

# Package ‘RSQL’

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**Type** Package

**Title** Database Agnostic Package to Generate and Process 'SQL' Queries in R

**Version** 0.2.2

**Language** en-US

**Maintainer** Alejandro Baranek <abaranek@dc.uba.ar>

**Description**

Allows the user to generate and execute select, insert, update and delete 'SQL' queries the underlying database without having to explicitly write 'SQL' code.

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**Encoding** UTF-8

**RoxygenNote** 7.2.3

**Collate** 'sql-lib.R' 'util-lib.R' 'zzz.R'

**Imports** lgr, R6, DBI

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**VignetteBuilder** knitr

**BugReports** <https://github.com/rOpenStats/RSQL/issues>

**URL** <https://github.com/rOpenStats/RSQL>

**NeedsCompilation** no

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---

`add_grep_exact_match`    *add\_grep\_exact\_match*

---

**Description**

`add_grep_exact_match`

**Usage**

`add_grep_exact_match(text)`

**Arguments**

text            TEST

**Author(s)**

ken4rab

---

`add_quotes`            *add\_quotes*

---

**Description**

Adds quotes to a string

**Usage**

`add_quotes(text)`

**Arguments**

text            The string to quote

**Author(s)**

ken4rab

---

`assessRSq1Df`*assessRSq1Df*

---

**Description**

This function prepares data frame to be inserted in a db

**Usage**

```
assessRSq1Df(values.df)
```

**Arguments**

`values.df`      Data Frame with corresponding values and fields as colnames

**Author(s)**

ken4rab

---

`cbind_coerced`*cbind\_coerced*

---

**Description**

`cbind_coerced`

**Usage**

```
cbind_coerced(...)
```

**Arguments**

`...`      The parameters

**Author(s)**

ken4rab

---

check\_fields\_values     *Check fields and values are sound*

---

**Description**

Check fields and values are sound

**Usage**

```
check_fields_values(fields, values, min.length = 0)
```

**Arguments**

fields	Fields names to check
values	values to check
min.length	for vectors

**Author(s)**

ken4rab

---

createRSQL     *Produces a RSQL object*

---

**Description**

Produces a RSQL object

**Usage**

```
createRSQL(drv, dbname, user = NULL, password = NULL, host = NULL, port = NULL)
```

**Arguments**

drv	Driver name
dbname	Database name
user	Database user name
password	Database password
host	Database host
port	Database port

**Author(s)**

ken4rab

---

dequote	<i>Removes the quotes from the string</i>
---------	---

---

**Description**

Removes the quotes from the string

**Usage**

```
dequote(text)
```

**Arguments**

text	The string to remove the quotes from.
------	---------------------------------------

**Author(s)**

ken4rab

---

df_verify	<i>Checks that the columns are in the data.frame</i>
-----------	--

---

**Description**

Checks that the columns are in the data.frame

**Usage**

```
df_verify(dataframe, columns)
```

**Arguments**

dataframe	The data.frame
columns	The columns to check

**Author(s)**

ken4rab

---

genLogger

*genLogger*

---

**Description**

genLogger

**Usage**

genLogger(r6.object)

**Arguments**

r6.object      a R6 object with a logger member

**Author(s)**

ken4rab

---

getLogger

*getLogger*

---

**Description**

getLogger

**Usage**

getLogger(r6.object)

**Arguments**

r6.object      a R6 object with a logger member

**Author(s)**

ken4rab

---

<code>getMtcarsdbPath</code>	<i>getCarsdbPath</i>
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---

**Description**

`getCarsdbPath`

**Usage**

`getMtcarsdbPath(copy = TRUE)`

**Arguments**

`copy` a boolean that states whether it should be copied to the home directory or not.

**Author(s)**

ken4rab

---

<code>getPackageDir</code>	<i>Get package directory</i>
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---

**Description**

Gets the path of package data.

**Usage**

`getPackageDir()`

**Author(s)**

ken4rab



---

`is.POSIXct`*is.POSIXct*

---

**Description**

This function returns true if x is a POSIXct object type

**Usage**

```
is.POSIXct(x)
```

**Arguments**

x value to be checked as a POSIXct

**Author(s)**

ken4rab

---

`is_quoted`*Determines if the string is quoted or not*

---

**Description**

Determines if the string is quoted or not

**Usage**

```
is_quoted(text, quotes_symbols = "'")
```

**Arguments**

text The text to test  
quotes\_symbols The quotation characters

**Author(s)**

ken4rab

---

loggerSetupFile	<i>loggerSetupFile</i>
-----------------	------------------------

---

**Description**

loggerSetupFile

**Usage**

```
loggerSetupFile(log.file, default.threshold = "info")
```

**Arguments**

log.file	filename to log on
default.threshold	default threshold for logger

**Author(s)**

kenarab

---

needs_quotes	<i>Determines string type which needs quotes in an SQL statement</i>
--------------	--

---

**Description**

Determines string type which needs quotes in an SQL statement

**Usage**

```
needs_quotes(text)
```

**Arguments**

text	The text to test
------	------------------

**Author(s)**

ken4rab

---

parse_where_clause	<i>Parses a where clause.</i>
--------------------	-------------------------------

---

**Description**

Parses a where clause.

**Usage**

```
parse_where_clause(where_clause_list = c())
```

**Arguments**

where_clause_list	The list of params
-------------------	--------------------

**Author(s)**

ken4rab

---

rename_col	<i>rename_col</i>
------------	-------------------

---

**Description**

renames a column on a data.frame

**Usage**

```
rename_col(df, name, replace_name)
```

**Arguments**

df	The data.frame
name	The name of the column
replace_name	The new name of the column

**Author(s)**

ken4rab

---

replaceNAwithNULL	<i>replaceNAwithNULL</i>
-------------------	--------------------------

---

**Description**

Replace NA with NULL in sql statement

**Usage**

```
replaceNAwithNULL(sql.code)
```

**Arguments**

sql.code	code to replace NA with NULL
----------	------------------------------

**Author(s)**

ken4rab

---

re_quote	<i>This functions remove original quotes and sets validated quotes for corresponding db. If it had no quotes, will only put corresponding quotes symbols</i>
----------	--

---

**Description**

This functions remove original quotes and sets validated quotes for corresponding db. If it had no quotes, will only put corresponding quotes symbols

**Usage**

```
re_quote(text, quotes = "'")
```

**Arguments**

text	The string
quotes	The quotes

**Author(s)**

ken4rab

---

re_quote_alt	<i>This functions remove original quotes and sets validated quotes for corresponding db. If it had no quotes, will only put corresponding quotes symbols</i>
--------------	--

---

**Description**

This functions remove original quotes and sets validated quotes for corresponding db. If it had no quotes, will only put corresponding quotes symbols

**Usage**

```
re_quote_alt(text, quotes = "'")
```

**Arguments**

text	The string
quotes	The quotes

**Author(s)**

ken4rab

---

rm_quotes	<i>rm_quotes</i>
-----------	------------------

---

**Description**

Removes quotes from the String

**Usage**

```
rm_quotes(text, quotes = "'")
```

**Arguments**

text	The string to remove quotes from
quotes	Quote characters

**Author(s)**

ken4rab

`rm_vector_quotes`      *rm\_vector\_quotes*

---

**Description**

Removes quotes from data.frame columns

**Usage**

```
rm_vector_quotes(text.vector)
```

**Arguments**

`text.vector`      The text vector to remove quotes from.

**Author(s)**

ken4rab

---

RSQL      *rsql*

---

**Description**

A package to work with SQL datasources in a simple manner

**Usage**

```
.onLoad(libname, pkgname)
```

**Arguments**

`libname`      Library name  
`pkgname`      Package name

**Author(s)**

Alejandro Baranek <abaranek@dc.uba.ar>, Leonardo Javier Belen <leobelen@gmail.com> Executes code while loading the package.

**Examples**

```

library(RSQL)
library(RSQLite)
db.name <- getMtcarsdbPath(copy = TRUE)
rsql <- createRSQL(drv = RSQLite::SQLite(), dbname = db.name)
select_sql <- rsql$gen_select(
  select_fields = "*", # c("wt", "qsec"),
  table = "mtcars",
  where_values = data.frame(carb = 8)
)
mtcars.observed <- rsql$execute_select(select_sql)
mtcars.observed

```

---

RSQL.class

*The class that provides the SQL functionality.*


---

**Description**

This class is intended to simplify SQL commands.

**Public fields**

driver driver name  
db.name database name  
user db user  
password db password  
host db host  
port db port  
available.functions for generating select expressions  
entity.field.regexp for scrape a field or table expression  
entity.select.regexp for scrape a select expressions expression  
conn The connection handler  
valid.conn Checks if connection is valid  
last.query The last query  
last.rs The last resultset  
results.class Expected class for db results for running dbClearResult  
select.counter An instance select counter  
insert.counter An instance insert counter  
update.counter An instance update counter  
delete.counter An instance delete counter  
command.counter An instance command counter  
clear.rs.counter An instance clear.rs.counter  
tz local timezone  
logger is configued logger for current class

**Methods****Public methods:**

- RSQL.class\$new()
- RSQL.class\$checkConnection()
- RSQL.class\$connect()
- RSQL.class\$setupResultClassFromDriver()
- RSQL.class\$setupRegexp()
- RSQL.class\$finalize()
- RSQL.class\$checkEntitiesNames()
- RSQL.class\$gen\_select()
- RSQL.class\$gen\_insert()
- RSQL.class\$gen\_update()
- RSQL.class\$gen\_delete()
- RSQL.class\$execute\_select()
- RSQL.class\$execute\_update()
- RSQL.class\$execute\_insert()
- RSQL.class\$execute\_get\_insert()
- RSQL.class\$execute\_command()
- RSQL.class\$execute\_delete()
- RSQL.class\$retrieve()
- RSQL.class\$retrieve\_insert()
- RSQL.class\$clearLastResult()
- RSQL.class\$getSummary()
- RSQL.class\$disconnect()
- RSQL.class\$clone()

**Method new():** Initializes a connection

*Usage:*

```
RSQL.class$new(  
  drv,  
  dbname,  
  user = NULL,  
  password = NULL,  
  host = NULL,  
  port = NULL,  
  tz = Sys.timezone()  
)
```

*Arguments:*

drv driver name  
dbname database name  
user user name  
password password  
host host name



port port number  
tz actual time zone

**Method** checkConnection(): Function which check if db connection is valid

*Usage:*

RSQL.class\$checkConnection()

*Returns:* conn object

**Method** connect(): Function which connects to database

*Usage:*

RSQL.class\$connect()

*Returns:* conn object

**Method** setupResultClassFromDriver(): Infer ResultsClass from corresponding driver. Implemented for SQLiteDriver & PgConnection

*Usage:*

RSQL.class\$setupResultClassFromDriver()

*Returns:* RSQL object

**Method** setupRegexp(): initialize regexp for scraping entities

*Usage:*

RSQL.class\$setupRegexp(force = FALSE)

*Arguments:*

force force setup?

*Returns:* regexp for scraping select expressions

**Method** finalize(): Class destructor

*Usage:*

RSQL.class\$finalize()

**Method** checkEntitiesNames(): Checks if an entity exists

*Usage:*

RSQL.class\$checkEntitiesNames(entities, entity.type)

*Arguments:*

entities entities to check

entity.type entity type to check against

**Method** gen\_select(): Generates a select

*Usage:*

```

RSQL.class$gen_select(
  select_fields,
  table,
  where_fields = names(where_values),
  where_values = NULL,
  group_by = c(),
  order_by = c(),
  top = 0,
  distinct = FALSE
)

```

*Arguments:*

*select\_fields* fields to be selected  
*table* table to select from  
*where\_fields* fields in the where clause  
*where\_values* values to the fields on the where clause  
*group\_by* fields to group by  
*order\_by* fields to order by  
*top* where does the resultset starts?  
*distinct* provides a way to select distinct rows

**Method** `gen_insert()`: Generate insert statement

*Usage:*

```
RSQL.class$gen_insert(table, values_df, insert_fields = names(values_df))
```

*Arguments:*

*table* The table to insert into  
*values\_df* The values to insert. Must be defined as data.frame of values  
*insert\_fields* the fields to insert into

**Method** `gen_update()`: Generate insert statement

*Usage:*

```

RSQL.class$gen_update(
  table,
  update_fields = names(values),
  values,
  where_fields = names(where_values),
  where_values = NULL
)

```

*Arguments:*

*table* the table to insert into  
*update\_fields* the fields to update  
*values* the values to update  
*where\_fields* a where clause to the insert  
*where\_values* the values to add to the where clause

**Method** `gen_delete()`: Generate a delete statement

*Usage:*

```
RSQL.class$gen_delete(  
  table,  
  where_fields = names(where_values),  
  where_values = NULL  
)
```

*Arguments:*

table the table to insert into  
where\_fields a where clause to the insert  
where\_values the fields to add to the where clause

**Method** execute\_select(): Performs an execution on the database

*Usage:*

```
RSQL.class$execute_select(sql_select)
```

*Arguments:*

sql\_select the sql select statement to perform

**Method** execute\_update(): Performs an update on the database

*Usage:*

```
RSQL.class$execute_update(sql_update)
```

*Arguments:*

sql\_update the sql update statement to perform

**Method** execute\_insert(): Performs an insert on the database

*Usage:*

```
RSQL.class$execute_insert(sql_insert)
```

*Arguments:*

sql\_insert the sql insert statement to perform

**Method** execute\_get\_insert(): Performs a select statement, if not exists, executes insert statement

*Usage:*

```
RSQL.class$execute_get_insert(sql_select, sql_insert)
```

*Arguments:*

sql\_select the sql select statement to perform  
sql\_insert the sql insert statement to perform

**Method** execute\_command(): Performs a command on the database

*Usage:*

```
RSQL.class$execute_command(sql_command)
```

*Arguments:*

sql\_command the sql statement to perform

**Method** `execute_delete()`: Performs an deletion on the database

*Usage:*

```
RSQL.class$execute_delete(sql_delete)
```

*Arguments:*

`sql_delete` the sql delete statement to perform

**Method** `retrieve()`: Performs an insert on the database. This is a composite function

*Usage:*

```
RSQL.class$retrieve(
  table,
  fields_uk = names(values_uk),
  values_uk,
  fields = names(values),
  values = NULL,
  field_id = "id"
)
```

*Arguments:*

`table` The table

`fields_uk` The fields unique key

`values_uk` The values unique key

`fields` The fields (Not used. Included for compatibility)

`values` The values (Not used. Included for compatibility)

`field_id` The field of the serial id

**Method** `retrieve_insert()`: Obtain id if object exists on the database. Insert object if not.

*Usage:*

```
RSQL.class$retrieve_insert(
  table,
  fields_uk = names(values_uk),
  values_uk,
  fields = names(values),
  values = data.frame(),
  field_id = "id"
)
```

*Arguments:*

`table` The table

`fields_uk` The fields unique key

`values_uk` The values unique key

`fields` The fields

`values` The values

`field_id` The field of the serial id

**Method** `clearLastResult()`: clearLast Result for avoiding nasty warning `getSummary`

*Usage:*

```
RSQL.class$clearLastResult()
```

**Method** `getSummary()`: get RSQL summary string

*Usage:*

```
RSQL.class$getSummary()
```

**Method** `disconnect()`: Disconnects the instance from the database

*Usage:*

```
RSQL.class$disconnect()
```

**Method** `clone()`: The objects of this class are cloneable with this method.

*Usage:*

```
RSQL.class$clone(deep = FALSE)
```

*Arguments:*

`deep` Whether to make a deep clone.

### Author(s)

ken4rab

### Examples

```
library(RSQL)
library(RSQLite)
db.name <- getMtcarsdbPath(copy = TRUE)
rsql <- createRSQL(drv = RSQLite::SQLite(), dbname = db.name)
select_sql <- rsql$gen_select(
  select_fields = "*", # c("wt", "qsec"),
  table = "mtcars",
  where_values = data.frame(carb = 8)
)
mtcars.observed <- rsql$execute_select(select_sql)
mtcars.observed

mtcars.new <- mtcars.observed
mtcars.new$carb <- 9
insert_sql <- rsql$gen_insert(table = "mtcars", values_df = mtcars.new)
rsql$execute_insert(sql_insert = insert_sql)

where_values_df <- data.frame(carb = 9)
select_sql <- rsql$gen_select(
  select_fields = "*", # c("wt", "qsec"),
  table = "mtcars",
  where_values = data.frame(carb = 8)
)
mtcars.observed <- rsql$execute_select(select_sql)
mtcars.observed
```

---

sql\_execute\_delete     *sql\_execute\_delete*

---

**Description**

Executes a delete on the Database

**Usage**

sql\_execute\_delete(sql\_delete, dbconn = NULL)

**Arguments**

sql\_delete     The delete SQL  
dbconn         The Database Connection to run the query against

**Author(s)**

ken4rab

---

sql\_execute\_get\_insert  
                          *sql\_execute\_get\_insert*

---

**Description**

Executes the insert statement

**Usage**

sql\_execute\_get\_insert(dbconn, sql\_select, sql\_insert, ...)

**Arguments**

dbconn         The db connection  
sql\_select     The SQL select query  
sql\_insert     The SQL insert query  
...             other variables to considered.

**Author(s)**

ken4rab

---

sql\_execute\_insert     *Executes a statement on the database.*

---

**Description**

Executes a statement on the database.

**Usage**

```
sql_execute_insert(sql_insert, dbconn)
```

**Arguments**

sql_insert	The SQL String
dbconn	The Database Connection to run the query against

**Author(s)**

ken4rab

---

sql\_execute\_select     *sql\_execute\_select*

---

**Description**

Executes a select on the database

**Usage**

```
sql_execute_select(sql_select, dbconn = NULL)
```

**Arguments**

sql_select	The delete SQL
dbconn	The Database Connection to run the query against

**Author(s)**

ken4rab

---

sql_execute_update	<i>Executes an update on the database</i>
--------------------	---

---

**Description**

Executes an update on the database

**Usage**

```
sql_execute_update(sql_update, dbconn = NULL)
```

**Arguments**

sql_update	The update SQL
dbconn	The Database Connection to run the query against

**Author(s)**

ken4rab

---

sql_gen_delete	<i>sql_gen_delete</i>
----------------	-----------------------

---

**Description**

Generates a Delete Statement

**Usage**

```
sql_gen_delete(table, where_fields = names(where_values), where_values = NULL)
```

**Arguments**

table	The table from which the delete statement will be generated
where_fields	The fields used in the where section
where_values	The values used in the where section

**Author(s)**

ken4rab



---

sql_gen_insert	<i>sql_gen_insert</i>
----------------	-----------------------

---

**Description**

Generates an insert statement.

**Usage**

```
sql_gen_insert(table, values_df, insert_fields = names(values_df))
```

**Arguments**

table	The table to be affected
values_df	The values to insert. Must be defined as data.frame of values
insert_fields	The fields to insert

**Author(s)**

ken4rab

---

sql_gen_select	<i>sql_gen_select</i>
----------------	-----------------------

---

**Description**

Generates a Select Statement

**Usage**

```
sql_gen_select(  
  select_fields,  
  table,  
  where_fields = names(where_values),  
  where_values = NULL,  
  group_by = c(),  
  order_by = c(),  
  top = 0,  
  distinct = FALSE  
)
```

**Arguments**

select_fields	The fields to be selected
table	The table to be used in the select
where_fields	The fields used in the where section
where_values	The values used in the where section
group_by	Group by fields
order_by	Order by fields
top	Retrieve top records
distinct	it adds a distinct clause to the query.

**Author(s)**

ken4rab

---

sql_gen_update	<i>sql_gen_update</i>
----------------	-----------------------

---

**Description**

Generates an update statement

**Usage**

```
sql_gen_update(
  table,
  update_fields = names(values),
  values,
  where_fields = names(where_values),
  where_values
)
```

**Arguments**

table	The table to update
update_fields	The fields to update
values	The values to update
where_fields	The fields for where statement
where_values	The values for where statement

**Author(s)**

ken4rab

---

sql_gen_where	<i>sql_gen_where</i>
---------------	----------------------

---

**Description**

Generates a where statement to be used on a SQL statement.

**Usage**

```
sql_gen_where(where_fields = names(where_values), where_values)
```

**Arguments**

where_fields	The fields used in the where section
where_values	The values used in the where section

**Author(s)**

ken4rab

---

sql_gen_where_list	<i>sql_gen_where_list</i>
--------------------	---------------------------

---

**Description**

Generates a where list statement to be used on a SQL statement.

**Usage**

```
sql_gen_where_list(where_fields, where_values)
```

**Arguments**

where_fields	The fields used in the where section
where_values	The values used in the where section

**Author(s)**

ken4rab

---

sql_gen_where_or	<i>sql_gen_where_or</i>
------------------	-------------------------

---

**Description**

Generates a where (or) statement to be used on a SQL statement.

**Usage**

```
sql_gen_where_or(where_fields = names(where_values), where_values)
```

**Arguments**

where_fields	The fields used in the where section
where_values	The values used in the where section

**Author(s)**

ken4rab

---

sql_retrieve	<i>Retrieves Statement</i>
--------------	----------------------------

---

**Description**

Retrieves Statement

**Usage**

```
sql_retrieve(  
  table,  
  fields_uk = names(values_uk),  
  values_uk,  
  fields = names(values),  
  values = NULL,  
  field_id = "id",  
  dbconn = NULL  
)
```

**Arguments**

table	The table
fields_uk	The fields unique key
values_uk	The values unique key
fields	The fields (Not used. Included for compatibility)
values	The values (Not used. Included for compatibility)
field_id	The field of the serial id
dbconn	The database connection

**Author(s)**

ken4rab

---

sql\_retrieve\_insert     *Retrieves or insert Statement*

---

**Description**

Retrieves or insert Statement

**Usage**

```
sql_retrieve_insert(
  table,
  fields_uk = names(values_uk),
  values_uk,
  fields = names(values),
  values = NULL,
  field_id = "id",
  dbconn = NULL
)
```

**Arguments**

table	The table
fields_uk	The fields unique key
values_uk	The values unique key
fields	The fields
values	The values
field_id	The field of the serial id
dbconn	The database connection

**Author(s)**

ken4rab

---

stuff_df_quoted	<i>stuff_df_quoted</i>
-----------------	------------------------

---

**Description**

stuff quote characters in quoted or not quoted df for DSL or DML operations

**Usage**

```
stuff_df_quoted(text.df)
```

**Arguments**

text.df	Data Frame with corresponding values and fields as colnames
---------	---

**Author(s)**

ken4rab

---

stuff_quote	<i>Stuff quote symbol from text</i>
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---

**Description**

Stuff quote symbol from text

**Usage**

```
stuff_quote(unquoted.text, quote = "'")
```

**Arguments**

unquoted.text	The unquoted string to stuff quotes from.
quote	The quoting symbol. Default is `

**Author(s)**

ken4rab

---

times_to_utc	<i>times_to_utc</i>
--------------	---------------------

---

**Description**

This function converts POSIXct columns to UTC for inserting in a database

**Usage**

```
times_to_utc(values.df)
```

**Arguments**

values.df      Data Frame with corresponding values and fields as colnames

**Author(s)**

ken4rab

---

trim	<i>Returns string w/o leading or trailing whitespace</i>
------	--

---

**Description**

Returns string w/o leading or trailing whitespace

**Usage**

```
trim(x)
```

**Arguments**

x              The string

**Author(s)**

ken4rab

---

<code>trim_leading</code>	<i>trim_leading</i>
---------------------------	---------------------

---

**Description**

Returns string w/o leading whitespace

**Usage**

```
trim_leading(x)
```

**Arguments**

x	The string
---	------------

**Author(s)**

ken4rab

---

<code>trim_trailing</code>	<i>trim_trailing</i>
----------------------------	----------------------

---

**Description**

Returns string w/o trailing whitespace

**Usage**

```
trim_trailing(x)
```

**Arguments**

x	The string
---	------------

**Author(s)**

ken4rab



---

%IN%

*Operator IN for multiple columns*

---

**Description**

Operator IN for multiple columns

**Usage**

x %IN% y

**Arguments**

x            vector x

y            vector y

**Author(s)**

ken4rab

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