Nice to Meet You!

- Senior Information Architect at Zepheira
- Former Product and Business Development Manager, OCLC
- Co-chair ALA ALCTS MARC Formats Transition Interest Group
- Chief BIBFRAME Data Geek @ Zepheira
Begin with the end in mind

Goals for this portion of the webinar:

• Provide context for the genesis of a MARC replacement
• Provide an solid introduction to BIBFRAME
• Provide introduction to MARC 2 BIBFRAME developments
• Inform about key projects
• Provide pointers for you to continue to follow this dynamic work
Agenda

• A brief history of the genesis of BIBFRAME
• Introduction to BIBFRAME Framework
• The BIBFRAME Model
• MARC 2 BIBFRAME
  • Mappings
  • Transformation Tools
• Current Experiments
• How to get involved
• Resources
A Bibliographic Framework for the Digital Age (October 31, 2011)

The Working Group of the Future of Bibliographic Control, as it examined technology for the future, wrote that the Library community’s data carrier, MARC, is "based on forty-year-old techniques for data management and is out of step with programming styles of today." [1] The Working Group called for a format that will "accommodate and distinguish expert-, automated-, and self-generated metadata, including annotations (reviews, comments) and usage data." [2] The Working Group agreed that MARC has served the library community well in the pre-Web environment, but something new is now needed to implement the recommendations made in the Working Group’s seminal report. In its recommendations, the Working Group called upon the Library of Congress to take action. In recommendation 3.1.1, the members wrote:

"Recognizing that Z39.2/MARC are no longer fit for the purpose, work with the library and other interested communities to specify and implement a carrier for bibliographic information that is capable of representing the full range of data of interest to libraries, and of facilitating the exchange of such data both within the library community and with related communities." [3]

This same theme emerged from the recent test of the Resource Description and Access (RDA) conducted by the National Agricultural Library, the National Library of Medicine, and the Library of Congress. Our 26 test partners also noted that, were the limitations of the MARC standard lifted, the full capabilities of RDA would be more useful to the library community. Many of the libraries taking part in the test indicated that they had little confidence RDA changes would yield significant benefits without a change to the underlying MARC carrier. Several of the test organizations were especially concerned that the MARC structure would hinder the separation of elements and ability to use URLs in a linked data environment.

With these strong statements from two expert groups, the Library of Congress is committed to developing, in collaboration with librarians, standards experts, and technologists a new bibliographic framework that will serve the associated communities well into the future. Within the Library, staff from the Network Development and Standards Office (within the Technology Policy directorate) and the Policy and Standards Division (within the Acquisitions and Bibliographic Access directorate) have been meeting with Beacher Wiggins (Director, ABA), Ruth Scovill (Director, Technology Policy), and me to craft a plan for proceeding with the development of a bibliographic framework for the future.

Below this cover note, you will find our thoughts about the way ahead. We have identified the requirements for the new bibliographic framework, based on the recommendations made by both the Working Group on the Future of Bibliographic Control and the final report on the RDA Test.

We at the Library are committed to finding the necessary funding for supporting this initiative, and we expect to work with diverse and wide-ranging partners in completing the task. Even at the earliest stages of the project, we believe two types of groups are needed: an advisory committee that will articulate and frame the principles and ideals of the bibliographic framework and a technical committee that has the in-depth knowledge to establish the framework, itself.

When MARC was created in the late 1960s, early 1970s, the Library community, along with computer scientists, took a bold step that
The new bibliographic framework project will be focused on the Web environment, Linked Data principles and mechanisms, and the Resource Description Framework (RDF) as a basic data model. Likewise, it is expected that the use of RDF and other W3C (World Wide Web Consortium) developments will enable the integration of library data and other cultural heritage data on the Web for more expansive user access to information.

Recognizing that Z39.2/MARC are no longer fit for purpose, work with the library and other interested communities to specify and facilitate the exchange of such [bibliographic] data both within the library community and with related communities.
BIBFRAME “The Project”

• Library of Congress contracted with Zepheira (2012 through early 2014)
  • To develop the model and model description that kick started the BIBFRAME project
  • Produced a model for profiles and use cases
  • Opted to pursue active hands on experiments
• Library of Congress, National Library of Medicine, George Washington University, British National Library, Princeton University, Deutsche National Bibliothek, OCLC, Zepheira
  • All parties continue to experiment and move forward the evolution
THE BIBFRAME FRAMEWORK
The New Platform

The Web is increasingly becoming the most pervasive data management and integration platform ever imagined
Most of the Web is...

- Pages and links
- Designed for direct human consumption
- Simple linking ("points at")
- Data is hidden
A significant gap between what browsers and humans see
Resource Description Framework

Common Model for creating Web Data
Linked Data

"a term used to describe a recommended best practice for exposing, sharing, and connecting pieces of data, information, and knowledge on the Semantic Web using URIs and RDF."

http://en.wikipedia.org/wiki/Linked_Data
A tale of two Webs

- The Visible Web
  - The content is open to harvesters and have unique addressable URI

- The Invisible Web
  - Content that is hidden inside of databases or in other ways hidden from harvesters
The BIBFRAME Model

- **Work** - Reflect a *conceptual essence* of the cataloging item

- **Instance** - Reflects the *material embodiment* of the Work.

- **Authority** - Reflects the *key authority concepts* that have defined relationships reflected in the Work and Instance.

- **Annotation** - *decorates* other BIBFRAME resources with additional information.
BIBFRAME
Core model for defining Web control points for more effective sharing, navigation and collaboration
Modern Fairy Tale
http://bibframe.org/auth/subject/modern-fairy-tale

Phantom Toll Booth
http://local.library.org/examples/phantom-tollboot/test001/w1

Juster, Norton
http://bibframe.org/auth/person/norton_juster

Hardcover
ISBN "0-394-81500-9"
date "1961"
http://local.library.org/examples/juster/test001/

Random House
http://bibframe.org/auth/org/Random-house

New York, NY
http://bibframe.org/auth/place/NewYorkNY

Print
http://bibframe.org/auth/format/print
MARC —> BIBFRAME

- Library of Congress tools (bibframe.org/tools/)
  - BIBFRAME Editor (BFE) - test input of data directly into BIBFRAME
- Transformation Tools
  - Zepheira
    - Linked Data Training Tool - converts MARCXML to BIBFRAME Resources with various views of the data
    - BIBFRAME Scribe beta - demo of profile based description -
<table>
<thead>
<tr>
<th>BIBFRAME Resource Type</th>
<th>Mapped to MARC fields and Subfields</th>
</tr>
</thead>
</table>
| Work                   | 041$a$b$d$e$f$j$h  
                         | 050$c  
                         | 245$a$h  
                         | 500$a  
                         | 501$a  
                         | 580$a  
                         | 700$ t$s$f  
                         | 710$ t$s$f  
                         | 711$ t$s$f |
| Instance               | 300$a$g |
| Genre                  | • 600$v  
                         | • 610$v  
                         | • 611$v  
                         | • 650$v  
                         | • 651$v  
                         | • 630$v  
                         | • 655$a$b$c$v$x$y$z |
| Organization           | • 110$a$b$c$d$g$j$q$u  
                         | • 710$a$b$c$d$g$j$q$u |
| Meeting                | • 111$a$b$c$d$g$j$q$u  
                         | • 711$a$b$c$d$g$j$q$u |
| Person                 | • 100$a$b$c$d$g$j$q$u  
                         | • 700$a$b$c$d$g$j$q$u  
                         | • 720-1#$a |
| Place                  | • 260$a  
                         | • 264$a |
| Agent                  | • 260$b  
                         | • 720-##$a |
| Collection             | • 240$a$i$f$h  
                         | • 243$a$i$f$h  
                         | • 730$a$i$f$h |
Not all about the “BIB”

- Initial focus on Bibliographic Data
- Quick to see benefits in non-bibliographic data (music, visual resources)
- Communities can define BIBFRAME Profiles to meet their data needs
- Anything can be modeled in BIBFRAME
BIBFRAME Profiles: Introduction and Specification
Draft — 5 May 2014

This document introduces and defines BIBFRAME Profiles, and describes how they are created, maintained and used. It gives an overview of the purpose of BIBFRAME Profiles, describes how they can be used to support unique community's descriptive practices, and provides specific examples of how profiles can be constructed.

Status of this Document
• Draft for public review (5 May 2014)
• Please send general comments about this document to the listserver bibframe@loc.gov or via email to bibcomments@loc.gov.
• To the extent possible under law, the Library of Congress has waived all copyright and related or neighboring rights to this work.

Table of Contents
• Introduction
  • Basic Structure
  • Validation
  • Serialization
  • Usage Scenarios
  • Examples
  • Detailed Grammar
  • Implementation
  • History
  • Credits

1. Introduction

BIBFRAME is the result of the Bibliographic Framework Initiative. It is a framework or metamodel for discovery and exchange of library and other memory organization information using Web technology, publicly or privately. The BIBFRAME metamodel is designed to be lightweight, flexible and able to accommodate the declarative needs of both existing (RDA, DACS, VRA, etc.) and yet-to-be-developed community vocabularies. To best accommodate these communities the BIBFRAME RDF Schema is intentionally underspecified in terms of constraints such as domain and range. This same flexibility comes at a cost; without a way of constraining these vocabularies, authoring tools, for example, are unable to provide guidance to content authors for specific vocabularies and derived models. BIBFRAME Profiles provide such supplementary descriptions.

A BIBFRAME Profile is a document, or set of documents, that puts a Profile (e.g. local cataloging practices) into a broader context of the BIBFRAME framework.
Profiles
Small is Beautiful

- BIBFRAME common model - flexible, designed to accommodate the needs of our community.
- Recognize creative tension between past and future
- Profiles are a blueprint for a specific community or entity description
Combining Profiles

- BIBFRAME Lite
- Series + =
- Monograph + =
- RBMS + =
- A/V (Music) + =
- VRA + =
- ISAD(G) + =
BIBFRAME
Purpose and Promise

- **Purpose**: Replacing MARC
- **Promise**: So much more

- **Purpose**: Serving Libraries
- **Promise**: Related memory organizations and the users they serve

- **Purpose**: Leverage existing Web standards to speak with a consistent voice
- **Promise**: Visibility, Discovery and Effectiveness
Some Current Experiments

BIBFRAME Pilot Project

- Experiment in original BIBFRAME cataloging - 2 year project

BIBFRAME Implementation Testbed

- Encourages development of BIBFRAME test implementations and contributions to the ongoing work on tools and vocabulary.

See all registered projects:

http://www.loc.gov/bibframe/implementation/register.html
Some Current Experiments

BIBFLOW

Develop a roadmap for migrating essential library work efforts to a BIBFRAME / Linked Open Data ecosystem.

Believe that libraries cannot adopt modern technologies if current workflow is environment constrained by complex workflows and interdependencies on a large ecosystem of data, software and service providers

2 year project, 1st year in

Funded by IMLS

Follow the blog:
http://www.lib.ucdavis.edu/bibflow/
Some Current Experiments

Linked Data for Libraries (LD4L)

Goal to create a Scholarly Resource Semantic Information Store (SRSIS) to capture the intellectual value that librarians and other domain experts and scholars add to information resources when they describe, annotate, organize, select, and use those resources.

January 2014 - January 2016

Funded by Andrew W. Mellon Foundation.

Follow the project
https://www.ld4l.org/
The Libhub Initiative aims to raise the visibility of Libraries on the Web by actively exploring the promise of BIBFRAME and Linked Data.

Libraries who are leading as Early Adopters:

- Denver Public
- Dallas Public
- Arapahoe Library District
- Edmonton Public
- Sno-Isle Public
- Douglas County
- Phoenix Public
- Calgary Public
- Anythink
- Worthington Public
- Multnomah county
- Hamilton Public

Take the Pledge:

"I believe everyone benefits from the visibility of libraries and their content on the Web"

www.libhub.org/join/
Libhub Early Adopters

• Leading Libraries interested in moving into Linked Data and onto the Web.

  • Linked Data and BIBFRAME Practical Practitioner Training (5-6 week course)

  • Readiness Assessment (of vendors, team data)

  • Linked Data Pilot - up to 1 million MARC records converted to BIBFRAME and exposed to the Web

• First 12 were focused on public library assets, we are adding an academic focus that will explore options such as special collections, etc.
Can I see it?

About 463,000 results (0.55 seconds)

Denver Public Library
catalog.denverlibrary.org/search/title/unsinkable-molly-brown-cookbook
The unsinkable Molly Brown cookbook
Author: Wills, May Bennett. Format: Book

"The Unsinkable Molly Brown"
blogs.denverpost.com/.../molly-brown-Apr-5-2012
Apr 5, 2012 - Cover image of "The Unsinkable Molly Brown Cookbook" book by May Bennett.
Comment · Print ... Molly Brown Recipe for Thanksgiving Day.

The Unsinkable Molly Brown
www.amazon.com/...Molly-Brown-
The Unsinkable Molly Brown Cookbook
Amazon.com. *FREE* shipping on qualified orders over $25.
Get involved!

- Follow projects
- Explore Tools
- Follow and participate in BIBFRAME discussion lists
- Attend sessions at ALA
  - MARC Transition Interest Group Session, Saturday 3:00 - 4:00 - Focus on tools
  - BIBFRAME Update, Sunday 10:00-11:30
- Zepheira offers a Linked Data / BIBFRAME training class with access to ongoing alumni group

http://zepheira.com/solutions/library/training/
Resources

- Documents and Research Papers
  - BIBFRAME Use Cases and Requirements ([http://bibframe.org/documentation/bibframe-usecases/](http://bibframe.org/documentation/bibframe-usecases/))
  - BIBFRAME Authorities ([http://www.loc.gov/bibframe/docs/bibframe-authorities.html](http://www.loc.gov/bibframe/docs/bibframe-authorities.html))
  - BIBFRAME Relationships ([http://www.loc.gov/bibframe/docs/bibframe-relationships.html](http://www.loc.gov/bibframe/docs/bibframe-relationships.html))
Resources, cont.

- Articles
  - *Library Journal*
    May 12, 2915
    Ending the Invisible Library

  - *Bulletin of the Association for Information Science and Technology*
    April/May 2015
    Linked Data Design for the Visible Library

- Training
  - Zepheira Linked Data and BIBFRAME Practical Practitioner Training
    [zepheira.com/solutions/library/training/](zepheira.com/solutions/library/training/)

- Tools
  - Editor and Transformation - [bibframe.org/tools](http://bibframe.org/tools) (Library of Congress)
  - Transformation Training Tool - [https://linksmith.zepheira.com/training/](https://linksmith.zepheira.com/training/) (Zepheira)
Thank you!
Part II: BIBFRAME for Non-MARC Metadata

Carolyn Hansen
University of Cincinnati
Metadata Librarian
Agenda

• Introduction to BIBFRAME and non-MARC metadata

• Why BIBFRAME and linked data?

• UC Pilot Project: Neil Armstrong Commemorative Archive

Professor Neil Armstrong at Lunken airport with the Flight Test Engineering II Class Spring 1977 in May of 1977. http://hdl.handle.net/2374.UC/730761

Hosted by ALCTS, the Association for College Libraries and Technical Services
Introduction

- BIBFRAME designed to be schema-agnostic
- Can be used with non-MARC schemas like Dublin Core (DC), EAD, VRA, MODS, or custom schemas
- Improves discoverability of unique archival and special collections

Armstrong greets Snoopy as part of an event hosted by the American Institute of Aeronautics and Astronautics student chapter in 1975. 
https://drc.libraries.uc.edu/handle/2374.UC/730809

Hosted by ALCTS, the Association for College Libraries and Technical Services
Why BIBFRAME for Non-MARC Metadata?

My Digital Collections are…

• Already online

• Described with clean, standards-adherent metadata

http://hdl.handle.net/2374.UC/713954

Hosted by ALCTS, the Association for College Libraries and Technical Services
Armstrong greets Snoopy as part of an event hosted by the American Institute of Aeronautics and Astronautics student chapter in 1975

| dc.date.accessioned       | 2013-10-31T01:04:36Z |
| dc.date.available         | 2013-10-31T01:04:36Z |
| dc.date.created           | 1975               |
| dc.date.issued            | 2013-10-30         |
| dc.identifier.uri         | http://hdl.handle.net/2374.UC/730809 |
| dc.description            | Armstrong greets Snoopy as part of an event hosted by the American Institute of Aeronautics and Astronautics Student Chapter in 1975. Photo credit: Ralph Spitzen (Eng ’74, MBA ’76) |
| dc.language               | en_US              |
| dc.description            | Caption title from UC Magazine. |
| dc.language               | en_US              |
| dc.relation.ispartof      | Neil A. Armstrong Commemorative Archive |
| dc.relation.ispartofseries | Neil A. Armstrong Commemorative Archive: photographs |
| dc.rights                 | Attribution-NonCommercial-NoDerivs 3.0 United States |
| dc.rights.uri             | http://creativecommons.org/licenses/by-nc-nd/3.0/us/ |
| dc.subject                | Armstrong, Neil, 1930-2012 |
| dc.subject                | American Institute of Aeronautics and Astronautics. Student Chapter |
| dc.subject.lcsh           | Armstrong greets Snoopy (Fictitious character) |
| dc.title                  | Armstrong greets Snoopy as part of an event hosted by the American Institute of Aeronautics and Astronautics student chapter in 1975 |
| dc.type                   | Photograph         |
Clean, correct metadata only goes so far…
Implementing BIBFRAME for Non-MARC metadata

- Map for discovery, not preservation; focus on linking
- Rely on specialized standards for complete description, not BIBFRAME
- Rely on existing platforms and systems that house complete records
- OpenRefine is great tool for building custom RDF
In 1974, Neil Armstrong teaches at the UC College of Engineering
http://hdl.handle.net/2374.UC/730733

Hosted by ALCTS, the Association for College Libraries and Technical Services
Challenges

• BIBFRAME vocabulary is still evolving

• Lack of best practices and guidelines

• Few early adopters working with non-MARC metadata and BIBFRAME

• No SPARQL endpoint for id.loc.gov
Next Steps

• Integrate related MARC records from general collection into dataset

• SEO considerations

• Analytics

Professor Armstrong and the Flight Test Engineering II Class Spring 1977 at Lunken Airport.
http://hdl.handle.net/2374.UC/730717

Hosted by ALCTS, the Association for College Libraries and Technical Services
Resources

Armstrong Commemorative Archive: https://drc.libraries.uc.edu/handle/2374.UC/713357

Green Turtle: https://github.com/alexmilowski/green-turtle

LC Linked Data: id.loc.gov

OpenRefine: http://openrefine.org/

OpenRefine RDF Extension: http://refine.deri.ie/

UC Digital Collections: http://digital.libraries.uc.edu/
This is what a search engine harvester sees. Unconnected data results in poor page rank.
Good
Better
Best!

And BIBFRAME is the key
And this pattern is already happening in many localized markets as we speak.
Resulting in front page consolidation
Similar consolidation is a potential with Libhub