

Package ‘RPostgres’

April 6, 2018

Title 'Rcpp' Interface to 'PostgreSQL'

Version 1.1.0

Date 2018-04-04

Description

Fully 'DBI'-compliant 'Rcpp'-backed interface to 'PostgreSQL' <<https://www.postgresql.org/>>, an open-source relational database.

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URL <https://github.com/r-dbi/RPostgres>

BugReports <https://github.com/r-dbi/RPostgres/issues>

Depends R (>= 3.1.0)

Imports bit64, blob (>= 1.1.1), DBI (>= 0.8), hms, methods, Rcpp (>= 0.11.4.2), withr

Suggests DBItest, testthat

LinkingTo BH, plogr (>= 0.2.0), Rcpp

Encoding UTF-8

LazyLoad true

RoxygenNote 6.0.1.9000

SystemRequirements libpq >= 9.0: libpq-dev (deb) or postgresql-devel (rpm)

Collate 'PqDriver.R' 'PqConnection.R' 'PqResult.R' 'RPostgres-pkg.R' 'RcppExports.R' 'default.R' 'export.R' 'quote.R' 'tables.R' 'transactions.R' 'utils.R'

NeedsCompilation yes

Author Hadley Wickham [aut],
Jeroen Ooms [aut],
Kirill Müller [aut, cre] (<<https://orcid.org/0000-0002-1416-3412>>),
RStudio [cph],
R Consortium [fnd],
Tomoaki Nishiyama [ctb] (Code for encoding vectors into strings derived from RPostgreSQL)

Maintainer Kirill Müller <kr1mlr+r@mailbox.org>

Repository CRAN

Date/Publication 2018-04-06 09:24:36 UTC

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RPostgres-package *RPostgres: 'Rcpp' Interface to 'PostgreSQL'*

Description

Fully 'DBI'-compliant 'Rcpp'-backed interface to 'PostgreSQL' <<https://www.postgresql.org/>>, an open-source relational database.

Author(s)

Maintainer: Kirill Müller <kr1mlr+r@mailbox.org> (0000-0002-1416-3412)

Authors:

- Hadley Wickham
- Jeroen Ooms

Other contributors:

- RStudio [copyright holder]
- R Consortium [funder]
- Tomoaki Nishiyama (Code for encoding vectors into strings derived from RPostgreSQL) [contributor]

See Also

Useful links:

- <https://github.com/r-dbi/RPostgres>
- Report bugs at <https://github.com/r-dbi/RPostgres/issues>

 dbConnect,PqDriver-method

Connect to a PostgreSQL database.

Description

Manually disconnecting a connection is not necessary with RPostgres, but still recommended; if you delete the object containing the connection, it will be automatically disconnected during the next GC with a warning.

Usage

```
## S4 method for signature 'PqDriver'
dbConnect(drv, dbname = NULL, host = NULL,
  port = NULL, password = NULL, user = NULL, service = NULL, ...,
  bigint = c("integer64", "integer", "numeric", "character"))

## S4 method for signature 'PqConnection'
dbDisconnect(conn, ...)
```

Arguments

drv	RPostgres::Postgres()
dbname	Database name. If NULL, defaults to the user name. Note that this argument can only contain the database name, it will not be parsed as a connection string (internally, <code>expand_dbname</code> is set to <code>false</code> in the call to <code>PQconnectdbParams()</code>).
host, port	Host and port. If NULL, will be retrieved from <code>PGHOST</code> and <code>PGPORT</code> env vars.
user, password	User name and password. If NULL, will be retrieved from <code>PGUSER</code> and <code>PGPASSWORD</code> envvars, or from the appropriate line in <code>~/.pgpass</code> . See http://www.postgresql.org/docs/9.6/static/libpq-pgpass.html for more details.
service	Name of service to connect as. If NULL, will be ignored. Otherwise, connection parameters will be loaded from the <code>pg_service.conf</code> file and used. See http://www.postgresql.org/docs/9.6/static/libpq-pgservice.html for details on this file and syntax.
...	Other name-value pairs that describe additional connection options as described at http://www.postgresql.org/docs/9.6/static/libpq-connect.html#LIBPQ-PARAMKEYWORDS
bigint	The R type that 64-bit integer types should be mapped to, default is <code>bit64::integer64</code> , which allows the full range of 64 bit integers.
conn	Connection to disconnect.

Examples

```
if (postgresHasDefault()) {
  library(DBI)
  # Pass more arguments as necessary to dbConnect()
```

```
con <- dbConnect(RPostgres::Postgres())
dbDisconnect(con)
}
```

 Postgres

Postgres driver

Description

This driver never needs to be unloaded and hence `dbUnload()` is a null-op.

Usage

```
Postgres()
```

Examples

```
library(DBI)
RPostgres::Postgres()
```

 postgres-query

Execute a SQL statement on a database connection

Description

To retrieve results a chunk at a time, use `dbSendQuery()`, `dbFetch()`, then `dbClearResult()`. Alternatively, if you want all the results (and they'll fit in memory) use `dbGetQuery()` which sends, fetches and clears for you.

Usage

```
## S4 method for signature 'PqConnection,character'
dbSendQuery(conn, statement, params = NULL,
  ...)
```

```
## S4 method for signature 'PqResult'
dbFetch(res, n = -1, ..., row.names = FALSE)
```

```
## S4 method for signature 'PqResult'
dbBind(res, params, ...)
```

```
## S4 method for signature 'PqResult'
dbHasCompleted(res, ...)
```

```
## S4 method for signature 'PqResult'
dbClearResult(res, ...)
```

Arguments

conn	A PqConnection created by dbConnect() .
statement	An SQL string to execute
params	A list of query parameters to be substituted into a parameterised query. Query parameters are sent as strings, and the correct type is imputed by PostgreSQL. If this fails, you can manually cast the parameter with e.g. "\$1::bigint".
...	Another arguments needed for compatibility with generic (currently ignored).
res	Code a PqResult produced by DBI::dbSendQuery() .
n	Number of rows to return. If less than zero returns all rows.
row.names	Either TRUE, FALSE, NA or a string. If TRUE, always translate row names to a column called "row_names". If FALSE, never translate row names. If NA, translate rownames only if they're a character vector. A string is equivalent to TRUE, but allows you to override the default name. For backward compatibility, NULL is equivalent to FALSE.

Examples

```
# For running the examples on systems without PostgreSQL connection:
run <- postgresHasDefault()

library(DBI)
if (run) db <- dbConnect(RPostgres::Postgres())
if (run) dbWriteTable(db, "usarrests", datasets::USArrests, temporary = TRUE)

# Run query to get results as dataframe
if (run) dbGetQuery(db, "SELECT * FROM usarrests LIMIT 3")

# Send query to pull requests in batches
if (run) res <- dbSendQuery(db, "SELECT * FROM usarrests")
if (run) dbFetch(res, n = 2)
if (run) dbFetch(res, n = 2)
if (run) dbHasCompleted(res)
if (run) dbClearResult(res)

if (run) dbRemoveTable(db, "usarrests")

if (run) dbDisconnect(db)
```

postgres-tables

Convenience functions for reading/writing DBMS tables

Description

Convenience functions for reading/writing DBMS tables

Usage

```
## S4 method for signature 'PqConnection,character,data.frame'
dbWriteTable(conn, name, value,
  ..., row.names = FALSE, overwrite = FALSE, append = FALSE,
  field.types = NULL, temporary = FALSE, copy = TRUE)

## S4 method for signature 'PqConnection'
sqlData(con, value, row.names = FALSE, copy = TRUE)

## S4 method for signature 'PqConnection,character'
dbReadTable(conn, name, ...,
  check.names = TRUE, row.names = FALSE)

## S4 method for signature 'PqConnection'
dbListTables(conn, ...)

## S4 method for signature 'PqConnection,character'
dbExistsTable(conn, name, ...)

## S4 method for signature 'PqConnection,Id'
dbExistsTable(conn, name, ...)

## S4 method for signature 'PqConnection,character'
dbRemoveTable(conn, name, ...)

## S4 method for signature 'PqConnection,character'
dbListFields(conn, name, ...)

## S4 method for signature 'PqConnection'
dbListObjects(conn, prefix = NULL, ...)
```

Arguments

conn	a PqConnection object, produced by <code>DBI::dbConnect()</code>
name	a character string specifying a table name. Names will be automatically quoted so you can use any sequence of characters, not just any valid bare table name.
value	A <code>data.frame</code> to write to the database.
...	Other arguments used by individual methods.
row.names	Either TRUE, FALSE, NA or a string. If TRUE, always translate row names to a column called "row_names". If FALSE, never translate row names. If NA, translate rownames only if they're a character vector. A string is equivalent to TRUE, but allows you to override the default name. For backward compatibility, NULL is equivalent to FALSE.
overwrite	a logical specifying whether to overwrite an existing table or not. Its default is FALSE.

append	a logical specifying whether to append to an existing table in the DBMS. Its default is FALSE.
field.types	character vector of named SQL field types where the names are the names of new table's columns. If missing, types inferred with <code>DBI::dbDataType()</code> .
temporary	If TRUE, will generate a temporary table statement.
copy	If TRUE, serializes the data frame to a single string and uses COPY name FROM stdin. This is fast, but not supported by all postgres servers (e.g. Amazon's redshift). If FALSE, generates a single SQL string. This is slower, but always supported. RPostgres does not use parameterised queries to insert rows because benchmarks revealed that this was considerably slower than using a single SQL string.
con	A database connection.
check.names	If TRUE, the default, column names will be converted to valid R identifiers.
prefix	A fully qualified path in the database's namespace, or NULL. will be passed to <code>dbUnquoteIdentifier()</code> . If given the method will return all objects accessible through this prefix.

Examples

```
# For running the examples on systems without PostgreSQL connection:
run <- postgresHasDefault()

library(DBI)
if (run) con <- dbConnect(RPostgres::Postgres())
if (run) dbListTables(con)
if (run) dbWriteTable(con, "mtcars", mtcars, temporary = TRUE)
if (run) dbReadTable(con, "mtcars")

if (run) dbListTables(con)
if (run) dbExistsTable(con, "mtcars")

# A zero row data frame just creates a table definition.
if (run) dbWriteTable(con, "mtcars2", mtcars[0, ], temporary = TRUE)
if (run) dbReadTable(con, "mtcars2")

if (run) dbDisconnect(con)
```

postgres-transactions *Transaction management.*

Description

`dbBegin()` starts a transaction. `dbCommit()` and `dbRollback()` end the transaction by either committing or rolling back the changes.

Usage

```
## S4 method for signature 'PqConnection'
dbBegin(conn, ...)
```

```
## S4 method for signature 'PqConnection'
dbCommit(conn, ...)
```

```
## S4 method for signature 'PqConnection'
dbRollback(conn, ...)
```

Arguments

```
conn          a PqConnection object, produced by DBI::dbConnect()
...           Unused, for extensibility.
```

Value

A boolean, indicating success or failure.

Examples

```
# For running the examples on systems without PostgreSQL connection:
run <- postgresHasDefault()

library(DBI)
if (run) con <- dbConnect(RPostgres::Postgres())
if (run) dbWriteTable(con, "USarrests", datasets::USarrests, temporary = TRUE)
if (run) dbGetQuery(con, 'SELECT count(*) from "USarrests"')

if (run) dbBegin(con)
if (run) dbExecute(con, 'DELETE from "USarrests" WHERE "Murder" > 1')
if (run) dbGetQuery(con, 'SELECT count(*) from "USarrests"')
if (run) dbRollback(con)

# Rolling back changes leads to original count
if (run) dbGetQuery(con, 'SELECT count(*) from "USarrests"')

if (run) dbRemoveTable(con, "USarrests")
if (run) dbDisconnect(con)
```

postgresHasDefault *Check if default database is available.*

Description

RPostgres examples and tests connect to a default database via `dbConnect(RPostgres::Postgres())`. This function checks if that database is available, and if not, displays an informative message.

`postgresDefault()` works similarly but returns a connection on success and throws a `testthat` skip condition on failure, making it suitable for use in tests.

Usage

```
postgresHasDefault(...)
```

```
postgresDefault(...)
```

Arguments

... Additional arguments passed on to `dbConnect()`

Examples

```
if (postgresHasDefault()) {
  db <- postgresDefault()
  dbListTables(db)
  dbDisconnect(db)
}
```

quote

Quote postgres strings, identifiers, and literals

Description

If an object of class `Id` is used for `dbQuoteIdentifier()`, it needs at most one table component and at most one schema component.

Usage

```
## S4 method for signature 'PqConnection,character'
dbQuoteString(conn, x, ...)
```

```
## S4 method for signature 'PqConnection,SQL'
dbQuoteString(conn, x, ...)
```

```
## S4 method for signature 'PqConnection,character'
dbQuoteIdentifier(conn, x, ...)
```

```
## S4 method for signature 'PqConnection,SQL'
dbQuoteIdentifier(conn, x, ...)
```

```
## S4 method for signature 'PqConnection,Id'
dbQuoteIdentifier(conn, x, ...)
```

```
## S4 method for signature 'PqConnection,SQL'
dbUnquoteIdentifier(conn, x, ...)
```

```
dbQuoteLiteral(conn, x, ...)
```

```
## S4 method for signature 'PqConnection,logical'  
dbQuoteLiteral(conn, x, ...)  
  
## S4 method for signature 'PqConnection,integer'  
dbQuoteLiteral(conn, x, ...)  
  
## S4 method for signature 'PqConnection,numeric'  
dbQuoteLiteral(conn, x, ...)  
  
## S4 method for signature 'PqConnection,factor'  
dbQuoteLiteral(conn, x, ...)  
  
## S4 method for signature 'PqConnection,Date'  
dbQuoteLiteral(conn, x, ...)  
  
## S4 method for signature 'PqConnection,POSIXt'  
dbQuoteLiteral(conn, x, ...)  
  
## S4 method for signature 'PqConnection,difftime'  
dbQuoteLiteral(conn, x, ...)  
  
## S4 method for signature 'PqConnection,list'  
dbQuoteLiteral(conn, x, ...)  
  
## S4 method for signature 'PqConnection,blob'  
dbQuoteLiteral(conn, x, ...)
```

Arguments

conn	A PqConnection created by <code>dbConnect()</code>
x	A character to escaped
...	Other arguments needed for compatibility with generic

Examples

```
# For running the examples on systems without PostgreSQL connection:  
run <- postgresHasDefault()  
  
library(DBI)  
if (run) con <- dbConnect(RPostgres::Postgres())  
  
x <- c("a", "b c", "d'e", "\\f")  
if (run) dbQuoteString(con, x)  
if (run) dbQuoteIdentifier(con, x)  
if (run) dbDisconnect(con)
```

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