

Package ‘ghql’

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Type Package

Title General Purpose 'GraphQL' Client

Description A 'GraphQL' client, with an R6 interface for initializing a connection to a 'GraphQL' instance, and methods for constructing queries, including fragments and parameterized queries. Queries are checked with the 'libgraphqlparser' C++ parser via the 'gaphql' package.

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URL <https://github.com/ropensci/ghql> (devel)

<https://docs.ropensci.org/ghql> (docs)

BugReports <https://github.com/ropensci/ghql/issues>

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Description

General purpose GraphQL client

ghql API

The main interface in this package is [GraphQLClient], which produces a client (R6 class) with various methods for interacting with a GraphQL server. [GraphQLClient] also accepts various input parameters to set a base URL, and any headers required, which is usually the required set of things needed to connect to a GraphQL service.

[Query] is an interface to creating GraphQL queries, which works together with [GraphQLClient]

[Fragment] is an interface to creating GraphQL fragments, which works together with [GraphQLClient]

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Fragment	<i>Fragment</i>
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Description

ghql fragment class

Value

a 'Fragment' class (R6 class)

Public fields

fragments (list) list of fragments

Methods**Public methods:**

- `Fragment#print()`
- `Fragment$fragment()`

Method `print()`: print method for the 'Fragment' class

Usage:

```
Fragment#print(x, ...)
```

Arguments:

x self

... ignored

Method `fragment()`: create a fragment by name

Usage:

```
Fragment$fragment(name, x)
```

Arguments:

name (character) fragment name

x (character) the fragment

Returns: nothing returned; sets fragments internally

Examples

```
# make a fragment class
frag <- Fragment$new()

# define a fragment
frag$fragment('Watchers', '
  fragment on Repository {
    watchers(first: 3) {
      edges {
        node {
          name
        }
      }
    }
  }
}')

# define another fragment
frag$fragment('Stargazers', '
  fragment on Repository {
    stargazers(first: 3) {
      edges {
        node {
          name
        }
      }
    }
  }
')
```

```

})
frag
frag$fragments
frag$fragments$Watchers
frag$fragments$Stargazers

```

GraphQLClient

GraphQLClient

Description

R6 class for constructing GraphQL queries

Value

a 'GraphQLClient' class (R6 class)

Public fields

url (character) list of fragments
headers list of named headers
schema holds schema
result holds result from http request
fragments (list) list of fragments

Methods

Public methods:

- [GraphQLClient\\$new\(\)](#)
- [GraphQLClient#print\(\)](#)
- [GraphQLClient\\$ping\(\)](#)
- [GraphQLClient\\$load_schema\(\)](#)
- [GraphQLClient\\$dump_schema\(\)](#)
- [GraphQLClient\\$schema2json\(\)](#)
- [GraphQLClient\\$fragment\(\)](#)
- [GraphQLClient\\$exec\(\)](#)
- [GraphQLClient\\$prep_query\(\)](#)

Method `new()`: Create a new 'GraphQLClient' object

Usage:

```
GraphQLClient$new(url, headers)
```

Arguments:

url (character) URL for the GraphQL schema
headers Any acceptable headers, a named list. See examples

Returns: A new 'GraphQLClient' object

Method print(): print method for the 'GraphQLClient' class

Usage:

```
GraphQLClient#print(x, ...)
```

Arguments:

x self

... ignored

Method ping(): ping the GraphQL server

Usage:

```
GraphQLClient$ping(...)
```

Arguments:

... curl options passed on to [curl::verb-HEAD]

Returns: 'TRUE' if successful response, 'FALSE' otherwise

Method load_schema(): load schema, from URL or local file

Usage:

```
GraphQLClient$load_schema(schema_url = NULL, schema_file = NULL, ...)
```

Arguments:

schema_url (character) url for a schema file

schema_file (character) path to a schema file

... curl options passed on to [curl::verb-GET]

Returns: nothing, loads schema into '\$schema' slot

Method dump_schema(): dump schema to a local file

Usage:

```
GraphQLClient$dump_schema(file)
```

Arguments:

file (character) path to a file

Returns: nothing, writes schema to 'file'

Method schema2json(): convert schema to JSON

Usage:

```
GraphQLClient$schema2json(...)
```

Arguments:

... options passed on to [jsonlite::toJSON()]

Returns: json

Method fragment(): load schema, from URL or local file

Usage:

```
GraphQLClient$fragment(name, x)
```

Arguments:

name (character) fragment name

x (character) the fragment

Returns: nothing returned; sets fragments internally

Method `exec()`: execute the query

Usage:

```
GraphQLClient$exec(query, variables, encoding = "UTF-8", ...)
```

Arguments:

query (character) a query, of class 'query' or 'fragment'

variables (list) named list with query variables values

encoding (character) encoding to use to parse the response. passed on to [curl::HttpResponse] '\$parse()' method. default: "UTF-8"

... curl options passed on to [curl::verb-POST]

Returns: character string of response, if successful

Method `prep_query()`: not used right now

Usage:

```
GraphQLClient$prep_query(query)
```

Arguments:

query (character) a query, of class 'query' or 'fragment'

Examples

```
x <- GraphQLClient$new()
x

## Not run:
# make a client
token <- Sys.getenv("GITHUB_GRAPHQL_TOKEN")
cli <- GraphQLClient$new(
  url = "https://api.github.com/graphql",
  headers = list(Authorization = paste0("Bearer ", token))
)

# if the GraphQL server has a schema, you can load it
cli$load_schema()

# dump schema to local file
f <- tempfile(fileext = ".json")
cli$dump_schema(file = f)
readLines(f)
jsonlite::fromJSON(readLines(f))

# after dumping to file, you can later read schema from file for faster loading
rm(cli)
cli <- GraphQLClient$new(
```

```

    url = "https://api.github.com/graphql",
    headers = list(Authorization = paste0("Bearer ", token))
  )
cli$load_schema(schema_file = f)

# variables
cli$url
cli$schema
cli$schema$data
cli$schema$data$`__schema`
cli$schema$data$`__schema`$queryType
cli$schema$data$`__schema`$mutationType
cli$schema$data$`__schema`$subscriptionType
head(cli$schema$data$`__schema`$types)
cli$schema$data$`__schema`$directives

# methods
## ping - hopefully you get TRUE
cli$ping()

## dump schema
cli$schema2json()

## define query
### create a query class first
qry <- Query$new()
## another
qry$query('repos', '{
  viewer {
    repositories(last: 10, isFork: false, privacy: PUBLIC) {
      edges {
        node {
          isPrivate
          id
          name
        }
      }
    }
  }
}')
qry
qry$queries
qry$queries$repos
### execute the query
cli$exec(qry$queries$repos)

# query with a fragment
### define query without fragment, but referring to it
qry <- Query$new()
qry$query('queryfrag', '{
```

```

ropensci: repositoryOwner(login:"ropensci") {
  repositories(first: 3) {
    edges {
      node {
        ...Watchers
      }
    }
  }
}
ropenscilabs: repositoryOwner(login:"ropenscilabs") {
  repositories(first: 3) {
    edges {
      node {
        ...Watchers
      }
    }
  }
}
}')

### define a fragment
frag <- Fragment$new()
frag$fragment('Watchers', '
  fragment on Repository {
    watchers(first: 3) {
      edges {
        node {
          name
        }
      }
    }
  }
}')
frag$fragments
frag$fragments$Watchers

### add the fragment to the query 'queryfrag'
qry$add_fragment('queryfrag', frag$fragments$Watchers)
qry
qry$queries$queryfrag

### execute query: we'll hook together the query and your fragment internally
cli$exec(qry$queries$queryfrag)

## End(Not run)

```

Query

Query

Description

ghql query class

Value

a 'Query' class (R6 class)

Public fields

queries (list) list of queries

Methods**Public methods:**

- [Query#print\(\)](#)
- [Query\\$query\(\)](#)
- [Query\\$add_fragment\(\)](#)
- [Query\\$parse2json\(\)](#)

Method print(): print method for the 'Query' class

Usage:

Query#print(x, ...)

Arguments:

x self

... ignored

Method query(): define query in a character string

Usage:

Query\$query(name, x)

Arguments:

name (character) name of the query

x (character) the query

Returns: nothing returned; sets query with 'name' internally

Method add_fragment(): add a fragment to a query

Usage:

Query\$add_fragment(query_name, fragment)

Arguments:

query_name (character) the query name to add the fragment to

fragment (character) the fragment itself

Returns: nothing returned; sets the fragment with the query

Method parse2json(): parse query string with libgraphqlparser and get back JSON

Usage:

Query\$parse2json(query, parse_schema = FALSE)

Arguments:

query (character) a query to parse

parse_schema (logical) enable schema definition parsing? default: 'FALSE'

Returns: adf

Note

we run an internal method `check_query()` that runs the public method `parse2json()` - if the query doesn't pass the `libgraphqlparser` parser, we return the error message

Examples

```
# make a client
qry <- Query$new()

## define query
qry$query('query2', '{
  viewer {
    repositories(last: 10, isFork: false, privacy: PUBLIC) {
      edges {
        node {
          isPrivate
          id
          name
        }
      }
    }
  }
}')
qry
qry$queries
qry$queries$query2

# fragments
## by hand
qry$query('querywithfrag', '{
  ropensci: repositoryOwner(login:"ropensci") {
    repositories(first: 3) {
      edges {
        node {
          ...Watchers
        }
      }
    }
  }
  ropenscilabs: repositoryOwner(login:"ropenscilabs") {
    repositories(first: 3) {
      edges {
        node {
          ...Watchers
        }
      }
    }
  }
}')
fragment Watchers on Repository {
  watchers(first: 3) {
    edges {
```

```

        node {
          name
        }
      }
    }
  }')
qry
qry$queries
qry$queries$querywithfrag

## Not run:
token <- Sys.getenv("GITHUB_GRAPHQL_TOKEN")
con <- GraphQLClient$new(
  url = "https://api.github.com/graphql",
  headers = list(Authorization = paste0("Bearer ", token))
)
jsonlite::fromJSON(con$exec(qry$queries$querywithfrag))

## use Fragment class fragments generator
### define query without fragment, but referring to it
qry$query('queryfrag', '{
  ropensci: repositoryOwner(login:"ropensci") {
    repositories(first: 3) {
      edges {
        node {
          ...Watchers
        }
      }
    }
  }
  ropenscilabs: repositoryOwner(login:"ropenscilabs") {
    repositories(first: 3) {
      edges {
        node {
          ...Watchers
        }
      }
    }
  }
}')

### define a fragment, and use it later
frag <- Fragment$new()
frag$fragment('Watchers', '
  fragment on Repository {
    watchers(first: 3) {
      edges {
        node {
          name
        }
      }
    }
  }
')
```

```
}')  
frag$fragments  
frag$fragments$Watchers  
  
### add the fragment to the query 'queryfrag'  
qry$add_fragment('queryfrag', frag$fragments$Watchers)  
qry  
qry$queries  
qry$queries$queryfrag  
  
## End(Not run)
```

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