

OpenAPI.jl

For Easy HTTP APIs

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Slides: <https://bit.ly/3S2IFXZ>



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01

About OpenAPI

Goals.
Where does it fit in.

02

OpenAPI.js

Overview. What's there
and what's where.

03

Dive In

Use OpenAPI Services.
Create OpenAPI Services.

04

Summarize, Q&A

01 About OpenAPI

Goals. Where does it fit in.

{ REST }

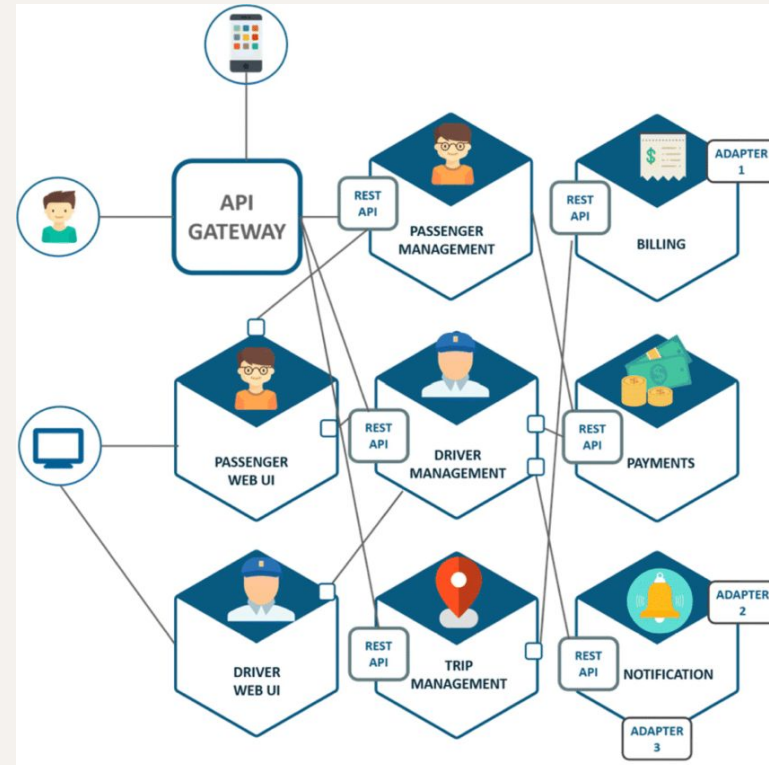
GRPC



OpenAPI - the specification

- Interface Specification for HTTP APIs
- Leverages REST
 - A service has Resources
 - Resources have States
 - Actions create resources or change states
- Programming language agnostic

Goal: Discover and understand capabilities of a service (server) without access to source code, documentation, or network traffic inspection.



Source:

https://www.researchgate.net/publication/342124274_Plug-and-play_mix-and-match_a_capital_systems_theory_of_digital_technology_platforms

OpenAPI - tools

Origins:

- Donated to the OpenAPI Initiative by SmartBear Software.
- Renamed Swagger Specification to OpenAPI specification (2015)
- First official release (v3.0.0) in 2017

OpenAPI ↔ Swagger

- OpenAPI = Specification (<https://spec.openapis.org/oas/v3.1.0>).
- Swagger = Tools for implementing the specification (<https://swagger.io/tools/>)

Other Tools

- The code generator (e.g. openapi-generator, kiota, ...)
- Quite a lot of third party tools (e.g. Redocly, ...)

OpenAPI

- Specification for REST APIs
- Tools to
 - Create Specifications
 - Generate Code, Documents, Tests

Simple and widely understood.

More general purpose than gRPC or GraphQL.

Lightweight compared to SOAP.



OpenAPI - specification

- Servers
- Tags
- Paths
 - Methods
 - Parameters
 - Responses
- Components

Example:

https://raw.githubusercontent.com/JuliaComputing/OpenAPI.jl/main/test/specs/petstore_v3.json

02 OpenAPI.jl

What's there. And where.



Specification Implementation

OpenAPI Code Generator

<https://openapi-generator.tech/>

OpenAPI.jl

<https://github.com/JuliaComputing/OpenAPI.jl>

Swagger.jl

<https://github.com/JuliaComputing/Swagger.jl>
soon to be deprecated

API Integrations

Kubernetes

Kuber.jl

Azure Cloud

Azure.jl

Collaboration Tools

E.g. GitHub, Slack, ...

Code Generator

Implementation (<https://github.com/OpenAPITools/openapi-generator>)

```
modules/openapi-generator/src/main  
  resources/julia-  
    java/org/openapitools/codegen/languages/*Julia*
```

Download and Install (requires Java)

Instructions at <https://github.com/OpenAPITools/openapi-generator>

Use Tools from OpenAPI.jl

Local Generator Service (requires docker)

Remote Generator Service

One hosted in public internet by OpenAPI org

Generated Code Organization

- Generated as Julia module
- Docs generated in separate folder
- Structured similar to a Julia package

- Client modules are complete
 - Based on Downloads.jl
- Server modules need implementation of server methods
 - Based on HTTP.jl

03

Dive In



Demo!

- Look at a specification
 - Generate code (client)
 - Look at the generated code
 - Use the client
 - Generate both client and server code
 - Implement server methods
 - Run the server. Use it.
-

04

Summarize, Q&A



Summarizing...

- Discussed OpenAPI and related standards
- OpenAPI.jl package and where it stands

- Used existing service (GitHub) as a client
- Defined a specification
- Implemented and Deployed a Service

Q&A

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Thanks

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