Package 'Rthingsboard'

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Type Package

Title 'ThingsBoard' API

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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.

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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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Contents

`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")
```

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

```
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)

`tokenEpiration` 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

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

`ThingsboardApi_checkToken`

Check if the token is timeouted and refresh it if necessary

Description

This method is automatically call by each other methods of the class ThingsboardApi. So, except for debugging purpose, 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

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

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/)
`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

`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'

`ThingsboardApi_getValues` *Fetch telemetry*

Description

See ThingsboardApi_getTelemetry.

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