

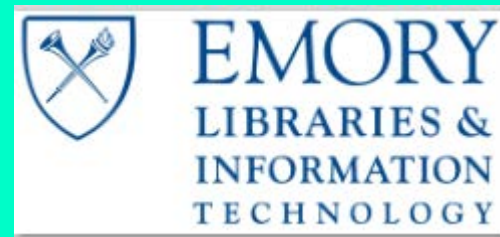


A little linked data

from our systems and things to do with it.

Laura Akerman, Discovery Systems and Metadata Librarian
Emory University

Code4Lib Southeast 2018, Atlanta, Ga. July 27, 2018





Linked Open Data Working Group

I've been Coordinator 2017-18 (and member since 2014)

- Just for Ex Libris (Proquest) product users.
- Our most recent use cases and presentations are on YouTube!
- ALMA: Publishing BIBFRAME (using LC conversion tools) from Alma and APIs to get it. Also a couple more flavors -
- Primo, a place to put URIs in PNX, and some add-on widgets that fetch linked data and add to Primo display.
- New/beta: Adding schema.org - sitemap - search engine optimization
- On the Roadmap for Alma: URI lookups for catalogers
- On the Roadmap for Alma: **"Reference instance" of native linked data editing.**



If you don't have Alma, you can get B

1. Export some records from your ILS in MARCXML
2. Use

or



We used them for

Amanda Xu, Kirk Hess & Laura Akerman (2018) From MARC to BIBFRAME 2.0: Crosswalks, Cataloging & Classification Quarterly, 56:2-3, 224-250, DOI: [10.1080/01639374.2017.1388326](https://doi.org/10.1080/01639374.2017.1388326)

Oxygen

• http_id.loc.gov_ontologies_bibframe.rdf.xml x • edectic.rdf.xml x • carver_fertilizer_marc21.xml x • **Bibframeoutput film.xml** x • CDLMatc ◀ ▶ ☰

rdf:RDF bf:Work bf:relatedTo bf:contribution

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:rdfs="http://www.w3.org/2000/01/rdf-schem
3   <bf:Work rdf:about="http://example.org/990036404510302486#Work">
4     <bf:adminMetadata>
5       <bf:AdminMetadata>
6         <bf:status>
7           <bf:Status>
8             <bf:code>c</bf:code>
9           </bf:Status>
10          </bf:status>
11          <bf:lc:encodingLevel>
12            <bf:lc:EncodingLevel>
13              <bf:code>u</bf:code>
14            </bf:lc:EncodingLevel>
15          </bf:lc:encodingLevel>
16          <bf:descriptionConventions>
17            <bf:DescriptionConventions>
18              <bf:code>isbd</bf:code>
19            </bf:DescriptionConventions>
20          </bf:descriptionConventions>
21          <bf:changeDate rdf:datatype="http://www.w3.org/2001/XMLSchema#dateTime">2016-05-01T14:42:46</bf:char
22          <bf:creationDate rdf:datatype="http://www.w3.org/2001/XMLSchema#date">2015-08-27</bf:creationDate>
23          <bf:identifiedBy>
24            <bf:Local>
25              <rdf:value>990036404510302486</rdf:value>
26            </bf:Local>
27          </bf:identifiedBy>
28          <bf:source>
29            <bf:Source>
```

! element "bf:contribution" not allowed here; expected the element end-tag or text



BIBFRAME at LOC

- At ALA Annual this year, Beecher Wiggins says LC is committed to replacing MARC with BIBFRAME for cataloging.
Quoted as saying "**2-5 years**"!
- Working on converting Authority records for Uniform titles to "Work" records and matching them up with BIBFRAME descriptions.
 - Will be looking for a vendor
- Will need to backward convert BIBFRAME to MARC21 ... for those who need it.

BIBFRAME on my mind

- Problems and questions with BIBFRAME 2.0:
 - blank nodes,
 - "provenance" for the MARC record is attached to the Work!
 - Where to put RDA/FRBR Expression - especially, identifiers?
 - Authority data for Uniform titles - some may become "work-expression" records?
 - What about holdings and items? How do they connect with BIBFRAME
- What do you think?

BIBFRAME from the new web client

ExLibris Alma

★ Acquisitions Resources Fulfillment Admin Analytics

< Record View Back

What shall we do for fertilizers next year / by G. W. Carver.

MMS ID	990006022220302486	Suppress from publishing	No	Export to WorldCat	Don't publish
Brief level	Full	Record format	marc21		
Originating system	BACKSTAGE	Originating system ID	000602222-EMU01	Originating system version	20160515130857.0

MARC BIBFRAME

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?><rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
xmlns:bf="http://id.loc.gov/ontologies/bibframe/" xmlns:bflc="http://id.loc.gov/ontologies/bflc/"
xmlns:madsrdf="http://www.loc.gov/mads/rdf/v1#" xmlns:rdfs="http://www.w3.org/2000/01/rdf-schema#"
<bf:Work rdf:about="https://open-na.hosted.exlibrisgroup.com/alma/01GALL_EMORY/bf/entity/work/990006022220302486">
  <bf:adminMetadata>
    <bf:AdminMetadata>
      <bf:generationProcess>
        <bf:GenerationProcess>
          <rdfs:label>DLC marc2bibframe2 v1.4.0-SNAPSHOT: 2018-04-25T09:33:52Z</rdfs:label>
        </bf:GenerationProcess>
      </bf:generationProcess>
    </bf:Status>
    <bf:Status>
      <bf:code>c</bf:code>
    </bf:Status>
  </bf:status>
```

BIBFRAME FROM Alma

https://open-na.hosted.exlibrisgroup.com/alma/01GALI_EMORY/bf/entity/instance/990006022220302486

DLC marc2bibframe2 v1.4.0-SNAPSHOT. 2018-04-29T01:03:54Z c u aacr 990006022220302486 2016-05-15T13:08:57 2006-07-12 EMU
EMU UtOrBLW Carver, George Washington, 1864?-1943. Carver, George Washington, 1864?-1943. 1001 \$aCarver, George
Washington,\$d1864?-1943.\$0http://id.loc.gov/authorities/names/n50034776\$0http://viaf.org/viaf/sourceID/LC/n50034776 Carver, George
Washington, 1864?-1943. What shall we do for fertilizers next year / What shall we do for fertilizers next year / What shall we do for fertilizers
next year / What shall we do for fertilizers next year text rdacontent Compost. Compost. lsh Organic fertilizers. Organic fertilizers. lsh
Fertilizers. Fertilizers. lsh African American author. African American author local GEU African American pamphlet. African American
pamphlet. local GEU African American publisher. African American publisher. local GEU Tuskegee Normal and Industrial Institute.
Experiment Station. 7102 \$aTuskegee Normal and Industrial Institute. \$bExperiment Station. \$0http://id.loc.gov/authorities/names
/n85231692\$0http://viaf.org/viaf/sourceID/LC/n85231692 Tuskegee Normal and Industrial Institute. Experiment Station. Woodson, Carter
Godwin, 1875-1950, 7001 \$aWoodson, Carter Godwin,\$d1875-1950,\$eformer owner \$5GEU\$0http://id.loc.gov/authorities/names
/n50048494\$0http://viaf.org/viaf/sourceID/LC/n50048494 Woodson, Carter Godwin, 1875-1950, GEU former owner. former owner
Association for the Study of African-American Life and History, 7102 \$aAssociation for the Study of African-American Life and
History,\$eformer owner \$5GEU\$0http://id.loc.gov/authorities/names/n02001031080\$0http://viaf.org/viaf/sourceID/LC/n02001031080
Association for the Study of African-American Life and History, GEU former owner. former owner What shall we do for fertilizers next year /
What shall we do for fertilizers next year / What shall we do for fertilizers next year 1916 000602222EMU01 Aleph u2729712 ocm70288522
o70288522 Sirs What shall we do for fertilizers next year / What shall we do for fertilizers next year / What shall we do for fertilizers next
year / What shall we do for fertilizers next year by G. W. Carver Tuskegee, Ala. Experiment Station, Tuskegee Normal and Industrial Institute
1916 [Tuskegee, Ala.] : Experiment Station, Tuskegee Normal and Industrial Institute, 1916. 1 folded sheet (2 unnumbered pages) 25 cm
unmediated rdamedia volume rdacarrier Cover title. action digitized 20150812 pda GEU-S

Documented on Developer Network:

<https://developers.exlibrisgroup.com/alma/apis/b>

[BJcCRbmJlr9MLGJF78JRyq7vUf/af2fb69d-64f4-42bc-bb05-d8a0ae56936e](https://developers.exlibrisgroup.com/alma/apis/bjcrbmJlr9MLGJF78JRyq7vUf/af2fb69d-64f4-42bc-bb05-d8a0ae56936e)

[ncwZbtv](#)

Bibframe FROM Publishing

The screenshot shows the 'Publishing Profile Details' form in Alma. At the top, there are 'Cancel' and 'Save' buttons. Below them, the 'Profile Name' is 'Akerman_bf' and the 'Profile Id' is '13766547600002486'. The form is divided into three main sections: 'Profile Details', 'Publishing Parameters', and 'Content'. The 'Profile Details' section includes 'Content Type' (Bibliographic), 'Profile Name' (Akerman_bf), and 'Profile Description' (Publish specified set as BIBFRAME). The 'Publishing Parameters' section includes 'Status' (Active), 'Scheduling' (Not scheduled), 'Publishing Mode' (Incremental), and an 'Email Notifications' button. The 'Content' section includes 'Set name' (cognition), 'Publish on' (Bibliographic level), and 'Output format' (BIBFRAME Bibliographic).

< Publishing Profile Details Cancel Save

Profile Name Akerman_bf Profile Id 13766547600002486

Profile Details Data Enrichment

Profile Details

Content Type Bibliographic

Profile Name * Akerman_bf

Profile Description Publish specified set as BIBFRAME

Publishing Parameters

Status ☒ Active ☐ Inactive

Scheduling Not scheduled

Publishing Mode ☒ Incremental ☐ Full ☐ Date Range ☐ Republish Set

Email Notifications

Content

Set name * cognition

Publish on: Bibliographic level

Output format BIBFRAME Bibliographic

So say you want more than one record... you can move a set in Alma from what criteria or selection you want, and do a one-off incremental publish

Then what do you do with it?

Well, you could just peruse it, or you could put in a triplestore



Free small cloud based database!

You can IMPORT FILE, copy/paste a record, USE API



Import

RDF

Tabular (OntoRefine)



Explore



SPARQL



Monitor



Setup



Help

Import

Local files

Remote content

Text area

Import your RDF data

```
</bf:note>
<bf:itemOf rdf:resource="https://open-na.hosted.exlibrisgroup.com/alma/01GALI_EMORY/bf/entity/instance/99000602220302486"/>
<bf:applicableInstitution>
  <bf:Agent>
    <bf:code>GEU-S</bf:code>
  </bf:Agent>
</bf:applicableInstitution>
</bf:item>
</bf:hasItem>
</bf:Instance>
</rdf:RDF>
```

Turtle

 Import

RDF/JSON

JSON-LD

RDF/XML

Then add more triples

- Bibframe -> Bibframe ontology
- Bibframe -> id.loc.gov authority data for Persons, etc.
- id.loc.gov authority -> VIAF
- no VIAF link to dbpedia or wikidata ☹ -skip it!
- Wikidata - about persons, subjects etc. -- manually find it or.. ?
- Added (manually) an owl:sameAs between the authority ID and Wikidata ID for each entity:

```
<http://id.loc.gov/authorities/names/n50034776>  
<http://www.w3.org/2002/07/owl#sameAs>  
<http://www.wikidata.org/entity/Q296898>
```

Visualise...

Or, build an interface. Sample code c

```
16 <script type=text/javascript>
17     (function () {
18         window.addEventListener("load",
19             function sparqlQuery() {
20                 var username = "<key>";
21                 var password = "<password>";
22                 var url = "https://rdf.ontotext.com/4134567067/Akerm_Bibframe_experiment/repositories/test1";
23                 var method = "POST";
24                 var str = [<"query goes here">].join("\n");
25                 var dataString = "query=" + encodeURIComponent(str);
26                 var xhr = new XMLHttpRequest();
27                 xhr.open(method, url, true);
28                 xhr.withCredentials = true;
29                 xhr.setRequestHeader("Authorization", "Basic " + btoa(username + ":" + password));
30                 xhr.setRequestHeader("Accept", "application/sparql-results+xml");
31                 xhr.setRequestHeader("Content-Type", "application/x-www-form-urlencoded");
32                 xhr.setRequestHeader("Content-Length", base64DecToArr(btoa(str)).buffer.byteLength);
33                 xhr.send(dataString);
34                 window.removeEventListener("load", sparqlQuery);
35             });
36     })();
37
38 </script>
```

?

A little linked data in Primo

Tech Blog



Using the Linked Data Integration API to Enhance Discovery

Steve Meyer on September 22nd, 2016

CODE & APPS

ALMA

At the University of Wisconsin-Madison we have been taking advantage of the Alma Linked Data integration API to enhance an experimental version of our local discovery system with info cards about some of the identities found in bibliographic records. See, for example, [Gertrude Stein on Picasso](#). The catalog will attempt to retrieve some brief biographical information about Pablo Picasso and Gertrude Stein for this record:

Pablo Picasso [Collapse](#)

Brief Biography

Description from Getty Linked Open Data: Long-lived and very influential Spanish artist, active in France. He dominated 20th-century European art. With Georges Braque, he is credited with inventing Cubism. (Sources: Grove Dictionary of Art online (1999-2002); LCNAF Library of Congress Name Authority File [n.d.])

<http://vocab.getty.edu/ulan/500009666>

So, what do you think?

Is what we're seeing so far enticing enough to make the jump to linked data?

What do you wish vendors would do or think about?

What does your institution plan to do?

Do you have a "vision"?

A little linked data links

IGELU-ELUNA Linked Open Data Working Group:

Website: <https://igelu.org/special-interests/lod>

Dashboard: <https://goo.gl/W8F1ga>

IGeLU Show and Tell LOD playlist: <https://goo.gl/L5616S>

BIBFRAME site: slides from Library of Congress BIBFRAME update forum at ALA 2018:

<https://www.loc.gov/bibframe/news/bibframe-update-an2018.html>

GraphDB Cloud Database Service

<https://cloud.ontotext.com/#/home>

MARCEdit: <https://marcedit.reeset.net/>

Oxygen: http://www.oxygenxml.com/xml_editor.html

OCLC Research webinar: introduction to Wikidata for Librarians:

<https://www.oclc.org/research/events/2018/06-12.html>

Wikidata entity page for George Washington Carver: <https://www.wikidata.org/wiki/Q296898> (view page source to see alternate formats such as rdf_xml or turtle)

Thank you!

Laura Akerman

works

at

with title

with email

Emory University Libraries

Discovery Systems and Metadata Librarian

liblna@emory.edu

Note: The opening image has nothing to do with linked data, except tangentially, it's a shot from a musical number, "Triplets" from the 1953 film of the musical, "The Bandwagon". Little triples, triplets, bad data?

https://youtu.be/UjW_yvrC0cE