

Package ‘neo2R’

August 5, 2026

Type Package

Title Neo4j to R

Version 3.1.1

Description The aim of neo2R is to provide simple and low level connectors for querying neo4j graph databases (<<https://neo4j.com/>>). The objects returned by the query functions are either lists or data.frames with very little post-processing. It allows fast processing of queries returning many records. And it let the users handle post-processing according to the data model and their needs.

URL <https://github.com/patzaw/neo2r>

BugReports <https://github.com/patzaw/neo2r/issues>

Depends R (>= 4.1)

Imports jsonlite, httr2, utils

SystemRequirements neo4j (>=3) <<https://neo4j.com/>>

License GPL-3

Encoding UTF-8

Config/roxygen2/version 8.1.0

NeedsCompilation no

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Repository CRAN

Date/Publication 2026-08-05 08:20:02 UTC

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cypher	<i>Run a cypher query</i>
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Description

Run a cypher query

Usage

```
cypher(  
  graph,  
  query,  
  parameters = NULL,  
  result = c("row", "graph", "source"),  
  arraysAsStrings = TRUE,  
  eltSep = " || "  
)
```

Arguments

graph	the neo4j connection
query	the cypher query
parameters	parameters for the cypher query.
result	the way to return results. "row" will return a data frame and "graph" will return a list of nodes, a list of relationships and a list of paths (vectors of relationships identifiers). 'source' will return the results as returned by neo4j (Caution: The format is inconsistent between the two versions of the API).
arraysAsStrings	if result="row" and arraysAsStrings is TRUE (default) array from neo4j are converted to strings and array elements are separated by eltSep.
eltSep	if result="row" and arraysAsStrings is TRUE (default) array from neo4j are converted to strings and array elements are separated by eltSep.

Value

The "result" of the query (invisible). See the "result" param.

See Also

[multicypher\(\)](#), [startGraph\(\)](#), [prepCql\(\)](#), [readCql\(\)](#) and [graphRequest\(\)](#)

Examples

```
## Not run:
# 2 identical queries
result <- cypher(
  graph=graph,
  query='match (n {value:$value}) return n',
  parameters=list(value="100"),
  result="graph"
)
result <- cypher(
  graph=graph,
  query='match (n {value:"100"}) return n',
  result="graph"
)

## End(Not run)
```

graphRequest

*Run a curl request on a neo4j graph***Description**

Run a curl request on a neo4j graph

Usage

```
graphRequest(graph, endpoint, customrequest = c("POST", "GET"), postText)
```

Arguments

graph	the neo4j connection
endpoint	the endpoint for the request. To list all the available endpoints: <code>graphRequest(graph, endpoint="", customrequest="GET", postText="")\$result</code>
customrequest	the type of request: "POST" (default) or "GET"
postText	the request body

Value

A list with the "header" and the "result" of the request (invisible)

See Also

[startGraph\(\)](#) and [cypher\(\)](#)

import_from_df	<i>Imports a data.frame in the neo4j graph database</i>
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Description

This function only works with localhost Neo4j instances.

Usage

```
import_from_df(graph, cql, toImport, periodicCommit = 1000, by = Inf, ...)
```

Arguments

graph	the neo4j connection
cql	the CQL query to be applied on each row of toImport. Use the 'row' prefix to refer to the data.frame column.
toImport	the data.frame to be imported as "row". Use "row.FIELD" in the cql query to refer to one FIELD of the toImport data.frame
periodicCommit	use periodic commit when loading the data (default: 10000).
by	number of rows to send by batch (default: Inf). Can be an alternative to periodic commit.
...	further parameters for cypher()

See Also

[cypher\(\)](#)

multicypher	<i>Run a multiple cypher queriers</i>
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Description

Run a multiple cypher queriers

Usage

```
multicypher(
  graph,
  queries,
  parameters = NULL,
  result = c("row", "graph", "source"),
  arraysAsStrings = TRUE,
  eltSep = " || "
)
```

Arguments

graph	the neo4j connection
queries	queries to submit. It can be either a character vector for which each element corresponds to a cypher query. Or it can be a list of lists with the following slots: • query (mandatory): A single character corresponding to the cypher query. • parameters (optional): A set of parameters specific for this query. If not provided, the <i>parameters</i> parameter of the function is used (see below). • result (optional): The specific way to return the results of this query. If not provided, the <i>result</i> parameter of the function is used (see below).
parameters	default parameters for the cypher queries.
result	default way to return results. "row" will return a data frame and "graph" will return a list of nodes, a list of relationships and a list of paths (vectors of relationships identifiers). 'source' will return the results as returned by neo4j (Caution: The format is inconsistent between the two versions of the API).
arraysAsStrings	if result="row" and arraysAsStrings is TRUE (default) array from neo4j are converted to strings and array elements are separated by eltSep.
eltSep	if result="row" and arraysAsStrings is TRUE (default) array from neo4j are converted to strings and array elements are separated by eltSep.

Value

A list of "result" of the queries (invisible). See the "result" param.

See Also

[cypher\(\)](#), [startGraph\(\)](#), [prepCql\(\)](#), [readCql\(\)](#) and [graphRequest\(\)](#)

Examples

```
## Not run:
result <- multicypher(
  graph,
  queries=list(
    q1="match (n) return n.value limit 5",
    q2=list(
      query="match (f {value:$val})-[r]->(t) return f, r, t limit 5",
      result="graph",
      parameters=list(val=100)
    )
  )
)

## End(Not run)
```

prepCql	<i>Prepares a CQL query from a character vector</i>
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Description

Prepares a CQL query from a character vector

Usage

```
prepCql(...)
```

Arguments

... character vectors with cQL commands

Value

A well formatted CQL query

See Also

[cypher\(\)](#) and [readCql\(\)](#)

Examples

```
prepCql(c(  
  "MATCH (n)",  
  "RETURN n"  
)
```

readCql	<i>Parse a CQL file and returned the prepared queries</i>
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Description

Parse a CQL file and returned the prepared queries

Usage

```
readCql(file)
```

Arguments

file the name of the file to be parsed

Value

A character vector of well formatted CQL queries

See Also

[cypher\(\)](#) and [prepCql\(\)](#)

startGraph	<i>Prepare connection to neo4j database</i>
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Description

Prepare connection to neo4j database

Usage

```
startGraph(
  url,
  database = NA,
  username = NA,
  password = NA,
  importPath = NA,
  .opts = list(),
  check = TRUE,
  api = c("auto", "tx", "v2"),
  cypher_version = c("auto", "")
)
```

Arguments

url	the DB url
database	the name of the database. If NA (default) it will use "data" with versions 3.. of Neo4j and "neo4j" with versions 4..
username	the neo4j user name (default: NA; works only if authentication has been disabled in neo4j by setting NEO4J.AUTH=none)
password	the neo4j user password (default: NA; works only if authentication has been disabled in neo4j by setting NEO4J.AUTH=none)
importPath	path to the import directory (default: NA => no import directory). Import only works with local neo4j instance.
.opts	a named list identifying the curl options for the handle (see http2::req_options() and curl option names for a complete list of available options; for example: <code>.opts = list(ssl_verifypeer = 0)</code>). Moreover, this parameter can be used to pass additional headers to the graph requests as "extendedHeaders": it is useful, for example, for OAuth access delegation (see details).

check	check the connection before returning it (default: TRUE). Set to false when connection to the "system" database
api	the HTTP API to use: "tx" for the legacy Transactional Cypher HTTP API (default for self-managed instances), "v2" for the Neo4j Query API v2 (required for Aura, available on self-managed Neo4j >= 5.19), or "auto" (default) to detect automatically — Aura URLs (*.databases.neo4j.io) select "v2", all others select "tx".
cypher_version	The version of the cypher language used by the database. Should be "" for neo4j version <= 5.

Details

The "ssl.verifypeer" logical option available in the RCurl package used in former versions of neo2R (<= 2.2.0) is not recognized by `httr2::req_options()`. However, for backward compatibility, if it is used, it is translated into the "ssl_verifypeer" integer curl option with a warning message.

Headers in `.opts$extendedHeaders` are added to, or overwrite, the default Neo4j headers. If there is a `.opts$extendedHeaders[["Authorization"]]` value, the default Neo4j "Authorization" header (user credentials) is provided automatically as "X-Authorization". This mechanism is used for OAuth access delegation.

Value

A connection to the graph DB: a list with the url and necessary headers

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