## Package ‘Rthingsboard’

**October 12, 2022**

**Type** Package

**Title** 'ThingsBoard' API

**Version** 0.2.7

**Date** 2022-01-18

**Description**

The goal of 'Rthingsboard' is to provide interaction with the API of 'ThingsBoard' (https://thingsboard.io/), an open-source IoT platform for device management, data collection, processing and visualization.

**License** AGPL-3

**Encoding** UTF-8

**Imports** httr, logger, methods, dplyr

**Suggests** badger, ggplot2, testthat

**RoxygenNote** 7.1.2

**URL**

- https://ddorch.github.io/Rthingsboard/
- https://github.com/DDorch/Rthingsboard#readme

**BugReports** https://github.com/DDorch/Rthingsboard/issues

**NeedsCompilation** no

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Date2EpochMilli  

Convert a date into an epoch in milliseconds

Description

This function allows to convert epoch timestamp in seconds to an epoch in milliseconds

Usage

Date2EpochMilli(ts)

## S3 method for class 'POSIXt'
Date2EpochMilli(ts)

## S3 method for class 'numeric'
Date2EpochMilli(ts)

Arguments

ts  

a numeric representing an epoch in seconds or a POSIXt date

Value

a character of the epoch in milliseconds

Examples

Date2EpochMilli(as.numeric(Sys.time()))

EpochMilli2Date  

Convert an epoch in milliseconds into a date

Description

Convert an epoch in milliseconds into a date

Usage

EpochMilli2Date(x, timezone = "GMT")
**ThingsboardApi-class**

**Arguments**

- `x` A character or a numeric representing an epoch in milliseconds
- `timezone` A character with the time zone used for the conversion

**Value**

A POSIXct, the date corresponding to the epoch

**Examples**

```r
epoch <- Date2EpochMilli(as.numeric(Sys.time()))
EpochMilli2Date(epoch)
```

---

**ThingsboardApi-class**  *Thingboard API Class*

**Description**

Thingboard API Class

**Fields**

- `url` character URL of the 'ThingsBoard' IoT platform.
- `publicId` character the public ID of the device
- `token` character the current token
- `tokenTimeOut` A numeric contains the time out of a token in seconds (default 300)
- `tokenExpiration` A numeric with the Epoch of the expiration date time of current token

**See Also**

The ThingsboardApi class methods:

- `ThingsboardApi_checkToken` for checking and refreshing the token
- `ThingsboardApi_getToken` for getting authorisation token from Thingsboard server for a specific device
- `ThingsboardApi_getKeys` for fetching data keys of an entity
- `ThingsboardApi_getValues` and `ThingsboardApi_getTelemetry` for fetching telemetry of an entity
Examples

```r
thingsboard_api = tryCatch(
  {
    ThingsboardApi(url="http://scada.g-eau.fr",
                  publicId="299cedc0-f3e9-11e8-9dbf-cbc1e37c11e3")
  },
  error = function(e) {
    message("An error occurred:\n", e)
    return(FALSE)
  }
)
```

ThingsboardApi_checkToken

*Check if the token is timeouted and refresh it if necessary*

Description

This method is automatically called by each other methods of the class `ThingsboardApi`. So, except for debugging purposes, it's not useful to call directly.

Value

`NULL`

ThingsboardApi_getKeys

*Fetch data keys for an entity*

Description

Fetch data keys for an entity

Arguments

- `entityId` character entity ID
- `entityType` character (default "DEVICE")

Details

The description of this operation in API documentation is here: [https://thingsboard.io/docs/user-guide/telemetry/#get-telemetry-keys](https://thingsboard.io/docs/user-guide/telemetry/#get-telemetry-keys)

Value

A vector of character with the keys available for the requested device.
ThingsboardApi_getTelemetry

*Fetch telemetry*

**Description**

Fetch telemetry data of an entity.

It uses the following API: [https://thingsboard.io/docs/user-guide/telemetry/#get-telemetry-values](https://thingsboard.io/docs/user-guide/telemetry/#get-telemetry-values)

The method `getValues` has a strong limitation as the 'ThingsBoard' API only send the 100 last values of each key. The method `getTelemetry` overcomes this limitation by automatically by calling `getValues` in a loop.

**Arguments**

- **entityId**: A character with the entity ID given (See [https://thingsboard.io/docs/user-guide/entity-views/](https://thingsboard.io/docs/user-guide/entity-views/))
- **keys**: Vector of character with the list of keys from which getting the telemetry values
- **entityType**: A character (default "DEVICE")
- **startTs**: A numeric or a `POSIXct` representing respectively the epoch or the date of the start of data extraction period
- **endTs**: A numeric or a `POSIXct` representing respectively the epoch or the date of the end of data extraction period

**Value**

A `data.frame` with one row per data and 3 columns:

- `key`: a character with the key
- `ts`: a `POSIXct` with the timestamp of the data
- `value`: a numeric with the value of the data

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ThingsboardApi_getToken

*Get authorisation token from thingsboard server for a specific device*

**Description**

This method is automatically called by `ThingsboardApi_checkToken`, and so by any other methods of the class `ThingsboardApi` as needed. Except for debugging purpose, it’s not useful to call directly.

**Arguments**

- **timeOut**: `numeric` number of second before token timeout (default field `tokenTimeOut`)
Value

A list with keys 'token' and 'refreshToken'

Description

See ThingsboardApi_getTelemetry.
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