

Package ‘rpostgis’

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Title R interface to a PostGIS database

Description This package provides additional functions to the RPostgreSQL package to interface R with a PostGIS-enabled database, as well as convenient wrappers to common PostgreSQL queries.

Depends R (>= 3.3.0),
RPostgreSQL,
DBI

Imports methods,
raster,
rgeos,
sp,
stats

Suggests rgdal,
wkb

License GPL (>= 3)

LazyData true

URL <http://ase-research.org/basille/rpostgis>

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dbAddKey	<i>Add key.</i>
----------	-----------------

Description

Add a primary or foreign key to a table column.

Usage

```
dbAddKey(conn, name, colname, type = c("primary", "foreign"), reference,
         colref, display = TRUE, exec = TRUE)
```

Arguments

conn	A connection object.
name	A character string specifying a PostgreSQL table name.
colname	A character string specifying the name of the column to which the key will be assign.
type	The type of the key, either primary or foreign
reference	A character string specifying a foreign table name to which the foreign key will be associated.
colref	A character string specifying the name of the primary key in the foreign table to which the foreign key will be associated.
display	Logical. Whether to display the query (defaults to TRUE).
exec	Logical. Whether to execute the query (defaults to TRUE).

Value

TRUE if the key was successfully added.

Author(s)

Mathieu Basille <basille@ufl.edu>

See Also

The PostgreSQL documentation: <http://www.postgresql.org/docs/current/static/sql-altertable.html>

Examples

```
dbAddKey(name = c("fla", "bli"), colname = "id", type = "foreign",
         reference = c("flu", "bla"), colref = "id", exec = FALSE)
```

dbAsDate	<i>Converts to timestamp.</i>
----------	-------------------------------

Description

Convert a date field to a timestamp with or without time zone.

Usage

```
dbAsDate(conn, name, date = "date", tz = NULL, display = TRUE,  
         exec = TRUE)
```

Arguments

conn	A connection object.
name	A character string specifying a PostgreSQL table name.
date	A character string specifying the date field.
tz	A character string specifying the time zone, in "EST", "America/New_York", "EST5EDT", "-5".
display	Logical. Whether to display the query (defaults to TRUE).
exec	Logical. Whether to execute the query (defaults to TRUE).

Value

TRUE if the conversion was successful.

Author(s)

Mathieu Basille <basille@uf1.edu>

See Also

The PostgreSQL documentation: <http://www.postgresql.org/docs/current/static/datatype-datetime.html>

Examples

```
dbAsDate(name = c("fla", "bli"), date = "date", tz = "GMT", exec = FALSE)
```

`dbColumn`*Add or remove a column.*

Description

Add or remove a column to/from a table.

Usage

```
dbColumn(conn, name, colname, action = c("add", "drop"),
  coltype = "integer", cascade = FALSE, display = TRUE, exec = TRUE)
```

Arguments

<code>conn</code>	A connection object.
<code>name</code>	A character string specifying a PostgreSQL table name.
<code>colname</code>	A character string specifying the name of the column to which the key will be associated.
<code>action</code>	A character string specifying if the column is to be added ("add", default) or removed ("drop").
<code>coltype</code>	A character string indicating the type of the column, if <code>action = "add"</code> .
<code>cascade</code>	Logical. Whether to drop foreign key constraints of other tables, if <code>action = "drop"</code> .
<code>display</code>	Logical. Whether to display the query (defaults to TRUE).
<code>exec</code>	Logical. Whether to execute the query (defaults to TRUE).

Value

TRUE if the column was successfully added or removed.

Author(s)

Mathieu Basille <basille@ufl.edu>

See Also

The PostgreSQL documentation: <http://www.postgresql.org/docs/current/static/sql-altertable.html>

Examples

```
## Add an integer column
dbColumn(name = c("fla", "bli"), colname = "field", exec = FALSE)
## Drop a column (with CASCADE)
dbColumn(name = c("fla", "bli"), colname = "field", action = "drop",
  cascade = TRUE, exec = FALSE)
```

dbComment	<i>Comment table/view/schema.</i>
-----------	-----------------------------------

Description

Comment on a table, a view or a schema.

Usage

```
dbComment(conn, name, comment, type = c("table", "view", "schema"),
  display = TRUE, exec = TRUE)
```

Arguments

conn	A connection object.
name	A character string specifying a PostgreSQL table, view or schema name.
comment	A character string specifying the comment.
type	The type of the object to comment, either table or view
display	Logical. Whether to display the query (defaults to TRUE).
exec	Logical. Whether to execute the query (defaults to TRUE).

Value

TRUE if the comment was successfully applied.

Author(s)

Mathieu Basille <basille@ufl.edu>

See Also

The PostgreSQL documentation: <http://www.postgresql.org/docs/current/static/sql-comment.html>

Examples

```
dbComment(name = c("fla", "bli"), comment = "Comment on a view.",
  type = "view", exec = FALSE)
dbComment(name = "fla", comment = "Comment on a schema.", type = "schema",
  exec = FALSE)
```

dbDrop	<i>Drop table/view/schema.</i>
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Description

Drop a table, a view or a schema.

Usage

```
dbDrop(conn, name, type = c("table", "view", "schema"), ifexists = FALSE,  
        cascade = FALSE, display = TRUE, exec = TRUE)
```

Arguments

conn	A connection object.
name	A character string specifying a PostgreSQL table, view or schema name.
type	The type of the object to comment, either table or view
ifexists	Do not throw an error if the table does not exist. A notice is issued in this case.
cascade	Automatically drop objects that depend on the table (such as views).
display	Logical. Whether to display the query (defaults to TRUE).
exec	Logical. Whether to execute the query (defaults to TRUE).

Value

TRUE if the table/view/schema was successfully dropped.

Author(s)

Mathieu Basille <basille@ufl.edu>

See Also

The PostgreSQL documentation: <http://www.postgresql.org/docs/current/static/sql-droptable.html>, <http://www.postgresql.org/docs/current/static/sql-dropview.html>, <http://www.postgresql.org/docs/current/static/sql-dropschema.html>

Examples

```
dbDrop(name = c("fla", "bli"), type = "view", exec = FALSE)  
dbDrop(name = "fla", type = "schema", cascade = "TRUE", exec = FALSE)
```

`dbIndex`*Create an index.*

Description

Defines a new index on a PostgreSQL table.

Usage

```
dbIndex(conn, name, colname, idxname, unique = FALSE, method = c("btree",  
    "hash", "rtree", "gist"), display = TRUE, exec = TRUE)
```

Arguments

<code>conn</code>	A connection object.
<code>name</code>	A character string specifying a PostgreSQL table name.
<code>colname</code>	A character string specifying the name of the column to which the key will be associated.
<code>idxname</code>	A character string specifying the name of the index to be created. By default, this is the name of the table (without the schema) suffixed by <code>_idx</code> .
<code>unique</code>	Logical. Causes the system to check for duplicate values in the table when the index is created (if data already exist) and each time data is added. Attempts to insert or update data which would result in duplicate entries will generate an error.
<code>method</code>	The name of the method to be used for the index. Choices are "btree", "hash", "rtree", and "gist". The default method is "btree", although "gist" should be the index of choice for Post GIS spatial types (geometry, geography, raster).
<code>display</code>	Logical. Whether to display the query (defaults to TRUE).
<code>exec</code>	Logical. Whether to execute the query (defaults to TRUE).

Value

TRUE if the index was successfully created.

Author(s)

Mathieu Basille <basille@ufl.edu>

See Also

The PostgreSQL documentation: <http://www.postgresql.org/docs/current/static/sql-createindex.html>; the PostGIS documentation for GiST indexes: http://postgis.net/docs/using_postgis_dbmanagement.html#id541286

Examples

```
dbIndex(name = c("fla", "bli"), colname = "geom", method = "gist",  
    exec = FALSE)
```

dbSchema	<i>Check and create schema.</i>
----------	---------------------------------

Description

Checks the existence, and if necessary, creates a schema.

Usage

```
dbSchema(conn, name, display = TRUE, exec = TRUE)
```

Arguments

conn	A connection object (required, even if <code>exec = FALSE</code>).
name	A character string specifying a PostgreSQL schema name.
display	Logical. Whether to display the query (defaults to <code>TRUE</code>).
exec	Logical. Whether to execute the query (defaults to <code>TRUE</code>). Note: if <code>exec = FALSE</code> , the function still checks the existence of the schema, but does not create it if it does not exist.

Value

`TRUE` if the schema exists (whether it was already available or was just created).

Author(s)

Mathieu Basille <basille@uf1.edu>

See Also

The PostgreSQL documentation: <http://www.postgresql.org/docs/current/static/sql-createschema.html>

Examples

```
## Not run:  
  dbSchema(name = "schema", exec = FALSE)  
  
## End(Not run)
```

`dbTableInfo`*Get information about table columns.*

Description

Get information about columns in a PostgreSQL table.

Usage

```
dbTableInfo(conn, name, allinfo = FALSE)
```

Arguments

<code>conn</code>	A connection object to a PostgreSQL database.
<code>name</code>	A character string specifying a PostgreSQL schema (if necessary), and table or view name geometry (e.g., <code>name = c("schema", "table")</code>).
<code>allinfo</code>	Logical, Get all information on table? Default is column names, types, nullable, and maximum length of character columns.

Value

data frame

Author(s)

David Bucklin <dbucklin@ufl.edu>

Examples

```
## Not run:
dbTableInfo(conn, c("schema", "table"))

## End(Not run)
```

`dbVacuum`*Vacuum.*

Description

Performs a VACUUM (garbage-collect and optionally analyze) on a table.

Usage

```
dbVacuum(conn, name, full = FALSE, verbose = FALSE, analyze = TRUE,
  display = TRUE, exec = TRUE)
```

Arguments

conn	A connection object.
name	A character string specifying a PostgreSQL table name.
full	Logical. Whether to perform a "full" vacuum, which can reclaim more space, but takes much longer and exclusively locks the table.
verbose	Logical. Whether to print a detailed vacuum activity report for each table.
analyze	Logical. Whether to update statistics used by the planner to determine the most efficient way to execute a query (default to TRUE).
display	Logical. Whether to display the query (defaults to TRUE).
exec	Logical. Whether to execute the query (defaults to TRUE).

Author(s)

Mathieu Basille <basille@ufl.edu>

See Also

The PostgreSQL documentation: <http://www.postgresql.org/docs/current/static/sql-vacuum.html>

Examples

```
dbVacuum(name = c("fla", "bli"), full = TRUE, exec = FALSE)
```

pgGetBoundary

Retrieve bounding envelope of geometries.

Description

Retrieve bounding envelope (rectangle) of all geometries or rasters in a Postgresql table.

Usage

```
pgGetBoundary(conn, name, geom = "geom")
```

Arguments

conn	A connection object to a PostgreSQL database
name	A character string specifying a PostgreSQL schema (if necessary), and table or view name for the table holding the geometries/raster(s) (e.g., name = c("schema","table"))
geom	character, Name of the column in 'name' holding the geometry or raster object (Default = 'geom')

Value

SpatialPolygon

Author(s)

David Bucklin <dbucklin@ufl.edu>

Examples

```
## Not run:
pgGetBoundary(conn, c("schema", "polys"), geom = "polygon")
pgGetBoundary(conn, c("schema", "rasters"), geom = "rast")

## End(Not run)
```

pgGetPts

Load a PostGIS geometry in a PostgreSQL table/view into R.

Description

Retrieve point, linestring, or polygon geometries from a PostGIS table/view, and convert it to an R 'sp' object (Spatial* or Spatial*DataFrame).

Usage

```
pgGetPts(conn, name, geom = "geom", gid = NULL, other.cols = "*",
  query = NULL)

pgGetLines(conn, name, geom = "geom", gid = NULL, other.cols = "*",
  query = NULL)

pgGetPolys(conn, name, geom = "geom", gid = NULL, other.cols = "*",
  query = NULL)
```

Arguments

conn	A connection object to a PostgreSQL database
name	A character string specifying a PostgreSQL schema and table/view name holding the geometry (e.g., 'name = c("schema","table")')
geom	The name of the geometry column. (Default = 'geom')
gid	Name of the column in 'name' holding the IDs. Should be unique if additional columns of unique data are being appended. gid=NULL (default) automatically creates a new unique ID for each row in the 'sp' object.
other.cols	Names of specific columns in the table to retrieve, comma separated in one character element (e.g. other.cols='col1,col2'. The default is to attach all columns in a Spatial*DataFrame. Setting other.cols=NULL will return a Spatial-only object (no data).
query	character, additional SQL to append to modify select query from table. Must begin with "AND ..."; see below for examples.

Value

Spatial(Multi)PointsDataFrame or Spatial(Multi)Points
 SpatialLinesDataFrame or SpatialLines
 SpatialPolygonsDataFrame or SpatialPolygons

Author(s)

David Bucklin <dbucklin@ufl.edu>

Mathieu Basille <basille@ufl.edu>

Examples

```
## Not run:
## Retrieve a SpatialPointsDataFrame with all data from table
## 'schema.tablename', with geometry in the column 'geom'
pgGetPts(conn, c("schema", "tablename"))
## Return a SpatialPointsDataFrame with columns c1 & c2 as data
pgGetPts(conn, c("schema", "tablename"), other.cols = "c1,c2")
## Return a SpatialPoints, retaining id from table as rownames
pgGetPts(conn, c("schema", "tablename"), gid = "table_id", other.cols = FALSE)

## End(Not run)
## Not run:
pgGetLines(conn, c("schema", "tablename"))
pgGetLines(conn, c("schema", "roads"), geom = "roadgeom", gid = "road_ID",
  other.cols = NULL, query = "AND field = 'highway'")

## End(Not run)
## Not run:
pgGetPolys(conn, c("schema", "tablename"))
pgGetPolys(conn, c("schema", "states"), geom = "statesgeom",
  gid = "state_ID", other.cols = "area,population",
  query = "AND area > 1000000 ORDER BY population LIMIT 10")

## End(Not run)
```

pgGetRast

*Load raster from DB.***Description**

Retrieve rasters from a PostGIS table.

Usage

```
pgGetRast(conn, name, rast = "rast", digits = 9, boundary = NULL)
```

Arguments

conn	A connection object to a PostgreSQL database
name	A character string specifying a PostgreSQL schema (if necessary), and table or view name for the table holding the raster (e.g., name = c("schema","table"))
rast	Name of the column in 'name' holding the raster object
digits	numeric, precision for detecting whether points are on a regular grid (a low number of digits is a low precision) - From rasterFromXYZ function (raster package)

boundary sp object or numeric. A Spatial* object, whose bounding box will be used to select the part of the raster to import. Alternatively, four numbers (e.g. c(north, south, east, west)) indicating the projection-specific limits with which to clip the raster. NULL (default) will return the full raster.

Value

RasterLayer

Author(s)

David Bucklin <dbucklin@ufl.edu>

Examples

```
## Not run:
pgGetRast(conn, c("schema", "tablename"))
pgGetRast(conn, c("schema", "DEM"), digits = 9, boundary = c(55,
  50, 17, 12))

## End(Not run)
```

pgInsert

Inserts spatial data into a PostgreSQL table.

Description

This function takes a take an R sp object (Spatial* or Spatial*DataFrame), or a regular data frame, and performs the database insert (and table creation, if specified) on the database. The entire data frame is prepared, but if `force.match` specifies a database table, the R column names are compared to the `force.match` column names, and only exact matches are formatted to be inserted. A new database table can also be created using the `create.table` argument. If `new.id` is specified, a new sequential integer field is added to the data frame for insert. For Spatial*-only objects (no data frame), a `new.id` is created by default with name "gid".

Usage

```
pgInsert(conn, data.obj, create.table = NULL, force.match = NULL,
  geom = "geom", new.id = NULL, alter.names = TRUE, encoding = NULL)
```

Arguments

conn	A connection object to a PostgreSQL database
data.obj	A Spatial* or Spatial*DataFrame, or data frame
create.table	Character, schema and table of the PostgreSQL table to create. Column names will be converted to PostgreSQL-compliant names. Default is NULL (no new table created).
force.match	Character, schema and table of the PostgreSQL table to compare columns of data frame with. If specified, only columns in the data frame that exactly match the database table will be kept, and reordered to match the database table.

<code>geom</code>	character string. For Spatial* datasets, the name of geometry column in the database table. (existing or to be created; defaults to <code>geom</code>).
<code>new.id</code>	Character, name of a new sequential integer ID column to be added to the table. (for spatial objects without data frames, this column is created even if left NULL and defaults to the name <code>gid</code>). Must match an existing column name (and numeric type) when used with <code>force.match</code> , otherwise it will be discarded.
<code>alter.names</code>	Logical, whether to make database column names DB-compliant (remove special characters). Default is TRUE. (This should to be set to FALSE to match to non-standard names in an existing database table using the <code>force.match</code> setting.)
<code>encoding</code>	Character vector of length 2, containing the from/to encodings for the data (as in the function <code>iconv</code>). For example, if the dataset contain certain latin characters (e.g., accent marks), and the database is in UTF-8, use <code>encoding = c("latin1", "UTF-8")</code> . Left NULL, no conversion will be done.

Details

If the R package `wkb` is installed, this function will use `writeWKB` for certain datasets (non-Multi types, non-Linestring), which is faster for large datasets. In all other cases the `rgeos` function `writeWKT` is used.

If the table is created but the data insert statement fails, `create.table` is dropped from the database (a message will be given).

Value

DBIResult

Author(s)

David Bucklin <dbucklin@ufl.edu>

Examples

```
## Not run:
library(sp)
data(meuse)
coords <- SpatialPoints(meuse[, c("x", "y")])
spdf <- SpatialPointsDataFrame(coords, meuse)

## Insert data in new database table
pgInsert(conn, data.obj = spdf, create.table = c("public", "meuse_data"))

## Insert into already created table
pgInsert(conn, data.obj = spdf, force.match = c("public", "meuse_data"))

## End(Not run)
```

pgInsertizeGeom

*Format R data objects for insert into a PostgreSQL table.***Description**

These functions take an R `sp` object (`Spatial*` or `Spatial*DataFrame`; for `pgInsertizeGeom`) or data frame (for `pgInsertize`) and return a `pgi` list object, which can be used in the function `pgInsert` to insert rows of the object into the database table. (Note that these functions do not do any modification of the database, it only prepares the data for insert.) The function `pgInsert` is a wrapper around these functions, so `pgInsertize*` should only be used in situations where data preparation and insert need to be separated.

Usage

```
pgInsertizeGeom(data.obj, geom = "geom", create.table = NULL,
  force.match = NULL, conn = NULL, new.id = NULL, alter.names = TRUE)

pgInsertize(data.obj, create.table = NULL, force.match = NULL,
  conn = NULL, new.id = NULL, alter.names = TRUE)

## S3 method for class 'pgi'
print(x, ...)
```

Arguments

<code>data.obj</code>	A <code>Spatial*</code> or <code>Spatial*DataFrame</code> , or data frame for <code>pgInsertize</code> .
<code>geom</code>	character string, the name of geometry column in the database table. (existing or to be created; defaults to 'geom').
<code>create.table</code>	character, schema and table of the PostgreSQL table to create (actual table creation will be done in later in <code>pgInsert()</code>). Column names will be converted to PostgreSQL-compliant names. Default is <code>NULL</code> (no new table created).
<code>force.match</code>	character, schema and table of the PostgreSQL table to compare columns of data frame with. If specified, only columns in the data frame that exactly match the database table will be kept, and reordered to match the database table. If <code>NULL</code> , all columns will be kept in the same order given in the data frame.
<code>conn</code>	A database connection (if a table is given in for "force.match" parameter)
<code>new.id</code>	character, name of a new sequential integer ID column to be added to the table. (for spatial objects without data frames, this column is created even if left <code>NULL</code> and defaults to the name "gid").
<code>alter.names</code>	Logical, whether to make database column names DB-compliant (remove special characters). Default is <code>TRUE</code> . (This should to be set to <code>FALSE</code> to match to non-standard names in an existing database table using the <code>force.match</code> setting.)
<code>x</code>	A list of class <code>pgi</code> , output from the <code>pgInsertize()</code> or <code>pgInsertizeGeom()</code> functions from the <code>rpostgis</code> package.
<code>...</code>	Further arguments not used.

Details

The entire data frame is prepared by default, unless `force.match` specifies a database table (along with a database connection `conn`), in which case the R column names are compared to the `force.match` column names, and only exact matches are formatted to be inserted.

A new database table can also be prepared to be created using the `create.table` argument. If `new.id` is specified, a new sequential integer field is added to the data frame. For `Spatial*`-only objects (no data frame), a `new.id` is created by default with name `gid`. For `pgInsertizeGeom`, if the R package `wkb` is installed, this function uses `writeWKB` to translate the geometries for some spatial types (faster with large datasets), otherwise the `rgeos` function `writeWKT` is used.

Value

`pgi` A list containing four character strings: (1) `in.table`, the table name which will be created or inserted into, if specified by either `create.table` or `force.match` (else `NULL`) (2) `db.new.table`, the SQL statement to create the new table, if specified in `create.table` (else `NULL`), (3) `db.cols.insert`, a character string of the database column names to insert into, and (4) `insert.data`, a character string of the data to insert. See examples for usage within the `pgInsert` function.

Author(s)

David Bucklin <dbucklin@ufl.edu>

Examples

```
## Not run:
library(sp)
data(meuse)
coords <- SpatialPoints(meuse[, c("x", "y")])
spdf <- SpatialPointsDataFrame(coords, meuse)

## Format data for insert
pgi.new <- pgInsertizeGeom(spdf, geom = "point_geom", create.table = c("schema",
  "table"), new.id = "pt_gid")
print(pgi.new)

## Insert data in database table (note that an error will be given if
## all insert columns do not have exactly matching database table
## columns)
pgInsert(conn = conn, data.obj = pgi.new)

## Inserting into existing table
pgi.existing <- pgInsertizeGeom(spdf, geom = "point_geom", force.match = c("schema",
  "table"), conn = conn)
## A warning message is given, since the "dist.m" column is not found
## in the database table (it was changed to "dist_m" in pgi.new to
## make name DB-compliant). All other columns are prepared for insert.
print(pgi.existing)

pgInsert(conn = conn, data.obj = pgi.existing)

## End(Not run)
## Not run:
## Format regular (non-spatial) data frame for insert using
## pgInsertize connect to database
data <- data.frame(a = c(1, 2, 3), b = c(4, NA, 6), c = c(7,
```



```

      "text", 9))

## Format non-spatial data frame for insert
values <- pgInsertize(data.obj = data)

## Insert data in database table (note that an error will be given if
## all insert columns do not match exactly to database table columns)
pgInsert(conn, data.obj = values, name = c("schema", "table"))

## Run with forced matching of database table column names
values <- pgInsertize(data.obj = data, force.match = c("schema",
  "table"), conn = conn)

pgInsert(conn, data.obj = values)

## End(Not run)

```

pgListGeomTables	<i>List geometries.</i>
------------------	-------------------------

Description

List tables with geometry columns in the database.

Usage

```
pgListGeomTables(conn)
```

Arguments

conn	A PostgreSQL database connection
------	----------------------------------

Value

A data frame with schema, table, geometry column, and geometry type.

Examples

```

## Not run:
pgListGeomTables(conn)

## End(Not run)

```

pgMakePts

*Add a POINT or LINESTRING geometry field.***Description**

Add a new POINT or LINESTRING geometry field.

Usage

```
pgMakePts(conn, name, colname = "pts_geom", x = "x", y = "y", srid,
          index = TRUE, display = TRUE, exec = TRUE)
```

```
pgMakeStp(conn, name, colname = "stp_geom", x = "x", y = "y", dx = "dx",
          dy = "dy", srid, index = TRUE, display = TRUE, exec = TRUE)
```

Arguments

conn	A connection object.
name	A character string specifying a PostgreSQL table name.
colname	A character string specifying the name of the new geometry column.
x	The name of the x/longitude field.
y	The name of the y/latitude field.
srid	A valid SRID for the new geometry.
index	Logical. Whether to create an index on the new geometry.
display	Logical. Whether to display the query (defaults to TRUE).
exec	Logical. Whether to execute the query (defaults to TRUE).
dx	The name of the dx field (i.e. increment in x direction).
dy	The name of the dy field (i.e. increment in y direction).

Author(s)

Mathieu Basille <basille@ufl.edu>

See Also

The PostGIS documentation for ST_MakePoint: http://postgis.net/docs/ST_MakePoint.html, and for ST_MakeLine: http://postgis.net/docs/ST_MakeLine.html, which are the main functions of the call.

Examples

```
## Create a new POINT field called "pts_geom"
pgMakePts(name = c("fla", "bli"), x = "longitude", y = "latitude",
          srid = 4326, exec = FALSE)

## Create a new LINESTRING field called "stp_geom"
pgMakeStp(name = c("fla", "bli"), x = "longitude", y = "latitude",
          dx = "xdiff", dy = "ydiff", srid = 4326, exec = FALSE)
```

pgPostGIS

Check and create PostGIS extension.

Description

The function checks for the availability of the PostGIS extension, and if it is available, but not installed, install it. Additionally, can also install Topology, Tiger Geocoder and SFCGAL extensions.

Usage

```
pgPostGIS(conn, topology = FALSE, tiger = FALSE, sfcgal = FALSE,  
          display = TRUE, exec = TRUE)
```

Arguments

conn	A connection object (required, even if exec = FALSE).
topology	Logical. Whether to check/install the Topology extension.
tiger	Logical. Whether to check/install the Tiger Geocoder extension.
sfcgal	Logical. Whether to check/install the SFCGAL extension.
display	Logical. Whether to display the query (defaults to TRUE).
exec	Logical. Whether to execute the query (defaults to TRUE).

Value

TRUE if PostGIS is installed.

Author(s)

Mathieu Basille <basille@uf1.edu>

Examples

```
## 'exec = FALSE' does not install any extension, but nevertheless  
## check for available and installed extensions:  
## Not run:  
  pgPostGIS(con, topology = TRUE, tiger = TRUE, sfcgal = TRUE,  
            exec = FALSE)  
  
## End(Not run)
```

pgSRID

*Find (or create) PostGIS SRID based on CRS object.***Description**

This function takes [CRS](#)-class object and a PostgreSQL database connection (with PostGIS extension), and returns the matching SRID(s) for that CRS. If a match is not found, a new entry can be created in the PostgreSQL `spatial_ref_sys` table using the parameters specified by the CRS. New entries will be created with `auth_name = 'rpostgis_custom'`, with the default value being the next open value between 880001-889999 (a different SRID value can be entered if desired.)

Usage

```
pgSRID(conn, crs, create = FALSE, new.srid = NULL)
```

Arguments

<code>conn</code>	A connection object to a PostgreSQL database.
<code>crs</code>	CRS object, created through a call to CRS .
<code>create</code>	Logical. If no matching SRID is found, should a new SRID be created? User must have write access on <code>spatial_ref_sys</code> table.
<code>new.srid</code>	Integer. Optional SRID to give to a newly created SRID. If left NULL (default), the next open value of <code>srid</code> in <code>spatial_ref_sys</code> between 880001 and 889999 will be used.

Value

SRID code (integer).

Author(s)

David Bucklin <dbucklin@ufl.edu>

Examples

```
## Not run:
drv <- dbDriver("PostgreSQL")
conn <- dbConnect(drv, dbname = "dbname", host = "host", port = "5432",
  user = "user", password = "password")
(crs <- CRS("+proj=longlat"))
pgSRID(conn, crs)
(crs2 <- CRS(paste("+proj=stere", "+lat_0=52.15616055555555 +lon_0=5.38763888888889",
  "+k=0.999908 +x_0=155000 +y_0=463000", "+ellps=bessel",
  "+towgs84=565.237,50.0087,465.658,-0.406857,0.350733,-1.87035,4.0812",
  "+units=m")))
pgSRID(conn, crs2, create = TRUE)

## End(Not run)
```

rpostgis*R interface to a PostGIS database.*

Description

This package provides additional functions to the RPostgreSQL package to interface R with a PostGIS-enabled database, as well as convenient wrappers to common PostgreSQL queries. For a list of documented functions, use `library(help = "rpostgis")`.

Details

A typical session starts by establishing the connection to a working PostgreSQL database:

```
library(rpostgis) con <- dbConnect("PostgreSQL", dbname = <dbname>, host = <host>, user =  
<user>, password = <password>)
```

For example, this could be:

```
con <- dbConnect("PostgreSQL", dbname = "rpostgis", host = "localhost", user = "postgres", pass-  
word = "postgres")
```

The next step typically involves checking if PostGIS was installed on the working database, and if not try to install it:

```
pgPostGIS(con)
```

The function should return TRUE for all pg- functions to work.

Finally, at the end of an interactive session, the connection to the database should be closed:

```
dbDisconnect(con)
```

Author(s)

Mathieu Basille (<basille@uf1.edu>) and David Bucklin (<dbucklin@uf1.edu>)

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