Package ‘ODataQuery’

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**Type** Package  
**Title** Querying on 'OData'  
**Version** 0.5.3  
**Description** Make querying on 'OData' easier. It exposes an 'ODataQuery' object that can be manipulated and provides features such as selection, filtering and ordering.

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**R topics documented:**

- `and_query`  
- `ODataQuery`  
- `odata_function`  
- `retrieve_all`  
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and_query

Create a combined filter

Description
Create a combined filter

Usage

and_query(...)

or_query(...)

not_query(...)

Arguments

... Raw odata queries or query options.

Details
This function can be used with raw values or query options

1. Raw odata queries Raw ODData can be passed as string. It’s the responsibility of the caller that the argument is valid syntax and values are escaped.
2. Query options Query options can be passed as named parameters.

Query options should be of the following form: property.operator = value

• Property should be a property of the entity or individual.
• Operation can have any of the following values:
  – eq Whether property is equal to value.
  – ne Whether property is not equal to value.
  – gt Whether property is greater than value.
  – ge Whether property is greater than or equal to value.
  – lt Whether property is lower than value.
  – le Whether property is lower than or equal to value.
  – has Whether property has value as enumeration property.
  – startswith Whether property starts with value.
  – endswith Whether property ends with value.
  – contains Whether property contains value.
• Value should be a string, double or boolean and will be escaped automatically.

See Also

https://docs.oasis-open.org/odata/odata/v4.0/errata03/os/complete/part2-url-conventions/
Examples

```plaintext
and_query("Column eq OtherColumn",
    FirstName.startswith = 'A',
    LastName.eq = 'Scott')

or_query("ExpireDate eq null",
    ExpireDate.lt = "2020-07-07")

not_query(or_query(Age.lt = 21, Age.gt = 65))
```

Description

R6 class that represents an OData query

Details

This class has methods to build and navigate OData services:

- Use methods such as `$path()` and `$get()` to find a path.
- Use methods such as `$select()` and `$filter()` to make your query.
- Use methods such as `$retrieve()`, `$all()` and `$one()` to obtain the results.

Active bindings

- `url` Generate (encoded) url

Methods

**Public methods:**

- `ODataQuery$new()`
- `ODataQuery$print()`
- `ODataQuery$path()`
- `ODataQuery$get()`
- `ODataQuery$func()`
- `ODataQuery$query()`
- `ODataQuery$top()`
- `ODataQuery$skip()`
- `ODataQuery$select()`
- `ODataQuery$filter()`
- `ODataQuery$expand()`
- `ODataQuery$orderby()`
ODataQuery

- ODataQuery$search()
- ODataQuery$compute()
- ODataQuery$retrieve()
- ODataQuery$all()
- ODataQuery$one()

**Method `new()`**: Create a class representing a query.

**Usage**: ODataQuery$new(
  service,
  .resource = "",
  .query_options = list(),
  httr_args = list()
)

**Arguments**:
- `service` The url of the endpoint to connect to. This url should not end with backslash.
- `.resource` Should not be used directly. Use `$path()` instead.
- `.query_options` Should not be used directly. Use methods such as `$select()`, `$filter()` and `$query()` instead.
- `httr_args` Additional parameters to pass to `httr::GET`

**Value** Read-only

**Examples**:
```
service <- ODataQuery$new("https://services.odata.org/V4/TripPinServiceRW")
```

**Method `print()`**: Print query, useful when debugging.

**Usage**: ODataQuery$print(top = 0, ...)

**Arguments**:
- `top` Number of records to print.
- `...` Additional parameters are passed to print

**Examples**:
```
\dontrun{
  service <- ODataQuery$new("https://services.odata.org/V4/TripPinServiceRW")
  service$print(10)$path("People")$print()
}
```

**Method `path()`**: Supply path to the resource

**Usage**: ODataQuery$path(...)

**Arguments**:
- `...` Components that lead to resource path

**Examples**:
```r
service <- ODataQuery$new("https://services.odata.org/V4/TripPinServiceRW")
people_entity <- service$path("People")

**Method get():** Query an individual record by ID parameters

*Usage:*

ODataQuery$get(...)

*Arguments:*

... ID-parameters (named or unnamed)

*Examples:*

```r
service <- ODataQuery$new("https://services.odata.org/V4/TripPinServiceRW")
people_entity <- service$path("People")
russellwhyte <- people_entity$get("russellwhyte")
``` 

**Method func():** Path to an OData function

*Usage:*

ODataQuery$func(fname, ...)

*Arguments:*

fname Name of the function
... Options passed to retrieve_data

*Returns: closure*

*Examples:*

```r
group_airports <- service$func("/odata/GetNearestAirport")

dontrun{
    get_nearest_airport(lat = 33, lon = -118)
}
``` 

**Method query():** Supply custom query options that do not start with $ 

*Usage:*

ODataQuery$query(...)

*Arguments:*

... Named lists where the names are custom query options

*Examples:*

```r
service <- ODataQuery$new("https://services.odata.org/V4/TripPinServiceRW")
people_entity <- service$path("People")
people_entity$query(filter = "FirstName eq 'scott'")$url
``` 

**Method top():** Limit the number of results to n

*Usage:*

ODataQuery$top(n = 10)

*Arguments:*

n Number of records to return at most
```
Examples:

service <- ODataQuery$new("https://services.odata.org/V4/TripPinServiceRW")
people_entity <- service$path("People")
people_entity$top(10)

Method skip(): Skip first few items

Usage:
ODataQuery$skip(n = 10)

Arguments:

n Number of items to skip

Examples:

service <- ODataQuery$new("https://services.odata.org/V4/TripPinServiceRW")
people_entity <- service$path("People")
people_entity$skip(10)

Method select(): Select fields. If not present, all fields are returned.

Usage:
ODataQuery$select("")

Arguments:

... Fields to select

Examples:

service <- ODataQuery$new("https://services.odata.org/V4/TripPinServiceRW")
people_entity <- service$path("People")
people_entity$select("FirstName", "LastName")

Method filter(): Apply filter to result

Usage:
ODataQuery$filter("")

Arguments:

... Can be a raw odata query or query options. It's recommended to use query options because these will automatically escape parameters. The parameters are passed on to and_query.

Examples:

service <- ODataQuery$new("https://services.odata.org/V4/TripPinServiceRW")
people_entity <- service$path("People")
people_entity$filter(FirstName.eq = 'Scott')

Method expand(): Expand on expansion properties

Usage:
ODataQuery$expand("")

Arguments:

... Properties to extend on

Examples:
service <- ODataQuery$new("https://services.odata.org/V4/TripPinServiceRW")
people_entity <- service$path("People")
people_entity$expand("Friends")

**Method** orderby(): Order results by one or more keys

*Usage:*
ODataQuery$orderby(…)

*Arguments:*
… Keys to order by. To order in descending order, the key can be prefixed by a negative sign.

*Examples:*
service <- ODataQuery$new("https://services.odata.org/V4/TripPinServiceRW")
people_entity <- service$path("People")
people_entity$orderby('Concurrency')
people_entity$orderby('-Concurrency')

**Method** search(): Search the entity

*Usage:*
ODataQuery$search(s)

*Arguments:*
s Search string as defined by the endpoint.

*Examples:*
service <- ODataQuery$new("https://services.odata.org/V4/TripPinServiceRW")
people_entity <- service$path("People")
people_entity$search('Boise')

**Method** compute(): Compute properties

Add additional properties to query computed from other attributes.

*Usage:*
ODataQuery$compute(…)

*Arguments:*
… Named list of properties to compute

*Examples:*
# Not really supported by this particular service.
service <- ODataQuery$new("https://services.odata.org/V4/TripPinServiceRW")
people_entity <- service$path("People")
people_entity$compute(a = "5 MUL Concurrency")

**Method** retrieve(): Retrieve data

*Usage:*
ODataQuery$retrieve(count = FALSE, …)

*Arguments:*
count Whether to include a count of the total number of records
… Passed to retrieve_data
Examples:
```r
\dontrun{
  service <- ODataQuery$new("https://services.odata.org/V4/TripPinServiceRW")
  people_entity$retrieve()
}
```

Method `all()`: Retrieve all data pages
Return concatenation of value of all pages

Usage:
```r
ODataQuery$all(...)  
```

Arguments:
... Passed to retrieve_all

Examples:
```r
\dontrun{
  service <- ODataQuery$new("https://services.odata.org/V4/TripPinServiceRW")
  people_entity$all()
  people_entity$all(jsonlite_args = list(simplifyVector = False))
}
```

Method `one()`: Retrieve individual

Usage:
```r
ODataQuery$one(...)  
```

Arguments:
... Passed to retrieve_one

Examples:
```r
\dontrun{
  service <- ODataQuery$new("https://services.odata.org/V4/TripPinServiceRW")
  people_entity$top(1)$one(default = NA)
}
```

See Also

`and_query()` for details.

Examples

```r
## Method `ODataQuery$new`

service <- ODataQuery$new("https://services.odata.org/V4/TripPinServiceRW")

## Method `ODataQuery$print`

```
## Not run:
```r
service <- ODataQuery$new("https://services.odata.org/V4/TripPinServiceRW")
people_entity <- service$path("People")

## End(Not run)

## Method `ODataQuery$path`
```
```r
service <- ODataQuery$new("https://services.odata.org/V4/TripPinServiceRW")
people_entity <- service$path("People")

```
```
## Method `ODataQuery$get`
```
```r
service <- ODataQuery$new("https://services.odata.org/V4/TripPinServiceRW")
people_entity <- service$path("People")
russellwhyte <- people_entity$get("russellwhyte")

```
```
## Method `ODataQuery$func`
```
```r
service <- ODataQuery$new("https://services.odata.org/V4/TripPinServiceRW")
get_nearest_airport <- service$func("GetNearestAirport")

## Not run:
get_nearest_airport(lat = 33, lon = -118)

```
```
## Method `ODataQuery$query`
```
```r
service <- ODataQuery$new("https://services.odata.org/V4/TripPinServiceRW")
people_entity <- service$path("People")
people_entity$query(filter = "FirstName eq 'scott'")$url

```
```
## Method `ODataQuery$top`
```
```r
service <- ODataQuery$new("https://services.odata.org/V4/TripPinServiceRW")
people_entity <- service$path("People")
people_entity$top(10)

```
```
## Method `ODataQuery$skip`
```
```r
```
service <- ODataQuery$new("https://services.odata.org/V4/TripPinServiceRW")
people_entity <- service$path("People")

people_entity$skip(10)

## Method `ODataQuery$select`

people_entity$select("FirstName", "LastName")

## Method `ODataQuery$filter`

people_entity$filter(FirstName.eq = "Scott")

## Method `ODataQuery$expand`

people_entity$expand("Friends")

## Method `ODataQuery$orderby`

people_entity$orderby("Concurrency")
people_entity$orderby("-Concurrency")

## Method `ODataQuery$search`

people_entity$search("Boise")

## Method `ODataQuery$compute`

# Not really supported by this particular service.
### Method `ODataQuery$retrieve`
```
## Not run:
service <- ODataQuery$new("https://services.odata.org/V4/TripPinServiceRW")
people_entity$retrieve()
## End(Not run)
```

### Method `ODataQuery$all`
```
## Not run:
service <- ODataQuery$new("https://services.odata.org/V4/TripPinServiceRW")
people_entity$all()
people_entity$all(jsonlite_args = list(simplifyVector = False))
## End(Not run)
```

### Method `ODataQuery$one`
```
## Not run:
service <- ODataQuery$new("https://services.odata.org/V4/TripPinServiceRW")
people_entity$top(1)$one(default = NA)
## End(Not run)
```

---

**odata_function**

**Make an OData function available to R**

**Description**

This turns an OData function into an R function Parameters are serialized to json. Scalar arguments should be passed as atomic vectors. Array or object arguments should be passed as list.

**Usage**

`odata_function(url, metadata = c("none", "minimal", "all"), ...)`

**Arguments**

- `url` Which url to fetch data from
- `metadata` Whether and how metadata is included
- `...` Arguments passed on to `retrieve_data`
retrieve_all

httr_args  List of additional arguments passed on to httr::GET
jsonlite_args  List of additional arguments passed on to jsonlite::fromJSON

Value
An R function

See Also
Other retrieve: retrieve_all(), retrieve_data(), retrieve_one()

---

retrieve_all  Retrieve data. If data is paged, concatenate pages. Only return the value without metadata.

Description
Retrieve data. If data is paged, concatenate pages. Only return the value without metadata.

Usage
retrieve_all(url, ...)

Arguments
url  Which url to fetch data from
...
Arguments passed on to retrieve_data
metadata  Whether and how metadata is included
httr_args  List of additional arguments passed on to httr::GET
jsonlite_args  List of additional arguments passed on to jsonlite::fromJSON

See Also
Other retrieve: odata_function(), retrieve_data(), retrieve_one()

Examples
## Not run:
url <- "https://services.odata.org/V4/TripPinServiceRW/People"
retrieve_all(url)

## End(Not run)
**Description**

Retrieve data

**Usage**

```r
tretrieve_data(
  url,
  metadata = c("none", "minimal", "all"),
  httr_args = list(),
  jsonlite_args = list()
)
```

**Arguments**

- `url`: Which url to fetch data from
- `metadata`: Whether and how metadata is included
- `httr_args`: List of additional arguments passed on to `httr::GET`
- `jsonlite_args`: List of additional arguments passed on to `jsonlite::fromJSON`

**Value**

Data including metadata

**See Also**

Other retrieve: `odata_function()`, `retrieve_all()`, `retrieve_one()`

**Examples**

```r
## Not run:
url <- "https://services.odata.org/V4/TripPinServiceRW"
retrieve_data(url)

## End(Not run)
```
retrieve_one

Retrieve single instance.

Description

Retrieve single instance.

Usage

retrieve_one(url, default = stop("value not found"), ...)

Arguments

url Which url to fetch data from
default The default if nothing was found. If not specified, an error is thrown in this case.
... Arguments passed on to retrieve_data
metadata Whether and how metadata is included
httr_args List of additional arguments passed on to httr::GET
jsonlite_args List of additional arguments passed on to jsonlite::fromJSON

Value

Single value or default if none. If the result consists of multiple records, an error is thrown.

See Also

Other retrieve: odata_function(), retrieve_all(), retrieve_data()

Examples

## Not run:
url <- "https://services.odata.org/V4/TripPinServiceRW/People?$top=1"
retrieve_one(url)

url <- "https://services.odata.org/V4/TripPinServiceRW/People('russellwhyte')"
retrieve_one(url)

## End(Not run)
to_odata

Macro to convert R to OData syntax

Description
Macro to convert R to OData syntax

Usage

to_odata(expr)
to_odata_(expr)

Arguments

expr Expression to convert to OData

Details

to_odata takes unquote R code and quotes its input. Use !! to unquote an argument. to_odata_
requires its argument to be quoted already.

Only a subset of R is supported.

* arithmetic The operators +, -, *, / and
* strings (characters in R) toupper, tolower, startsWith, endsWith, nchar, paste, paste0, trimws
* arrays (lists in R) list, append, length
* Formulae become lambdas in OData (x ~ x$Name == "John")

Every unknown function is passed as is. If the function name is surrounded by percent signs it's
 treated as an infix operator.

Examples

to_odata(Field == value)
address <- "Bakerstreet 4"
to_odata (!!address %in% Adresses)
to_odata (Friends$any (f ~ f$FirstName == 'John'))
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