

ID.LOC.GOV

ID.LOC.GOV, 1 ½ Years:  
Review, Changes, Future Plans, MADS/RDF  
<http://id.loc.gov>

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2 November 2010  
2010 Fall Forum, DLF  
Palo Alto, CA

# Presentation Outline

## **ID.LOC.GOV**

Mission

Service Description

Authorities and Vocabularies Offered, Present and Future

How it's used

## **MADS/RDF**

Linked Library Data Activities

SKOS as Metadata Model/Format

MADS/RDF, by Design

MADS/XML

Pre-coordinated headings

Library-specific Authority types

Label parts

Deleted headings

## ID: What is it?

**ID makes LC owned or maintained  
authorities and vocabularies  
available as Linked Data.**

## ID: What's Available

### **Available Authorities and Vocabularies**

Library of Congress Subject Headings (LCSH)  
Thesaurus of Geographic Materials  
MARC Code List for Relators  
Cryptographic Hash Functions  
Preservation Events  
Preservation Level Role

### **Coming Soon:**

Countries  
Geographic Areas  
Languages (ISOs 639-1, 639-2, 639-5, MARC list)  
More PREMIS vocabularies

# ID: What is it?

## Art, Renaissance

From Library of Congress Subject Headings

**Details** Visualization Suggest Terminology

**Art, Renaissance**

**URI**  
<<http://id.loc.gov/authorities/sh85007860#concept>>

**Type**  
Topical Term

**Alternate Labels**

- > Art, Renaissance--Europe
- > Renaissance art

**Narrower Terms**

- > [Little masters \(Artists\)](#)

**Created**  
2002-10-29

**Modified**  
2002-12-04 10:03:10

**Similar concepts from other vocabularies**

- > <http://stitch.cs.vu.nl/vocabularies/rameau/ark:/12148/cb11952475c> ↗

**Instance Of**

- > [SKOS Concept](#) ↗

**Alternate Formats**

- > [RDF/XML](#)
- > [N-Triples](#)
- > [JSON](#)

## ID: What's Offered

### Data

All data in RDF (Resource Description Framework) format  
All data in SKOS (Simple Knowledge Organization System) RDF  
All data available in bulk download

**Download Current Version**

---

LCSH RDF/XML (May 26 2010; 37.6 MB) Zip Compressed

All records available individually via content negotiation

XHTML/RDFa

RDF/XML

N-Triples

JSON

#### Alternate Formats

> [RDF/XML](#)

> [N-Triples](#)

> [JSON](#)

# ID: How it's used

## Ethan Gruber, University of Virginia

Data used in cataloging application

Indexed with Solr (Lucene)

XForms application with autosuggest feature

Data loaded locally – harvested weekly

### EADitor

0 records received from id.loc.gov.

[< Return](#)

#### Manage Controlled Vocabularies

You can use this form to scrape controlled vocabulary terms from all EAD guides in the eXist database and add the terms into the Solr vocabularies index. Eventually one will be able to create custom vocabularies and edit existing ones.

[Update LCSH](#) [Import](#) [Create/Edit](#) [Purge](#) [Optimize](#)

#### Update LCSH terms from Atom Feed

This function enables querying the Library of Congress's LCSH service at id.loc.gov to extract terms from the Atom feed that have been created or updated since the previous date this function was run. This may take several minutes.

Date of last update: 2010-06-23T14:15:55.754-04:00

[Update Terms](#)

EADitor ©2010 Ethan Gruber. [License](#).

## ID: How it's used

### National Library Sweden

Unreleased/published Linked Data component of catalog  
Links to LCSH

## Swedish subject heading: "Smörgåsbord"

Broader terms

[Buffémat](#)

[Matlagning Sverige](#)

Related terms

[Smårätter](#)

LCSH:

[Buffets \(Cookery\)](#)

misc.

[text/rdf+n3](#)

[application/rdf+xml](#)

[OpenLink RDF browser](#)

<http://id.loc.gov/authorities/sh85017647>

# ID: How it's used

## RAMEAU

Part of MACS (Multi-lingual Access to Subjects) project  
Determined skos:closeMatch resources between RAMEAU and LCSH  
Both RAMEAU and LCSH cross linked

### Concept information

<b>URI</b>	http://stitch.cs.vu.nl/vocabularies/rameau/ark:/12148/cb11932889r	
<b>prefLabel</b>	x-notation	FRBNF119328898
	fr	Oiseaux

### Mappings (simple SKOS statements)

Mapping Relation	Concept
closeMatch	<a href="http://id.loc.gov/authorities/sh85014310#concept">http://id.loc.gov/authorities/sh85014310#concept</a>

### Mappings (OAEI cells)

Concept as left hand side

URI	Link to details	prefLabel	Mapping Relation
<a href="http://id.loc.gov/authorities/sh85014310#concept">http://id.loc.gov/authorities/sh85014310#concept</a>	<a href="#">details</a>	http://id.loc.gov/authorities/sh85014310#concept	http://www.w3.org/2004/02/skos/core#closeMatch
<a href="http://id.loc.gov/authorities/sh85014310#concept">http://id.loc.gov/authorities/sh85014310#concept</a>	<a href="#">details</a>	http://id.loc.gov/authorities/sh85014310#concept	http://www.w3.org/2004/02/skos/core#closeMatch

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<a href="http://id.loc.gov/authorities/sh85014310#concept">http://id.loc.gov/authorities/sh85014310#concept</a>	<a href="#">details</a>	<a href="http://id.loc.gov/authorities/sh85014310#concept">http://id.loc.gov/authorities/sh85014310#concept</a>	<a href="http://www.w3.org/2004/02/skos/core#closeMatch">http://www.w3.org/2004/02/skos/core#closeMatch</a>

# Library Linked Data

## Linked Data Projects

LC's ID service, naturally

British Library making data available in RDF.

British Library exploring Linked (Bibliographic) Data

Bibliothèque Nationale de France exploring Linked Data issues

OCLC, notably hosting and coordinating VIAF

National Library of Sweden

Deutsche Nationalbibliothek

Recently published authority data as Linked Data

Created some new properties to help describe the data

w3C Working Group exploring Library Linked Data

...and many more

# SKOS

## SKOS

- Simple Knowledge Organization System
- W3C Recommendation (9 August 2009)
- An RDF application specifically created for **publishing and sharing** thesauri, authority, and vocabulary data **for use as Linked Data** and **within the Semantic Web** framework.

Example:

L Rice	→	skos:prefLabel
UF Paddy	→	skos:altLabel
BT Cereals	→	skos:broader
BT Plant products	→	skos:broader
NT Brown rice	→	skos:narrower
RT Rice straw	→	skos:related

# SKOS

## SKOS, challenges

- SKOS intentionally *Simple* (augmented with DC properties)
- No support for pre-coordinated headings
- SKOS is lossy

### *skos:preLabel*

Europe – Description and Travel – Early Works to 1800

### *skos:altLabel*

Europe – Description and travel – 17th century

Europe – Description and travel – 17th-18th centuries

Europe – Description and travel – 18th century

Europe – Description and travel – To 1600

# SKOS

## SKOS, challenges

- SKOS intentionally *Simple* (augmented with DC properties)
- No support for pre-coordinated headings
- SKOS is lossy

Geographic                      Topic                      Genre/Form

*skos:preLabel*

Europe – Description and Travel – Early Works to 1800

*skos:altLabel*

Europe – Description and travel – 17th century

Europe – Description and travel – 17th-18th centuries

Europe – Description and travel – 18th century

Europe – Description and travel – To 1600

Temporal

Each part of the pre-coordinated heading *could* be its own Authority record

# MADS/RDF

## **MADS/RDF**

### Highlights

An RDF vocabulary better suited to LIS needs

MADS XML → MADS RDF

MADS XML designed for LIS data

Motivations:

Better support for complex headings

Support for Library-specific Authority types

Support for the parts of labels

Support for handling deleted headings

Will be mapped to SKOS to ensure interoperability

ID.LOC.GOV will continue to provide data in SKOS RDF

But also MADS/RDF

## From MADS/XML [Metadata Authority Description Schema]

MADS/XML initially released April 23, 2005

Originally designed to support MARC21 Authority data

E.g. pre-coordinated headings supported

Consistency with MODS was a design goal

```
-<mads:mads version="1.0" xsi:schemaLocation="http://www.loc.gov/n
/mads/mads.xsd http://www.loc.gov/mods/v3 http://www.loc.gov/standards/
-<mads:authority>
  <mads:geographic authority="lcsb">Europe</mads:geographic>
  <mads:topic>Description and travel</mads:topic>
  <mads:genre>Early works to 1800</mads:genre>
</mads:authority>
-<mads:variant>
  <mads:geographic>Europe</mads:geographic>
  <mads:topic>Description and travel</mads:topic>
  <mads:temporal>To 1600</mads:temporal>
</mads:variant>
-<mads:variant>
  <mads:geographic>Europe</mads:geographic>
  <mads:topic>Description and travel</mads:topic>
  <mads:temporal>17th century</mads:temporal>
</mads:variant>
```

## MADS/RDF, Pre-coordinated headings

```
- <Authority rdf:about="http://id.loc.gov/authorities/lcsh/sh92005862">
  <rdf:type rdf:resource="http://id.loc.gov/ontologies/mads/2010/11#ComplexSubject"/>
  <authoritativeLabel>
    Europe--Description and travel--Early works to 1800
  </authoritativeLabel>
  <componentList rdf:parseType="Collection">
    <Authority rdf:nodeID="aEurope">
      <rdf:type rdf:resource="http://id.loc.gov/ontologies/mads/2010/11#Geographic"/>
      <authoritativeLabel>Europe</authoritativeLabel>
      <elementList rdf:parseType="Collection">
        <GeographicElement>
          <elementValue>Europe</elementValue>
        </GeographicElement>
      </elementList>
    </Authority>
    <Authority rdf:nodeID="aDescriptionandtravel">
      <rdf:type rdf:resource="http://id.loc.gov/ontologies/mads/2010/11#Topic"/>
      <authoritativeLabel>Description and travel</authoritativeLabel>
      <elementList rdf:parseType="Collection">
        <TopicElement>
          <elementValue>Description and travel</elementValue>
        </TopicElement>
      </elementList>
    </Authority>
    <Authority rdf:nodeID="aEarlyworksto1800">
      <rdf:type rdf:resource="http://id.loc.gov/ontologies/mads/2010/11#GenreForm"/>
      <authoritativeLabel>Early works to 1800</authoritativeLabel>
      <elementList rdf:parseType="Collection">
        <GenreFormElement>
          <elementValue>Early works to 1800</elementValue>
        </GenreFormElement>
      </elementList>
    </Authority>
  </componentList>
```

## MADS/RDF, Pre-coordinated headings

```
- <Authority rdf:about="http://id.loc.gov/authorities/lcsh/sh92005862">
  <rdf:type rdf:resource="http://id.loc.gov/ontologies/mads/2010/11#ComplexSubject"/>
  - <authoritativeLabel>
    Europe--Description and travel--Early works to 1800
  </authoritativeLabel>
  - <componentList rdf:parseType="Collection">
    - <Authority rdf:nodeID="aEurope">
      <rdf:type rdf:resource="http://id.loc.gov/ontologies/mads/2010/11#Geographic"/>
      <authoritativeLabel>Europe</authoritativeLabel>
      - <elementList rdf:parseType="Collection">
        - <GeographicElement>
          <elementValue>Europe</elementValue>
        </GeographicElement>
      </elementList>
    </Authority>
  - <Authority rdf:nodeID="aEurope">
    <rdf:type rdf:resource="http://id.loc.gov/ontologies/mads/2010/11#ComplexSubject"/>
    - <authoritativeLabel>
      Europe--Description and travel--Early works to 1800
    </authoritativeLabel>
    - <componentList rdf:parseType="Collection">
      - <Geographic rdf:about="http://id.loc.gov/authorities/lcsh/sh85045631"/>
      <Topic rdf:about="http://id.loc.gov/authorities/lcsh/sh1234567890"/>
      <GenreForm rdf:about="http://id.loc.gov/authorities/sh99001366"/>
    </componentList>
    <authoritativeLabel>Early works to 1800</authoritativeLabel>
    - <elementList rdf:parseType="Collection">
      - <GenreFormElement>
        <elementValue>Early works to 1800</elementValue>
      </GenreFormElement>
    </elementList>
  </Authority>
</componentList>
```

## MADS/RDF, Pre-coordinated headings

```
<Authority rdf:about="http://id.loc.gov/authorities/lcsh/sh92005862">  
<rdf:type rdf:resource="http://id.loc.gov/ontologies/mads/2010/11#ComplexSubject"/>  
<authoritativeLabel>
```

```
Europe--Description and travel--Early works to 1800
```

```
<http://id.loc.gov/authorities/lcsh/sh92005862> <rdf:type> <mads:Authority>.  
<http://id.loc.gov/authorities/lcsh/sh92005862> <rdf:type> <mads:ComplexSubject>.  
<http://id.loc.gov/authorities/lcsh/sh92005862> <mads:authoritativeLabel> "Europe--Description and travel--Early...".  
<http://id.loc.gov/authorities/lcsh/sh92005862> <mads:componentList> _:bnode1434898816.  
_:bnode1434898816 <rdf:first> <http://id.loc.gov/authorities/lcsh/sh85045631>.  
<http://id.loc.gov/authorities/lcsh/sh85045631> <rdf:type> <mads:Geographic>.  
_:bnode1434898816 <rdf:rest> _:bnode1303908288.  
_:bnode1303908288 <rdf:first> <http://id.loc.gov/authorities/lcsh/sh1234567890>.  
<http://id.loc.gov/authorities/lcsh/sh1234567890> <rdf:type> <mads:Topic>.  
_:bnode1303908288 <rdf:rest> _:bnode930395008.  
_:bnode930395008 <rdf:first> <http://id.loc.gov/authorities/sh99001366>.  
<http://id.loc.gov/authorities/sh99001366> <rdf:type> <mads:GenreForm>.  
_:bnode930395008 <rdf:rest> <rdf:nil>.
```

```
</Authority>  
<Authority rdf:nodeID  
<rdf:type rdf:resour  
<authoritativeLabel>Early works to 1800</authoritativeLabel>  
<elementList rdf:parseType="Collection">  
<GenreFormElement>  
<elementValue>Early works to 1800</elementValue>  
</GenreFormElement>  
</elementList>  
</Authority>  
</componentList>
```

RDF Lists used to

- 1) Order the headings
- 2) Establish the end of the list

## Specific Authority Types

MADS/XML already supported most (with greater specificity accomplished via XML attributes and additional elements)

- Name (Personal, Corporate, etc.)
- Title
- Temporal
- Topic
- Genre
- Geographic
- HierarchicalGeographic
- Occupation

MADS/RDF adds: NameTitle, ComplexSubject, and a number of Geographic areas (City, County, State, Region, Extraterrestrial Area, etc.)

# MADS/RDF

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- Name (Personal, Corporate, etc.)
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- Genre
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```
-<Authority rdf:about="http://id.loc.gov/authorities/lcsh/sh92005862">  
  <rdf:type rdf:resource="http://id.loc.gov/ontologies/mads/2010/11#ComplexSubject"/>  
  -<authoritativeLabel>  
    Europe--Description and travel--Early works to 1800  
  </authoritativeLabel>  
  -<componentList rdf:parseType="Collection">  
    <Geographic rdf:about="http://id.loc.gov/authorities/lcsh/sh85045631"/>  
    <Topic rdf:about="http://id.loc.gov/authorities/lcsh/sh1234567890"/>  
    <GenreForm rdf:about="http://id.loc.gov/authorities/sh99001366"/>  
  </componentList>
```

MADS/RDF add Geographic areas (City, County, State, Region, Extraterrestrial Area, etc.)

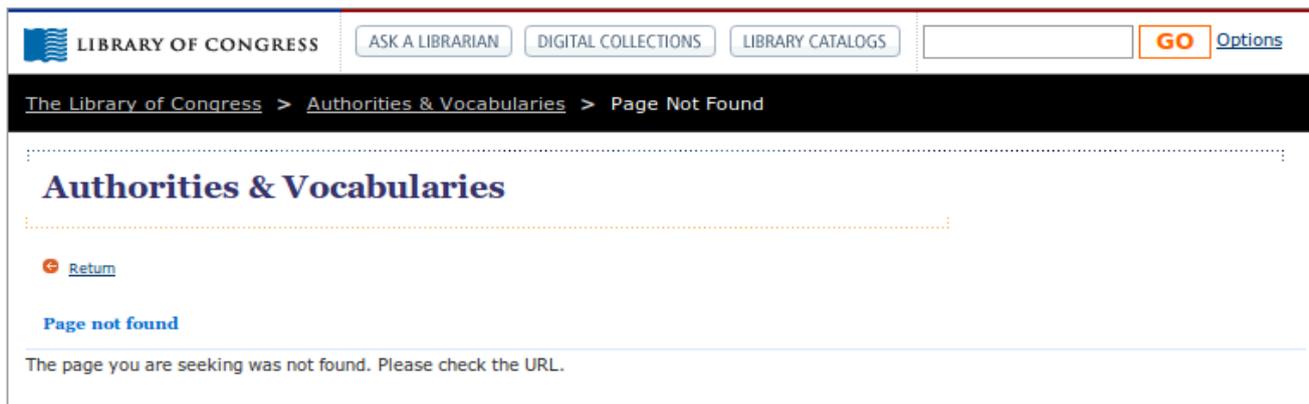
# MADS/RDF

## Deleted Records / Deprecated Terms

From Cookery to Cooking

URI for Cookery: <http://id.loc.gov/authorities/sh85031766#concept>

Result:



SKOS/RDF can place deletion information in note field (providing deleted entries remained in system – they don't)  
ID using ChangeSet RDF vocabulary

## Deleted Records / Deprecated Terms

Data can't, and shouldn't, just disappear in a Linked Data environment.  
Evidentiary

Redirection is a possibility, but

- 1) Sometimes a term is replaced by two new terms
- 2) Information could be in the data, but if not, then
- 3) System becomes a data carrier

For MADS/RDF

- 1) Authority changes to Variant
- 2) Presence of `mads:hasLaterEstablishedForm` points to new, preferred term(s)
- 3) `RecordInfo` will note status of data

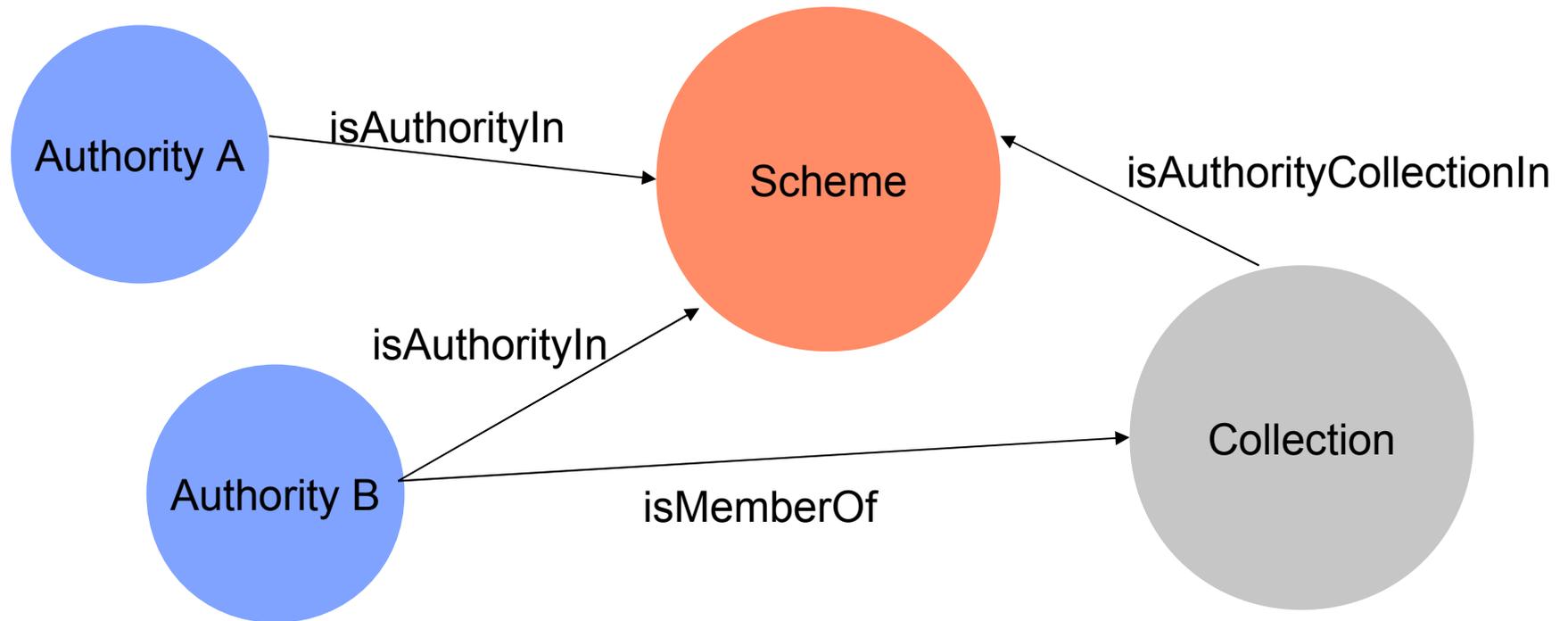
# MADS/RDF

## Deleted Records / Deprecated Terms

```
-<rdf:RDF>
[ -<Variant rdf:about="http://id.loc.gov/authorities/lcsh/sh85031766">
  <rdf:type rdf:resource="http://id.loc.gov/ontologies/mads/2010/11#Topic"/>
  <variantLabel>Cookery</variantLabel>
] -<elementList rdf:parseType="Collection">
  -<TopicElement>
    <elementValue>Cookery</elementValue>
  </TopicElement>
</elementList>
<hasLaterEstablishedForm rdf:resource="http://id.loc.gov/authorities/lcsh/sh2010008400"/>
<hasLaterEstablishedForm rdf:resource="http://id.loc.gov/authorities/lcsh/sh2010007517"/>
-<adminMetadata>
] -<ri:RecordInfo>
  <ri:recordCreationDate rdf:datatype="http://www.w3.org
  /2001/XMLSchema#dateTime">1986-12-09T00:00:00-04:00</ri:recordCreationDate>
  <ri:recordStatus rdf:datatype="http://www.w3.org/2001/XMLSchema#string">deleted</ri:recordStatus>
  <ri:recordContentSource rdf:resource="http://id.loc.gov/vocabulary/organizations/dlc"/>
  <ri:languageOfCataloging rdf:resource="http://id.loc.gov/vocabulary/iso639-2/eng"/>
  <ri:recordChangeDate rdf:datatype="http://www.w3.org
  /2001/XMLSchema#dateTime">2010-07-15T11:20:17-04:00</ri:recordChangeDate>
</ri:RecordInfo>
</adminMetadata>
</Variant>
</rdf:RDF>
```

## MADS Scheme and MADS Collections

Similar to skos:ConceptScheme and skos:Collection  
mads:Collections and mads:Schemes can be linked directly  
Means to organize authority descriptions



# MADS/RDF

## MADS Scheme and MADS Collections

Similar to skos:ConceptScheme and skos:Collection  
mads:Collections and mads:Schemes can be linked directly  
Means to organize authority descriptions

```
-<rdf:RDF>
  -<Authority rdf:about="http://id.loc.gov/authorities/lcsh/sh2002012010">
    <rdf:type rdf:resource="http://id.loc.gov/ontologies/mads/2010/11#Topic"/>
    <authoritativeLabel>Sources</authoritativeLabel>
    <isAuthorityIn rdf:resource="http://id.loc.gov/authorities/lcsh"/>
    <isMemberOf rdf:resource="http://id.loc.gov/authorities/lcsh/collection_TopicalSubdivisions"/>
    <isMemberOf rdf:resource="http://id.loc.gov/authorities/lcsh/collection_LCSH_General"/>
    <isMemberOf rdf:resource="http://id.loc.gov/lcsh/collection_PatternHeadingH1095"/>
    <isMemberOf rdf:resource="http://id.loc.gov/lcsh/collection_PatternHeadingH1110"/>
    <isMemberOf rdf:resource="http://id.loc.gov/lcsh/collection_PatternHeadingH1156"/>
  </Authority>
</rdf:RDF>
```

Thank You

**Questions?  
Comments?**

**Public review:** Within two weeks

**ID Listserv:** <http://listserv.loc.gov/cgi-bin/wa?SUBED1=ID&A=1>  
(also available from Contact Us page)

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2 November 2010  
2010 Fall Forum, DLF  
Palo Alto, CA