Package 'TKCat'

March 4, 2021

Type Package

Title Tailored Knowledge Catalog

Version 0.5.4

Description Facilitate the management of data from knowledge resources that are frequently used alone or together in research environments.
In 'TKCat', knowledge resources are manipulated as modeled database (MDB) objects. These objects provide access to the data tables along with a general description of the resource and a detail data model documenting the tables, their fields and their relationships.
These MDB are then gathered in catalogs that can be easily explored an shared.
Finally, 'TKCat' provides tools to easily subset, filter and combine MDBs and create new catalogs suited for specific needs.

URL https://github.com/patzaw/TKCat

BugReports https://github.com/patzaw/TKCat/issues

Depends R (>= 3.6), ReDaMoR (>= 0.4.3), magrittr, dplyr, DBI, RClickhouse (>= 0.5.2)

Imports rlang, tidyselect, visNetwork, getPass, shiny, shinydashboard, DT, readr, jsonlite, jsonvalidate, base64enc, markdown, promises, future

Suggests knitr, rmarkdown, stringr

License GPL-3

Encoding UTF-8

VignetteBuilder knitr

LazyData true

RoxygenNote 7.1.1

NeedsCompilation no

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Repository CRAN

Date/Publication 2021-03-04 09:40:03 UTC

R topics documented:

`add_chMDB_user` *Add a user to an MDB of a chTKCat object*

Description

Add a user to an MDB of a chTKCat object

Usage

```
add_chMDB_user(x, mdb, login, admin = FALSE)
```

Arguments

x	a chTKCat object
mdb	name of the modeled database
login	login of the user to drop
admin	if the user is an admin of the MDB

Value

No return value, called for side effects

`add_chTKCat_collection` *Import a collection in a chTKCat database*

Description

Import a collection in a chTKCat database

Usage

```
add_chTKCat_collection(x, json, overwrite = FALSE)
```

Arguments

x	a chTKCat object
json	a single character indicating the collection to import. Can be: • a path to a file • the name of a local collection (see `list_local_collections()`) • the json text defining the collection
overwrite	a logical indicating if the existing collection should be replaced.

Value

No return value, called for side effects

as_chMDB *Push an MDB object in a ClickHouse database*

Description

Push an MDB object in a ClickHouse database

Usage

```
as_chMDB(x, tkcon, overwrite = FALSE)
```

Arguments

x	an MDB object
tkcon	a chTKCat object
overwrite	a logical indicating if existing data should be overwritten (default: FALSE)

Value

A chMDB object.

as_fileMDB.chMDB *Write an MDB object*

Description

Write an MDB object

Usage

```
## S3 method for class 'chMDB'
as_fileMDB(
  x,
  path,
  readParameters = DEFAULT_READ_PARAMS,
  htmlModel = TRUE,
  by = 10^5,
  ...
)

## S3 method for class 'fileMDB'
as_fileMDB(
  x,
  path,
  readParameters = DEFAULT_READ_PARAMS,
```

```
  htmlModel = TRUE,
  ...
)

as_fileMDB(
  x,
  path,
  readParameters = DEFAULT_READ_PARAMS,
  htmlModel = TRUE,
  ...
)

## S3 method for class 'memoMDB'
as_fileMDB(
  x,
  path,
  readParameters = DEFAULT_READ_PARAMS,
  htmlModel = TRUE,
  ...
)

## S3 method for class 'metaMDB'
as_fileMDB(
  x,
  path,
  readParameters = DEFAULT_READ_PARAMS,
  htmlModel = TRUE,
  ...
)
```

Arguments

x	an MDB object
path	the path where the MDB should be written
readParameters	a list with 2 elements: • **delim**: a single character used to separate fields within a record (default: '\t') • **quoted_na**: a single logical indicating if missing values inside quotes should bbe treated as missing values or strings (FALSE: the default **different** from readr::read_delim)
htmlModel	a logical. If TRUE (default) the model is also plotted in an html file.
by	the size of the batch: number of records to write together (default: 10^5)
...	method specific parameters

Value

A fileMDB object.

as_memoMDB *Convert any MDB object in a memoMDB object*

Description

Convert any MDB object in a memoMDB object

Usage

```
as_memoMDB(x, ...)
```

Arguments

x	a MDB object
...	additional parameters for the memoMDB() function.

Value

A memoMDB object

See Also

get_confrontation_report, ReDaMoR::format_confrontation_report and ReDaMoR::format_confrontation_report_md for getting and formatting the report confronting the data to the model.

check_chTKCat *Check a chTKCat object*

Description

Check a chTKCat object

Usage

```
check_chTKCat(x, verbose = FALSE)
```

Arguments

x	a chTKCat object
verbose	a logical indicating if information messages should be displayed.

Value

Invisible result: chTKCat object

chMDB *An MDB (Modeled DataBase) relying on ClickHouse: chMDB*

Description

An MDB (Modeled DataBase) relying on ClickHouse: chMDB

Rename tables of a chMDB object

Usage

```
chMDB(
  tkcon,
  dbTables,
  dbInfo,
  dataModel,
  collectionMembers = NULL,
  n_max = 10,
  verbose = FALSE
)

## S3 replacement method for class 'chMDB'
names(x) <- value

## S3 method for class 'chMDB'
rename(.data, ...)

## S3 method for class 'chMDB'
x[i]

## S3 method for class 'chMDB'
x[[i]]

## S3 method for class 'chMDB'
c(...)
```

Arguments

tkcon	a chTKCat object
dbTables	a named vector of tables in tkcon$chcon with `all(names(dbTables) %in% names(dataModel))`
dbInfo	a list with DB information: **"name"** (only mandatory field), "title", "description", "url", "version", "maintainer".
dataModel	a ReDaMoR::RelDataModel object
collectionMembers	the members of collections as provided to the collection_members<- function (default: NULL ==> no member).

n_max	maximum number of records to read for checks purpose (default: 10). If 0, the data are not checked. See also ReDaMoR::confront_data().
verbose	if TRUE display the data confrontation report
x	a chMDB object
value	new table names
.data	a chMDB object
...	chMDB objects
i	the index or the name of the tables to take

Value

A chMDB object

See Also

- MDB methods: db_info, data_model, data_tables, collection_members, count_records, filter_with_tables, as_fileMDB
- Additional general documentation is related to MDB.
- filter.chMDB, slice.chMDB
- chTKCat, db_disconnect(), db_reconnect()

---

chTKCat *Connect to a ClickHouse TKCat instance*

Description

Connect to a ClickHouse TKCat instance

Usage

```
chTKCat(
  host = "localhost",
  port = 9101L,
  user = "default",
  password,
  http = NULL
)
```

Arguments

host	a character string specifying the host heberging the database (default: localhost)
port	an integer specifying the port on which the database is listening (default: 9101)
user	user name
password	user password
http	an integer specifying the HTTP port of the ClickHouse database (default: NULL). Used for documentation only.

Value

a chTKCat object

See Also

check_chTKCat(), db_disconnect(), db_reconnect()

---

ch_insert *Insert records by batches in a Clickhouse table*

Description

Insert records by batches in a Clickhouse table

Usage

```
ch_insert(con, dbName, tableName, value, by = 10^6)
```

Arguments

con	the clickhouse connection
dbName	the name of the database
tableName	the name of the table
value	the table to import
by	the size of the batch: number of records to import together (default: 10^6)

Value

No return value, called for side effects

---

collection_members.TKCat
Collection members

Description

Collection members

Collection members

Usage

```
## S3 method for class 'TKCat'
collection_members(x, ...)

## S3 method for class 'chMDB'
collection_members(x, ...)

## S3 replacement method for class 'chMDB'
collection_members(x) <- value

## S3 method for class 'chTKCat'
collection_members(x, ...)

## S3 method for class 'fileMDB'
collection_members(x, ...)

## S3 replacement method for class 'fileMDB'
collection_members(x) <- value

collection_members(x, ...)

collection_members(x) <- value

## S3 method for class 'memoMDB'
collection_members(x, ...)

## S3 replacement method for class 'memoMDB'
collection_members(x) <- value

## S3 method for class 'metaMDB'
collection_members(x, ...)
```

Arguments

x	an object with embedded collection members
...	names of the collections to focus on. By default, all of them are taken.
value	the new collection members. A data.frame with the following columns: • **collection** (character): The name of the collection • **cid** (character): Collection identifier • **resource** (character): The name of the resource • **mid** (integer): The identifier of the member • **table** (character): The table recording collection information • **field** (character): The collection field. • **static** (logical): TRUE if the field value is common to all elements. • **value** (character): The name of the table column if static is FALSE or the field value if static is TRUE. • **type** (character): the type of the field. (not necessarily used ==> NA if not)

Value

A tibble::tibble with the following columns:

- **collection** (character): The name of the collection
- **cid** (character): Collection identifier
- **resource** (character): The name of the resource
- **mid** (integer): The identifier of the member
- **table** (character): The table recording collection information
- **field** (character): The collection field.
- **static** (logical): TRUE if the field value is common to all elements.
- **value** (character): The name of the table column if static is FALSE or the field value if static is TRUE.
- **type** (character): the type of the field. (not necessarily used ==> NA if not)

`compare_MDB` *Compare two MDB objects*

Description

Compare two MDB objects

Usage

```
compare_MDB(former, new)
```

Arguments

`former`	an MDB object
`new`	an MDB object

Value

A tibble with 4 columns:

- **Information**: Compared information
- **Former**: value for the former object
- **New**: value for the new object
- **Identical**: a logical indicating if the 2 values are identical

`count_records.chMDB` *Count the number of records*

Description

Count the number of records

Usage

```
## S3 method for class 'chMDB'
count_records(x, ...)

## S3 method for class 'fileMDB'
count_records(x, ...)

count_records(x, ...)

## S3 method for class 'memoMDB'
count_records(x, ...)

## S3 method for class 'metaMDB'
count_records(x, ...)
```

Arguments

`x`	an object with embedded data tables
`...`	the name of the tables to consider (default: all of them)

Value

A named vector with the number of records per table.

`create_chMDB` *Create a database in a chTKCat*

Description

Create a database in a chTKCat

Usage

```
create_chMDB(x, name, public = FALSE)
```

Arguments

x	a chTKCat object
name	the name of the new database
public	if the database data are accessible to any user (default:FALSE)

Value

No return value, called for side effects

---

create_chTKCat_user *Create a chTKCat user*

Description

Create a chTKCat user

Usage

```
create_chTKCat_user(x, login, password, contact, admin = FALSE)
```

Arguments

x	a chTKCat object
login	user login
password	user password
contact	contact information (can be NA)
admin	a logical indicating if the user is an admin of the chTKCat instance

Value

No return value, called for side effects

data_files *Get the data files from a fileMDB object*

Description

Get the data files from a fileMDB object

Usage

```
data_files(x)
```

Arguments

x	a fileMDB object

Value

a list with "dataFiles" and "readParameters" for reading the files.

data_file_size *Get the size of data files from a fileMDB object*

Description

Get the size of data files from a fileMDB object

Usage

```
data_file_size(x, hr = FALSE)
```

Arguments

x	a fileMDB object
hr	a logical indicating if the values should be "human readable". (default: FALSE)

Value

a numeric vector with size in bytes (hr=FALSE) or a character vector with size and units (hr=TRUE)

data_model.chMDB *Get object data model*

Description

Get object data model

Usage

```
## S3 method for class 'chMDB'
data_model(x, ...)

## S3 method for class 'fileMDB'
data_model(x, ...)

data_model(x, ...)

## S3 method for class 'memoMDB'
data_model(x, ...)

## S3 method for class 'metaMDB'
data_model(x, rtOnly = FALSE, recursive = FALSE, ...)
```

Arguments

x	an object with an embedded data model
...	method specific parameters
rtOnly	if TRUE, the function only returns the relational tables and the corresponding foreign tables (default: FALSE)
recursive	if TRUE and rtOnly, the function returns also the relational tables from embedded metaMDBs.

Value

A ReDaMoR::RelDataModel object

data_tables.chMDB *Get object data tables*

Description

Get object data tables

Usage

```
## S3 method for class 'chMDB'
data_tables(x, ..., skip = 0, n_max = Inf)

## S3 method for class 'fileMDB'
data_tables(x, ..., skip = 0, n_max = Inf)

data_tables(x, ..., skip = 0, n_max = Inf)

## S3 method for class 'memoMDB'
data_tables(x, ..., skip = 0, n_max = Inf)

## S3 method for class 'metaMDB'
data_tables(x, ...)
```

Arguments

x	an object with embedded data tables
...	the name of the tables to get (default: all of them)
skip	the number of rows to skip (default: 0)
n_max	maximum number of rows to return (default: Inf)

Value

A list of dplyr::tibble

---

db_disconnect.chMDB *Disconnect an object from a database*

Description

Disconnect an object from a database

Usage

```
## S3 method for class 'chMDB'
db_disconnect(x)

## S3 method for class 'chTKCat'
db_disconnect(x)

db_disconnect(x)
```

Arguments

x	an object with a database connection

Value

No return value, called for side effects

`db_info.chMDB` *DB information*

Description

DB information

DB information

Usage

```
## S3 method for class 'chMDB'
db_info(x, ...)

## S3 replacement method for class 'chMDB'
db_info(x) <- value

## S3 method for class 'fileMDB'
db_info(x, ...)

## S3 replacement method for class 'fileMDB'
db_info(x) <- value

db_info(x, ...)

db_info(x) <- value

## S3 method for class 'memoMDB'
db_info(x, ...)

## S3 replacement method for class 'memoMDB'
db_info(x) <- value

## S3 method for class 'metaMDB'
db_info(x, ...)

## S3 replacement method for class 'metaMDB'
db_info(x) <- value
```

Arguments

`x`	an object with embedded database information
`...`	method specific parameters
`value`	list with the following elements:

- **name**: a single character
- **title**: a single character
- **description**: a single character
- **url**: a single character
- **version**: a single character
- **maintainer**: a single character vector
- **size**: a numeric vector providing the size of the DB in bytes

Value

A list with the following elements:

- **name**: a single character
- **title**: a single character
- **description**: a single character
- **url**: a single character
- **version**: a single character
- **maintainer**: a single character vector
- **size**: a numeric vector providing the size of the DB in bytes

---

`db_reconnect.chMDB` *Reconnect an object to a database*

Description

Reconnect an object to a database

Usage

```
## S3 method for class 'chMDB'
db_reconnect(x, user, password, ntries = 3)

## S3 method for class 'chTKCat'
db_reconnect(x, user, password, ntries = 3)

db_reconnect(x, user, password, ntries = 3)
```

Arguments

`x`	an object with a database connection
`user`	user name. If not provided, it's taken from x
`password`	user password. If not provided, first the function tries to connect without any password.If it fails, the function asks the user to provide a password.
`ntries`	the number of times the user can enter a wrong password (default: 3)

Value

A new database connection object.

`db_tables` *Get the DB tables from a chMDB object*

Description

Get the DB tables from a chMDB object

Usage

```
db_tables(x)
```

Arguments

x	a chMDB object

Value

a list with a chTKCat object (tkcon) and a named vector of DB table names (dbTables).

`drop_chMDB` *Drop a database from a chTKCat*

Description

Drop a database from a chTKCat

Usage

```
drop_chMDB(x, name)
```

Arguments

x	a chTKCat object
name	the name of the database to remove

Value

No return value, called for side effects

drop_chTKCat_user *Drop a user from a chTKCat object*

Description

Drop a user from a chTKCat object

Usage

```
drop_chTKCat_user(x, login)
```

Arguments

x	a chTKCat object
login	login of the user to drop

Value

No return value, called for side effects

empty_chMDB *Empty a chMDB in a chTKCat*

Description

Empty a chMDB in a chTKCat

Usage

```
empty_chMDB(x, name)
```

Arguments

x	a chTKCat object
name	the name of the database to empty

Value

No return value, called for side effects

`explore_MDBs.TKCat` *Explore available MDB in a shiny web interface*

Description

Explore available MDB in a shiny web interface

Usage

```
## S3 method for class 'TKCat'
explore_MDBs(x, subSetSize = 100, download = FALSE, workers = 4, ...)

## S3 method for class 'chTKCat'
explore_MDBs(
  x,
  subSetSize = 100,
  host = x$chcon@host,
  download = FALSE,
  workers = 4,
  ...
)

explore_MDBs(x, ...)
```

Arguments

`x`	a TKCat related object (e.g. chTKCat)
`subSetSize`	the maximum number of records to show
`download`	a logical indicating if data can be downloaded (default: FALSE). If TRUE a temporary directory is created and made available for shiny.
`workers`	number of available workers when download is available (default: 4)
`...`	method specific parameters
`host`	the name of the host to show in the application

Value

No return value, called for side effects

filter.chMDB *Filter a chMDB object and return a memoMDB*

Description

Filter a chMDB object and return a memoMDB

Usage

```
## S3 method for class 'chMDB'
filter(.data, ..., by = 10^5, .preserve = FALSE)
```

Arguments

.data	a chMDB object
...	each argument should have the name of one of the tables of the chMDB object and contain a simple logical expression involving the names of the corresponding table.
by	the size of the batch: number of records to filter together (default: 10^5)
.preserve	not used

Value

a memoMDB object

filter.fileMDB *Filter a fileMDB object and return a memoMDB*

Description

Filter a fileMDB object and return a memoMDB

Usage

```
## S3 method for class 'fileMDB'
filter(.data, ..., .preserve = FALSE)
```

Arguments

.data	a fileMDB object
...	each argument should have the name of one of the tables of the fileMDB object and contain a simple logical expression involving the names of the corresponding table.
.preserve	not used

Value

a memoMDB object

`filter.memoMDB` *Filter a memoMDB object*

Description

Filter a memoMDB object

Usage

```
## S3 method for class 'memoMDB'
filter(.data, ..., .preserve = FALSE)
```

Arguments

`.data`	a memoMDB object
`...`	each argument should have the name of one of the tables of the memoMDB object and contain a simple logical expression involving the names of the corresponding table.
`.preserve`	not used

Value

a filtered memoMDB object

`filter.metaMDB` *Filter a metaMDB object*

Description

Filter a metaMDB object

Usage

```
## S3 method for class 'metaMDB'
filter(.data, ..., .preserve = FALSE)
```

Arguments

`.data`	a metaMDB object
`...`	each argument should have the name of one of the tables of the metaMDB object and contain a simple logical expression involving the names of the corresponding table.
`.preserve`	not used

Value

a filtered memoMDB object

`filter_with_tables.chMDB` *Filter an MDB object according to provided tables*

Description

Filter an MDB object according to provided tables

Usage

```
## S3 method for class 'chMDB'
filter_with_tables(x, tables, checkTables = TRUE)

## S3 method for class 'fileMDB'
filter_with_tables(x, tables, checkTables = TRUE)

filter_with_tables(x, tables, checkTables = TRUE)

## S3 method for class 'memoMDB'
filter_with_tables(x, tables, checkTables = TRUE)

## S3 method for class 'metaMDB'
filter_with_tables(x, tables, checkTables = TRUE)
```

Arguments

`x`	an MDB object
`tables`	a named list of tibbles to filter with. The names should correspond to the table names in x and the tibbles should fit the data model.
`checkTables`	if TRUE, the tables are confronted to their model in the data model of x.

Value

a memoMDB object

format.chTKCat *Format a chTKCat object for printing*

Description

Format a chTKCat object for printing

Usage

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

Arguments

x	a chTKCat object
...	not used

Value

A single character

get_chTKCat_collection *Get a collection from a chTKCat*

Description

Get a collection from a chTKCat

Usage

```
get_chTKCat_collection(x, title)
```

Arguments

x	a chTKCat object
title	the title of the collection to get

Value

The definition of the collection as a JSON string.

get_collection_mapper *Get the default mapper function for a collection*

Description

Get the default mapper function for a collection

Usage

```
get_collection_mapper(collection)
```

Arguments

collection	the name of the targeted collection (it should belong to local collections: see list_local_collections()).

Value

A function to map collection members.

get_confrontation_report *Get the last generated MDB confrontation report*

Description

Get the last generated MDB confrontation report

Usage

```
get_confrontation_report()
```

Value

A confrontation report generated by ReDaMoR::confront_data()

get_local_collection *Get the json definition of a local collection of concepts*

Description

Get the json definition of a local collection of concepts

Usage

```
get_local_collection(title)
```

Arguments

title	the title of the collection to get

Value

The definition of the collection as a JSON string.

get_MDB.TKCat *Get an MDB object from a TKCat related object*

Description

Get an MDB object from a TKCat related object

Usage

```
## S3 method for class 'TKCat'
get_MDB(x, dbName, ...)

## S3 method for class 'chTKCat'
get_MDB(x, dbName, n_max = 10, ...)

get_MDB(x, dbName, ...)
```

Arguments

x	a TKCat related object (e.g. chTKCat)
dbName	the name of the database
...	method specific parameters
n_max	maximum number of records to read for checks purpose (default: 10). See also ReDaMoR::confront_data().

Value

An MDB object

See Also

get_confrontation_report, ReDaMoR::format_confrontation_report and ReDaMoR::format_confrontation_report_md for getting and formatting the report confronting the data to the model.

`get_query.chMDB` *Get SQL query*

Description

Get SQL query

Usage

```
## S3 method for class 'chMDB'
get_query(x, query, ...)

## S3 method for class 'chTKCat'
get_query(x, query, ...)

get_query(x, query, ...)
```

Arguments

`x`	an object with a database connection
`query`	the SQL query
`...`	method specific parameters

Value

A tibble with query results

get_shared_collections

Get collections shared by 2 objects and return member combinations

Description

Get collections shared by 2 objects and return member combinations

Usage

```
get_shared_collections(x, y)
```

Arguments

x	an MDB object
y	an MDB object

Value

A tibble with the following fields:

- **collection** the name of the collection
- **mid.x** the collection member identifier in x
- **table.x** the table of the collection member in x
- **mid.y** the collection member identifier in y
- **table.y** the table of the collection member in y

import_collection_mapper

Import a function to map collection members

Description

Import a function to map collection members

Usage

```
import_collection_mapper(collection, fun)
```

Arguments

collection	the name of the targeted collection (it should belong to local collections: see list_local_collections()).
fun	a function which takes 2 data.frames (x an y) with fields described in the collection definition and map the different elements.

Value

No return value, called for side effects. The function will be used to map collection members.

`import_local_collection` *Import a the definition of a collection of concepts in the local environment*

Description

Import a the definition of a collection of concepts in the local environment

Usage

```
import_local_collection(txt, overwrite = FALSE)
```

Arguments

`txt`	a JSON string or file
`overwrite`	a single logical. If TRUE the collection is overwritten if it already exists (default: FALSE)

Value

No return value, called for side effects. The collection will be available and operations will be possible on its members.

`init_chTKCat` *Initialize a chTKCat database*

Description

The initialization can only be done locally (host="localhost")

Usage

```
init_chTKCat(
  x,
  instance,
  version,
  path,
  login,
  password,
  contact,
  userfile = NULL
)
```

Arguments

x	a chTKCat object
instance	instance name of the database
version	version name of the database
path	path to ClickHouse folder
login	login of the primary administrator of the database
password	password for the primary administrator of the database
contact	contact information for the primary administrator of the database
userfile	path to a ClickHouse users.xml file. If NULL (default), the file provided within the TKCat package (`system.file("ClickHouse/users.xml",package="TKCat")`) is used.

Value

a chTKCat

---

is.chMDB *Check if the object is a chMDB object*

Description

Check if the object is a chMDB object

Usage

```
is.chMDB(x)
```

Arguments

x	any object

Value

A single logical: TRUE if x is a chMDB object

is.chTKCat — *Check the object is a chTKCat object*

Description

Check the object is a chTKCat object

Usage

```
is.chTKCat(x)
```

Arguments

x	any object

Value

A single logical: TRUE if x is a chTKCat object

is.fileMDB — *Check if the object is a fileMDB object*

Description

Check if the object is a fileMDB object

Usage

```
is.fileMDB(x)
```

Arguments

x	any object

Value

A single logical: TRUE if x is an fileMDB object

is.MDB — *Check if the object is an MDB object*

Description

Check if the object is an MDB object

Usage

```
is.MDB(x)
```

Arguments

x	any object

Value

A single logical: TRUE if x is an MDB object.

is.memoMDB — *Check if the object is a memoMDB object*

Description

Check if the object is a memoMDB object

Usage

```
is.memoMDB(x)
```

Arguments

x	any object

Value

A single logical: TRUE if x is an memoMDB object

is.metaMDB *Check if the object is a metaMDB object*

Description

Check if the object is a metaMDB object

Usage

```
is.metaMDB(x)
```

Arguments

x	any object

Value

A single logical: TRUE if x is an metaMDB object

is.TKCat *Check the object is a TKCat object*

Description

Check the object is a TKCat object

Usage

```
is.TKCat(x)
```

Arguments

x	any object

Value

A single logical: TRUE if x is a TKCat object

is_chMDB_public *Is a chMDB public*

Description

Is a chMDB public

Usage

```
is_chMDB_public(x, mdb)
```

Arguments

x	a chTKCat object
mdb	name of the modeled database

Value

A logical indicating if the chMDB is public or not.

join_mdb_tables *Join connected tables*

Description

Join connected tables

Usage

```
join_mdb_tables(
  x,
  ...,
  type = c("left", "right", "inner", "full"),
  jtName = NA
)
```

Arguments

x	an MDB object
...	at least 2 names of tables to join
type	the type of join among: • "left": includes all rows of the first provided table • "right": includes all rows of the last provided table • "inner": includes all rows in all provided tables • "full": includes all rows in at least one provide table
jtName	the name of the joint. IF NA (default), the name is then the name is the first provided table name.

Value

A metaMDB corresponding to x with the joined tables replaced by the joint. If less than 2 table names are provided, the function returns the original x MDB.

---

list_chMDB_users *List users of an MDB of a chTKCat object*

Description

List users of an MDB of a chTKCat object

Usage

```
list_chMDB_users(x, mdb)
```

Arguments

x	a chTKCat object
mdb	name of the modeled database

Value

A tibble with 3 columns:

- user: the user login
- mdb: the name of the modeled database
- admin: if the user is an admin of the MDB

---

list_chTKCat_collections *List collections available in a chTKCat*

Description

List collections available in a chTKCat

Usage

```
list_chTKCat_collections(x, withJson = FALSE)
```

Arguments

x	a chTKCat object
withJson	if TRUE, returns the json strings of the collection (default: FALSE)

Value

A tibble with the title, the description and optionally the json definition of the collections

list_chTKCat_users *List chTKCat user*

Description

List chTKCat user

Usage

```
list_chTKCat_users(x)
```

Arguments

x	a chTKCat object

Value

A tibble with 3 columns:

- login: user login
- contact: user contact information
- admin: if the user is an admin of the chTKCat object

list_local_collections *List local collections of concepts*

Description

List local collections of concepts

Usage

```
list_local_collections(withJson = FALSE)
```

Arguments

withJson	if TRUE, returns the json strings of the collection (default: FALSE)

Value

A tibble with the title, the description and optionally the json definition of the collections

list_MDBs.TKCat *List available MDB*

Description

List available MDB

Usage

```
## S3 method for class 'TKCat'
list_MDBs(x, withInfo = TRUE)

## S3 method for class 'chTKCat'
list_MDBs(x, withInfo = TRUE)

list_MDBs(x, withInfo = TRUE)
```

Arguments

x	a TKCat related object (e.g. chTKCat)
withInfo	if TRUE (default), the function returns a table with db_info. If FALSE, it returns only MDB names.

Value

A tibble with information about the MDB available in a TKCat related object.

list_tables *List tables in a clickhouse database*

Description

List tables in a clickhouse database

Usage

```
list_tables(con, dbNames = NULL)
```

Arguments

con	the clickhouse connection
dbNames	the name of databases to focus on (default NULL ==> all)

Value

A tibble with the following columns:

- **database**: the name of the database
- **name**: the name of the table
- **total_rows**: the number of rows in the table
- **total_bytes**: the size of the table

`map_collection_members` *Map different collection members*

Description

Map different collection members

Usage

```
map_collection_members(
  x,
  y,
  collection,
  xm,
  ym,
  suffix = c("_x", "_y"),
  fun = NA,
  ...
)
```

Arguments

`x`	a data.frame
`y`	a data.frame
`collection`	the name of the collection.
`xm`	collection member x: a data.frame with the fields "field", "static", "value", "type" as returned by the `read_collection_members()` function.
`ym`	collection member y: a data.frame with the fields "field", "static", "value", "type" as returned by the `read_collection_members()` function.
`suffix`	the suffix to append to field names from x and y tables. Default: `c("_x","_y")`
`fun`	the function used to map x and y collection members. By default (NA) it is automatically identified if recorded in the system. The way to write this function is provided in the details section.
`...`	additional parameters for the fun function.

Details

fun must have at least an x and a y parameters. Each of them should be a data.frame with all the field values given in xm and ym. Additional parameters can be defined and will be forwarded using .... fun should return a data frame with all the fields values given in xm and ym followed by "_x" and "_y" suffix.

Value

A tibble giving necessary information to map elements in x and y. The columns corresponds to the field values in xm and ym followed by a suffix (default: `c("_x","_y")`). Only fields documented as non static in xm and ym are kept.

`MDB` *MDB*

Description

The class "MDB" provides general functions for handling modeled databases. The MDB classes implemented in the TKCat package are: fileMDB, memoMDB, chMDB and metaMDB. These classes provide additional functions.

Usage

```
## S3 method for class 'MDB'
names(x)

## S3 method for class 'MDB'
length(x)

## S3 method for class 'MDB'
lengths(x, use.names = TRUE)

## S3 method for class 'MDB'
as.list(x, ...)

## S3 method for class 'MDB'
select(.data, ...)

## S3 method for class 'MDB'
pull(.data, var = -1, name = NULL, ...)

## S3 method for class 'MDB'
merge(
  x,
  y,
  by = get_shared_collections(x, y),
  dbInfo = list(name = paste(db_info(x)$name, db_info(y)$name, sep = "_")),
```

```
  dmAutoLayout = TRUE,
  rtColor = "yellow",
  funs = list(),
  ...
)
```

Arguments

x	an MDB object
use.names	return the names of the tables
...	additional parameters
.data	an MDB object
var	a variable specified as in dplyr::pull
name	not used but kept for compatibility with the generic function
y	an MDB object
by	a tibble as returned by the get_shared_collections() function which indicates which collection members should be merged through a relational table. If the collection is NA, the relational table is built by merging identical columns in table.x and table.y. If the collection is provided, the relational table is build using the map_collection_members() function.
dbInfo	a list with DB information: **"name"** (only mandatory field), "title", "description", "url", "version", "maintainer".
dmAutoLayout	if TRUE (default) the layout of the merged data model is automatically adjusted.
rtColor	the color of the relational tables in the merged data model (default: "yellow")
funs	a named list of functions (default: list()). If there is no function for mapping a collection in this list, it is taken automatically using the get_collection_mapper() function.

Value

`names()` returns the table names.

`length()` returns the number of tables in x.

`lengths()` returns the number of fields for each table in x.

`as.list.MDB()` returns a simple list of tibbles with all the data from the tables in x.

A metaMDB object gathering x and y along with relational tables between them created using collection members and mapping functions automatically chosen or provided by the `funs` parameter. `...` can be used to send parameters to the mapper functions.

See Also

MDB methods: db_info, data_model, data_tables, collection_members, count_records, filter_with_tables, as_fileMDB Additional documentation is provided for each specific class: fileMDB, memoMDB, chMDB and metaMDB.

MDBs — *Get a list of MDB from metaMDB object*

Description

Get a list of MDB from metaMDB object

Usage

```
MDBs(x)
```

Arguments

x	a metaMDB object

Value

A list of MDB objects

memoMDB — *An MDB (Modeled DataBase) in memory: memoMDB*

Description

An MDB (Modeled DataBase) in memory: memoMDB

Rename tables of a memoMDB object

Usage

```
memoMDB(
  dataTables,
  dataModel,
  dbInfo,
  collectionMembers = NULL,
  checks = c("unique", "not nullable", "foreign keys"),
  verbose = FALSE
)

## S3 replacement method for class 'memoMDB'
names(x) <- value

## S3 method for class 'memoMDB'
rename(.data, ...)

## S3 method for class 'memoMDB'
```

```
x[i]

## S3 method for class 'memoMDB'
x[[i]]

## S3 method for class 'memoMDB'
x$i

## S3 method for class 'memoMDB'
c(...)
```

Arguments

dataTables	a list of tibbles
dataModel	a ReDaMoR::RelDataModel object
dbInfo	a list with DB information: **"name"** (only mandatory field), "title", "description", "url", "version", "maintainer".
collectionMembers	the members of collections as provided to the collection_members<- function (default: NULL ==> no member).
checks	a character vector with the name of optional checks to be done (all of them c("unique", "not nullable", "foreign keys"))
verbose	if TRUE display the data confrontation report (default: FALSE)
x	a memoMDB object
value	new table names
.data	a memoMDB object
...	memoMDB objects
i	the index or the name of the tables to take

Value

A memoMDB object

See Also

- MDB methods: db_info, data_model, data_tables, collection_members, count_records, filter_with_tables, as_fileMDB
- Additional general documentation is related to MDB.
- filter.memoMDB, slice.memoMDB

Examples

```
hpo <- read_fileMDB(
   path=system.file("examples/HPO-subset", package="ReDaMoR"),
   dataModel=system.file("examples/HPO-model.json", package="ReDaMoR"),
   dbInfo=list(
```

```
      "name"="HPO",
      "title"="Data extracted from the HPO database",
      "description"=paste(
         "This is a very small subset of the HPO!",
         "Visit the reference URL for more information"
      ),
      "url"="http://human-phenotype-ontology.github.io/"
   )
) %>%
   as_memoMDB()
count_records(hpo)

hpoSlice <- slice(hpo, HPO_diseases=1:10)
count_records(hpoSlice)

if(requireNamespace("stringr", quietly = TRUE)){
   epilHP <- filter(
      hpo,
      HPO_diseases=stringr::str_detect(
         label, stringr::regex("epilepsy", ignore_case=TRUE)
      )
   )
   count_records(epilHP)
}
```

`mergeTrees_from_RelDataModel` *Create ClickHouse MergeTree tables from a ReDaMoR::RelDataModel*

Description

Create ClickHouse MergeTree tables from a ReDaMoR::RelDataModel

Usage

```
mergeTrees_from_RelDataModel(con, dbName, dbm)
```

Arguments

con	the clickhouse connection
dbName	the name of the database in which the tables should be written
dbm	a ReDaMoR::RelDataModel object

Value

No return value, called for side effects

mergeTree_from_RelTableModel *Create a ClickHouse MergeTree table from a ReDaMoR::RelTableModel*

Description

Create a ClickHouse MergeTree table from a ReDaMoR::RelTableModel

Usage

```
mergeTree_from_RelTableModel(con, dbName, tm)
```

Arguments

con	the clickhouse connection
dbName	the name of the database in which the table should be written
tm	a ReDaMoR::RelTableModel object

Value

No return value, called for side effects

metaMDB *A metaMDB object*

Description

A metaMDB object is an MDB gathering several other MDBs glued by relational tables.

Usage

```
metaMDB(MDBs, relationalTables, dataModel, dbInfo)

## S3 replacement method for class 'metaMDB'
names(x) <- value

## S3 method for class 'metaMDB'
rename(.data, ...)

## S3 method for class 'metaMDB'
x[i]

## S3 method for class 'metaMDB'
x[[i]]
```

```
## S3 method for class 'metaMDB'
x$i
```

Arguments

MDBs	a list of MDB objects
relationalTables	a list of tibbles corresponding to the relational tables between the different MDBs
dataModel	a ReDaMoR::RelDataModel object gathering all the data model of all the MDBs plus the relational tables
dbInfo	a list with DB information: **"name"** (only mandatory field), "title", "description", "url", "version", "maintainer".
x	a metaMDB object
value	new table names
.data	a metaMDB object
...	Use new_name = old_name to rename selected tables
i	the index or the name of the tables to take

Value

A metaMDB object

See Also

- MDB methods: db_info, data_model, data_tables, collection_members, count_records, filter_with_tables, as_fileMDB
- Additional general documentation is related to MDB.
- filter.metaMDB, slice.metaMDB
- get_confrontation_report, ReDaMoR::format_confrontation_report and ReDaMoR::format_confrontation_report_md for getting and formatting the report confronting the data to the model.

---

read_collection_members

Read a collection member JSON file

Description

Read a collection member JSON file

Usage

```
read_collection_members(txt)
```

Arguments

txt	a JSON string or file

Value

A tibble with the description of the collection members of a resource

---

`read_fileMDB` *Read a fileMDB from a path*

Description

Read a fileMDB from a path

Usage

```
read_fileMDB(
  path,
  dbInfo = NULL,
  dataModel = NULL,
  collectionMembers = NULL,
  n_max = 10,
  verbose = TRUE
)
```

Arguments

path	the path to a folder with data or with the following structure: • **data**: a folder with the data • **DESCRIPTION.json**: a file with db information • **model**: a folder with the data model json file with the same name as the one given in the DESCRIPTION.json file
dbInfo	a list or a json file with DB information: **"name"** (only mandatory field), "title", "description", "url" (or "reference URL"), "version", "maintainer". If NULL (default), the DESCRIPTION.json file found in path. This file should also contains relevant parameters for the `readr::read_delim()` function. For example: • **delim delimiter** (default: '\\t') • **quoted_na**: Should missing values inside quotes be treated as missing values or as strings or strings (the default). Be aware that the default value here is different than the one for the original `readr::read_delim()` function.
dataModel	a ReDaMoR::RelDataModel object or json file. If NULL (default), the model json file found in path/model.
collectionMembers	the members of collections as provided to the collection_members<- function. If NULL (default), the members are taken from json files found in path/model/Collections

n_max	maximum number of records to read for checks purpose (default: 10). See also ReDaMoR::confront_data().
verbose	if TRUE (default) display the data confrontation report

Value

A fileMDB object

See Also

get_confrontation_report, ReDaMoR::format_confrontation_report and ReDaMoR::format_confrontation_report_md for getting and formatting the report confronting the data to the model.

---

relational_tables *Get a list of relational tables*

Description

Get a list of relational tables

Usage

```
relational_tables(x, recursive = FALSE)
```

Arguments

x	a metaMDB object
recursive	if TRUE, function returns also the relational tables from embedded metaMDBs.

Value

A list of relational tables (tibbles)

---

remove_chMDB_user *Drop a user of an MDB of a chTKCat object*

Description

Drop a user of an MDB of a chTKCat object

Usage

```
remove_chMDB_user(x, mdb, login)
```

Arguments

x	a chTKCat object
mdb	name of the modeled database
login	login of the user to drop

Value

No return value, called for side effects

---

remove_chTKCat_collection

Remove a collection from a chTKCat database

Description

Remove a collection from a chTKCat database

Usage

```
remove_chTKCat_collection(x, title)
```

Arguments

x	a chTKCat object
title	the title of the collection to remove

Value

No return value, called for side effects

---

scan_fileMDBs

Scan a catalog of fileMDB

Description

Scan a catalog of fileMDB

Usage

```
scan_fileMDBs(path, subdirs = NULL, n_max = 10)
```

Arguments

path	directory from which all the fileMDB should be read
subdirs	the sub directories (relative to path) to take into account. If NULL (default) all the sub directories are considered.
n_max	maximum number of records to read for checks purpose (default: 10). See also ReDaMoR::confront_data().

Value

a TKCat object

See Also

read_fileMDB

---

search_MDB_fields.TKCat

Search fields in a TKCat related object

Description

Search fields in a TKCat related object

Usage

```
## S3 method for class 'TKCat'
search_MDB_fields(x, searchTerm)

## S3 method for class 'chTKCat'
search_MDB_fields(x, searchTerm)

search_MDB_fields(x, searchTerm)
```

Arguments

x	a TKCat related object (e.g. chTKCat)
searchTerm	a single character with the term to search

Value

An MDB object

search_MDB_tables.TKCat *Search tables in a TKCat related object*

Description

Search tables in a TKCat related object

Usage

```
## S3 method for class 'TKCat'
search_MDB_tables(x, searchTerm)

## S3 method for class 'chTKCat'
search_MDB_tables(x, searchTerm)

search_MDB_tables(x, searchTerm)
```

Arguments

x	a TKCat related object (e.g. chTKCat)
searchTerm	a single character with the term to search

Value

An MDB object

---

set_chMDB_access *Set chMDB access*

Description

Set chMDB access

Usage

```
set_chMDB_access(x, mdb, public)
```

Arguments

x	a chTKCat object
mdb	name of the modeled database
public	if access is public

Value

No return value, called for side effects

`slice.chMDB` *Subset a chMDB object according to row position in one table and return a memoMDB*

Description

Subset a chMDB object according to row position in one table and return a memoMDB

Usage

```
## S3 method for class 'chMDB'
slice(.data, ..., by = 10^5, .preserve = FALSE)
```

Arguments

`.data`	a chMDB object
`...`	a single argument. The name of this argument should be a table name of x and the value of this argument should be vector of integers corresponding to row indexes.
`by`	the size of the batch: number of records to slice together (default: 10^5)
`.preserve`	not used

Value

a memoMDB object

`slice.fileMDB` *Subset a fileMDB object according to row position in one table and return a memoMDB*

Description

Subset a fileMDB object according to row position in one table and return a memoMDB

Usage

```
## S3 method for class 'fileMDB'
slice(.data, ..., .preserve = FALSE)
```

Arguments

`.data`	a fileMDB object
`...`	a single argument. The name of this argument should be a table name of x and the value of this argument should be vector of integers corresponding to row indexes.
`.preserve`	not used

Value

a memoMDB object

`slice.memoMDB` *Subset a memoMDB object according to row position in one table*

Description

Subset a memoMDB object according to row position in one table

Usage

```
## S3 method for class 'memoMDB'
slice(.data, ..., .preserve = FALSE)
```

Arguments

`.data`	a memoMDB object
`...`	a single argument. The name of this argument should be a table name of x and the value of this argument should be vector of integers corresponding to row indexes.
`.preserve`	not used

Value

a memoMDB object

`slice.metaMDB` *Subset a metaMDB object according to row position in one table*

Description

Subset a metaMDB object according to row position in one table

Usage

```
## S3 method for class 'metaMDB'
slice(.data, ..., .preserve = FALSE)
```

Arguments

`.data`	a metaMDB object
`...`	a single argument. The name of this argument should be a table name of x and the value of this argument should be vector of integers corresponding to row indexes.
`.preserve`	not used

Value

a memoMDB object

`TKCat` *TKCat: a catalog of MDB*

Description

TKCat: a catalog of MDB

Rename a TKCat object

Usage

```
TKCat(..., list = NULL)

## S3 replacement method for class 'TKCat'
names(x) <- value

## S3 method for class 'TKCat'
rename(.data, ...)

## S3 method for class 'TKCat'
x[i]

## S3 method for class 'TKCat'
c(...)
```

Arguments

`...`	TKCat objects
`list`	a list of MDB objects
`x`	a TKCat object
`value`	new MDB names
`.data`	a TKCat object
`i`	index or names of the MDB to take

Value

a TKCat object

See Also

scan_fileMDBs

`write_collection_members` *Write a collection member JSON file*

Description

Write a collection member JSON file

Usage

```
write_collection_members(colMembers, path = NA, collection = NULL)
```

Arguments

`colMembers`	A tibble as returned by `read_collection_members()`
`path`	the JSON file to write. If `NA` (default), the JSON file is not written but returned by the function.
`collection`	The collection definition (json string). If NULL (default), it is taken from TKCat environment (see `list_local_collections()`.

Value

The JSON representation of collection members. If a path is provided, then the JSON is also written in it.

`write_MergeTree` *Write a Clickhouse* R*hrefhttps://clickhouse.tech/docs/en/engines/table-engines/mergetree-family/mergetree/MergeTree table*

Description

Write a Clickhouse MergeTree table

Usage

```
write_MergeTree(
  con,
  dbName,
  tableName,
  value,
  rtypes = NULL,
  nullable = NULL,
  sortKey = NULL
)
```

Arguments

con	the clickhouse connection
dbName	the name of the database
tableName	the name of the table
value	the table to import
rtypes	a named character vector giving the R type of each and every columns. If NULL (default), types are guessed from value.
nullable	a character vector indicating the name of the columns which are nullable (default: NULL)
sortKey	a character vector indicating the name of the columns used in the sort key. If NULL (default), all the non-nullable columns are used in the key.

Value

No return value, called for side effects

$.chMDB *An MDB (Modeled DataBase) based on files: fileMDB*

Description

An MDB (Modeled DataBase) based on files: fileMDB

Rename tables of a fileMDB object

Usage

```
## S3 method for class 'chMDB'
x$i

fileMDB(
  dataFiles,
  dbInfo,
  dataModel,
  readParameters = DEFAULT_READ_PARAMS,
  collectionMembers = NULL,
  n_max = 10,
  verbose = FALSE
)

## S3 replacement method for class 'fileMDB'
names(x) <- value

## S3 method for class 'fileMDB'
rename(.data, ...)
```

```
## S3 method for class 'fileMDB'
x[i]

## S3 method for class 'fileMDB'
x[[i]]

## S3 method for class 'fileMDB'
x$i

## S3 method for class 'fileMDB'
c(...)
```

Arguments

x	a fileMDB object
i	the index or the name of the tables to take
dataFiles	a named vector of path to data files with `all(names(dataFiles) %in% names(dataModel))`
dbInfo	a list with DB information: **"name"** (only mandatory field), "title", "description", "url", "version", "maintainer".
dataModel	a ReDaMoR::RelDataModel object
readParameters	a list of parameters for reading the data file. (e.g. `list(delim='\t',quoted_na=FALSE,)`)
collectionMembers	the members of collections as provided to the collection_members<- function (default: NULL ==> no member).
n_max	maximum number of records to read for checks purpose (default: 10). See also `ReDaMoR::confront_data()`.
verbose	if TRUE display the data confrontation report (default: FALSE)
value	new table names
.data	a fileMDB object
...	fileMDB objects

Value

A fileMDB object

See Also

- MDB methods: db_info, data_model, data_tables, collection_members, count_records, filter_with_tables, as_fileMDB
- Additional general documentation is related to MDB.
- filter.fileMDB, slice.fileMDB

Examples

```
hpof <- read_fileMDB(
   path=system.file("examples/HPO-subset", package="ReDaMoR"),
   dataModel=system.file("examples/HPO-model.json", package="ReDaMoR"),
   dbInfo=list(
      "name"="HPO",
      "title"="Data extracted from the HPO database",
      "description"=paste(
         "This is a very small subset of the HPO!",
         "Visit the reference URL for more information"
      ),
      "url"="http://human-phenotype-ontology.github.io/"
   )
)
count_records(hpof)

select(hpof, HPO_hp:HPO_diseases)
toTake <- "HPO_altId"
select(hpof, all_of(toTake))

hpoSlice <- slice(hpof, HPO_diseases=1:10)
count_records(hpoSlice)

if(requireNamespace("stringr", quietly = TRUE)){
   epilHP <- filter(
      hpof,
      HPO_diseases=stringr::str_detect(
         label, stringr::regex("epilepsy", ignore_case=TRUE)
      )
   )
   count_records(epilHP)
   label <- "Rolandic epilepsy"
   cn <- sym("label")
   reHP <- filter(
      hpof,
      HPO_diseases=!!cn==!!label
   )
}
```

Index