Overview

• What is the Virtual Collections Service?
• Creating A Virtual Collection
• Architecture
• Implementation Challenges
What is the Virtual Collections Service?
Virtual Collections Is …

A library service that allows Harvard curators, librarians and archivists to create a web-based collection view of thematically related resources which exist in a number of systems or within a single system.
Features of VC

- Scheduled harvesting of metadata from HOLLIS (OPAC), VIA (Visual Information Access) and Harvard Geospatial Library

- Web-based search, browse, and display interface; short and full record views
- Search results include thumbnails and links to digital objects

- Flexible configuration
  - “Out of the box” stand alone public interface
  - “Embedded” option for integrating into web sites, such as Harvard Open Collections sites
Virtual Collections is not…

• A new catalog – records must exist in another catalog

• A repository for digital objects

• A platform for short term, non-”library-like” projects
A stand alone collection

Latin American Pamphlets
Latin American Pamphlet Digital Collection

Harvard’s Widener Library is the repository of many scarce and unique Latin American pamphlets published during the 18th and the early 20th centuries. One of the few institutions to have consistently collected Latin American pamphlets, Harvard has benefited from collections formed by Luis Montt (Chile), Nicolás Agüero (Colombia), Manuel Segundo Sánchez (Venezuela), José Augusto Escoto (Cuba), Blas Garay (Paraguay), Charles Summer, John B. Stetson and others. Chile, Cuba, Bolivia and Mexico are the countries most heavily represented in this collection.

These pamphlets are valuable primary resources for students and researchers working on Latin American history. They document the emergence of the Latin American colonies as independent states, and illuminate many aspects of their populations’ social and cultural life. Many pamphlets are devoted to boundary disputes, territorial expansion, the description of unexplored territories and the relationship between Church and State.

This collection of more than 5,000 titles was largely uncataloged and virtually inaccessible to researchers until a cataloging and digitization project was initiated in 2002. The Latin American Pamphlet Digital Collection contains catalog records with links to page images of the digitized pamphlets. As additional pamphlets are cataloged and digitized they will be added to this Collection. For more complete bibliographic data, please see the HOLLIS catalog.

A Harvard University Library Virtual Collection, Copyright 2006 by the President and Fellows of Harvard College

Questions & Comments
<table>
<thead>
<tr>
<th>Title</th>
<th>Link</th>
<th>Display Full Record</th>
</tr>
</thead>
<tbody>
<tr>
<td>Los dos folletos y la carta de Victor Capoul: publicados en el diario La Correspondencia de Cuba</td>
<td><a href="http://hrs.harvard.edu/um-3/FHCL-139066">http://hrs.harvard.edu/um-3/FHCL-139066</a></td>
<td></td>
</tr>
</tbody>
</table>
LOS DOS FOLLETOS

Y LA CARTA DE

VICTOR CAPOUL,

PUBLICADOS EN EL DIARIO

LA CORRESPONDENCIA DE CUBA.

HABANA:

IMP. DE OBRA LA CORRESPONDENCIA DE CUBA,

CALLE DE LA OBRAPIA NÚMERO 24.

1888.
<table>
<thead>
<tr>
<th>Title</th>
<th>Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>Los dos folletos y la carta de Victor Capoul: publicados en el diario La Correspondencia de Cuba</td>
<td><a href="http://hrs.harvard.edu/um-3.FHCL-139066">http://hrs.harvard.edu/um-3.FHCL-139066</a></td>
</tr>
<tr>
<td>Creator</td>
<td>Date</td>
</tr>
<tr>
<td>Capoul, Victor</td>
<td>1893</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>El 12 de agosto de 1887 : apuntes administrativos / por Ramón Llames Morán</td>
<td><a href="http://hrs.harvard.edu/um-3.FHCL-358892">http://hrs.harvard.edu/um-3.FHCL-358892</a></td>
</tr>
<tr>
<td>Creator</td>
<td>Date</td>
</tr>
<tr>
<td>Llames Morán, Ramón</td>
<td>1891</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>17 de mayo de 1890 / Ricardo Mora, con un prólogo del Sr. Joaquín Ruiz</td>
<td><a href="http://hrs.harvard.edu/um-3.FHCL-641369">http://hrs.harvard.edu/um-3.FHCL-641369</a></td>
</tr>
<tr>
<td>Creator</td>
<td>Date</td>
</tr>
<tr>
<td>Mora, Ricardo</td>
<td>1900</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Title: Los dos folletos y la carta de Víctor Capoul: publicados en el diario La Correspondencia de Cuba.
Published: Habana: Imp. de Obra La Correspondencia de Cuba, 1888.

INTERNET LINK: http://mr3.harvard.edu/FHCL-1930088 [Provides access to page images of entire work]

Description: 60 p.; 17 cm

Restrictions: At least one location has information and/or restrictions on access. Click on the holdings link(s) for specific information.

Notes: "Los duques de la Torre y el casamiento de su hijo: extracto del folleto del señora Carreras", p. [5]-45.
"Carta de Capoul a El Figaro", p. [47]-60.

Subject: Serrano y Domínguez, Francisco, duque de la Torre, 1810-1886.
Serrano y Domínguez, Francisco, duque de la Torre, 1810-1886.

Authors: Carreras, Luis, 1840-1888. Duques de la Torre y el casamiento de su hijo.
Capoul, Victor, 1833-1874.

Other Titles: Latin American pamphlet digital project at Harvard University.
Latin American pamphlet digital project at Harvard University, Preservation microfilm collection; 1811.

HOLLIS Number: 009968297
Full Record Display

Record 1 of 826 for search: cuba  
Jump to record #  
Next Record  Back To Results Display

<table>
<thead>
<tr>
<th>Title</th>
<th>Los dos folletos y la carta de Víctor Capoul: publicados en el diario La Correspondencia de Cuba</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name/Creator</td>
<td>Capoul, Víctor, 1836-1924</td>
</tr>
<tr>
<td>HOLLIS ID</td>
<td>002259637</td>
</tr>
<tr>
<td>Digital Object</td>
<td><a href="http://nrs.harvard.edu/urn-3:FHCL:139968">http://nrs.harvard.edu/urn-3:FHCL:139968</a></td>
</tr>
<tr>
<td>Location</td>
<td>Widener HD</td>
</tr>
<tr>
<td>Place of Origin</td>
<td>Habana</td>
</tr>
<tr>
<td>Publisher</td>
<td>Imp. de Obra La Correspondencia de Cuba</td>
</tr>
<tr>
<td>Creation Date</td>
<td>1833</td>
</tr>
<tr>
<td>Language</td>
<td>Spanish</td>
</tr>
<tr>
<td>Description</td>
<td>60 p.; 17 cm</td>
</tr>
<tr>
<td>Form/Genre</td>
<td>text</td>
</tr>
<tr>
<td>Subject</td>
<td>Serrano y Domínguez, Francisco, duque de la Torre, 1816-1886 : Havana (Cuba) -- Description and travel</td>
</tr>
<tr>
<td>Other Title</td>
<td>Duques de la Torre y el casamiento de su hijo</td>
</tr>
<tr>
<td>Other Title</td>
<td>Latin American pamphlet digital project at Harvard University</td>
</tr>
</tbody>
</table>
Browse the Collection

Title | Name/Creator | Subject | Form/Genre

a b c d e f g h i j k l m n o p q r s t u v w x y z

Prev Next or Jump To: [ ] Go

Cabá, Jeraldino
Caballero, Andrés S
Caballero, José Agustín
Caballero de Rodas, Antonio
Cabanyes, Manuel de
Cabero de Dorado, María
Cabildo Eclesiástico (Santiago, Chile)
Cabildo Eclesiástico de Santa Cruz (Santa Cruz, Bolivia)
Cabrera, Ladislaw
Cacao

Hints
- Click on an index to see all terms for this heading
- After conducting a search select "prev" or "next" to browse alphabetically through the index
Search Results

Result page: 1 Records 1 to 1 of 1 for search: Caballero, José Agustín in (Subject).

1 Title  El presbítero D. José Agustín Caballero, su vida y sus obras / por Alfredo Zayas.
Creator Zayas y Alonso, Alfredo
Date 1891
Link  http://nrs.harvard.edu/urn-3:FHCL:504878

Display Full Record

Back to Browse Results

Result page: 1 Records 1 to 1 of 1 for search: Caballero, José Agustín in (Subject).

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Questions & Comments
An Integrated Virtual Collection

Harvard Open Collections Program “Women Working”
<table>
<thead>
<tr>
<th>Title</th>
<th>Rapid Transit Soap</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name/Creator</td>
<td>Colgate &amp; Co., N.Y., New York, New York, United States, creator/advertiser (manufacturer)</td>
</tr>
<tr>
<td>VIA ID</td>
<td>dbywork04422</td>
</tr>
<tr>
<td>Digital Object</td>
<td><img src="image" alt="Image of a soap advertisement" /></td>
</tr>
<tr>
<td>Location</td>
<td>Baker Library, Harvard Business School, Historical Collections; TCB140.0031</td>
</tr>
<tr>
<td>Publisher</td>
<td>Cha, Shields &amp; Sons</td>
</tr>
<tr>
<td>Creation Date</td>
<td>1875</td>
</tr>
<tr>
<td>Description</td>
<td>9 x 14.5</td>
</tr>
<tr>
<td>Form/Genre</td>
<td>still image; advertisements; chromolithographs; trade cards</td>
</tr>
<tr>
<td>Access Rights</td>
<td>Baker Library, Harvard Business School, Historical Collections Contact repository for permissions and fees</td>
</tr>
<tr>
<td>Access Rights</td>
<td>Copyright 2000, President and Fellows of Harvard College; all rights reserved</td>
</tr>
<tr>
<td>Materials Type</td>
<td>chromolithography</td>
</tr>
<tr>
<td>Subject</td>
<td>soap; cleaning compounds; cleaning compounds industry; city &amp; town life</td>
</tr>
</tbody>
</table>
Title: Rapid Transit Soap
Work Type: advertisements; chromolithographs; trade cards
Creator: Colgate & Co. (n.d.), New York, New York, United States
Production: New York, New York, United States, Chas. Shields' Sons
Date: between 1875 and 1899
Description: Verso: blank.
Dimensions: 9 x 14.5
Topics: soap; cleaning compounds; cleaning compounds industry; city & town life
Materials/Techniques: chromolithography
Note: Provenance: Gift of James S. Robinson.
Copyright: Copyright 2000, President and Fellows of Harvard College; all rights reserved.
Use Restrictions: Baker Library, Harvard Business School, Historical Collections: Contact repository for permissions and fees.
Repository: Baker Library, Harvard Business School, Historical Collections
Record Identifier: olvwork84422
Creating a Virtual Collection
Creating a Virtual Collection

Step 1. Define the collection

Step 2. Define the look and feel requirements

Step 3. Harvest metadata records

Step 4. Add categories (optional)
Step 1: Define the Collection

- What materials from HOLLIS, VIA, and/or HGL are to make up the collection?
- Is additional cataloging required in the primary catalog?
- Do digital versions of any of the objects need to be created?
- Will any VC-specific subject terms (“categories”) be added to the collection?
Step 2: Define the Look and Feel Requirements

- Curator selects an implementation option:
  
  - **Stand-alone – minimal work**
    - Data and public “skin” (custom banner, background colors, footer, menu links, home page text) hosted by VC
  
  - **Integrated – look and feel**
    - Data hosted by VC; public “skin” styled and hosted locally
      - Setup and maintenance under curator’s control
  
  - Both options offer the same search, browse, and record display features
Step 3: Harvest Metadata Records

- Sources: HOLLIS OPAC, VIA, Harvard Geospatial Library
- Curator creates a “harvest file”
- Curator FTPs the harvest file to a dropbox; records harvested overnight
  - Automatic weekly harvesting picks up changes in source cataloging
Step 4: (Optional) Add Categories to Records

- Categories are optional subject-like terms added to records in VC
- They supplement but do not replace subject terms from the source system
- They are created using the VC Web Maintenance Interface to a collection
- They can be searched and browsed

<table>
<thead>
<tr>
<th>Subject</th>
<th>Naturalization -- United States -- H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category</td>
<td>Naturalization</td>
</tr>
<tr>
<td></td>
<td>Citizenship</td>
</tr>
<tr>
<td></td>
<td>Americanization</td>
</tr>
<tr>
<td></td>
<td>Education</td>
</tr>
<tr>
<td>Other Title</td>
<td>Aids to citizenship series</td>
</tr>
</tbody>
</table>
Benefits of Virtual Collections

• Minimal setup time for a fully functional web based collection

• Centrally supported infrastructure – 24x7 support

• Have our cake and eat it too
  – Capitalize on central cataloging
  – Automated sync with catalog updates
  – Multiple contexts for discovery (union catalog and virtual collection)
Current Collections

- **Latin American Pamphlets**
  (Harvard College Library Latin American Collection) (3500 records)
- **Immigration to the United States, 1789-1930**
  (Harvard University Library Open Collections Program) (8400 records)
- **Women Working**
  (Open Collections Program) (4200 records)
- **Studies in Scarlet**
  (Harvard Law Library; upcoming)
How Virtual Collections Work and Some Implementation Challenges
VC Architecture

- Hollis Data Provider
- VIA Data Provider
- HGL Data Provider

- OAI-PMH
- DRS, HOLLIS, VIA, HGL

- VC Harvester
- VC Database (MODS)
- Public Access

- Harvest file
  - HOLLIS 002223743
  - VIA olvwork125041
  - HGL MGISRAILTRA1

- XML
- Maintenance Interface

- Generate Harvest File
- Delete Records
- Edit Local Subjects
VC Technologies

- Java 1.4 (Servlets, JSPs)
- Struts framework
- Tomcat 4.1 (Servlet engine)
- Tamino Native XML database
- XML Schema
- XSLT
- OAI-PMH (OAICAT – OCLC)
- MODS (Metadata Object Description Schema)
Harvesting: OAI-PMH

• Harvester uses GetRecord verb
  verb=GetRecord&identifier=HVD01-002223743&metadataPrefix=marc21

• HOLLIS: Data Provider from ExLibris

• VIA: Custom Data Provider

• HGL: Custom Data Provider
<OAI-PMH xmlns="http://www.openarchives.org/OAI/2.0/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.openarchives.org/OAI/2.0/ http://www.openarchives.org/OAI/2.0/OAI-PMH.xsd">
  <responseDate>2006-11-01T15:19:48Z</responseDate>
  <request verb="GetRecord" identifier="HVD01-002223743" metadataPrefix="marc21">http://ilms01.harvard.edu/OAI-script</request>
  <GetRecord>
    <record>
      <header>
        <identifier>HVD01-002223743</identifier>
        <datestamp>2006-11-01</datestamp>
        <setSpec>HVD01</setSpec>
      </header>
      <metadata>
xsi:schemaLocation="http://www.loc.gov/standards/marcxml/schema/MARC21slim.xsd">
          <marc:leader>00720nam 2200241i 4500</marc:leader>
          <marc:controlfield tag="001">002223743-7</marc:controlfield>
          ...
          <marc:field tag="100" ind1="1" ind2="">
            <marc:subfield code="a">Ward, Marie E.</marc:subfield>
          </marc:field>
          ...
        </marc:record>
      </metadata>
    </record>
  </GetRecord>
</OAI-PMH>
OAI (VIA)
Harvesting Challenges

- Aleph OAI provider lacks holdings info
- Add holdings fields using XServer

```xml
<oai_marc>
...
<varfield id="856" i1="4" i2="1">
  <subfield label="u">http://nrs.harvard.edu/urn-3:RAD.SCHL:159598</subfield>
  <subfield label="z">Provides access to page images of entire work</subfield>
</varfield>
<varfield id="852" i1="7" i2=""
  <subfield label="2">ZHCL</subfield>
  <subfield label="b">WID</subfield>
  <subfield label="c">HD</subfield>
  <subfield label="h">SG 1690.3</subfield>
</varfield>
...
</oai_marc>```
Harvesting Challenges

- Local subjects in MARC records
- 600/650 -> MODS:subject
  
  `<datafield tag="650" ind1="" ind2="0">`
  
  `<subfield code="a">Cycling.</subfield>`
  
  `</datafield>`

- 690 -> VC:subject
  
  `<datafield tag="690" ind1="" ind2="9">`
  
  `<subfield code="a">Conduct of life; Education; Living conditions; Dress; Health; Recreation.</subfield>`
  
  `</subfield>`

  `</datafield>`

690 Subjects parsed; Loaded into VC if Match found
Harvesting Challenges

- Seeding and refreshing a collection
  - Aleph report for HOLLIS record id
  - Custom query tool for VIA record id generation (future)
## Metadata Mapping: Crosswalks/XSL

<table>
<thead>
<tr>
<th>Catalog</th>
<th>XML Input</th>
<th>XSL (crosswalk)</th>
<th>XML Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOLLIS</td>
<td>marc21slim</td>
<td>marc21slim2mods.xsl (Lib of Congress)</td>
<td>MODS</td>
</tr>
<tr>
<td>VIA</td>
<td>via native</td>
<td>via2mods.xsl (Custom)</td>
<td>MODS</td>
</tr>
<tr>
<td>HGL (Geospatial)</td>
<td>FGDC</td>
<td>1. fgdc 2 marc 2. marc21slim2mods.xsl</td>
<td>MODS</td>
</tr>
</tbody>
</table>
<?xml version="1.0" encoding="utf-8"?>
<mods xmlns="http://www.loc.gov/mods/v3">
  <titleinfo>
    <nonSort>The</nonSort>
    <title>common sense of bicycling</title>
    <subTitle>bicycling for ladies : with hints as to the art of wheeling—advice to beginners—dress—care of the bicycle—mechanics—training—exercise, etc., etc</subTitle>
  </titleinfo>
  <titleinfo type="alternative">
    <title>Bicycling for ladies</title>
  </titleinfo>
  <name type="personal">
    <namePart>Ward, Marie E.</namePart>
  </name>
  <role>
    <roleTerm authority="marcrelator" type="text">creator</roleTerm>
  </role>
  <typeOfResource>text</typeOfResource>
  <recordInfo>
    <recordCreator authority="marcorg"/>
    <recordCreationDate encoding="marc">750617</recordCreationDate>
    <recordChangeDate encoding="iso8601">20040510140847.0</recordChangeDate>
    <recordIdentifier source="HOLLIS">002223743</recordIdentifier>
  </recordInfo>
</mods>
<?xml version="1.0" encoding="utf-8"?>
<mods xmlns="http://www.loc.gov/mods/v3">
  <titleInfo>
    <title>Collective farm girl on a bicycle</title>
  </titleInfo>
  <name>
    <namePart>Deineka, Aleksandr</namePart>
    <namePart type="date">1899-1989</namePart>
    <namePart>Russia</namePart>
    <role>
      <roleTerm>artist</roleTerm>
    </role>
  </name>
  <physicalDescription>
    <extent>120 x 220 cm.</extent>
    <form>paintings</form>
  </physicalDescription>
  <subject>
    <topic>bicycles</topic>
  </subject>
  <recordInfo>
    <recordIdentifier source="VIA">olvwork125041</recordIdentifier>
  </recordInfo>
</mods>
<MODS:mods xmlns:MODS="http://www.loc.gov/mods/v3">
  <MODS:titleInfo>
    <MODS:title>Rail Trails Datalayer</MODS:title>
  </MODS:titleInfo>
  <MODS:name type="personal">
    <MODS:namePart>Massachusetts Executive Office of Environmental Affairs</MODS:namePart>
    <MODS:role>
      <MODS:roleTerm authority="marcrelator" type="text">creator</MODS:roleTerm>
    </MODS:role>
  </MODS:name>
  <MODS:typeOfResource>cartographic</MODS:typeOfResource>
  ...
  <MODS:abstract>The Rail Trails Datalayer is a line coverage representing abandoned railroad rights-of-way and public bike trails that use the rights-of-way. The dataset was created by the Massachusetts Department of Environmental Management for the purpose of regional planning and mapping. The data was originally modified by DEM from the MassGIS Railroads Datalayer; it has since been modified for DEM by the University of Massachusetts in 1997. All modifications were made using information from various paper maps, and much of the data came directly from USGS Topographic Quadrangles.</MODS:abstract>
  ...
  <MODS:subject authority="LCSH">
    <MODS:topic>Bicycle trails</MODS:topic>
  </MODS:subject>
  <MODS:recordInfo>
    <MODS:recordCreationDate encoding="marc">999999</MODS:recordCreationDate>
    <MODS:recordIdentifier source="HGL">MGISRAILTRA1</MODS:recordIdentifier>
  </MODS:recordInfo>
</MODS:mods>
Metadata Mapping

MARC and VIA to MODS

**VIA xml**

```
<creator>
  <nameElement>Picasso, Pablo</nameElement>
  <dates>1881-1973</dates>
</creator>
```

**VC MODS xml**

```
<name type="personal">
  <namePart>Picasso, Pablo</namePart>
  <namePart type="date">1881-1973</namePart>
  <role>
    <roleTerm authority="..." type="...">creator</roleTerm>
  </role>
</name>
```
VC converts differing data sources into a standard format with a predefined set of elements.

<table>
<thead>
<tr>
<th>In HOLLIS</th>
<th>In MODS</th>
<th>In VIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>title (24x)</td>
<td>titleInfo</td>
<td>title</td>
</tr>
<tr>
<td>author (1xx/7xx)</td>
<td>name</td>
<td>creator</td>
</tr>
<tr>
<td>published (260)</td>
<td>originInfo</td>
<td>production</td>
</tr>
<tr>
<td>genre (007/008)</td>
<td>genre</td>
<td>---</td>
</tr>
<tr>
<td>physical description (008)</td>
<td>physicalDescription/form</td>
<td>workType</td>
</tr>
<tr>
<td>subject (6xx)</td>
<td>subject/topic</td>
<td>location/subject topics</td>
</tr>
</tbody>
</table>
Metadata Mapping: MODS

• Why MODS
  • Richer metadata than qualified Dublin Core
  • Clean mapping from both MARC and VIA to MODS
  • Supports hierarchical VIA (and MARC) records

VIA
  
  <surrogate componentID="olvsurrogate299383">
    <title><textElement>Total</textElement></title>
  </surrogate>

MODS

  <relatedItem type="constituent">
    <titleInfo><title>Total</title></titleInfo>
    <recordInfo><recordIdentifier>olvsurrogate299383</recordIdentifier></recordInfo>
  </relatedItem>
Hierarchy in VIA record

Title: Collective farm girl on a bicycle
Name/Creator: Deineka, Aleksandr, 1899-1969, Russia, creator artist
VIA ID: olvwork126041
Location: State Russian Museum, Leningrad, Russia (Federation)
Creation Date: 1935
Description: 120 x 220 cm.
Form/Genre: still image, paintings
Classification: CA D 3666 1935 Co
Culture: Russian
Materials Type: oil on canvas
Subject: landscapes; bicycles; farms; girls

---

Title
Digital Object

Location: Harvard Fine Arts Library, Visual Collections - Slides and Digital Images
Form/Genre: still image, color slide
Classification: CA D 3666 1935 Co
Virtual Collections Schema

- One primary schema for all collections

```xml
<virtualCollection>
  <xs:import schemaLocation = "mods.xsd"/>
  <xs:import schemaLocation="VC_subject.xsd"/>
  <xs:element name = "virtualCollection">
    <xs:complexType>
      <xs:sequence>
        <xs:element name="modsGroup" ref="MODS:mods" />
        <xs:element name="vcSubj" ref="VC:subject" .../>
        <xs:element name="admSection" ref="admin" />
      </xs:sequence>
    </xs:complexType>
  </xs:element>
</virtualCollection>
```

Common to all collections

Distinct to each collection
Metadata Mapping: Schema Definition

- Local Subject schema for each collection

```xml
<xs:element name="subject">
  <xs:simpleType>
    <xs:restriction base="xs:string">
      <xs:enumeration value="African American"/>
      <xs:enumeration value="Aged women"/>
      <xs:enumeration value="Agricultural work"/>
      <xs:enumeration value="Anarchism"/>
      <xs:enumeration value="Artists"/>
      ...
    </xs:restriction>
  </xs:simpleType>
</xs:element>
```

Controlled list of Local Subjects
<virtualCollection>
  <mods xmlns="http://www.loc.gov/mods/v3">
    <titleInfo>
    </titleInfo>
    <note>Credit Line: On deposit from the Carpenter Center for the Visual Arts</note>
    <subject>
      <topic>Photographs</topic>
    </subject>
    ...<mods>
  <admin>
    <createDate>2006-09-29</createDate>
    <status>Active</status>
  </admin>
</virtualCollection>
Metadata Mapping: Challenges

- Multiple transforms
  - Original form MARC or MODS wrapped in OAI elements
  - Final XML record form is MODS + ADMIN + VC Subjects

```
<OAI-PMH>
  <marc21>
    <datafield tag="245">...
  </marc21>
</OAI-PMH>

<xserver:find_doc>
  <oai_marc>
    <varfield id="852">
    <varfield id="856">
  </oai_marc>
</xserver:find_doc>

<marc21>
  <datafield tag="245">...
  <datafield tag="852">...
  <datafield tag="856">...
</marc21>

<mods>
  <titleInfo>
    <location><url>...
  </location>
  <location>
    <physicalLocation>
  </location>
  <admin>
    <vc:subject>ADD
</admin>
</mods>
```
Storage of Metadata

- Tamino native XML database
- Schema(s) defined within Tamino
- XQuery (W3C standard) used to query database for results

Challenges
- Native XML DBs not as mature as relational
  - Tamino just now catching up with full implementation of XQuery
- Scaling as number and size of collections grow
User Interface and Customization

- **Challenge:** provide an out-of-the-box option and customizable option for collections
  - Different needs for different collections
- **Solution:** Standalone and Integrated
  - Default XSL and CSS templates for standalone
  - Override default templates with custom XSL and/or CSS for integrated collections
User Interface: Stylesheets

• XSL used to render XML to HTML

MODS XML

<subject>
  <topic>bicycles</topic>
</subject>

XSL Stylesheet

<xsl:template match=subject>
  …replace w/ html tags
</xsl:template>

HTML

<div>Subject</div><div>bicycles</div>

• CSS used to render “look and feel”

(true of Standalone as well as Integrated)

<div style="label">
  <div style="field">
  </div>
</div>
User Interface: Stylesheets

- Custom XSL (and CSS) passed as url parameters to overwrite default templates
  - XSL
    - &baseUrl=http://defaultUrl&resultSetXsl=defaultRS.xsl
  - &baseUrl=http://customUrl&resultSetXsl=customRS.xsl
  - CSS
    - &baseUrl=http://customUrl&css=custom.css
Title
Anarchism: Holland. Portraits of Salomonson: Anarchism: Salomonson - a Dutch apostle of the return to nature.: Monsieur Joseph Salomonson d'Amsterdam. Ex-consul Meva, l'apôtre de la vie naturelle Social Museum Collection

Name/Creator
Unidentified Artist, creator Artist

VIA ID
HUAM20778soc

Digital Object

Location
Fogg Art Museum, Harvard University Art Museums

Description
14 × 9 cm (5.51 × 3.54 in)

Form/Genre
still image
photograph

Culture
European ?

Materials Type
Gelatin silver print

Subject
Photographs
Full Record Display

Record 3 of 8 for search: holland. Jump to record # [ ]

[ ] Previous Record [ ] Next Record [ ] Back To Results Display

Digital Object

Name/Creator
Unidentified Artist, creator Artist

Title
Anarchism: Holland. Portraits of Salomonson: Anarchism: Salomonson - a Dutch apostle of the return to nature.: Monsieur Joseph Salomonson d'Amsterdam. Ex-consul Meva, l'apôtre de la vie naturelle
Social Museum Collection

Location
Fogg Art Museum, Harvard University Art Museums

VIA ID
HUAM20778soc

Description
14 x 9 cm (5.51 x 3.54 in)

Form/Genre
still image

Culture
European?

Materials Type
Gelatin silver print

Subject
Photographs

Custom XSL (change order)
Full Record Display

Record 3 of 8 for search: holland . Jump to record # [ ] Go

Previous Record | Next Record | Back To Results Display

Digital Object

Name/Creator
Unidentified Artist, creator Artist

Title
Anarchism: Holland. Portraits of Salomonson: Anarchism: Salomonson - a Dutch apostle of the return to nature.: Monsieur Joseph Salomonson d'Amsterdam. Ex-consul Meva, l'apôtre de la vie naturelle
Social Museum Collection

Location
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HUAM20778soc

Description
14 x 9 cm (5.51 x 3.54 in)

Form/Genre
still image
photograph

Culture
European ?

Materials Type
Gelatin silver print

Subject
Photographs

Custom CSS
(change look and feel)
User Interface: Local Subjects

- **Challenge**: how to separate/integrate Local and MODS subjects
  - Hardest issue to reach consensus on
- **Solution**
  - Local subjects *optional*
  - Local and MODS subjects integrated for **KW search** as well as **browse**
  - Optional **local subject dropdown** on search screen
  - MODS and Local subjects **separated** in Full Record display
Optional local subject dropdown

Subject KW Search Integrates MODS & Local
Subject Browse
Integrates Local and MODS
### User Interface: Mapping

- **Challenge:** consensus on fields and labeling

<table>
<thead>
<tr>
<th>In HOLLIS</th>
<th>Label in VC</th>
<th>In VIA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Title (24x)</strong></td>
<td><strong>Title</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Author (1xx/7xx)</strong></td>
<td><strong>Name/Creator</strong></td>
<td><strong>Creator</strong></td>
</tr>
<tr>
<td><strong>Published (260)</strong></td>
<td><strong>Publisher</strong></td>
<td><strong>Production</strong></td>
</tr>
<tr>
<td><strong>Place of Origin</strong></td>
<td><strong>Form/Genre</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Genre</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Physical Description</strong></td>
<td></td>
<td><strong>Work Type</strong></td>
</tr>
</tbody>
</table>
VC Future Developments

- OAI Data Provider for VCs (this year)
- Portfolio function
- Ability to harvest from other Harvard catalogs
- Ability to search multiple virtual collections
Questions?