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# **aiohttp-apispec**

**Jul 14, 2019**



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Build and document REST APIs with aiohttp and apispec

aiohttp-apispec key features:

- `docs`, `request_schema` and `response_schema` decorators to add swagger spec support out of the box;
- `validation_middleware` middleware to enable validating with marshmallow schemas from those decorators;
- **SwaggerUI** support.

aiohttp-apispec api is fully inspired by flask-apispec library



## 1.1 Usage

### 1.1.1 Quickstart

```
from aiohttp_apispec import (docs,
                             request_schema,
                             response_schema,
                             setup_aiohttp_apispec)

from aiohttp import web
from marshmallow import Schema, fields

class RequestSchema(Schema):
    id = fields.Int()
    name = fields.Str(description='name')
    bool_field = fields.Bool()

class ResponseSchema(Schema):
    msg = fields.Str()
    data = fields.Dict()

@docs(tags=['mytag'],
      summary='Test method summary',
      description='Test method description')
@request_schema(RequestSchema(strict=True))
@response_schema(ResponseSchema(), 200)
async def index(request):
    return web.json_response({'msg': 'done',
                             'data': {}})
```

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```

# Class based views are also supported:
class TheView(web.View):
    @docs(
        tags=['mytag'],
        summary='View method summary',
        description='View method description',
    )
    @request_schema(RequestSchema(strict=True))
    def delete(self):
        return web.json_response({
            'msg': 'done',
            'data': {'name': self.request['data']['name']},
        })

app = web.Application()
app.router.add_post('/v1/test', index)
app.router.add_view('/v1/view', TheView)

# init docs with all parameters, usual for ApiSpec
setup_aiohttp_apispec(app=app, title="My Documentation", version="v1")

# find it on 'http://localhost:8080/api/docs/api-docs'
web.run_app(app)

```

## 1.1.2 Adding validation middleware

```

from aiohttp_apispec import validation_middleware

...

app.middlewares.append(validation_middleware)

```

Now you can access all validated data in route from `request['data']` like so:

```

@docs(tags=['mytag'],
      summary='Test method summary',
      description='Test method description')
@request_schema(RequestSchema(strict=True))
@response_schema(ResponseSchema(), 200)
async def index(request):
    uid = request['data']['id']
    name = request['data']['name']
    return web.json_response(
        {'msg': 'done',
         'data': {'info': f'name - {name}, id - {uid}'}}
    )

```

You can change Request's 'data' param to another with `request_data_name` argument of `setup_aiohttp_apispec` function:

```

setup_aiohttp_apispec(app=app,
                      request_data_name='validated_data',

```

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```

        title='My Documentation',
        version='v1',
        url='/api/docs/api-docs')
...

@request_schema(RequestSchema(strict=True))
async def index(request):
    uid = request['validated_data']['id']
    ...

```

### 1.1.3 Custom error handling

If you want to catch validation errors by yourself you could use `error_callback` parameter and create your custom error handler. Note that it can be one of coroutine or callable and it should have interface exactly like in examples below:

```

from marshmallow import ValidationError, Schema
from aiohttp import web
from typing import Optional, Mapping, NoReturn

def my_error_handler(
    error: ValidationError,
    req: web.Request,
    schema: Schema,
    error_status_code: Optional[int] = None,
    error_headers: Optional[Mapping[str, str]] = None,
) -> NoReturn:
    raise web.HTTPBadRequest(
        body=json.dumps(error.messages),
        headers=error_headers,
        content_type="application/json",
    )

setup_aiohttp_apispec(app, error_callback=my_error_handler)

```

Also you can create your own exceptions and create regular Request in middleware like so:

```

class MyException(Exception):
    def __init__(self, message):
        self.message = message

# It can be coroutine as well:
async def my_error_handler(
    error: ValidationError,
    req: web.Request,
    schema: Schema,
    error_status_code: Optional[int] = None,
    error_headers: Optional[Mapping[str, str]] = None,
) -> NoReturn:
    await req.app["db"].do_smth() # So you can use some async stuff
    raise MyException({"errors": error.messages, "text": "Oops"})

# This middleware will handle your own exceptions:

```

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```

@web.middleware
async def intercept_error(request, handler):
    try:
        return await handler(request)
    except MyException as e:
        return web.json_response(e.message, status=400)

setup_aiohttp_apispec(app, error_callback=my_error_handler)

# Do not forget to add your own middleware before validation_middleware
app.middlewares.extend([intercept_error, validation_middleware])

```

### 1.1.4 Build swagger web client

aiohttp-apispec adds `swagger_dict` parameter to aiohttp web application after initialization (with `setup_aiohttp_apispec` function). So you can use it easily with `aiohttp_swagger` library:

```

from aiohttp_apispec import setup_aiohttp_apispec
from aiohttp_swagger import setup_swagger

def create_app(app):
    setup_aiohttp_apispec(app)

    async def swagger(app):
        setup_swagger(
            app=app, swagger_url='/api/doc', swagger_info=app['swagger_dict']
        )
    app.on_startup.append(swagger)
    # now we can access swagger client on '/api/doc' url
    ...
    return app

```

Now we can access swagger client on `/api/doc` url

## 1.2 Installation

```
$ pip install -U aiohttp-apispec
```

## 1.3 API Reference

`aiohttp_apispec.setup_aiohttp_apispec` (*app: aiohttp.web\_app.Application, \*, title: str = 'API documentation', version: str = '0.0.1', url: str = '/api/docs/swagger.json', request\_data\_name: str = 'data', swagger\_path: str = None, static\_path: str = '/static/swagger', error\_callback=None, \*\*kwargs*)  
 → None

aiohttp-apispec extension.

Usage:

```

from aiohttp_apispec import docs, request_schema, setup_aiohttp_apispec
from aiohttp import web
from marshmallow import Schema, fields

class RequestSchema(Schema):
    id = fields.Int()
    name = fields.Str(description='name')
    bool_field = fields.Bool()

@docs(tags=['mytag'],
      summary='Test method summary',
      description='Test method description')
@request_schema(RequestSchema)
async def index(request):
    return web.json_response({'msg': 'done', 'data': {}})

app = web.Application()
app.router.add_post('/v1/test', index)

# init docs with all parameters, usual for ApiSpec
setup_aiohttp_apispec(app=app,
                      title='My Documentation',
                      version='v1',
                      url='/api/docs/api-docs')

# now we can find it on 'http://localhost:8080/api/docs/api-docs'
web.run_app(app)

```

### Parameters

- **app** (*Application*) – aiohttp web app
- **title** (*str*) – API title
- **version** (*str*) – API version
- **url** (*str*) – url for swagger spec in JSON format
- **request\_data\_name** (*str*) – name of the key in Request object where validated data will be placed by validation\_middleware ('data' by default)
- **swagger\_path** (*str*) – experimental SwaggerUI support (starting from v1.1.0). By default it is None (disabled)
- **static\_path** (*str*) – path for static files used by SwaggerUI (if it is enabled with `swagger_path`)
- **error\_callback** – custom error handler
- **kwargs** – any apispec.APISpec kwargs

`aiohttp_apispec.docs(**kwargs)`

Annotate the decorated view function with the specified Swagger attributes.

Usage:

```

from aiohttp import web

@docs(tags=['my_tag'],
      summary='Test method summary',
      description='Test method description',
      parameters=[{
          'in': 'header',
          'name': 'X-Request-ID',
          'schema': {'type': 'string', 'format': 'uuid'},
          'required': 'true'
      }
    ])
async def index(request):
    return web.json_response({'msg': 'done', 'data': {}})

```

`aiohttp_apispec.request_schema` (*schema*, *locations=None*, *\*\*kwargs*)

Add request info into the swagger spec and prepare injection keyword arguments from the specified webargs arguments into the decorated view function in `request['data']` for `validation_middleware` validation middleware.

Usage:

```

from aiohttp import web
from marshmallow import Schema, fields

class RequestSchema(Schema):
    id = fields.Int()
    name = fields.Str(description='name')

@request_schema(RequestSchema(strict=True))
async def index(request):
    # aiohttp_apispec_middleware should be used for it
    data = request['data']
    return web.json_response({'name': data['name'],
                             'id': data['id']})

```

### Parameters

- **schema** – Schema class or instance
- **locations** – Default request locations to parse

`aiohttp_apispec.response_schema` (*schema*, *code=200*, *required=False*, *description=None*)

Add response info into the swagger spec

Usage:

```

from aiohttp import web
from marshmallow import Schema, fields

class ResponseSchema(Schema):
    msg = fields.Str()
    data = fields.Dict()

@response_schema(ResponseSchema(), 200)
async def index(request):
    return web.json_response({'msg': 'done', 'data': {}})

```

**Parameters**

- **description** (*str*) – response description
- **required** (*bool*) –
- **schema** – Schema class or instance
- **code** (*int*) – HTTP response code

`aiohttp_apispec.use_kwargs` (*schema*, *locations=None*, *\*\*kwargs*)

Add request info into the swagger spec and prepare injection keyword arguments from the specified webargs arguments into the decorated view function in request['data'] for validation\_middleware validation middleware.

Usage:

```
from aiohttp import web
from marshmallow import Schema, fields

class RequestSchema(Schema):
    id = fields.Int()
    name = fields.Str(description='name')

@request_schema(RequestSchema(strict=True))
async def index(request):
    # aiohttp_apispec_middleware should be used for it
    data = request['data']
    return web.json_response({'name': data['name'],
                             'id': data['id']})
```

**Parameters**

- **schema** – Schema class or instance
- **locations** – Default request locations to parse

`aiohttp_apispec.marshall_with` (*schema*, *code=200*, *required=False*, *description=None*)

Add response info into the swagger spec

Usage:

```
from aiohttp import web
from marshmallow import Schema, fields

class ResponseSchema(Schema):
    msg = fields.Str()
    data = fields.Dict()

@response_schema(ResponseSchema(), 200)
async def index(request):
    return web.json_response({'msg': 'done', 'data': {}})
```

**Parameters**

- **description** (*str*) – response description
- **required** (*bool*) –
- **schema** – Schema class or instance

- **code** (*int*) – HTTP response code

`aiohhttp_apispec.validation_middleware` (*request: aiohttp.web\_request.Request, handler*) → `aiohhttp.web_response.Response`

Validation middleware for aiohttp web app

Usage:

```
app.middlewares.append(validation_middleware)
```

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