Sway: Advancing OpenAPI with Tooling

Jeremy Whitlock (@whitlockjc)
What is OpenAPI? (brief)
OpenAPI Specification (formerly the Swagger specification) is a description format for REST APIs.
What is OpenAPI? (brief)

- Written in JSON or YAML
- Clearly describes:
  - Available APIs
  - API input contract
  - API output contract
  - Required authn/authz
  - Success/Error responses
  - ...
- Extensible
- Computer/Human Readable
Okay...so?!?
OpenAPI

There is more to OpenAPI than just Java annotations and "swagger-ui".
swagger-tools
OpenAPI Tooling Needs

Load/Parse
Every OpenAPI tool must load and parse specifications

Resolve
Specs are rarely self-contained—reference resolution is a must

Validate
Working with specs is much easier when you know they’re well-formed documents

Consume
Simplifying the consumption of OpenAPI Specification documents will make consumption much simpler.
What is Sway?
“A library that simplifies OpenAPI integrations/tooling.”

Me (It's my project, I described it)
Loader/Parser

- Reads from the local filesystem, remote files, and JavaScript objects natively
- Parses JSON and YAML natively
- Supports accessing secure documents stored over HTTP/HTTPS
- Custom locations and file formats supported via plugins

Powered by: https://github.com/whitlockjc/path-loader
Resolver

- Fully resolves OAS documents no matter how complex
- Handles circular references
- Tons of metadata for tooling consumption
- Extremely fast

Powered by: https://github.com/whitlockjc/json-refs
Validate

- Ensure the spec is well-formed per OAS schema
- Apply semantic rules on top of the structure checks
- Custom validation rules to validate however you want (enforce convention, validate custom extensions, etc.)
Consume

- A rich set of objects for interacting with your OAS document
- Support for mocking requests and responses
- Support for path/operation matching
- Support for validating parameters, requests, and responses
- Heavily documented
Want to see Sway in action?
oval Demonstration

oval is a "CLI for (O)penAPI Specification document (val)idation."

https://github.com/whitlockjc/oval
# sway.Operation

Kind: static class of `sway`

## Properties

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>definition</td>
<td>object</td>
<td>The operation definition <em>(The raw operation definition references were resolved)</em></td>
</tr>
<tr>
<td>definitionFullyResolved</td>
<td>object</td>
<td>The operation definition with all of its resolvable references</td>
</tr>
<tr>
<td>method</td>
<td>string</td>
<td>The HTTP method for this operation</td>
</tr>
<tr>
<td>pathObject</td>
<td>Path</td>
<td>The Path object</td>
</tr>
<tr>
<td>pathToDefinition</td>
<td>Array, &lt;string&gt;</td>
<td>The path segments to the operation definition</td>
</tr>
<tr>
<td>parameterObjects</td>
<td>Array, &lt;Parameter&gt;</td>
<td>The Parameter objects</td>
</tr>
<tr>
<td>ptr</td>
<td>string</td>
<td>The JSON Pointer to the operation</td>
</tr>
<tr>
<td>securityDefinitions</td>
<td>object</td>
<td>The security definitions used by this operation</td>
</tr>
</tbody>
</table>

- `.Operation`
  - new Operation(pathObject, method, definition, definitionFullyResolved, pathToDefinition)
  - `.getParameter(name, [location])` ➞ `Parameter`
  - `.getParameters()` ➞ `Array.<Parameter>`
  - `.getResponse([statusCode])` ➞ `Response`
  - `.getResponses()` ➞ `Array.<Response>`
  - `.getSecurity()` ➞ `Array.<object>`
  - `.validateRequest(req, [options])` ➞ `ValidationResults`
  - `.validateResponse(res, [options])` ➞ `ValidationResults`
What's next for Sway?
What's next for Sway?

OpenAPI v3.0 Support
The biggest need in Sway right now is proper OpenAPI Specification v3.0 Support.

Modularization
Sway provides a ton of value but for some tooling authors, it's too much and being able to cherry-pick features would be nice.

Collaboration
This is a personal goal of mine in hopes of combining the efforts of Sway and similar tooling to build a community instead of fragmenting one.

https://github.com/apigee-127/sway/issues/128

https://github.com/apigee-127/sway/issues/187
How do you get involved?
Get Involved

- Provide feedback on how sway can be better
- Reach out on how your tool and sway could join forces
- Contribute to the project

A library that simplifies OpenAPI integrations. This library handles the minutiae like OpenAPI document validation, request/response validation, etc. For more details, please see the OpenAPI Documentation.

master will always be built to support the latest release of OpenAPI, which right now is v3.0. The v3.0.x branch is for backward compatibility with v3.0. The v2.x.x branch is for the v2.x.x releases. Each release has its own respective v(N).x branch:

- 3.x Support: master
- 2.x Support: v2.x

Project Badges

- Build status: [build passing](build_status)
- Dependencies: [dependencies up to date](dependencies)
- Developer dependencies: [devDependencies up to date](devDependencies)
- Downloads: [downloads 257k/m](downloads)
- Gitter: [join chat](gitter)
- License: [MIT](license)
- Version: [npm v2.0.4](version)
Thank You