictionary()` function will generate data dictionaries for individual data frames or an entire library. And the `datestep()` function will perform row-by-row data processing.

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datastep	<i>Step through data row-by-row</i>
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Description

The `datastep` function allows you to perform row-wise conditional processing on a data frame or tibble. The function contains parameters to drop, keep, or rename variables. It also has the ability to perform by-group processing, and identify first and last rows in a group.

Usage

```
datastep(
  data,
  steps,
  keep = NULL,
  drop = NULL,
  rename = NULL,
  by = NULL,
  calculate = NULL,
```

```

    retain = NULL,
    sort_check = TRUE
)

```

Arguments

<code>data</code>	The data to step through.
<code>steps</code>	The operations to perform on the data. This parameter is typically specified as a set of R statements contained within curly braces.
<code>keep</code>	A vector of quoted variable names to keep in the output data set. By default, all variables are kept.
<code>drop</code>	A vector of quoted variable names to drop from the output data set. By default, no variables are dropped.
<code>rename</code>	A named vector of quoted variables to rename. The current variable name should be on the left hand side of the name/value pair, and the new variable name should be on the right. The rename operation is performed after the data step, the keep, and the drop. Therefore, the data steps should use the input variable name. By default, all variables retain their original names.
<code>by</code>	A vector of quoted variable names to use for by-group processing. This parameter will activate the <code>first.</code> and <code>last.</code> automatic variables, that indicate the first or last rows in a group. These automatic variables are useful for conditional processing on groups.
<code>calculate</code>	Steps to set up calculated variables. Calculated variables are commonly performed with summary functions such as <code>mean</code> , <code>median</code> , <code>min</code> , <code>max</code> , etc. It is more efficient to set up calculated variables with the <code>calculate</code> parameter and then use those variables in the data step, rather than perform the summary function inside the data step.
<code>retain</code>	A list of variable names and initial values to retain. Retained variables will begin the data step with the initial value. Then for each iteration of the data step, the variable will be populated with the ending value from the previous step. The retain functionality allows you to perform cumulative operations or decisions based on the value of the previous iteration of the data step. Initial values should be of the expected data type for the column. For example, for a numeric column set the initial value to a zero, and for a character column, set the initial value to an empty string, i.e. <code>retain = list(col1 = 0, col2 = "")</code> . There is no default initial value for a variable. You must supply an initial value for each retained variable.
<code>sort_check</code>	Checks to see if the input data is sorted according to the <code>by</code> variable parameter. The sort check will give an error if the input data is not sorted according to the <code>by</code> variable. The check is turned on if the value of <code>sort_check</code> is <code>TRUE</code> , and turned off if <code>FALSE</code> . The default value is <code>TRUE</code> . Turn the sort check off if you want to perform by-group processing on unsorted data, or data that is not sorted according to the <code>by</code> -group.

Details

Note that the `keep`, `drop`, and `rename` parameters are output parameters. These parameters will be applied after the data step statements are executed. Therefore, within the data step, refer to variables

using the input variable name. New variables may be created on the fly, just by assigning a value to the new variable name.

The `keep`, `drop`, and `rename` parameters require quoted variable names, as the variables may not yet exist at the time they are passed into the function. Within a data step or calculate function, however, variable names do not need to be quoted.

The `datastep` function provides four automatic variables. These variables are generated for every data step, and can be accessed at any point within the data step:

- **data:** Represents the input data frame.
- **n.:** Contains the row number.
- **first.:** Indicates the beginning of a by-group.
- **last.:** Indicates the end of a by-group.

Automatic variables will be dropped from the data frame at the end of the data step. If you wish to keep the automatic variable values, assign the automatic variable to a new variable and keep that variable.

The `calculate` parameter is used to perform vectorized functions on the data prior to executing the data step. For example, you may want to determine a mean for a variable in the `calculate` block, and then make decisions on that mean in the data step block.

The `retain` parameter allows you to access the prior row value. At the start of the data step, the retained variable is seeded with the initial value. For each subsequent step, the variable is seeded with the value of the prior step/row. This functionality allows you to increment values or perform cumulative operations.

Note that the data step is pipe-friendly. It can be used within a **dplyr** pipeline. The data step allows you to perform deeply nested and complex conditionals within the pipeline. The data step is also very readable compared to other pipeline conditionals.

Value

The processed data frame or tibble.

Examples

```
# Example #1: Simple Data Step
df <- datastep(mtcars[1:10,],
              keep = c("mpg", "cyl", "disp", "mpgcat", "recdt"), {

  if (mpg >= 20)
    mpgcat <- "High"
  else
    mpgcat <- "Low"

  recdt <- as.Date("1974-06-10")

  if (cyl == 8)
    is8cyl <- TRUE

})
```

```

df
#           mpg cyl  disp mpgcat   recdt
# Mazda RX4      21.0  6 160.0   High 1974-06-10
# Mazda RX4 Wag  21.0  6 160.0   High 1974-06-10
# Datsun 710     22.8  4 108.0   High 1974-06-10
# Hornet 4 Drive  21.4  6 258.0   High 1974-06-10
# Hornet Sportabout 18.7  8 360.0   Low 1974-06-10
# Valiant        18.1  6 225.0   Low 1974-06-10
# Duster 360     14.3  8 360.0   Low 1974-06-10
# Merc 240D      24.4  4 146.7   High 1974-06-10
# Merc 230       22.8  4 140.8   High 1974-06-10
# Merc 280       19.2  6 167.6   Low 1974-06-10

# Example #2: By-group Processing
df <- datastep(mtcars[1:10,],
               keep = c("mpg", "cyl", "gear", "grp"),
               by = c("gear"), sort_check = FALSE, {

  if (first.)
    grp <- "Start"
  else if (last.)
    grp <- "End"
  else
    grp <- "-"

})

df
#           mpg cyl gear  grp
# Mazda RX4      21.0  6   4 Start
# Mazda RX4 Wag  21.0  6   4  -
# Datsun 710     22.8  4   4  End
# Hornet 4 Drive  21.4  6   3 Start
# Hornet Sportabout 18.7  8   3  -
# Valiant        18.1  6   3  -
# Duster 360     14.3  8   3  End
# Merc 240D      24.4  4   4 Start
# Merc 230       22.8  4   4  -
# Merc 280       19.2  6   4  End

# Example #3: Calculate Block
df <- datastep(mtcars,
               keep = c("mpg", "cyl", "mean_mpg", "mpgcat"),
               calculate = { mean_mpg = mean(mpg) }, {

  if (mpg >= mean_mpg)
    mpgcat <- "High"
  else
    mpgcat <- "Low"

})

```

```

df[1:10,]
#           mpg cyl mean_mpg mpgcat
# Mazda RX4      21.0   6 20.09062   High
# Mazda RX4 Wag  21.0   6 20.09062   High
# Datsun 710     22.8   4 20.09062   High
# Hornet 4 Drive  21.4   6 20.09062   High
# Hornet Sportabout 18.7   8 20.09062   Low
# Valiant        18.1   6 20.09062   Low
# Duster 360     14.3   8 20.09062   Low
# Merc 240D      24.4   4 20.09062   High
# Merc 230       22.8   4 20.09062   High
# Merc 280       19.2   6 20.09062   Low

# Example #4: Data pipeline
library(dplyr)
library(magrittr)

# Add datastep to dplyr pipeline
df <- mtcars %>%
  select(mpg, cyl, gear) %>%
  mutate(mean_mpg = mean(mpg)) %>%
  datastep({

    if (mpg >= mean_mpg)
      mpgcat <- "High"
    else
      mpgcat <- "Low"

  }) %>%
  filter(row_number() <= 10)

df
#           mpg cyl gear mean_mpg mpgcat
# 1  21.0   6   4 20.09062   High
# 2  21.0   6   4 20.09062   High
# 3  22.8   4   4 20.09062   High
# 4  21.4   6   3 20.09062   High
# 5  18.7   8   3 20.09062   Low
# 6  18.1   6   3 20.09062   Low
# 7  14.3   8   3 20.09062   Low
# 8  24.4   4   4 20.09062   High
# 9  22.8   4   4 20.09062   High
# 10 19.2   6   4 20.09062   Low

# Example #5: Drop, Retain and Rename
df <- datastep(mtcars[1:10, ],
  drop = c("disp", "hp", "drat", "qsec",
           "vs", "am", "gear", "carb"),
  retain = list(cumwt = 0 ),
  rename = c(mpg = "MPG", cyl = "Cylinders", wt = "Wgt",
             cumwt = "Cumulative Wgt"), {

  cumwt <- cumwt + wt

```

```
})
```

```
df
#           MPG Cylinders  Wgt Cumulative Wgt
# Mazda RX4      21.0      6 2.620      2.620
# Mazda RX4 Wag  21.0      6 2.875      5.495
# Datsun 710     22.8      4 2.320      7.815
# Hornet 4 Drive  21.4      6 3.215     11.030
# Hornet Sportabout 18.7      8 3.440     14.470
# Valiant        18.1      6 3.460     17.930
# Duster 360     14.3      8 3.570     21.500
# Merc 240D      24.4      4 3.190     24.690
# Merc 230       22.8      4 3.150     27.840
# Merc 280       19.2      6 3.440     31.280
```

dictionary

Create a Data Dictionary

Description

A function to create a data dictionary for a data frame, a tibble, or a data library. The function will generate a tibble of information about the data. The tibble will contain the following columns:

- **Name:** The name of the data object.
- **Column:** The name of the column.
- **Class:** The class of the column.
- **Label:** The value of the label attribute.
- **Description:** A description applied to this column.
- **Format:** The value of the format attribute.
- **Width:** The max character width of the data in this column.
- **Justify:** The justification or alignment attribute value.
- **Rows:** The number of data rows.
- **NAs:** The number of NA values in this column.

Usage

```
dictionary(x)
```

Arguments

x The input library, data frame, or tibble.

See Also

[libname](#) to create a data library. Also see the [fmtr](#) package for functions to set the [formats](#), [descriptions](#), [widths](#), and [justification](#) attributes on a data frame.

Examples

```
# Create temp directory
tmp <- tempdir()

# Create library
libname(dat, tmp)

# Add data to the library
lib_add(dat, beaver1)
lib_add(dat, iris)

# Examine the dictionary for the library
dictionary(dat)
# A tibble: 9 x 10
#   Name      Column      Class  Label Description Format Width Justify Rows  NAs
#   <chr>   <chr>      <chr>  <lgl> <lgl>      <lgl> <lgl> <lgl> <int> <int>
# 1 beaver1 day          numeric NA    NA          NA    NA    NA    114    0
# 2 beaver1 time          numeric NA    NA          NA    NA    NA    114    0
# 3 beaver1 temp          numeric NA    NA          NA    NA    NA    114    0
# 4 beaver1 activ          numeric NA    NA          NA    NA    NA    114    0
# 5 iris    Sepal.Length numeric NA    NA          NA    NA    NA    150    0
# 6 iris    Sepal.Width  numeric NA    NA          NA    NA    NA    150    0
# 7 iris    Petal.Length numeric NA    NA          NA    NA    NA    150    0
# 8 iris    Petal.Width  numeric NA    NA          NA    NA    NA    150    0
# 9 iris    Species      factor  NA    NA          NA    NA    NA    150    0

# Clean up
lib_delete(dat)
```

import_spec

Create an Import Specification

Description

A function to create the import specifications for a particular data file. This information can be used on the [libname](#) function to correctly assign the data types for columns on imported data. The import specifications are defined as name/value pairs, where the name is the column name and the value is the data type indicator. Available data type indicators are 'guess', 'logical', 'character', 'integer', 'numeric', 'date', 'datetime', and 'time'. See the [specs](#) function for an example of using import specs.

Usage

```
import_spec(..., na = NULL, trim_ws = NULL)
```

Arguments

... Named pairs of column names and column data types. Available types are: 'guess', 'logical', 'character', 'integer', 'numeric', 'date', 'datetime', and 'time'.

The date/time data types accept an optional input format. To supply the input format, append it after the data type following an equals sign, e.g.: 'date=%d%B%Y' or 'datetime=%d%m%Y %H:%M:%S'. Default is NULL, meaning no column types are specified, and the function should make its best guess for each column.

na	A vector of values to be treated as NA. For example, the vector c(' ', ' ') will cause empty strings and single blanks to be converted to NA values. Default is NULL, meaning the value of the na parameter will be taken from the specs function. Any value supplied on the <code>import_spec</code> function will override the value from the <code>specs</code> function.
trim_ws	Whether or not to trim white space from the input data values. The default is NULL, meaning the value of the <code>trim_ws</code> parameter will be taken from the specs function. Any value supplied on the <code>import_spec</code> function will override the value from the <code>specs</code> function.

Value

The import specification object.

See Also

[libname](#) to create a data library, and [specs](#) for an example using import specs.

Other specs: [print.specs\(\)](#), [read.specs\(\)](#), [specs\(\)](#), [write.specs\(\)](#)

is.lib

Class test for a data library

Description

This function tests whether an object is a data library. The data library has a class of "lib".

Usage

```
is.lib(x)
```

Arguments

x The object to test.

Value

TRUE or FALSE, depending on whether or not the object is a data library.

See Also

Other lib: [lib_add\(\)](#), [lib_copy\(\)](#), [lib_delete\(\)](#), [lib_info\(\)](#), [lib_load\(\)](#), [lib_path\(\)](#), [lib_remove\(\)](#), [lib_replace\(\)](#), [lib_size\(\)](#), [lib_sync\(\)](#), [lib_unload\(\)](#), [lib_write\(\)](#), [libname\(\)](#), [print.lib\(\)](#)

Examples

```
# Create format catalog
libname(dat, tempdir())

# Test for "lib" class
is.lib(dat)
# [1] TRUE

is.lib(list())
# [1] FALSE

# Clean up
lib_delete(dat)
```

libname	<i>Create a data library</i>
---------	------------------------------

Description

A data library is a collection of data sets. The purpose of the data library is to combine related data sets, and provides the opportunity to manipulate all of them as a single object. A data library is created using the `libname` function. The `libname` function allows you to load an entire directory of data into memory in one step. The **libr** package contains additional functions to add and remove data from the library, copy the library, and write any changed data to the file system.

Usage

```
libname(
  name,
  directory_path,
  engine = "rds",
  read_only = FALSE,
  env = parent.frame(),
  import_specs = NULL,
  filter = NULL
)
```

Arguments

<code>name</code>	The unquoted name of the library to create. The library name will be created as a variable in the environment specified on the <code>env</code> parameter. The default environment is the parent frame.
<code>directory_path</code>	A directory path to associate with the library. If the directory contains data files of the type specified on the <code>engine</code> parameter, they will be imported into the library list. If the directory does not contain data sets of the appropriate type, it will be created as an empty library. If the directory does not exist, it will be created by the <code>libname</code> function.

engine	The engine to associate with the library. The specified engine will be used to import and export data. The engine name corresponds to the standard file extension of the data file type. The default engine is 'rds'. Valid values are 'rds', 'sas7bdat', 'xpt', 'xls', 'xlsx', 'dbf', and 'csv'.
read_only	Whether the library should be created as read-only. Default is FALSE. If TRUE, the user will be restricted from appending, removing, or writing any data from memory to the file system.
env	The environment to use for the libname. Default is <code>parent.frame()</code> . When working inside a function, the <code>parent.frame()</code> will refer to the local function scope. When working outside a function, the <code>parent.frame()</code> will be the global environment. If the <code>env</code> parameter is set to a custom environment, the custom environment will be used for all subsequent operations with that libname.
import_specs	A collection of import specifications, defined using the specs function. The import specs should be named according to the file names in the library directory. See the specs function for additional information.
filter	One or more quoted strings to use as filters for the incoming file names. For more than one filter string, pass them as a vector of strings. The filter string can be a full or partial file name, without extension. If using a partial file name, use a wild-card character (*) to identify the missing portion. The match will be case-insensitive.

Details

For most projects, a data file does not exist in isolation. There are sets of related files of the same file type. The aim of the `libname` function is to take advantage of this fact, and give you an easy way to manage the entire set.

The `libname` function points to a directory of data files, and associates a name with that set of data. The name refers to an object of class 'lib', which at its heart is a named list. When the `libname` function executes, it will load all the data in the directory into the list, and assign the file name (without extension) as the list item name. Data can be accessed using list syntax, or loaded directly into the local environment using the [lib_load](#) function.

The `libname` function provides several data engines to read data of different types. For example, there is an engine for Excel files, and another engine for SAS® datasets. The engines are identified by the extension of the file type they handle. The available engines are 'rds', 'csv', 'xlsx', 'xls', 'sas7bdat', 'xpt', and 'dbf'. Once an engine has been assigned to a library, all other read/write operations will be performed by that engine.

The data engines largely hide file import details from you. The purpose of the `libname` function is to make it easy to import a set of related data files that follow standard conventions. The function assumes that the data has file extensions that match the file type, and then makes further assumptions based on each type of file. As a result, there are very few import options on the `libname` function. If your data does not follow standard conventions, it is recommended that you import your data using a package that gives you more control over import options.

Value

The library object, with all data files loaded into the library list. Items in the list will be named according to the file name, minus the file extension.

Import Specifications

In most cases, it is not necessary to specify the data types for incoming columns in your data. Either the file format will preserve the appropriate data type information, or the assigned engine will guess correctly.

However, in some cases it will be necessary to control the column data types. For these cases, use the `import_specs` parameter. The `import_specs` parameter allows you to specify the data types by data set and column name. All the data type specifications are contained within a specs collection, and the specifications for a particular data set are defined by an `import_spec` function. See the [specs](#) and [import_spec](#) documentation for further information and examples of defining an import spec.

Data Engines

The `libname` function currently provides seven different engines for seven different types of data files. Here is a complete list of available engines and some commentary about each:

- **rds**: For R data sets. This engine is the default. Because detailed data type and attribute information can be stored inside the rds file, the rds engine is the most reliable and easiest to use.
- **csv**: For comma separated value files. This engine assumes that the first row has column names, and that strings containing commas are quoted. Blank values and the string 'NA' will be interpreted as NA. Because data type information is not stored in csv files, the csv engine will attempt to guess the data types based on the available data. For most columns, the csv engine is able to guess accurately. Where it fails most commonly is with date and time columns. For csv date and time columns, it is therefore recommended to assign an import spec that tells the engine how to read the date or time. See the [specs](#) documentation for additional details.
- **xlsx**: For Excel files produced with the current version of Excel. Excel provides more data type information than csv, but it is not as accurate as rds. Therefore, you may also need to provide import specifications with Excel files. Also note that currently the xlsx import engine will only import the first sheet of an Excel workbook. If you need to import a sheet that is not the first sheet, use a different package to import the data.
- **xls**: An Excel file format used between 1997 and 2003, and still used in some organizations. As with xlsx, this file format provides more information than csv, but is not entirely reliable. Therefore, you may need to provide import specifications to the xls engine. Also note that the xls engine can read, but not write xls files. Any xls files read with the xls engine will be written as an xlsx file. Like the xlsx engine, the xls engine can only read the first sheet of a workbook.
- **sas7bdat**: Handles SAS® datasets. SAS® datasets provide better type information than either csv or Excel. In most cases, you will not need to define import specifications for SAS® datasets. The sas7bdat engine interprets empty strings, single blanks, and a single dot (".") as missing values. While the import of SAS® datasets is fairly reliable, sas7bdat files exported with the sas7bdat engine sometimes cannot be read by SAS® software. In these cases, it is recommended to export to another file format, such as csv or dbf, and then import into SAS®.
- **xpt**: The SAS® transport file engine. Transport format is a platform independent file format. Similar to SAS® datasets, it provides data type information. In most cases, you will not need

to define import specifications. The xpt engine also interprets empty strings, single blanks, and a single dot (".") as missing values.

- **dbf**: The DBASE file format engine. The DBASE engine was added to the **libr** package because many types of software can read and write in DBASE format reliably. Therefore it is a useful file format for interchange between software systems. The DBASE file format contains type information.

File Filters

If you wish to import only a portion of your data files into a library, you may accomplish it with the `filter` parameter. The filter parameter allows you to pass a vector of strings corresponding to the names of the files you want to import. The function allows a wild-card (*) for partial matching. For example, "te*" means any file name that begins with a "te", and "*st" means any file name that ends with an "st".

See Also

[specs](#) to define import specifications, and [dictionary](#) to view the data dictionary for a library.

Other lib: [is.lib\(\)](#), [lib_add\(\)](#), [lib_copy\(\)](#), [lib_delete\(\)](#), [lib_info\(\)](#), [lib_load\(\)](#), [lib_path\(\)](#), [lib_remove\(\)](#), [lib_replace\(\)](#), [lib_size\(\)](#), [lib_sync\(\)](#), [lib_unload\(\)](#), [lib_write\(\)](#), [print.lib\(\)](#)

Examples

```
# Create temp directory
tmp <- tempdir()

# Save some data to temp directory
# for illustration purposes
saveRDS(trees, file.path(tmp, "trees.rds"))
saveRDS(rock, file.path(tmp, "rocks.rds"))
saveRDS(beaver1, file.path(tmp, "beaver1.rds"))

# Create data library
libname(dat, tmp)
# # library 'dat': 3 items
# - attributes: rds not loaded
# - path: C:\Users\User\AppData\Local\Temp\Rtmpk1Jcf1
# - items:
#   Name Extension Rows Cols Size LastModified
# 1 beaver1 rds 114 4 5.9 Kb 2020-12-06 15:21:30
# 2 rocks rds 48 4 3.6 Kb 2020-12-06 15:21:30
# 3 trees rds 31 3 2.9 Kb 2020-12-06 15:21:30

# Print dictionary for library
dictionary(dat)
# A tibble: 11 x 10
#   Name Column Class Label Description Format Width Justify Rows NAs
#   <chr> <chr> <chr> <chr> <chr> <lg1> <lg1> <chr> <int> <int>
# 1 beaver1 day numeric NA NA NA NA NA 114 0
# 2 beaver1 time numeric NA NA NA NA NA 114 0
# 3 beaver1 temp numeric NA NA NA NA NA 114 0
```

```

# 4 beaver1 activ numeric NA NA NA NA NA 114 0
# 5 rocks area integer NA NA NA NA NA 48 0
# 6 rocks peri numeric NA NA NA NA NA 48 0
# 7 rocks shape numeric NA NA NA NA NA 48 0
# 8 rocks perm numeric NA NA NA NA NA 48 0
# 9 trees Girth numeric NA NA NA NA NA 31 0
# 10 trees Height numeric NA NA NA NA NA 31 0
# 11 trees Volume numeric NA NA NA NA NA 31 0

# Load library into workspace
lib_load(dat)

# Print summaries for each data frame
# Note that once loaded into the workspace,
# data can be accessed using two-level syntax.
summary(dat.rocks)
summary(dat.trees)
summary(dat.beaver1)

#Unload from workspace
lib_unload(dat)

# Clean up
lib_delete(dat)

```

libr

Libnames, Data Dictionaries and Data Steps

Description

The **libr** package brings the concepts of data libraries, data dictionaries, and data steps to R. A data library is an object used to define and manage an entire directory of data files. A data dictionary is a data frame full of information about a data library, data frame, or tibble. And a data step allows row-by-row processing of data.

The functions contained in the **libr** package are as follows:

- **libname**: Creates a data library
- **dictionary**: Creates a data dictionary
- **datastep**: Perform row-by-row processing of data
- **%eq%**: An infix operator to check equality between objects
- **lib_load**: Loads a library into the workspace
- **lib_unload**: Unloads a library from the workspace
- **lib_sync**: Synchronizes the workspace with the library list
- **lib_write**: Writes library data to the file system
- **lib_add**: Adds data to a library
- **lib_replace**: Replaces data in a library

- `lib_remove`: Removes data from a library
- `lib_copy`: Copies a data library
- `lib_delete`: Deletes a data library
- `lib_info`: Returns a data frame of information about the library
- `lib_path`: Returns the path of a data library
- `lib_size`: Returns the size of the data library in bytes
- `import_spec`: Defines an import spec for a specific file
- `specs`: Contains all the import specs for a library

Note that the **libr** package is intended to be used with small and medium-sized data sets. It is not recommended for big data, as big data requires very careful control over which data is or is not loaded into memory. The **libr** package, on the other hand, tends to load all data into memory indiscriminately.

lib_add

Add Data to a Data Library

Description

The `lib_add` function adds a data frame or tibble to an existing data library. The function will both add the data to the library list, and immediately write the data to the library directory location. The data will be written to disk in the file format associated with the library engine. If the library is loaded, the function will also add the data to the workspace environment.

Usage

```
lib_add(x, ..., name = NULL)
```

Arguments

<code>x</code>	The library to add data to.
<code>...</code>	The data frame(s) to add to the library. If more than one, separate with commas.
<code>name</code>	The reference name to use for the data. By default, the name will be the variable name. To assign a name different from the variable name, assign a quoted name to this parameter. If more than one data set is being appended, assign a vector of quoted names.

See Also

Other lib: `is.lib()`, `lib_copy()`, `lib_delete()`, `lib_info()`, `lib_load()`, `lib_path()`, `lib_remove()`, `lib_replace()`, `lib_size()`, `lib_sync()`, `lib_unload()`, `lib_write()`, `libname()`, `print.lib()`

Examples

```

#' # Create temp directory
tmp <- tempdir()

# Create library
libname(dat, tmp)
# # library 'dat': 0 items
# - attributes: rds not loaded
# - path: C:\Users\User\AppData\Local\Temp\RtmpCSJ6Gc
# NULL

# Add data to the library
lib_add(dat, mtcars, beaver1, iris)
# library 'dat': 3 items
# - attributes: not loaded
# - path: C:\Users\User\AppData\Local\Temp\RtmpCSJ6Gc
# - items:
#   Name Extension Rows Cols  Size      LastModified
# 1 mtcars      rds   32  11 7.5 Kb 2020-11-05 19:32:00
# 2 beaver1    rds  114   4 5.1 Kb 2020-11-05 19:32:04
# 3 iris       rds  150   5 7.5 Kb 2020-11-05 19:32:08

# Clean up
lib_delete(dat)

```

lib_copy

*Copy a Data Library***Description**

The `lib_copy` function copies a data library. The function accepts a library and a destination path. If the destination path does not exist, the function will attempt to create it.

Note that the copy will result in the current data in memory written to the new destination directory. If the library is loaded into the workspace, the workspace version will be considered the most current version, and that is the version that will be copied.

Usage

```
lib_copy(x, nm, directory_path)
```

Arguments

`x` The library to copy.
`nm` The unquoted variable name to hold the new library.
`directory_path` The path to copy the library to.

Value

The new library.

See Also

Other lib: [is.lib\(\)](#), [lib_add\(\)](#), [lib_delete\(\)](#), [lib_info\(\)](#), [lib_load\(\)](#), [lib_path\(\)](#), [lib_remove\(\)](#), [lib_replace\(\)](#), [lib_size\(\)](#), [lib_sync\(\)](#), [lib_unload\(\)](#), [lib_write\(\)](#), [libname\(\)](#), [print.lib\(\)](#)

Examples

```
# Create temp directory
tmp <- tempdir()

# Create library
libname(dat1, tmp)

# Add dat to library
lib_add(dat1, mtcars, iris)

# Copy dat1 to dat2
lib_copy(dat1, dat2, file.path(tmp, "copy"))
# library 'dat2': 2 items
# - attributes: not loaded
# - path: C:\Users\User\AppData\Local\Temp\RtmpCSJ6Gc/copy
# - items:
#   Name Extension Rows Cols Size LastModified
# 1 mtcars      rds   32  11 7.5 Kb 2020-11-05 21:14:54
# 2  iris       rds  150   5 7.5 Kb 2020-11-05 21:14:54

# Clean up
lib_delete(dat1)
lib_delete(dat2)
```

lib_delete

Delete a Data Library

Description

The `lib_delete` function deletes a data library from the file system and from memory. All data files associated with the library and the specified engine will be deleted. If other files exist in the library directory, they will not be affected by the delete operation.

The directory that contains the data will also not be affected by the delete operation. To delete the data directory, use the [unlink](#) function or other packaged functions.

Usage

```
lib_delete(x)
```

Arguments

x The data library to delete.

See Also

Other lib: [is.lib\(\)](#), [lib_add\(\)](#), [lib_copy\(\)](#), [lib_info\(\)](#), [lib_load\(\)](#), [lib_path\(\)](#), [lib_remove\(\)](#), [lib_replace\(\)](#), [lib_size\(\)](#), [lib_sync\(\)](#), [lib_unload\(\)](#), [lib_write\(\)](#), [libname\(\)](#), [print.lib\(\)](#)

Examples

```
# Create temp directory
tmp <- tempdir()

# Create library
libname(dat, tmp)

# Add data to library
lib_add(dat, mtcars)
lib_add(dat, iris)

# Load library
lib_load(dat)

# Examine workspace
ls()
# [1] "dat" "dat.iris" "dat.mtcars" "tmp"

# Examine library
dat
# library 'dat': 2 items
# - attributes: not loaded
# - path: C:\Users\User\AppData\Local\Temp\RtmpCSJ6Gc
# - items:
#   Name Extension Rows Cols Size LastModified
# 1 mtcars rds 32 11 7.5 Kb 2020-11-05 21:18:17
# 2 iris rds 150 5 7.5 Kb 2020-11-05 21:18:17

# Delete library
lib_delete(dat)

#' # Examine workspace again
ls()
# [1] "tmp"
```

lib_info

Get Information about a Data Library

Description

The `lib_info` function returns a data frame of information about each item in the data library. That information includes the item name, file extension, number of rows, number of columns, size in bytes, and the last modified date.

Usage

```
lib_info(x)
```

Arguments

x The data library.

Value

A data frame of information about the library.

See Also

Other lib: [is.lib\(\)](#), [lib_add\(\)](#), [lib_copy\(\)](#), [lib_delete\(\)](#), [lib_load\(\)](#), [lib_path\(\)](#), [lib_remove\(\)](#), [lib_replace\(\)](#), [lib_size\(\)](#), [lib_sync\(\)](#), [lib_unload\(\)](#), [lib_write\(\)](#), [libname\(\)](#), [print.lib\(\)](#)

Examples

```
# Create temp directory
tmp <- tempdir()

# Create data library
libname(dat, tmp)

# Add data to library
lib_add(dat, trees, rock, beaver1)

# Get library information
info <- lib_info(dat)

# Examine info
info
#      Name Extension Rows Cols  Size      LastModified
# 1 beaver1      rds  114   4 5.3 Kb 2020-11-05 21:27:57
# 2  rocks      rds   48   4 3.1 Kb 2020-11-05 21:27:56
# 3  trees      rds   31   3 2.4 Kb 2020-11-05 21:27:56

# Clean up
lib_delete(dat)
```

lib_load

Load a Library into the Workspace

Description

The `lib_load` function loads a data library into an environment. The environment used is associated with the library at the time it is created with the `libname` function. When the `lib_load` function is called, the data frames/tibbles will be loaded with `<library>.<data set>` syntax. Loading the data frames into the environment makes them easy to access and use in your program.

Usage

```
lib_load(x, filter = NULL)
```

Arguments

x	The data library to load.
filter	One or more quoted strings to use as filters for the data names to load into the workspace. For more than one filter string, pass them as a vector of strings. The filter string can be a full or partial name. If using a partial name, use a wild-card character (*) to identify the missing portion. The match will be case-insensitive.

Value

The loaded data library.

See Also

[lib_unload](#) to unload the library.

Other lib: [is.lib\(\)](#), [lib_add\(\)](#), [lib_copy\(\)](#), [lib_delete\(\)](#), [lib_info\(\)](#), [lib_path\(\)](#), [lib_remove\(\)](#), [lib_replace\(\)](#), [lib_size\(\)](#), [lib_sync\(\)](#), [lib_unload\(\)](#), [lib_write\(\)](#), [libname\(\)](#), [print.lib\(\)](#)

Examples

```
# Create temp directory
tmp <- tempdir()

# Save some data to temp directory for illustration purposes
saveRDS(iris, file.path(tmp, "iris.rds"))
saveRDS(ToothGrowth, file.path(tmp, "ToothGrowth.rds"))
saveRDS(PlantGrowth, file.path(tmp, "PlantGrowth.rds"))

# Create library
libname(dat, tmp)

# Load library into workspace
lib_load(dat)

# Examine workspace
ls()
# [1] "dat" "dat.iris" "dat.PlantGrowth" "dat.ToothGrowth" "tmp"

# Use some data
summary(dat.PlantGrowth)
summary(dat.ToothGrowth)

# Unload library
lib_unload(dat)

# Examine workspace again
ls()
```

```
# [1] "dat" "tmp"

# Clean up
lib_delete(dat)
```

lib_path

Get the Path for a Data Library

Description

The lib_path function returns the current path of the the library as a string.

Usage

```
lib_path(x)
```

Arguments

x The data library.

Value

The path of the data library as a single string.

See Also

Other lib: [is.lib\(\)](#), [lib_add\(\)](#), [lib_copy\(\)](#), [lib_delete\(\)](#), [lib_info\(\)](#), [lib_load\(\)](#), [lib_remove\(\)](#), [lib_replace\(\)](#), [lib_size\(\)](#), [lib_sync\(\)](#), [lib_unload\(\)](#), [lib_write\(\)](#), [libname\(\)](#), [print.lib\(\)](#)

Examples

```
# Create temp directory
tmp <- tempdir()

# Create library
libname(dat, tmp)

# Examine library path
lib_path(dat)
# [1] "C:\Users\User\AppData\Local\Temp\RtmpCSJ6Gc"

# Clean up
lib_delete(dat)
```

`lib_remove`*Remove Data from a Data Library*

Description

The `lib_remove` function removes an item from the data library, and deletes the source file for that data. If the library is loaded, it will also remove that item from the workspace environment.

Usage

```
lib_remove(x, name)
```

Arguments

<code>x</code>	The data library.
<code>name</code>	The quoted name of the item to remove from the data library. For more than one name, pass a vector of quoted names.

Value

The library with the requested item removed.

See Also

Other lib: [is.lib\(\)](#), [lib_add\(\)](#), [lib_copy\(\)](#), [lib_delete\(\)](#), [lib_info\(\)](#), [lib_load\(\)](#), [lib_path\(\)](#), [lib_replace\(\)](#), [lib_size\(\)](#), [lib_sync\(\)](#), [lib_unload\(\)](#), [lib_write\(\)](#), [libname\(\)](#), [print.lib\(\)](#)

Examples

```
# Create temp directory
tmp <- tempdir()

# Create library
libname(dat, tmp)

# Add data to the library
lib_add(dat, mtcars, beaver1, iris)
# library 'dat': 3 items
# - attributes: not loaded
# - path: C:\Users\User\AppData\Local\Temp\RtmpCSJ6Gc
# - items:
#   Name Extension Rows Cols Size LastModified
# 1 mtcars rds 32 11 7.5 Kb 2020-11-05 19:32:00
# 2 beaver1 rds 114 4 5.1 Kb 2020-11-05 19:32:04
# 3 iris rds 150 5 7.5 Kb 2020-11-05 19:32:08

# Remove items from the library
lib_remove(dat, c("beaver1", "iris"))
# library 'dat': 1 items
```

```
# - attributes: not loaded
# - path: C:\Users\User\AppData\Local\Temp\RtmpCSJ6Gc
# - items:
#   Name Extension Rows Cols   Size      LastModified
# 1 mtcars      rds   32   11 7.5 Kb 2020-11-05 19:32:40

# Clean up
lib_delete(dat)
```

lib_replace

Replace Data in a Data Library

Description

The `lib_replace` function replaces a data frame in an existing data library. The function will replace the data in the library list, the data in the workspace (if loaded), and immediately write the new data to the library directory location. The data will be written in the file format associated with the library engine.

Usage

```
lib_replace(x, ..., name = NULL)
```

Arguments

<code>x</code>	The library to replace data in.
<code>...</code>	The data frame(s) to replace. If you wish to replace more than one data set, separate with commas.
<code>name</code>	The reference name to use for the data. By default, the name will be the variable name. To assign a name different from the variable name, assign a quoted name to this parameter. If more than one data set is being replaced, assign a vector of quoted names.

See Also

Other lib: `is.lib()`, `lib_add()`, `lib_copy()`, `lib_delete()`, `lib_info()`, `lib_load()`, `lib_path()`, `lib_remove()`, `lib_size()`, `lib_sync()`, `lib_unload()`, `lib_write()`, `libname()`, `print.lib()`

Examples

```
#! # Create temp directory
tmp <- tempdir()

# Create library
libname(dat, tmp)

# Add data to the library
lib_add(dat, mtcars)
```

```

# library 'dat': 3 items
# - attributes: not loaded
# - path: C:\Users\User\AppData\Local\Temp\RtmpCSJ6Gc
# - items:
#   Name Extension Rows Cols  Size      LastModified
# 1  mtcars      rds   32  11 7.5 Kb 2020-11-05 19:32:00

# Replace data with a subset
lib_replace(dat, mtcars[1:10, 1:5], name = "mtcars")
# library 'dat': 3 items
# - attributes: not loaded
# - path: C:\Users\User\AppData\Local\Temp\RtmpCSJ6Gc
# - items:
#   Name Extension Rows Cols  Size      LastModified
# 1  mtcars      rds   10   5 7.5 Kb 2020-11-05 19:33:00

# Clean up
lib_delete(dat)

```

lib_size

Get the Size of a Data Library

Description

The `lib_size` function returns the number of bytes used by the data library, as stored on disk.

Usage

```
lib_size(x)
```

Arguments

`x` The data library.

Value

The size of the data library in bytes as stored on the file system.

See Also

Other lib: [is.lib\(\)](#), [lib_add\(\)](#), [lib_copy\(\)](#), [lib_delete\(\)](#), [lib_info\(\)](#), [lib_load\(\)](#), [lib_path\(\)](#), [lib_remove\(\)](#), [lib_replace\(\)](#), [lib_sync\(\)](#), [lib_unload\(\)](#), [lib_write\(\)](#), [libname\(\)](#), [print.lib\(\)](#)

Examples

```

# Create temp directory
tmp <- tempdir()

# Create library
libname(dat, tmp)

```



```
# Add some data to library
lib_add(dat, mtcars)
lib_add(dat, iris)

# Check size of library
lib_size(dat)
# [1] 9757

# Clean up
lib_delete(dat)
```

lib_sync

Synchronize Loaded Library

Description

The `lib_sync` function synchronizes the data loaded into the working environment with the data stored in the library list. Synchronization is necessary only for libraries that have been loaded into the working environment. The function copies data from the working environment to the library list, overwriting any data in the list. The function is useful when you want to update the library list, but are not yet ready to unload the data from working memory.

Note that the `lib_sync` function does not write any data to disk. Also note that the `lib_sync` function will not automatically remove any variables from the library list that have been removed from the workspace. To remove items from the library list, use the [lib_remove](#) function. To write data to disk, use the [lib_write](#) function.

Usage

```
lib_sync(x, name = NULL)
```

Arguments

<code>x</code>	The data library to synchronize.
<code>name</code>	The name of the library to sync if not the variable name. Used internally.

Value

The synchronized data library.

See Also

Other lib: [is.lib\(\)](#), [lib_add\(\)](#), [lib_copy\(\)](#), [lib_delete\(\)](#), [lib_info\(\)](#), [lib_load\(\)](#), [lib_path\(\)](#), [lib_remove\(\)](#), [lib_replace\(\)](#), [lib_size\(\)](#), [lib_unload\(\)](#), [lib_write\(\)](#), [libname\(\)](#), [print.lib\(\)](#)

Examples

```

# Create temp directory
tmp <- tempdir()

# Create library
libname(dat, tmp)
# library 'dat': 0 items
# - attributes: not loaded
# - path: C:\Users\User\AppData\Local\Temp\RtmpCSJ6Gc
# NULL

# Load the library
lib_load(dat)

# Add data to the workspace
dat.mtcars <- mtcars
dat.beaver1 <- beaver1
dat.iris <- iris

# Sync the library
lib_sync(dat)
# library 'dat': 3 items
# - attributes: loaded
# - path: C:\Users\User\AppData\Local\Temp\RtmpCSJ6Gc
# - items:
#   Name Extension Rows Cols  Size LastModified
# 1 beaver1      NA  114   4 4.6 Kb      <NA>
# 2  iris        NA  150   5 7.1 Kb      <NA>
# 3 mtcars       NA   32  11  7 Kb      <NA>

# Clean up
lib_delete(dat)

```

lib_unload*Unload a Library from the Workspace*

Description

The `lib_unload` function unloads a data library from the workspace environment. The unload function does not delete the data or remove the library. It simply removes the data frames from working memory. By default, the `lib_unload` function will also synchronize the data in working memory with the data stored in the library list, as these two instances can become out of sync if you change the data in working memory.

Usage

```
lib_unload(x, sync = TRUE, name = NULL)
```

Arguments

x	The data library to unload.
sync	Whether to sync the workspace with the library list before it is unloaded. Default is TRUE. If you want to unload the workspace without saving the workspace data, set this parameter to FALSE.
name	The name of the library to unload, if the name is different than the variable name. Used internally.

Value

The unloaded data library.

See Also

[lib_load](#) to load the library.

Other lib: [is.lib\(\)](#), [lib_add\(\)](#), [lib_copy\(\)](#), [lib_delete\(\)](#), [lib_info\(\)](#), [lib_load\(\)](#), [lib_path\(\)](#), [lib_remove\(\)](#), [lib_replace\(\)](#), [lib_size\(\)](#), [lib_sync\(\)](#), [lib_write\(\)](#), [libname\(\)](#), [print.lib\(\)](#)

Examples

```
# Create temp directory
tmp <- tempdir()

# Create library
libname(dat, tmp)

# Add data to library
lib_add(dat, iris, ToothGrowth, PlantGrowth)

# Load library into workspace
lib_load(dat)

# Examine workspace
ls()
# [1] "dat" "dat.iris" "dat.PlantGrowth" "dat.ToothGrowth" "tmp"

# Use some data
summary(dat.PlantGrowth)
summary(dat.ToothGrowth)

# Unload library
lib_unload(dat)

# Examine workspace again
ls()
# [1] "dat" "tmp"

# Clean up
lib_delete(dat)
```

`lib_write`*Write a Data Library to the File System*

Description

The `lib_write` function writes the data library to the file system. The library will be written to the directory for which it was defined, and each data frame will be written in the format associated with the library data engine. See the `libname` function for further elaboration on the types of engines available, and the assumptions/limitations of each.

By default, the `lib_write` function will not write data that has not changed. Prior to writing a file, `lib_write` will compare the data in memory to the data on disk. If there are differences in the data, the function will overwrite the version on disk. To override the default behavior, use the `force` option to force `lib_write` to write every data file to disk.

Usage

```
lib_write(x, force = FALSE)
```

Arguments

<code>x</code>	The data library to write.
<code>force</code>	Force writing each data file to disk, even if it has not changed.

Value

The saved data library.

See Also

Other lib: `is.lib()`, `lib_add()`, `lib_copy()`, `lib_delete()`, `lib_info()`, `lib_load()`, `lib_path()`, `lib_remove()`, `lib_replace()`, `lib_size()`, `lib_sync()`, `lib_unload()`, `libname()`, `print.lib()`

Examples

```
# Create temp directory
tmp <- tempdir()

# Create library
libname(dat, tmp)
# # library 'dat': 0 items
# - attributes: rds not loaded
# - path: C:\Users\User\AppData\Local\Temp\RtmpCSJ6Gc
# NULL

# Load the empty library
lib_load(dat)

# Add data to the library
```

```

dat.mtcars <- mtcars
dat.beaver1 <- beaver1
dat.iris <- iris

# Unload the library
lib_unload(dat)
# library 'dat': 3 items
# - attributes: rds not loaded
# - path: C:\Users\User\AppData\Local\Temp\RtmpCSJ6Gc
# - items:
#   Name Extension Rows Cols  Size LastModified
# 1 beaver1      NA  114   4 4.6 Kb      <NA>
# 2  iris        NA  150   5 7.1 Kb      <NA>
# 3  mtcars      NA   32  11  7 Kb      <NA>

# Write the library to the file system
lib_write(dat)
# library 'dat': 3 items
#- attributes: not loaded
#- path: C:\Users\User\AppData\Local\Temp\RtmpCSJ6Gc
#- items:
#   Name Extension Rows Cols  Size      LastModified
#1 beaver1      rds  114   4 4.8 Kb 2020-11-05 20:47:16
#2  iris        rds  150   5 7.3 Kb 2020-11-05 20:47:16
#3  mtcars      rds   32  11 7.3 Kb 2020-11-05 20:47:16

# Clean up
lib_delete(dat)

```

print.lib

Print a data library

Description

A class-specific instance of the `print` function for data libraries. The function prints the library in a summary manner. Use `verbose = TRUE` to print the library as a list.

Usage

```

## S3 method for class 'lib'
print(x, ..., verbose = FALSE)

```

Arguments

<code>x</code>	The library to print.
<code>...</code>	Any follow-on parameters.
<code>verbose</code>	Whether or not to print the library in verbose style. By default, the parameter is <code>FALSE</code> , meaning to print in summary style.

Value

The object, invisibly.

See Also

Other lib: [is.lib\(\)](#), [lib_add\(\)](#), [lib_copy\(\)](#), [lib_delete\(\)](#), [lib_info\(\)](#), [lib_load\(\)](#), [lib_path\(\)](#), [lib_remove\(\)](#), [lib_replace\(\)](#), [lib_size\(\)](#), [lib_sync\(\)](#), [lib_unload\(\)](#), [lib_write\(\)](#), [libname\(\)](#)

Examples

```
# Create temp directory
tmp <- tempdir()

# Create data library
libname(dat, tmp)

# Add data to library
lib_add(dat, iris, ToothGrowth, PlantGrowth)

# Print library summary
print(dat)
# library 'dat': 3 items
# - attributes: not loaded
# - path: C:\Users\User\AppData\Local\Temp\RtmpCSJ6Gc
# - items:
#       Name Extension Rows Cols  Size      LastModified
# 1      iris          rds  150   5 7.8 Kb 2020-11-05 22:26:59
# 2 PlantGrowth      rds   30   2 2.5 Kb 2020-11-05 22:26:59
# 3 ToothGrowth      rds   60   3 3.4 Kb 2020-11-05 22:26:59

# Clean up
lib_delete(dat)
```

print.specs

Print import specifications

Description

A function to print the import specification collection.

Usage

```
## S3 method for class 'specs'
print(x, ..., verbose = FALSE)
```

Arguments

x	The specifications to print.
...	Any follow-on parameters to the print function.
verbose	Whether or not to print the specifications in verbose style. By default, the parameter is FALSE, meaning to print in summary style.

Value

The specification object, invisibly.

See Also

Other specs: [import_spec\(\)](#), [read.specs\(\)](#), [specs\(\)](#), [write.specs\(\)](#)

read.specs	<i>Read import specs from the file system</i>
------------	---

Description

A function to read import specifications from the file system. The function accepts a full or relative path to the spec file, and returns the specs as an object. If the `file_path` parameter is passed as a directory name, the function will search for a file with a `'.specs'` extension and read it.

Usage

```
read.specs(file_path = getwd())
```

Arguments

file_path	The full or relative path to the file system. Default is the current working directory. If the <code>file_path</code> is a file name that does not contain the <code>'.specs'</code> file extension, the function will add the extension. If the <code>file_path</code> contains a directory name, the function will search the directory for a file with an extension of <code>'.specs'</code> . If more than one file with an extension of <code>'.specs'</code> is found, the function will generate an error.
-----------	---

Value

The specifications object.

See Also

Other specs: [import_spec\(\)](#), [print.specs\(\)](#), [specs\(\)](#), [write.specs\(\)](#)

Description

A function to capture a set of import specifications for a directory of data files. These specs can be used on the [libname](#) function to correctly assign the data types for imported data files. The import engines will guess at the data types for any columns that are not explicitly defined in the import specifications. Import specifications are defined with the [import_spec](#) function. The import spec syntax is the same for all data engines.

Note that the `na` and `trim_ws` parameters on the `specs` function will be applied globally to all files in the library. These global settings can be overridden on the [import_spec](#) for any particular data file.

Also note that the `specs` collection is defined as an object so it can be stored and reused. See the [write.specs](#) and [read.specs](#) functions for additional information on saving specs.

Usage

```
specs(..., na = c("", "NA"), trim_ws = TRUE)
```

Arguments

...	Named input specs. The name should correspond to the file name, without the file extension. The spec is defined as an import_spec object. See the import_spec function for additional information on parameters for that object.
<code>na</code>	A vector of values to be treated as NA. For example, the vector <code>c(' ', ' ')</code> will cause empty strings and single blanks to be converted to NA values. For most file types, empty strings and the string 'NA' (<code>' ', 'NA'</code>) are considered NA. For SAS® datasets and transport files, a single blank and a single dot <code>c(" ", ".")</code> are considered NA. The value of the <code>na</code> parameter on the <code>specs</code> function can be overridden by the <code>na</code> parameter on the import_spec function.
<code>trim_ws</code>	Whether or not to trim white space from the input data values. Valid values are TRUE, and FALSE. Default is TRUE. The value of the <code>trim_ws</code> parameter on the <code>specs</code> function can be overridden by the <code>trim_ws</code> parameter on the import_spec function.

Value

The import specifications object.

See Also

[libname](#) to create a data library, [dictionary](#) for generating a data dictionary, and [import_spec](#) for additional information on defining an import spec.

Other specs: [import_spec\(\)](#), [print.specs\(\)](#), [read.specs\(\)](#), [write.specs\(\)](#)


```

libname(dat, tempdir(), "csv", import_specs = spcs)
# $mtcars
# library 'dat': 1 items
# - attributes: csv not loaded
# - path: C:\Users\User\AppData\Local\Temp\RtmpqAMV6L
# - items:
#   Name Extension Rows Cols Size LastModified
# 1 mtcars csv 10 7 9.3 Kb 2020-11-29 09:47:52

# View data types
dictionary(dat)
# # A tibble: 7 x 10
#   Name Column Class Label Description Format Width Justify Rows NAs
#   <chr> <chr> <chr> <chr> <chr> <lg1> <int> <chr> <int> <int>
# 1 mtcars vehicle character NA NA NA 17 NA 10 0
# 2 mtcars mpg numeric NA NA NA NA NA 10 0
# 3 mtcars cyl integer NA NA NA NA NA 10 0
# 4 mtcars disp numeric NA NA NA NA NA 10 0
# 5 mtcars mpgcat character NA NA NA 4 NA 10 0
# 6 mtcars recdt Date NA NA NA NA NA 10 0
# 7 mtcars cyl8 logical NA NA NA NA NA 10 8

# Clean up
lib_delete(dat)

```

write.specs

Write import specs to the file system

Description

A function to write import specifications to the file system. The function accepts a specifications object and a full or relative path. The function returns the full file path. This function is useful so that you can define import specifications once, and reuse them in multiple programs or across multiple teams.

Usage

```
write.specs(x, dir_path = getwd(), file_name = NULL)
```

Arguments

x	A specifications object of class 'specs'.
dir_path	A full or relative path to save the specs. Default is the current working directory.
file_name	The file name to save to specs, without a file extension. The file extension will be added automatically. If no file name is supplied, the function will use the variable name as the file name.

Value

The full file path.

See Also

Other specs: [import_spec\(\)](#), [print.specs\(\)](#), [read.specs\(\)](#), [specs\(\)](#)

`%eq%` *Check equality of two objects*

Description

The goal of the `%eq%` operator is to return a TRUE or FALSE value when any two objects are compared. The function provides a simple, reliable equality check that allows comparing of NULLs, NA values, and atomic data types without error.

The function also allows comparing of data frames. It will return TRUE if all values in the data frames are equal, and ignores differences in attributes.

Usage

```
x1 %eq% x2
```

Arguments

<code>x1</code>	The first object to compare
<code>x2</code>	The second object to compare

Value

A TRUE or FALSE value depending on whether the objects are equal.

Examples

```
# Comparing of NULLs and NA
NULL %eq% NULL      # TRUE
NULL %eq% NA        # FALSE
NA %eq% NA          # TRUE
1 %eq% NULL         # FALSE
1 %eq% NA           # FALSE

# Comparing of atomic values
1 %eq% 1             # TRUE
"one" %eq% "one"    # TRUE
1 %eq% "one"        # FALSE
1 %eq% Sys.Date()  # FALSE

# Comparing of vectors
v1 <- c("A", "B", "C")
v2 <- c("A", "B", "D")
v1 %eq% v1           # TRUE
v1 %eq% v2           # FALSE
```

```
# Comparing of data frames
mtcars %eq% mtcars    # TRUE
mtcars %eq% iris     # FALSE
iris %eq% iris[1:50,] # FALSE

# Mixing it up
mtcars %eq% NULL     # FALSE
v1 %eq% NA           # FALSE
1 %eq% v1            # FALSE
```

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