

# Package ‘Rduinoiot’

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**Type** Package

**Title** 'Arduino Iot Cloud API' R Client

**Version** 0.1.0

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**Description** Easily interact with the 'Arduino Iot Cloud API' <<https://www.arduino.cc/reference/en/iot/api/>>, managing devices, things, properties and data.

**License** MIT + file LICENSE

**Encoding** UTF-8

**URL** <https://flavioleccese92.github.io/Rduinoiot/>

**BugReports** <https://github.com/FlavioLeccese92/Rduinoiot/issues/>

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**Imports** httr, jsonlite, tibble, cli, purrr, methods

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**VignetteBuilder** knitr

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create_auth_token	<i>Create Auth Token for Arduino IoT Cloud API</i>
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## Description

Obtain an authorization token using your personal `client_id` and `client_secret`.

Official documentation: [API Summary](#)

## Usage

```
create_auth_token(
  client_id = Sys.getenv("ARDUINO_API_CLIENT_ID"),
  client_secret = Sys.getenv("ARDUINO_API_CLIENT_SECRET"),
  store_token = "option",
  return_token = FALSE,
  silent = FALSE,
  ...
)
```

## Arguments

<code>client_id</code>	Your client id (default is the environmental variable <code>ARDUINO_API_CLIENT_ID</code> )
<code>client_secret</code>	Your client secret (default is the environmental variable <code>ARDUINO_API_CLIENT_SECRET</code> )
<code>store_token</code>	Where your token is stored. If <code>option</code> it will be saved into the <code>.Rprofile</code> (not cross-session), if <code>envir</code> it will be saved as an environmental variable.
<code>return_token</code>	If <code>TRUE</code> returns the token value as output of the function.
<code>silent</code>	Whether to hide or show API method success messages (default <code>FALSE</code> )
<code>...</code>	Additional parameters needed for the body of the POST request: <ul style="list-style-type: none"> <li><code>token_url</code> (default: <code>https://api2.arduino.cc/iot/v1/clients/token/</code>)</li> <li><code>grant_type</code> (default: <code>client_credentials</code>)</li> <li><code>audience</code> (default: <code>https://api2.arduino.cc/iot/</code>)</li> <li><code>content_type</code> (default: <code>application/x-www-form-urlencoded</code>)</li> </ul>

## Value

A token valid for Arduino IoT Cloud API. It can be retrievable by `getOption('ARDUINO_API_TOKEN')` (if `store_content = "option"`) or by `Sys.getenv("ARDUINO_API_TOKEN")` (if `store_token = "envir"`)

## Examples

```
## Not run:
# Sys.setenv(ARDUINO_API_CLIENT_ID = 'INSERT CLIENT_ID HERE')
# Sys.setenv(ARDUINO_API_CLIENT_SECRET = 'INSERT CLIENT_SECRET HERE')

create_auth_token()

## End(Not run)
```

---

devices

*Devices API methods*

---

## Description

List and show devices, events, properties associated to the user

Official documentation:

- [devicesV2List](#)
- [thingsV2Show](#)
- [devicesV2GetEvents](#)

## Usage

```
devices_list(
  serial = NULL,
  tags = NULL,
  store_token = "option",
  token = NULL,
  silent = FALSE
)

devices_show(device_id, store_token = "option", token = NULL, silent = FALSE)

devices_get_events(
  device_id,
  limit = NULL,
  start = NULL,
  store_token = "option",
  token = NULL,
  silent = FALSE
)

devices_get_properties(
  device_id,
  show_deleted = FALSE,
  store_token = "option",
```

```

    token = NULL,
    silent = FALSE
  )

```

### Arguments

serial	serial number of the device you may want to filter from the list (not device_id)
tags	tags you may want to filter from the list
store_token	Where your token is stored. If option it will be retrieved from the .Rprofile (not cross-session and default), if envir it will be retrieved from environmental variables list (cross-session)
token	A valid token created with create_auth_token or manually. If not NULL it has higher priority then store_token
silent	Whether to hide or show API method success messages (default FALSE)
device_id	The id of the device (The arn of the associated device)
limit	The number of events to select
start	A Posixct or Date object. Time at which to start selecting events
show_deleted	If TRUE, shows the soft deleted properties. Default to FALSE

### Value

A tibble showing extensive information about devices (and related things) associated to the user

### Examples

```

## Not run:
library(dplyr)
Sys.setenv(ARDUINO_API_CLIENT_ID = 'INSERT_CLIENT_ID_HERE')
Sys.setenv(ARDUINO_API_CLIENT_SECRET = 'INSERT_CLIENT_SECRET_HERE')

create_auth_token()

### check properties list ###
d_list = devices_list()
device_id = d_list %>% slice(1) %>% pull(id)

devices_show(device_id = device_id)

### get device events ###
devices_get_events(device_id = device_id)

### get device properties ###
devices_get_properties(device_id = device_id)

## End(Not run)

```

---

devices\_properties      *Properties (of devices) API methods*

---

## Description

List properties associated to a given device

## Usage

```
devices_properties_list(  
  device_id,  
  show_deleted = FALSE,  
  store_token = "option",  
  token = NULL,  
  silent = FALSE  
)
```

## Arguments

device_id	The id of the device
show_deleted	If TRUE, shows the soft deleted properties. Default to FALSE
store_token	Where your token is stored. If option it will be retrieved from the .Rprofile (not cross-session and default), if envir it will be retrieved from environmental variables list (cross-session)
token	A valid token created with create_auth_token or manually. If not NULL it has higher priority than store_token
silent	Whether to hide or show API method success messages (default FALSE)

## Details

Official documentation: [devicesV2GetProperties](#)

## Value

A tibble showing the information about properties for given device.

## Examples

```
## Not run:  
library(dplyr)  
  
Sys.setenv(ARDUINO_API_CLIENT_ID = 'INSERT_CLIENT_ID_HERE')  
Sys.setenv(ARDUINO_API_CLIENT_SECRET = 'INSERT_CLIENT_SECRET_HERE')  
create_auth_token()  
  
device_id = "fa7ee291-8dc8-4713-92c7-9027969e4aa1"
```

```
### check properties list ###
devices_properties_list(device_id = device_id)

## End(Not run)
```

---

devices\_properties\_timeseries

*Data start Properties (of devices) API methods*

---

## Description

### [Experimental]

Get device properties values in a range of time (note: this API method is bugged and waiting to be fixed by Arduino team. Here for completeness and future developments but would not suggest using it)

Official documentation: [devicesV2Timeseries](#)

## Usage

```
devices_properties_timeseries(
  device_id,
  property_id,
  start = NULL,
  limit = NULL,
  store_token = "option",
  token = NULL,
  silent = FALSE
)
```

## Arguments

device_id	The id of the device
property_id	The id of the property
start	A Posixct or Date object. The time at which to start selecting properties.
limit	The number of properties to select
store_token	Where your token is stored. If option it will be retrieved from the .Rprofile (not cross-session and default), if envir it will be retrieved from environmental variables list (cross-session).
token	A valid token created with create_auth_token or manually. If not NULL it has higher priority than store_token
silent	Whether to hide or show API method success messages (default FALSE)

## Value

A tibble showing of time and value for property of given device

## Examples

```
## Not run:
Sys.setenv(ARDUINO_API_CLIENT_ID = 'INSERT CLIENT_ID HERE')
Sys.setenv(ARDUINO_API_CLIENT_SECRET = 'INSERT CLIENT_SECRET HERE')
create_auth_token()

device_id = "fa7ee291-8dc8-4713-92c7-9027969e4aa1"
property_id = "d1134fe1-6519-49f1-afd8-7fe9e891e778"

devices_properties_timeseries(device_id = device_id, property_id = property_id,
  start = "2022-08-20", limit = 10)

## End(Not run)
```

---

devices\_tags

*Tags (of devices) API methods*

---

## Description

Upsert (create/update), List and Delete tags associated to a given device

Official documentation:

- [devicesV2TagsUpsert](#)
- [devicesV2TagsList](#)
- [devicesV2TagsDelete](#)

## Usage

```
devices_tags_upsert(
  device_id,
  key,
  value,
  store_token = "option",
  token = NULL,
  silent = FALSE
)
```

```
devices_tags_list(
  device_id,
  store_token = "option",
  token = NULL,
  silent = FALSE
)
```

```
devices_tags_delete(
  device_id,
  key,
```

```

    store_token = "option",
    token = NULL,
    silent = FALSE
  )

```

### Arguments

device_id	The id of the device
key	The key of the tag (no spaces allowed)
value	The value of the tag (no spaces allowed)
store_token	Where your token is stored. If option it will be retrieved from the .Rprofile (not cross-session and default), if envir it will be retrieved from environmental variables list (cross-session).
token	A valid token created with create_auth_token or manually. If not NULL it has higher priority than store_token.
silent	Whether to hide or show API method success messages (default FALSE)

### Value

A tibble showing information about chosen tag or list of tags for given device

### Examples

```

## Not run:
Sys.setenv(ARDUINO_API_CLIENT_ID = 'INSERT_CLIENT_ID_HERE')
Sys.setenv(ARDUINO_API_CLIENT_SECRET = 'INSERT_CLIENT_SECRET_HERE')
create_auth_token()

device_id = "fa7ee291-8dc8-4713-92c7-9027969e4aa1"
### create/modify tag ###
devices_tags_upsert(device_id = device_id, key = "1", value = "test")

### check tags list ###
devices_tags_list(device_id = device_id)

### delete tag ###
devices_tags_delete(device_id = device_id, key = "1")

## End(Not run)

```

## Description

### [Experimental]

Returns the batch of time-series data or last data point for a property of given thing (note: this API method is bugged and waiting to be fixed by Arduino team. Here for completeness and future developments but would not suggest using it)

Official documentation:

- [seriesV2BatchQuery](#)
- [seriesV2BatchQueryRaw](#)
- [seriesV2BatchQueryRawLastValue](#)

## Usage

```
series_batch_query(  
  from,  
  to,  
  interval = NULL,  
  Q,  
  SeriesLimit = NULL,  
  store_token = "option",  
  token = NULL,  
  silent = FALSE  
)
```

```
series_batch_query_raw(  
  from,  
  to,  
  interval = NULL,  
  Q,  
  SeriesLimit = NULL,  
  store_token = "option",  
  token = NULL,  
  silent = FALSE  
)
```

```
series_batch_last_value(  
  thing_id,  
  property_id,  
  store_token = "option",  
  token = NULL,  
  silent = FALSE  
)
```

## Arguments

from	A Posixct or Date object. Get data with a timestamp $\geq$ to this value
to	A Posixct or Date object. Get data with a timestamp $<$ to this value

interval	(numeric) Resolutions in seconds (seems not to affect results)
Q	The query. (Not clear what this means but allows to chose among properties by filling in, for instance, property.fbf34284-91f0-42be-bbf6-dd46cfb3f1e0)
SeriesLimit	Maximum number of values (seems not to affect results)
store_token	Where your token is stored. If option it will be retrieved from the .Rprofile (not cross-session and default), if envir it will be retrieved from environmental variables list (cross-session)
token	A valid token created with create_auth_token or manually. It not NULL it has higher priority then store_token
silent	Whether to hide or show API method success messages (default FALSE)
thing_id	The id of the thing
property_id	The id of the property

## Value

A tibble showing of time and value for properties

## Examples

```
## Not run:
Sys.setenv(ARDUINO_API_CLIENT_ID = 'INSERT CLIENT_ID HERE')
Sys.setenv(ARDUINO_API_CLIENT_SECRET = 'INSERT CLIENT_SECRET HERE')

create_auth_token()

### series_batch_query ###
series_batch_query(from = "2022-08-15", to = "2022-08-22",
Q = "property.fbf34284-91f0-42be-bbf6-dd46cfb3f1e0")

### series_batch_query_raw ###
series_batch_query_raw(from = "2022-08-15", to = "2022-08-22",
Q = "property.fbf34284-91f0-42be-bbf6-dd46cfb3f1e0")

### series_batch_last_value ###
thing_id = "b6822400-2f35-4d93-b3e7-be919bdc5eba"
property_id = "fbf34284-91f0-42be-bbf6-dd46cfb3f1e0"

series_batch_last_value(thing_id = thing_id, property_id = property_id)

## End(Not run)
```

## Description

Create, Update, List, Show and Delete properties associated to a given thing

Official documentation:

- [thingsV2Create](#)
- [thingsV2Update](#)
- [thingsV2List](#)
- [thingsV2Show](#)
- [thingsV2Delete](#)

## Usage

```
things_create(  
  device_id = NULL,  
  thing_id = NULL,  
  name = NULL,  
  properties = NULL,  
  timezone = NULL,  
  force = FALSE,  
  store_token = "option",  
  token = NULL,  
  silent = FALSE  
)
```

```
things_update(  
  device_id = NULL,  
  thing_id = NULL,  
  name = NULL,  
  properties = NULL,  
  timezone = NULL,  
  force = FALSE,  
  store_token = "option",  
  token = NULL,  
  silent = FALSE  
)
```

```
things_list(  
  device_id = NULL,  
  thing_id = NULL,  
  show_deleted = FALSE,  
  show_properties = FALSE,  
  tags = NULL,  
  store_token = "option",  
  token = NULL,  
  silent = FALSE  
)
```

```
things_show(
  thing_id,
  show_deleted = FALSE,
  store_token = "option",
  token = NULL,
  silent = FALSE
)
```

```
things_delete(
  thing_id,
  force = FALSE,
  store_token = "option",
  token = NULL,
  silent = FALSE
)
```

### Arguments

device_id	The id of the device (The arn of the associated device)
thing_id	The id of the thing
name	The friendly name of the thing
properties	A tibble with the following columns (see things_properties_create) <ul style="list-style-type: none"> <li>• name (required) The friendly name of the property</li> <li>• permission (required) The permission of the property (READ_ONLY or READ_WRITE allowed)</li> <li>• type (required) The type of the property (see details for exhaustive list of values)</li> <li>• update_strategy (required) The update strategy for the property value (ON_CHANGE or TIMED allowed)</li> <li>• max_value (optional, numeric) Maximum value of this property</li> <li>• min_value (optional, numeric) Minimum value of this property</li> <li>• persist (optional, logic) If TRUE, data will persist into a timeseries database</li> <li>• tag (optional, numeric) The integer id of the property</li> <li>• update_parameter (optional, numeric) The update frequency in seconds, or the amount of the property has to change in order to trigger an update</li> <li>• variable_name (character) The sketch variable name of the property</li> </ul>
timezone	A time zone name. Check get_timezone for a list of valid names. (default: America/New_York)
force	(logical) If TRUE, detach device from the other thing, and attach to this thing. In case of deletion, if TRUE, hard delete the thing. Default to FALSE
store_token	Where your token is stored. If option it will be retrieved from the .Rprofile (not cross-session and default), if envir it will be retrieved from environmental variables list (cross-session)
token	A valid token created with create_auth_token or manually. It not NULL it has higher priority then store_token.

**silent** Whether to hide or show API method success messages (default FALSE)  
**show\_deleted** (logical) If TRUE, shows the soft deleted things. Default to FALSE  
**show\_properties** (logical) If TRUE, returns things with their properties, and last values. Default to FALSE  
**tags** tags you may want to filter from the list

### Value

A tibble showing information about chosen thing or list of thing for current user

### Examples

```

## Not run:
library(dplyr)

# Sys.setenv(ARDUINO_API_CLIENT_ID = 'INSERT CLIENT_ID HERE')
# Sys.setenv(ARDUINO_API_CLIENT_SECRET = 'INSERT CLIENT_SECRET HERE')
create_auth_token()

### create thing ###
things_create(name = "test")

### check things list ###
t_list = things_list(silent = TRUE)
thing_id = t_list %>% filter(name == "test") %>% pull(id)

things_show(thing_id = thing_id)

### update thing ###
properties = tibble(name = c("test1", "test2"),
  permission = rep("READ_ONLY", 2), type = rep("FLOAT", 2),
  update_strategy = rep("ON_CHANGE", 2), update_parameter = rep(10, 2))

things_update(thing_id = thing_id, name = "test_update", properties = properties)

### delete thing ###
things_delete(thing_id = thing_id)

## End(Not run)

```

---

things\_properties      *Properties (of things) API methods*

---

### Description

Create, Update, List, Show and Delete properties associated to a given thing

Official documentation:

- `propertiesV2Create`
- `propertiesV2Update`
- `propertiesV2List`
- `propertiesV2Show`
- `propertiesV2Delete`

### Usage

```
things_properties_create(  
    thing_id,  
    name,  
    permission,  
    type,  
    update_strategy,  
    ...,  
    store_token = "option",  
    token = NULL,  
    silent = FALSE  
)
```

```
things_properties_update(  
    thing_id,  
    property_id,  
    name,  
    permission,  
    type,  
    update_strategy,  
    ...,  
    store_token = "option",  
    token = NULL,  
    silent = FALSE  
)
```

```
things_properties_list(  
    thing_id,  
    show_deleted = FALSE,  
    store_token = "option",  
    token = NULL,  
    silent = FALSE  
)
```

```
things_properties_show(  
    thing_id,  
    property_id,  
    store_token = "option",  
    token = NULL,  
    silent = FALSE  
)
```

```
things_properties_delete(
  thing_id,
  property_id,
  store_token = "option",
  token = NULL,
  silent = FALSE
)
```

### Arguments

thing_id	The id of the thing
name	The friendly name of the property
permission	The permission of the property (READ_ONLY or READ_WRITE allowed)
type	The type of the property (see details for exhaustive list of values)
update_strategy	The update strategy for the property value (ON_CHANGE or TIMED allowed)
...	Optional parameters for things_properties_create: <ul style="list-style-type: none"> <li>• max_value (numeric) Maximum value of this property</li> <li>• min_value (numeric) Minimum value of this property</li> <li>• persist (logic) If TRUE, data will persist into a timeseries database</li> <li>• tag (numeric) The integer id of the property</li> <li>• update_parameter (numeric) The update frequency in seconds, or the amount of the property has to change in order to trigger an update</li> <li>• variable_name (character) The sketch variable name of the property</li> </ul>
store_token	Where your token is stored. If option it will be retrieved from the .Rprofile (not cross-session and default), if envir it will be retrieved from environmental variables list (cross-session)
token	A valid token created with create_auth_token or manually. If not NULL it has higher priority than store_token.
silent	Whether to hide or show API method success messages (default FALSE)
property_id	The id of the property
show_deleted	If TRUE, shows the soft deleted properties. Default to FALSE

### Value

A tibble showing information about chosen property or list of properties for given thing

### Examples

```
## Not run:
library(dplyr)

Sys.setenv(ARDUINO_API_CLIENT_ID = 'INSERT CLIENT_ID HERE')
Sys.setenv(ARDUINO_API_CLIENT_SECRET = 'INSERT CLIENT_SECRET HERE')
create_auth_token()
```

```

thing_id = "b6822400-2f35-4d93-b3e7-be919bdc5eba"

### create property ###
things_properties_create(thing_id = thing_id,
name = "test", permission = "READ_ONLY", type = "FLOAT",
update_strategy = "ON_CHANGE", update_parameter = 10)

### check properties list ###
p_list = things_properties_list(thing_id = thing_id, show_deleted = FALSE)
property_id = p_list %>% filter(name == "test") %>% pull(id)

things_properties_show(thing_id = thing_id, property_id = property_id)

### update property ###
things_properties_update(thing_id = thing_id, property_id = property_id,
name = "test_update", permission = "READ_ONLY", type = "FLOAT",
update_strategy = "ON_CHANGE", update_parameter = 10)

### delete property ###
things_properties_delete(thing_id = thing_id, property_id = property_id)

## End(Not run)

```

---

things\_properties\_timeseries

*Data from Properties (of things) API methods*

---

## Description

### [Stable]

Get numerical property's historic data binned on a specified time interval (note: the total number of data points should NOT be greater than 1000 otherwise the result will be truncated)

Official documentation: [propertiesV2Timeseries](#)

## Usage

```

things_properties_timeseries(
  thing_id,
  property_id,
  from = NULL,
  to = NULL,
  interval = NULL,
  desc = NULL,
  store_token = "option",
  token = NULL,
  silent = FALSE
)

```

**Arguments**

thing_id	The id of the thing
property_id	The id of the property
from	A Posixct or Date object. Get data with a timestamp $\geq$ to this value (default: 2 weeks ago, min: 1842-01-01, max: 2242-01-01)
to	A Posixct or Date object. Get data with a timestamp $<$ to this value (default: now, min: 1842-01-01, max: 2242-01-01)
interval	(numeric) Binning interval in seconds (default: the smallest possible value compatibly with the limit of 1000 data points in the response)
desc	(logic) Whether data ordering (by time) should be descending. Default TO FALSE
store_token	Where your token is stored. If option it will be retrieved from the .Rprofile (not cross-session and default), if envir it will be retrieved from environmental variables list (cross-session)
token	A valid token created with create_auth_token or manually. If not NULL it has higher priority then store_token
silent	Whether to hide or show API method success messages (default FALSE)

**Value**

A tibble showing of time and value for property of given device

**Examples**

```
## Not run:
# Sys.setenv(ARDUINO_API_CLIENT_ID = 'INSERT_CLIENT_ID_HERE')
# Sys.setenv(ARDUINO_API_CLIENT_SECRET = 'INSERT_CLIENT_SECRET_HERE')
create_auth_token()

thing_id = "b6822400-2f35-4d93-b3e7-be919bdc5eba"
property_id = "d1134fe1-6519-49f1-afd8-7fe9e891e778"

things_properties_timeseries(thing_id = thing_id, property_id = property_id,
desc = FALSE, interval = 60, from = "2022-08-20")

## End(Not run)
```

**Description**

Upsert (create/update), List and Delete tags associated to a given thing

Official documentation:

- [thingsV2TagsUpsert](#)
- [thingsV2TagsList](#)
- [thingsV2TagsDelete](#)

**Usage**

```
things_tags_upsert(
  thing_id,
  key,
  value,
  store_token = "option",
  token = NULL,
  silent = FALSE
)
```

```
things_tags_list(
  thing_id,
  store_token = "option",
  token = NULL,
  silent = FALSE
)
```

```
things_tags_delete(
  thing_id,
  key,
  store_token = "option",
  token = NULL,
  silent = FALSE
)
```

**Arguments**

thing_id	The id of the thing
key	The key of the tag (no spaces allowed)
value	The value of the tag (no spaces allowed)
store_token	Where your token is stored. If option it will be retrieved from the .Rprofile (not cross-session and default), if envir it will be retrieved from environmental variables list (cross-session)
token	A valid token created with create_auth_token or manually. If not NULL it has higher priority than store_token
silent	Whether to hide or show API method success messages (default FALSE)

**Value**

A tibble showing information about chosen tag or list of tags for given thing

**Examples**

```
## Not run:
# Sys.setenv(ARDUINO_API_CLIENT_ID = 'INSERT CLIENT_ID HERE')
# Sys.setenv(ARDUINO_API_CLIENT_SECRET = 'INSERT CLIENT_SECRET HERE')
create_auth_token()

thing_id = "b6822400-2f35-4d93-b3e7-be919bdc5eba"

### create/modify tag ###
things_tags_upsert(thing_id = thing_id, key = "1", value = "test")

### check tags list ###
things_tags_list(thing_id = thing_id)

### delete tag ###
things_tags_delete(thing_id = thing_id, key = "1")

## End(Not run)
```

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