OpenMIC

Digital Library Federation Fall Forum
November 14, 2008
Jane Johnson Otto
jjohnson@loc.gov

http://mic.loc.gov
Problem: need to preserve

- 1988 National Film Preservation Act
- 1990s – mandated studies and plans
- 1997 – LC asks AMIA for prioritized action plan
- AMIA feasibility study
Solution: Identify holdings

AMIA identifies first & most crucial step:
- Document who has what
- Particularly unique titles
Solution: Identify holdings

Enables archivists to

- identify past preservation work
- Identify emerging critical need
- Reduce duplication of effort
- Prevent loss through deterioration
- Ensure titles are preserved from the best surviving footage
Problem: diversity of the field

- lots of material
- analog and digital
- important content
- much of it deteriorating
- few resources
- few tools
- expertise and infrastructure often less than ideal
- diverse field (organizations, collections, missions, users)
- standards are a good thing
Solution: portal with tools
Solution: portal with tools

- AMIA-Library of Congress collaboration
- NSF-funded (National Science Digital Library: http://nsdl.org)
- Three original university development partners
- Rutgers University Libraries, technology lead
- Grace Agnew, architect
Components

- Union catalog
- Archive directory
- Service providers directory
- Mapping utility
- Info resources
- Portal structure
- Cataloging utility
Components

- Union catalog
- Archive directory
- Service providers directory
- Mapping utility
- Info resources
- Portal structure
- Cataloging utility
<table>
<thead>
<tr>
<th>Record</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>16.</td>
<td><strong>Elephant relocation</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Carrier</strong> 1/2 in ; on 1 cassette of 5 videocassettes ; sd., col</td>
</tr>
<tr>
<td></td>
<td><strong>Holding Organization</strong> Walter J. Brown Media Archives &amp; Peabody Awards Collections</td>
</tr>
<tr>
<td></td>
<td><strong>Obtaining Moving Images</strong></td>
</tr>
<tr>
<td>17.</td>
<td><strong>Free Willy</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Date</strong> 1993</td>
</tr>
<tr>
<td></td>
<td><strong>Carrier</strong> 35 mm. ref print ; 12 reels of 12 on 6 (ca. 9990 ft.) ; sd., col</td>
</tr>
<tr>
<td></td>
<td><strong>Holding Organization</strong> Library of Congress Motion Picture, Broadcasting, and Recorded Sound Division</td>
</tr>
<tr>
<td></td>
<td><strong>Obtaining Moving Images</strong></td>
</tr>
<tr>
<td>18.</td>
<td><strong>Gift of the whales</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Date</strong> 1989</td>
</tr>
<tr>
<td></td>
<td><strong>Carrier</strong> 1/2 in ; 1 videocassette of 1 (30 min.) ; sd., col</td>
</tr>
<tr>
<td></td>
<td><strong>Holding Organization</strong> Pacific Film Archive</td>
</tr>
</tbody>
</table>
16. **Elephant relocation**

- **Carrier**: 1/2 in.; on 1 cassette of 5 videocassettes; sd., col.
- **Holding Organization**: Walter J. Brown Media Archives & Peabody Awards

17. **Free Willy**

- **Date**: 1993
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18. **Gift of the whales**

- **Date**: 1989
- **Carrier**: 1/2 in.; 1 videocassette of 1 (30 min.); sd., col
- **Holding Organization**: Pacific Film Archive

- Link to union catalog
- Community building
- LC & AMIA can target
  - educational needs
  - potential collaborations
  - emerging trends
Components

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<table>
<thead>
<tr>
<th>MicCat 001</th>
<th>Name of organization (from MIC Archive Directory)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>MicCat 002</td>
<td>Organization ID (from MIC Archive Directory)</td>
</tr>
<tr>
<td></td>
<td>AkBeKYUK</td>
</tr>
<tr>
<td>MicCat 003</td>
<td>Name of the person who serves as the MIC Union Catalog contact for the organization</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>MicCat 004</td>
<td>Title of the person who serves as the MIC Union Catalog contact for the organization</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>MicCat 005</td>
<td>Email of the person who serves as the MIC Union Catalog contact for the organization</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>MicCat 006</td>
<td>Telephone number of the MIC Union Catalog contact for the organization</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Embracing Diversity: MIC Mapping Utility

SAMPLE FILE(S) FOR MIC UNION CATALOG

CatFileID: AkBeKYUK_001
Org ID: AkBeKYUK
Collection Name: KYUK new catalog recovered
Metadata Schema: In-house
Record Format: TXT (tab-delimited)

If you are sending txt file, please tell us the field names in exact order of your record in the txt, xls or csv file (even if the field is empty), separate each field with ";" (example: ID;FilmTitle;ProductionDate)  
If you are sending in-house XML file, please enclose your XML Schema or DTD here.

Submit field list

Note: If your records are in a database management system such as FileMaker or Microsoft Access, export your records as a tab-delimited text file using the pulldown menus within the database program. Then upload the exported file.

Please check the file before sending: copy and paste the exported text file onto an Excel spreadsheet and confirm that the values in each field are correct; the number and order of the columns should match your field name list.

Sending Sample File(s)

Find the sample file on your local computer by using Browse button, OR enter the full file path (e.g., C:\marcrecord\sample.marc), then click Upload button:

Send sample records

If you prefer to send CD or floppy disk, please send to the following address:

Jane Johnson Otto
MIC Administrator
1. Title

This data element contains the main title of the resource described in the cataloging record or metadata. If the record describes an individual moving image, that title will go here. If the record describes a group of moving images (a collection) the title which collectively describes the group will go here. If the record describes a single episode of a television series, theatrical serial, or newsreel, both the series and episode (issue) titles will typically go here. "Parallel titles" (equivalent titles in foreign languages) and "other titles" (i.e. subtitles), will also go here. Uniform titles, variant titles, titles of related works, and titles of works contained within the entity described, go elsewhere, as do series titles for educational series. This data element is not repeatable.

Examples:
- Plants and species of native grasslands
- Piper Heidsieck classic film collection; Early Hitchcock clips
- I love Lucy. 1954-05-17, Golf game

When this title appears in the MIC Union Catalog display, it is preceded by TITLE: Any punctuation which appears in your own title field will display, unless you ask MIC to drop the end punctuation. Any initial article which appears in your own title field will display in MIC. MIC files alphabetically; if the title is The Man of the Hour, the record will file under 'T' for 'The.' In MIC, the information contained in this field is retrieved in TITLE searches.

SHOW ME A SAMPLE MIC DISPLAY

<table>
<thead>
<tr>
<th>MAPPING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your equivalent of Title</td>
</tr>
<tr>
<td>NO MAP</td>
</tr>
<tr>
<td>Date of Last Revision</td>
</tr>
<tr>
<td>Date of First Entry</td>
</tr>
<tr>
<td>Control Number</td>
</tr>
<tr>
<td>Old Number</td>
</tr>
<tr>
<td>Title</td>
</tr>
</tbody>
</table>

(select multiple elements if necessary)

MIC populates form with archive’s field list
## 15. Summary

This data element contains any abstract, summary, or synopsis of the work described by the cataloging record. For a listing of contents or shot descriptions, use the CONTENTS field. This data element is repeatable; however, we recommend you record all summary information in a single SUMMARY field where possible.

**Examples:**
- Demonstrates the structures related to the olfactory and limbic systems through diagrams, gross brain specimens and histologic slides on the serial sections of the brain.

Where this field appears in the MIC Union Catalog display, it is preceded by SUMMARY: In MIC, the information contained in this field is retrieved in SUMMARY AND CONTENTS searches.

[SHOW ME A SAMPLE MIC DISPLAY](#)

### MAPPING

<table>
<thead>
<tr>
<th>Your equivalent of <strong>Summary</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>NO MAP</td>
</tr>
<tr>
<td>Date of Last Revision</td>
</tr>
<tr>
<td>Date of First Entry</td>
</tr>
<tr>
<td>Control Number</td>
</tr>
<tr>
<td>Old Number</td>
</tr>
<tr>
<td>Name of Distributor</td>
</tr>
</tbody>
</table>

(select multiple elements if necessary)

### VALUE(S)

**Description:**
- This element could have multiple values:  
  - Yes
  - No

If yes, multiple values are separated (delimited) by this character: 

Example:  

Interview with U.S. Senator Mike Gravel on Section D-2 of the
Small organizations

- Holdings accessible on Web
- Low cost
- In accordance with standards (MODS, METS)
- With existing personnel and infrastructure

Larger institutions

- Multiple/legacy schema brought into conformance
- Export in a single schema
• Union catalog
• Archive directory
• Service providers directory
• Mapping utility
• Info resources
• Portal structure
• Cataloging utility
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Metdata Strategy: Principles

- Promote metadata standards
- Embrace diversity
- Extend standard metadata use to all
- Enable exploration of new technologies
- Provide a model extensible to other archive and library communities
Simultaneously address multiple goals of expanding

- Education
- Outreach
- Access
- Preservation
- Research

in culture and information technology
Union Catalog

• Primarily descriptive
• Batch import

Cataloging utility

• Direct input
• End-to-end management
Life Cycle Management

- Acquisition
- Description
- Preservation
- Access
  - Licensing
  - Exhibition
  - Research
- Digitization
How MIC Works

- ORG’s own database
- Mapping Utility
  - Mapping form MIC CORE
  - Mapping form METS
- Cataloging Utility
  - Org inputs records
  - MIC core registry
  - MODS
  - METS
  - PostgreSQL database
- General export utility
- Import utility

Web search interface
- MIC XML file
  - NSDL records
  - Archive Directory
  - org
  - org
- Information resources
  - Service Providers Directory
  - AMIA
- General export utility
  - Bib utilities, remote databases
  - OAI export utility
  - NSDL, consortia

- How MIC Works
Complete metadata creation system
Web-based (low overhead, infrastructure requirements)
All formats (print and non-print)
Open source
Based on Rutgers WMS
Built out moving image/recorded sound technical metadata
Accommodates all materials
Import/export utilities
Configurable
• Organization
• Collection (organizing mechanism)
• Resource

You have logged in as the system super user. You can either review and edit user's authorization/authentication information or go to dwms and start working there.

Manage User Account
Review and Manage MIC Archive Directory
Review and Manage MIC Service Provider Directory
Manage MIC Union Catalog
• Union Catalog environment
• Standalone
• Part of repository architecture
MIC – OpenMIC - OpenWMS

Union Catalog
- Website
- Union Catalog
- Archive Directory
- Vendor Directory
- Info resources
- Portal structure

Standalone
- Cataloging utility
  - *Auth/authorization
  - *Mapping
  - *Import
  - *Export
  - *Reports function

Digital repository
- File handling for Fedora-based digital repositories

MIC
mic.loc.gov

OpenMIC
(phase 1)

OpenWMS
(phase 2)
UCLA

- Television
- Stock news
- MP
- Outfest

- title
- title
- title
• Organization
• Collection (organizing mechanism)
• Resource
Create organization

- Administration
  Manage organizations, collections, and transactions, perform database cleanup, create announcements.

- Configuration
  Configure metadata cataloging, digital file handling, mapping, batch import, and export utilities according to organization policies.

- Reports
  View or print statistical reports about your metadata or digital files.

- Metadata and digital objects
  Create or edit cataloging records, create or upload digital objects, map schemas, import, export, etc.
Administration

- Organization Management
- Collection Management
- Database Cleanup
- Transaction Management
- Announcements

EXIT
Setup Organization

The Workflow Management System (WMS) is a flexible digital object management tool that helps you prepare the digital objects and associated metadata for ingest into Fedora based RUcore repository.

Organization ID: 
Organization Name: 
Organization Address: 

Contact Person:
Name: 
Telephone: 
Email: 

[EXIT] [SAVE]
Create collection
<table>
<thead>
<tr>
<th>System ID</th>
<th>Collection</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>3109</td>
<td>Eastwood Classics</td>
<td>M</td>
</tr>
<tr>
<td>3108</td>
<td>Animation</td>
<td>M</td>
</tr>
<tr>
<td>3107</td>
<td>Video art</td>
<td>M</td>
</tr>
<tr>
<td>3106</td>
<td>West Coast avant-garde</td>
<td>M</td>
</tr>
<tr>
<td>3105</td>
<td>Soviet silents</td>
<td>M</td>
</tr>
<tr>
<td>3104</td>
<td>Japanese cinema</td>
<td>M</td>
</tr>
</tbody>
</table>
OpenMIC

• Create user(s) with role(s)

You have logged in as the system super user. You can either review and edit user's authorization/authentication information or go to dwms and start working there.

Manage User Account
Review and Manage MIC Archive Directory
Review and Manage MIC Service Provider Directory
Manage MIC Union Catalog

Cancel
Moving Image Collections
A Window to the World’s Moving Images

MIC Home | MIC Resource Management

MIC Resource Management

User Account

First Name: 
Last Name: 
Address: 
Email: 
MIC User ID: 
Password: 
Re-type Password: 

Cancel  Submit

Registered Users

<table>
<thead>
<tr>
<th>Name</th>
<th>Role Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leigh Andrews</td>
<td>[S] [R] [S] Cataloger/import/export/map</td>
</tr>
<tr>
<td>Otto Jane</td>
<td>Super user</td>
</tr>
<tr>
<td>George Brown</td>
<td>Not Assigned</td>
</tr>
<tr>
<td>Yu Yang</td>
<td>Super user</td>
</tr>
</tbody>
</table>

Done
### MIC Resource Management

**Role Assignment** (for Leigh Andres)

- **SUPER USER?**
  - Yes
  - No

**Role for this organization:**

**Role for this module:**

**Role:**

---

### Current Role Assignment

<table>
<thead>
<tr>
<th>Organization</th>
<th>Module</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Library of Congress Motion Picture, Broadcasting, and Recorded Sound Division</td>
<td>uc</td>
<td>Catalogue/Import/Export/Map</td>
</tr>
</tbody>
</table>
• Create metadata for resource
Cataloging Utility Standards

- METS
- MODS
- PREMIS
- MIX
- AES Audio Object Schema (AES-X098B)
AES Audio Object Schema

DRAFT
Standard for audio preservation and restoration - Administrative and structural metadata for audio objects

Abstract

This standard provides a vocabulary to be used in describing structural and administrative metadata for digital and analog audio formats for the purpose of enabling audio preservation activities on those objects. Some implementations also refer to this metadata as technical metadata. The characteristics of the audio objects captured by this standard may be of use to audio communities beyond the audio preservation community.

An AES standard implies a consensus of those directly and materially affected by its scope and provisions and is intended as a guide to aid the manufacturer, the consumer, and the general public. The existence of an AES standard does not in any respect prejudice anyone, whether or not he or she has approved the document from manufacturing, marketing, purchasing, or using products, processes, or procedures not in agreement with the standard. Prior to approval, all parties were provided opportunities to comment or object to any provision. Attention is drawn to the possibility that some of the elements of this AES standard or information document may be the subject of patent rights. AES shall not be held responsible for identifying any or all such patents. Approval does not assume any liability to any patent owner, nor does it assume any obligation whatever to parties adopting the standard document. This document is subject to periodic review and may be cautioned to obtain the latest edition. Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.
AES Scope

- For long-term archival storage and preservation
- Comprehensive metadata for preservation, retrieval, playback, end user display
- Digital or analog
- Physical audio carriers or streams of bits
- Implemented as XML schema
- Extended to moving images for OpenMIC
Granular

Rigorous delineation between descriptive and technical metadata

Based on structure type,

distinguishes media & shell (OpenMIC adds container)
Structure Types

- Audiotape
- Optical disc
- Analog disc
- Cylinder
- Wire recording
- Film
- Videotape
- Videodisc
The diameter element may be used to indicate the diameter of the audio object. The diameter element is of type measurementType as described in 4.4.2.1.2.2. If the diameter of the audio object is unknown or not applicable, then the diameter element shall be omitted.

OpenMIC pulldown menu

- 5.5 inches
- 7 inches
- 8 inches
- 10 inches
- 12 inches
- 16 inches
- 20 inches
- Other
Vocabulary sources

LC AV Prototype (based on draft AES standard)
(https://www.loc.gov/rr/mopic/avprot/metsmenu2.html)
SMPTE RP210
PBCore
MAVIS
National Film and Sound Archive
Sound Directions documentation
Experts (AMPAS, AMIA, ARSC, AES, LC, etc.)
Events-Based Model

- Events
  - Action occurring in particular place & time
  - Associated agents
  - Associated objects

- Types of events
  - Descriptive
  - Provenance
  - Preservation
  - Condition evaluation
  - Rights
**DESCRIPTIVE METADATA**

(* indicates required element)

**Type of Item**

**Title Information**

- **Title**
- **Subtitle**
- **Type**
- **Part Name**
- **Part Number**
- **Nonsort**
BitRate Reduction

Codec Name
Codec Name Version
Creating Application
Version *
Creating Application
Codec Quality
Data Rate
Data Rate Mode *
Video Data Encoding
Byte Order
Sound Present
Note
SOURCE METADATA
(* indicates required element)

Source Technical Information

Source Type *  Film

- **Type**
  - film cartridge(s)
  - film cassette(s)
  - film reel(s)

- **Gauge**

**Sound**

- **Format**
- **Medium**
- **Material**
- **Integration**
- **Support**
Multiple Instantiations
• Rights declaration (tied to ID)
• Copyright status (protected, PD, unknown)
• Availability status (open, restricted, unavailable)
• Availability reason (© expired, mandated by law, permission/license, etc.)
• Publication status (published, unpublished, publication pending, etc.)
• Watermark
• Rights holder
• Rights event
## Rights Event

### Event entries for:
- Event 1

**Type**
- Availability research
- Collection owner contact information update
- Copyright renewal
- Deed of gift
- DRI implementation
- Indigenous cultural or historical artifact
- Moral rights research
- Original copyright
- Permission or license
- Permission request
- Publicity or privacy release
- Request response

**Date & Time**
- [mm:ss]

**Detail**
- Rights holder contact information update
- Rights holder research
- Rights transfer
- Trademark permission or license
- Trademark research

**Affiliation**

**Reference**

**Detail**

### Associated Event Entry List

### Associated Object

<table>
<thead>
<tr>
<th>Type</th>
<th>Name</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Flexibility & Configurability

- Enable/disable/add data elements
- Edit controlled vocabularies
- Templates (personal and collection)
- Required elements
- Reports
- Announcements
The Rutgers Workflow Management System: Migrating a Digital Object Management Utility to Open Source

This article examines the development, architecture, and future plans for the Workflow Management System, software developed by Rutgers University Libraries (RUL) to create and catalog digital objects for repository ingest and access. The Workflow Management System (WMS) was created as a front-end utility for the Fedora open source repository platform and a vehicle for a flexible, extensible metadata architecture, to serve the information needs of a large university and its collaborators. The next phase of development for the WMS shifted to a re-engineering of the WMS as an open source application. This paper discusses the design and architecture of the WMS, its re-engineering for open source release, remaining issues to be addressed before application release, and future development plans for the WMS.

By Grace Agnew & Yang Yu

Introduction

Ingest of digital objects is a core service of a repository architecture. Most repository services, from preservation and storage to discovery and retrieval, are dependent on the information collected about the digital object at ingest. The scalability of the repository,
http://rucore.libraries.rutgers.edu
(for download information)
The MIC Mission

To immerse moving images in the education mainstream, recognizing that what society uses, it values, and what it values, it preserves.
Website and Catalog search and retrieval
• Apache version (apache 1.3.27)
• PHP version (php 4.3.3)
• LDAP type and version (ldap 3.3) - moving to MySQL v5.2
  • Zebra version (idzebra 1.3.13)
  • Yaz version (yaz2.0.4)
  • IBM P610 server
  • SuSE Linux OS
  • MySQL v5.2

Service Providers Directory
• Apache web server
• PHP scripting
• Certificate utility
• MySQL v5.2
• IBM P610 server
• SuSE Linux OS

Cataloging & Ingest-Export Utilities
• Apache web server
• PHP scripting
• Certificate utility
• PostgreSQL database
• IBM p630 server
• IBM Linux OS

Archive Directory
• Apache web server
• PHP scripting
• Certificate utility
• LDAP database (ldap 3.3)
• IBM P610 server
• SuSE Linux OS