Searching Sheet Music:  
IN Harmony Final Report

Stacy Kowalczyk
Digital Library Program
Brownbag Spring Series
February 13, 2008
Agenda

– Project Overview
– Sheet Music User Behaviors
– IN Harmony Search and Discovery Website
DLP Project Staff

• Kara Alexander, Digital Media Specialist
• Michelle Dalmau, Digital Projects and Usability Librarian
• Jon Dunn, Associate Director for Technology
• Michael Durbin, Programmer/Analyst, Digital Library Infrastructure
• Jim Halliday, Software Analyst/Programmer
• Julie Hardesty, Usability and Interface Specialist
• Muzaffer Ozakca, Programmer/Analyst, Digital Library Tools
• Jenn Riley, Metadata Librarian
• Lindley Shedd, Digital Imaging Specialist
• Niki Roberg
• John Walsh
• Kris Brancolini

February 13, 2008 DLP Brownbag Series
IN Harmony is

• An IMLS funded grant
• Awarded in Fall 2004
• To be competed in Fall 2008
• A partnership of
  – Indiana University Digital Library Program
  – Indiana University Lilly Library
  – Indiana State Library
  – Indiana State Museum
  – Indiana Historical Society
Project Goals

1. To provide a mode for fostering collaborative digital library development by partnering with institutions with complementary collections;

2. To digitize a portion of the sheet music from these collections and offer access to these materials free of charge on the web;

3. To bring these materials and their attendant metadata together on a single web site, offering both federated searching of the entire collection and searching of one or more selected collections;

4. To explore copyright questions, specifically to test the hypothesis that approximately 90 percent of copyrights have not been renewed for materials published between 1923 and 1964.
Fostering Collaboration

• Gaining a common understanding
• Negotiating conflicting requirements and priorities
• Developing Expertise

Final deliverable is a long-term working relationship between all of the partners to participate in the Indiana Digital Library
Why Sheet Music?

• Musicologists
  – Musical practices, structures and meanings

• Historians
  – Cover designs, lyrics, and advertisements

• General Public
  – Playable copies of out of print music, connections to family stories
Digitizing

Deliverable – 10,000 pieces of sheet music
- 4,000 Indiana University Lilly Library
- 2,000 Indiana State Library
- 2,000 Indiana State Museum
- 2,000 Indiana Historical Society
Current Project Status

- Partner scanning began in January 2006
- Cataloging began in May 2006

<table>
<thead>
<tr>
<th></th>
<th>IHS Completed</th>
<th>ISL Completed</th>
<th>ISM</th>
<th>Lilly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Images Scanned</td>
<td>2020</td>
<td>1738</td>
<td>1468</td>
<td>5274</td>
</tr>
<tr>
<td>Cataloging Records</td>
<td>2020</td>
<td>1551</td>
<td>1467</td>
<td>3171</td>
</tr>
</tbody>
</table>

February 13, 2008
Cataloging and Imaging Workflow Goals

• Data integrity
  – Quality of the scans
  – Quality of the metadata
  – Accuracy of the links between page images
  – Accuracy of the links between metadata and images

• Simplicity of use
  – Balance of flexibility and constraints
Cataloging and Imaging Concepts

• **Batch** – a set of metadata records and images that are processed together.

• **Manual Quality Control (QC)** – visual verification of the quality and accuracy of the scan and metadata.

• **Automated QC** – a computerized process to verify the technical quality of the scans and the integrity of the metadata.
Cataloging and Scanning Use Cases

1. Metadata exists
   - Get metadata from database
   - Create either full or minimal metadata record
   - Scan sheet music

2. Metadata does not exist
   - Create either full or minimal metadata record
   - Scan sheet music

3. Metadata is created in another system and imported into IN Harmony
Image Workflow Processing

IUDLP Image Validation and Processing

Specify Institution

Scanning technician: skowalcz
Collection: IN Harmony
Institution: Choose An Institution

For comments and questions about this collection, send email to inharmony-support@dlib.indiana.edu.
Send general comments and questions to diglib@indiana.edu.
Choose a Batch to Process – Auto QC

IUDLP Image Validation and Processing

Automatic and Manual Quality Control (QC) for Batches

Select to either run automatic quality control or approve manual quality control on recently uploaded image batches. Automatic and manual quality control must be done by different people.

Run Batches for Automatic Quality Control

These batches have been recently uploaded and require automatic control. Select a batch and click 'Validate' to initiate automatic QC.

Approve Batches after Manual Quality Control

These batches have passed automatic QC. They need to undergo manual QC before you can continue with the upload process. Once you have completed manual quality control, select a batch and click 'Approve.'

If you need to delete a batch entirely from the holding area instead, select the batch and click 'Delete.'
Failure Report Real Time

IUDLP Image Validation and Processing

Validation for Batch 2-6&7-05

Please wait while the images from batch '2-6&7-05' are being validated.

Step 1. Performing initial batch tests... FAILED

Validation failed.

ERROR: The uploaded batch folder contains subfolders, which cannot be processed correctly. Please delete all subfolders.
ERROR: The uploaded batch folder is empty.
ERROR: One or more files have page numbering problems.

Click here to work on other batches.
Auto QC once again

IUDLP Image Validation and Processing

Automatic and Manual Quality Control (QC) for Batches

Select to either run automatic quality control or approve manual quality control on recently uploaded image batches. Automatic and manual quality control must be done by different people.

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These batches have been recently uploaded and require automatic control. Select a batch and click 'Validate' to initiate automatic QC.

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Batch Passed Auto QC

IUDLP Image Validation and Processing

Validation for Batch 2-1-06

Please wait while the images from batch '2-1-06' are being validated...

Step 1. Performing initial batch tests... passed

Step 2. Examining individual images...

Examing img-71 998 058 0597-01-01 tf passed
Examing img-71 998 058 0597-01-02 tf passed
Examing img-71 998 058 0597-01-03 tf passed
Examing img-71 998 058 0597-01-04 tf passed
Examing img-71 998 058 0600-01-01 tf passed
Examing img-71 998 058 0600-01-02 tf passed

Validation passed. Moving images to holding area...

Moving img-71 998 058 0597-01-01 tf...
Moving img-71 998 058 0597-01-02 tf...
Moving img-71 998 058 0597-01-03 tf...
Moving img-71 998 058 0597-01-04 tf...
Moving img-71 998 058 0600-01-01 tf...
Moving img-71 998 058 0600-01-02 tf...

Validation complete.

Click here to work with more batches.
Manual QC Approval

IUDLP Image Validation and Processing

Automatic and Manual Quality Control (QC) for Batches

Scanning technician: skowalcz
Collection: IN Harmony
Institution: Indiana Historical Society
If you have any problems, please send email to inharmony-support@dlb.indiana.edu

Select to either run automatic quality control or approve manual quality control on recently uploaded image batches. Automatic and manual quality control must be done by different people.

Run Batches for Automatic Quality Control

NO batches ready for automated validation

Approve Batches after Manual Quality Control

These batches have passed automatic QC. They need to undergo manual QC before you can continue with the upload process. Once you have completed manual quality control, select a batch and click ‘Approve.’

Choose A Batch: Approve

If you do not wish to approve a batch entirely from the holding area instead, select the batch and click ‘Delete.’

Choose A Batch To Delete: Delete
Final Approval

IUDLP Image Validation and Processing

QC for Batch 2-1-06 Complete

Please wait while the images from batch '2-1-06' are being moved...

Moving img-71.998.058.0597-01-01.tif...
Moving img-71.998.058.0597-01-02.tif...
Moving img-71.998.058.0597-01-03.tif...
Moving img-71.998.058.0597-01-04.tif...
Moving img-71.998.058.0600-01-01.tif...
Moving img-71.998.058.0600-01-02.tif...
Moving img-71.998.058.0600-01-03.tif...
Moving img-71.998.058.0600-01-04.tif...
Moving img-71.998.058.0600-01-05.tif...
Moving img-71.998.058.0600-01-06.tif...
Moving img-71.998.058.0601-01-01.tif...
Moving img-71.998.058.0601-01-02.tif...
Moving img-71.998.058.0601-01-03.tif...
Moving img-71.998.058.0601-01-04.tif...
Moving img-71.998.058.0601-01-05.tif...
Moving img-71.998.058.0601-01-06.tif...
Moving img-71.998.058.0602-01-01.tif...
Moving img-71.998.058.0602-01-02.tif...
Moving img-71.998.058.0602-01-03.tif...
Moving img-71.998.058.0602-01-04.tif...
Moving img-71.998.058.0603-01.tif...
Batch is Complete

Inbox: Batch processing for batch 2-6-06 completed (1860 of 1894)

This email is to inform you that batch 2-6-06 has been successfully processed. Derivatives have been created and may be accessed using the following links:

http://inharmonylib.indiana.edu/inharmonylib/index/ls1-603-01

Please send an email to inharmony-support@indiana.edu if you have any questions or problems. Thanks!
Designing the metadata model

• User studies
• Define fields
• Write cataloging guidelines with partner input
• Representation in MODS
Sheet Music User Behaviors

• 3 usability studies showed that users search by
  – Names (compose, arranger, performer, cover artist)
  – Key words
  – Subjects

Full usability reports are available at
http://www.dlib.indiana.edu/projects/inharmony/projectDoc/index.shtml
Sheet Music User Behaviors

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Impact on Cataloging

- Tendency towards name searching should require name authority control and integration of the cross-referencing structures in order for users to more reliably find name variants.
- Preference toward keyword searching suggests the need for rich, descriptive records including the recording of lyrics, chorus lines, and other metadata that may enrich the record to increase recall when free-text searching.
- Common subject searches such as genre/form/style, instrumentation and topic should require the use of controlled vocabularies suitable for describing these specific subject areas.
- Infrequent but interesting searches of other metadata elements such as identification numbers and keys should be considered as part of the metadata model.
Search Functionality
### Search Results

**IN Harmony Search Window - Version 1.19 - Production Database**

Create a new record:

- **Score ID:** 
- **New**

Or search for an existing record:

- **Score ID:** 
- **Search**
- **Status:** any
- **Title:** Blues
- **Scanned:** either
- **Name:** 
- **Suppressed:** either

<table>
<thead>
<tr>
<th>ID</th>
<th>Status</th>
<th>Title</th>
<th>Composer</th>
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</thead>
<tbody>
<tr>
<td>LL-SSM-1-020-0002</td>
<td>cataloged</td>
<td>Blues in the night (my mama con...</td>
<td>Arlen, Harold, 1905-1986</td>
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<tr>
<td>LL-SSM-1-020-0049</td>
<td>cataloged</td>
<td>This time the dream's on me</td>
<td>Arlen, Harold, 1905-1986</td>
</tr>
<tr>
<td>ihs-SHMU_30_24</td>
<td>cataloged</td>
<td>Everybody's crazy bout the doggo...</td>
<td>Layton</td>
</tr>
<tr>
<td>ihs-SHMU_31_42</td>
<td>cataloged</td>
<td>Serenade blues</td>
<td>Bissle, Noble, 1889-1975</td>
</tr>
<tr>
<td>Isl-abt-4554</td>
<td>cataloged</td>
<td>Blues eyes crying in the rain</td>
<td>Rose, Fred, 1897-1954</td>
</tr>
<tr>
<td>ism-71.985.252.77</td>
<td>cataloged</td>
<td>Blues (my naughty sweetie gives t...</td>
<td></td>
</tr>
<tr>
<td>ism-71.993.58.1295</td>
<td>cataloged</td>
<td>Blues: my naughty sweetie gives t...</td>
<td></td>
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</tbody>
</table>

[Link to IN Harmony Search Window](#)
### Title Tab Functions

**Edit Score Object: ihs-SHML_31_42**

<table>
<thead>
<tr>
<th>Title</th>
<th>Name</th>
<th>Publisher</th>
<th>Subject</th>
<th>ID</th>
<th>Note</th>
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#### Table Data:

<table>
<thead>
<tr>
<th>Type</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Firstline</td>
<td>Blues I had, I love them so</td>
</tr>
<tr>
<td>Firstline of chorus</td>
<td>Just take the serenade that Schubert wrote</td>
</tr>
<tr>
<td>Title</td>
<td>Serenade blues</td>
</tr>
</tbody>
</table>

**View copy 1**
Title Tab Functions – Edit existing data

Edit Score Object: ihs-SHBU_31_42

Score ID: ihs-SHBU_31_42
Institution: Indiana Historical Society (IHS)
Status: cataloged

View Access Data

<table>
<thead>
<tr>
<th>Title</th>
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<th>Publisher</th>
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</tbody>
</table>

Alternative title

<table>
<thead>
<tr>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>First line</td>
<td>Blues I heard, I love them so</td>
</tr>
<tr>
<td>First line of chorus</td>
<td>Just take the serenade that Schubert wrote</td>
</tr>
<tr>
<td>Title</td>
<td>Serenade blues</td>
</tr>
</tbody>
</table>

Edit First line

<table>
<thead>
<tr>
<th>Blues I heard, I love them so</th>
</tr>
</thead>
</table>

Non-sort

Cancel  OK
Title Tab Functions – Add new title data
Search and Discovery Demo

IN Harmony Project Website
Questions?

Thanks for attending!

IN Harmony Project Website