

# Package ‘ReDaMoR’

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**Type** Package

**Title** Relational Data Modeler

**Version** 0.6.3

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**Description** The aim of this package is to manipulate relational data models in R.  
It provides functions to create, modify and export data models in json format.  
It also allows importing models created with 'MySQL Workbench' (<<https://www.mysql.com/products/workbench/>>).  
These functions are accessible through a graphical user interface made with 'shiny'.  
Constraints such as types, keys, uniqueness and mandatory fields are automatically checked and corrected when editing a model.  
Finally, real data can be confronted to a model to check their compatibility.

**URL** <https://github.com/patzaw/ReDaMoR>

**BugReports** <https://github.com/patzaw/ReDaMoR/issues>

**Depends** R (>= 3.5), dplyr, magrittr, visNetwork

**Imports** readr, shiny, shinyjs, jsonlite, DT, colourpicker, rintrojs, markdown, rstudioapi, crayon, igraph, utils, graphics, stats, Matrix

**Suggests** knitr, rmarkdown, base64enc

**License** GPL-3

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---

add_field	<i>Add a field to a table in a <a href="#">RelDataModel</a></i>
-----------	---

---

## Description

Add a field to a table in a [RelDataModel](#)

## Usage

```
add_field(x, tableName, name, type, nullable, unique, comment)
```

## Arguments

x	a <a href="#">RelDataModel</a>
tableName	the name of the table to modify (a single character)
name	the name of the field to add (a single character)
type	the type of the field (a single character)
nullable	if the field is nullable (a single logical)
unique	if the values are unique (a single logical)
comment	a description (a single character)

## Value

A [RelDataModel](#)

---

add_foreign_key	<i>Add a foreign key between two tables</i>
-----------------	---

---

**Description**

Add a foreign key between two tables

**Usage**

```
add_foreign_key(  
    x,  
    fromTable,  
    fromFields,  
    toTable,  
    toFields,  
    fmin = 0L,  
    fmax = -1L,  
    tmin = 1L,  
    tmax = 1L  
)
```

**Arguments**

x	a <a href="#">RelDataModel</a>
fromTable	the name of the referencing table
fromFields	the name of the referencing fields
toTable	the name of the referenced table
toFields	the names of the referenced fields
fmin	from minimum cardinality (default: 0L)
fmax	from maximum cardinality (default: -1L ==> Infinite)
tmin	to minimum cardinality (default: 1L)
tmax	to maximum cardinality (default: 1L)

**Value**

A [RelDataModel](#)

---

add_index	<i>Add an index to a table in a <a href="#">RelDataModel</a></i>
-----------	--

---

**Description**

Add an index to a table in a [RelDataModel](#)

**Usage**

```
add_index(x, tableName, fieldNames, unique)
```

**Arguments**

x	a <a href="#">RelDataModel</a>
tableName	the name of the table to modify (a single character)
fieldNames	the names of the fields to include in the index
unique	a logical indicating if the indexed values are unique

**Value**

A [RelDataModel](#)

---

add_table	<i>Add a table to a <a href="#">RelDataModel</a></i>
-----------	--

---

**Description**

Add a table to a [RelDataModel](#)

**Usage**

```
add_table(x, newTable)
```

**Arguments**

x	a <a href="#">RelDataModel</a>
newTable	the name of the new table or a <a href="#">RelTableModel</a>

**Value**

A [RelDataModel](#)

---

as_type	<i>Convert an object into a specific type</i>
---------	---

---

**Description**

Convert an object into a specific type

**Usage**

```
as_type(x, type)
```

**Arguments**

x	an object to convert
type	the targeted type

---

auto_layout	<i>Pre-compute <a href="#">RelDataModel</a> layout when missing any x or y table position</i>
-------------	---

---

**Description**

Pre-compute [RelDataModel](#) layout when missing any x or y table position

**Usage**

```
auto_layout(  
  x,  
  layout = "layout_nicely",  
  lengthMultiplier = 40 * length(x),  
  force = FALSE  
)
```

**Arguments**

x	a <a href="#">RelDataModel</a>
layout	character name of igraph layout function to use (Default: "layout_nicely").
lengthMultiplier	a numeric value to scale x and y coordinate (default: 40*length(x))
force	if TRUE autolayout even if all tables have coordinates (default: FALSE)

**Value**

A [RelDataModel](#)

---

c.RelDataModel	Merge <i>RelDataModel</i> objects
----------------	-----------------------------------

---

**Description**

Merge *RelDataModel* objects

**Usage**

```
## S3 method for class 'RelDataModel'  
c(..., checkFK = TRUE)
```

**Arguments**

...	<i>RelDataModel</i> objects
checkFK	a logical indicating if foreign keys should be checked (default: TRUE)

**Value**

A *RelDataModel* objects

---

check_foreign_keys	Check the availability of foreign keys
--------------------	--

---

**Description**

Check the availability of foreign keys

**Usage**

```
check_foreign_keys(x)
```

**Arguments**

x	a <i>RelDataModel</i> object
---	------------------------------

**Value**

Nothing. The function throws an error if there is an issue with foreign keys.

---

check_types	<i>Check if a set of types is supported</i>
-------------	---

---

**Description**

Check if a set of types is supported

**Usage**

```
check_types(x)
```

**Arguments**

x a character vector of types to be checked

---

clean_autosaved_RelDataModels	<i>Remove all autosaved <a href="#">RelDataModel</a></i>
-------------------------------	--

---

**Description**

Remove all autosaved [RelDataModel](#)

**Usage**

```
clean_autosaved_RelDataModels()
```

---

col_types	<i>Get the types of the columns of a <a href="#">RelTableModel</a> object</i>
-----------	---

---

**Description**

Get the types of the columns of a [RelTableModel](#) object

**Usage**

```
col_types(x)
```

**Arguments**

x a [RelTableModel](#) object

**Value**

A col\_spec object with the type of each column



confront\_data

*Confront a [RelDataModel](#) to actual data***Description**

Confront a [RelDataModel](#) to actual data

**Usage**

```
confront_data(
  x,
  data = list(),
  paths = NULL,
  returnData = FALSE,
  verbose = TRUE,
  n_max = Inf,
  checks = if (n_max == Inf) { c("unique", "not nullable", "foreign keys") } else {
    as.character() },
  delim = "\t",
  ...
)
```

**Arguments**

x	a <a href="#">RelDataModel</a>
data	a list of data frames to be confronted with the model.
paths	a character vector with file paths taken into account if the data is empty. The file <a href="#">basename</a> without extension will be considered as the table name.
returnData	a logical indicating if the data should be returned with the report (default: FALSE).
verbose	a single logical value indicating if some process information should be displayed (default: TRUE)
n_max	maximum number of records to read (default: Inf).
checks	a character vector with the name of optional checks to be done (Default: if n_max==Inf ==> all of them c("unique", "not nullable", "foreign keys"), else ==> none)
delim	single character used to separate fields within a record (default: "\t")
...	supplementary parameters for the <a href="#">read_delim</a> function.

**Value**

A report as a list

## Examples

```
## Read the model ----
hpo_model <- read_json_data_model(
  system.file("examples/HPO-model.json", package="ReDaMoR")
)
## Confront to data ----
confrontation_report <- confront_data(
  hpo_model,
  path=list.files(
    system.file("examples/HPO-subset", package="ReDaMoR"),
    full.names=TRUE
  ),
  returnData=TRUE
)
```

---

confront\_table\_data    *Confront a [RelTableModel](#) to actual data*

---

## Description

Confront a [RelTableModel](#) to actual data

## Usage

```
confront_table_data(x, d, checks = c("unique", "not nullable"))
```

## Arguments

x	a <a href="#">RelTableModel</a>
d	a data frame or a matrix for matrix model
checks	a character vector with the name of optional checks to be done (Default: all of them c("unique", "not nullable"))

## Value

A report as a list

---

conv_type_ref	<i>Convert a set of types from or to R supported types</i>
---------------	--

---

**Description**

Convert a set of types from or to R supported types

**Usage**

```
conv_type_ref(x, from = NULL, to = NULL, ignore.case = TRUE)
```

**Arguments**

x	a character vector of types to be converted. If from is not null, x should be a set of valid types in the from reference. If to is not null, x should be a set of supported R types (SUPPTYPES).
from	a character vector of length one: the type reference ( <a href="#">list_type_ref</a> ) of x
to	a character vector of length one: the targeted type reference ( <a href="#">list_type_ref</a> )
ignore.case	should case be ignored when converting ‘from‘ type reference (default: TRUE)

**Details**

Only from XOR to should be set

---

correct_constraints	<i>Correct the constraints of a table to make them consistent</i>
---------------------	---

---

**Description**

Correct the constraints of a table to make them consistent

**Usage**

```
correct_constraints(x)
```

**Arguments**

x	a <a href="#">RelTableModel</a> object
---	--

df\_to\_model

*Create a RelTableModel object from column names of data frames***Description**

Create a RelTableModel object from column names of data frames

**Usage**

```
df_to_model(..., list = character(), pos = -1, envir = as.environment(pos))
```

**Arguments**

...	the data frame objects, as names (unquoted) or character strings (quoted)
list	a character vector naming data frame objects
pos	where to get the objects. By default, uses the current environment. See ‘details’ for other possibilities.
envir	the environment to use. See ‘details’.

**Details**

The pos argument can specify the environment from which to get the objects in any of several ways: as an integer (the position in the search list); as the character string name of an element in the search list; or as an environment. The envir argument is an alternative way to specify an environment, but is primarily there for back compatibility.

**Value**

A RelTableModel object.

**Examples**

```
## Read data files ----
to_read <- list.files(
  system.file("examples/HPO-subset", package="ReDaMoR"),
  full.names=TRUE
)
hpo_tables <- list()
for(f in to_read){
  hpo_tables[[sub("[.]txt$", "", basename(f))]] <- readr::read_tsv(f)
}
## Build the model from a list of data frames ----
new_model <- df_to_model(
  list=names(hpo_tables), envir=as.environment(hpo_tables)
)
## Plot the model ----
new_model %>%
  auto_layout(lengthMultiplier=250) %>%
  plot()
```

---

format.RelTableModel    *Format a [RelTableModel](#) object for printing*

---

### Description

Format a [RelTableModel](#) object for printing

### Usage

```
## S3 method for class 'RelTableModel'  
format(x, ...)
```

### Arguments

x                    a [RelTableModel](#) object  
...                    for generics compatibility (not used)

### Value

A single character

---

format\_confrontation\_report  
*Format confrontation report for printing in console*

---

### Description

Format confrontation report for printing in console

### Usage

```
format_confrontation_report(cr, title = "Model")
```

### Arguments

cr                    the confrontation report from [confront\\_data](#)  
title                  a character with a single value corresponding to the report title (e.g. database/model name)

**Examples**

```

## Read the model ----
hpo_from_sql <- read_SQL_data_model(
  system.file("examples/HPO-model.sql", package="ReDaMoR")
)
## Confront to data ----
confrontation_report <- confront_data(
  hpo_from_sql,
  path=list.files(
    system.file("examples/HPO-subset", package="ReDaMoR"),
    full.names=TRUE
  ),
  verbose=FALSE,
  returnData=TRUE
)
## Show the report in console ----
format_confrontation_report(confrontation_report) %>% cat()
## Format the report using markdown ----
format_confrontation_report_md(confrontation_report) %>% cat()

```

---

```
format_confrontation_report_md
```

*Format confrontation report in markdown format*

---

**Description**

Format confrontation report in markdown format

**Usage**

```

format_confrontation_report_md(
  cr,
  title = "Model",
  level = 0,
  numbered = TRUE,
  bgSuccess = "green",
  txSuccess = "black",
  bgFailure = "red",
  txFailure = "white",
  bgMessage = "#FFBB33",
  txMessage = "white"
)

```

**Arguments**

cr	the confrontation report from <a href="#">confront_data</a>
title	a character with a single value corresponding to the report

level	rmarkdown level in document hierarchy (default:0 ==> highest). It should be an integer between 0 and 4.
numbered	a logical. If TRUE (default) the sections are part of document numbering.
bgSuccess	background color for SUCCESS
txSuccess	text color for SUCCESS
bgFailure	background color for FAILURE
txFailure	text color for FAILURE
bgMessage	background color for a warning message
txMessage	text color for a warning message

### Examples

```
## Read the model ----
hpo_from_sql <- read_SQL_data_model(
  system.file("examples/HPO-model.sql", package="ReDaMoR")
)
## Confront to data ----
confrontation_report <- confront_data(
  hpo_from_sql,
  path=list.files(
    system.file("examples/HPO-subset", package="ReDaMoR"),
    full.names=TRUE
  ),
  verbose=FALSE,
  returnData=TRUE
)
## Show the report in console ----
format_confrontation_report(confrontation_report) %>% cat()
## Format the report using markdown ----
format_confrontation_report_md(confrontation_report) %>% cat()
```

---

fromDBM

*Convert a list of 5 normalized tibbles in a [RelDataModel](#) object*

---

### Description

Convert a list of 5 normalized tibbles in a [RelDataModel](#) object

### Usage

```
fromDBM(dbm)
```

## Arguments

dbm

a list with the following tibbles:

- **tables**: The tables in the model with the following information
  - **name**: the name of the table
  - **x**: the x coordinate of the table in the model drawing (NA ==> position undefined)
  - **y**: the y coordinate of the table in the model drawing (NA ==> position undefined)
  - **color**: the color of the table in the model drawing (NA ==> undefined)
  - **comment**: comment about the table
- **fields**: The fields in the model with the following information
  - **name**: the name of the field
  - **type**: the type of the field
  - **nullable**: a logical indicating if the field can be null
  - **comment**: comment about the field
  - **table**: the name of the table to which the field belongs
- **primaryKeys**: The primary keys in the model with the following information
  - **table**: the name of the relevant table
  - **field**: the name of the field participating to the primary key
- **foreignKeys**: The foreign keys in the model with the following information
  - **table**: the name of the referring table
  - **fki**: the identifier of the foreign key (by referring table)
  - **field**: the name of the referring field
  - **refTable**: the name of the referred table
  - **refField**: the name of the referred field
- **indexes**: The indexes in the model with the following information
  - **table**: the name of the relevant table
  - **idx**: the identifier of the index (by table)
  - **field**: the name of the field participating to the index
  - **unique**: a logical indicating if the field is unique

## Value

A [RelDataModel](#) object



---

get\_foreign\_keys      *Get a foreign key table from an object*

---

**Description**

Get a foreign key table from an object

**Usage**

```
get_foreign_keys(x)
```

**Arguments**

x                      a [RelTableModel](#) or a [RelDataModel](#)

**Value**

A tibble with the following fields:

- from: the origin of the key
- ff: the key fields in from
- to: the target of the key
- tf: the key fields in to
- fmin: minimum cardinality of from
- fmax: maximum cardinality of from
- tmin: minimum cardinality of to
- tmax: maximum cardinality of to

---

get\_foreign\_keys.RelDataModel  
*Get foreign keys in [RelDataModel](#)*

---

**Description**

Get foreign keys in [RelDataModel](#)

**Usage**

```
## S3 method for class 'RelDataModel'  
get_foreign_keys(x)
```

**Arguments**

x                      a [RelDataModel](#)

**Value**

A tibble with the following fields:

- from: the origin of the key
- ff: the key fields in from
- to: the target of the key
- tf: the key fields in to
- fmin: minimum cardinality of from
- fmax: maximum cardinality of from
- tmin: minimum cardinality of to
- tmax: maximum cardinality of to

---

get\_foreign\_keys.RelTableModel

*Get foreign keys from [RelTableModel](#)*

---

**Description**

Get foreign keys from [RelTableModel](#)

**Usage**

```
## S3 method for class 'RelTableModel'  
get_foreign_keys(x)
```

**Arguments**

x                    a [RelTableModel](#)

**Value**

A tibble with the following fields:

- from: the origin of the key
- ff: the key fields in from
- to: the target of the key
- tf: the key fields in to
- fmin: minimum cardinality of from
- fmax: maximum cardinality of from
- tmin: minimum cardinality of to
- tmax: maximum cardinality of to

---

`identical_RelDataModel`*Check if two [RelDataModel](#) are identical*

---

**Description**

Check if two [RelDataModel](#) are identical

**Usage**

```
identical_RelDataModel(x, y, ...)
```

**Arguments**

x	a <a href="#">RelDataModel</a>
y	a <a href="#">RelDataModel</a>
...	additional parameters for <a href="#">identical_RelTableModel()</a>

**Value**

A logical: TRUE if the 2 models are identical

---

`identical_RelTableModel`*Check if two [RelTableModel](#) are identical*

---

**Description**

Check if two [RelTableModel](#) are identical

**Usage**

```
identical_RelTableModel(x, y, includeDisplay = TRUE)
```

**Arguments**

x	a <a href="#">RelTableModel</a>
y	a <a href="#">RelTableModel</a>
includeDisplay	a single logical (default: TRUE) indicating if the display should be included in the comparison

**Value**

A logical: TRUE if the 2 models are identical

index\_table                      *List indexes of a [RelTableModel](#) object*

---

### Description

List indexes of a [RelTableModel](#) object

### Usage

```
index_table(x)
```

### Arguments

x                      a [RelTableModel](#) object

### Value

A tibble with the following columns:

- **index**: an integer corresponding to the index number
- **field**: a character corresponding to field belonging to the index
- **unique**: a logical indicating the uniqueness of the field

---

is.MatrixModel                      *Check if the object is a [RelTableModel](#) matrix object*

---

### Description

A matrix model is a special [RelTableModel](#) object with 3 and only 3 fields: 2 of types 'row' and 'column' and the 3rd of your choice.

### Usage

```
is.MatrixModel(x)
```

### Arguments

x                      any object

### Value

A single logical: TRUE if x is a [RelTableModel](#) matrix object

---

is.RelDataModel      *Check if the object is a [RelDataModel](#) object*

---

**Description**

Check if the object is a [RelDataModel](#) object

**Usage**

is.RelDataModel(x)

**Arguments**

x                      any object

**Value**

A single logical: TRUE if x is a [RelDataModel](#) object

---

is.RelTableModel      *Check if the object is a [RelTableModel](#) object*

---

**Description**

Check if the object is a [RelTableModel](#) object

**Usage**

is.RelTableModel(x)

**Arguments**

x                      any object

**Value**

A single logical: TRUE if x is a [RelTableModel](#) object

---

is_MM	<i>Identify if a file is in MatrixMarket text format</i>
-------	--

---

**Description**

Identify if a file is in MatrixMarket text format

**Usage**

```
is_MM(file)
```

**Arguments**

file                    the file to read

**Value**

A logical. If FALSE, the first line of the file is returned as an attribute named "r1": `attr("is_MM", "r1")`

---

lengths	<i>Lengths of object elements</i>
---------	-----------------------------------

---

**Description**

Lengths of object elements

**Usage**

```
lengths(x, use.names = TRUE)
```

**Arguments**

x                    an object. If there is no method implemented for this object, the `base::lengths()` function is used.

use.names           logical indicating if the result should inherit the names from x.

**Value**

A non-negative integer of length `length(x)`, except when any element has a length of more than  $2^{31} - 1$  elements, when it returns a double vector. When `use.names` is true, the names are taken from the names on x, if any.

**See Also**

[base::lengths\(\)](#)

---

list\_autosaved\_RelDataModel  
*List autosaved [RelDataModel](#)*

---

**Description**

List autosaved [RelDataModel](#)

**Usage**

```
list_autosaved_RelDataModel()
```

**See Also**

[clean\\_autosaved\\_RelDataModels\(\)](#) to clean this list.

---

list\_type\_ref *List supported types references*

---

**Description**

List supported types references

**Usage**

```
list_type_ref()
```

---

modelToVn *VisNetwork representation of a [RelDataModel](#) object*

---

**Description**

VisNetwork representation of a [RelDataModel](#) object

**Usage**

```
modelToVn(  
    model,  
    color = "lightgrey",  
    border = "black",  
    highlightBorder = "orange"  
)
```

**Arguments**

model	a <a href="#">RelDataModel</a>
color	default table background color
border	border color (single character)
highlightBorder	color of highlighted borders
	Internal function

---

model\_relational\_data *Relational data modeler GUI*

---

**Description**

Relational data modeler GUI

**Usage**

```
model_relational_data(
  modelInput = RelDataModel(list()),
  fromR = interactive(),
  defaultColor = "#D9D9D9",
  availableColors = c("#9BC8FE", "#F67FC4", "#C6BDF1", "#DFFB86", "#F8DEC3", "#8FE6E0",
    "#FEFE8F", "#FAC6DC", "#A9ECC9"),
  example = system.file("examples/HPO-model.json", package = utils::packageName()),
  forceIntro = FALSE
)
```

**Arguments**

modelInput	the <a href="#">RelDataModel</a> to start from
fromR	a logical indicating if the application is launched from R
defaultColor	a single color indicating the default table color
availableColors	a character of possible colors for tables
example	a file path to an sql or json model
forceIntro	if TRUE the help tour start when the application is launched (default: FALSE)

**Value**

The [RelDataModel](#) designed with the GUI.



---

norm_type_ref	<i>Normalize type names</i>
---------------	-----------------------------

---

**Description**

Normalize type names

**Usage**

```
norm_type_ref(x, typeRef, ignore.case = TRUE)
```

**Arguments**

x	a character vector to normalize
typeRef	a character vector of length one: the type reference ( <a href="#">list_type_ref</a> )
ignore.case	should case be ignored (default: TRUE)

---

order_fields	<i>Order fields in a table in a <a href="#">RelDataModel</a></i>
--------------	--

---

**Description**

Order fields in a table in a [RelDataModel](#)

**Usage**

```
order_fields(x, tableName, order)
```

**Arguments**

x	a <a href="#">RelDataModel</a>
tableName	the name of the table to modify (a single character)
order	a vector of integers all in (1:number_of_fields)

**Value**

A [RelDataModel](#)

---

plot.RelDataModel      *Plot a [RelDataModel](#) object*

---

### Description

This function draw a visNetwork of the [RelDataModel](#).

### Usage

```
## S3 method for class 'RelDataModel'  
plot(x, ...)
```

### Arguments

x                    a [RelDataModel](#)  
...                  additional parameters:

- **color** default table background color
- **border** border color (single character)
- **highlightBorder** color of highlighted borders

### Examples

```
## Read the model ----  
hpo_model <- read_json_data_model(  
  system.file("examples/HPO-model.json", package="ReDaMoR")  
)  
## Plot the model ----  
plot(hpo_model)
```

---

read\_json\_data\_model      *Read a data model from JSON*

---

### Description

Read a data model from JSON

### Usage

```
read_json_data_model(txt)
```

### Arguments

txt                  a JSON string, URL or file

**Examples**

```
## Read the model ----
hpo_model <- read_json_data_model(
  system.file("examples/HPO-model.json", package="ReDaMoR")
)
## Confront to data ----
confrontation_report <- confront_data(
  hpo_model,
  path=list.files(
    system.file("examples/HPO-subset", package="ReDaMoR"),
    full.names=TRUE
  ),
  returnData=TRUE
)
```

---

read\_named\_MM

*Read a named sparse matrix in MatrixMarket text format*


---

**Description**

Read a named sparse matrix in MatrixMarket text format

**Usage**

```
read_named_MM(
  file,
  skip = 0,
  n_max = Inf,
  class = c("dgCMatrix", "tibble"),
  guess_max = 20
)
```

**Arguments**

file	the file to read
skip	the number of records to skip (default: 0)
n_max	the maximum number of records to read (default: Inf)
class	the class of object to return. By default a "dgCMatrix". If "tibble" is chosen, the sparse matrix is returned as a tibble with 3 columns: i (row index), j (column index) and x (values) and an "header" attribute containing the matrix rownames and colnames.
guess_max	the number of lines to read to find the header. (see <a href="#">read_named_MM_header()</a> )

**Value**

By default a dgCMatrix. If the "tibble" class is chosen, the sparse matrix is returned as a tibble with 3 columns: i (row index), j (column index) and x (values) and an "header" attribute containing the matrix rownames and colnames.

---

`read_named_MM_header` *Read the header of a named sparse matrix in MatrixMarket text format*

---

### Description

Read the header of a named sparse matrix in MatrixMarket text format

### Usage

```
read_named_MM_header(file, guess_max = 20)
```

### Arguments

<code>file</code>	the file to read
<code>guess_max</code>	the number of lines to read to find the header. (4 should be sufficient. Default: 20)

### Value

A list with the following fields:

- `rownames`: a character vector with the matrix row names
- `colnames`: a character vector with the matrix column names
- `rows`: the number of matrix rows
- `columns`: the number of matrix columns
- `values`: the number of values in the matrix
- `header_length`: the number of lines in the header

---

`read_SQL_data_model` *Read a data model from an SQL file from the MySQL Workbench*

---

### Description

Read a data model from an SQL file from the MySQL Workbench

### Usage

```
read_SQL_data_model(f, typeRef = "MySQLWB", mysqlcomments = TRUE)

readSQLDataModel(...)
```

## Arguments

f	the SQL file to read
typeRef	the reference for type conversion (Default: "MySQLWB"; see <a href="#">list_type_ref()</a> )
mysqlcomments	if MySQL comments (starting with #) should be removed (Default: TRUE)
...	params for read_SQL_data_model

## Details

Database, table and field names should be surrounded by "".

## Value

A [RelDataModel](#) object

## Functions

- readSQLDataModel: Deprecated version of read\_SQL\_data\_model

## Examples

```
## Read the model ----
hpo_from_sql <- read_SQL_data_model(
  system.file("examples/HPO-model.sql", package="ReDaMoR")
)
## Confront to data ----
confrontation_report <- confront_data(
  hpo_from_sql,
  path=list.files(
    system.file("examples/HPO-subset", package="ReDaMoR"),
    full.names=TRUE
  ),
  returnData=TRUE
)
```

---

recover\_RelDataModel *Recover an autosaved [RelDataModel](#)*

---

## Description

Recover an autosaved [RelDataModel](#)

## Usage

```
recover_RelDataModel(name = NA)
```

**Arguments**

name            The name of the autosaved [RelDataModel](#) to bring back. Available autosaved [RelDataModel](#) can be listed using the `list_autosaved_RelDataModel()`. If NA (default) the latest model is returned.

---

RelDataModel            *Create a RelDataModel object*

---

**Description**

Create a RelDataModel object

**Usage**

```
RelDataModel(l, checkFK = TRUE)
```

**Arguments**

l                    the list of table models ([RelTableModel](#) objects)

checkFK            a logical indicating if foreign keys should be checked (default: TRUE)

**Value**

A RelDataModel object.

---

RelTableModel            *Create a RelTableModel object*

---

**Description**

Create a RelTableModel object

**Usage**

```
RelTableModel(l)
```

## Arguments

1

the list with the following elements

- **tableName**: a character vector of length one
- **fields**: a tibble with the following columns:
  - *name*: character
  - *type*: character
  - *nullable*: logical
  - *comment*: character
- **primaryKey**: a character vector of any length. All values should be in `fields$name`
- **foreignKeys**: a list of foreign keys. Each foreign key is defined as a list with the following elements:
  - *refTable*: a character vector of length one (the referenced table)
  - *key*: a tibble with a "from" and a "to" columns
  - (*cardinality*): an optional integer vector with 4 values:
    - \* *fmin*: from minimum cardinality
    - \* *fmax*: from maximum cardinality
    - \* *tmin*: to minimum cardinality
    - \* *tmax*: to maximum cardinality
- **indexes**: a list of indexes. Each index is defined by 3 columns:
  - *field*: character (all in `fields$name`)
  - *order*: character
  - *unique*: logical
- **display**: a list gathering:
  - *x*: single numeric value for the x position of the table
  - *y*: single numeric value for the y position of the table
  - *color*: single character value corresponding to the color of the table
  - *comment*: single character value with some description of the table

## Details

When defining a matrix, 3 and only 3 fields must be defined: 2 of types 'row' and 'column' and the 3rd of your choice. In this case `primaryKey` is defined automatically as the combination of row and column.

## Value

A `RelTableModel` object.

---

remove_field	<i>Remove a field from a table in a <a href="#">RelDataModel</a></i>
--------------	--

---

**Description**

Remove a field from a table in a [RelDataModel](#)

**Usage**

```
remove_field(x, tableName, fieldName, rmForeignKeys = FALSE)
```

**Arguments**

x	a <a href="#">RelDataModel</a>
tableName	the name of the table to modify (a single character)
fieldName	the name of the field to remove (a single character)
rmForeignKeys	a single logical indicating if the corresponding foreign keys should be removed. If FALSE (default), the function will throw an error if it encounter a foreign key using the field.

**Value**

A [RelDataModel](#)

---

remove_foreign_key	<i>Remove a foreign key between two tables</i>
--------------------	--

---

**Description**

Remove a foreign key between two tables

**Usage**

```
remove_foreign_key(x, fromTable, fromFields, toTable, toFields)
```

**Arguments**

x	a <a href="#">RelDataModel</a>
fromTable	the name of the referencing table
fromFields	the name of the referencing fields
toTable	the name of the referenced table
toFields	the names of the referenced fields

**Value**

A [RelDataModel](#)



---

remove_index	<i>Remove an index from a table in a <a href="#">RelDataModel</a></i>
--------------	---

---

**Description**

Remove an index from a table in a [RelDataModel](#)

**Usage**

```
remove_index(x, tableName, fieldNames)
```

**Arguments**

x	a <a href="#">RelDataModel</a>
tableName	the name of the table to modify (a single character)
fieldNames	the names of the fields composing the index

**Value**

A [RelDataModel](#)

---

remove_table	<i>Remove a table from a <a href="#">RelDataModel</a></i>
--------------	---

---

**Description**

Remove a table from a [RelDataModel](#)

**Usage**

```
remove_table(x, tableName, rmForeignKeys = FALSE)
```

**Arguments**

x	a <a href="#">RelDataModel</a>
tableName	the name of the table to remove
rmForeignKeys	if TRUE, remove foreign keys which are not available after extraction. If FALSE (default) the function will throw an error if any foreign keys does not exist in the extracted <a href="#">RelDataModel</a> .

**Value**

A [RelDataModel](#)

---

rename_field	<i>Rename an existing field in a <a href="#">RelDataModel</a> table</i>
--------------	---

---

**Description**

Rename an existing field in a [RelDataModel](#) table

**Usage**

```
rename_field(x, tableName, current, new)
```

**Arguments**

x	a <a href="#">RelDataModel</a>
tableName	the name of the table to modify (a single character)
current	the current name of the field to modify (a single character)
new	the new name of the field (a single character)

**Value**

A [RelDataModel](#)

---

rename_table	<i>Rename a table in a <a href="#">RelDataModel</a></i>
--------------	---

---

**Description**

Rename a table in a [RelDataModel](#)

**Usage**

```
rename_table(x, old, new)
```

**Arguments**

x	a <a href="#">RelDataModel</a> object
old	a single character corresponding to the table name to change
new	the new table name

**Value**

A [RelDataModel](#)

---

set_primary_key	<i>Set the primary key a table in a <a href="#">RelDataModel</a></i>
-----------------	--

---

**Description**

Set the primary key a table in a [RelDataModel](#)

**Usage**

```
set_primary_key(x, tableName, fieldNames)
```

**Arguments**

x	a <a href="#">RelDataModel</a>
tableName	the name of the table to modify (a single character)
fieldNames	the names of the fields to include in the primary key

**Value**

A [RelDataModel](#)

---

set_unique_index	<i>Set table index uniqueness in a <a href="#">RelDataModel</a></i>
------------------	---

---

**Description**

Set table index uniqueness in a [RelDataModel](#)

**Usage**

```
set_unique_index(x, tableName, fieldNames, unique)
```

**Arguments**

x	a <a href="#">RelDataModel</a>
tableName	the name of the table to modify (a single character)
fieldNames	the names of the fields composing the index
unique	a logical value

**Value**

A [RelDataModel](#)

---

SUPPTYPES	<i>Supported R types</i>
-----------	--------------------------

---

**Description**

Supported R types

**Usage**

SUPPTYPES

**Format**

An object of class character of length 7.

---

toDBM	<i>Convert a <a href="#">RelDataModel</a> object in a list of 5 normalized tibbles</i>
-------	--

---

**Description**

Convert a [RelDataModel](#) object in a list of 5 normalized tibbles

**Usage**

toDBM(rdm)

**Arguments**

rdm            a [RelDataModel](#) object

**Value**

A list with the following tibbles:

- **tables:** The tables in the model with the following information
  - **name:** the name of the table
  - **x:** the x coordinate of the table in the model drawing (NA ==> position undefined)
  - **y:** the y coordinate of the table in the model drawing (NA ==> position undefined)
  - **color:** the color of the table in the model drawing (NA ==> undefined)
  - **comment:** comment about the table
- **fields:** The fields in the model with the following information
  - **name:** the name of the field
  - **type:** the type of the field
  - **nullable:** a logical indicating if the field can be null

- **comment**: comment about the field
- **table**: the name of the table to which the field belongs
- **primaryKeys**: The primary keys in the model with the following information
  - **table**: the name of the relevant table
  - **field**: the name of the field participating to the primary key
- **foreignKeys**: The foreign keys in the model with the following information
  - **table**: the name of the referring table
  - **fki**: the identifier of the foreign key (by referring table)
  - **field**: the name of the referring field
  - **refTable**: the name of the referred table
  - **refField**: the name of the referred field
- **indexes**: The indexes in the model with the following information
  - **table**: the name of the relevant table
  - **idx**: the identifier of the index (by table)
  - **field**: the name of the field participating to the index
  - **unique**: a logical indicating if the field is unique

---

 update\_field

 Update field information in a table of a [RelDataModel](#)


---

### Description

Update field information in a table of a [RelDataModel](#)

### Usage

```
update_field(
  x,
  tableName,
  fieldName,
  type = NULL,
  nullable = NULL,
  unique = NULL,
  comment = NULL
)
```

### Arguments

x	a <a href="#">RelDataModel</a>
tableName	the name of the table to modify (a single character)
fieldName	the name of the field to modify (a single character)
type	the type of the field (a single character)
nullable	if the field is nullable (a single logical)
unique	if the values are unique (a single logical)
comment	a description (a single character)

**Value**

A [RelDataModel](#)

---

update\_foreign\_key      *Update a the cardinalities of a foreign key between two tables*

---

**Description**

Update a the cardinalities of a foreign key between two tables

**Usage**

```
update_foreign_key(  
  x,  
  fromTable,  
  fromFields,  
  toTable,  
  toFields,  
  fmin,  
  fmax,  
  tmin,  
  tmax  
)
```

**Arguments**

x	a <a href="#">RelDataModel</a>
fromTable	the name of the referencing table
fromFields	the name of the referencing fields
toTable	the name of the referenced table
toFields	the names of the referenced fields
fmin	from minimum cardinality
fmax	from maximum cardinality
tmin	to minimum cardinality
tmax	to maximum cardinality

**Value**

A [RelDataModel](#)

---

update\_table\_display    *Update the display of a table of a [RelDataModel](#)*

---

### Description

Update the display of a table of a [RelDataModel](#)

### Usage

```
update_table_display(  
  x,  
  tableName,  
  px = NULL,  
  py = NULL,  
  color = NULL,  
  comment = NULL  
)
```

### Arguments

x	a <a href="#">RelDataModel</a>
tableName	the name of the table to modify (a single character)
px	the position of the table: x value
py	the position of the table: y value
color	the color of the table
comment	a table description/comment

### Value

A [RelDataModel](#)

---

view\_confrontation\_report  
*View confrontation report in rstudio viewer*

---

### Description

View confrontation report in rstudio viewer

### Usage

```
view_confrontation_report(cr, ...)
```

**Arguments**

cr                    the confrontation report from [confront\\_data](#)  
 ...                    additional params for the [format\\_confrontation\\_report\\_md\(\)](#) function

---

`write_json_data_model` *Write a data model in a JSON file*

---

**Description**

Write a data model in a JSON file

**Usage**

```
write_json_data_model(x, path)
```

**Arguments**

x                    the model to be written  
 path                file on disk

---

[.RelDataModel]            *Subset a [RelDataModel](#)*

---

**Description**

Subset a [RelDataModel](#)

**Usage**

```
## S3 method for class 'RelDataModel'  

x[i, rmForeignKeys = FALSE, ...]
```

**Arguments**

x                    the [RelDataModel](#) object  
 i                    the index or the names of the elements to extract  
 rmForeignKeys      if TRUE, remove foreign keys which are not available after extraction. If FALSE (default) the function will throw an error if any foreign keys does not exist in the extracted [RelDataModel](#).  
 ...                    additional arguments for the [RelDataModel](#) function.



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