11-13-2013

Exposing Missing Links: From CONTENTdm digital collections to the Linked Open Data cloud

Silvia B. Southwick
University of Nevada, Las Vegas, silvia.southwick@unlv.edu

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Exposing Missing Links

From CONTENTdm digital collections to the Linked Open Data cloud

Best Practices Exchange
November 13-15, 2013

Silvia B. Southwick
Digital Collections Metadata Librarian
Agenda

• Linked Data basic concepts
• UNLV Linked Data project
• Technologies
• Transforming metadata into linked data
• Next steps
Linked Data Overview

- My collections are already visible through Google; so who cares
- This is a topic for catalogers
- It’s too technical / complicated / boring

Actually ...

- Linked data is the future of the Web
- Data will no longer be in trapped in silos imposed by systems, collections, or records
- Exposed open data presents new opportunities for users
What is Linked Data?

• Linked Data refers to a set of best practices for publishing and interlinking data on the Web

• Data needs to be machine-readable

• Linked data (Web of Data) is an expansion of the Web we know (Web of documents)
Current Practice

• Data (or metadata) encapsulated in records
• Records contained in collections
• Very few links are created within and/or across collections
• Links have to be manually created
• Existing links do not specify the nature of the relationships among records

This structure hides potential links within and across collections
What we can do with linked data

• Free data from silos
• Expose relationships
• Powerful, seamless, interlinking of our data
• Users interact or query data in new ways
• Search results would be more precise
• Data can be easily repurposed
How can we create linked data?

• Our metadata records are deconstructed into triples (statements) that are machine-readable.

• Triples are expressed as: **Subject – Predicate - Object**

  For example:  
  This book – has creator – Tom Heath
  This book – has title – Linked Data: Evolving the…”

• **Subjects, predicates** and most **objects** should have unique identifiers (URIs) creating **data** that can be used in Web architecture (HTTP).

• These statements are expressed using the Resource Description Framework (RDF).

• **Linked data** can be queried using SPARQL.
So, what?

- We already have the metadata!
- We need to transform them into triples
- Each metadata field may produce one or several statements
- One metadata record can produce many, many, triples
Example of a metadata record

<table>
<thead>
<tr>
<th>Description</th>
<th>Jack Entratter and Frank Sinatra watch rehearsals at the Sands Hotel.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of Show</td>
<td>Ziegfeld Follies</td>
</tr>
</tbody>
</table>
| Identified Individuals | Sinatra, Frank  
|                    | Entratter, Jack                                                    |
| Source            | Image Number: 0287 0037                                             |
| Original Collection | Sands Hotel Collection                                             |
| Date              | 1954                                                                |
| Site Name         | Sands Hotel and Casino                                             |
| Graphic Elements (TGM) | Theatrical producers & directors  
|                    | Entertainers                                                        |
| DC Type           | Still Image                                                         |
| Genre (TGM)       | Pictures  
|                    | Photographs                                                        |
|                    | Photographic prints                                                |
| Language          | eng                                                                 |

**Metadata**

| Digital ID | sh000077 |
| Title      | Photograph of Frank Sinatra and Jack Entratter at rehearsal, Las Vegas, 1954 |
| Group Creator | Las Vegas News Bureau |
| Description | Jack Entratter and Frank Sinatra watch rehearsals at the Sands Hotel. |
Expressing metadata as triples

• <this thing> <has creator> <Las Vegas News Bureau>
• <this thing> <has genre> <Photographic print>
• <this thing> <depicts> <Frank Sinatra>
• <this thing> <depicts> <Jack Entratter>

• <Frank Sinatra> <has profession> <entertainer>
• <Jack Entratter> <has profession> <theatrical producer>
Graphical Representation

- Entertainer
  - Frank Sinatra
    - depicts
    - has creator
      - Las Vegas News Bureau
  - has profession

- Theatrical producer
  - Jack Entratter
    - depicts
    - has genre
      - Photographic print
  - has profession
Examples of records
Graphical Representation

Vocabularies

- Controlled Vocabularies for values (objects) containing term URI
- Vocabularies for predicates (e.g., Dublin Core, foaf, skos, etc.)

SubjectURIs

- Re-use existent URIs
- Create URIs for unique “things” or for “things” that do not have yet URIs
How can I transform textual triples into machine-readable?

• We need a **data model**

• **Europeana Data Model** gives us a framework to help organize, structure, and define which predicates we are going to use

• Adopting an existing model is preferable to creating your own (interoperability)
Europeana Data Model

Based on the EDM documentation at http://pro.europeana.eu/doc/documentation

Legend:
* not implemented by UNLV — Aggregation class is under consideration
gray background — not yet implemented by Europeana
blue font — properties pertaining to the edm vocabulary
Triples with URIs & EDM model predicates

Entertaine (TGM URI) ➔ Las Vegas News Bureau (Local URI)

Frank Sinatra (LoC URI) ➔ foaf:depicts

rdaGr2:professionOroccupation

dc:creator

Theatrical producer (TGM URI) ➔ Photographic print (TGM URI)

Jack Entratter (Local URI) ➔ edm:hasType

rdaGr2:professionOroccupation

focus
Machine-readable triple

@prefix dc: <http://purl.org/dc/elements/1.1/> .
@prefix edm: <http://www.europeana.eu/schemas/edm/> .
@prefix foaf: <http://xmlns.com/foaf/0.1/> .


<http://digloc7.library.unlv.edu:8890/ProvidedCHO/sho000071> edm:hasType http://id.loc.gov/vocabulary/graphicMaterials/tgm007779 .
UNLV Linked Data Project

Goals:

• Study the feasibility of developing a common process that would allow the conversion of our collection records into linked data preserving their original expressivity and richness

• Publish data from our collections in the Linked Data Cloud to improve discoverability and connections with other related data sets on the Web
Actions

1. Prepare data
2. Export data

Technologies

- CONTENTdm
- Open Refine
- Mulgara / Virtuoso

- Import data
- Clean data
- Reconcile
- Generate triples
- Export RDF

- Import data
- Publish
Prepare / Export Data

Technology: CONTENTdm

• Increase consistency across collections:
  – metadata element labels
  – use of CV, share local CVs
  – etc.

• Export data as spreadsheet

Create mapping between metadata elements and EDM model predicates
OpenRefine

• Open source

• It is a server – can communicate with other datasets via http

• Install Open Refine and its RDF extension

Screenshots to show some of the functions we have used
OpenRefine first screen
<table>
<thead>
<tr>
<th>#</th>
<th>Digital ID</th>
<th>Title</th>
<th>Individual Creator</th>
<th>Group Creator</th>
<th>Description</th>
<th>Costume Detail</th>
<th>Name of Show</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>sho000119</td>
<td>Costume design drawing, yellow calypso costume, circa 1945-55</td>
<td></td>
<td></td>
<td>Sketch of female dancer in yellow calypso costume with skirt with long train, ruffled short sleeves, and floral headdress.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>sho000114</td>
<td>Costume design drawing, samba costume pencil sketch, circa 1945-55</td>
<td></td>
<td></td>
<td>Pencil sketch on tracing paper of female dancer in samba costume, with notations of colors and fabrics.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>Digital ID</td>
<td>Title</td>
<td>Description</td>
<td>Location</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----</td>
<td>------------</td>
<td>----------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------</td>
<td>-------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>sho0000119</td>
<td>Costume design drawing, yellow calypso costume, circa 1945-55</td>
<td>Sketch of female dancer in yellow calypso costume with skirt with long train, ruffled short sleeves, and floral headress.</td>
<td>Virgin Islands</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>sho0000114</td>
<td>Costume design drawing, samba costume pencil sketch, circa 1945-55</td>
<td>Pencil sketch on tracing paper of female dancer in samba costume, with notations of colors and fabrics.</td>
<td>Samba</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>ID</td>
<td>Title</td>
<td>Individual Creator</td>
<td>Group Creator</td>
<td>Description</td>
<td>Costume Detail</td>
<td></td>
</tr>
<tr>
<td>-----</td>
<td>--------</td>
<td>--------------------------------------------</td>
<td>--------------------</td>
<td>---------------</td>
<td>----------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>sho000124</td>
<td>Costume design drawing, feathered turquoise shawl dress, decorated with stars, Las Vegas, 1974</td>
<td>Mackie, Robert Gordon, 1940s; Aghayan, Ray</td>
<td></td>
<td>Costume design for Hallelujah Hollywood, an MGM Grand Hotel production.</td>
<td>Two-piece bikini-type jeweled shawl dress, with matching cuffs and headpiece, embroidered with oversize turquoise feathers and plumes.</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>sho000128</td>
<td>Costume design drawing, long black shawl dress, with split skirt, Las Vegas, 1974</td>
<td>Mackie, Robert Gordon, 1940s; Aghayan, Ray</td>
<td></td>
<td>Costume design for Hallelujah Hollywood, an MGM Grand Hotel production.</td>
<td>Long black sheath-style shawl dress with split skirt, one arm extending into a glove, one arm bare, decorated with purple and fuchsia jewels with matching fan, head piece, and bracelets.</td>
<td></td>
</tr>
<tr>
<td>Graphic Elements (TGM)</td>
<td>Count</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Airplanes, Chorus girls,</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Animals; Dogs, Pets, Women</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aprons; Trousers, Men, Vests; Stripes</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Audiences; Beads; Capes; (Clothing), Costumes; Dancers; Theatrical productions;</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Audiences; Beads; Costumes; Headaddresses; Theatrical productions; Top hats; Tuxedoes;</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Audiences; Bells (Clothing); Chapé; Coats; Costumes; Cowboy boots;</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**539 records**

<table>
<thead>
<tr>
<th>Show: 5 10 25 50 records</th>
</tr>
</thead>
<tbody>
<tr>
<td>Show as: rows records</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Site Name</th>
<th>Graphic Elements</th>
<th>Collection Subj</th>
<th>DC Type</th>
<th>Genre (TGM)</th>
<th>Language</th>
<th>Is Part Of</th>
</tr>
</thead>
<tbody>
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</tr>
</tbody>
</table>

http://digital.library.univ.edu.au/72/dig_5
<table>
<thead>
<tr>
<th>Source</th>
<th>Original Collect</th>
<th>Date</th>
<th>Site Name</th>
<th>Graphic Elemen</th>
<th>Collection Subj</th>
<th>DC Type</th>
<th>Genre (TGM)</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000-19 in vlyn collection</td>
<td>Las Vegas Show Costume Designs Collection;</td>
<td>1945; 1946; 1947; 1948; 1949; 1950; 1951; 1952; 1953; 1954; 1955</td>
<td></td>
<td>Facet</td>
<td>Still Image</td>
<td>Costume design drawings</td>
<td>eng</td>
<td></td>
</tr>
</tbody>
</table>

Split multi-value cells
<table>
<thead>
<tr>
<th>Individual Creator</th>
<th>Source</th>
<th>Original Collect</th>
<th>Date</th>
<th>Name</th>
<th>Collection Sub</th>
<th>DC Type</th>
<th>Genre (TBM)</th>
<th>Language</th>
<th>Is Part Of</th>
<th>Rights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beardsley, Aubrey</td>
<td>Las Vegas Show Costume Designs Collection</td>
<td>1945; 1946; 1947; 1950</td>
<td></td>
<td>Facet</td>
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<tr>
<td>Bernard, Bruno</td>
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<tr>
<td>de Otley, Murray</td>
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<td>English, Don</td>
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<tr>
<td>Fasnay, Daniel</td>
<td></td>
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<tr>
<td>Mackie, Robert Gordon</td>
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<td>Mackie, Robert Gordon</td>
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<tr>
<td>Aghayan, Ray</td>
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<tr>
<td>Menahree, Peter</td>
<td></td>
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<td>Romaine</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Showgirls_pres</td>
<td>Show as: rows records</td>
<td>Show: 5 10 25 50 records</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

What separator currently separates the values?

[OK] [Cancel]
<table>
<thead>
<tr>
<th>Source</th>
<th>Original Collect</th>
<th>Date</th>
<th>Site Name</th>
<th>Graphic Elements</th>
<th>Collection Subject</th>
<th>DC Type</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000-19</td>
<td>Las Vegas Show</td>
<td>1945</td>
<td>Costume Designs Collection</td>
<td>Costumes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Synthesis</td>
<td></td>
<td>1946</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Synthesis</td>
<td></td>
<td>1947</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Synthesis</td>
<td></td>
<td>1948</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Synthesis</td>
<td></td>
<td>1949</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Synthesis</td>
<td></td>
<td>1950</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Synthesis</td>
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<td>1951</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Synthesis</td>
<td></td>
<td>1952</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Synthesis</td>
<td></td>
<td>1953</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Synthesis</td>
<td></td>
<td>1954</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Synthesis</td>
<td></td>
<td>1955</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Facet view for Graphic Elements
Reconciliation

<table>
<thead>
<tr>
<th>Digital ID</th>
<th>Title</th>
<th>Individual Creator</th>
<th>Group Creator</th>
<th>Description</th>
<th>Costume Detail</th>
<th>Name of Show</th>
</tr>
</thead>
<tbody>
<tr>
<td>sho000119</td>
<td>Costume design drawing, yellow calypso costume, circa 1945-55</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sho000114</td>
<td>Costume design drawing, samba costume pencil sketch, circa 1945-55</td>
<td></td>
<td></td>
<td>Pencil sketch on tracing paper of female dancer in samba costume, with notations of colors and fabrics.</td>
<td></td>
<td>Samba</td>
</tr>
</tbody>
</table>
Specifying Reconciliation service

Add SPARQL-based reconciliation service

Name:
A human readable name

Endpoint details
Endpoint URL:
Graph URI:
Leave empty to use the default graph
Type:
Generic SPARQL (poor performance)
This determines the syntax that will be used for search

Label properties
Select properties that are used to label resources in the endpoint. These properties will be used to match resources:
- rdfs:label
- skos:prefLabel
- dcterms:title
- dc:title
- foaf:name
- Other...

OK Cancel
## Activating Reconciliation

### Table

<table>
<thead>
<tr>
<th>Site name URI</th>
<th>Graphic Element</th>
<th>Graphic URI</th>
<th>Collection Subj</th>
<th>DC Type</th>
<th>Genre (TGM)</th>
<th>Genre URI</th>
<th>Lan</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://id.loc.gov/vocabulary/ori002610">http://id.loc.gov/vocabulary/ori002610</a></td>
<td>Sort...</td>
<td><a href="http://id.loc.gov/vocabulary/ori002610">http://id.loc.gov/vocabulary/ori002610</a></td>
<td>Still Image</td>
<td>Costume design drawings</td>
<td>Choose new match</td>
<td><a href="http://id.loc.gov/vocabulary/ori002607">http://id.loc.gov/vocabulary/ori002607</a></td>
<td>eng</td>
</tr>
</tbody>
</table>

### Reconcile

- Start reconciling...
  - Facets
  - QA facets
  - Actions
  - Copy reconciliation data...
  - Discover related RDF datasets...
<table>
<thead>
<tr>
<th>Site name URL</th>
<th>Graphic Elemen</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://id.loc.gov/vocabulary/graphicMaterials/tgm002610">http://id.loc.gov/vocabulary/graphicMaterials/tgm002610</a></td>
<td>Costumes</td>
</tr>
<tr>
<td><a href="http://id.loc.gov/vocabulary/graphicMaterials/tgm002610">http://id.loc.gov/vocabulary/graphicMaterials/tgm002610</a></td>
<td>Costumes</td>
</tr>
<tr>
<td><a href="http://id.loc.gov/vocabulary/graphicMaterials/tgm002610">http://id.loc.gov/vocabulary/graphicMaterials/tgm002610</a></td>
<td>Costumes</td>
</tr>
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<td><a href="http://id.loc.gov/vocabulary/graphicMaterials/tgm002610">http://id.loc.gov/vocabulary/graphicMaterials/tgm002610</a></td>
<td>Costumes</td>
</tr>
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<td><a href="http://id.loc.gov/vocabulary/graphicMaterials/tgm002610">http://id.loc.gov/vocabulary/graphicMaterials/tgm002610</a></td>
<td>Costumes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Collection Subj</th>
<th>DC Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choose new match</td>
<td></td>
</tr>
<tr>
<td>Choose new match</td>
<td></td>
</tr>
<tr>
<td>Choose new match</td>
<td></td>
</tr>
<tr>
<td>Choose new match</td>
<td></td>
</tr>
<tr>
<td>Choose new match</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Genre (TGM)</th>
<th>Genre URI</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://id.loc.gov/vocabulary/graphicMaterials/tgm002610">http://id.loc.gov/vocabulary/graphicMaterials/tgm002610</a></td>
<td>Costumes</td>
</tr>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Language</th>
<th>Is Part Of</th>
</tr>
</thead>
<tbody>
<tr>
<td>eng</td>
<td><a href="http://digital.library.unlv.edu/rlab5">http://digital.library.unlv.edu/rlab5</a></td>
</tr>
<tr>
<td>eng</td>
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</tr>
</tbody>
</table>
Creating a Skeleton
RDF Schema Alignment

The RDF schema alignment skeleton below specifies how the RDF data that will get generated from your grid-shaped data. The cells in each record of your data will get placed into nodes within the skeleton. Configure the skeleton by specifying which column to substitute into which node.

Base URI: http://digiloc7.library.univ.edu:8890/edit

Available Prefixes:
do rdf edm foaf owl rdfs skos dcterms +add prefix +manage prefixes

(row index) URI
edm ProvidedCHO
add rdf.type

dc:title→
Individual creator URI URI
dc:creator→
Group creator URI URI
dc:creator→
dc:description→
Description coll
dc:description→
Costume Details coll
dc:isRelatedTo→
Name show URI URI
edm:Event
add rdf.type

edm.happenedAt→
Site name URI URI
edm.Place
add rdf.type

Add another root node

OK Cancel
RDF Schema Alignment

The RDF schema alignment skeleton below specifies how the RDF data that will get generated from your grid-shaped data. The cells in each record of your data will get placed into nodes within the skeleton. Configure the skeleton by specifying which column to substitute into which node.

Base URI: http://digiloc7.library.unlv.edu:8890/edit

RDF Skeleton | RDF Preview

This is a sample Turtle representation of (up-to) the first 10 rows:

```turtle
@prefix dcterms: <http://purl.org/dc/terms/> .
@prefix edm: <http://www.europeana.eu/schemas/edm/> .
@prefix foaf: <http://xmlns.com/foaf/0.1/> .
@prefix owl: <http://www.w3.org/2002/07/owl/> .
@prefix xsd: <http://www.w3.org/2001/XMLSchema#> .
@prefix rdfs: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix skos: <http://www.w3.org/2004/02/skos/core#> .
@prefix dcmo: <http://purl.org/dc/elements/1.1/> .

<http://digiloc7.library.unlv.edu:8890/ProvidedCNO/sho0000119> a dcmo:ProvidedCNO ;
dcterms:title "Costume design drawing, yellow calypso costume, circa 1945-55" ;


dcterms:type "Still Image" .

<http://id.loc.gov/vocabulary/graphicMaterials/tgm002607> a skos:Concept .

<http://digiloc7.library.unlv.edu:8890/ProvidedCNO/sho0000119> edm:hasType <http://id.loc.gov/vocabulary/graphicMaterials/tgm002607> ;
dcterms:language "eng" ;
dcterms:rights "This material may be protected by copyright. Personal, including educational and academic, use of this material is permitted; commercial use is prohibited" , "This material may be protected by copyright. Personal, including educational and academic, use of this material is permitted; commercial use is prohibited" .
```
Exporting RDF files

<table>
<thead>
<tr>
<th>Site name URI</th>
<th>Graphic Element</th>
<th>Collection Subject</th>
<th>DC Type</th>
<th>Genre (TGM)</th>
<th>Genre URI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dancers</td>
<td><a href="http://id.loc.gov/vocabulary/graphicMaterials/gm02610">http://id.loc.gov/vocabulary/graphicMaterials/gm02610</a></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Actions**

- Prepare data
- Export data
- Import data
- Clean data
- Reconcile
- Generate triples
- Export RDF

**Technologies**

- CONTENTdm
- Open Refine
- Mulgara / Virtuoso
Mulgara Triple Store: Import
Mulgara Semantic Store

Graph URI: http://showgirls

Query Text:

Submit Query Clear Query

File: Browse... Upload

Results: (1 query, 7.643 seconds)


A simple SPARQL query

```
Select *
Where {?s ?p ?o} limit 100
```
SPARQL: Querying Data

• Using Virtuoso triple store PivotViewer
Query

Dynamic Collection

SPARQL

Query Service Endpoint
http://digeol7.library.unlv.edu:8890/sparql

Default Data Set Name
(Graph IRI)

Query Text

describe ?thing
where{
?thing a edm:ProvidedCHO.
?thing edm:hasType ?tmuri .
?tmuri skos:prefLabel "Costume design drawings" .
optional {?thing foaf:depiction ?image }
}

ResultSet Options

Timeout
Costume design drawing, red ruffled Spanish flamenco costume with rimmed hat and flared cuffs, circa 1965-75

Red ruffled Spanish flamenco pants costume with flared white cuffs, white ruffles on shirt front, and hat with brim and flowers on female dancer.

More

Creator
Spanish, Joaquim

Language
eng

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Dynamic collection generation by OpenLink Virtua
Next steps for the UNLV project

• Transform digital collections into linked data (parallel structure)
• Increase linkage with other datasets
• Design interfaces to access and display our data and related data from other datasets
• Evaluate alternative designs from user’s perspective
• Produce a cost benefit analysis to inform future plans for the development of digital collections
Thank You!

Questions?