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# **An Update: Introduction To BIBFRAME And Linked Data**

**By: Elizabeth Cramer and Andrea Leonard**

## **Abstract**

PDF of Presentation and Slides for NCLA-RTSS Fall Workshop, 2016. Update to presentation given on BIBFRAME and Linked Data at NCLA 2015.

**Cramer, E.** and **A. Leonard.** (2016). "An Update: Introduction to BIBFRAME and linked data." NCLA-RTSS Fall Workshop, 2016.

# An Update: Introduction to BIBFRAME and linked data

Elizabeth Cramer & Andrea Leonard

Appalachian State University

RTSS Fall Workshop 2016

# Introduction

Our motivation for this presentation:

We were asked by RTSS leaders to do an update to the presentation on BIBFRAME and linked data we gave at NCLA 2015

We offered that 2015 presentation because we had questions and we wanted answers and we want to stay informed

# BIBFRAME and linked data

What is BIBFRAME?

- What about MARC?

What is linked data?

What are the current challenges?

# What is BIBFRAME?

BIBFRAME is the bibliographic framework initiative headed by Library of Congress and Zepheira (a data management company) as an eventual replacement for MARC.

BIBFRAME is created with the idea of allowing data to break free from the “document-like” environment of the MARC record and onto the web.

BIBFRAME is built on web standards in order to connect library data with the data available on the web.

# What about MARC?

The MARC format severely limits what we can do with integrating bibliographic data into the web.

- Not used outside of libraries
- Inability to express relationships between resources and entities
- Higher possible error rate for MARC data stored as static text within a catalog “silo”

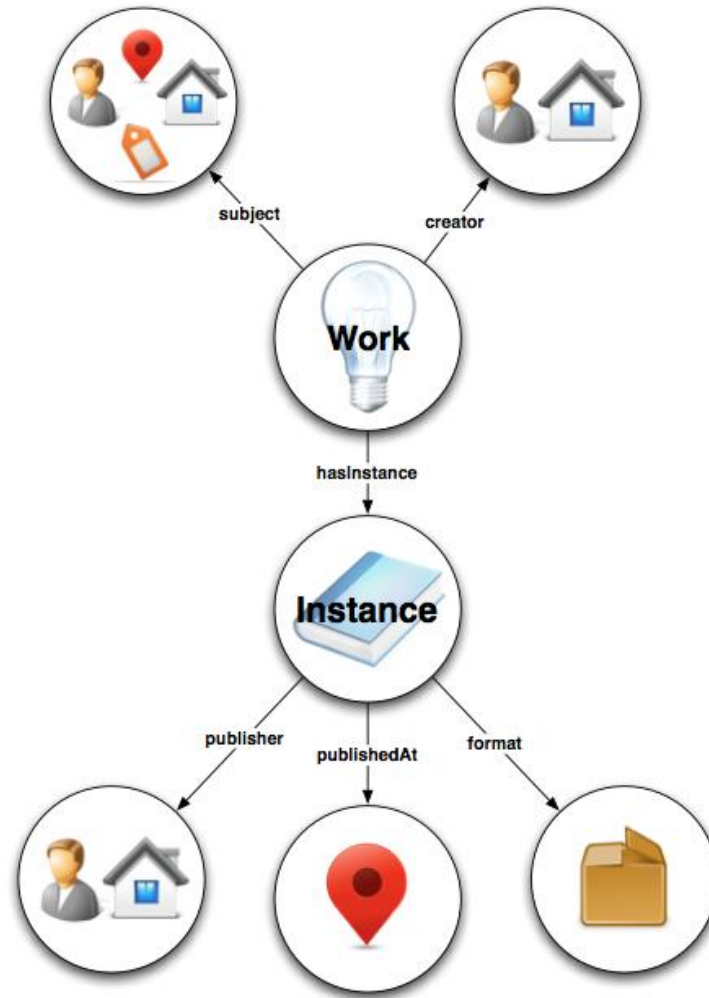


# MARC

010		2014044983
040		DLC #b eng #e rda #c DLC #d BTCTA #d BDX #d OCLCO #d OCLCF #d TXA #d CLU #d YDXCP #d NDS #d UCX #d WEA
020		9781442248717 (cloth : alk. paper)
050	0 0	Z688.5 #b .R48 2015
049		NJBB
245	0 0	Rethinking library technical services : #b redefining our profession for the future / #c edited by Mary Beth Weber.
264	1	Lanham : #b Rowman & Littlefield, #c [2015]
264	4	#c ©2015
300		xviii, 187 pages : #b illustrations ; #c 24 cm
336		text #b txt #2 rdacontent
337		unmediated #b n #2 rdamedia
338		volume #b nc #2 rdacarrier
504		Includes bibliographical references and index.
505	0 0	#g Introduction: What is technical services? / #r Mary Beth Weber -- #t The future of traditional technical services / #r Julie Renee Moore and James L. Weinheimer -- #t The state of technical services today / #r Mary Beth Weber -- #t The current state of bibliographic description / #r Sylvia Hall-Ellis -- #t Restructuring monograph acquisitions in academic libraries: Innovative strategies for the twenty-first century / #r Michael Luesebrink -- #t The management of electronic resources: An overview / #r Alice Crosetto -- #t Research data and linked data: A new future for technical services? / #r Sherry Vellucci -- #t Skills for the future of technical services / #r Erin E. Boyd and Elyssa Gould -- #t Breaking up is hard to do: The end of technical services?: A think piece on the future of technical services / #r Amy K. Weiss -- #t Interviews/feedback from the profession / #r Mary Beth Weber.
520		Will library technical services exist thirty years from now? If so, what do leading experts see as the direction of the field? In this look at the future of technical services, Mary Beth Weber, Head of Central Technical Services at Rutgers, has compiled a veritable who's who of the field to answer just these questions.
650	0	<a href="#">Technical services (Libraries)</a>
700	1	<a href="#">Weber, Mary Beth</a> , #e editor.

# BIBFRAME

loc.gov



<http://id.loc.gov/authorities/names/n79021164>



# BIBFRAME Editor (2015)

## BIBFRAME Editor

Get the code [here](#). In the meantime, select a Profile below to get started.

### BIBFRAME - Kitchen Sink Profiles

[New HeldItem](#)

[New Instance](#)

[New Work](#)

[New Work, Instance, & HeldItem](#)

### BIBFRAME - Simple Monograph

[New Holding](#)

[New Instance](#)

[New Work](#)

[New monograph \(New Work, Instance, and Holding\)](#)

## Work - Monograph

Authorized access point

Authorized access point

Set

Title

The great railway bazaar

Set

Title variation

Title Entity

Author

Person Organization Family Meeting Jurisdiction

Theroux, Paul e x

Editor

Person Organization Family Meeting Jurisdiction

Translator

Person Organization Family Meeting Jurisdiction

Date of work

Date of work

Set

1975 e x

Place of creation

Place

New York (N.Y.) e x

# BIBFRAME Editor (2016)

## Create Resource RDA Work

Monograph ▾

Creator of Work (RDA 19.2)

Principal Creator Other Creators

Brown, Margaret Tobin, 1867-1932   Author  

Notated Music ▾

Preferred Title for the Work (RDA 6.2.2)

Title

Serial ▾

Variant Title for the Work (RDA 6.2.3)

Title

Cartographic ▾

BluRay DVD ▾

Form of Work (RDA 6.3)

Form of Work

35mm Feature Film ▾

Cookbooks  

Audio CD ▾


Date of Work (RDA 6.4)

1966

+

Place of Origin of the Work (RDA 6.5)

Place

Denver (Colo.)  

Other Distinguishing Characteristic of the Work (RDA 6.6)

Other Distinguishing Characteristic of the Work (RDA 6.6)

+

Nature of the Content (RDA 7.2)

Nature of the Content (RDA 7.2)

+

Coverage of the Content (RDA 7.3)

Coverage of the Content (RDA 7.3)

+

Intended Audience (RDA 7.7)

Intended Audience (RDA 7.7)

+

# BIBFRAME Editor (2016)

ID: \_:bnodehBW1475541052

Type(s)

<http://bibframe.org/vocab/Genre>

bf:genre

<http://id.loc.gov/authorities/genreForms/gf2011026169>

bf:authorizedAccessPoint

Cookbooks

bf:label

Cookbooks

ID: \_:bnodegj1475541080

Type(s)

<http://bibframe.org/vocab/Place>

bf:hasAuthority

<http://id.loc.gov/authorities/names/n79055157>

bf:authorizedAccessPoint

Denver (Colo.)

bf:label

Denver (Colo.)

ID: \_:bnodeRai1475541145

Type(s)

<http://bibframe.org/vocab/Topic>

bf:hasAuthority

<http://id.loc.gov/authorities/subjects/sh2010008400>

bf:authorizedAccessPoint

Cooking

bf:label

Cooking

# What is linked data?

Linked data is the framework behind the semantic web.

Semantic web recognizes relationships between data.

- Semantic framework: Subject -- Predicate -- Object
- Example: Mark Twain -- Creator of -- Tom Sawyer

These relationships are known as “triples.”

# What is linked data?

The web can recognize these relationships between data based on the foundation of the web specific standards XML and RDF (Resource Description Framework)

RDF labels data and allows machines to recognize relationships between data






Mark Twain wrote Tom Sawyer


<http://id.loc.gov/authorities/names/n79021164>

<http://purl.org/dc/terms/creator>

<http://id.loc.gov/authorities/names/n79132704>

# The promise of linked data...

Google      

[All](#) [Images](#) [Videos](#) [Books](#) [News](#) [More ▾](#) [Search tools](#) 

About 24,800,000 results (0.51 seconds)


**Molly Brown**  
[www.mollybrown.org/](http://www.mollybrown.org/) ▾ Molly Brown House ▾  
Learn about the life and times of "Unsinkable" **Molly Brown** in her restored Victorian home in Denver, Colorado.


**Margaret Brown - Wikipedia, the free encyclopedia**  
[https://en.wikipedia.org/wiki/Margaret\\_Brown](https://en.wikipedia.org/wiki/Margaret_Brown) ▾ Wikipedia ▾  
Margaret "Maggie" **Brown** (née Tobin) (July 18, 1867 – October 26, 1932) (posthumously known as "The Unsinkable **Molly Brown**"), was an American socialite, philanthropist, and activist.  
[Early life](#) · [Passenger on the Titanic](#) · [Later life](#) · [Death](#)

**Molly Brown (Margaret Tobin) : Titanic Survivor Biography**  
[www.encyclopedia-titanica.org](http://www.encyclopedia-titanica.org) ▾ [1st Class Passengers](#) ▾  
Mrs **Margaret Brown (Molly Brown)** (née Tobin) ... **Molly Brown** (Margaret Tobin) was born on 18th July, 1867 (1), in Hannibal, Missouri, the daughter of John Tobin and Johanna Collins (2), both Irish immigrants. ... By the time Margaret Tobin **Brown** boarded Titanic at Cherbourg, France, she ...

**Molly Brown - Activist, Theater Actress, Philanthropist - Biography.com**  
[www.biography.com/people/molly-brown-20638583](http://www.biography.com/people/molly-brown-20638583) ▾  
Apr 1, 2016 - Philanthropist Margaret Tobin, better known as **Molly Brown**, was born on July 18, 1867, in Hannibal, Missouri. Sometimes referred to as "the Unsinkable **Molly Brown**," this survivor of the 1912 Titanic disaster has become the subject of many myths and legends throughout the years.

**Molly Brown avoids sinking with the Titanic - Apr 15, 1912 - HISTORY ...**  
[www.history.com/this-day-in-.../molly-brown-avoids-sinking-with-the-titanic](http://www.history.com/this-day-in-.../molly-brown-avoids-sinking-with-the-titanic) ▾ History ▾  
On this day in History, **Molly Brown** avoids sinking with the Titanic on Apr 15, 1912. Learn more about



**Margaret Brown** 

Socialite

Margaret "Maggie" Brown, was an American socialite, philanthropist, and activist. She became famous when, after surviving the 1912 sinking of the RMS Titanic in Lifeboat No. 6, she exhorted the crew to ... [Wikipedia](#)

**Born:** July 18, 1867, Hannibal, MO  
**Died:** October 26, 1932, Barbizon Hotel  
**Spouse:** James Joseph Brown (m. 1886–1909)  
**Buried:** Cemetery of the Holy Rood  
**Books:** The Unsinkable Molly Brown Cookbook  
**Children:** Catherine Ellen Brown, Lawrence Brown





# Margaret Brown



Socialite

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**Buried:** [Cemetery of the Holy Rood](#)

**Books:** [The Unsinkable Molly Brown Cookbook](#)

**Children:** [Catherine Ellen Brown](#), [Lawrence Brown](#)

# ...available today.



DENVER PUBLIC LIBRARY

[DPL HOME](#)

[CATALOG](#)

[SEARCH](#) ▾

[MY ACCOUNT](#) ▾

[EBOOKS](#)

[DIDN'T FIND IT?](#)

[HELP](#) ▾

[MOBI](#)

Title: **The Unsinkable Molly Brown Cookbook / By May Bennett Wills And Caroline Bancroft.**

Author: **Wills, May Bennett.**

Format: Book

Call Number: 641.5 W685un

Publisher, Date: Denver : Sage Books, 1966.

Description: 118 p. : ill., port. ; 22 cm.

Subjects: **Cooking.**

**Colorado -- Imprints -- Denver -- 1966.**

Other Author: **Brown, Margaret Tobin, 1867-1932.**

Notes: Includes index.

[Expand All](#) | [Collapse All](#)

## Where Is It?

Call Number	Shelf Location	Status	Circ Date	Type
-------------	----------------	--------	-----------	------

Central Library



# Challenges

- Legacy MARC records: [Comparison Service](#) and [MARC to BIBFRAME Transformation Service](#)
- Changing skill sets for metadata librarians
  - But will we have to be programmers?!
- Playing by the rules of the web
- Vendor cooperation

# Challenges

How will our work as catalogers change?

- [BIBFLOW](#)
- [LIBHUB](#)
- [Linked Data for Libraries \(LD4L\)](#)
- Linked Data for Production (LD4P)
- Linked Data for Libraries Labs

# possible lingering questions...

**Will** we still have a catalog?

**When** will BIBFRAME replace MARC?



**When** will BIBFRAME standards and tools be ready?

**Will** we still have a catalog?



[http://www.clipartpal.com/clipart\\_p](http://www.clipartpal.com/clipart_p)

# Will we still have a catalog?



Record 1 of 2  
[← Previous Record](#) | [Next Record →](#)


Title **Critical library instruction : theories and methods / edited by Maria T. Accardi, Emily Drabinski, and Alana Kumbler**  
Publisher **Duluth, Minn. : Library Juice Press, 2010**  
☆☆☆☆☆


[Permanent Link](#) [Cite this title](#)  
[Report a problem](#)

---


[Add a Review](#)

[Search Other Libraries](#)

 **SEARCH ABC Express**  
ASU-UNCA-WCU  
Delivery in about 2 days

**FIND MORE RESOURCES**  


[Info at Google Books](#)

**NEED HELP?**  


LOCATION	CALL #	STATUS	
<b>ASU MAIN STACKS</b>	Z711.25.C65 C75 2010 <a href="#">Nearby on Shelf</a>	NOT CHKD OUT	<a href="#">Map It!</a>

---

[Send via Text Message](#)

---

**Summary**

"A collection of articles about various ways of applying critical pedagogy and related educational theories to library instruction"--Provided by publisher.

**Terms of use** Descriptive content provided by Syndetics™, a Bowker service.

**Description** xvi, 341 p. : ill. ; 23 cm  
**Bibliography** Includes bibliographical references and indexes  
**Summary** "A collection of articles about various ways of applying critical pedagogy and related educational theories to library instruction"--Provided by publisher  
**Topical Subject** **Library orientation for college students**  
**Information literacy -- Study and teaching (Higher)**  
**Research -- Methodology -- Study and teaching (Higher)**  
**Academic libraries -- Relations with faculty and curriculum**  
**Critical pedagogy**  
**Contents** "There's nothing on my topic!" : using the theories of Oscar Wilde and Henry Giroux to develop critical pedagogy for library instruction / Elisabeth Pankl and Jason Coleman -- Information literacy and social power / Jonathan Cope -- Breaking the ontological mold : bringing postmodernism and critical pedagogy into archival educational programming / Lisa Hooper -- Grand narratives and the information cycle in the library instruction classroom / Sara Franks -- Depositories of knowledge : library instruction and the development of critical consciousness / Kim Olson-Kopp and Bryan M. Kopp -- Problem-based learning as teaching strategy / Elizabeth Peterson -- Re-visioning the library seminar through a lens of critical pedagogy / Caroline Sinkinson & Marv Caton Lineold -- Negotiating virtual

2011  
...five years ago

Stanford & Council on Library and Information Resources' Report:

**“Be part  
of the web  
- not just on it”**

# But will we still have catalogs?

## YES! Here's Libhub example record

(from 2015...evolving already)

### **The unsinkable Molly Brown cookbook, by May Bennett Wills and Caroline Bancroft**

<b>title</b>	The unsinkable Molly Brown cookbook
<b>titleStatement</b>	by May Bennett Wills and Caroline Bancroft
<b>creator</b>	 Wills, May Bennett
<b>contributor</b>	 Brown, Margaret Tobin, 1867-1932
<b>subject</b>	 Cooking  Colorado > Imprints > 1966. > Denver
<b>language</b>	eng
<b>catalogingSource</b>	DLC
<b>deweyNumber</b>	641.5
<b>illustrations</b>	> illustrations > portraits
<b>index</b>	no index present
<b>lcCallNumber</b>	TX715
<b>lcItemNumber</b>	.W736
<b>literaryForm</b>	non fiction

When will BIBFRAME replace MARC?

When will BIBFRAME standards and tools be ready?

Oct 2015: in 5-7 years?

(Oct 2016: 4-6 years!?)

It will be a phased process  
not a “flip of a switch”



# Hang onto your hat!

<b>2000</b>	<b>bluetooth, [location services capability beginning to be public...]</b>
<b>2001</b>	<b>iPods</b>
<b>2002</b>	<b>Mozilla Firefox; Roy Tennant: MARC Must Die</b>
<b>2003</b>	<b>Skype</b>
<b>2004</b>	<b>Facebook</b>
<b>2005</b>	<b>Youtube</b>
<b>2006</b>	<b>Nintendo Wii</b>
<b>2007</b>	<b>iPhones, Kindles</b>
<b>2008</b>	<b>Android, Spotify, 4G broadband, Google Chrome browser, Library of Congress Working Group Report on Future of Bibliographic Control</b>
<b>2010</b>	<b>iPads, electric cars</b>
<b>2011</b>	<b>W3C Library Linked Data Incubator Group Final Report published</b>
<b>2012</b>	<b>Google driverless cars, Library of Congress releases BIBFRAME model</b>

ht

res/

# how about NOW?

“Some libraries...wonder whether they should wait until  
BIBFRAME is “done”

“Don’t wait - iterate!”

- Eric Miller, Zepheira  
(Pesch and Miller, 2016, p. 4)

# Library.link Network

## THE LIBRARY.LINK NETWORK PROCESS



Locations, Strategic  
Purpose, Events, Services

Transform

Link

Publish

Consume



# It's happening NOW!

## Denver Public Library

Verizon LTE 3:27 PM  
duma key denver

duma key denver

ALL MAPS SHOPPING IMAGES VIDEOS

[The Real Life Duma Key | VisitFlorida.com](#)  
Visit Florida › en-us › articles › september

Stephen King fans, read on: Here's how you can experience his latest novel, ' Duma Key,' in real life on Florida's Gulf Coast.

[“Duma Key” By Stephen King – The Denver Post](#)  
The Denver Post › 2008/01/31 › duma-k...

Jan 31, 2008 - By The Denver Post | newsroom@denverpost.com .... life and into the one I lived on Duma Key.

[Duma Key, by Stephen King - Denver Public Library](#)  
Denver Public Library › link › portal › D...

Duma Key, by Stephen King. Creator · King, Stephen, 1947- · Language: eng. ( work) · Publication · New York, Scribner ...

[Duma key, Stephen King, \(sound recording\) - Denver Public Library](#)

The screenshot shows a mobile search interface. At the top, the status bar displays 'Verizon LTE' and '3:27 PM'. Below that, the search bar contains 'duma key denver'. A navigation bar below the search bar has tabs for 'ALL', 'MAPS', 'SHOPPING', 'IMAGES', and 'VIDEOS', with 'ALL' selected. The search results are displayed in a list format. The first result is from VisitFlorida.com, titled 'The Real Life Duma Key'. The second result is from The Denver Post, titled '“Duma Key” By Stephen King'. The third result is from the Denver Public Library, titled 'Duma Key, by Stephen King - Denver Public Library'. This result is highlighted with a hand-drawn black box and an arrow pointing to it from the bottom right. The fourth result is partially visible at the bottom, titled 'Duma key, Stephen King, (sound recording) - Denver Public Library'.

Get it at your Library!

# Duma Key, by Stephen King

New user? Register now!



Creator King, Stephen, 1947-

Language eng

(work)

Publication New York, Scribner, 2008

Extent 611 p.

Isbn 9781416552512

(instance)

## Subject

Accident victims -- Fiction

Florida Keys (Fla.) -- Fiction

Supernatural -- Fiction

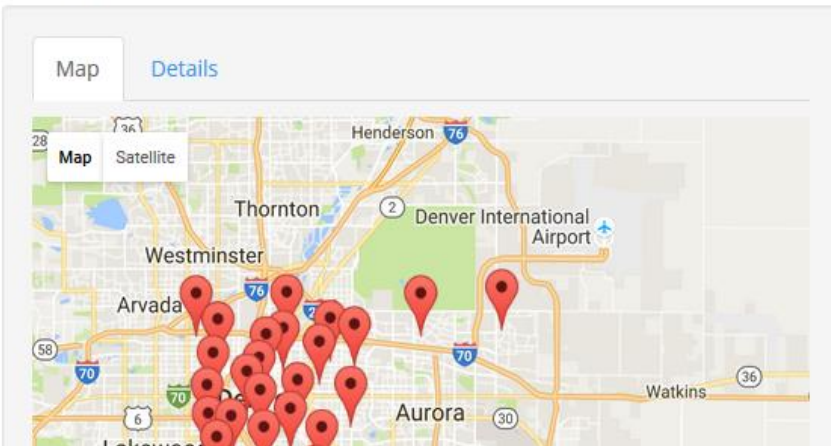
## Genre

Fiction

Data Legend

Data Feedback

## Library Locations

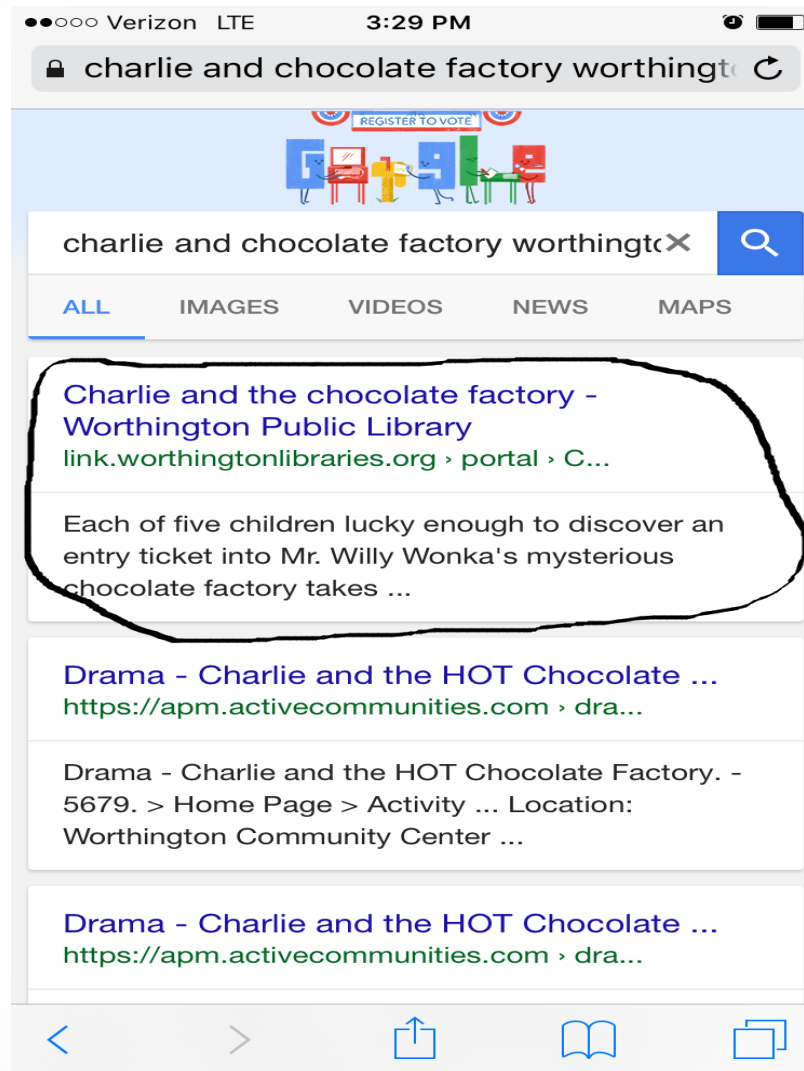


## Library Links

- [About the Library](#)
- [Services](#)
- [Events and Classes](#)
- [Research](#)
- [Volunteer](#)



# Worthington Public Library





Get it at your Library!



# Charlie and the chocolate factory, Road Dahl ; illustrated by Quentin Blake

Creator Dahl, Roald

Contributor Blake, Quentin

Summary Each of five children lucky enough to discover an entry ticket into Mr. Willy Wonka's mysterious chocolate factory takes advantage of the situation in his own way

Language eng

(work)

Publication New York, Puffin Books, 2004, c1964, c1988

Extent 155 p.

Note > Illustrations originally published: Great Britain : Puffin Books, 1998

> Some editions include colored photograph stills from the 2005 motion picture

> "In one volume, pages i-v and 1-178"--T,p

> Originally published: New York : Knopf, 1964

Isbn 9780142401088

(instance)

New user? Get a Card!

## Subject

Bucket, Charlie (Fictitious character) -- Juvenile fiction

Chocolate candy -- Juvenile fiction

Chocolate factories -- Juvenile fiction

## Genre

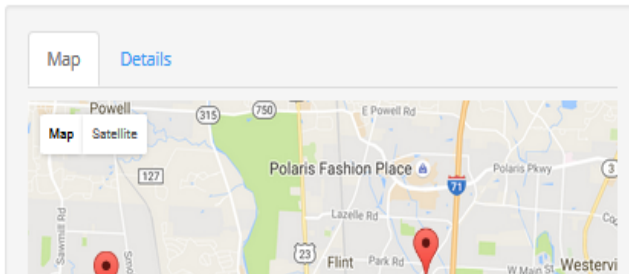
Humorous stories

Juvenile fiction

Data Legend

Data Feedback

## Library Locations



## Library Links



[Get a library card](#)

[Services](#)

[Event calendar](#)

[News and announcements](#)

# Realistically, though What are next steps?

join the library.link network?

Wait until more libraries have  
gone before us...?



# next steps?

## time to shift our focus

**It will take a new “business” model:  
both technical and organizational changes.**

(Fons, 2016, p. 28)

# Shifting Focus

Consider search engines

Start playing by the rules of the web

(Fons, 2016, pp. 28-30)

# Shifting Focus

## direct partnerships with search engines

(Fons, 2016, pp. 29-30)

- Knowledge graphs
- Sponsored link programs

# What is a knowledge card/panel/graph?

Google library appalachian state

All Maps News Images Shopping More Search tools


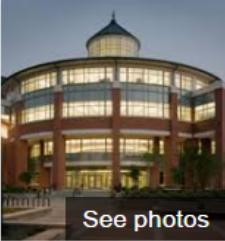
About 985,000 results (0.61 seconds)

**Belk Library and Information Commons - Appalachian State University**  
library.appstate.edu/ Appalachian State University  
All Article Databases · Library Catalog (link is external) · ILLiad (Interlibrary Loan) · Movies/DVDs/Streaming · E-Journal/Magazine Title (link is external) ...

<b>Article Databases and E ...</b> Article Databases and E-Research Tools ... Encyclopedias and ...	<b>Rooms and Spaces</b> Rooms and Spaces in the Library ... Instruction Rooms 024 and ...
<b>Library Hours</b> Library Hours   Music Library Hours   Special Collections ...	<b>About Us</b> About the Libraries ... Floorplans (PDF); Calendar of events ...
<b>Search</b> Search the Library Catalog (link is external). Looking for articles? <a href="#">More results from appstate.edu »</a>	<b>Nicholas Erneston Music Library</b> Belk Library and Information ... Welcome to the Erneston ...

**Belk Library | Maps | Appalachian State University**  
maps.appstate.edu/campus-map/5 Appalachian State University  
Belk Library. - Choose a Location -, Admissions Parking - Annas Student ... Related Links. Learning Technology Services · Library and Information Commons.

**Carol G. Belk Library and Information Commons - Appalachian State ...**  
community.appstate.edu/.../carol-g-belk-library-and-info... Appalachian State University  
The Belk Library is open to all community members. Borrowing privileges are available to North



**Belk Library and Information Commons** ★

[Website](#) [Directions](#)

Library in Boone, North Carolina

**Located in:** Appalachian State University  
**Address:** 218 College St, Boone, NC 28608  
**Phone:** (828) 262-2186

[Suggest an edit](#) · [Own this business?](#)

[Add missing information](#)

# OverDrive and Microsoft's Bing search engine

OverDrive

Search by title or author



Find a library

Sign in

Sign

## Find a library near you:

Enter a ZIP code or location

Go

Search By  Name  Location

## Appalachian Regional Library

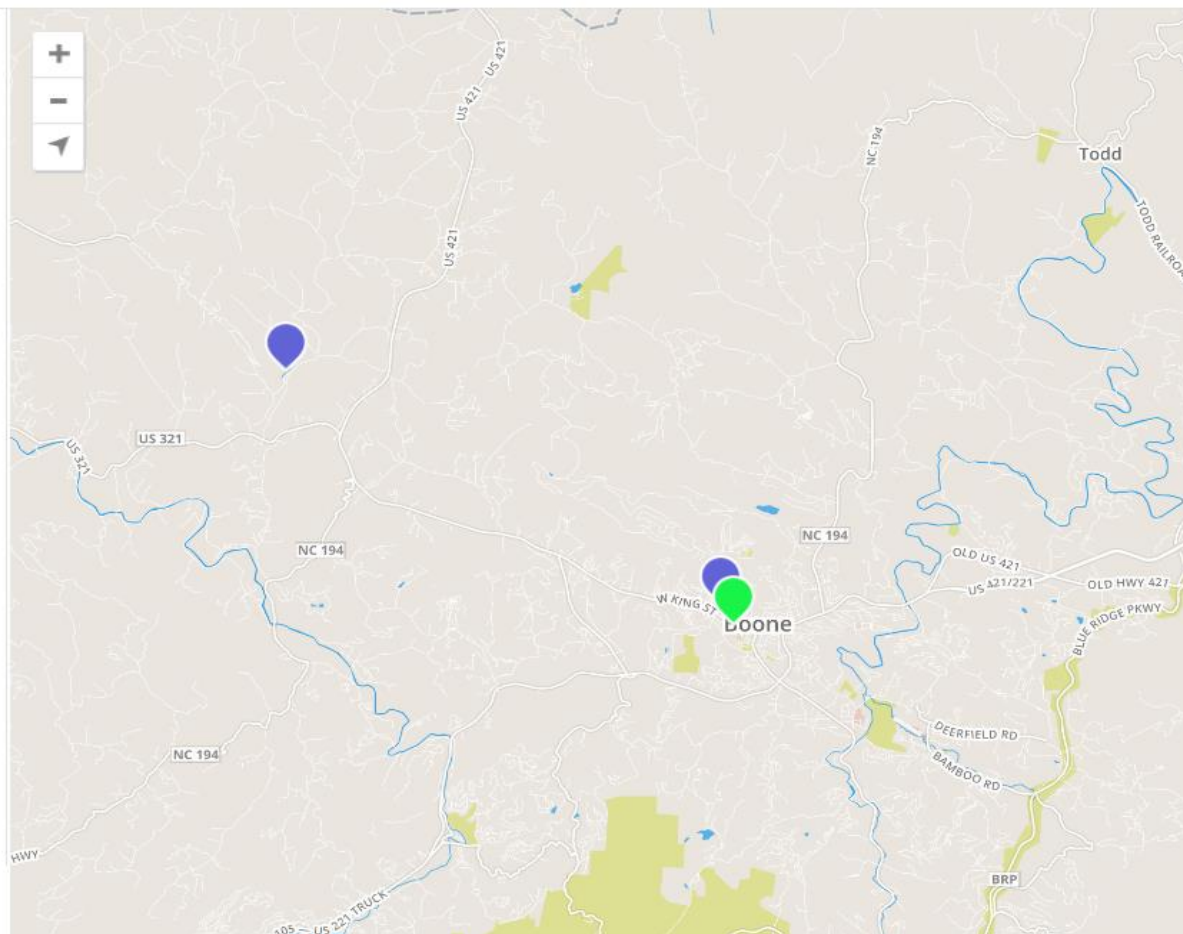
[Website](#)

- **Watauga County Public Library**  
140 Queen St
- **Watauga County Public Library -  
Western Watauga Branch**  
1085 Old Us Highway 421

## Appalachian State University

[Website](#)

- **Appalachian State University**  
218 College Street



# Shifting Focus

“Play by the Rules”

(Fons, 2016, pp. 29-30)

- Local library knowledge and expertise in Semantic Web principles
- Is your online presence web-friendly?
- Catalog data quality standards, universal identifiers



# A Resource for Catalogers

We've created a LibGuide for you!

**BIBFRAME and Linked Data: A Primer for Catalogers**

<http://guides.library.appstate.edu/bibframe>

# Questions and Discussion



thank you for your interest and participation





# Bibliography

Baker, T., et al. (2011). W3C Incubator Group Report: Library Linked Data Incubator Group Final Report. Retrieved from <https://www.w3.org/2005/Incubator/ld/XGR-ld-20111025/>

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Frick, R. (2011). Literature Survey in support of Stanford Linked Data Workshop, final report. Retrieved from <https://www.clir.org/pubs/reports/pub152/linked-data-survey>

Pesch, O. and E. Miller. (2016). Using BIBFRAME and Library Linked Data to Solve Real Problems: An Interview with Eric Miller of Zepheira, *The Serials Librarian*, 71:1, 1-8, DOI:<http://dx.doi.org/10.1080/0361526X.2016.1183159>

Report of the Library of Congress Working Group on the Future of Bibliographic Control. (2008). URL: <https://www.loc.gov/bibliographic-future/news/lcwg-ontherecord-jan08-final.pdf>

Tennant, R. (2002). MARC Must Die. *Library Journal*, 127(17), 26-28.