Extending Your Library with the Alma Open Platform

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• State of the Alma Open Platform
• Open Platform Highlights
• Wrap-Up
State of the Alma Open Platform
## Alma Open Platform

### Integrations & Standards
- Widely adopted standards
- Configure integrations with other systems

### REST APIs
- Sound REST practices
- Data
- Workflows

### Community
- Blog
- Forum
Recently Released in the Open Platform

- **Ex Libris Identity Provider**
  Secure authentication for internal users

- **APIs for Finance Workflow**
  Integration with ERP system via API

- **Local Authority APIs**
  Full CRUD support for local authority records.

- **Other APIs**
  Fines & fees reports, filters for invoices, purchase req.

- **Acquisitions APIs**
  Invoice CRUD, restriction profile for vendors

- **NEW Developer Network**
  Updated and improved developer network
Coming Soon

MODS Support
Support for MODS format in publishing and SRU

OpenID Connect
Additional authentication protocol

REST APIs
Continual API improvements, e.g. adding “expected due date” to item API

Alma Apps
Just announced – framework to allow development of apps which will run inside of Alma.
Alma Open Platform in Numbers

- 1.1 M Webhooks fired from Alma last month
- 200 REST APIs offered by Alma
- 30 Different standards supported by Alma
- 5 million API calls are made by Alma institutions every single day

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2019 Update – Investment in the Open Platform

FROM

CA API Gateway
Version 8.2

TO

CA API Gateway
Version 9.2

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
Enhanced Sharing Platform

• Even easier to share your story
• Improved blog editor
• More visibility for your content
DEMO: Updated Developer Network
Open Platform Highlights
Open Platform Highlights

- **New API Console**
  Rich examples with full models, integrated API keys, easy-to-use “try it”

- **New Digital Features**
  Automate full text OCR and support for adaptive video streaming

- **Finance APIs**
  Full workflow for integrating with ERP systems supported via APIs.

- **OpenAPI Support**
  Integrate with toolsets that support the OpenAPI standard
New API Console

• New API Console powered by Swagger Tools and OpenAPI

• Additional new features make it easier to use than the previous console
Context-aware

• Server pre-populated
• API Keys loaded automatically
• Create/Update/Delete APIs hidden for read-only keys
# API Parameters

## Parameters, types and default values

### POST /almaws/v1/users Create user

This Web service creates a new user.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>social_authentication</td>
<td>When customer parameter social_authentication='True': Send social authentication email to patron. Default value: False.</td>
</tr>
<tr>
<td>send_pin_number_letter</td>
<td>The email notification for PIN setting change will be sent</td>
</tr>
<tr>
<td>source_institution_code</td>
<td>The code of the source institution from which the user was linked. Optional</td>
</tr>
<tr>
<td>source_user_id</td>
<td>The ID of the user in the source institution. Optional.</td>
</tr>
</tbody>
</table>
API Request Body

- **Content Types**
- **Model**
- **Example**
- **Download**
- **Copy to clipboard**
API Response Body

• Content Types
• Model
• Example
• Download
• Copy to clipboard
API Responses

- Other responses
- Possible error codes

<table>
<thead>
<tr>
<th>Error Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>401676</td>
<td>'No valid XML was given.'</td>
</tr>
<tr>
<td>401851</td>
<td>'User with identifier of type Y already exists.'</td>
</tr>
<tr>
<td>401664</td>
<td>'Mandatory field is missing: X'</td>
</tr>
<tr>
<td>401852</td>
<td>'Given user group is not legal.'</td>
</tr>
<tr>
<td>401853</td>
<td>'External Id must be empty for internal user.'</td>
</tr>
<tr>
<td>401854</td>
<td>'External Id must be given for external user.'</td>
</tr>
<tr>
<td>401855</td>
<td>'The account type 'internal with external authentication' is currently not supported.'</td>
</tr>
<tr>
<td>500038</td>
<td>'New password must be at least 8 characters long and must not include the user-name or any commonly used password.'</td>
</tr>
<tr>
<td>401857</td>
<td>'The given user account type is illegal (must be INTERNAL/EXTERNAL).'</td>
</tr>
<tr>
<td>401658</td>
<td>'General Error - Failed to create new user'</td>
</tr>
</tbody>
</table>
| 401853     | 'Given X type (Y) is not supported for given user record type (Z).'
| 401864     | 'Given X type (Y) is invalid.' |
| 401651     | 'Source institution not valid or not part of fulfillment network.' |
| 60224      | 'Organization institution not found.' |
| 60225      | 'Fulfillment network not found.' |
| 60226      | 'Fulfillment network copied user not found.' |
| 60227      | 'Linked account for user already exists.' |
| 60228      | 'Failed to create linked user account.' |
| 60231      | 'Failed to link user due to identifier issues.' |
| 60232      | 'Failed to link user due to user group empty.' |

Internal Server Error
Try it

• Set parameters
• Set body
• Execute
Try It

• CURL Syntax
• Request URL
• Response code & body
Resources: New API Console

• Console:
  https://developers.exlibrisgroup.com/console

• Blog:
  https://developers.exlibrisgroup.com/blog/making-the-most-of-the-new-api-console/
New Digital Features

- Convert Video to Web-Friendly Formats
- Full-text Extraction
Video conversion

• Allows any video to be shown with the Alma viewer
  • E.g. avi to MPEG-4

• Convert to HTTP Live Streaming (HLS) format
  • Video begins playing right away
  • User can jump to any place in the video
  • Playback automatically adjusts quality to user’s bandwidth

• Executed via the Media Conversion job
Full-text Extraction

• Automatically extract full text from images in the Alma digital repository

• Full text extraction job

• Text is searchable in Book Reader Viewer

• Extracted text can be accessed in Representation Editor and via URI

• Executed via the Full text extraction job
Automate Full-text Extraction: Flowchart

NEW! Support for adding 1000 members to set per call
DEMO: Full-text Extraction in Digital Repository
Tip: Using jq to manipulate JSON

“jq is a lightweight and flexible command-line JSON processor.”
- [https://stedolan.github.io/jq/](https://stedolan.github.io/jq/)

- Everything from pretty print to mapping and transforming

```jq
jq -c '{members:{member: (.
representation_file |
map({id:.pid}))}}'
```

- Create a new object with a member property
- Map the array represented by representation_file to a new array of id fields
Resources: New Digital Features

• Blogs: https://developers.exlibrisgroup.com/blog/tag/digital


• JQ:
  • https://stedolan.github.io/jq/manual/
Integration with Finance/ERP Systems

• Alma supports file-based integration with Finance/ERP systems

• Most popular integrations are:
  • Export invoices to be paid
  • Import invoices after processing by ERP
Integration with Finance/ERP Systems

• Standard flow
  • Export XML file
  • Transform to format supported by ERP
  • Import to ERP
  • Export from ERP after payment
  • Transform to format supported by Alma
  • Import to Alma
Integration with Finance/ERP Systems
NEW Support for ERP Integration Via APIs

Get invoices ready to be paid:
GET /acq/invoices?invoice_workflow_status=Waiting...

Update invoice as sent to ERP:
POST /acq/invoices/{id}?op=mark_in_erp

Update invoice as paid:
POST /acq/invoices/{id}?op=paid/rejected
Automate ERP Workflow

Invoices approved and ready to be paid

Get invoices
GET /acq/invoices?invoice_workflow_status=Waiting%20to... 

Mark invoice as sent to ERP
POST /acq/invoices/{id}?op=mark_in_erp

Interact with ERP

Pay invoice

Mark invoice as rejected
POST /acq/invoices/{id}?op=rejected

Paid?

No

Invoice closed in Alma

Yes

Return payment details

Mark invoice as paid (with payment details)
POST /acq/invoices/{id}?op=paid
DEMO: Finance APIs
Resources: Finance APIs

• Blogs:  
  https://developers.exlibrisgroup.com/blog/tag/finance

• Code sample:  
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.)
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.

- **Download the OpenAPI specification for these APIs in JSON or YAML format:**
  - ☁ YAML
  - ☁ JSON

Swagger Codegen

Download an SDK powered by the [Swagger Codegen](#):

Select client language:

- `csharp`

Download SDK

Swagger Editor

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.

[View this API specification in the Swagger Editor](#)
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 JSON and XML examples*
DEMO: OpenAPI Support
Wrap Up
Important Resources

• **Getting started**
• Demos/samples:
  • General
  • C#
  • Java
  • Angular
  • Ruby
• **API Thresholds**
• **Working with the APIs in a network**
Summary

• APIs and integration protocols allow you to extend Alma beyond its built-in features

• Documentation, samples, and standards allow your developers to focus on your specific requirements and not on “plumbing”

• You’re a critical part of the community- share your efforts on the Developer Network!
THANK YOU!
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