Unlocking Your Library with the Alma Open Platform

ELUNA 2017 | Schaumburg, IL

Josh Weisman | VP Development, Resources Management
Agenda

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

Integrations
- Widely adopted standards
- Configure integrations with other systems

REST APIs
- Sound REST practices
- Data
- Workflows

Community
- Blog
- Forum
The ABCs of Integrations

CAS    CMS    EDI    ERP    LDAP
JSON-LD  NCIP  OAI-PMH  OAuth  RDA/RDF
RFID    SAML2  SIP2   SIS    SRU
SWORD    z39.50
Growth of REST APIs

ALMA API GROWTH

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Growth of REST API Usage

• We’ve seen the slides- 2M+ REST API calls per day; more REST API calls than screen views in Alma, etc.

• Testament to the creativity and productivity of the Alma developer community

So congratulations to YOU!
Active Community

**Active Blog**
- Highest frequency of blog posts - at least weekly
- ~50% contribution from the community

**Active Forum**
- 275+ forum discussions
- 900+ messages
Open Platform Highlights
OPEN PLATFORM HIGHLIGHTS

1. **Tableau Web Data Connector**
   - Access library data in Tableau visualizations
   - Open source and open to everyone

2. **SWORD Digital Deposit Protocol**
   - Deposit digital materials into Alma programmatically using Alma’s support for the SWORD protocol

3. **Webhooks**
   - Alma initiates calls when events happen
   - Sends payload to customer-hosted REST endpoint

4. **Login via Email**
   - Allows students to log in with a “magic link”, and without a password
   - Reduces password fatigue

5. **Process Orchestration**
   - APIs to manage processes and sets
   - Script maintenance jobs and chain activities together

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Tableau Web Data Connector
Tableau Web Data Connector

• Tableau provides a way to visualize data from various sources
  • Many customers are already using Tableau
• Can aggregate and display data from various sources
  • How can we include library data as well?
• Tableau’s “Web Data Connector” technology can be used to import data from APIs

Announcing an Ex Libris web data connector for use by all Ex Libris customers! The connector is open source and available for everyone.
Tableau WDC: Open Source on GitHub

Ex Libris Tableau Web Data Connector

This project provides a way to access data from Ex Libris Analytics (Alma or Primo) with Tableau Desktop. To access your Ex Libris data in Tableau, you define a report in Analytics with the desired data. Then add a data source of web data connector to your Tableau workbook for each analytics report you’re interested in. Step by step instructions are available at this blog post.

For more information on Web Data Connectors, see the Tableau Online Help.
Tableau WDC: Configure Connection

Alma Tableau Web Data Connector

API Key: e.g. 170x04fbcedf683983xxd4323bx0xx0

Report Path: e.g. /shared/Alma/Fulfillment/Reports/Count of Items Loaned by Patron Group

The path of the Analytics report. See this blog post for more information on how to retrieve the path.

Region: NA

Max number of rows: 600

Get data
Tableau WDC: Retrieve Schema

Count of Items Loaned by Patron Group

<table>
<thead>
<tr>
<th>Count of Items Loaned by Patron Group</th>
<th>Abc</th>
<th>Library Name</th>
<th>Report</th>
<th>Loan Year</th>
<th>Patron Group</th>
</tr>
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<tbody>
<tr>
<td>0</td>
<td>0</td>
<td></td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

Update Now
Automatically Update
Tableau WDC: Retrieve Data

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<table>
<thead>
<tr>
<th>Library Name</th>
<th>Loan Year</th>
<th>Count of Items Loaned by Patron Group</th>
<th>Count of Items Loaned by Patron Group</th>
<th>Count of Items Loaned by Patron Group</th>
<th>Count of Items Loaned by Patron Group</th>
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</thead>
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<td>2016</td>
<td>Carrel</td>
<td>2.00</td>
<td>1,166.00</td>
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</tr>
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<td>2015</td>
<td>Carrel</td>
<td>4.00</td>
<td>1,634.00</td>
<td>1,634.00</td>
</tr>
<tr>
<td>Main Library</td>
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<td>Carrel</td>
<td>8.00</td>
<td>1,166.00</td>
<td>1,166.00</td>
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<tr>
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<td>Community Borrower</td>
<td>2.00</td>
<td>1,634.00</td>
<td>1,634.00</td>
</tr>
<tr>
<td>Graduate Library</td>
<td>2016</td>
<td>Community Borrower</td>
<td>2.00</td>
<td>1,166.00</td>
<td>1,166.00</td>
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<td>4.00</td>
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<td>Community Borrower</td>
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<td>1,634.00</td>
</tr>
</tbody>
</table>
Tableau WDC Links

- Blog post
- “How to use” presentation
- Github Project
SWORD Digital Deposit Protocol
SWORD (Simple Web-service Offering Repository Deposit) is an interoperability standard that allows digital repositories to accept the deposit of content from multiple sources in different formats (such as XML documents) via a standardized protocol.

Wikipedia
SWORD Support in Alma

• Alma SWORD support enables an institution to create a custom deposit interface

• The workflow can be as basic or involved as desired
  • From only submitting a deposit to a full approval workflow including return edit

• Standard SWORD client toolkits can be used, such as:
  • Java: https://github.com/swordapp/JavaClient2.0
  • Ruby: https://github.com/swordapp/sword2ruby
  • Python: https://github.com/swordapp/python-client-sword2
  • PHP: https://github.com/swordapp/swordappv2-php-library/
### SWORD Support in Alma

<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GET /sd</td>
<td>Get Service Document</td>
</tr>
<tr>
<td>GET /edit/&lt;deposit-id&gt;</td>
<td>Get Deposit details</td>
</tr>
<tr>
<td>PUT /edit/&lt;deposit-id&gt;</td>
<td>Replace metadata</td>
</tr>
<tr>
<td>POST /collection/&lt;deposit_profile_id&gt;</td>
<td>Create resource</td>
</tr>
<tr>
<td>POST /edit-media/&lt;deposit_id&gt;</td>
<td>Add content</td>
</tr>
<tr>
<td>DELETE /edit-media/&lt;deposit_id&gt;/&lt;filename&gt;</td>
<td>Delete content</td>
</tr>
<tr>
<td>DELETE /edit/&lt;deposit-id&gt;</td>
<td>Withdraw deposit</td>
</tr>
<tr>
<td>PUT /edit/&lt;deposit-id&gt; &quot;In-Progress: false&quot;</td>
<td>Submit in progress deposit</td>
</tr>
</tbody>
</table>
DEMO

Getting Started with SWORD Digital Deposits

Building a Deposit Application using SWORD
SWORD Links

- [Developer Network Documentation](#)
- [SWORD blogs](#)
Webhooks
Alma Webhooks

• New paradigm for communicating with Alma

• When certain events happen in Alma, Alma calls out to a customer’s REST endpoint with a defined payload
Alma Webhook Benefits

• Alternative to “polling”- push rather than pull

• Respond to events in the system when they occur

• Asynchronous architecture

• Reduce API calls

Source: http://www.webhooks.org
Alma Webhook Support

• Job End

• Notifications

• User update – **NEW** in June 2017

• Others coming soon

https://developers.exlibrisgroup.com/blog/tag/Webhooks
Implementing a Webhook Listener

- **Challenge - GET**
  - Called when webhook listener is registered in Alma

- **Webhook handler - POST**
  - Called each time a particular event happens
  - Provides general information along with an event-specific payload
  - Includes a signature header to ensure the request came from Alma
DEMO

Webhook listener
Webhooks Links

- [Developer Network Documentation](#)

- [Webhooks blogs](#)
Login via Email
Login via Email

- Users are registered in Alma with an email address by the circulation desk (or by the RESTF APIs)
- When users wish to login to Primo, they select the “login via email” option and provide their registered email address
Login via Email

• An email with a “magic link” is sent to the user. The user can click the link within 30 minutes and is automatically logged in to Primo. No password required.

• The link is cryptographically signed to prevent spoofing
Login with Email
Process Orchestration
Process Orchestration Explained

**Orchestration** is the automated arrangement, coordination, and management of computer systems, *middleware and services*.


- Alma performs bulk work on sets of various types (bibliographic records, users, items, etc.)
- The work to be performed is defined in jobs of many types (bibliographic record export, remote storage, metadata import, etc.)
- Alma facilitates orchestration workflows with APIs to manage jobs and sets
Key APIs

• Jobs
  • GET jobs, job details
  • POST to run a job (scheduled or manual)

• Job instances
  • GET job instance details (status, outcomes, etc.)

• Sets
  • GET sets, set details
  • Create/delete itemized or logical set
  • Add/remove members from sets
Create a Set

Resource URL

URL Parameters

Query string Parameters

Body Parameters

Output

Possible Error Codes

Web service for creating a set.

You can use this API to create 2 types of sets:
1. Itemized set
2. Logical set

Creating logical sets is supported for inventory related entities (not supported for PO-Lines, Users etc).
It is possible to create an itemized set and populate it from a logical set by setting the logical set id in the fromLogicalSet parameter.
It is also possible to create an itemized set which is based on MD import job by providing job instance id and population.
For more details about MD import itemized set click here

Details regarding the syntax for creating Logical Sets can be found here

Logical Set Query Reference

Introduction

The 'Create a Set' API can be used to create logical sets for Resource Management content types (Bibs, Items, Portfolios, Digital representations, etc.).
The exact syntax which is needed for creating a set using the API can be determined by first creating a set using the UI, running the 'Retrieve a Set' API to view the syntax, and then use the provided syntax as a template for creating other similar logical sets using the API. An example and detailed explanation can be found in this blog post.

Examples

A set of Physical items can be created using criteria from the Bib record, the Holdings record and the Item record. This example shows a search for items using fields from the related Bib record and the location (which is stored under the Holdings record):

```
ITEM WHERE Bib.MMS (title CONTAIN 'history') and
       Holdings (holding_library OUTER_EQUAL 'NYU')
```

The syntax begins with the type of set, in this case ITEM. Then it lists the limiting criteria - first the level, followed by triplets of field code, operator, and value.

The next example demonstrates a search for titles which contain either 'history' or 'writing' in the title:

```
BIB_MMS where Bib.MMS (title CONTAIN 'history' OR title CONTAIN 'writing')
```

Here the two criteria triplets are separated by the Boolean operator or.

List of Fields and Operators

The below table provides a reference of all indexes for the relevant Resource Management entities in Alma, as configured for the Guest Sandbox. For each index, the level, field code, and supported operators are listed.

<table>
<thead>
<tr>
<th>Level</th>
<th>Field</th>
<th>Code</th>
<th>Operations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bib.MMS</td>
<td>Content type code</td>
<td>content_type_code</td>
<td>NOT_EQUAL, OUTER_EQUAL, EMPTY</td>
</tr>
<tr>
<td>Bib.MMS</td>
<td>Carrier type code</td>
<td>carrier_type_code</td>
<td>NOT_EQUAL, OUTER_EQUAL, EMPTY</td>
</tr>
<tr>
<td>Bib.MMS</td>
<td>Title</td>
<td>title</td>
<td>NOT_EQUAL, OUTER_EQUAL, EMPTY</td>
</tr>
<tr>
<td>Bib.MMS</td>
<td>Originating System</td>
<td>mms_originatingSystem</td>
<td>CONTAIN, EQUAL, EMPTY</td>
</tr>
<tr>
<td>Bib.MMS</td>
<td>Source</td>
<td>dc_source</td>
<td>NOT_EQUAL, OUTER_EQUAL, EMPTY</td>
</tr>
<tr>
<td>Bib.MMS</td>
<td>Type</td>
<td>type</td>
<td>CONTAIN, EQUAL, OUTER_EQUAL, EMPTY</td>
</tr>
</tbody>
</table>
DEMO

Build a logical set

Run a manual job
Process Orchestration Links

• **Jobs & Sets APIs** on the Developer Network

• Blog: [Working with the Alma Jobs API](#) 

• Other [blog posts](#) on Jobs
Wrap Up
• Blog RSS
• Google is your friend
• Configuring Apps- environment, APIs, and permissions
• The forum is the place to get help
Important Links

- **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

ejosh.weisman@exlibrisgroup.com