OpenAPI Support and the New Ex Libris Developer Network

Developers Day 2019 | Atlanta, GA
Josh Weisman | VP Development, Resources Management
• Updated Developer Network
• OpenAPI Support for Alma APIs
• Code Generation with OpenAPI
• Bonus…. a peek behind the scenes
Updated Developer Network
Ex Libris API Platform Around the World

https://api-na.hosted.exlibrisgroup.com

https://api-eu.hosted.exlibrisgroup.com

https://developers.exlibrisgroup.com

https://api-cn.hosted.exlibrisgroup.com

https://api-ap.hosted.exlibrisgroup.com
2019 Update – Investment in the Open Platform

FROM

CA API Gateway
Version 8.2

TO

CA API Gateway
Version 9.2

CA API Portal

Custom Portal
Benefits of the New Portal

• Updated responsive, mobile-friendly design
• New API Console / OpenAPI Specification
• Redesigned API Key management and reports
• Enhanced sharing platform- blog and forum
Updated Design

• Modern
• Responsive
• Mobile-friendly
New API Console

- OpenAPI Specification
- Easier to use
- Additional options
- Can be used in other tools
Redesigned API Key Management and Reports

- Intuitive interface
- Additional insightful reports

### Manage API Keys

<table>
<thead>
<tr>
<th>Enabled</th>
<th>Name</th>
<th>API Key</th>
<th>Supported APIs</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HARRASSOWITZ tr_integration_prd</td>
<td></td>
<td>Acquisition, Production Read/Write, Configuration, Production Read/Write</td>
<td>Copy,</td>
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<tr>
<td></td>
<td>HARRASSOWITZ tr_integration_prd</td>
<td></td>
<td>Acquisition, Guest Sandbox Read-only, Configuration, Guest Sandbox Read-only</td>
<td>Copy,</td>
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<td>Delete</td>
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<tr>
<td></td>
<td>Linked Data Demo</td>
<td></td>
<td>BLC, Sandbox Read-only, Primo Pilot, Guest Sandbox Read-only, Configuration, Guest Sandbox Read-only</td>
<td>Copy,</td>
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<td>Delete</td>
</tr>
</tbody>
</table>

### Reports

Overview of API Usage

- **</> 500,000** API Threshold
- **0** Calls made today
- **0%** Off threshold

*API threshold for TR.INTEGRATION.INST is calculated based on guidelines published here.*
Enhanced Sharing Platform

• Even easier to share your story
• Improved blog editor
• More visibility for your content
Interested in More?

Join the session
“Extending Your Library with the Alma Open Platform”
Thursday, 12:15 – 1:00 pm
Room 204/205
OpenAPI Support for Alma APIs
OpenAPI

Specification for machine-readable interface files for describing, producing, consuming, and visualizing RESTful web services.

-Wikipedia
OpenAPI

• OpenAPI is a specification for defining REST APIs

• All of the parts of the API can be defined:
  • Endpoints (paths)
  • Methods (i.e. get, post, put)
  • Parameters
  • Request bodies
  • Responses
  • Security (basic, API key, token, etc.)
Endpoints & Methods

Endpoints (paths)
"paths": {
  "/almaws/v1/users": {
...

Methods (i.e. get, post, put)
"get": {
  "description": "This API returns a list of Users, ...",
  "summary": "Retrieve users",
...
Parameters

"parameters": [
{
    "name": "limit",
    "in": "query",
    "required": false,
    "schema": {
        "default": "10",
        "type": "integer"
    },
    "description": "Limits the number ..."
},
...

Request bodies

Including accepted content types and the payload object schema

"requestBody": {
    "description": "This method takes a User object...",
    "required": true,
    "content": {
        "application/json": {
            "schema": {
                "$ref": "./schemas/rest_user-post.json"
            }
        },
        ...
    }
}
Responses

Including response codes, available content types (i.e. application/json, application/xml) and the response object schema

"responses": {
  "400": {
    "description": "Bad Request..."
  },
  "200": {
    "description": "OK - This method returns an ...",
    "content": {
      "application/json": {
        "schema": {
          "$ref": "./schemas/rest_users.json#/rest_users"
        }
      }
    }
  }
...
Security

"securitySchemes": {
   "ApiKeyAuth": {
      "type": "apiKey",
      "description": "API key used to auth...",
      "in": "query",
      "name": "apikey"
   }
}
JSON vs YAML

• **JSON: JavaScript Object Notation**

```json
{
    "openapi": "3.0.1",
    "info": {
        "version": "1.0",
        "title": "Ex Libris APIs"
    }
}
```

• **YAML: “YAML Ain't Markup Language”**

```yaml
openapi: "3.0.1"
info:
    version: "1.0"
    title: "Ex Libris APIs"
```
Swagger

• Swagger is a set of tools built around the OpenAPI specification
  • *Tip:* OpenAPI used to be called “Swagger”. The names were forked to create a separation between the community-supported spec and the toolset created and sponsored by a company (Smartbear)

• Most popular tools include:
  • *Swagger UI:* Generates an API “console” from an OpenAPI spec
  • *Swagger Editor:* Tool for creating and validating an OpenAPI spec
Swagger Editor

```json
{
    "openapi": "3.0.1",
    "info": {
        "version": "1.0",
        "title": "Ex Libris APIs",
        "description": "For more information on how to use these APIs, including how to create an API key required for authentication, see [Alma REST APIs](https://developers.exlibrisgroup.com/alma/apis).",
        "termsOfService": "https://developers.exlibrisgroup.com/about/terms"
    },
    "externalDocs": {
        "description": "Detailed documentation on these APIs at the Ex Libris Developer Network.",
        "url": "https://developers.exlibrisgroup.com/alma/apis/bibs"
    },
    "servers": [
        {
            "url": "https://api-eu.hosted.exlibrisgroup.com"
        },
        {
            "url": "https://api-na.hosted.exlibrisgroup.com"
        },
        {
            "url": "https://api-ap.hosted.exlibrisgroup.com"
        },
        {
            "url": "https://api-cn.hosted.exlibrisgroup.com"
        },
        {
            "url": "https://api-ca.hosted.exlibrisgroup.com"
        }]
}
```

Ex Libris APIs

For more information on how to use these APIs, including how to create an API key required for authentication, see [Alma REST APIs](https://developers.exlibrisgroup.com/alma/apis).

Terms of service

Detailed documentation on these APIs at the Ex Libris Developer Network.

Servers

https://api-eu.hosted.exlibrisgroup.com

Catalog

- **GET** /almaws/v1/bibs Retrieve Bibs
- **POST** /almaws/v1/bibs Create record
- **DELETE** /almaws/v1/bibs/{mms_id} Delete Bib Record
OpenAPI for Alma APIs

Links to OpenAPI specification, Swagger Editor, and Swagger Codegen download at the bottom of each API page:

OpenAPI Specification

For information about the OpenAPI standard, see the [OpenAPI Initiative](#). You can also read about OpenAPI support in Ex Libris APIs.

<table>
<thead>
<tr>
<th>OpenAPI Specification</th>
<th>Swagger Codegen</th>
<th>Swagger Editor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Download the OpenAPI specification for these APIs in JSON or YAML format:</td>
<td>Download an SDK powered by the <a href="#">Swagger Code Generator</a>: Select client language</td>
<td>The Swagger Editor provides a side-by-side view of the specification and the Swagger UI console. It’s an easy way to explore the standard and learn by playing.</td>
</tr>
<tr>
<td>• YAML</td>
<td>csharp</td>
<td>View this API specification in the Swagger Editor</td>
</tr>
<tr>
<td>• JSON</td>
<td></td>
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</tr>
</tbody>
</table>

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DEMO: OpenAPI Support in Alma APIs
Code Generation with OpenAPI
Code Generation with OpenAPI

• Code generation creates SDKs for APIs based on the OpenAPI definition

• Generates client class libraries or server stubs for testing

• Several languages and development environments to choose from
Code generation tools

• **nswag** – OpenAPI toolchain for .NET
• **OpenAPI Generator** – tool to generate clients and server stubs
• **Swagger CodeGen** - original code generation tool supported by SmartBear
Why Does Ex Libris Care About OpenAPI

• Continuing support for open standards

• Enable integration with growing number of tools which support the standard
  • Cloud API management, such as
    • AWS API Gateway
    • Azure API Management
  • Postman API Development Environment
  • Many others...

• Support the innovation of the developer community
Why do I care about OpenAPI?

• **Power users** can leverage the *evolving toolset* which supports the OpenAPI standard for their development workflow

• **Inquisitive users** benefit from the *newest API console* powered by OpenAPI & Swagger

• **Casual users** enjoy up-to-date documentation and *accurate and comprehensive JSON and XML examples*
Next Steps

• If you’re interesting in exploring this further:
  • Check out the new OpenAPI support
  • Provide feedback in the Dev Network forum
  • Share your experience in a Dev Network blog

• Note that this is an emerging standard and very much a work in progress.

Bonus... a peek behind the scenes
THANK YOU!
josh.weisman@exlibrisgroup.com