

# Swagger



# Purpose

- Widely adopted API spec format
  - Migrate from RAML 0.8 to OpenAPI 3.0
- More readable and useful API document
  - Swagger

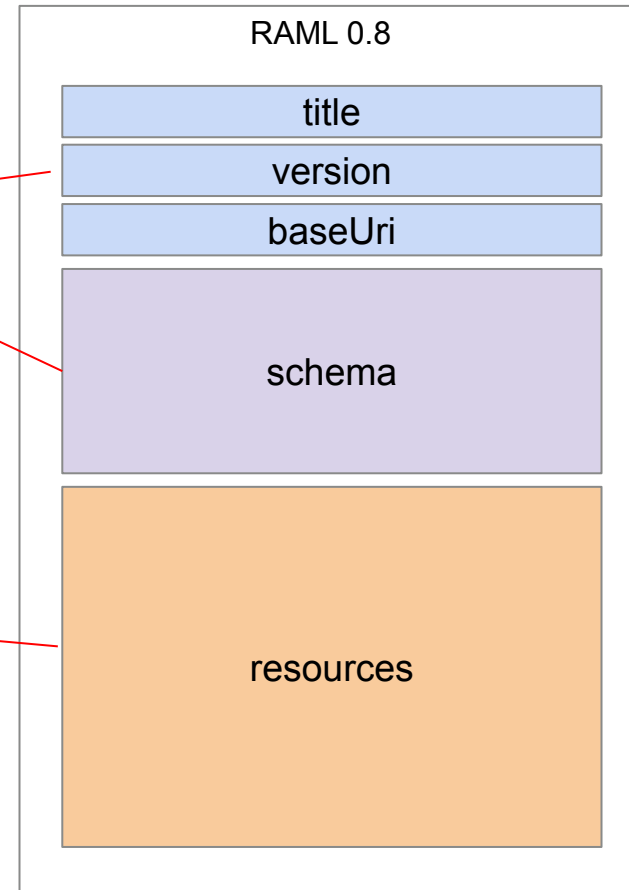
# About Swagger

Swagger is a powerful yet easy-to-use suite of API developer tools for teams and individuals, enabling development across the entire API lifecycle, from design and documentation, to test and deployment.

- Support OpenAPI Specification
  - <https://github.com/OAI/OpenAPI-Specification>
  - The OpenAPI Specification is a community-driven open specification within the [OpenAPI Initiative](#), a Linux Foundation Collaborative Project.
- Open Source Tools
  - **Swagger Editor(Apache 2.0)**: Design APIs in a powerful editor which visually renders your OpenAPI definition and provides real-time error feedback.
  - **Swagger UI (Apache 2.0)**: Automatically generate documentation from your OpenAPI definition for visual interaction, and easier consumption.
  - **Swagger Codegen(Apache 2.0)**: Build and enable consumption of your API by generating server stubs and client SDKs with minimal plumbing.
- Cloud platform - SwaggerHub (\$30/Month)
  - SwaggerHub brings together all of the open source Swagger tooling into one easy-to-use platform in the cloud.
  - SwaggerHub can synchronize with github.
  - Provide the **API Auto Mocking**.

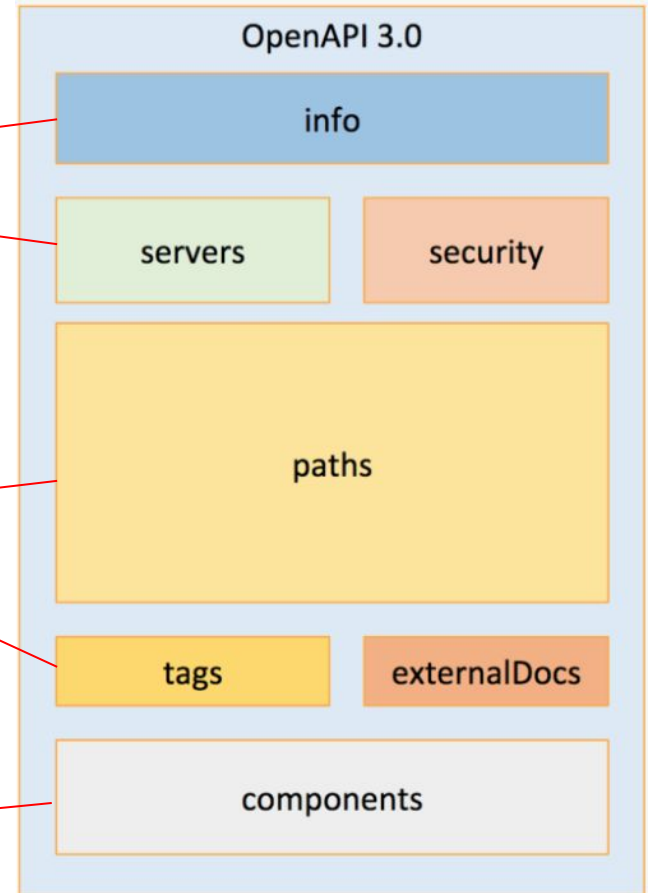
# RAML 0.8

```
core-data.raml x
1  #%RAML 0.8
2  title: core-data
3  version: "1.0.0"
4  baseUrl: "http://localhost:48080/api/v1"
5  schemas:
6  -
7    event: '{"type":"object","$schema":"http://json-schema.org/draft-03/schema#","description":"Core device
8
9    reading: '{"type":"object","$schema":"http://json-schema.org/draft-03/schema#","description":"Core devi
10
11   valueDescriptor: '{"type":"object","$schema":"http://json-schema.org/draft-03/schema#","description":"C
12
13 /event:
14   displayName: Event Resource
15   description: example - http://localhost:48080/api/v1/event
16   post:
17     description: Add a new event (with its associated readings). Prefers the event device is a device name
18     displayName: add an event (and associated readings)
19     body:
20       application/json:
21         schema: event
22         example: '{"origin":1471806386919,"device":"livingroomthermostat","readings":[{"origin":1471806
23
24     responses:
25       "200":
26         description: new event database generated id
27       "400":
28         description: creation request is invalid
29       "404":
30         description: if the a reading is associated to a non-existent value descriptor, or if device ve
31       "500":
32         description: for unknown or unanticipated issues.
33
34   put:
35     description: Update the event data (not including updating the readings). NotFoundException (HTTP 404)
36     displayName: update an event
37     body:
38       application/json:
39         schema: event
40         example: '{"id":"57ba04a1189b95b8afcdfd7","pushed":1471806399999}'
41
42     responses:
43       "200":
44         description: boolean on success of update request
```



# OpenAPI 3.0

```
core-data.openapi.yml x
1  openapi: 3.0.0
2
3  servers:
4    - description: CoreData localhost
5      url: http://localhost:48080/api/v1
6
7  info:
8    description: EdgeX Fou...w device.
9    version: "1.0.0"
10   title: CoreData service
11   termsOfService: 'http://swagger.io/terms/'
12   contact: <1 key>
13   license: <2 keys>
14
15  tags:
16    - name: reading
17      description: device readind data
18      externalDocs: <2 keys>
19    - <3 keys>
20
21  paths:
22    /reading:
23      get:
24        tags:
25          - reading
26        summary: get reading
27        operationId: getReading
28        responses:
29          '200':
30            description: successful operation
31            content:
32              application/json:
33                schema:
34                  type: array
35                  items:
36                    $ref: '#/components/schemas/Reading'
37          '400':
38            description: Invalid status value
39        /event: <2 keys>
40
41  components:
42    schemas:
43      Reading:
44        type: object
45        properties:
```

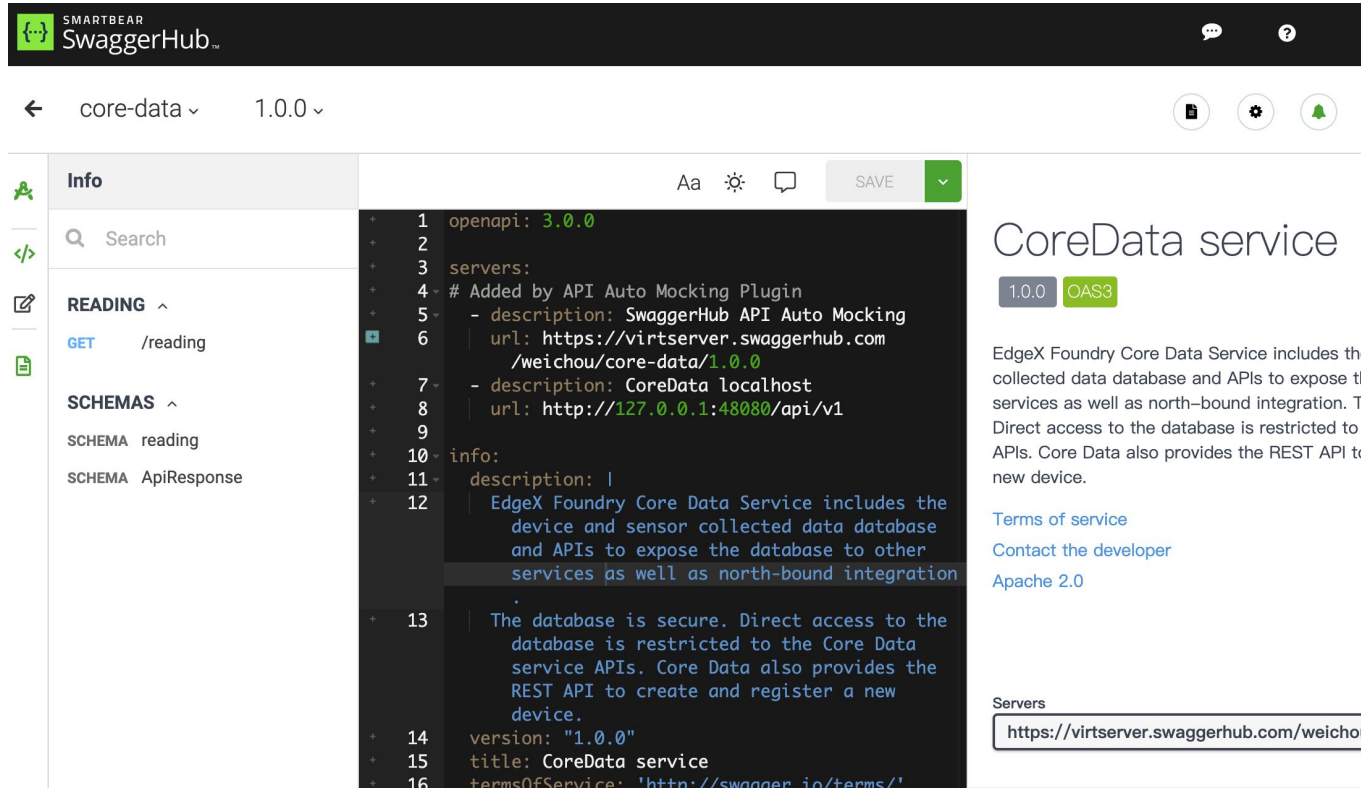


# OpenAPI 3.0 - Security

```
1 openapi: 3.0.0
2 # Added by API Auto Mocking Plugin
3 servers:
4   - description: SwaggerHub API Auto Mocking
5     url: https://virtserver.swaggerhub.com/weichou/oauth2/1.0.0
6 info:
7   version: "1.0.0"
8   title: Sample Access Code Flow OAuth2 Project
9   description: >-
10    This is an example of using OAuth2 Access Code Flow in a
11    specification to
12    describe security to your API.
13 security:
14   - accessCode:
15     - read
16     - write
17 paths:
18   /example:
19     get:
```

```
33 responses:
34   '200':
35     description: OK
36 components:
37   schemas: {}
38 securitySchemes:
39   accessCode:
40     type: oauth2
41     flows:
42       authorizationCode:
43         authorizationUrl: 'https://dev-396343.oktapreview.com
44           /oauth2/default/v1/authorize'
45         tokenUrl: 'http://example.com/oauth/token'
46     scopes:
47       write: allows modifying resources
48       read: allows reading resources
```

# SwaggerHub - Online Document and API Auto Mucking for trying out the EdgeX feature



The screenshot displays the SwaggerHub interface for the 'core-data' API version '1.0.0'. The central pane shows the Swagger specification in JSON format, with line numbers 1 through 16. The specification includes a title 'CoreData service', version '1.0.0', and a description: 'EdgeX Foundry Core Data Service includes the device and sensor collected data database and APIs to expose the database to other services as well as north-bound integration'. It also lists two servers: one for SwaggerHub API Auto Mocking and another for localhost. The 'info' section is expanded to show the description and title. The right sidebar provides a summary of the service, including the version '1.0.0', the OAS3 specification, and a brief description of the service's capabilities. Links for 'Terms of service', 'Contact the developer', and 'Apache 2.0' are also visible. The bottom right corner shows the 'Servers' section with the URL 'https://virtserver.swaggerhub.com/weichou/'.

```
1 openapi: 3.0.0
2
3 servers:
4 # Added by API Auto Mocking Plugin
5 - description: SwaggerHub API Auto Mocking
6   url: https://virtserver.swaggerhub.com
7     /weichou/core-data/1.0.0
8 - description: CoreData localhost
9   url: http://127.0.0.1:48080/api/v1
10 info:
11 description: |
12   EdgeX Foundry Core Data Service includes the
13   device and sensor collected data database
14   and APIs to expose the database to other
15   services as well as north-bound integration
16
17   The database is secure. Direct access to the
18   database is restricted to the Core Data
19   service APIs. Core Data also provides the
20   REST API to create and register a new
21   device.
22
23 version: "1.0.0"
24 title: CoreData service
25 termsOfService: 'http://swagger.io/terms/'
```

CoreData service

1.0.0 OAS3

EdgeX Foundry Core Data Service includes the collected data database and APIs to expose tl services as well as north-bound integration. T Direct access to the database is restricted to APIs. Core Data also provides the REST API tc new device.

[Terms of service](#)

[Contact the developer](#)

Apache 2.0

Servers

<https://virtserver.swaggerhub.com/weichou/>

The End





# UI - RAML

## core-data API documentation version 1.0.0

<http://localhost:48080/api/v1>

---

### Event Resource

example - <http://localhost:48080/api/v1/event>

---

#### /event POST PUT GET

**POST** Add a new event (with its associated readings). Prefers the event device is a device name but can also be a device id (database generated).  
DataValidationException (HTTP 409) if the a reading is associated to a non-existent value descriptor. ServiceException (HTTP 500) for unknown or unanticipated issues.

**PUT** Update the event data (not including updating the readings). NotFoundException (HTTP 404) if the event cannot be found by id. ServiceException (HTTP 500) for unknown or unanticipated issues.

**GET** Fetch all events with their associated readings. LimitExceededException (HTTP 413) if the number of events exceeds the current max limit. ServiceException (HTTP 500) for unknown or unanticipated issues.

---

- Event Resource
- Event Resource (by id)
- Event Resource Count
- Event Resource Count for a given device
- Event Resource (by id)
- Event Resource (by device)
- Event Resource (by device)
- Event Resource (by creation time)
- Reading Resource (filtered for device and value descriptor)
- Event Resource (by age)
- Scrub Event Resource
- Reading Resource
- Reading Resource Count
- Reading Resource (by id)

# UI - Swagger

## CoreData service 1.0.0 OAS3

[./core-data.openapi.yaml](#)

EdgeX Foundry Core Data Service includes the device and sensor collected data database and APIs to expose the database to other services as well as north-bound integration. The database is secure. Direct access to the database is restricted to the Core Data service APIs. Core Data also provides the REST API to create and register a new device.

[Terms of service](#)  
[Contact the developer](#)  
[Apache 2.0](#)

Servers

**reading** Everything about reading Find out more: <http://swagger.io>

**pet** Find out more: [http://swagger.io](#)

**GET** **/reading** get reading

## reading Everything about reading Find out more: <http://swagger.io>

**GET** **/reading** get reading Try it out

Parameters

No parameters

Responses

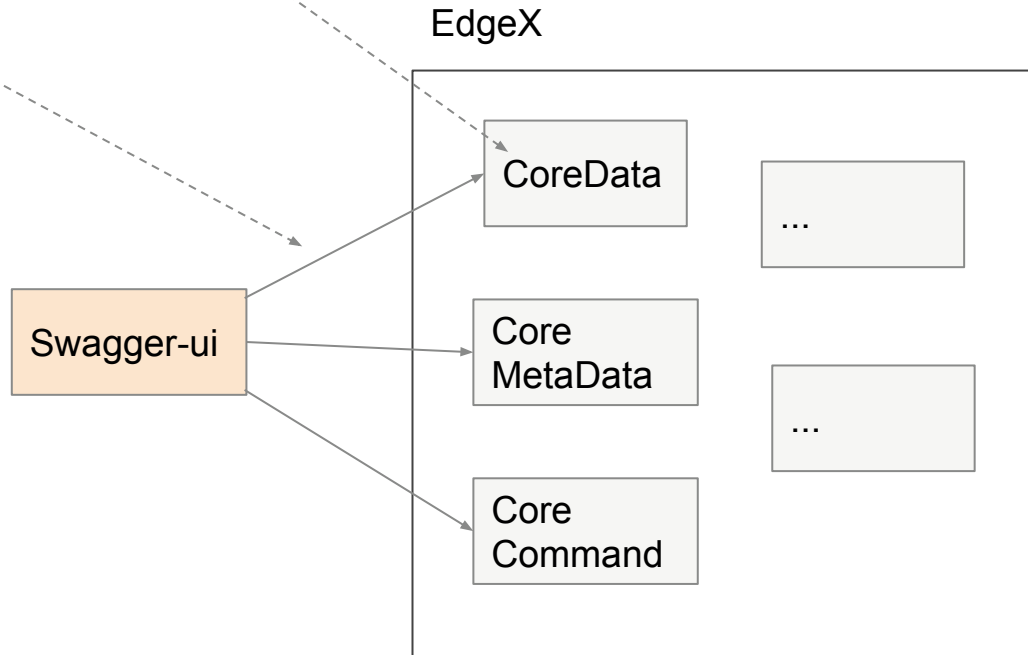
Code	Description	Links
200	<p><b>successful operation</b></p> <p><input type="text" value="application/json"/></p> <p>Controls Accept header.</p> <p>Example Value   Schema</p> <pre>[ {   "id": "string",   "created": 0,   "modified": 0,   "origin": 0,   "updated": 0</pre>	No links

# Test API with Swagger - approach 1

It need to add **Access-Control-Allow-Origin** header at EdgeX services

```
w.Header().Set("Access-Control-Allow-Origin", "*")  
w.Header().Set("Access-Control-Allow-Headers", "Content-Type,access-control-allow-origin, access-control-allow-headers")
```

Or add a proxy



# Test API with Swagger - approach 2

EdgeX

