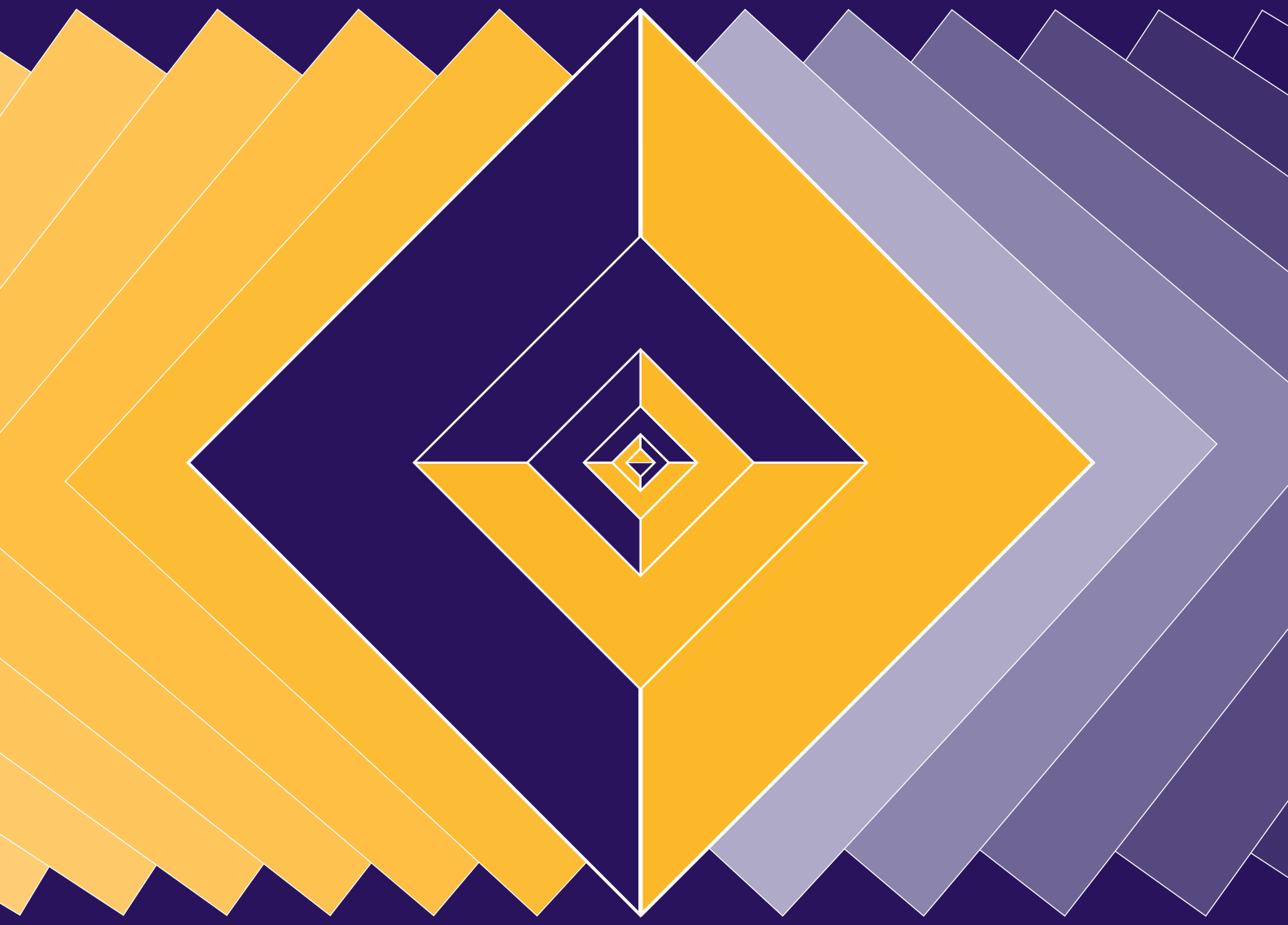
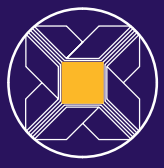
SPEC

Kit 298

Metadata

July 2007





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SPEC Kit 298

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July 2007

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SPEC Kits are published by the

Association of Research Libraries
21 Dupont Circle, NW, Suite 800
Washington, DC 20036-1118
P (202) 296-2296 F (202) 872-0884
http://www.arl.org/spec/
pubs@arl.org

ISSN 0160 3582

ISBN 1-59407-791-6
978-1-59407-791-3

SPEC Kit 298

Metadata

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SURVEY RESULTS

REPRESENTATIVE DOCUMENTS

Organization Charts

Position Descriptions

Mission Statements and Group Charges

SELECTED RESOURCES

SURVEY RESULTS

EXECUTIVE SUMMARY

Introduction

Metadata is often called "data about data." It has been used by various communities creating geospatial data, social and scientific datasets, enterprise applications, data warehouses, educational resources, and bibliographic data. In the traditional library world, catalog records are metadata, as they contain information about the library's collection of "data," i.e., the books and journals that make up its collections. Increasingly, libraries have been adopting emerging metadata standards such as Dublin Core, EAD, MODS, and TEI to describe, discover, preserve, manage, and provide access to electronic resources and digital objects. This is accomplished through three types of metadata: descriptive metadata that describes the intellectual content of the object; structural metadata that ties each object to others to make up logical units; and administrative metadata that manages the object or controls access to it.

This SPEC survey investigated how metadata is implemented in ARL member libraries: which staff are creating metadata and for what kinds of digital objects, what schemas and tools they use to create and manage metadata, what skills metadata staff need and how they acquire them, and the organizational changes and challenges that metadata has brought to libraries.

Background

This survey was distributed to the 123 ARL member libraries in February 2007. Sixty-eight libraries (55%) responded to the survey, of which 67 (99%) reported creating metadata for digital objects at their institutions. One respondent started as early as 1989 and five followed in the subsequent five years. The first sharp increase occurred in 1995 and 1996, when 11 additional libraries began metadata activities. This increase coincided with the creation of the Dublin Core metadata standard at a March 1995 invitational workshop held in Dublin, Ohio. Between 1998 and 2001, 30 more libraries began creating metadata. The activity reached a peak at the turn of the millennium, with 10 libraries entering the metadata arena in 2000. Another peak in 2003, with nine start-ups, followed the availability of DSpace and other institutional repository software. The final five start-ups began between 2004 and 2007.

Metadata Projects and Practices

The primary factor driving the creation of metadata is the responding libraries' involvement in digitization projects (66 of 67 responses or 99%). Metadata also plays an important role in institutional repositories (54%). Other initiatives and projects that have promoted the use of metadata are: Web content management, datasets, subject-based and edu-

cational repositories, metadata registries, digital media labs, EAD-finding aids, and online journal publishing. As one respondent commented, metadata is distributed throughout several parts of the library and is more broadly applied than solely to digitization projects. Consequently, metadata has been created to describe and provide access to a wide variety of digital resources, including images, text, collections, audio, maps, video, datasets, EAD finding aids, theses, and Web pages.

Metadata Standards

The metadata schemas most widely used by survey respondents are MARC (91%), Encoded Archival Description (84%), Dublin Core (78%), and Qualified Dublin Core (67%). Other commonly used schemas include Text Encoding Initiative Header, Metadata Object Description Schema, and Visual Resources Association Core Categories. A few respondents reported using an array of other schemas for geospatial data, learning objects, works of art, MPEG multimedia files, statistics, databases, etc. Some respondents commented that local or "home grown" metadata standards have been developed.

Survey respondents apply a wide range of controlled vocabularies to metadata, including thesauri, indexes, subject headings, authority files, terms, and ontologies. More than half of the responding libraries use LCSH, LC Name Authority File, and Art and Architecture Thesaurus. A significant number use the LC Thesaurus for Graphical Materials I and II, Getty Thesaurus of Geographic Names, and Getty Union List of Artist Names. About a quarter use MeSH and the Geographic Names Information Service. As with schemas, there are a number of other controlled vocabularies in use, including locally created ones.

Metadata Creation and Management

When asked whether metadata is created manually or automatically, all but one respondent reported that metadata is created manually. Nine of these also create metadata automatically and 16 also create metadata automatically with human intervention. Eighteen of the respondents reported using all three methods.

The majority of respondents has multiple metadata creators, primarily catalogers (87%), archivists (72%), metadata librarians/specialists (59%), and subject librarians/specialists (49%). Support staff (66%) and student workers (57%) are important contributors to metadata creation and 42 institutions (62%) reported that content creators provide metadata. Database librarians, programmers, preservation librarians, special collections librarians, curators, digital initiatives librarians, and digital programs librarians also contribute metadata. Given the collaborative nature of metadata-related initiatives and projects, it is not surprising that 35 institutions (52%) have accepted metadata from project partners outside of the libraries and 20 (29%) have accepted metadata from vendors.

Survey respondents identified over two dozen software products and tools that they have used for metadata generation. The most commonly used include spreadsheet software such as Excel, relational databases such as Access, Oracle, and MySQL, and MARCEdit. Many respondents also use XML editors with support for XML editing and validation, schema and DTD editing and validation, and XSL editing and transformation such as Oxygen, XML Spy, Stylus Studio, and XMetaL. Quite a few respondents also listed locally developed tools. Almost everyone uses a combination of products for creating and editing metadata.

In addition to metadata editors and generators, there are various sophisticated digital repository and content management systems in use that support metadata creation, editing, and delivery. Other than locally developed systems, DSpace and

CONTENTdm are by far the most frequently used software. Other commonly used systems include Fedora, Luna Insight, DLXS, and Greenstone. More than a dozen other systems were also identified.

Interoperability is essential to facilitate the exchange and sharing of metadata and to enable cross-domain searching. The survey responses indicate that various attempts have been made to achieve metadata interoperability. Fifty-three respondents (83%) report that they have adopted the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH). Forty-seven libraries (73%) use metadata crosswalk. Other advanced methods and standards are being used to promote metadata interoperability and management, including METS (45%), RDF (25%), metadata registries (20%), and application profiles (20%).

Metadata Quality Control

Respondents were asked how they maintain quality control for metadata and to briefly describe their quality control methods. Fifty-six libraries (83%) reported that metadata are manually checked and approved before publishing. Forty-one (73%) indicated that metadata created by users or content creators are checked and approved by library staff. One respondent stated that their library checks 10% of in-house created metadata as well as 10% of vendor created metadata. Other quality control methods include authority control, XML and schema/DTD validation, and compliance with application profiles. Some respondents mentioned that they use locally developed scripts or a variety of open-source and commercial quality control software.

The comments indicate that different quality control measures are used for different projects. Some believe that more and more content creators will create metadata, which will need more efforts on quality control. One respondent mentioned that they are "currently investigating more automated methods of metadata checking. This is especially important for content creators." Some commented that metadata creation is time-consuming and expensive; another that the challenge is to reconcile metadata quality vs. metadata cost.

Organizational Change

Fifty-five libraries (85%) reported organizational changes in response to the demands of metadata services while ten reported no organizational changes. Existing positions were redefined to incorporate metadata responsibilities at 36 libraries (62%). Twenty-six institutions (45%) created at least one new metadata position; twelve of these positions were given primary responsibility for managing metadata activities. A variety of titles are used, some of which include the term "metadata," for example: "Metadata Librarian," "Metadata Specialist," "Catalog/Metadata Librarian," and "Metadata Architect." Other titles are: "Text Processing and Mark-up Coordinator," "Digital Projects Coordinator," "Digital Collections Librarian," "Digital Content Librarian," "Digital Services Librarian," "Digital Projects Archivist," and "Electronic Resources Librarian."

Seven separate new units for metadata services were created with the names "Metadata Unit," (two responses) "Metadata Services," "Quality Control Unit," "Digital Access," "Digital Resources Metadata Section," and "Cataloging and Metadata Services." Thirteen respondents incorporated metadata services into existing departments and renamed them. For example, "Cataloging Services" became "Cataloging and Metadata Services;" "Special Collection Team" was renamed "Special Collections and Metadata Section;" and "Access, Support, and Accounting" changed to "Scholarly Resources Integration Department." A larger number of respondents (21 or 36%) incorporated metadata services into existing departments without making any name changes.

About half of the respondents reported that metadata activities are distributed across several departments of the library. Several libraries created temporary term positions to provide additional assistance. A few libraries are in the planning stages of reorganizing to accommodate metadata activities.

Metadata Staffing

Nineteen libraries reported that metadata librarians have primary responsibilities for the management and coordination of metadata activities in their organizations. Another 19 answered "Other librarian;" many of them are the heads of units such as Cataloging, Digital Programs, and Library Technology. At ten libraries, a metadata team/committee/working group plays the leadership role. Archivists play a primary role at three libraries.

Survey respondents were asked the number of full-time and part-time positions and total FTEs for ten different categories of staff who contribute to metadata-related services. Forty-five respondents reported they have staff working full-time on metadata activities, most commonly in the positions of metadata librarian, cataloger, and support-staff, followed closely by programmer and archivist. Fifty-two respondents have staff working part-time on metadata activities. The top four part-time positions are cataloger, archivist, student worker, and support staff. There are significantly more individuals involved on a part-time basis (a total of 583 reported) than full-time (349 individuals). These 932 individuals spend the equivalent to 521.24 hours on metadata activities.

Thirty of 61 responding libraries employ between one and eight individuals, both part-time and full-time, for metadata-related activities; their total is 148 individuals at 84.5 FTE. The average is 5 individuals and 2.82 FTE. Thirty others employ between ten and 68 individuals for a total of 641 individuals at 368 FTE. Their average is 21 individuals and 12.26 FTE. The remaining library employs 143 metadata staff at 69 FTE.

Not surprisingly, since more than half of the libraries reported that metadata activities are distributed across the institution, most respondents rely on a wide variety of staff to cover metadata operations. Some recurring combinations of staff include metadata librarian(s), cataloger(s), programmer(s), and support staff; archivist(s), programmer(s), support staff, and students; cataloger(s) and support staff; and metadata librarian(s), cataloger(s), archivist(s), and support staff. The libraries that are managing digitization projects, digital repositories, data sets, and Web content have the largest number of staff and the widest range of staff categories.

Metadata Staff Training

On-the-job training, library school, and professional association-sponsored workshops are among the top three sources from which metadata staff received their initial metadata training. The majority of the respondents reported using the following opportunities to keep up-to-date on metadata knowledge and skills: electronic discussion lists, professional journals and readings, conferences, discussion with peers, blogs and online readings, on-the-job training, and professional association-sponsored workshops. Twenty-four of the responding libraries hold in-house workshops for initial staff training and 19 of these also hold workshops for keeping staff up-to-date. An additional nine respondents hold workshops to keep staff up-to-date. Software documentation, subscription-based online tutorials, and consulting with other institutions provide other learning opportunities.

Metadata staff members from the responding libraries attend a wide variety of international, national, regional, and local conferences and workshops on metadata-related topics. Conferences

sponsored by professional organizations such as IFLA, ALA (ALCTS, LITA), ARL, and ASIS&T provide ample programs and opportunities for metadata staff. The annual Dublin Core conferences bring together leading metadata researchers and professionals from around the world. Metadata is a frequently discussed topic at digital libraries conferences including the Joint Conference on Digital Libraries, Digital Library Federation Forums, and International Conferences on Open Repositories. OCLC regional networks, regional library associations, and consortia provide educational opportunities for staff at all levels.

Metadata Librarian Qualifications and Responsibilities

Forty-eight of the responding libraries have at least one metadata librarian position; 42 of these require an MLS degree. Knowledge of emerging metadata standards and experience with MARC cataloging are required by all but a few libraries. Soft skills such as communication skills, problem-solving skills, and ability to work cooperatively and independently are also required by over 70% of respondents. About one third of the responding libraries require advanced knowledge of metadata crosswalks, interoperability, and experience with integrated library systems. Experience with institutional repositories and digital content management systems, and knowledge of XML and OAI are listed as desirable qualifications by about half of the respondents.

The survey responses indicate that at most of the responding institutions, the metadata librarian plays a leadership role in metadata activities while performing the following functions: consulting on metadata options in terms of metadata standards; working with systems personnel, subject specialists, project partners, and even end-users on metadata-related issues; documenting metadata policies, procedures, and guidelines; and training staff.

Metadata Challenges

The survey respondents were asked to list the top three metadata challenges facing their libraries. Many respondents face the challenge of implementing organizational changes. Typical comments identified the challenges of "creating the right internal organization for providing metadata services," "developing/accommodating workflow for metadata creation," "developing workflow between departments," and "managing projects that cross so many departments/divisions of the libraries and that involve other units across campus."

The proliferation of emerging standards poses the challenges of reaching decisions on metadata standards to use for various projects, as well as implementing consistent standards and tools and keeping up-to-date on emerging standards. Consequently, interoperability becomes the most critical issue. Survey respondents commented on the lack of "system-wide infrastructure," the lack of "system interoperability," and the difficulty of "interoperating existing online collections with new collections which are supported by other platforms," and the "cost and difficulty of creating good, consistent metadata across multiple formats and implementation systems."

Another common challenge is the lack of staff and resources for metadata creation and management. Likewise, some libraries had difficulties "finding competent people to do specific tasks," "training new personnel," and "retaining personnel once trained." Quite a few respondents urged automating metadata creation as much as possible.

Other challenges that survey respondents mentioned include authority control, preservation of metadata along with digital objects, sustainability and scalability of metadata creation, and "meeting increasing demand for metadata skills and support throughout the library."

Conclusion

The survey responses provide a general overview of the current state of metadata implementation in ARL member libraries. Comments indicate that many libraries are in a period of transition as they attempt to determine the best organization, staffing, and system infrastructure. Metadata involves staff from many different units and many respondents are implementing appropriate workflow, streamlining metadata production, and developing policies and guidelines for best practices. As the survey data reveal, metadata interoperability is among the top challenges that libraries face due to the proliferation of standards, tools, and options available in a rapidly changing environment where infrastructure and rules are not well established.

SURVEY QUESTIONS AND RESPONSES

The SPEC survey on Metadata was designed by Jin Ma, Catalog/Metadata Librarian at Baruch College, The City University of New York. These results are based on data submitted by 68 of the 123 ARL member libraries (55%) by the deadline of March 19, 2007. The survey's introductory text and questions are reproduced below, followed by the response data and selected comments from the respondents.

One definition of metadata is simply "data about data," information about the objects in library collections, whether these are in traditional or electronic formats. The working definition proposed in the ALCTS Committee on Cataloging Task Force on Metadata Summary Report (June 1999) expands this basic definition: "Metadata are structured, encoded data that describe characteristics of information-bearing entities to aid in the identification, discovery, assessment, and management of the described entities."

In the standard library world, catalog records are metadata, as they contain information about the library's collection of "data," i.e., the books and journals that make up its collections. Metadata records in the traditional library fulfill several functions, including allowing users to find items, allowing them to assess their usefulness, and allowing librarians to administer them correctly. The same principles apply to objects within the digital library and for the purposes of this survey metadata refers to information about digital objects.

Metadata can take several forms, some of which will be visible to the user of a digital library system, while others operate behind the scenes. The Oxford Digital Library defines three types of metadata that can apply to objects in a digital library:
Descriptive metadata: information describing the intellectual content of the object, such as MARC cataloging records, finding aids or similar schemes.
Administrative metadata: information necessary to allow a repository to manage the object: this can include information on how it was scanned, its storage format etc (often called *technical metadata*), copyright and licensing information, and information necessary for the long-term preservation of the digital objects (*preservation metadata*).
Structural metadata: information that ties each object to others to make up logical units (for example, information that relates individual images of pages from a book to the others that make up the book itself). (See http://www.odl.ox.ac.uk/metadata.htm.)

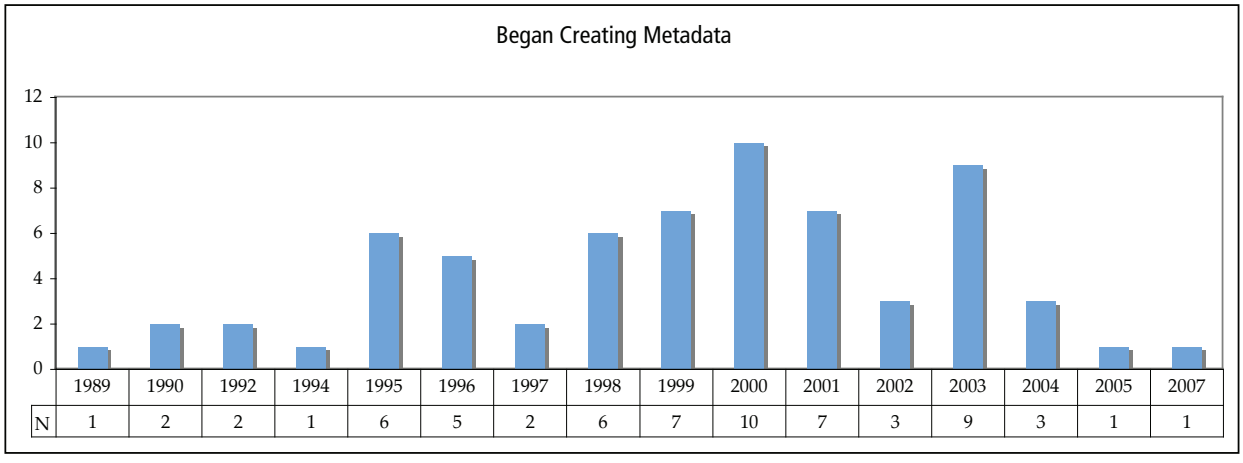
The purpose of this survey is to investigate which staff in ARL member libraries are creating metadata and for what kinds of digital objects, what schemas and tools they use to create and manage metadata, what skills they need and how they acquire them, and the organizational changes and challenges that metadata has brought to ARL member libraries.

BACKGROUND

1. Is your library creating metadata for digital objects at your institution? N=68

Yes	67	99%
No	1	1%

2. In what year did your library first begin creating metadata for digital objects? N=66



	1989	1990	1992	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2007
N	1	2	2	1	6	5	2	6	7	10	7	3	9	3	1	1

3. Who is responsible for creating metadata for your institution's digital objects? Check all that apply. N=68

Cataloger	59	87%
Archivist	49	72%
Support staff	45	66%
Content creator	42	62%
Metadata librarian/specialist	40	59%
Student workers	39	57%
Project partners outside the library	35	52%
Subject librarian/specialist	33	49%
Database librarian	20	29%
Vendors	20	29%
Programmer	17	25%

Preservation librarian	16	24%
Users	3	4%
Other	11	16%

Please specify other metadata creator.

Automated Systems Digital Archivist

Contractor

Curator

Digital Initiatives Librarians

Digital Programs Librarian

Electronic Publishing Center staff

Metadata Assistants

PhD students for ETDs

Special Collections librarian and project staff

Student volunteers

METADATA PROJECTS AND PRACTICES

4. Please indicate for which of the following kinds of projects/initiatives metadata have been created by library staff. Check all that apply. N=67

Digitization projects	66	99%
Institutional repositories	36	54%
Web content management	28	42%
Datasets	23	34%
Subject-based repositories	18	27%
Learning objects and educational repositories	16	24%
Metadata Registry	15	22%
Digital media lab	14	21%
Other	10	15%

Please specify other kind of project.

Archival finding aids

Archives'digital collections

EAD finding aids

E-book/database cataloguing

Electronic Theses and Dissertations

Host for a regional encoded archival description database (Northwest Digital Archives)

NDII (National Digital Image Initiative) digital preservation grant

OhioLINK Digital Media Center

Online journal publishing

5. Please indicate for which of the following types of digital resources metadata have been created by library staff. Check all that apply. N=67

Image	67	100%
Text	64	96%
Collections	59	88%
Audio	45	67%
Map	42	63%
Video	34	51%
Datasets	25	37%
Other	3	5%

Please specify other type of resource.

EAD finding aids

Theses

Web pages

6. What metadata schemas has your library adopted? Check all that apply. N=67

MARC (MAchine Readable Cataloging)	61	91%
EAD (Encoded Archival Description)	56	84%
Dublin Core	52	78%
Qualified Dublin Core	45	67%
TEI Headers (Text Encoding Initiative)	37	55%
Metadata Object Description Schema (MODS)	28	42%
Visual Resources Association (VRA) Core Categories	24	36%
FGDC Content Standard for Digital Geospatial Metadata (CSDGM)	10	15%
IEEE Learning Object Metadata (LOM)	5	8%
Categories for the Description of Works of Art (CDWA)	4	6%
MPEG Multimedia Metadata	4	6%
ICPSR Data Document Initiative (DDI)	3	5%
ONIX (Online Information Exchange)	2	3%
GILS (Global Information Locator Service)	2	3%
Instructional Management Systems (IMS):		
IMS Learning Resource Meta-data Specification	2	3%
Other	20	30%

Please specify other schema.

APIS

CDP, AgNIC (Agriculture Network Information Center)

Custom schemas

Darwin Core/Specify; 'home grown'

ETD-ms (Electronic Theses and Dissertations Metadata Set), CANCore, Canadian Culture Online Metadata Element Set

Local uvaDescMeta and uvaAdminMeta standards

MADS (Metadata Authority Description Schema), EML (Ecological Metadata Language)

MARCXML, NDNP (National Digital Newspaper Program) DTD, UFDC (UF Digital Library Center) METS, DAITSS (Dark Archive in the Sunshine State) METS

Medieval Manuscript Metadata Schema (local standard)

Metadata Encoding and Transmission Standard (METS)

METS

METS as a wrapper, PREMIS, audioML, videoML

METS, ETDdb

METS, various technical metadata standards including MIX (Metadata for Images) and forthcoming standards from the Audio Engineering Society, locally-developed standards such as those for the Variations2 Digital Music Library

Microsoft Access (to describe online dbases)

Miso 239.87

N.B.: LC accepts ONIX data from publishers for use in enhancements linked to LC Online Catalog; doesn't itself produce data in ONIX.

NLM-specific DTDs

PB Core

UBdigit schema (DC based)

7. Please indicate which of the following controlled vocabularies your library applies to metadata. Check all that apply. N=66

Library of Congress Subject Headings (LCSH)	63	96%
LC Name Authority File	58	88%
Art and Architecture Thesaurus (AAT)	42	64%
LC Thesaurus for Graphical Materials I: Subject Terms (TGM I)	31	47%
LC Thesaurus for Graphical Materials II:		
Genre and Physical Characteristic Terms (TGM II)	27	41%
Getty Thesaurus of Geographic Names (TGN)	24	36%
Getty Union List of Artist Names (ULAN)	20	30%
Medical Subject Headings (MeSH)	18	27%
Geographic Names Information Service (GNIS)	16	24%

National Agricultural Library Thesaurus (NALT)	4	6%
UNESCO Thesaurus	2	3%
Other	20	30%

Please specify other controlled vocabulary.

Binding Terms: a thesaurus for use in rare book and special collections cataloging; Genre Terms: a thesaurus for use in rare book and special collections cataloging; other rare book cataloging thesauri; GSAFD; Index terms for occupations in archival and manuscript collections

Chenhall's Nomenclature

Consortial subject list

DCMI type vocabulary, Human Relations Area Files (HRAF) vocabularies, Grove Dictionary of Art Locations Appendix

Dictionary of Christian Art; POPLINE Thesaurus

In-house thesaurus of subject headings on the American South

LCSH FAST (Faceted Application of Subject Terminology)

Library and Archives Canada Name Authority File

Local authority files

Local name authority database for Georgia-related people, corporate bodies, and places

Local: buildings, ships

Many different locally created controlled vocabularies

MARC relator codes; Alexandria Digital Library Feature Type Thesaurus, Alexandria Digital Library Gazetteer; ISO639 language codes, Indian Affairs Laws and Treaties Appendix I Indian Tribes and Bands

NASA (National Aeronautics and Space Administration) Thesaurus, Local, rbgenr, gsafd

Ontologies

Pulp and Paper Thersaurus of Terms

RBMS Genre Terms (ACRL Rare Book and Manuscripts Section)

Romaine

Subject-specific thesauri such as ERIC

Thesaurus developed in-house for one collection

METADATA CREATION AND MANAGEMENT

8. Are metadata records created automatically or manually for your projects? Check all that apply. N=67

Metadata is created manually	66	99%
Metadata is created automatically but with human intervention	35	52%
Metadata is created automatically	27	40%
Other	2	3%

Please specify other method.

Created by vendors.

Imported records from e-book vendors.

9. What software or tools does your library use for metadata creation and editing? N=67

Excel	40	60%
Access or other relational database	31	46%
MARCEdit	30	45%
Oxygen	18	27%
XML Spy	18	27%
Dreamweaver	14	21%
Other	47	70%

Please specify other software or tool.

Acquisition station (CONTENTdm)

BB Edit

Berkeley EAD Template Generator

Cocoon forms

CONTENTdm

CONTENTdm

CONTENTdm Acquisitions station and III Millennium; locally constructed tools like: JETL (Java Extraction, Transformation, and Loading); also JHOVE, the open source metadata extraction tool.

CONTENTdm and DSpace

CONTENTdm, ENCompass, Greenstone

CONTENTdm, XMetaL, DSpace, OCLC Connexion

docWorks, local NLM tools (SPER)

DSpace

DSpace interface, OpenCourseWare content management system

Dspace, Open Journal Systems

DSpace; Luna Inscribe

EMACS, XMetaL, locally created interfaces

EXLIBRIS ALEPH, UFDC metadata template

Filemaker Pro

In-house WebGenDB database software developed by UC Berkeley and available for use by other University of California campuses.

In-house workflow management tool

Innovative Interfaces MetaData Builder (ILS Editor for EAD and DC)

Local ERM & Endeavor's Voyager

Local FileMaker databases, Image Magick for technical metadata

Locally developed administrative tool as part of institutional repository

Locally developed databases; XMetaL

Locally developed ingest tools

Microsoft Word, PURL Scripting

MySQL, NoteTab, NotePro, Contentdm Acquisition station, OCLC Connexion, Innovative Interfaces global update capability

NoteTab

NoteTab Pro

NoteTab Pro, ALEPH500

NoteTab Pro, AuthorEditor

Opus Software

Oracle

Oracle Database

Oracle, LUNA Insight, NoteTab Pro, MARC Report, MySQL, Post Gres, Virginia Tech, DSpace

Sirsi Unicorn, OCLC Connexion, Custom-developed tools for MODS creation

Streetprint, Greenstone

Stylus Studio

Templates via DSpace, fielded databases in MySql

Voyager (our ILS)

XMetaL (for EAD finding aids)

XMetaL, Contentdm

XMetaL, JHOVE, Site Executive Content Management System, NoteTab

XMetaL, NoteTab, UltraEdit, MySQL

XMetaL, UltraEdit

XMetaL; internally developed Web form

10. What software or system does your library use for building and distributing digital objects? Check all that apply. N=65

Internally developed system	32	49%
DSpace	31	48%
CONTENTdm	28	43%
Fedora	12	19%
Luna Insight	12	19%
DLXS	11	17%
Greenstone	8	12%
DigitalCommons	6	9%
Eprints	4	6%
ESRI Arc Suite	4	6%
ExLibris' DigiTool	4	6%

Documentum	3	5%
Endeavor's ENCompass	3	5%
Innovative Interfaces' MetaSource	1	2%
Other	24	38%

Please specify other software or system.

ARTstor; CDL's EScholarship Repository; Storage Resource Broker (SRB)

CWIS

DynaWeb, Java/XML

Endeavor's Voyager

Endeavor's Voyager & local Coldfusion system

ETD

ETD-db, MySQL

ExLibris Aleph 500, Web pages for online exhibits and finding aids

eXtensible Test Framework (XTF), Open Journal Systems (OJS)

Fedora is only being used in the National Digital Newspaper Program pilot project; also, a 'Fedora clone' is part of the LC Electronic Deposit for Electronic Journals pilot.

ILS

In-house software developed by the California Digital Library for use by all University of California libraries.

Inmagic

Innovative Interfaces ERM (not MetaSource)

Ixiasoft TEXTML

MetaStar, ExLibris Metalib

Most of our digital objects are remotely accessed; local ones are accessed directly through our Web site with no management system.

MSSQL, ALEPH500

OhioLINK DMC, MDID

Olive, DPubS (Digital Publishing Sysytem)

Open Text software, Sitesearch software

Streetprint; Luna is planned for future use

XTF (for content that is submitted to the California Digital Library)

XTF, METS Navigator, internally developed systems

11. Please indicate which of the following your library has used for metadata interoperability, sharing, and management. Check all that apply. N=64

Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH)	53	83%
Metadata Crosswalks	47	73%
Metadata Encoding and Transmission Standard (METS)	29	45%
RDF (Resource Description Framework)	16	25%
Metadata Registries	14	20%
Application Profiles	13	20%
Other	7	11%

Please describe "Other."

Data dictionary for Contentdm projects

EAD

Locally created MARC exporter for DSpace

MARC

SiteSearch (CDP), Multisite Server (CONTENTdm)

None at this time

METADATA QUALITY CONTROL

12. How does your library maintain quality control for metadata? N=67

Metadata are manually checked and approved before publishing	56	84%
Metadata created by users or content creators are checked and approved by metadata librarians, catalogers, or other library staff	41	61%
A tool is used to check metadata consistency and accuracy	21	31%
Other	8	12%

Please describe other quality control method.

Compliance with application profiles
For ETDs, metadata published and then enhanced

MARC, Authority, and Unicode validation

OCLC Connexion validation function

Sorting and filtering

We check a sample of 10% of in-house created metadata. We check a sample of 10% of vendor created metadata. We create customized submission forms for community input so as to standardize fields needed and to provide constant data.

XML validation of schema

Please specify the metadata checking tool.

Data validation in locally created input forms; value lists in locally created input forms

DigiTool Meditor

DSpace—manditory fields

Internally developed systems

Locally developed scripts, XML schema, and DTD validation

MARCedit

Oxygen and a series of scripts check structure of files

Oxygen, Spotfire

Oxygen; CONTENTdm

Oxygen; XMLSpy; Best Practice Guidelines for EADs; MODS; Digital Object Specifications (specified and sample review)

Perl scripts used for some tasks, including reports for QC

Qualtlx

Saxon

Saxon, Validator, local NLM developed tools

Schematron, XML Schema constraints, local scripts

Stylus Studio

UFDC metadata tools

Validation checks on XML

Variety of open-source and commercial QA software

XMetaL

XML Validation

Comments about metadata quality control at your library.

Selected Comments from Respondents

"Content quality control is performed by the Archivist in charge of the physical materials being digitized. Structural completeness and correctness is quality controlled with XML validation by the Digital Programs Librarian."

"Currently investigating more automated methods of metadata checking. This is especially important for content creators."

"Different methods of quality control are used for different projects. For learning objects, metadata is created by content creators but enhanced by the metadata librarian (with the addition of controlled vocabulary, etc.). For other projects where metadata is created by a librarian or archivist no enhancement or checking is done."

"In many projects, metadata is added from multiple sources, so it aggregates over time. Each source is responsible for various parts of the metadata."

"Metadata Librarian verifies that the data meets standards, but the content verification is left up to the data provider."

"No different from other MARC records."

"Not all metadata creation in DSpace @MIT is checked by a cataloger."

"Others with whom we share metadata tell us the quality is very good and consistent."

"Our CONTENTdm data dictionary is an attempt to standardize metadata practice and promote consistency for interoperability. There's significant quality control at the time that the metadata is created but keeping it up-to-date is an ongoing challenge."

"QC protocol is determined on a project specific basis."

"Staff & librarians are trained on metadata creation prior to being authorized to create it."

"Use database sorting to find inconsistencies."

"User-created metadata coming soon."

"We need to get better at this aspect of metadata quality. It has been applied in some cases. But, other times, no management has occurred. Starting this year, as we have integrated metadata creation into the library's central technical services units, it has gotten better."

ORGANIZATION CHANGE

13. Has your library organization changed to provide metadata services? N=65

Yes	55	85%
No	10	15%

If yes, which of the following best describes how your library organization has changed. If incremental changes have occurred, check all that apply. N=58

Redefined librarian position(s) to include metadata activities	36	62%
Metadata activities are distributed across the institution	31	53%
Created a new metadata librarian position	26	45%
Incorporated metadata services into existing department(s)/ unit(s) without making any name change	21	36%
Incorporated metadata services into an existing department/ unit and renamed the department/unit	13	22%
Created a separate metadata services department/unit	7	12%
We are now in the planning stages for reorganizing to accommodate metadata	5	9%
Other	8	14%

Redefined librarian position(s) to include metadata activities.

Title of position	Year	Department position reports to	Position reports to
Metadata Librarian	1997	Technical Services	Head of Technical Services
Science cataloger	1997	Catalog Department	Head, Catalog Department
Metadata Librarian	1999	Catalog Department	Section head, Special Collections and Metadata Cataloging
Metadata Analyst	1999	Information Delivery, Organization & Retrieval (IDOR) [technical services]	Director, IDOR
Electronic Resources Librarian	2000	Information Resources	Head, Information Resources

Systems Librarian	2000	Systems	Head, Library Systems
Metadata Librarian	2000, 2003	Metadata & Preservation Services	Coordinator, MPS
Metadata Librarian	2002	Metadata Services	Head, Metadata Services
Digital Initiatives Librarians	2002	Digital Initiatives Department	Digital Initiatives Manager
Electronic Resources Cataloguer	2002	Bibliographic Control	Head, Bibliographic Control
Metadata Librarian	2002	Cataloging and Metadata Services	Head, Cataloging and Metadata Services
Head, Cataloging Services	2002	Content Management Services	Director, Content Management Services
Senior cataloging specialist	2002	Acquisitions and Bibliographic Access Directorate	Any of 30 Bibliographic Access team leaders
Coordinator of Digital Content Development	2003	Digital Initiatives Program	Assistant Dean for Collections and Scholar Services
Metadata Librarian and Digital Archivist	2004	Metadata Services Department	Head, Metadata Services Department
Head of Digital Library Initiatives/Metadata Librarian	2004	Library Administration	Deputy Director
Cataloging Manager --> Head, Catalog and Metadata	2004	Technical Services	Associate Dean
Cataloger	2005	Cataloging/Systems	Directors of Cataloging and Library Technology
Digital Resources Cataloger	2005	Cataloging	Head of Cataloging
Reference Librarian became half Digital Commons Coordinator	2005	Research and Information Services	Area Head of unit
Technology and Metadata Librarian	2005	Technical Services	Director of Technical Services
Digital Projects Metadata Librarian	2005	Cataloging and Metadata Department /Authorities and Metadata Quality Unit	Head, Authorities and Metadata Quality Unit
Head of Content Access Management	2005	University Librarian	University Librarian
Cataloging librarian	2005	Technical Services	Chair of Technical Services
Head, Scholarly Resources Integration Department	2005	Technical Services	Assistant Director for Information Technology and Technical Services

Metadata Librarian for Digital Production	2005	Digital Library	Head of Digital Library
Catalog/Metadata Librarian	2005	Cataloging and Metadata Services	Head of Cataloging and Metadata Services
IS Resource Support Technician	2005	Digital Collections Center	Metadata Head
Principal Cataloger for Metadata	2006	Metadata & Cataloging	Head, Metadata & Cataloging
Metadata & Electronic Resources Specialist	2006	Technical Services	Head of Technical Services
Archivist for Acquisitions and Processing	2006	Special Collections	Head of Special Collections
Metadata/Cataloging Librarian	2006	Monographic Services	Head
Metadata Specialist	2006	Technical Services	Assistant Director for Technical Services
Program Assistant Senior	2007	Special Collections	Digital Initiatives Librarian
Vocabulary Control/ Metadata Coordinator	2007	Central Technical Services	Head, Central Technical Services

Metadata activities are distributed across the institution. Please explain.

"A few other units that create digital objects also create metadata for those items. There has been some centralization of this work."

"Cataloging and Metadata Services creates descriptive and subject metadata; structural metadata is often supplied by the vendor who is scanning the objects."

"Collaboration is distributed among the following departments: Acquisitions, Bibliographic Control, Library Data and Server Support, Preservation, Special Collections, Student Multimedia Design Center."

"Content creators & other campus managers."

"Content owners and external partners create metadata and Digital Initiatives unit manages metadata and makes it available in digital library systems."

"Cross functional teams coordinate metadata creation across several library areas."

"Curators create some records, these are finalized by the digital librarian."

"Decentralized organizational structure, with MASC, Systems, Cataloging, and Public Services involved in metadata creation."

"Departments on campus do some metadata, other departments in the library, including the Digital Lab and Archives; we are in the process of consolidating as much as possible in the Catalog Department."

"Description metadata is done in Special Collections; grants are run in Digital Initiatives."

"Electronic Resources Librarian works with staff in Special Collections, Preservation, and Systems in the creation of metadata."

"In addition to Digital Library Services student workers, metadata duties are performed on a project basis by librarians, support staff, and student workers in the following departments: Special Collections; Circulation; Map Collection; Preservation. We are also in the planning stages to incorporate metadata production into the Rapid Cataloging unit of Central Technical Services (without making any name changes)."

"Librarians, staff, and faculty throughout the institution use centralized library technology to create and edit metadata."

"Library I.T. staff also create some metadata as part of the ingest process for digital objects in our institutional repository."

"Management, creation, and maintenance occur in Information Technology, Digital Library Initiatives, Design, Metadata & Cataloging, and Special Collections."

"Many special collections departments do some metadata work for their projects as well as linking digital objects from their collections into existing metadata."

"Metadata activities are also carried out in the Law Library of Congress (Global Legal Information Network), Congressional Research Service, Office of Strategic Initiatives, and US Copyright Office."

"Metadata activities occur in Digital Programs, Technical Services, Manuscript and Rare Book Library, Preservation, and other units."

"Metadata creation for some digital projects is provided by the Art Department and digital projects group."

"Metadata services involve many areas: Cataloging and Metadata Department, Digital Library Center, Special and Area Studies Collections Dept, Government Documents Department/Map & Imagery Library, Preservation Dept, GIS program."

"Some in archives, some in technical services."

"Systems, Cataloging, Archives & Special Collection, Academic Departments."

"Takes place in Special Collections/Archives (Research & Access Division), and in Digital Services Unit (Collections & Technical Services Division)."

"This is the case for the institutional repository."

"Various committees and task groups are concerned with metadata activities."

"We also have a Cataloging Department and a Special Collections Cataloging Department. There is also another unit on campus that works with faculty creating content for courses. There are metadata experts in that unit."

"We've created a working group to deal with non-MARC metadata."

"Work is done in History of Medicine Division, Preservation Section, and NCBI, in addition to the Cataloging Section."

Created a new metadata librarian position.

Title of position	Year	Department that metadata librarian reports to	Position that metadata librarian reports to
Metadata librarian	1998	Technical Services	Head, Technical Services
Text Processing and Mark-up Coordinator	2000	Digital Library Center	Director, Digital Library Center
Digital projects coordinator	2000	ABA, Technology Policy, or Collections and Services directorates	Director
Electronic Resources Librarian	2001	Monographs Department	Head of Monographs
Digital Collections Librarian	2001	Preservation Team	Team Leader for Preservation
Metadata & Cataloguing Librarian	2002	Bibliographic Services	Coordinator, Bibliographic Services
Metadata Librarian	2002	Technical Services and Digital Access	Head of Technical Services and Digital Access
Metadata Specialist	2003	Cataloging & Metadata Services (CAMS)	Head of CAMS
Metadata Architect; Digital Technologies Librarian	2003; 2005	Digital Library Initiatives; Special Collections	Head, DLI; Head, Special Collections
Metadata Librarian then Digital Content Librarian	2004	Digital Repositories	Coordinator, DR
Metadata Librarian (2 positions)	2004, 2006	Scholarly Resources Integration Department	Head, Scholarly Resources Integration Department
Metadata specialist	2005	Catalog	Section head, Special Collections and Metadata Cataloging
Metadata Specialist (temp.)	2005	Metadata Analysis & Specification Unit	Metadata Librarian & Digital Archivist
Catalog/Metadata Librarian	2005	Cataloging Department	Head, Cataloging Dept.
Metadata Librarians	2005	Content Access Management	Head of Content Access Management
Cataloging & Metadata Librarian	2005	Technical Services	Chair of Technical Services
Head, Technology and Metadata Services	2005	Digital Scholarship Services (unit provides consulting directly to faculty doing content creation)	Director, Digital Scholarship Services
Digital Services Librarian	2005	Bibliographic Services	Head, Bibliographic Services
Metadata Librarian	2006	Technical Services	Head of Cataloging

Digital Projects Archivist	2006	Digital Library of Georgia	Assistant Director, Digital Library of Georgia
Metadata Librarian	2006	Digital Library Services	Head, Digital Library Services
Digital Initiatives Librarian	2006	Collections, Preservation and Digital Initiatives	Associate Dean
Electronic Resources Cataloger	2006	Catalog Department	Head, Catalog Department
Assistant Professor and Cataloger	2006	Special Collections & University Archives	Department Head
Metadata Librarian	2006	Cataloging	Head of Library computing and media services
Digital Librarian	2007	Digital Services	Manager of Digital Services

Incorporated metadata services into existing department(s)/unit(s) without making any name change.

Name of department/unit	Position that department/unit reports to
(1) Bibliographic Control; (2) Library Electronic Technologies & Services (LETS)	(1) Associate Director, Collections; (2) Associate Director, Information Services & Systems
2 departments: Access & Branch Services; Digital Initiatives & Special Collections	Chairs of both departments
Bibliographic Services	Associate University Librarian, Collections
Bibliographic Control Department	Assistant Director for Library Technical Services
Catalog Department	Head, Catalog Department
Cataloging	AUL Collections
Cataloging	AD for Collection Management, Organization, and Preservation
Cataloging Section	Chief, Technical Services Division
Cataloging; Systems; Special Collections & Archives; Reference; Architecture; Veterinary Medicine	Heads of respective units
Digital Initiatives	Assistant Dean for Collections and Scholar Services
Digital Initiatives Department and the archives department	Associate Director, Technology & Resource Services
Digital Library and Information Systems Division	Associate Director for Digital Library and Information Systems
Digital Programs	Director of Preservation and Digital Programs
Fine Arts Library; Special Collections Technical Services	Associate University Librarian for Collections and Public Service; Director, Special Collections

Geography and Map Division	Division Chief
Manuscripts, Archives, and Special Collections (MASC)	Head, MASC
Monographic Services Division	Resource Acquisition and Description/Information Technology Services
Preservation Team	Collections Services
Reference Services	Head, Reference and Information Literacy
Special Collections	Head of Special Collections
University Archives and Records Center	University Archivist

Incorporated metadata services into an existing department/unit and renamed the department/unit.

Previous name of department/unit	New name of department/unit	Year	Position that department/ unit reports to
Cataloging Team	Catalog and Metadata Services Team	2003	Collections Services
Acquisitions Directorate, Cataloging Directorate	Acquisitions and Bibliographic Access Directorate	2004	Associate Librarian for Library Services
Catalog Department/ Metadata Analysis & Specification Unit	Metadata Services/ same name	2005 created in 2004	AUL, Collection Services
Special Collections Team, Catalog Department	Special Collections and Metadata Section, Catalog Department	2005	AUL for Technical Services
Monographic Cataloging and Serials Cataloging	Content Access Management	2005	Head of Content Access Management
Access, Support, and Accounting	Scholarly Resources Integration Department	2005	Assistant Director for Information Technology and Technical Services
Cataloging	Metadata & Cataloging	2006	AD for Materials Management
Cataloging Services	Cataloging and Metadata Services	2006	Assistant Dean for Technical and Collections Services
Cataloging Department	Cataloging and Metadata Services	2006	Associate University Librarian for Digital Library Systems
Cataloging	Bibliographic/Metadata Services	2007	Deputy Director
Cataloging	Cataloging and Metadata Services	2007	Head of Cataloging and Metadata Services

Created a separate metadata services department/unit.

Name of department/unit	Year	Position that department/unit reports to
Metadata Unit	1999	Metadata Analyst & Head of Cataloging
Metadata Services	2002	Head of Library Technical Services
Quality Control Unit	2002	Digital Library Center
Digital Access	2002	Head of Technical Services and Digital Access
Metadata Unit	2003	Head of CAMS
Digital Resources Metadata Section	2004	Head, Cataloging & Metadata Center
Cataloging and Metadata Services	2006	Assistant Director of Technical Services

We are now in the planning stages for reorganizing to accommodate metadata.

Name of future department/unit	Position that department/unit will report to
Currently unknown	Currently unknown
Currently unknown	Currently unknown
Digital Collections Working Group	Two librarians, one each from our Cataloging Department and our Technical Services Department in the Rare Book, Manuscript and Special Collections Library, will be reassigned as Metadata Librarians, remain in their current reporting lines, and collaborate with our digital collections working group.
Metadata Services	TBD
Special Collections and Archives	Library Director

Other. Please describe the organizational structure for metadata activities.

"Created Digital Initiatives unit and included this in the Associate Dean's responsibilities."

"Hired extra-help term position for duration of project."

"New position (2004): Digital Projects Librarian."

"Project based."

"Digital Collections Center."

Comments about organizational change.

Selected Comments from Respondents

"All of our librarians have added some type of metadata responsibilities to their workload. A few of our staff have taken on metadata responsibilities, including testing for our institutional repository. Their position descriptions are being accordingly revised."

"DLG charges for metadata and other digital library services provided for digitizing content from public libraries as a part of an LSTA-funded initiative."

"Fall 2007 we hired a retired librarian in the Scholarly Resources Department to work half time with the development of a campus-wide expertise and reporting system. The incumbent in this position is working with programmers to define metadata fields and structures, standards for various content, and input (interface) and output (reports) design. We are now hiring an Administration and Professional position, Coordinator of Metadata Input and Quality Control, who will help write documentation for workflows, train students and staff in creation/input, and monitor quality control. We have shifted the responsibilities of one of our staff to include the technical metadata coding for an electronic journal that we are now publishing."

"In 2006, the Digital Library Center merged with the Special Collections Library. The Metadata Librarian reports to Technical Services but is also a member of the Digital Library Center team."

"In many projects, metadata is added from multiple sources, including the Digital Initiatives Unit, the Woodson Research Center (special collections), and Cataloging and Metadata Services. Digital collections are managed by project, with participants from many departments."

"Metadata creation is distributed throughout the University Libraries departments."

"Metadata librarianship here is quite complicated due to the fact that metadata librarians (MDL) were present in Mann Library (Agriculture Library) in 1998. Between 1998 and 2002 there were 3 FTE MDL at Mann Library. In 2002, Olin Library (The Main Library) carved out a Metadata Services Unit which was situated in Library Technical Services. As late as 2006, this Unit consisted of 3.25 FTE MDL, 2 FTE Metadata assistants, and 2.25 Programmer Analysts. As of 2007, Metadata Services consists of 3 FTE MDL and 2 FTE Metadata Assistants. Metadata Services is part of Discover Systems & Services which is part of the Information Technology and Technical Services Department headed by the Senior Associate University Librarian."

"Our Cataloging Department took on a large metadata creation project with funding from a grant. During a 4-month period 5 catalogers were involved in this project. However, no additional interest has been expressed from that department in being involved in metadata creation."

"Our Metadata Unit is within our Cataloging Department. The positions (1 librarian and 0.5 FTE support staff) are funded completely thorough paying clients (examples, OpenCourseWare and some DSpace communities) and grants."

"Our organizational structure is still evolving although metadata creation has begun in several areas, currently coordinated by cross functional teams. As the work in operationalized, other changes may be made."

"Over the years, metadata creation has become widely distributed inside and outside the library. TEI is now created by other universities with guidance and quality control provided by the Sheridan Libraries."

"The Cataloging Department does not seem to embrace creating metadata for digital objects, i.e., those

that go into an institutional repository of for the Archives' digital collections. They focus solely on MARC and DC for physical and licensed e-resources found on the online catalog. Hence, metadata responsibilities have been disbursed to our Digital Initiatives and Archives departments. Our Catalog/Metadata Librarian position, currently reporting within our Cataloging Department, will be vacant soon. We anticipate moving this position out of Cataloging, or reconfiguring altogether to do work not related to metadata."

"The new Digital Initiatives Librarian position includes metadata as well as project planning, scanning and other digital activities. Other personnel in Special Collections and Technical Services also share some of the metadata responsibilities."

"There has been growth of Systems Department to support Digital Initiatives."

"This person manages the digital objects platform (ContentDM) and among other things works on metadata crosswalks, interoperability and management."

"Using UFDC/dLOC (Digital Library of the Caribbean) tools in various units of each of several Caribbean partner institutions."

"We added the creation of metadata for digital objects to numerous cataloging positions informally, that is, without a formal redefinition of the position."

"We also redefined one staff position to be responsible for metadata 25% of the his time; depending on the format being digitized (e.g., maps or audio). We distribute metadata creation to catalogers who specialize in those formats."

"We are currently lobbying the university administration to create a Digital Initiatives Librarian to lead metadata activities."

"Within the Acquisitions and Bibliographic Access Directorate, emphasis has been on mainstreaming digital and book cataloging to ensure that both are done to same standards for subject analysis and description."

METADATA STAFF

14. Who has **primary** responsibility for management and coordination of metadata activities in your library? N=64

Metadata librarian	19	30%
Other librarian	19	30%
Metadata team/committee/working group	10	16%
Archivist	3	5%
Other professional	2	3%
Other	11	17%

Metadata Librarian

Position Title	Reports to
Cataloging/Metadata Librarian	Head of Cataloging and Metadata Services
Digital Librarian	Manager of Digital Services
Digital Services Librarian	Head, Bibliographic Services
Electronic Resources Cataloger	Head, Catalog Department
Electronic Resources Librarian	Head of Monographs
Electronic Resources Librarian	Head, Information Resources
Head of Digital Library Initiatives/Metadata Librarian	Deputy Director
Head, Cataloging Services (Chair of metadata steering group)	Director, Content Management Services
Head, Metadata Services	Director, Discovery Systems & Services
Metadata & Cataloguing Librarian	Coordinator, Bibliographic Services
Metadata & Electronic Resources Specialist	Head of Technical Services
Metadata Librarian	Section head, Special Collections and Metadata Section, Catalog Department
Metadata Librarian	Coordinator, Metadata & Preservation Services
Metadata Librarian	Head, Digital Library Services
Metadata Librarian	Head of Technical Services
Metadata Librarian	Head of Technical Services and Digital Access
Metadata Librarian for Digital Production	Head of Digital Library
Vocabulary Control/Metadata Coordinator	Head, Central Technical Services

Other librarian

Position title	Reports to
Associate Dean for Collections & Technical Services	Dean of the Library
Catalog and Metadata Services Team Leader	Head of Collections Services
Coordinator of Digital Content Development	
Digital Initiatives Librarian	
Digital Initiatives Librarian	Associate Dean for Collections, Preservation and Digital Initiatives
Digital Services Librarian	Special Collections Head
Director for Acquisitions and Bibliographic Access	Associate Librarian for Library Services
Director of Library Technology	Dean of Libraries

Electronic Publishing Center librarian	Dean
Electronic Resources Cataloguer	Head, Bibliographic Control
Electronic Resources Librarian	Assistant Director, Library Systems and Technical Services
Head of Cataloging	Chief, Technical Services Division
Head of Content Access Management	University Librarian
Head, Catalog and Metadata	Associate Dean
Head, Cataloging & Metadata Services	Associate Director for Collection Services
Head, Digital Programs	Director of Preservation and Digital Programs
Head, Metadata & Cataloging	AD for Materials Management
Head, Scholarly Resources Integration Department	Assistant Director for Information Technology and Technical Services
Web and Digital Initiatives Coordinator	Director of Technical Services

Metadata team/committee/working group

Number of members	Reports to
2 plus students	Metadata Manager
3	Department head
5	Specific departments of members of the consortium
7	AUL Director of Library Systems
7	Associate University Librarian for Digital Library Systems
8	Co-Director, Digital Library Development Center
9	Assistant Director of Technical Services
Varies	Collaborative process with informal working groups, as needed. This includes staff from the following departments: Acquisitions, Bibliographic Control, Library Data and Server Support, Preservation, Special Collections, Student Multimedia Design Center.
Varies	No one really
Various	Decentralized structure

Archivist

Position title	Reports to
University Archivist	University Librarian
Archivist	Head of Special Collections and Archives
Assistant Director, Digital Library of Georgia	Director, Digital Library of Georgia

Other professional

Position title	Reports to
AUL	University Librarian
Metadata Analyst/Programmer	Head of Information Systems Support

Other

Position title	Reports to
Assistant Director for Technical Services	Director of the Libraries
AUL, Technical Services and Scholarly Communication	University Librarian
Head, Cataloging and Metadata Services	Assistant Dean for Technical and Collections Services
IS Resource Support Technician	Metadata Head
Distributed	No primary for metadata—distributed responsibilities:
Responsibility varies according to project (digitization projects, institutional repository).	
Undetermined at this time	

15. Please indicate the number of full-time and part-time staff and total FTE for each category of staff who contribute to metadata-related services in your library. N=61

Cataloger N=44

	N	Total Staff/FTE	Minimum	Maximum	Mean	Median	Std Dev
Full-time	20	72	1	15	3.60	2.50	3.95
Part-time	28	122	1	30	4.36	1.50	7.07
Total FTE	44	109.20	0.10	19.00	2.48	1.00	4.12

Metadata Librarian N=37

	N	Total Staff/FTE	Minimum	Maximum	Mean	Median	Std Dev
Full-time	26	38	1	4	1.46	1.00	0.86
Part-time	13	15	1	2	1.15	1.00	0.38
Total FTE	37	44.85	0.05	4.00	1.21	1.00	0.87

Support Staff N=35

	N	Total Staff/FTE	Minimum	Maximum	Mean	Median	Std Dev
Full-time	17	72	1	17	3.77	2.00	4.68
Part-time	23	95	1	24	4.13	3.00	5.10
Total FTE	35	102.50	0.05	17.00	2.93	1.00	3.84

Archivist N=34

	N	Total Staff/FTE	Minimum	Maximum	Mean	Median	Std Dev
Full-time	10	23	1	10	2.30	1.00	2.87
Part-time	26	45	1	6	1.73	1.00	1.25
Total FTE	34	36.00	0.10	10.00	1.09	0.50	1.89

Student workers N=30

	N	Total Staff/FTE	Minimum	Maximum	Mean	Median	Std Dev
Full-time	5	23	2	10	4.60	3.00	3.44
Part-time	25	149	1	27	5.96	4.00	6.64
Total FTE	30	73.15	0.10	10.00	2.44	1.50	2.70

Programmer N=21

	N	Total Staff/FTE	Minimum	Maximum	Mean	Median	Std Dev
Full-time	12	20	1	5	1.67	1.00	1.15
Part-time	12	28	1	9	2.33	1.50	2.31
Total FTE	21	27.73	0.10	2.75	1.32	1.00	1.30

Subject Librarian/Specialist N=20

	N	Total Staff/FTE	Minimum	Maximum	Mean	Median	Std Dev
Full-time	9	43	1	24	4.78	1.00	7.79
Part-time	12	65	1	40	5.42	3.00	10.96
Total FTE	20	52.58	0.10	30.00	2.63	0.88	6.80

Database Librarian/Specialist Preservation Librarian/Specialist N=16

	N	Total Staff/FTE	Minimum	Maximum	Mean	Median	Std Dev
Full-time	9	23	1	14	2.56	1.00	4.30
Part-time	8	10	1	2	1.25	1.00	0.46
Total FTE	16	27.21	0.25	14.00	1.70	1.00	3.32

Preservation Librarian/Specialist N=8

	N	Total Staff/FTE	Minimum	Maximum	Mean	Median	Std Dev
Full-time	5	6	1	2	1.20	1.00	0.45
Part-time	4	21	1	18	5.25	1.00	8.50
Total FTE	8	9.40	0.05	4.00	1.18	1.00	1.31

Other Staff N=19

	N	Total Staff/FTE	Minimum	Maximum	Mean	Median	Std Dev
Full-time	12	29	1	10	2.42	1.50	2.64
Part-time	9	33	1	8	3.67	3.00	2.74
Total FTE	19	41.60	0.10	10.00	2.19	1.35	2.32

Total Number of Individuals Full-time N=45

	N	Total Number of Staff	Minimum	Maximum	Mean	Median	Std Dev
Metadata librarian	26	38	1	4	1.46	1.00	0.86
Cataloger	20	72	1	15	3.60	2.50	3.95
Support staff	17	72	1	17	3.77	2.00	4.68
Programmer	12	20	1	5	1.67	1.00	1.15
Archivist	10	23	1	10	2.30	1.00	2.87
Database librarian/ specialist	9	23	1	14	2.56	1.00	4.30

Subject librarian/ specialist	9	43	1	24	4.78	1.00	7.79
Preservation librarian/specialist	5	6	1	2	1.20	1.00	0.45
Student workers	5	23	2	10	4.60	3.00	3.44
Other staff	12	29	1	10	2.42	1.50	2.64

Total Number of Individuals Part-time N=52

	N	Total Number of Staff	Minimum	Maximum	Mean	Median	Std Dev
Cataloger	28	122	1	30	4.36	1.50	7.07
Archivist	26	45	1	6	1.73	1.00	1.25
Student workers	25	149	1	27	5.96	4.00	6.64
Support staff	23	95	1	24	4.13	3.00	5.10
Metadata librarian	13	15	1	2	1.15	1.00	0.38
Subject librarian/ specialist	12	65	1	40	5.42	3.00	10.96
Programmer	12	28	1	9	2.33	1.50	2.31
Database librarian/ specialist	8	10	1	2	1.25	1.00	0.46
Preservation librarian/specialist	4	21	1	18	5.25	1.00	8.50
Other staff	9	33	1	8	3.67	3.00	2.74

Total FTE (both full- and part-time) N=61

	N	Total Staff FTE	Minimum	Maximum	Mean	Median	Std Dev
Cataloger	44	109.20	.10	19.00	2.48	1.00	4.12
Metadata librarian	37	44.85	.05	4.00	1.21	1.00	0.87
Support staff	33	101.50	.05	17.00	2.93	1.00	3.84
Archivist	34	36.00	.10	10.00	1.09	0.50	1.89
Student workers	30	73.15	.10	10.00	2.44	1.50	2.70

Programmer	21	27.73	.10	2.75	1.32	1.00	1.30
Subject librarian/ specialist	20	52.58	.10	30.00	2.63	0.88	6.80
Database librarian/ specialist	15	25.21	.25	14.00	1.70	1.00	3.32
Preservation librarian/specialist	8	9.40	.05	4.00	1.18	1.00	1.31
Other staff	19	41.60	.10	10.00	2.19	1.35	2.32

Other Staff

FT	Staff Category	PT	Staff Category	Total FTE
1	Digital Library Production Specialist			1
1	Digital Projects Librarian	8	Students	5
1	Digital Repository Program Manager			1
1	ITS Digital Integration Librarian			1
1	Systems Librarian			1
2	Manuscript librarians in Special Collections	1	Project staff	2.25
2	Metadata Assistant			2
2	Staff in Electronic Publishing Center			2
2	Student Volunteers			2
5	Image Collection staff; Image Librarian			5
		1	Digital Projects Librarian	0.5
		1	Head, Cataloging and Metadata Services	0.1
		2	Serials Librarian, Coordinator of Digital Repositories	0.4
		3	Systems staff members	1
		4	Digital Collection Services is unit responsible for licensing, rights metadata, ERMS, etc.	2
		6	Digital imaging staff	3
		7	Reference librarian, Preservation librarian	1.35
1	[unspecified]			
10	[unspecified]			

METADATA STAFF TRAINING

16. What types of training and professional development opportunities have your metadata staff used to gain their expertise? Check all that apply. N=65

	N	Initial Training N=63	Keeping up-to-date N=64
On-the-job training	62	59	52
Conferences	59	27	57
Professional journals and readings	59	24	58
Electronic discussion lists	59	22	59
Peers	58	24	57
Professional association-sponsored workshops	56	35	50
Blogs and online readings	54	16	54
Library school	45	45	7
Workshops in house	33	24	28
Other	12	4	10

Please specify other activity.

Initial training	Keeping up-to-date
Software documentation	Software documentation
Subscription-based online tutorials	
University of Virginia Rare Book School & Oxford Text Archive	
Workshops off-site	Workshops off-site
	Consortial workshops
	Consulting for other institutions
	Contacts at other institutions
	Online preservation courses
	Online training
	Other workshops
	Regional consortia
	Webinars

17. Which of the following conferences and workshops have your metadata staff attended? Check all that apply. N=63

American Library Association Annual Conferences	51	81%
American Library Association Midwinter Meetings	46	73%
OCLC workshops	31	49%
Digital Library Federation Forums	21	33%
Joint Conference on Digital Libraries	20	32%
ALCTS Regional Institute	15	24%
Metadata Applications and Standards: an ALCTS and Library of Congress Workshop	14	22%
METS Opening Day	13	21%
Dublin Core Conferences	12	19%
Metadata and Digital Library Development: an ALCTS and Library of Congress Workshop	8	13%
LITA Regional Institute or National Conference	8	13%
Other	38	60%

Please specify other conference or workshop.

2nd International Conference on Open Repositories

Access Library Technology Conference

Amigos

ARL Workshop on XML

ASIST Annual Meeting; ILS Vendor User Group Meeting; DSpace User Group Meeting

ASSIS&T

Canadian Metadata Forum, Access, Coalition for Networked Information

Collaborative Digitization Program workshops

Certificate of advance study in digital librarianship, University of Illinois

CIC Conference; SAA Workshop

Coalition for Networked Information

Coalition for Networked Information, LITA National, EDUCAUSE, vendor-specific meetings

CONSER workshops, Ontario Library Association SuperConference

Cornell Preservation Workshop; Rice; School for Scanning; RLG Workshops; SAA

Digitization for Cultural Heritage Professionals (UNC, Chapel Hill), Society of American Archivists Annual Conference, SAA Continuing Education EAD Workshop, and School for Scanning (Northeast Document & Conservation Center)

IFLA

Library school class

LITA Annual, iPres (International Conference on Digital Preservation), Digital Preservation Workshop (Cornell), Open Repositories, Association for Literary and Linguistic Computing

Metadata and the Digital Library, sponsored by Triangle Research Libraries Network; also, training from NC ECHO on implementing the NC-EAD standard

NEDCC (Northeast Document Conservation Center) School for Scanning

NELINET Workshops on METS, MODS, DC, XML

OHIONET (OCLC Network)

OLA, CLA

Open Repositories 2007

Open Repositories Conference Fedora Meeting

Open Repositories; OAIS/TDR workshop

Previous department head and previous librarian involved with technical infrastructure attended and presented at many different conferences around the world.

Regional OCLC Network

SAA meetings

SAA, OLAC, AMIM, VRA

Society of American Archivists

Society of American Archivists annual and regional conferences

Society of American Archivists Annual Conference; ALCTS Pre-Conference; Rare Book School

Society of American Archivists Conferences and Workshops, California Digital Library Meetings and Workshops

TEI conference & workshop

TEI Consortium Conference

Workshops at Mountain Plains Library Association and SLA conferences; SAA's 'MARC according to DACS' workshop

METADATA LIBRARIAN QUALIFICATIONS AND RESPONSIBILITIES

If your library has a metadata librarian position(s), please answer questions 18 and 19. Otherwise skip to question 20.

18. Please indicate which of the following qualifications are required, desirable, or not mentioned (N/M) in the job description for metadata librarian(s) in your library. Check all that apply. N=48

Qualifications	N	Required N=48	Desirable N=41	N/M N=41
MLS Degree	48	42	4	2
Knowledge of emerging metadata standards	47	42	3	2
Ability to work in a team environment	45	40	3	2
Excellent interpersonal, oral, and written communication skills	44	41	1	2
Excellent analytical and problem-solving skills	44	36	3	2
Working knowledge of MARC cataloging principles and tools	47	35	9	3
Ability to plan, coordinate, and implement projects	45	32	3	10
Knowledge of metadata crosswalks, metadata registries, and other issues related to interoperability	46	19	15	12
Experience with integrated library systems such as Endeavor, ExLibris, or III	46	13	26	7
Markup languages such as XML and XSLT	45	9	23	13
Experience with digital content management systems such as CONTENTdm	46	5	20	21
Experience with OAI-PMH	46	2	22	22
Experience with institutional repositories applications such as DSpace	45	1	22	22
Experience with grant writing	46	—	19	27
Scripting Languages such as PHP and Perl	45	—	12	33
Other	14	11	3	X

Please specify other qualification.

Required	Desirable
ACA certification can be qualification in lieu of MLIS for archivist track	
All-around "good computer skills"	PCC Programs, foreign language knowledge
Civil and respectful interactions; Diversity and inclusion	
Demonstrated experience with at least one XML DTD (EAD or TEI) and with two or more of the following: DC, LOM 9 or SCORM, MARC, MODS, or METS.	Experience with instructional technology. Working knowledge of cataloging tools such as AACR2, LCRI, LCSH, and other controlled vocabularies. Understanding of principles of database structure and design.
Experience with non-MARC metadata schema; Administrative metadata; Ability to work independently; Adaptability	Digital Library and academic library experience; Training experience
External advocacy for needed standards	
If person does not have a MLIS, a PhD is acceptable	
Potential for meeting requirements of tenure and promotion	Knowledge of authority control structures in library catalogs and other databases
Professional and scholarly activities	
Working knowledge of EAD	
	EAD TEI
	Ability to plan workflows and projects

19. Please indicate for which of the following activities the metadata librarian(s) have responsibility in your library. Check all that apply. N=45

Select appropriate metadata schemas for digital projects and related initiatives	42	93%
Work with the systems/IT department in the implementation of metadata	42	93%
Provide leadership for the management and coordination of metadata related activities	41	91%
Establish metadata policies and document metadata procedures and guidelines	41	91%

Consult with subject specialists to plan and facilitate metadata activities	39	87%
Represent library in local, regional, national or global forums/discussions	39	87%
Collaborate with project partners at other institutions	37	82%
Collaborate with project partners outside the libraries, but within the same institution	36	80%
Train staff in the creation, preservation, storage, and management of metadata	35	78%
Manage projects	34	76%
Provide consultation and assistance to end users in the creation and management of metadata	23	51%
Write grants	16	36%
Other	4	9%

Please specify other activities.

"Act as liaison for metadata work between the cataloging departments and the Digital initiatives and Archives Department, with some additional involvement from the Systems Department."

"Job description and specification of precise duties are in development at present."

"Keep up to date with emerging metadata schema."

"To clarify: write metadata sections for grants; consult on metadata options rather than select schemas."

METADATA CHALLENGES

20. Please list the top three metadata challenges facing your library. N=56

Communication (with ITD and other library-wide groups) A fully stable and functional online system in which to work; clear top-down policies Effective compatibility between RDF storage of metadata and its XML embodiment for analysis, validation
Developing appropriate software for metadata creation/maintenance Insufficient human resources Developing/accommodating workflow for metadata creation
Integrating non-MARC metadata production into Technical Services and Digital Access team Continued development of in-house tools for metadata creation (for generating EAD, TEI, and MODS) Automating parts of the metadata creation process
Authority control in support of data mining within digital objects
1) Finding time for trained staff to address the potentially large number of digital objects 2) Learning and keeping up to date on standards and schemas 3) Evaluating and adopting tools
1) Re-investing knowledge gained from projects beyond the library to library projects 2) Identifying the right level of metadata required for material 3) Allocation of staff
1) The need to automate metadata creation as much as possible 2) To motivate and move traditional cataloging librarians and staff to apply metadata to digital objects 3) To train and develop staff willing/interested in learning more about applying modern forms of metadata
1. Human organization: determining responsibilities, relationships and lines of communication in an environment of change and multifocal activity 2. Technical architecture for metadata creation and management 3. Time and staffing for metadata creation within project schedules
1. Reconciling metadata quality vs metadata costs 2. Interoperating existing online collections with new collections which are supported by other platforms 3. Documenting the decisions, costs, staffing, and workflows of the various collections in production
1. Time to create proper metadata, particularly technical metadata 2. Lack of stable standards (or increasing number of new standards) 3. Need for automated processes to develop metadata, particularly technical
1. Training staff 2. Implementing change in organization 3. Implementing change in organizational culture
1. Automating metadata creation 2. Sharing/reusing metadata from various projects 3. Integrating cataloging staff into metadata projects

1. Building Repository Infrastructure 2. Training 3. Management buy-in
1. Choosing which scheme will offer most interoperability in the future 2. Finding competent people to do specific tasks 3. Getting metadata from creators
1. Control over materials and priorities 2. Lack of concentrated IT support 3. Access to digital content once created
1. Cost and difficulty of creating good, consistent metadata across multiple formats, implementation systems, etc. 2. Difficulty in maintaining static stores of metadata in systems without anything like "authority control" to police the data and perform functions such as cross-referencing 3. Meeting increasing demand for metadata skills and support throughout the library
1. Creating the right internal organization for providing metadata services 2. Too many standards for creating metadata 3. Trying to stay abreast of new developments, different standards and best practices
1. Determining the best methods for sharing metadata with researchers/other institutions 2. Keeping up to date with appropriate metadata formats for a variety of media types 3. Automated metadata collection
1. Develop local infrastructure for developing and delivering digital projects, including metadata 2. Identify permanent staff to create metadata for future non-grant projects.
1. Developing guidelines for the creation, maintenance, and implementation of administrative and technical metadata 2. Increasing metadata awareness throughout technical services 3. Finding ways to streamline metadata production and collection to handle the ever-increasing amounts of digital content we work with
1. Digital Library Services, the unit responsible for metadata, was established fairly recently (Jan. 2006), so we're still working to develop efficient project management, workflow, and QC procedures for metadata 2. Developing a plan to incorporate metadata production into Central Technical Services 3. Inability of the institution's current digital asset management system (CONTENTdm) to accommodate standards such as MODS, METS and EAD; subsequent 'dumbing down' of data to Qualified Dublin Core to accommodate the system
1. Funding 2. Software support 3. Staffing
1. Getting subject specialists to agree on one set of metadata standards for like objects 2. Settling on a set of standards without constantly tweaking them 3. Developing a workflow between departments (we manage digital projects in a decentralized fashion, with IT, preservation, collection development and cataloging/metadata units all working together)
1. Integrating metadata creation work into more individual's daily workflows. We will continue to have more and more of this work

1. Involving more staff in metadata creation activities 2. Making good decisions in a rapidly changing environment in which there are often no existing models to use for inspiration 3. Ensuring the metadata needed for the long-term preservation of digital objects is recorded and stored
1. Keeping multiple databases of redundant data in sync. 2. Keeping the MARC based metadata creation for electronic objects up-to-date 3. Consortial Quality Control
1. Lack of faculty or other position dedicated to metadata creation and coordination 2. Lack of adequate faculty time to manually quality control and enhance metadata 3. Lack of faculty or other expertise needed to automate some metadata formatting
1. Lack of staff time and technical resources
1. Loss of granularity going from MARC to Dublin Core 2. DigiTool's limitation for supporting multiple schema 3. Incorporating new work into existing staff positions and skills
1. Organizational change to include metadata cataloguing position 2. Resources to support and fund position 3. Difficulty of integrating digital resources into all resources (interoperability)
1. Resources for training, staffing, etc. 2. Identifying metadata standards for diverse collections & creating local templates 3. Cross-walking metadata from one schema to another and from one system to another
1. Training new personnel 2. Retaining personnel once trained 3. Opportunities to digitize content always outpaces the ability to generate metadata for digitized objects
1. Training 2. Workflow/bottlenecks 3. Software changes/problems
1.) Maintaining currency of metadata under vocabulary control ... as controlled vocabularies continue to grow and evolve (esp. a problem with LCSH). More generally, maintaining compliance and currency with respect to standards. 2.) Preservation of the metadata along with the digital object/image itself and maintenance of persistent and long term access to the digital object/image. (Digital archiving) 3.) Generally, coordination (and the attendant cooperation required)for the many disparate functions necessary for successful implementation of a digital library program. (Metadata is, of course, a large component a successful program).
1.Server space/storage for all the metadata that we are creating 2.Public interface to enable searching or integration of different types of resources 3.Sustainability of locally created solutions to serving up metadata
a. Coordinating the content of all the silos on all 10 UC campuses, so users can search across the entire information space b. Implementing consistent metadata standards and tools across the UC system c. The scalability of our efforts
Additional new metadata librarians, or resources for training existing personnel

Continuing to provide MARC cataloging while also working on digital projects Building out our metadata to fully accommodate audio and video Getting buy in for digital projects from public services librarians
Co-ordination of activities in differing units Knowledge divide between creators, managers, programmers Cross-repository searching
Cross walking and interoperability Work flow and work load Implementation & automation for delivery of multiple products
Defining essential technical metadata Coordination of various activities throughout the library Keeping up with this rapidly changing field and the proliferation of standards
Finding metadata tools: finding, installing and using appropriate software tools for the kinds of metadata creation we'd like to do
For our digital collections, reconciling one standard schema for multiple collections
From the strategic plan, 2008–2013: determining the bibliographic description framework needed in the digital era; adapting traditional collection development strategy to acquire digital content; workforce transformation.
In-house expertise and time to explore metadata standards for digital objects Roles and responsibilities within the organization for cataloguing digital objects Expressing all relevant metadata for digital objects (ex. administrative, technical metadata) within metadata standards used in our systems
Incorporating creation of a growing need for metadata into the ongoing workflow of the library
Lack of staff to cope with increasing resources No plans yet in place for local repository Finding our place in provincial consortial repository activities and trying to ensure that we get benefits and contribute
Lack of staff Lack of staff Lack of staff
Lack of staff Lack of system-wide infrastructure Lack of articulated vision for our Digital Library
Mainstreaming workflows so that everything is not handled on a project basis New knowledge: Keeping up with new developments; knowing what works, and what is possible Project Management: Managing projects that cross so many departments/divisions of the Libraries and that involve other units across campus
No standard policies Not enough staff Difficult to coordinate different digitization project schema with each other
Not sufficient personnel More training and quality control needed

Slow development cycles Inadequate usability studies Staffing
System interoperability Data migration Controlled vocabularies and authority work
The lack of standards that are interoperable and clear No fulltime metadata librarian Too much stuff to describe
Training staff on emerging metadata standards Reaching decisions on metadata standards to use for various projects Implementing without programming skills and necessary software tools

ADDITIONAL COMMENTS

21. Please enter any additional information regarding metadata at your library that may assist the author in accurately analyzing the results of this survey.

Selected Comments from Respondents

"We are very decentralized so many departments are engaging in projects that may involve metadata creation. We recently adopted CONTENTtdm to support some of these projects and promote interoperability among them. Our 'metadata librarian' is primarily a MARC-based cataloger of e-materials who also works with various groups/projects on use of other metadata. We recently hired a digital library director and are seeking funding for a metadata architect to work more closely with digital projects on technical issues beyond traditional descriptive metadata overseen by catalogers."

"The scope of the survey is not entirely clear. I have included MARC/AACR cataloging of digital objects such as Web pages, e-books, etc. Question 14: no one person or unit has primary responsibility for both management and coordination of metadata. Coordination is invested in a committee: Metadata Implementation Group. Management is decentralized. The main units are Monographic Services, Digital Initiatives, and Special Collections."

"At our institution the catalog librarian and metadata librarian functions are combined so it was difficult to select one or the other in this survey and the results may not be clear. The fact that we are still doing much of our digital initiatives and metadata creation work in projects that involve cross-functional teams could also create confusing results. If some activities or functions are done by parts of positions in several areas, it was difficult to record this in the staffing representation."

"At the moment no metadata has been created here; we expect that will change in a year from now."

"Currently, the libraries are undergoing an extensive self examination and assessment of their current digital program/project. We are in the process of making recommendations and changes that will better serve the

digital needs of the university community as a whole. Survey questions have been answered based upon what has been decided so far but must be taken as tentative due to the highly fluid situation at present. No formal job description yet exists for the position of Vocabulary Control/Metadata Coordinator and additional positions including an overarching Digital Projects Manager may be added in the near future. No metadata or digital program-related jobs are yet reflected on the institutional organization chart."

"In question 10 it was noted that we are using Digital Commons. This is currently true but in the next few months we will be switching to CONTENTdm."

"Library in the very early stages of assessing organizational structure to support new work."

"Metadata creation has been recognized as an important part of digital collections created within the Libraries. The metadata librarian has been involved in digital projects from the beginning ensuring quality metadata for users and systems."

"Metadata for text for scholarly resources has been used since 1992. Metadata for Special Collections text, images, and collection descriptions has been used since 1995."

"Metadata is distributed throughout several parts of the Libraries and is more broadly defined here than just to digitization projects, including federated search software, open URL resolver, and our OPAC which contains records for digital resources."

"Metadata management at the libraries has evolved organically, in response to specific collections and the requirements of various digital software tools. Digital preservation considerations have also influenced how we handle metadata. Basically, we have folded metadata management into existing units and positions with little or no reorganization or reclassification."

"Metadata to date provided only through Archives & Special Collections Projects."

"[We are] in the process of creating a digital repository for the library. Therefore we expect that one year from now our answers to this survey might be quite different."

"No metadata work is ongoing with the exception of EAD finding aids. Past metadata was created on grant-funded projects only."

"Our library and our university as a whole recently began a new strategic planning phase, and the library has looked at this effort as an opportunity to redefine and reorganize some of its assets to account for metadata creation. Those plans are in the works and we should see some of those results over the next few months. In particular, we expect to see the designation of two Metadata Librarian positions. The information in this survey response reflects our current situation, but if we were to take the survey again in even a month or two, our responses might be very different."

"Right now, we have MARC records in our ILS, a local simplified ERM system that enables access to e-journals & databases, and Web subject guides including limited resources. We are planning for an institutional repository, and support ScholarsPortal, the Ontario university libraries collective portal and repository, which continues to grow."

"The institution's digital project work began on a large scale in early 2000, when the libraries obtained the first of three consecutive IMLS grants to support digitization. These awards, along with the libraries' support of the Northwest Digital Archives as the database host sire (2003–), have helped the libraries maintain a strong

digitization program. The institution has utilized external funds (grants, endowments, monetary contributions) to the fullest extent possible."

"There is no connection between metadata librarians (catalogers) and digital projects. Metadata created for digital projects is done by scanning staff or has been done by extra-help staff hired by project managers to work with content providers to create item and collection metadata for the project."

"We are beginning to establish more formal metadata positions with responsibilities to provide services other than traditional MARC monographic and serials cataloging. Metadata is often created through different mechanisms with different staffing on a project-by-project basis."

"We enter most electronic resources into our regular Voyager catalogue. Records are also created for electronic reference materials, e-journals, and journal indexes and theses. The theses records created in DSpace are duplicated in the MARC-based catalogue."

"We follow an assembly process: 1. Curatorial departments collect/create content objects and describe them. 2.Content objects and metadata are transferred to our digital asset management system. 3. As part of the transfer, persistent identifiers (ARKs) are created and, if possible, technical metadata is extracted. Otherwise, it is acquired from the upstream agent (curatorial vendor). 4.Extraction, Loading, and Transformation staff assemble content objects and metadata into METS-based digital objects according to the object specification for the collection/content class. The object specifications include rules for remediating source metadata. 5. METS objects are selectively reviewed for compliance to the specifications. 6. Process is complete and the objects are ready for management."

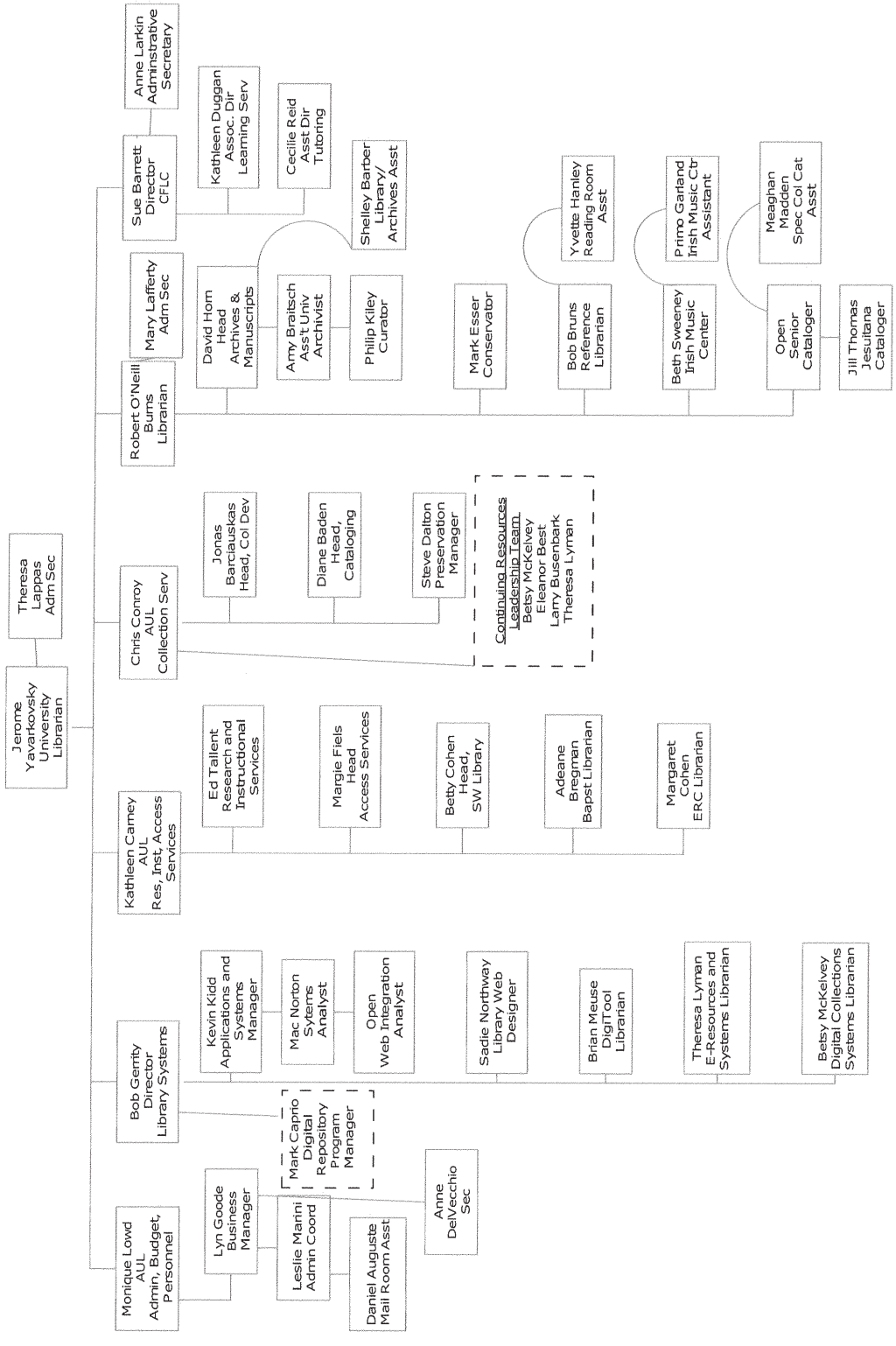
"We have been doing digital library work, including metadata creation, for about ten years now. Most of that work was related to grants and was outside the main library. I put 2001 as the initial date to show the date the library started understanding this work needed to become integrated with traditional technical services units. Previously, we were devoting about 93 percent of our work to traditional print cataloging. This past year, I would say we are devoting about 20 percent to electronic and digital collections and this will increase more each year from now on."

RESPONDING INSTITUTIONS

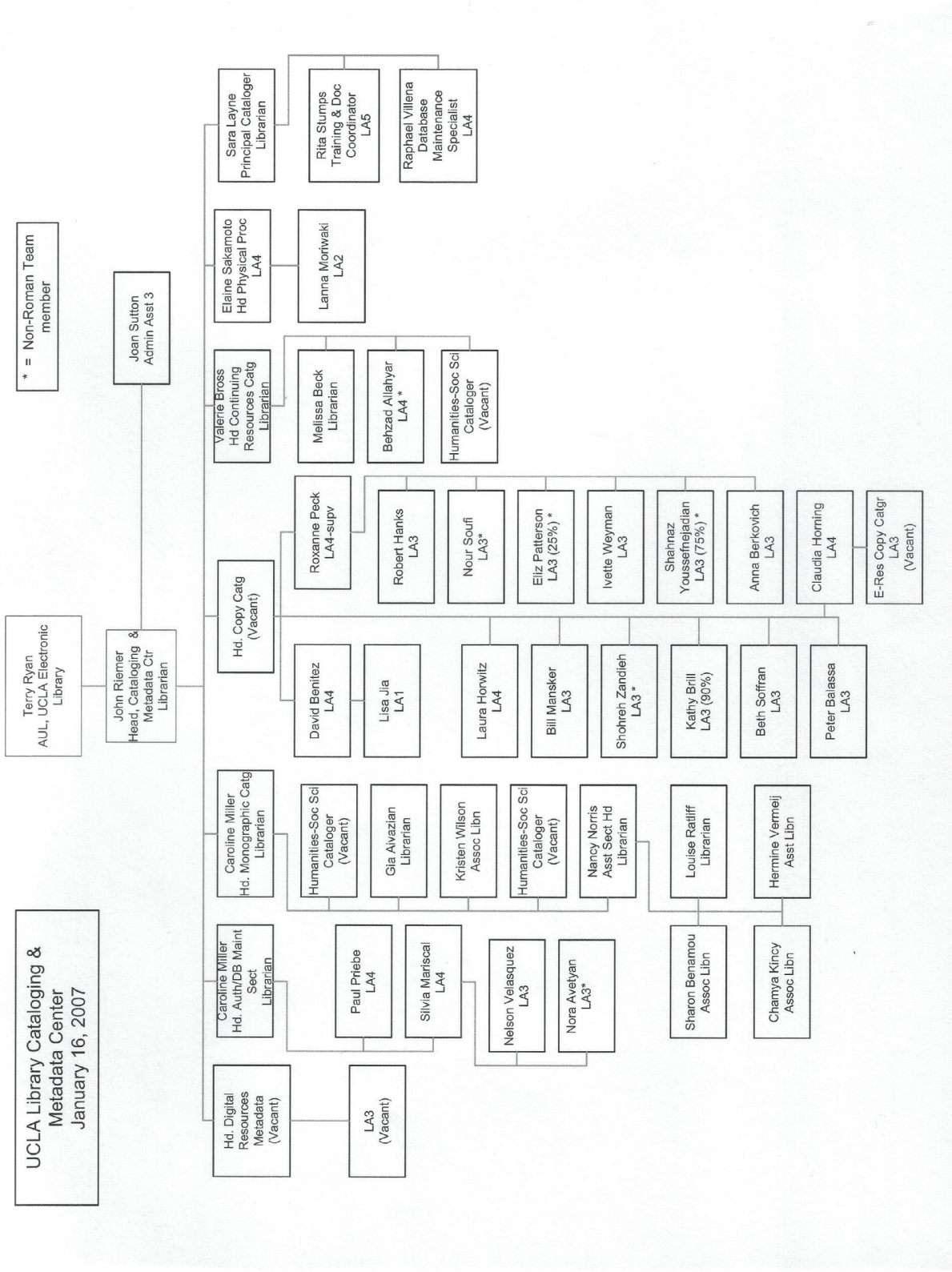
University at Albany, SUNY
University of Alberta
Arizona State University
Auburn University
Boston College
Boston Public Library
Brigham Young University
University of British Columbia
University at Buffalo, SUNY
University of California, Davis
University of California, Irvine
University of California, Los Angeles
University of California, San Diego
University of California, Santa Barbara
Case Western Reserve University
University of Chicago
Colorado State University
University of Connecticut
Cornell University
University of Delaware
Duke University
Emory University
University of Florida
University of Georgia
Georgia Institute of Technology
University of Guelph
University of Hawaii at Manoa
University of Illinois at Urbana-Champaign
Indiana University Bloomington
University of Iowa
Iowa State University
Johns Hopkins University
University of Kansas
Kent State University
University of Kentucky
Library of Congress
Louisiana State University
University of Louisville
University of Manitoba
Massachusetts Institute of Technology
Michigan State University
Université de Montréal
National Library of Medicine
University of Nebraska–Lincoln
University of North Carolina at Chapel Hill
North Carolina State University
University of Notre Dame
Ohio State University
University of Oklahoma
Oklahoma State University
University of Oregon
Pennsylvania State University
University of Pittsburgh
Purdue University
Rice University
Rutgers University
Smithsonian Institution
University of Southern California
Southern Illinois University Carbondale
University of Tennessee
University of Virginia
University of Washington
Washington State University
University of Waterloo
Wayne State University
University of Western Ontario
University of Wisconsin–Madison
York University

REPRESENTATIVE DOCUMENTS

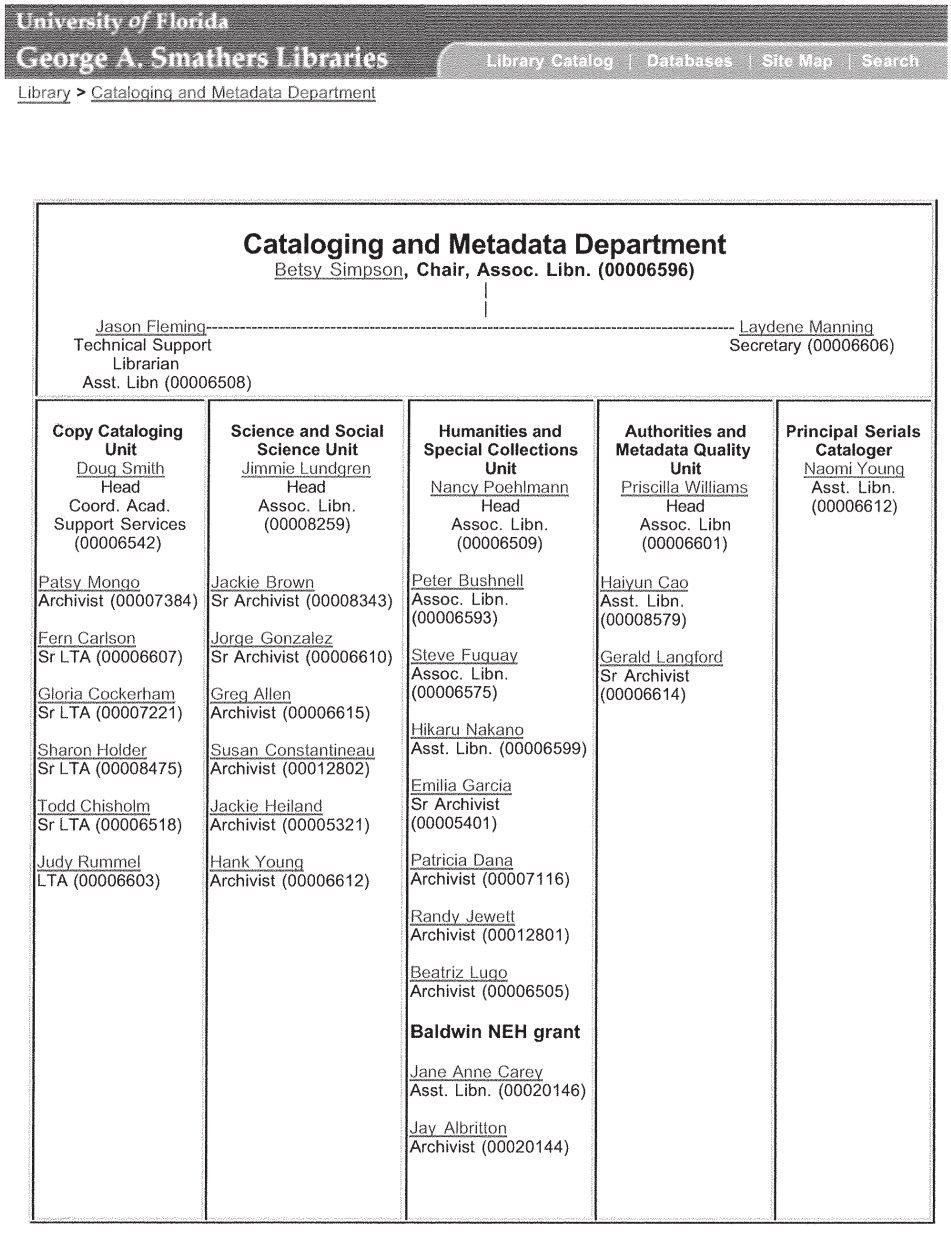
Organization Charts


Jerome Yavarkovsky University Librarian
Theresa Lappas Adm Sec
Monique Lowd AUL Admin, Budget, Personnel
Lyn Goode Business Manager
Leslie Marini Admin Coord
Daniel Auguste Mail Room Asst
Anne DelVecchio Sec
Bob Gerrity Director Library Systems
Mark Caprio Digital Repository Program Manager
Kevin Kidd Applications and Systems Manager
Mac Norton Syterns Analyst
Open Web Integration Analyst
Sadie Northway Library Web Designer
Brian Meuse DigiTool Librarian
Theresa Lyman E-Resources and Systems Librarian
Betsy McKelvey Digital Collections Systems Librarian
Kathleen Carney AUL Res, Inst, Access Services
Ed Tallent Research and Instructional Services
Margie Fiels Head Access Services
Betty Cohen Head, SW Library
Adeane Bregman Bapst Librarian
Margaret Cohen ERC Librarian
Chris Conroy AUL Collection Serv
Jonas Barciauskas Head, Col Dev
Diane Baden Head, Cataloging
Steve Dalton Preservation Manager
Continuing Resources Leadership Team
Betsy McKelvey
Eleanor Best
Larry Busenbark
Theresa Lyman
Robert O'Neill Burns Librarian
Mary Lafferty Adm Sec
David Horn Head Archives & Manuscripts
Amy Braitsch Ass't Univ Archivist
Philip Kiley Curator
Shelley Barber Library/ Archives Asst
Mark Esser Conservator
Bob Bruns Reference Librarian
Yvette Hanley Reading Room Asst
Beth Sweeney Irish Music Center
Primo Garland Irish Music Ctr Assistant
Open Senior Cataloger
Meaghan Madden Spec Col Cat Asst
Jill Thomas Jesuitana Cataloger
Sue Barrett Director CFLC
Anne Larkin Administrative Secretary
Kathleen Duggan Assoc. Dir Learning Serv
Cecilie Reid Asst Dir Tutoring

http://unitproj.library.ucla.edu/cataloging/admin/catcenterorg2007Jan.pdf



http://www.library.cornell.edu/dlit/DSSorgchart0610171.pdf



University of Florida
George A. Smathers Libraries
Library Catalog | Databases | Site Map | Search
Library > Cataloging and Metadata Department

Cataloging and Metadata Department

Betsy Simpson, **Chair, Assoc. Libn. (00006596)**

Jason Fleming
Technical Support Librarian
Asst. Libn (00006508)

Laydene Manning
Secretary (00006606)

Copy Cataloging Unit
Doug Smith
Head
Coord. Acad. Support Services
(00006542)

Patsy Mongo
Archivist (00007384)

Fern Carlson
Sr LTA (00006607)

Gloria Cockerham
Sr LTA (00007221)

Sharon Holder
Sr LTA (00008475)

Todd Chisholm
Sr LTA (00006518)

Judy Rummel
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Jimmie Lundgren
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Jackie Brown
Sr Archivist (00008343)

Jorge Gonzalez
Sr Archivist (00006610)

Greg Allen
Archivist (00006615)

Susan Constantineau
Archivist (00012802)

Jackie Heiland
Archivist (00005321)

Hank Young
Archivist (00006612)

Humanities and Special Collections Unit
Nancy Poehlmann
Head
Assoc. Libn.
(00006509)

Peter Bushnell
Assoc. Libn.
(00006593)

Steve Fuquay
Assoc. Libn.
(00006575)

Hikaru Nakano
Asst. Libn. (00006599)

Emilia Garcia
Sr Archivist
(00005401)

Patricia Dana
Archivist (00007116)

Randy Jewett
Archivist (00012801)

Beatriz Lugo
Archivist (00006505)

Baldwin NEH grant

Jane Anne Carey
Asst. Libn. (00020146)

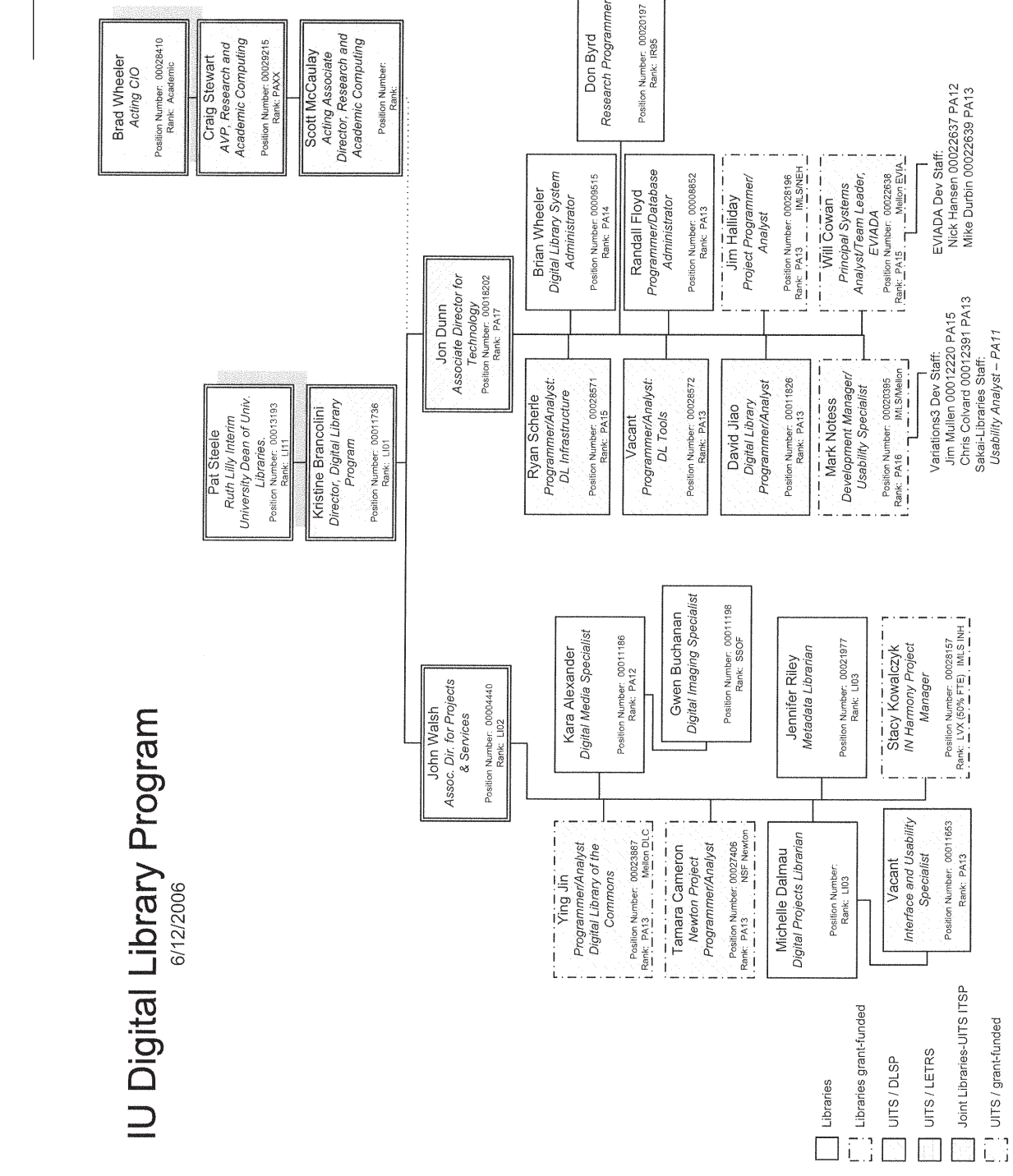
Jay Albritton
Archivist (00020144)

Authorities and Metadata Quality Unit
Priscilla Williams
Head
Assoc. Libn
(00006601)

Haiyun Cao
Asst. Libn.
(00008579)

Gerald Langford
Sr Archivist
(00006614)

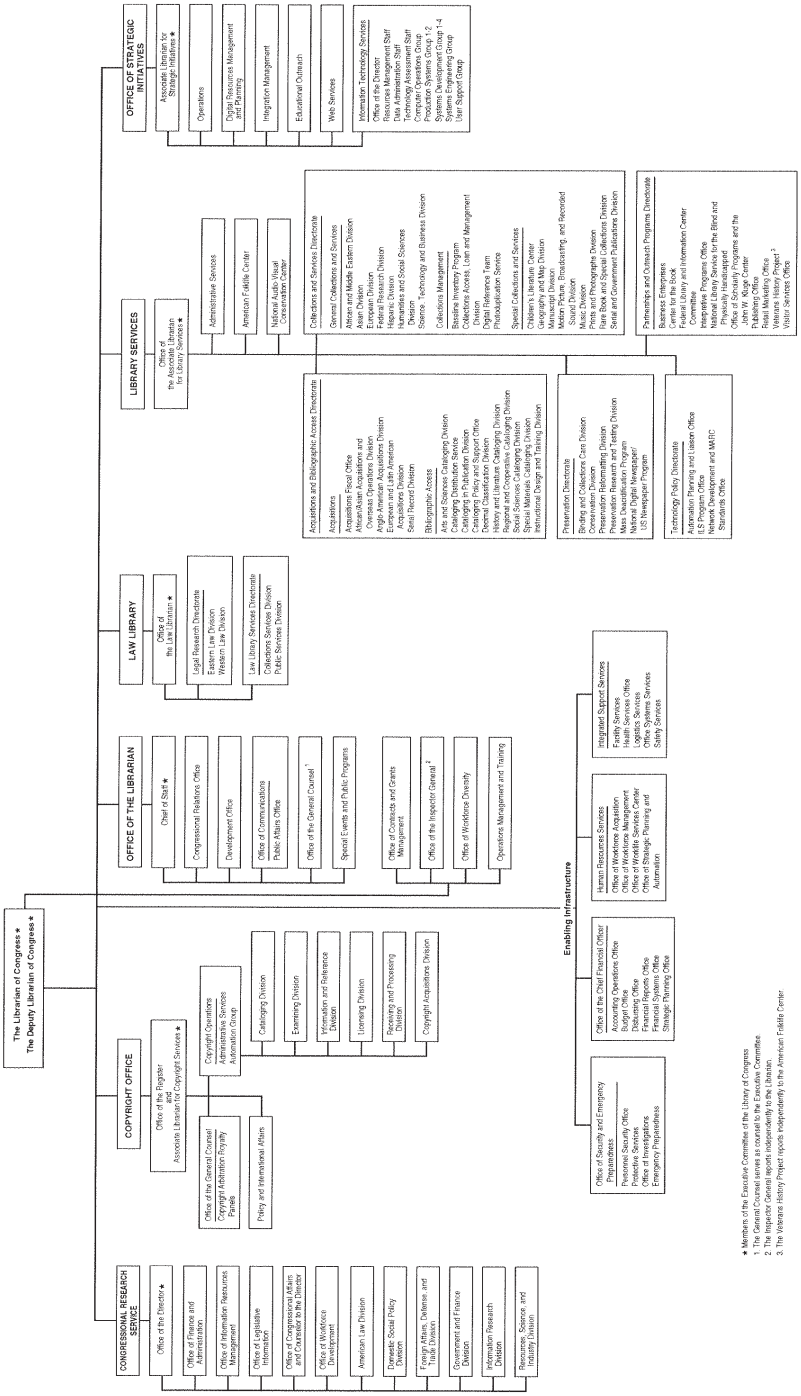
Principal Serials Cataloger
Naomi Young
Asst. Libn.
(00006612)


IU Digital Library Program
6/12/2006
Brad Wheeler
Acting CIO
Position Number: 00028410
Rank: Academic
Craig Stewart
AVP, Research and Academic Computing
Position Number: 00029215
Rank: PAXX
Scott McCaulay
Acting Associate Director, Research and Academic Computing
Position Number:
Rank:
Pat Steele
Ruth Lilly Interim University Dean of Univ. Libraries.
Position Number: 00013193
Rank: LH1
Kristine Brancolini
Director, Digital Library Program
Position Number: 00011736
Rank: LI01
Jon Dunn
Associate Director for Technology
Position Number: 00018202
Rank: PA17
Brian Wheeler
Digital Library System Administrator
Position Number: 00009515
Rank: PA14
Don Byrd
Research Programmer
Position Number: 00020197
Rank: IR95
Ryan Scherle
Programmer/Analyst: DL Infrastructure
Position Number: 00028571
Rank: PA15
Randall Floyd
Programmer/Database Administrator
Position Number: 00008852
Rank: PA13
Vacant
Programmer/Analyst: DL Tools
Position Number: 00028572
Rank: PA13
David Jiao
Digital Library Programmer/Analyst
Position Number: 00011826
Rank: PA13
Jim Halliday
Project Programmer/Analyst
Position Number: 00028196
Rank: PA13
IMLS/NEH
Will Cowan
Principal Systems Analyst/Team Leader, EVIADA
Position Number: 00022638
Rank: PA15
Mellon EVIA
Mark Notess
Development Manager/ Usability Specialist
Position Number: 00020395
Rank: PA16
IMLS/Mellon
Variations3 Dev Staff:
Jim Mullen 00012220 PA15
Chris Colvard 00012391 PA13
Sakai-Libraries Staff:
Usability Analyst – PA11
EVIADA Dev Staff:
Nick Hansen 00022637 PA12
Mike Durbin 00022639 PA13
John Walsh
Assoc. Dir. for Projects & Services
Position Number: 00004440
Rank: LI02
Kara Alexander
Digital Media Specialist
Position Number: 00011186
Rank: PA12
Gwen Buchanan
Digital Imaging Specialist
Position Number: 00011198
Rank: SSOF
Jennifer Riley
Metadata Librarian
Position Number: 00021977
Rank: LI03
Stacy Kowalczyk
IN Harmony Project Manager
Position Number: 00028157
Rank: LVX (50% FTE) IMLS INH
Ying Jin
Programmer/Analyst Digital Library of the Commons
Position Number: 00023887
Rank: PA13
Mellon DLC
Tamara Cameron
Newton Project Programmer/Analyst
Position Number: 00027406
Rank: PA13
NSF Newton
Michelle Dalmau
Digital Projects Librarian
Position Number:
Rank: LI03
Vacant
Interface and Usability Specialist
Position Number: 00011663
Rank: PA13
Libraries
Libraries grant-funded
UITS / DLSP
UITS / LETRS
Joint Libraries-UITS ITSP
UITS / grant-funded

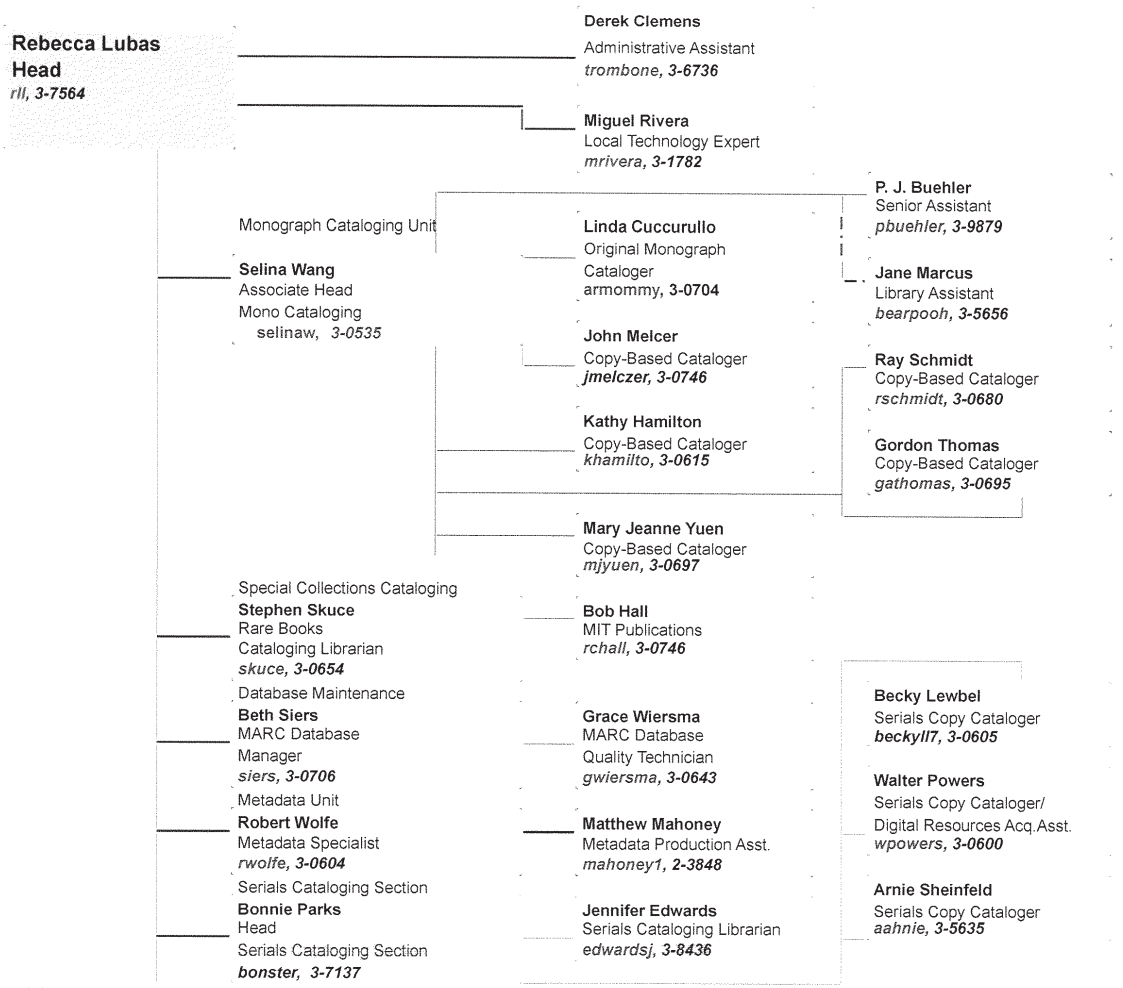
http://loc.gov/about/LC_org_Sep04.pdf

ORGANIZATION CHART

as of September 30, 2004

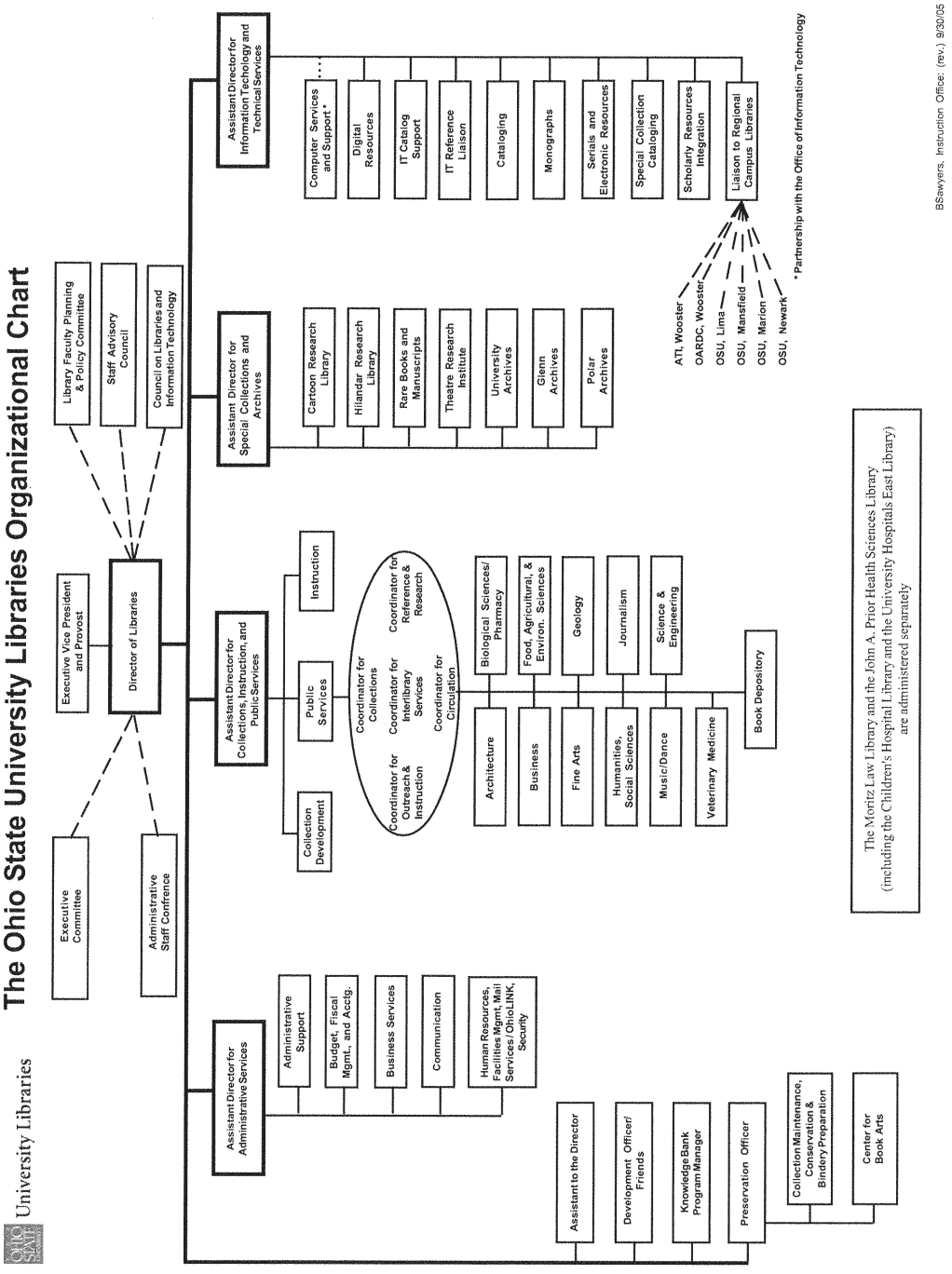


CATALOGING AND METADATA SERVICES



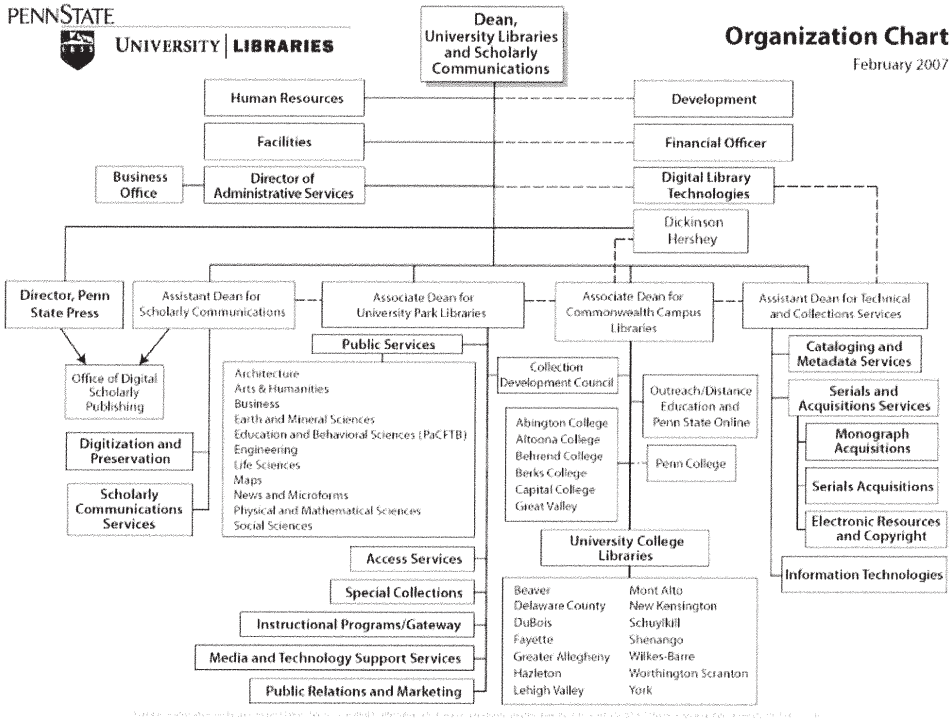
11/6/2006

http://library.osu.edu/sites/libinfo/orgchart.pdf



PENNSYLVANIA STATE UNIVERSITY

http://www.libraries.psu.edu/pubinfo/organization.html



(Libraries and departments with public Web pages are clickable)

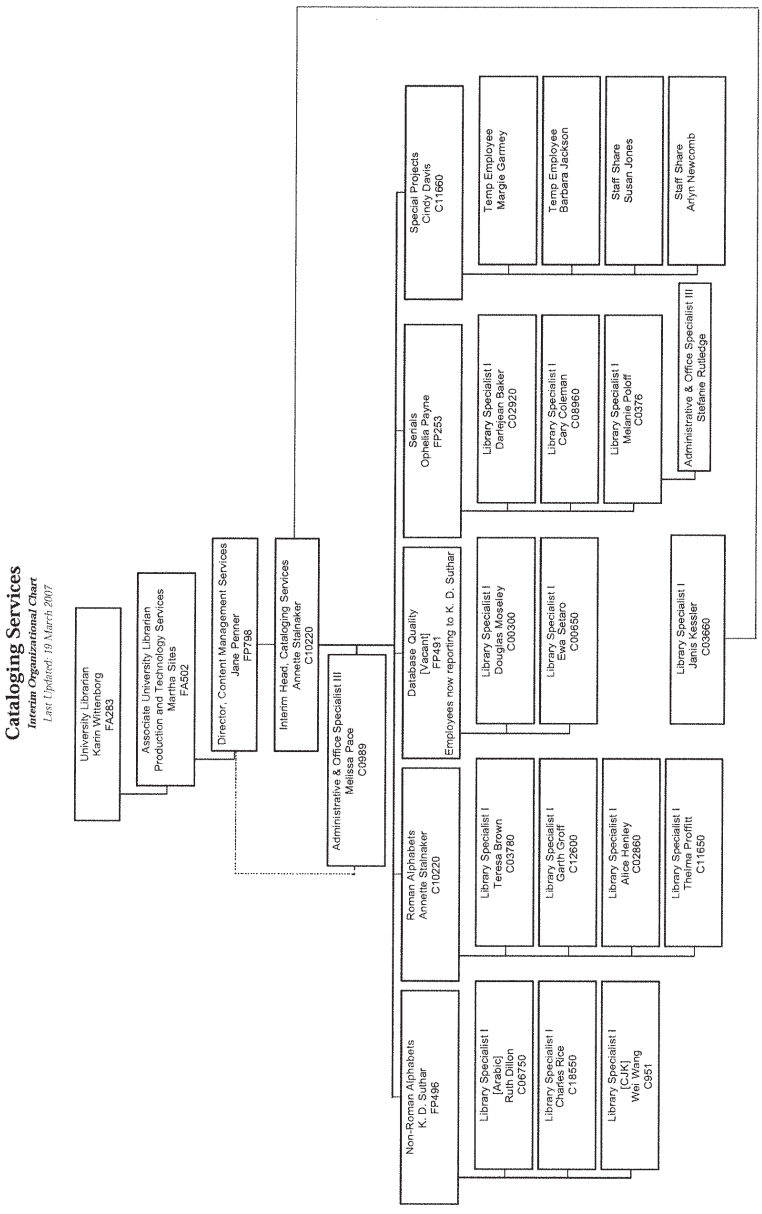
Download a printable PDF of this chart

About the Libraries | University Libraries Home | Penn State Home | Search the Libraries | Search Penn State

This information is available in alternative format on request

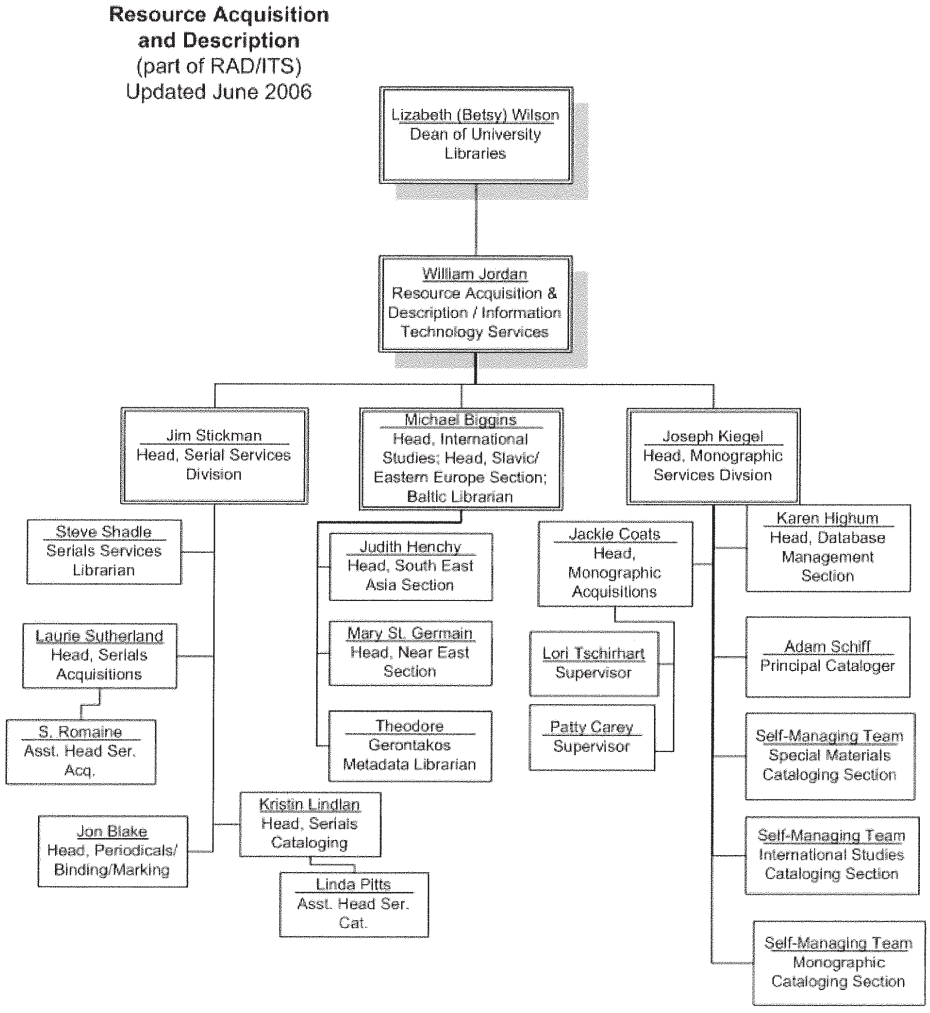
Page Last Updated 2/9/07 - Wilson Hutton
U.Ed. LIB 07-53

http://staff.lib.virginia.edu/HR/orgcharts/cataloging.pdf



UNIVERSITY OF WASHINGTON

http://www.lib.washington.edu/dean/docs/orgchart-2006.pdf



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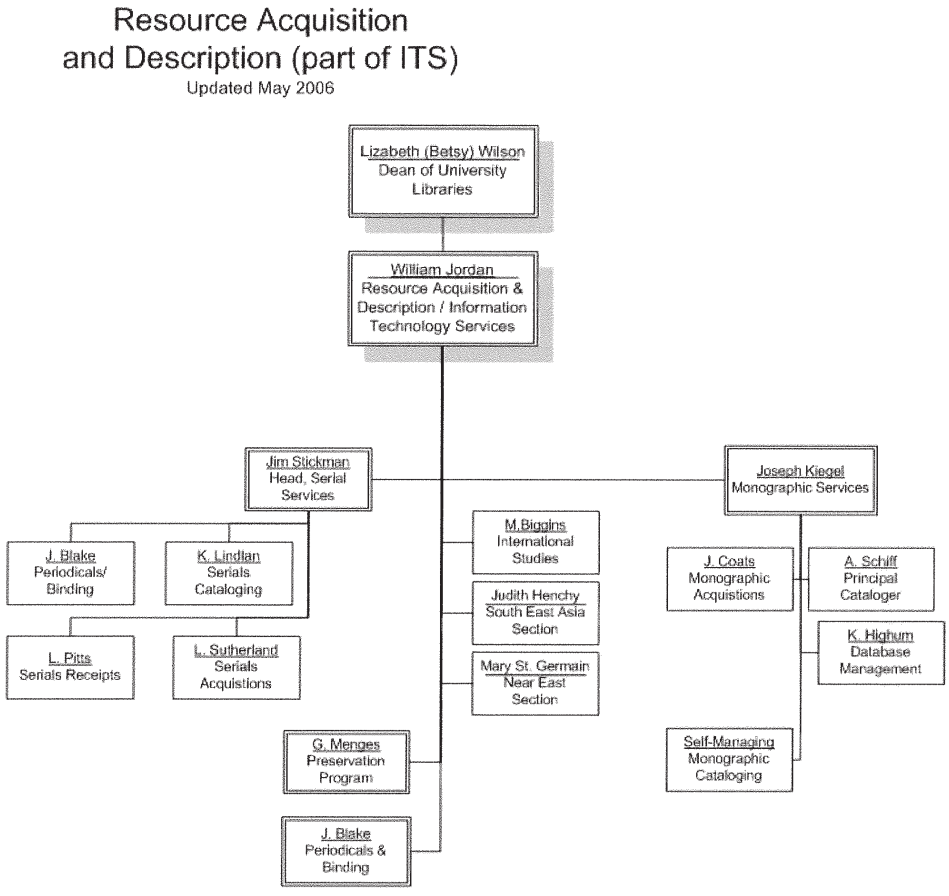
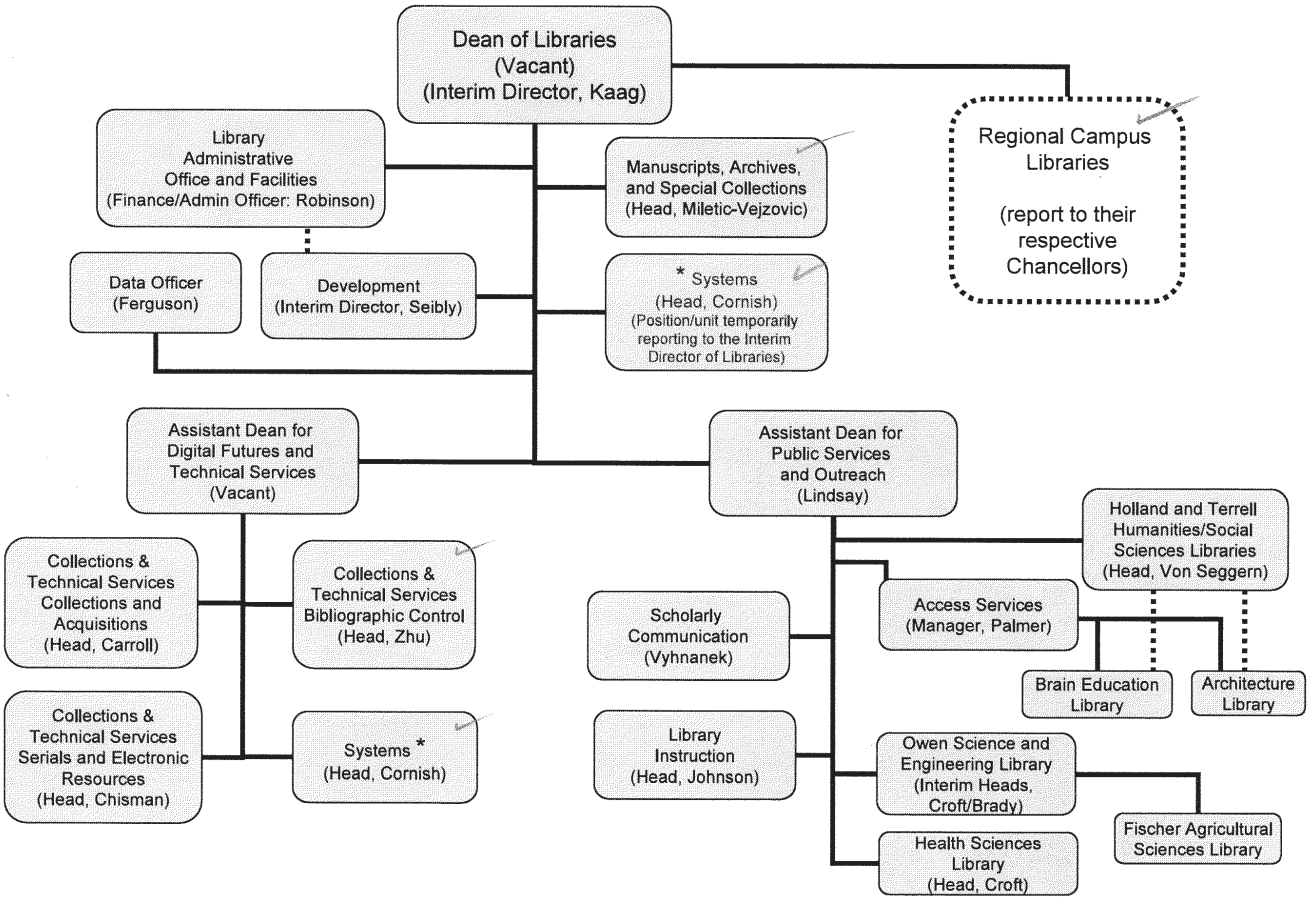


Washington State University Libraries
All Libraries
Organization Chart – January 1, 2007

Metadata services in checked accpts.



Position Descriptions

University of Alberta Library
Librarian Position Description

I.POSITION INFORMATION

INCUMBENT: Susan Dahl **DATE:** 3 May 2002

POSITION: Metadata and Cataloguing Librarian

ADMINISTRATIVE UNIT (including work unit): Bibliographic Services

SUPERVISOR: Coordinator, Bibliographic Services

II.GENERAL STATEMENT OF RESPONSIBILITY

(I) PRIMARY JOB FUNCTION (one sentence)

Using established and emerging methods, provides cataloguing services to facilitate intellectual access to the Library's collections, with an emphasis on digital materials.

(ii) NATURE AND SCOPE OF RESPONSIBILITY

Working in team environments and under the general direction of the Coordinator, Bibliographic Services, this position evaluates and applies established (AACR, MARC, LC classification, etc.) and emerging (DC, TEI, EAD, etc.) metadata schemes. The position provides expertise and leadership in policy development relating to metadata for electronic resources including external and locally developed digital collections. May have responsibility for providing reference services or collection management/liaison services. In these capacities the position is responsible for carrying out assignments, determining methods of accomplishment and timeframes; interpreting existing policy and contributing to policy development.

III.WORKING RELATIONSHIPS AND COMMUNICATIONS

(i) INTERNAL

Within Bibliographic Services, works closely with supervisory and cataloguing staff. As part of a digital library initiatives team, works with the System Coordinator for Digital Projects, the Web Development Librarian, the Electronic Access Coordinator ad the Digital Initiatives Technology Librarian. Contacts involve consultation on problems, presenting suggestions or recommendations, obtaining cooperation and/or approval of action at the unit level.

(ii) EXTERNAL

Contacts with librarians at other insititutions and with vendor staff involving consulting on problems, gathering of information, presenting suggestions or recommendations.
Contacts are required to coordinate projects between the library and other institutions and involve circumstances which may result in loss of goodwill or prestige.

IV.COMMITTEES AND PROFESSIONAL INVOLVEMENT

(committee responsibilities REQUIRED by the position and the position held on each committee)

Member of the Acquisitions and Cataloguing Team (ACT), the Interfaces Team and the Digital Initiatives Working Group.

Participation in service to the general public and to the profession is required by the position.

V. SPECIFIC RESPONSIBILITIES
(five to seven statements which describe what your position is intended to accomplish and the duties involved)

- Catalogue and classify materials in various formats using both traditional (AACR, LCSH, LC classification, MARC21) and emerging schemes
- Monitor developments in metadata standards and supporting technologies such as Dublin Core, CORC, MARC, AACR, EAD, TEI, XML, RDF, persistent identifiers for networked resources, and integration/linkages among various resources and access systems
- Analyse, design, implement, and evaluate metadata schemes for various types of electronic resources including library digitization projects
- Evaluate and select or design tools to support metadata creation, harvesting and migration
- Act as a system-wide resource and provide staff training and awareness relating to creation and use of catalogue records and other metadata
- Develop and apply performance measures for the effectiveness of metadata in meeting user needs
- Liaise with consortial partners and other campus groups, and collaborate with them on projects. Participate when appropriate in regional, national and international initiatives to promote shared development and use of metadata and its standards and practices.

SIGNED:

INCUMBENT:_____ **DATE:**_____

SUPERVISOR:_____ **DATE:**_____

ADMINISTRATIVE LIBRARIAN:_____ **DATE:**_____

BOSTON COLLEGE
Role Description

Digital Resources Cataloger

O'Neill Library, Cataloging

Role Summary

Ensures that the descriptive metadata for O'Neill Libraries' physical and digital collections, whether created in-house or obtained from other sources, adheres to recognized standards. Works closely with staff in Cataloging, Systems, and Public Services in planning and implementing digital initiatives, including but not limited to eScholarship@BC, Electronic Theses and Dissertations (ETDs), and DigiTool projects. Investigates and applies new approaches to description, subject analysis, and classification in the digital environment. Serves as a cataloging/descriptive metadata resource to all members of the department as well as to staff in special libraries (ERC, Burns). Reviews vendor supplied MARC records for print and electronic collections. Provides management support to the Head of Cataloging. Shares responsibility for designing projects for weekly project meetings, including documentation, support, and evaluation. Identifies opportunities for database cleanup. Catalogs English and foreign language materials; print, electronic and digital reproductions; and sound recordings. Reviews original work of catalogers and copy catalogers for quality control. Resolves complex problems from copy catalogers and catalogers. Provides direct supervision to one copy cataloging position. Serves on Indexing working group to ensure the functionality of indexing in Aleph.

Scope

- Provides leadership and guidance in the creation of descriptive metadata and the selection of metadata schema for digital initiatives.
- Develops and coordinates strategies for organizing and providing access to digital information.
- Serves as a resource person for other staff concerning cataloging standards, classification, database maintenance, vendor-supplied record review and workflow issues.
- Creates original and enhances existing cataloging records in OCLC, an international database.
- Performs quality control review of the work of other professional catalogers.
- Supervises staff.
- Works with staff in other departments regularly, including Systems, Government Documents, Preservation, Collection Development, and Reference, as well as all professional catalogers in the University Libraries.
- Responsible for department wide implementation and application of national and local cataloging policies, the implementation of new cataloging tools and software, and ongoing quality control within the department
- Serves as a resource to the Systems Department on indexing in Aleph.

Functional and Technical Competencies

- Extensive knowledge of USMARC formats (bibliographic, authorities, holdings), AACR2, OCLC, RLIN, ANSI/NISO standard interpretation and application, ISBD punctuation
- Thorough knowledge of cataloging, including metadata standards and controlled vocabularies
- Knowledge of software applications including Catalogers' Desktop, and Macro Express.
- Comprehensive knowledge of academic library operations.
- Ability to teach and provide feedback to all levels of staff.
- Ability to interpret and develop policy and apply to local practices.
- Ability to catalog materials in many languages.

Education/Training and Certification, Licensure, Registration Requirements

MLS from an ALA-accredited program

Experience

- Five years of cataloging in an academic library environment.
- Experience working in or with other technical services functions, including acquisitions and preservation.
- Substantive experience with AACR2, LCRI, LCSH, LC classification, and USMARC formats.
- Experience performing original cataloging in multiple bibliographic formats and languages, and a comprehensive understanding of copy cataloging issues.

- Experience managing workflow, in a dynamic environment.
- Experience in training, developing, and supervising staff, and the ability to instruct diverse learning styles.

Effective Date: _____

UNIVERSITY OF CALIFORNIA, DAVIS
GENERAL LIBRARY

STATEMENT OF PRIMARY RESPONSIBILITIES

NAME: _____ DEPARTMENT: Monographs

PAYROLL TITLE: Associate Librarian WORKING TITLE: Electronic Resources Librarian

NAMES & PAYROLL TITLES OF THOSE WHOSE WORK IS REVIEWED: N/A

REVIEW INITIATOR'S NAME AND PAYROLL TITLE: Librarian

DESCRIPTION OF RESPONSIBILITIES ASSIGNED IN COMMON:

Prepares original cataloging for material lacking bibliographic records: determines main and added entries, subject headings, and classification numbers; provides descriptive cataloging and other data necessary to create bibliographic records for input into OCLC, according to current standards for electronic storage and retrieval. Also evaluates and revises selected bibliographic records supplied by other libraries through national and international bibliographic databases. Follows guidelines and standards set forth in AACR2 Revised; Library of Congress Rule Interpretations, Subject Headings List, and Classification Schedules; and local policies. Maintains name and subject authority control for the Library's bibliographic database by consulting the national authority files and establishing forms and reference structures for names and subjects accordingly. Keeps current with developments and innovations in the discipline through professional reading, electronic forums, and departmental and professional meetings. Performs collateral duties and projects as required.

DESCRIPTION OF UNIQUE RESPONSIBILITIES:

Provides expertise and collaborates with the Digital Initiatives Librarian to define and supply appropriate access to the Library's electronic collections. Responsible for MARC cataloging records and non-MARC descriptive metadata records for electronic resources. Provides procedures for bibliographic access to electronic resources, including digital texts, digital images, digital audio, websites, and online databases. Participates in the development of strategies for the bibliographic control of digital collections, and provides leadership for coordinating current cataloging practices with developing national standards and shifting local needs.

Provides leadership for access to electronic resources and access to in-house and remote electronic resources. Collaborates with other Library units/personnel in defining and using metadata for digital library collections. Addresses issues related to topics such as standards, persistent identifiers for networked resources, record format and record contents (MARC, XML, Dublin Core, TEI, EAD, RDF, multiple versions) for digital resources, the relationship of new access mechanisms to traditional catalogs, and linkages among various access systems.

Collaborates with the Library's Digital Initiatives Librarian to provide bibliographic access to electronic content using Library standards and best practices, as they develop. Participates in digital initiatives projects (approximately 50%).

Collaborates with the Library's web development team to apply database technologies and metadata standards to the Library's web presence.

Works with the Principal Cataloger and appropriate catalog supervisors to assign resources for cataloging operations and projects.

Apprises and advises other Library personnel on all department policies and procedural changes.

Represents the Library in state and national organizations, as appropriate.

Remains current with library trends, issues, and practices, and apprises colleagues of developments.

_____	_____
(Signature of employee)	(Signature of Review Initiator)
_____	_____
(Signature of Department Head if not the Review Initiator)	(Date)

http://library.case.edu/ksl/admin/jobs/head_bib_metadata_200701.pdf

CASE
CASE WESTERN RESERVE UNIVERSITY

POSITION DESCRIPTION

Title: Head of Bibliographic/Metadata Services (Librarian Level 3)

Department: Kelvin Smith Library

Management Center: University General

Location: 201 Kelvin Smith Library

Incumbent:

Supervisor Name and Title: Timothy Robson, Deputy Director

I. POSITION OBJECTIVE

The Head of Bibliographic/Metadata Services reports to the Deputy Director of Kelvin Smith Library and is a part of the Technical Services Council which includes the Head of Bibliographic/Metadata Services, the Head of Serials, the Head of Acquisitions and the Head of Preservation. The Head of Bibliographic/Metadata Services is responsible for planning, organizing, implementing and evaluating services and procedures that enhance bibliographic access and indexing for collections and resources of Kelvin Smith Library. The Head works closely with other department heads, both in Technical Services and elsewhere in the library to facilitate effective communication and working relationships among the departments. The Head provides leadership in resource management and allocation for the department. The Head supervises department staff and establishes departmental goals in keeping with those of the Kelvin Smith Library. The Head participates in the Technical Services/Collection Development Strategic Initiatives Group to foster good working relationships and efficient operations between collection development staff and Technical Services departments. The Head also undertakes special project assignments as assigned.

II. ESSENTIAL FUNCTIONS

- Manages the day-to-day operations and activities of the Bibliographic/Metadata Services Department, including, but not limited to, cataloging of new materials, reclassification/recataloging, authority control, physical processing, XML markup of digital books and creation of metadata records using such standards as Dublin Core, METS, MODS, etc.
- Supervises department staff, including hiring, scheduling, training and evaluating.
- Represents the department on the Technical Services Council, the Technical Services/Collection Development Strategic Initiatives Group, KSL Department Heads and other internal library committees.
- Works closely with the Head of Digital Library Initiatives in creating metadata for digital materials in the library's digital library, *Digital Case*.
- Works closely with the Head of Acquisitions to ensure a smooth workflow of new materials through the department.
- Develops and implements plans for effective and efficient workflow through the department, as well as mechanisms for evaluating that effectiveness.
- Develops yearly budget requests for the department and oversees the operational budget of the department

- Provides leadership in promoting opportunities for ongoing training and development for the staff of the department.
- Provides leadership in taking advantage of the use of the library's online library system and other available technologies.
- Provides leadership for external projects such as NACO, and may serve on appropriate OhioLINK committees and task forces.
- Prepares statistical and other management reports for the purposes of library administration and outside reporting agencies.
- Participates in cooperative activities with the other Case libraries.
- Plans and participates in special project assignments related to bibliographic access and control.
- Stays abreast of current trends and best practices in areas of responsibility and takes steps as necessary to integrate these into the operations of Kelvin Smith Library
- Maintains and documents a plan for ongoing professional growth and development and involvement in appropriate professional activities and organizations.

III. NON-ESSENTIAL FUNCTIONS

Participates in library-wide projects and special assignments.

IV. CONTACTS

A. Within your department/division or management center

Daily contact with library staff (professional, support, administrative) at all levels.

B. Within the university

Frequent contact with staff at other Case libraries; occasional contact with faculty and outside users of the library.

C. External to university

Occasional contact with OhioLINK staff and vendors.

D. Students

Supervision of student assistants in department; infrequent contact with other students

V. SUPERVISORY RESPONSIBILITY

This position directly supervises 2 FTE professional librarians, 3.5 FTE support staff , several student assistants and may occasionally supervises part- or full-time temporary employees.

VI. REQUIREMENTS

A. Experience

1. At least five years experience in a cataloging/metadata department of an academic or large public library required.
2. Supervisory experience required.

B. Education

M.L.S. required.

C. Essential skills

1. Ability to effectively supervise and evaluate the work of others.
2. Good oral and written communication skills.
3. Excellent interpersonal skills.
4. Must be able to use initiative and be able to work with minimal supervision, as well as part of a team in a collegial environment.
5. Must be able to assume responsibility and accomplish goals by thorough project planning and implementation.
6. Must have good problem solving skills and flexibility by exercising sound judgment in dealing with a variety of issues, sometimes in ambiguous circumstances.

D. Technical skills

1. Experience working with a variety of computer-based resources in support of cataloging required.
2. Knowledge of AACR2R, LCR1, LCSH, MARC formats, LC and Dewey classifications, and OCLC required.
3. Knowledge and demonstrated experience with metadata and other XML standards such as METS, MODS, Dublin Core, TEI, etc. required.
4. Experience working with an automated library system to catalog library materials required; experience using Innovative Interfaces INNOPAC strongly preferred.

VII. WORKING CONDITIONS

General office environment. Most work requires use of computer workstation. Some work requires interaction with old and dirty library materials.

Technical Services Archivist/Encoding Specialist

Reporting to the Head of Technical Services in the Rare Book, Manuscript, and Special Collections Library (RBMSCL), the Technical Services Archivist accessions and processes manuscripts and archival material in a variety of subject areas, and is responsible for digital media and providing leadership and technical support for encoding activities. S/He creates encoded collection finding aids, including preliminary container lists, and inventories, participates in the development of Technical Services procedures and provides some reference service.

Responsibilities

- Accessions, processes, and describes incoming manuscript and archival collections; analyzes accessioned manuscript collections to determine organization, arrangement, preservation, and description needs, seeking consultation with Collection Development and Research Services staff as needed; prepares preliminary descriptive tools for manuscript and archival collections, including printed and encoded inventories or container lists, databases, and subject and other indexing.
- Provides primary leadership, expertise, and support for RBMSCL EAD encoding activities; develops, in collaboration with other staff, internal encoding standards; evaluates and deploys software for use in encoding and display; serves as department liaison to Information Systems Support for mounting encoded finding aids on Library servers; provides training for staff, interns, and student assistants in encoding standards.
- Performs and supervises processing and description of manuscript and archival collections; provides for base-level processing for manuscript and archival collections and fuller processing when appropriate; develops and approves processing proposals.
- Analyzes digital material acquired by RBMSCL as part of manuscript and archival collections and, working with Information Systems Support staff, provides for appropriate description and preservation; develops policies for media migration, reformatting, storage, and server space; stays current with issues and knowledge of digital preservation and communicates with other RBMSCL staff; maintains procedures for Technical Services Manual.
- Supervises, trains and evaluates Rare Materials/Archival Assistant, student assistants, interns, and casual labor workers as needed to provide assistance in the accessioning and processing of manuscript collections.
- Participates in the planning, review, and implementation of the Department's mission and technical procedures.
- Provides reference service for RBMSCL on a rotating Saturday and holiday schedule.
- Performs other duties as assigned.

Qualifications

It is the expectation that all Perkins Library System staff members will demonstrate exceptional workplace behaviors in the execution of their specific position responsibilities. These behaviors are customer focus, collaboration, creative problem solving, continuous learning and a commitment to diversity. In addition, managers and supervisors are expected to help develop a common vision by providing clear direction and priorities, clarifying roles and responsibilities, and promoting mutual understanding through effective communication. They are also expected to take the time to effectively plan and evaluate performance, provide feedback, recognition and coaching, and develop employees to achieve their personal and organizational goals.

EDUCATION:
Required: MLS from an ALA-accredited program, advanced degree in archival studies or an academic field related to RBMSCL holdings and/or relevant combination of education and experience.

EXPERIENCE:
Required: At least two years of experience in accessioning and processing manuscripts and archival material; working knowledge of and experience with standard archival procedures, *DACS*, MARC cataloging, Library of Congress Subject Headings and Encoded Archival Description; attentive to details; familiarity with computer systems and with migration protocols for a variety of digital media; excellent interpersonal, oral and written communication skills; flexibility and ability to adapt to change; ability to work independently and as a member of a team; working knowledge of MS Office applications; demonstrated commitment to providing outstanding customer services; must be able to lift 30 pounds and unpack, shelve and shift large quantities of library materials; must be able to work in an environment in which exposure to materials containing dust and mold is possible. .

Preferred: Prior experience working in an academic research library; experience with library databases, AACR2 cataloging and EAD encoding software.

Salary and Benefits

Salary and librarian rank dependent on qualifications and experience; anticipated hiring range of $38,000 – 43,000. Comprehensive benefits package includes 20 days vacation, 13 holidays, 12 days sick leave; health, dental, disability and life insurance; retirement plan options; and educational assistance and tuition grants.

Environment

The libraries of Duke University consist of the William R. Perkins Library and its six branches on campus: Rare Book, Manuscript and Special Collections, Biological and Environmental Sciences, Chemistry, Engineering and Math-Physics, Lilly and Music; the library at the Duke Marine Laboratory in Beaufort; and the independently administered libraries of the professional schools: The Ford Library at the Fuqua School of Business, Divinity School Library, Duke Law Library and the Medical Center Library. Duke's library holdings of 5.1 million volumes are among the largest of private universities in the United States. Duke is a member of the Triangle Research Libraries Network which promotes collaboration in the areas of collection development and management, access services, information technology, and human resources among the libraries of Duke University, the University of North Carolina-Chapel Hill, North Carolina Central University and North Carolina State University.

Duke University and Durham are located in the Research Triangle, a region that encompasses one of the nation's premier concentrations of academic, corporate, and public research. The Triangle region is rated among the most desirable areas in North America to live and work and has been identified by *Money* magazine as one of the "Best Places to Live" in the U.S.

Application

Please e-mail cover letter, detailed resume and the names, addresses (mailing and e-mail), and telephone numbers of three references to library-jobs@duke.edu. Please include ***TECH***

ARCHIVIST in the subject line. (Please send e-mail in plain text format, *not* HTML). If you do not have access to e-mail, please send applications via regular mail to: Teresa Tillman, Box 90194, Duke University, Durham, NC 27708.

Review of applications will begin in early July and will continue until the position is filled.

Duke University is an Equal Opportunity/Affirmative Action employer. The Perkins Library System has a strong commitment to Affirmative Action and is actively seeking to increase the racial and ethnic diversity of our staff.

INFORMATION TECHNOLOGY SERVICES
PERKINS LIBRARY, DUKE UNIVERSITY

POSITION DESCRIPTION

POSITION: Metadata Architect/Programmer
HR CLASSIFICATION: Analyst, Information Technology
DEPARTMENT: Research and Content Development

General Description

Serves as primary metadata architect and software analyst/programmer for digital library projects. Works with project stakeholders to select or define taxonomies and metadata schemas and to develop crosswalks between them. Performs analysis, design, program development, prototyping, and testing of tools and systems that implement these metadata schemes. This position reports to the Head of the Office of Research and Content Development, Information Technology Services.

Duties

1. Working closely with project stakeholders and other ITS staff, identifies and documents metadata needs and requirements. Researches and identifies existing metadata standards, schemes, and tools for applicability, or develops and documents new ones where necessary. Assists in development of project specifications and project plans. Assists in performing cost analysis of system changes and feasibility studies.

2. Researches and evaluates software systems and tools for their applicability to defined specifications. Analyzes, installs, configures, customizes, and prototypes systems and tools to meet these specifications. Where existing functionality is not available, designs, develops, and prototypes custom tools. Develops and implements metadata crosswalks and programs to provide connectivity between systems as needed.

3. Serves on cross-functional project teams within the ITS department as well as across library and University departments. Provides consulting and training on issues related to work being performed.

4. Prepares reports and analyses setting forth progress, adverse trends and appropriate recommendations or conclusions. Compiles documentation of models and programs.

5. May assign work and establish priorities, instruct and train in methods and procedures, and coordinate and review the work of other staff.

6. Maintains interface with vendor representatives to gather information and resolve software problems.

7. Maintains liaison with representatives of other University information technology operations, professional and standards organizations and software vendors to ensure knowledge of current principles and techniques and interoperability with relevant systems. Monitors print and online sources to keep up-to-date on metadata standards and tools, software systems, operation procedures, and technological developments in systems and programming.

8. Performs other related duties as assigned.

Qualifications

Required:

- Bachelor's degree in computer science, software engineering, or equivalent education or experience.
- Experience with software development in a Unix environment, in particular with developing Internet applications.
- Experience with complex metadata modeling and structures, particularly in a digital library environment.
- Experience with XML, RDF, and related standards and technologies, especially with respect to established schemas such as EAD, TEI, and Dublin Core.
- Demonstrated written and oral communication skills.
- Experience with programming in at least two of these languages: C++, Java, Perl, JavaScript, Python.

Desirable:

- Experience working in a research library or academic computing environment.
- Master's degree in Information or Library Science.
- Experience with UML and/or related standards and technologies.
- Experience with Unix system administration (Solaris and Linux).
- Experience working with RDBMS and/or OODBMS applications.

INDIANA UNIVERSITY LIBRARIES
Bloomington, Indiana 47405

LIBRARY FACULTY POSITION DESCRIPTION FORM

Name: Jenn Riley Years covered: 2006

Position Title: Metadata Librarian

If other than full time, please indicate:

Campus: Bloomington

Library/Branch/Department: Wells Library/Digital Library Program

Immediate Supervisor(s): Stacy Kowalczyk, Associate Director for Projects & Services, Digital Library Program

Department Head: (vacant)

I. Primary responsibilities

Please list here, in tabular form, those duties which you regularly or occasionally perform on which the majority of your time is spent. The duties should be directly connected with the title of your position and the function of your department. If these duties include any significant one-time projects, please specify.

1. Plans long-term metadata strategy for the Indiana University Libraries and Digital Library Program.
2. Advises on the application of and provides written instructions for the creation, capture, and quality control of descriptive, administrative, structural, and technical metadata for digital projects and collections in the Indiana University Libraries and Digital Library Program.
3. Works with collection managers and subject specialists to identify appropriate metadata standards for use in digital projects covering a variety of media, including text, music, still images, audio, and video.
4. Creates, proofreads, and edits descriptive, administrative, structural, and technical metadata for digital projects.
5. Designs and/or adapts DTDs, XML Schemas, and XSLT stylesheets for metadata for digital projects.
6. Participates in the translation of metadata between formats and the integration of metadata from a variety of sources.

7. Collaboratively develops specifications for the use of metadata in the search and browse functions of delivery applications for digital projects.
8. Assists in development of specifications for tools for the creation of metadata for digital projects.
9. Serves as a liaison between the Digital Library Program and IU Libraries Technical Services for metadata issues.
10. As required, hires, trains, and supervises hourly and grant-funded personnel assigned to create metadata for specific projects.

II. Secondary responsibilities

Please list here, in tabular form, those duties which you regularly or occasionally perform but which do not require the majority of your time. These duties should include regularly scheduled departmental or administrative meetings, but should not include committee appointments unless service is ex-officio.

1. Helps to identify sources of external funding and participates in writing grant proposals to fund digital projects.
2. Serves as a member of the DLP Administrative Team.
3. Serves as a convener of the IU Libraries EAD Working Group.
4. Consults with other members of the Indiana University community on selection and implementation of metadata schemas for digital projects.

III. Qualifications

Please list here any special qualifications for the completion of your primary responsibilities. If previous library experience is essential, please indicate its length and nature. Other qualifications might include language skills, advanced degrees in non-library areas, non-library experience, etc. If such qualifications would be merely helpful rather than essential, please do indicate.

- ALA-accredited master's degree in library or information science or equivalent combination of degrees and experience.
- Knowledge of the concepts and applications used in the standards and practices of organizing information
- Experience with metadata standards including MARC, EAD, TEI, VRA Core, Dublin Core, MODS, and METS
- Experience with creation and/or knowledge and management of digital objects in various text, image, sound, and/or video formats
- Ability to plan, coordinate, and implement projects
- Experience with XML/SGML and related standards
- Experience with multiple computer platforms including Linux, UNIX, Windows, and MacOS
- Experience with Perl or Java helpful
- Experience in writing grant proposals and/or in managing grants helpful
- Good organization skills and an aptitude for complex analytical and detailed work
- Ability to work independently as well as collegially in a complex, rapidly changing and culturally diverse environment with various groups of library staff

- Excellent written and oral communication skills
- Ability to meet the requirements of a tenure-track appointment

The Metadata Librarian position at the Johns Hopkins University Libraries' offers an opportunity for an energetic, service oriented librarian with strong communications skills to provide leadership and technical expertise in the application of descriptive metadata for locally digitized resources included in the Johns Hopkins University's institutional repository. Reporting to the Head of Technical Services, the Metadata Librarian will:

- Coordinate the creation and management of descriptive metadata including compose data dictionaries, define input standards, establish local policies and procedures;
- Devise metadata structures and search interfaces that facilitate discovery and retrieval of locally digitized information;
- Develops tools to transform metadata into multiple schema using XSLT
- Collaborate with staff in the Center for Educational Resources, Digital Library Program, Special Collections as well as campus departments and external organizations to design schema, to identify and coordinate implementation of enhancements based on user needs and developing standards;
- Collaborate with programmers to implement new enhancements
- Provide outreach to the academic community to educate users about products and gather feedback
- Analyze metadata provided by external vendors to determine conversions and enhancements needed to support local access through the Hopkins' digital library
- Train students, staff, content creators in the application of descriptive metadata
- Participate in local and national discussions through professional development and service activities

Required Qualifications: ALA accredited MLS, or information science, computer science or a related field. Experience with computer applications in libraries, including knowledge of non-MARC metadata schemes and evolving standards (e.g., Dublin Core, VRA Core Categories, or Content Standard for Digital Geospatial Metadata). Knowledge of XML and XSLT . Knowledge of frameworks for managing intellectual content/information in digital form (e.g., TEI, DOI, or RDF).Ability to plan, coordinate, and implement projects. Strong service orientation. Demonstrated organizational, analytical, problem solving, communication, and training skills. Flexibility and initiative in carrying out assignments in a rapidly changing environment. Ability to prioritize work to ensure that departmental and library goals are realized. Ability to work independently as well as part of a team in a production-oriented, dynamic environment, and with a commitment to professional development and growth.

Preferred Qualifications: Familarity with thesaurus design and construction. Familarity with relational databases and information retrieval software. Understanding of networked architecture. Project management experience.Working knowledge of current national cataloging standards.

The MIT Libraries seek an innovative and energetic professional with a grounding in metadata skills to develop and supervise a Metadata Services Unit. This Unit review and create metadata for objects in MIT's OpenCourseWare project. The Metadata Librarian will learn all aspects of the OCW metadata input system and workflow, and will participate in metadata processes, including but not limited to editing the SCORM descriptive metadata and the technical metadata for non-text formats, and supplying subject terms as necessary. The Metadata Librarian will serve as the Libraries' liaison to the OCW project and ensure fulfillment of production requirements. He/she will plan and implement the Unit's activities, developing workflows and documentation, and will supervise a half-time support staff position responsible for routine descriptive metadata editing. The Metadata Librarian will also identify other potential clients for metadata services, gradually expanding the service on a cost recovery basis. He/she will provide consulting services, such as conducting metadata needs assessments, and drafting metadata components of grant proposals.

Reporting to the Head, Cataloging and Metadata Services, the Metadata Librarian will collaborate with colleagues in that department as well as those in the Libraries' Digital Library Research Group. Assistance and guidance will be provided for an initial period of six months by the Special Formats Cataloger, who has worked with OCW to plan this new service. The Metadata Librarian will be expected to develop expertise in and keep current with standards such as SCORM, IEEE LOM, CIP, and various formats of technical metadata. He/ she will develop familiarity with subject thesauri in order to be able to recommend specific thesauri for various projects. He/she will participate in committees, projects, and development activities within the MIT Libraries and beyond.

Requirements:

M.L.S or equivalent degree from an ALA-accredited university strongly preferred, although candidates with applicable alternative educational background and experience will be considered. Cataloging and/or metadata experience in a research library preferred; solid evidence of metadata skills and understanding of some metadata schema required. Experience working with academic departments will be very useful. All of the following are required: Strong collegial, interpersonal and communication skills; Ability to work in a team setting in a complex, rapidly changing environment; Experience in or demonstrated potential for supervisory responsibility; Evidence of consistency in and aptitude for detailed work.

Electronic Resources Cataloger Job Description

Description

The Electronic Resources Cataloger serves as a specialist and liaison for the Catalog Dept. on issues of bibliographic control and metadata related to electronic resources of all types. He/she works in a collegial environment of cataloging specialists and within a library that is increasingly active in creating and managing digital content. The position is in the Monographic Original Cataloging section of the Catalog Dept. in Davis Library.

This position's primary responsibilities:

- Catalog electronic resources including CD-ROMs, DVD-ROMs, E-books, electronic databases, websites and other electronic formats (primarily monographs and integrating resources) acquired for Davis Library and the branch libraries that it serves. Cataloging is done using OCLC's Connexion Client and the library's Innovative Interfaces local system.

- Develop and maintain local policies and documentation, keep abreast of current trends, and work with other library staff, as necessary, on issues involving cataloging of e-resources.

- Assume responsibility as the lead cataloging specialist for the library's digital library initiatives and actively participate in library digital planning and projects.

- Serve as a general resource person for the library on metadata issues

- Participate in the NACO and BIBCO programs of the Library of Congress' Program for Cooperative Cataloging.

- Take on special cataloging projects as needed, especially when they expand access to previously uncataloged material.

Qualifications

Required: ALA-accredited MLS. Demonstrated interest in cataloging through extra courses, internships or work experience. Working knowledge of online library systems, AACR2R, LCRI, LCSH, MARC21 formats, and authority control. Demonstrated interest in working with electronic material through familiarity with library metadata and standards such as Dublin Core, TEI Headers, EAD, HTML and XML, METS, MODS and other components of digital libraries. Good computer skills including spreadsheet and database applications. Excellent oral and written communication skills. Effective organizational and interpersonal skills, and the ability to work cooperatively and flexibly

with a wide variety of staff in a rapidly changing environment. Commitment to professional growth in areas relevant to the position of Electronic Resources Cataloger.

Preferred: Cataloging experience in an academic or research library setting or cataloging experience with electronic resources. Experience with: Innovative's Millennium system; NACO or other PCC programs. Reading knowledge of one or more European or Asian languages.

Metadata Librarian

The Pennsylvania State University Libraries seeks an innovative and highly motivated librarian to provide creative leadership and expertise in developing and maintaining metadata to effectively provide access to the Libraries' digital resources covering all subjects and languages according to nationally recognized standards. This is a tenure track faculty position and the Metadata Librarian is a member of the University Libraries faculty.

Responsibilities: Reporting to the head of Cataloging and Metadata Services, the successful candidate will be responsible for providing expertise and leadership to the Libraries' digital and scholarly communications initiatives by providing metadata and metadata guidelines for digital collections. Collaborate with other librarians and library staff, Penn State Press staff, Penn State faculty, and colleagues in other research institutions to evaluate and apply appropriate metadata schemas for digital collections held by the Libraries and University. Provide leadership in the development of standards, policies and procedures across Technical Services, with particular responsibility for digital resources. As a member of the Digital Technology Advisory Group, manage and coordinate the process of implementing metadata, including needs assessment, metadata scheme adaptation, metadata interoperability, project management, and working with partners from various units. Serve as a resource for faculty and staff throughout the Libraries concerning access to library materials. Present information about digital initiatives and metadata in particular to a variety of audiences. Create and maintain local documentation on metadata standards and metadata application guidelines . Monitor and contribute to the development of national standards regarding the bibliographic control of digital resources. Explore new technologies and developments in digital applications and metadata implementation. Train staff to provide metadata for digital resources and provide quality control for digital object metadata. Participate in departmental and Libraries-wide committees, task forces and teams.

Qualifications: MLS from an ALA-accredited program or equivalent degree; experience with one or more of the following standards: EAD, Dublin Core, XML, OAI, METS, VRACore and PBCore; knowledge of AACR2r, LCSH, LC classification, USMARC formats, integrated library system software, and OCLC Connexion; strong technical skills and problem-solving abilities; excellent oral, written, and interpersonal communication skills; strong commitment to excellent service and the

ability to work independently and collaboratively; reading knowledge of a foreign language; ability to work well with a diverse employee and user community and to work within a collegial environment. Preferred: Two years experience with initiatives to provide access to digital resources.

The University Libraries: Established in 1855, Penn State is a Carnegie I comprehensive research university with a strong land grant mission. " America 's Best Colleges 2004" in U.S. News & World Reports, ranks Penn State 15th among top national doctoral universities. The University Libraries, with an annual budget of $41 million and a collection of over 5 million volumes, ranks among the top fifteen ARL research libraries in North America . The University Libraries comprise 38 libraries located on 24 Penn State campuses throughout the Commonwealth of Pennsylvania . 159 librarians and professional staff, 403 support staff, and 89 FTE student assistants serve 84,000 students and 6,500 faculty. Libraries memberships include ARL, OCLC, RLG, PALCI (Pennsylvania Academic Library Consortium, Inc.), Palinet, CRL, DLF, and the CIC (Big Ten) consortium.

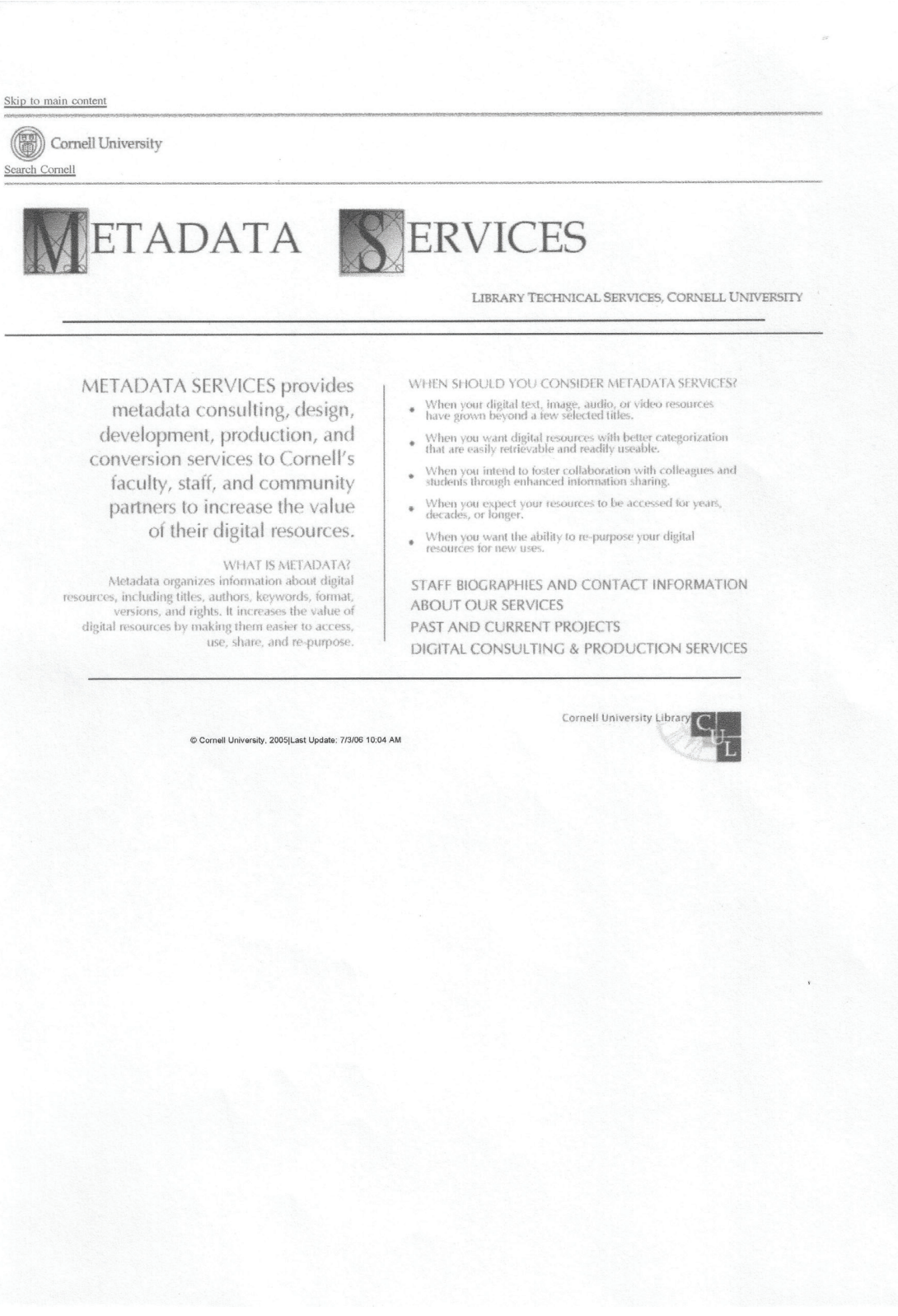
Salary and Benefits: Potential for promotion and tenure will be considered based upon University standards in librarianship, research, service, and outreach. Salary and rank commensurate with qualifications and experience. Excellent fringe benefits include liberal vacation, excellent insurance and health care coverage. State or TIAA/CREF retirement options, and educational privileges.

Applications: To apply, send nominations or letters of application (including current resume and name and contact information of three professional references) to: Libraries Human Resources, Box MDL-PSUL, The Pennsylvania State University, 511 Paterno Library, University Park , PA 16802 . Review of resumes will begin on November 8, 2006 and continue until the position is filled.

Penn State is committed to affirmative action, equal opportunity and diversity of its workforce.

Mission Statements and Group Charges

http://metadata.library.cornell.edu/



Skip to main content

Cornell University

Search Cornell

METADATA SERVICES

LIBRARY TECHNICAL SERVICES, CORNELL UNIVERSITY

METADATA SERVICES provides metadata consulting, design, development, production, and conversion services to Cornell's faculty, staff, and community partners to increase the value of their digital resources.

WHAT IS METADATA?

Metadata organizes information about digital resources, including titles, authors, keywords, format, versions, and rights. It increases the value of digital resources by making them easier to access, use, share, and re-purpose.

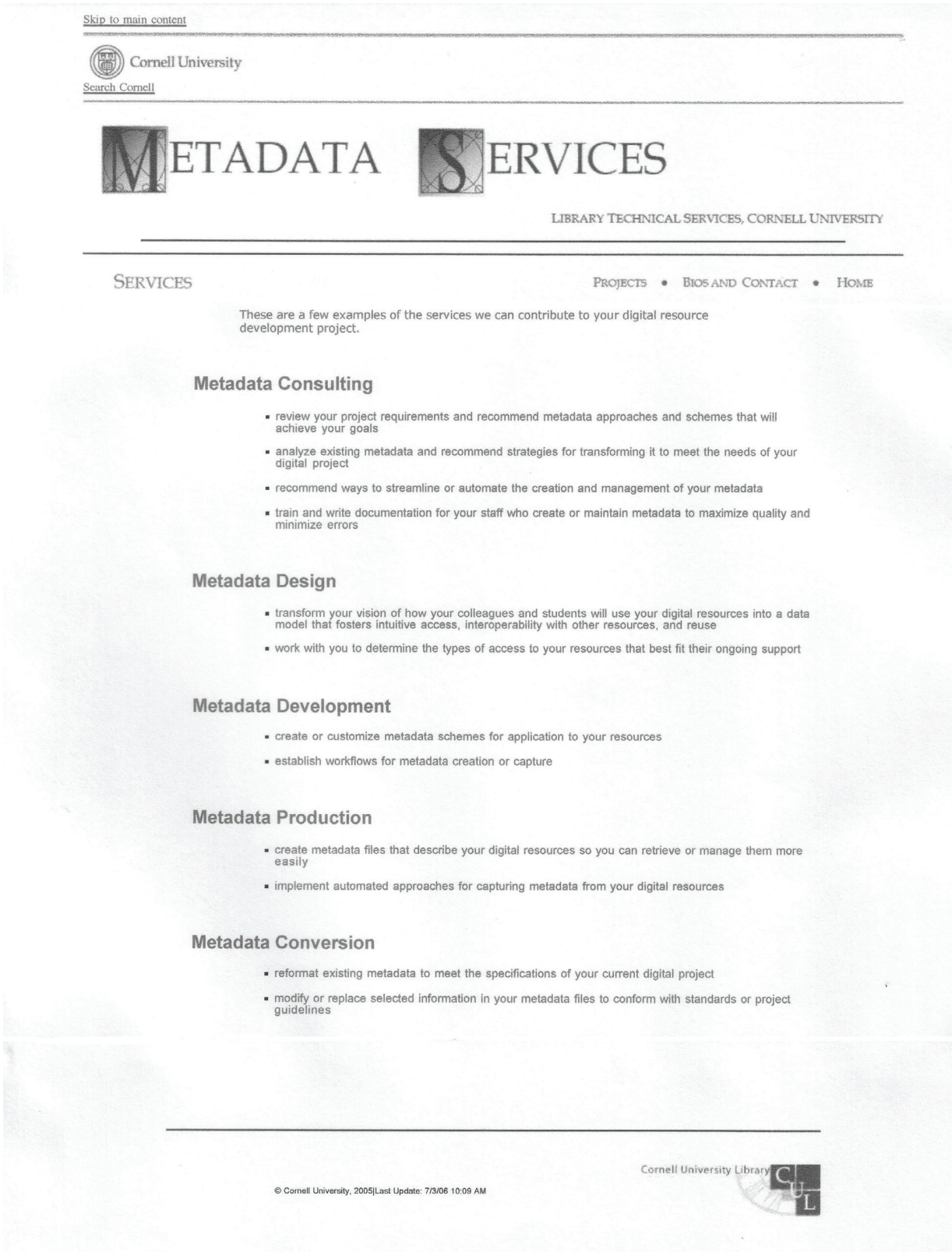
WHEN SHOULD YOU CONSIDER METADATA SERVICES?

- When your digital text, image, audio, or video resources have grown beyond a few selected titles.
- When you want digital resources with better categorization that are easily retrievable and readily useable.
- When you intend to foster collaboration with colleagues and students through enhanced information sharing.
- When you expect your resources to be accessed for years, decades, or longer.
- When you want the ability to re-purpose your digital resources for new uses.

STAFF BIOGRAPHIES AND CONTACT INFORMATION
ABOUT OUR SERVICES
PAST AND CURRENT PROJECTS
DIGITAL CONSULTING & PRODUCTION SERVICES

Cornell University Library

http://metadata.library.cornell.edu/services.html



Skip to main content

Cornell University

Search Cornell

METADATA SERVICES

LIBRARY TECHNICAL SERVICES, CORNELL UNIVERSITY

SERVICES

PROJECTS • BIOS AND CONTACT • HOME

These are a few examples of the services we can contribute to your digital resource development project.

Metadata Consulting

- review your project requirements and recommend metadata approaches and schemes that will achieve your goals
- analyze existing metadata and recommend strategies for transforming it to meet the needs of your digital project
- recommend ways to streamline or automate the creation and management of your metadata
- train and write documentation for your staff who create or maintain metadata to maximize quality and minimize errors

Metadata Design

- transform your vision of how your colleagues and students will use your digital resources into a data model that fosters intuitive access, interoperability with other resources, and reuse
- work with you to determine the types of access to your resources that best fit their ongoing support

Metadata Development

- create or customize metadata schemes for application to your resources
- establish workflows for metadata creation or capture

Metadata Production

- create metadata files that describe your digital resources so you can retrieve or manage them more easily
- implement automated approaches for capturing metadata from your digital resources

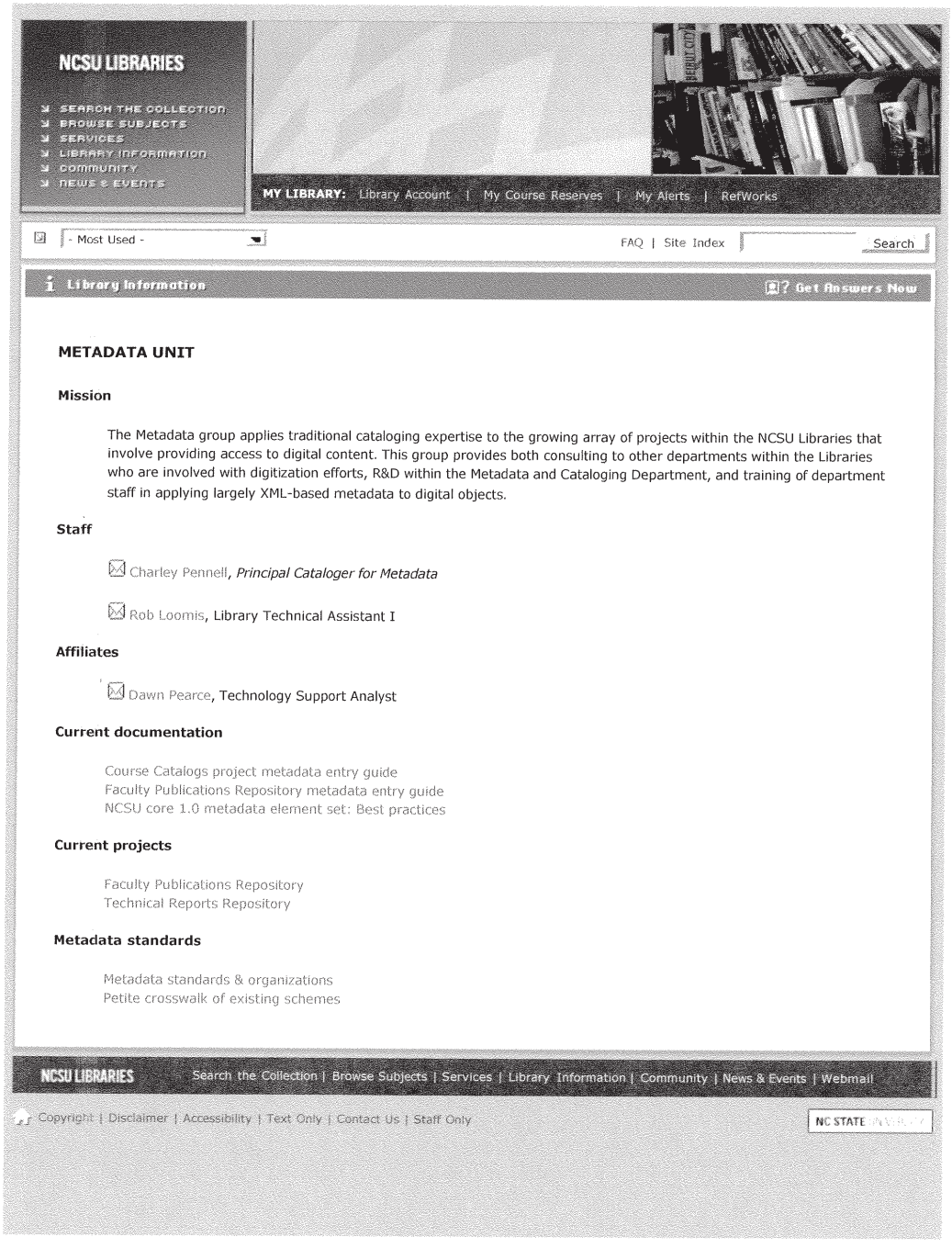
Metadata Conversion

- reformat existing metadata to meet the specifications of your current digital project
- modify or replace selected information in your metadata files to conform with standards or project guidelines

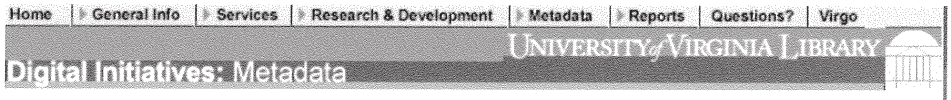
Cornell University Library

NORTH CAROLINA STATE UNIVERSITY

http://www.lib.ncsu.edu/cataloging/dept/metadata.html



http://lib.virginia.edu/digital/metadata/msg.html



Metadata Steering Group

Metadata Home > Metadata Steering Group

Charge & Membership
Library standards/content experts
Lib-metadata email list & archives
Minutes
Reports & Recommendations
Earlier efforts

Charge & Membership

The charge of the Metadata Steering Group (MSG) is to approve and maintain metadata standards for the Library's digital initiatives. This group also establishes best practices for data content and approves new local practices for the application of existing standards. This group engages the perspectives of Library experts in the various international standards (TEI, MARC, VRA….) and is responsible for keeping up with changes and adjusting mappings and the metadata schema for the UVa Digital Library to stay aligned with external standards. The Group creates short-term working groups as needed, which may consist of representatives of the various standards and/or content domains (science, music, etc.) along with MSG members. The Group distributes its minutes to the lib-metadata email list and reports its recommendations to Martha Sites, Associate University Library for Production and Technology Services, for discussion and prioritization among her managers' group.

Members:

Erin Stalberg, *Chair* (Cataloging Services)
Elizabeth Gushee (Fine Arts Library)
Janis Kessler (Cataloging Services)
Sherry Lake (Brown Science & Engineering Library)
Mary Prendergast (Music Library)
Bess Sadler (Digital Research & Instruction Services)
Thorny Staples (Digital Library Research & Development)

Library standards/content experts

Beth Blanton-Kent (Science)
Bradley Daigle (EAD)
Leslie Johnston (Central Digital Repository)
Carla Lee (Science)
Greg Murray (TEI)
Christine Routolo (TEI)
Judith Thomas (Images/Audio/Video)
Ross Wayland (Central Digital Repository)

Lib-metadata Email List and Archives

The purpose of this list is to bring together everyone involved with and/or interested in the creation of metadata and metadata/cataloging standards for the UVa Digital Library. The list is open to all in the University of Virginia community.

Subscription information
View the archives (the archive is only available to the list members)

MSG Minutes

The first meeting of the MSG was September 25, 2003. Minutes are posted here as they become available, as well as to lib-metadata.

MSG Reports & Recommendations

Policy reports and recommendations that have been approved by the Library's administrative groups.

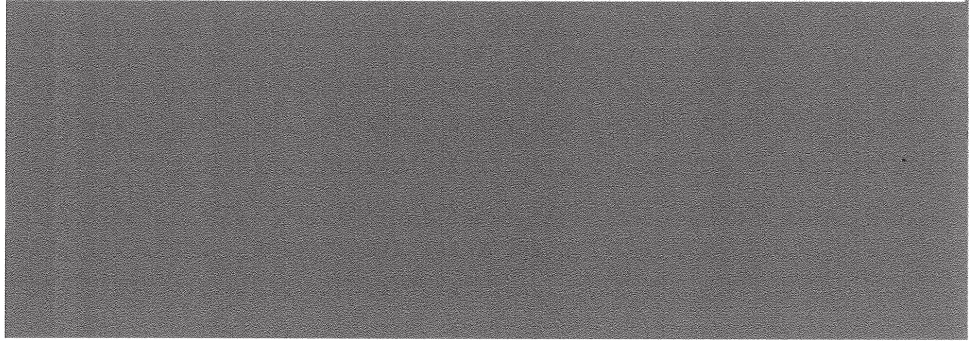
Earlier efforts

Digital Library Metadata Review and Planning Group Report (5/2003)

Minimum metadata element standards, and initial recommendations on local practice.

Digital Initiatives
University of Virginia
PO Box 400112
Charlottesville, VA 22904-4112

Maintained by: dl@virginia.edu
Last Modified: Friday, July 06, 2007



http://www.lib.washington.edu/msd/mig/default.html

UNIVERSITY OF WASHINGTON Libraries

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Libraries Home > Monographic Services Division > Mig > **UW Libraries Metadata Implementation Group (MIG)**

off-campus access (log in)

Metadata Implementation Group

Metadata Projects in the UW Libraries

- Metadata Guidelines: for people who want to mount digital collections using CONTENTdm software.
- UW Libraries Digital Collections
  - Image Collections
  - Data Dictionaries: metadata elements, their Dublin Core mappings, and data formatting instructions.
  - Digital Repository Collections
- Dublin Core in the UW Libraries Information Gateway
- EAD and Manuscripts-Special Collections-University Archives Finding Aids
- Administrative Metadata for Electronic Resource Management

Members of MIG:

- Diana Brooking
  Cataloging Librarian (Slavic)
- Theodore Gerontakos
  Digital Initiatives Program, Metadata Librarian
- Joe Kiegel
  Head, Monographic Services Division
- Kris Kinsey
  Special Collections
- Stephanie Lamson, convener
  Asst. Preservation/Reference Librarian
- Laura Lins
  Special Materials Cataloger

Charge of the Metadata Implementation Group

As a committee of the University of Washington Libraries, reporting to the Associate Director for Resources and Collections Management Services, the Metadata Implementation Group (MIG) develops and promotes the use of metadata standards to ensure reliable resource discovery within and across digital library projects. The Group will identify appropriate metadata and coordinate consistent application of metadata across a variety of software environments and resource types.

Presentations

- "University of Washington Early Buddhist Manuscripts Project in DSpace" (a poster session presented at the Dublin Core Conference on Sept. 30 and Oct. 1, 2003 in Seattle, Washington).

- METS Opening Day, the Basics, M. Maguire
- METS Opening Day, Implementation Options, E. Llona

[Back to Monographic Services]

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Created: 1999
Last modified: Monday October 09 2006

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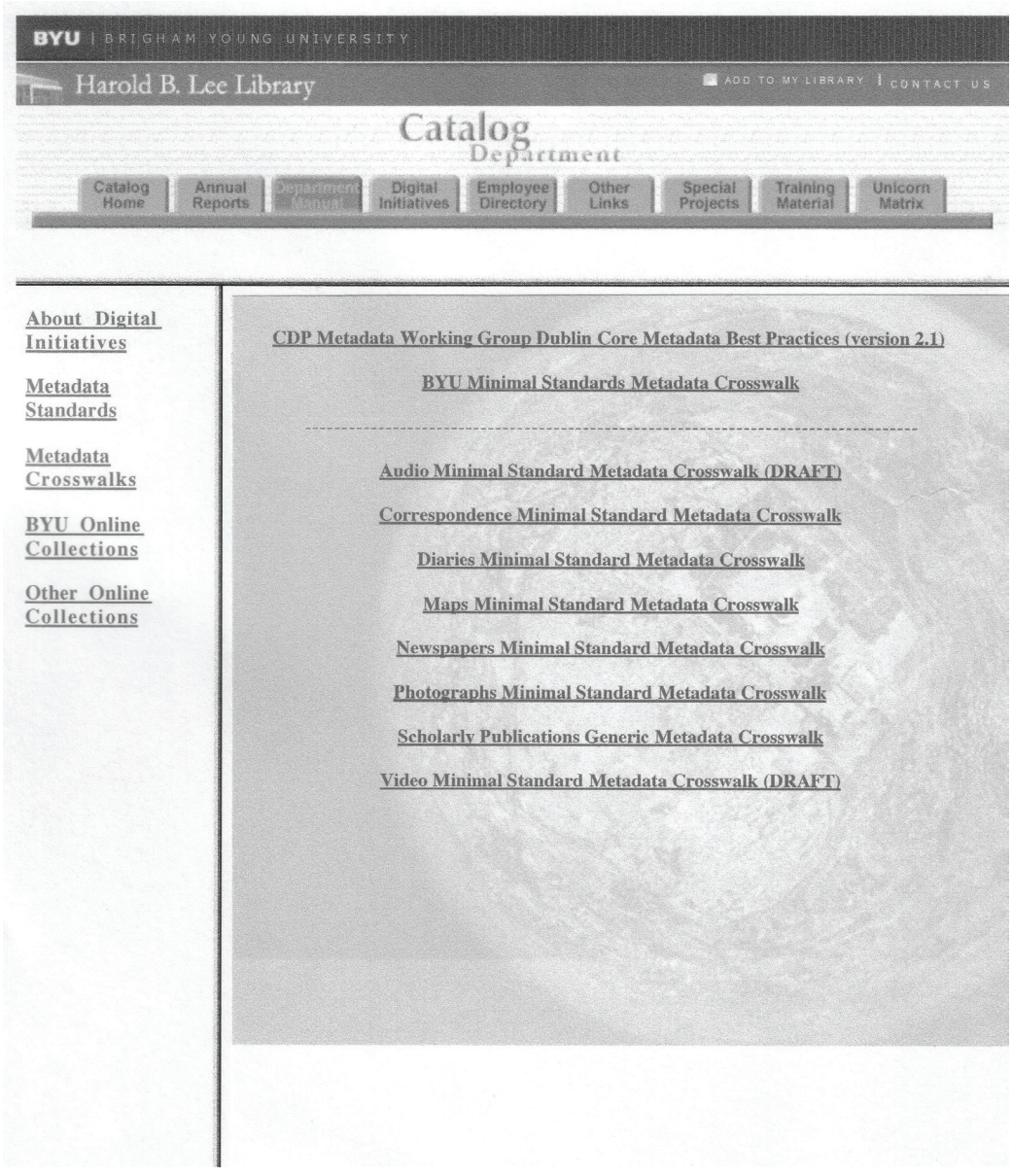
Policies, Procedures, and Guidelines

BRIGHAM YOUNG UNIVERSITY

http://net.lib.byu.edu/~catalog/catalogwebsite/digitalinitiatives.htm



http://net.lib.byu.edu/~catalog/catalogwebsite/digitalinitiatives/crosswalks/Western States.pdf

BYU Minimal Standard Metadata Crosswalk

CDP / Western States Dublin Core Set Required/ Optional Fields

Marc	Field Name	Dublin Core	Field Description	Searchable	Hidden	Auth Cntl
100,111,110	*Creator (Author) if AVAIL	**Creator**	Lastname, Firstname - Use LCSH form of term	Yes	No	Yes LCSH
	Contributor	**Contributors**	Secondary authors and/or editors/translators/illustrators	Yes	No	Yes LCSH
245|a|b	*Title	**Title**	Title of the work--created by creator/publisher or supplied	Yes	No	
242,130,240	Title Alternative	Title	Translated title, Uniform title, other title	Yes	No	
	*Description	**Description**	Account of content of resource (may be Abstract or TofContents)	Yes	No	
250	*Edition	Description	Edition (usually Electronic reproduction)	Yes	No	
260	Publisher Original	**Publisher**	Publisher of the Paper or original copy if born digital	Yes	No	
260|c or 008 7-10	*Date Original	**Date**	Date original copy yyyy-mm-dd	Yes	No	
	Publisher Digital	Publisher	Name of department, Brigham Young University	Yes	No	
	*Date Digital	Date	Date of the digital creation yyyy-mm-dd	Yes	No	
300	Physical Description	Description	Physical description of the pagination, Illus, size of original if avail	No	No	
	*Holding Institution (Owning Institution)	**Source**	Owning institution--UALC maps to Source for AGG Server	No	No	
6XX	*Subject	**Subject**	STRONGLY recommended from an established Thesaurus; UALC adopted LCSH	Yes	No	Yes LCSH
	*Language	**Language**	Two and three letter codes for language---BYU also spells it out	Yes	No	Yes LOC
	Relation (Collection)	**Relation-Is-Part-Of**	BYU uses for Collection name	Yes	No	Yes Local
	Coverage	**Coverage**	Spatial or temporal coverage (RelEd has used time span)	Yes	No	
	*Rights (Patron Usage...)	**Rights**	BYU uses 3 fields: Patron Usage Instructions, Copyright, Access	No	No	
	Copyright Status/Owner	Rights	Legal Copyright owner and status of the copyright	No	No	
256	Type	**Type**	Broad term describing nature of the resource	No	No	Yes Dublin Core
516	*Format.Use (Format)	**Format**	text/pdf	No	No	Yes ISI
	*Format.Creation		Technical info about hardware/software/process to create digital; BYU uses File Size, Metadata Entry Tool, Digital Lab information	No	Yes	
	Source	Source	Cite resource from which digital resource was derived	Yes	No	
	Contributor Metadata Entry		Lastname, Firstname, 1900-1955 (use LCSH established form)	No	Yes	
	Metadata Entry Date		yyyy-mm	No	Yes	
	Metadata Entry Tool		Part of Format.Creation. Software programs used in the metadata creation of the object.	No	Yes	
	Full text	Description	Full text of the document (as long as CONTENTdm supports)	Yes	No	
583	Refresh		yyyy-mm	Yes	Yes	
	*Identifier	**Identifier**	Call #, other Identification Schemes (SIRSI ID), File name, URL	Yes	No	
	File Size	Format	Size of the computer file to display- Part of Format.Creation	No	No	

REQUIRED
BYU FIELDS
AUTOLOADED

CDL CALIFORNIA DIGITAL LIBRARY

1 Introduction

1.1 Scope

The CDL Guidelines for Digital Objects (CDL GDO, this document) provides specifications for all *new* digital objects prepared by institutions for submission to CDL for access and preservation services. They are not intended to cover all of the administrative, operational, and technical issues surrounding the creation of digital object collections.

The guidelines seek to support the following objectives:

- Ensure a basic level of uniformity in the structure and encoding of non-licensed digital content managed by the CDL
- Advance interoperability among digital content from diverse institutions
- Promote efficient ingest procedures
- Support the orderly management of digital content
- Facilitate access to digital content by users
- Minimize costs

These guidelines do not set requirements for digital materials submitted to or collected by the CDL through other means:

- Metadata exposed to CDL harvesting systems via the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH)
- Metadata targeted by federated search systems
- Web-crawled resources

In addition, these guidelines do not address requirements for collections delivered to the CDL/University of California Office of Scholarly Communication's (OSC) eScholarship Repository or for the UC Image Service. Institutions interested in submitting content to these repositories should consult the projects' web sites.

1.2 Service Levels

Digital materials of ever-increasing variety and complexity are seen to be worth collecting and preserving by memory organizations such as libraries, archives, and museums. Materials include objects converted into digital form from existing collections of manuscripts, maps, visual images, and sound files, as well as born-digital materials such as web sites, videos, and data sets. Submitted objects consist of metadata, a set of content files, and something called a METS digital wrapper file.

In order to create coherent and cost-effective services for such diverse collections, the CDL and other digital libraries sometimes require certain common digital object features that offer strategic points of leverage. This is a delicate undertaking, as it tends to involve a reduction in diversity that implies a loss of information, and every imposed requirement incurs the risk of rejecting valuable materials that fail to meet it. Simply meeting requirements is often hard because funding is unavailable or the original producer of the digital objects cannot be reached.

To mitigate these difficulties, the CDL adopts "sliding scale" guidelines: the more points at which a digital object can be made to conform, the more preservation and access services can be provided for it. The CDL GDO sets forth minimum submission requirements for digital objects submitted to the CDL.

At the lower end of the scale, given no information about the structure and semantics of a set of files comprising an object, the level of preservation that we can promise is limited to bit-level preservation and identifier-based retrieval -- the bits of a digital object that you submit will be the same bits that you are able to retrieve, and the only access is by known identifier or by any internal data that happens to be discoverable and indexable (e.g., content files in the form of text). In short, no metadata is required. However, providing metadata may allow access to additional preservation services while also enhancing value for future users.

At the mid-level of the scale, given a small (or "kernel") set of structured metadata encoded in a METS wrapper, the CDL will be better equipped to manage the objects and provide preservation and kernel metadata-based retrieval services. (For more information about kernel metadata, see the Dublin Core web site).

Moving up the scale, generally speaking, the more metadata encoded in a METS wrapper that you supply, the better we will be able to provide you with preservation and access services. Our systems may not be able to take advantage of every distinct metadata element that you supply, but the ability to act on any element may be developed over time as our systems evolve. The higher end of the scale includes the ability to customize the formatting and grouping of collection objects, which depends on a combination of XSL style sheets and your provision of metadata elements that our systems can recognize.

The CDL GDO specifies requirements for two primary levels of services offered by the CDL:

- **Basic Service Level**: sufficient for the ingest of digital objects into the UC Libraries Digital Preservation Repository (DPR), this level is designed to support the orderly management of objects in the DPR, hence our ability to provide at least bit-level preservation without turning away valuable materials. It currently does not support the presentation of digital assets via CDL web sites. This service level does not require any metadata, but strongly encourages kernel metadata. A range of content file formats is supported at this level.
- **Enhanced Service Level**: includes the presentation of digital assets via CDL web sites. It is also sufficient for increased preservation services in the DPR. This level is a detailed extension of the Basic Service Level digital object specification, and therefore prescribes for additional metadata encoding. Particular content file formats are supported at this level.

1.3 Terminology

For an explanation of general terms used throughout these guidelines, see the CDL Glossary. For an explanation of concepts and terms pertaining to metadata in particular, consult the RLG Cultural Materials Descriptive Metadata Guidelines.

1.4 How to Use These Guidelines

Consult the appropriate section of the guidelines, based on the level of CDL service that your institution is interested in utilizing:

- **Basic Service Level**: consult Section 2 Basic Service Level Requirements only.
- **Enhanced Service Level**: consult Section 3 Enhanced Service Level Requirements only.

2 Basic Service Level Requirements

2.1 METS

METS Profiles

CDL ingests content in the form of METS (Metadata Encoding and Transmission Standard) encoded digital objects. CDL depends upon METS Profiles to successfully process submitted objects.

METS profiles describe classes of METS digital objects that share common characteristics, such as content file formats (e.g., digital images, TEI texts) or metadata encoding formats (e.g., MODS or Dublin Core). Profiles should include enough details to enable METS creators and programmers to create and process METS-encoded digital objects conforming with a particular profile. A METS profile itself is an XML document that should adhere to the METS XML Profile Schema. For information about METS profiles, see the METS web site.

METS files must conform to valid METS profiles, which must be declared during pre-submission discussions with CDL staff.

Content File Requirements

The METS Content File Section <fileSec> must contain links to network-exposed (i.e., online) content files using File Location <FLocat> elements. Each <FLocat> element must contain a xlink:href attribute that identifies a link to its associated content file.

The METS file and associated content files must be well formed and uncorrupted.

Unique Identifier

The METS top-level <mets> element must have an OBJID attribute containing an ARK for the digital object. If an ARK is not supplied, a unique local identifier must be supplied as the OBJID. Under this scenario, CDL will generate an ARK when ingesting the object, and will use this ARK as the primary identifier and consider the supplied local identifier to be the equivalent of the <metsHdr><altRecordID> element.

For more information about ARKs, visit the Archival Resource Key (ARK) page.

Linking from Digital Objects to External Metadata: General Use of the <mdRef> Metadata Reference Element

Although METS allows for linking to external metadata using <mdRef>, the DPR ingest process will not capture this information. If you want to preserve external metadata, link to the file in the <fileSec> using <file><FLocat>.

2.2 Metadata

2.2.1. Descriptive Metadata

The Basic Service Level does not require any metadata, but strongly encourages that you supply the following kernel metadata:

Descriptive Metadata Recommendations (Summary)

[NOTE: See "Appendix A. Descriptive Metadata Guidelines (Detailed)" on page 15 for detailed descriptions of each element.]

- Identifier
- Title
- Creator (or Contributor or Publisher)
- Date
- Description
- Format/Physical Description

The descriptive metadata mappings provided in Appendix A are for MODS and qualified Dublin Core. Other descriptive metadata schemas may be used, but must be defined as part of the pre-submission negotiation and will require either A) a mapping of the metadata to Dublin Core, or B) an XSL style sheet that performs the mapping.

The following data are generated by the CDL during the DPR ingest process, and can identify and provide access to digital objects submitted with no descriptive metadata. Only the most basic and fundamental of DPR services will be available for such objects. CDL-generated data:

- Object ID
- altObject ID
- Access Group ID
- Inventory (Collection) ID
- Date Ingested

2.2.2 Technical Metadata

The CDL generates the technical metadata required to support the orderly management of digital objects in its repositories. Currently, the CDL utilizes the JSTOR/Harvard Object Validation Environment (JHOVE) tool to derive technical metadata for accepted content file types.

You are encouraged to submit any additional technical metadata associated with a particular digital object (such as information based on NISO's Data Dictionary: Technical Metadata for Still Images), but are not required to do so. CDL preservation services will store any supplied additional metadata with the object.

Note that all supplied technical metadata should be encoded using valid XML extension schemas as specified by CDL-supported METS profiles (such as in the NISO Metadata for Images in XML Schema (MIX) format). If a given set of metadata does not conform to a valid XML extension schema, then you should create a schema to embed the metadata and facilitate validation of the METS file. Otherwise, the metadata should be stored independently of the METS file and referred to using the METS <mdRef> Metadata Reference from within the METS file.

2.3 Content Files

The following content file formats are currently supported by the DPR:

- **Images**: GIF, JPG, JPG-2000, TIFF, MrSid, PDF
- **Texts**: HTML, XML, PDF, UTF-8, ASCII
- **Audio**: AIFF, WAVE
- **Containers**: GZIP, ZIP

New or unknown file formats may be submitted to the DPR, but must be established as part of the pre-submission negotiation. In addition, DPR administrators will not necessarily guarantee that all of the DPR services will be available for unknown file formats (i.e. migration or transformation processes) and will only guarantee preservation of the original bit stream.

All content files must be online or exposed over a network for the DPR software to be able to retrieve them during the ingest process. The exception is when content files are embedded within the METS wrapper using the <FContent> File Content element.

Each content file should have a file name that is unique to your institution (i.e., not necessarily globally unique); often the unique identifier is used to name the content file itself.

Examples:

- cacupchc_0423.tiff
- kt2g502035_fig05.gif

3 Enhanced Service Level Requirements

3.1 METS

METS Profiles

CDL ingests content in the form of METS (Metadata Encoding and Transmission Standard) encoded digital objects. CDL depends upon METS Profiles to successfully process submitted objects.

METS profiles describe classes of METS digital objects that share common characteristics, such as content file formats (e.g., digital images, TEI texts) or metadata encoding formats (e.g., MODS or Dublin Core). Profiles should include enough details to enable METS creators and programmers to create and process METS-encoded digital objects conforming with a particular profile. A METS profile itself is an XML document that must adhere to the METS XML Profile Schema. For information about METS profiles, see the METS web site.

METS files must conform to valid METS profiles, which must be declared during pre-submission discussions with CDL staff.

Content File Requirements

The METS Content File Section <fileSec> must contain links to network-exposed (i.e., online) content files using File Location <FLocat> elements. Each <FLocat> element must contain a xlink:href attribute that identifies a link to its associated content file.

The METS file and associated content files must be well formed and uncorrupted.

Unique Identifier

The METS top-level <mets>element must have an OBJID attribute containing an ARK for the digital object.

If an ARK is not supplied, a unique local identifier must be supplied as the OBJID value. Under this scenario, CDL will generate an ARK when ingesting the object. CDL will then use this ARK as the value for OBJID and move the supplied local identifier to the <metsHdr><altRecordID> element.

For more information about ARKs, visit the Archival Resource Key (ARK) page.

Content File Types: <file> File Element MIMETYPE attribute

In addition to conforming to CDL-supported METS profiles, all digital objects must explicitly state content file format MIME types (Multipurpose Internet Mail Extensions) for each <file> File Element tag in the METS document (see the bolded example).

Example of a TIFF digital image file reference:
<mets:file ID="FID1" MIMETYPE="**image/tiff**" SEQ="1" CREATED="1999-06-17T00:00:00" ADMID="ADM1A" GROUPID="GID1">

For a list of MIME type content type and subtype values, see the MIME Media Types from the Internet Assigned Numbers Authority.

Linking from Digital Objects to Collection Descriptions: Specialized Use of the <mdRef> Metadata Reference Element

For guidelines on linking digital objects to associated, parent-level collection descriptions (represented either in the form of a MARC record or an EAD finding aid), see "Appendix C. Linking from Digital Objects to Collection Descriptions" on page 33.

3.2 Metadata

3.2.1 Using Metadata Schemas

Metadata mappings are for extant XML extension metadata schemas such as MODS and qualified Dublin Core.

Encode metadata consistently based on the specific usage guidelines established for the schema. For example, if encoding in Dublin Core, follow the Dublin Core usage guidelines for each element.

Do not include HTML markup within metadata encoding, in cases where a metadata schema does not support it.

Granularity

Whenever possible, provide the most granular and richest metadata possible. For example, if encoding in Dublin Core, encode your metadata in qualified Dublin Core.

Repeatability of Elements and Data Values

Elements may be used repeatedly. Note that it may be necessary to supply multiple elements for the same piece of information, e.g., a general form of the date of creation of a resource ("January 1, 1999") in addition to an ISO8601 normalized form of that date ("1999-01-01").

However, avoid combining different kinds of data values or repeating the same type of data values within a single element; use separate elements for each data value. For example, avoid encoding multiple subject terms ("Municipal government; City Council members") in a single element. Instead, encode the two different terms within their own elements.

Character Encoding

Use UTF-8 or UTF-16 standard character sets or encodings. The CDL recommends using standardized forms of names for character sets, as documented by the Internet Assigned Numbers Authority (e.g., use "UTF-8" and not "UTF8").

If using the UTF-8 character set in particular, encode directly in Unicode or use Unicode decimal or hexadecimal character references. All decimal character references should begin with an ampersand and pound sign, and end with a semicolon (use the syntax "&#D;" where D is a decimal number). All hexadecimal character references should begin with an ampersand, pound sign, and lower- or uppercase "x", and end with a semicolon (use the syntax "&#xH;" or "&#XH;" where H is a hexadecimal number); see the Unicode Code Charts for hexadecimal character reference codes.

For more detailed information about UTF-8 Unicode, see the W3C/Unicode Consortium document Unicode in XML and other Markup Languages.

> *Example using UTF-8 Unicode hexadecimal character references to encode the letter "é" in the term "émigrés":*
>
> ... The papers also document trends in high school and university education among Russian émigrés...

Characters reserved for XML markup delimiters (ampersand, left angle bracket, and right angle bracket) need to be replaced with the following character entities.

Character	Character Name	Character Entity
&	Ampersand	&
<	Left angle bracket	<
>	Right angle bracket	&rt;
‘	Single quote	'

Character	Character Name	Character Entity
“	Double quote	"

Headings, Labels, Punctuation, and Formatting

Do not include headings or labels, line breaks, list formatting or other any formatting controls within the body of elements.

Some XML extension schemas (e.g., MODS) provide label attributes on particular elements. In these cases, institutions may encode data values (e.g., text comprising concise headings or descriptions) within those label attributes as permitted by those schemas.

Note that the CDL GDO supports the creation of digital objects that are largely independent of a particular online presentation. The encoding can be manipulated and repurposed through the application of customized style sheets to meet custom display needs and formatting preferences. This includes the special formatting of text, the ordering and positioning of text, the addition of headings and labels, and punctuation.

In order to provide a consistent user experience, CDL style sheets support a standard presentation that may not accommodate local preferences. Your institution may devise and implement local style sheets for presenting customized views of its digital objects.

3.2.2 Descriptive Metadata

Using Descriptive Metadata Schemas

The CDL strongly supports the assertion that Dublin Core does not provide enough encoding granularity. The CDL therefore prefers that descriptive metadata is encoded in a richer format, such as MODS. Institutions should use qualified Dublin Core only in cases where MODS is not locally supported.

Object Description

Descriptive metadata can be used to describe different expressions of a given resource. In the case of analog objects that have been digitized, the descriptive metadata may apply to the source analog object or the digital surrogate. For example, the “creator” of a resource may apply to an illustrator of a graphic book or the name of the technician responsible for scanning an image from that book. Likewise, the “date of creation” of a resource may apply to the date of printing for a graphic book or the date of scanning an image from that book. In the case of born digital objects, the descriptive metadata pertains to the born digital object itself.

Some descriptive metadata schemes do not allow encoders to clearly disambiguate between uses of a given element to apply to source analog objects versus digital surrogates. Therefore, when creating descriptive

metadata for an analog object that has been digitized, we suggest that you consider the following two points:

- Be consistent in your use of descriptive metadata elements: emphasize the description of *either* the source analog object *or* the digital surrogate.
- Provide descriptive metadata that supports user access to and discovery of the digital object. Information about the source analog object may be more relevant to users.

Descriptive Metadata Guidelines (Summary)

[NOTE: See "Appendix A. Descriptive Metadata Guidelines (Detailed)" on page 15 for detailed descriptions of each element.]

Element	Status
Identifier	Recommended element
Title	Required element
Creator	Required element. If no name can be supplied, provide a name in **Contributor** and/or **Publisher**.
Date	Required element
Description	Required element
Language	Recommended element
Subject (Name)	Recommended element
Subject (Title)	Recommended element
Subject (Place)	Recommended element
Subject (Topic, Function, or Occupation)	Recommended element
Genre	Recommended element
Type	Required element
Format/Physical Description	Required element
Related Collection/Project	Recommended element
Institution/Repository	Required element
Contributor	Recommended element
Publisher	Recommended element

3.2.3 Rights Management Administrative Metadata

CDL's Rights Management Group (RMG) has developed a Rights Management Framework that may assist institutions contributing content to CDL preservation and access services in thinking about copyright and fair use issues for digital objects. The CDL strongly encourages contributors to provide rights information whenever possible, using one of the following methods:

- Use a rights-related element in the schema chosen for supplying descriptive metadata (e.g., <rights> in DC, <accessCondition> in MODS). Elements in these schemas are repeatable, so if more than one rights-

related element is used, contributors should provide clarifying information about each piece of rights information either using a label attribute (MODS) or by providing a label as part of the element's content (DC).

- Supply rights information using METSRights, an approved extension schema for METS.

Rights Management Administrative Metadata Recommendations (Summary)

[NOTE: See Appendix B for detailed descriptions of each element. Element names below are also linked to those descriptions]

Element	Status
Copyright Status	Recommended element
Copyright Statement	Recommended element
Copyright Date	Recommended element
Copyright Owner Name	Recommended element
Copyright Owner Contact Notification	Recommended element

3.2.4 Structural Metadata

Structural metadata must be encoded in the METS format: structural metadata is represented in the <structMap> Structural Map section of a METS document. This section defines a structure that allows users of the digital object to navigate through its hierarchical organization. Guidelines for preparing Structural Maps are documented in CDL-supported METS profiles.

3.2.5 Technical Metadata

The CDL generates the technical metadata required to support the orderly management of digital objects in its repositories. Currently, the CDL utilizes the JSTOR/Harvard Object Validation Environment (JHOVE) tool to derive technical metadata for accepted content file types.

You are encouraged to submit any additional technical metadata associated with a particular digital object (such as information based on NISO's Data Dictionary: Technical Metadata for Still Images), but are not required to do so. CDL preservation services will store any supplied additional metadata with the object.

Note that all supplied technical metadata should be encoded using valid XML extension schemas as specified by CDL-supported METS profiles (such as in the NISO Metadata for Images in XML Schema (MIX) format). If a given set of metadata does not conform to a valid XML extension schema, then you

should create a schema to embed the metadata and facilitate validation of the METS file. Otherwise, the metadata should be stored independently of the METS file and referred to using the METS <mdRef> Metadata Reference from within the METS file.

3.2.6 Other Metadata (Digital Provenance Administrative Metadata, Source Administrative Metadata, and Behaviors Metadata)

You may submit any additional metadata associated with a particular digital object, but are not required to do so. CDL preservation services will store any additional metadata with the object. CDL access services (OAC, Calisphere) will not necessarily display supplemental metadata to users.

Note that all supplied metadata should be encoded using valid XML extension schemas as specified by CDL-supported METS profiles. If a given set of metadata does not conform to a valid XML extension schema, then you should create a schema to embed the metadata and facilitate validation of the METS file. Otherwise, the metadata should be stored independently of the METS file and referred to using the METS <mdRef> Metadata Reference from within the METS file.

3.3 Content Files

The following content file types are currently supported by the CDL for the Enhanced Service Level. Consult the appropriate guidelines for preparing these content file types:

Content File Type	Content File Guidelines
Images	Image files should comply with the CDL Guidelines for Digital Images.
TEI texts	TEI text files should comply with the CDL Structured Text Working Group TEI Encoding Guidelines *[Note: this is a draft version]*

Each content file should have a file name that is unique to your institution (i.e., not necessarily globally unique); often the unique identifier is used to name the content file itself.

http://www.lib.uchicago.edu/staffweb/groups/metadata/guidelines/TechnicalMetadataGuidelines2005.pdf

Guidelines for Use of Technical Metadata in the University of Chicago Digital Library

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Technical Metadata Dictionary

	Name	Description	Examples	Notes	Optional (O), Mandatory (M), Repeatable (R)
Project					
	compression level	designates the level of compression used	1) None		M
	edit software	software used for editing scans	1) Adobe Photoshop		M
	edit software version	version number of the software used for editing scans	1) version 6.0		M
	ICC profile storage	designates where the ICC profile is physically located	1) embedded url 2) CD		M
	methodology	designates the rationale for the methodology to digitize an object or collection	1) "meeting publisher requirements"	free text	O, R
	processing agency	name of the organization producing the digital object	1) University of Chicago Library 2) ACME		M, R
Image Capture					
Elements that can be automatically extracted	bitspersample	the number of bits per component (channel, sample) for each pixel: also know as Bit Depth	1) 8, 8, 8 2) 8 3) 16 4) 1	1) RGB Color 2) 8 bit grayscale 3) 16 bit grayscale 4) 1 = bitonal	M
Elements that can be automatically extracted	byteorder	designates the byte order in which multi byte numbers are stored	1) big-endian 2) little-endian		M

http://www.lib.uchicago.edu/staffweb/groups/metadata/guidelines/TechnicalMetadataGuidelines2005.pdf

Guidelines for Use of Technical Metadata

	Name	Description	Examples	Notes	Optional (O), Mandatory (M), Repeatable (R)
Elements that must be entered manually	capturenote	free text notes regarding problems with the capture of the file	1) "rubberstamped out corners" 2) "repaired torn image"	use if capture process requires explanation, or to document physical attributes of the item that affect accuracy or quality of digital image; notes about file not source material; how master has been altered for clarity	O, R
Elements that can be automatically extracted	compressionscheme	designates the compression scheme used to store the image data	1) CCITT Group 4 2) LZW 3) None	1) black & white 2) grayscale or color	M
Elements that can be automatically extracted	datecreated	date the object was scanned	YYYY-MM-DD	ISO 8601	M
Elements that must be entered manually	display orientation	designates the orientation in which the image should be presented to a conventional monitor with a 3.2 aspect ratio	1) 0=portrait 2) 1=landscape		O
Elements that must be entered manually	editsoftonaladj	editing software tonal adjustment	Auto contrast –ac; brightness – br; color cast correstion – cc; contrast – ct; curves – cur; discard color information – dci; levels – lev; shadow/highlight correction – sh/hl; sharpening – usm		O

http://www.lib.uchicago.edu/staffweb/groups/metadata/guidelines/TechnicalMetadataGuidelines2005.pdf

Guidelines for Use of Technical Metadata

	Name	Description	Examples	Notes	Optional (O), Mandatory (M), Repeatable (R)
Elements that can be automatically extracted	filesize	extent of image in number of bytes	1) 94115636	not rounded and no commas	M
Elements that can be automatically extracted	format	name of master file format and version	1) TIFF 6.0 2) PDF 1.2		M
Elements that can be automatically extracted	ICC Profile Name	the well defined name of the image's working space profile	1) Adobe RGB (1998) 2) Gamma 2.2 3) Gamma 1.8 4) None		M
Elements that can be automatically extracted	imageheight	pixel dimensions of file in height; vertical y axis	4561	no commas	M
Elements that can be automatically extracted	imagewidth	pixel dimensions of file in width; horizontal x axis	6878	no commas	M
Elements that can be automatically extracted	mimetype	...for digital still image formats	1) image/tiff 2) image/jpeg	optional per project; see also MIME type list	O
Elements that can be automatically extracted	photometricinterpretation	designates the color model of the decompressed image data	1) min-is-white 2) min-is-black 3) RGB		M
Elements that can be automatically extracted	resolution	the settings on the input scanning device	1) 300 dpi 2) 600 dpi		M
Elements that must be entered manually	ruler	is ruler included in scan?	yes or no		O
Elements that can be automatically extracted	samples per pixel	designates the number of color components per pixel	1) 1 2) 3 3) 4		M
Elements that must be entered manually	scansofttonaladj	scanning software tonal adjustment	gamma, highlight, midtone, shadow		O

Guidelines for Use of Technical Metadata

	Name	Description	Examples	Notes	Optional (O), Mandatory (M), Repeatable (R)
	source	designates the physical attributes of the source material relevant to interpreting digital image accuracy and/or quality	(format plus narrative)	make optional	O
	source x dimensions	specifies the width of the scanned object	#		M
	source x dimensions unit	specifies the unit of measure used in source x dimension	cm (metric)		M
	source y dimension	specifies the height (ie vertical dimension) of the scanned object	#		M
	source y dimension unit	specifies the unit of measure used in source y dimension	cm (metric)		M
Elements that must be entered manually	target type	refers to the color bar location	internal or external		M, R
Elements that must be entered manually	unique id	persistent identifier required at prime object level; must be unique within the local system	1) apf2-00905 2) chopin406-001	http://www.lib.uchicago.edu/staffweb/depts/dldc/dl/filenaming.html	M
Equipment					
	lightsource	for scanner	1) xenon gas cold cathode florescent lamp 2) white cold cathode florescent lamp	type of bulb in scanner; see specs that come with scanner	O
	optical resolution	maximum true resolution of scanner	1) 1600 dpi 2) 800 dpi		O

http://www.lib.uchicago.edu/staffweb/groups/metadata/guidelines/TechnicalMetadataGuidelines2005.pdf

Guidelines for Use of Technical Metadata

	Name	Description	Examples	Notes	Optional (O), Mandatory (M), Repeatable (R)
	scanner manufacturer	the manufacturer of the scanner used to create the image	1) Epson 2) Minolta 3) HP		O
	scanner model name	the model name of the scanner used to create the image	1) Expression 2) DuoScan		O
	scanner model number	the model number of the scanner used to create the image	1) 1640XL		O
	scanner serial number	the serial number of the scanner used to create the image		unique to each machine	O
	scanner software name	the name of the capture software used to create the image	1) Silverfast 2) Epson	Epson has its own home grown scanner software	O
	scanner software version number	The number of the version of the software used to create the image			O
Derivative creation					
	compression level	designates the level of compression used	1) "make level match software"		M
(automatic extraction possible)	compression scheme	designates the compression scheme used to store the image data	1) jpeg 2) LZW		M
	processing software name	the name of the image processing software used to edit or transform the image data	1) Adobe Photoshop 2) Equilibrium Debabelizer 3) LibTiff 4) Image Magick		M

Guidelines for Use of Technical Metadata

	Name	Description	Examples	Notes	Optional (O), Mandatory (M), Repeatable (R)
	processing software version	the version number of the image processing software used to edit or transform the image data	1) 5.0 2) 6.0 3) 8.0		M
Digital camera	*This type of metadata may be recorded if the Library performs the camera work.*				
	color temp	specifies the actual color temperature value of the scene illumin			
	digital camera manufacturer	the manufacturer of the digital camera used to create the image			
	digital camera model	the model name of the digital camera used to create the image			
	digital camera model number	the model number of the digital camera used to create the image			
	digital camera serial number	the serial number of the digital camera used to create the image			
	exposureindex	specifies the exposure index setting used	1) ISO 80 2) ISO 200		
	exposuretime	specifies the exposure time used when the image was captured, recorded in seconds	1) 1/60		

http://www.lib.uchicago.edu/staffweb/groups/metadata/guidelines/TechnicalMetadataGuidelines2005.pdf

Guidelines for Use of Technical Metadata

	Name	Description	Examples	Notes	Optional (O), Mandatory (M), Repeatable (R)
	Fnumber	specifies the lens f-number (ratio of lens aperture to focal length) used when the image was captured	1) F8 2) F16 3) F11	aka. Aperture	
	focallength	specifies the lens focal length in meters used to capture the image	1) 60mm 2) 100 mm		
	light source	should be specific to settings for this scan (f-stop, electronic shutter speed, filtering, illumination level); may be necessary in later evaluation of color capture. Again, may be specific to each image or by inheritance to collections of images a via a separate descriptive file (with anomalies indicated per image as needed)			
	print aspect ratio	specifies the print aspect ratio selected by the user when the picture was taken	1) landscape 2) portrait		
	sampling freq plane	the reference plane location for which x sampling frequency and y sampling frequency are designated			
	sampling freq unit	the unit of measurement for x sampling frequency and y sampling frequency			

http://www.lib.uchicago.edu/staffweb/groups/metadata/guidelines/TechnicalMetadataGuidelines2005.pdf

	Name	Description	Examples	Notes	Optional (O), Mandatory (M), Repeatable (R)
	scene illuminant	specifies the light source that was present when the image was captured			
	X print aspect ratio	unit of X ratio			
	Y print aspect ratio	unit of Y ratio			

http://web.uflib.ufl.edu/ufdc/technical/Metadata/UFDC_METS.pdf

METS Files for Digital Resources in UFDC

Created for University of Florida Digital Collections
Documentation written by Mark V. Sullivan
Last Updated on February 14, 2006

Table of Contents

1. Introduction

This document describes METS files that are used to add new digital resources to the University of Florida Digital Collections [UFDC].

It is not recommended that these files be hand coded, since the following document does not explicitly state which elements are required, and which are optional. Tools are (or will be) available to create these METS files.

For more information on METS, visit the METS webpage. (http://www.loc.gov/standards/mets/)

2. METS Document Components

A METS document conforming to the UFDC profile consists of five main sections.

Each file begins with a METS header containing descriptive metadata about the METS document. This is indicated with the metsHdr tag. This section also contains references to any outside schemas which should be used to validate the METS document.

Next, one or more Descriptive metadata sections are included. These contain descriptive information about the digital resource. Acceptable schemes to include in this section include the Dublin Core extension metadata and the UFDC extension metadata scheme. These sections are wrapped in dmdSec tags. The bulk of the data in the extension schemes utilizes XML.

The next section is for administrative metadata, which includes rights and access information. In the future, this will include rights information about the digital resource and may contain additional technical information about the images. For now, this section will contain information necessary for the Digital Archive at FCLA, or be left empty. Administrative metadata is wrapped in amdSec tags.

The fourth section is the file section. This lists all the files which are related to this digital resource. This section also allows different file types to be associated with one another. In a digitized book, for example, you may wish to associate the digital master with its derivatives, including jpeg and text files. This section is wrapped in a fileSec tag.

The last section is the structural map, which is wrapped in a structMap tag. This outlines the hierarchical structure of a digital resource and references the files included in the previous section. This section is used to build the table of contents for the resource.

Each of these main sections in the METS document will be examined in the forthcoming document.

3. METS Header

The first section is the METS header information. This contains information on how to validate this package. It also contains basic information about who created this package, and what software was used during the creation. The second and third line can be left out, as can the references to daitts, if this will not be sent to the Digital Archive at FCLA.

```
<?xml version="1.0" encoding="ISO-8859-1" standalone="no" ?>
<?fcla fda="yes"?>
<?fcla dl="no"?>
<METS:mets OBJID="UF00028333_VID00001"
              xmlns:METS="http://www.loc.gov/METS/"
              xmlns:dc="http://purl.org/dc/elements/1.1/"
              xmlns:ufdc="http://www.uflib.ufl.edu/digital/metadata/ufdc/"
              xmlns:xlink="http://www.w3.org/1999/xlink"
              xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
              xmlns:daitss="http://www.fcla.edu/dls/md/daitss/"
       xsi:schemaLocation="http://www.loc.gov/METS/
              http://www.loc.gov/standards/mets/mets.xsd
              http://purl.org/dc/elements/1.1/
              http://dublincore.org/schemas/xmls/simpledc20021212.xsd
              http://www.uflib.ufl.edu/digital/metadata/ufdc/
              http://www.uflib.ufl.edu/digital/metadata/ufdc/ufdc.xsd
              http://www.fcla.edu/dls/md/daitss/
              http://www.fcla.edu/dls/md/daitss/daitss.xsd">
<METS:metsHdr CREATEDATE="2005-10-27T14:49:11Z" ID="UF00028333_VID00001" LASTMODDATE="2006-01-
20T08:06:11Z" RECORDSTATUS="NEW">
       <METS:agent ROLE="CREATOR" TYPE="ORGANIZATION">
              <METS:name>UF</METS:name>
       </METS:agent>
       <METS:agent OTHERTYPE="SOFTWARE" ROLE="CREATOR" TYPE="OTHER">
              <METS:name>Quality Control Application, 3.1.6</METS:name>
       </METS:agent>
       <METS:agent ROLE="CREATOR" TYPE="INDIVIDUAL">
              <METS:name>SMATHERSLIB\jpen</METS:name>
       </METS:agent>
</METS:metsHdr>
```

The record status attribute of the header tag must be one of the following values:

NEW	New package, with metadata and images This package is rejected if an object with the same object id already exists.
REPLACEMENT	Replacement package with metadata and images. The original package is deleted, and completely replaced with the new package.
DELETE	Deletes the package from UFDC.
METADATA_UPDATE	Updates just the metadata, does not need to include all of the images. The fileSec of this new package must match the existing fileSec exactly, or this package is rejected.

The rest of the data in the metsHdr section is simply retained in case of later questions.

4. METS Descriptive Metadata

One or more Descriptive metadata sections are included. These contain descriptive information about the digital resource. Acceptable schemes to include in this section include the Dublin Core extension metadata and the UFDC extension metadata scheme. These sections are wrapped in dmdSec tags. The bulk of the data in the extension schemes utilizes XML.

DCMI Simple DC XML Schema

Many of the 15 Dublin Core elements have been excluded from our implementation of METS. Although most of these elements can be used, only five of the elements arte recommended. It is recommended that the METS package utilizes UFDC Schema elements for the remainder.

The following elements are supported and recommend:

Element Name	Description	Format
Date	Publication Date	<dc:date> date </dc:date>
Description*	General Description	<dc:description> description </dc:description>
Format	Format	<dc:format> format </dc:format>
Language*	Language(s)	<dc:language> language </dc:language>
Title	Title	<dc:title> title </dc:title>

* = this element is repeatable

The list below shows the Dublin Core elements that have been deprecated in favor of new UFDC elements. Although the data will be read from these Dublin core elements, the UFDC schema defined elements provide additional functionality and are recommended.

Dublin Core Element Name	UFDC Element Name
Contributor	Contributor
Creator	Creator
Publisher	Publisher
Subject	Subject
Coverage	Spatial, TemporalSubject
Identifier	Identifier
Source	Source
Rights	Rights
Type	Type

The Dublin Core elements must be wrapped in their own METS descriptive metadata section, and an indication the section is in XML, complying with the Dublin Core namespace. The structure for this section appears below:

```
<METS:dmdSec ID="DMD1">
 <METS:mdWrap MIMETYPE="text/xml" MDType="DC">
  <METS:xmlData>
   <dc:date> date </dc:date>
   <dc:description> description </dc:description>
   <dc:format> format </dc:format>
   <dc:language> language </dc:language>
   <dc:title> title </dc:title>
  </METS:xmlData>
 </METS:mdWrap>
</METS:dmdSec>
```

UFDC XML Schema

There are two main sections for the UFDC XML Schema. One section includes parameters which assist with general processing instructions and affects the display of the item in UFDC. This section is wrapped in <procParam> tags. The second section includes data about the bibliographic object. This section is wrapped in <bibDesc> tags.

These elements must be wrapped in a METS descriptive metadata section separate from the Dublin Core elements listed first. Again, an indication the section is in XML, complying with the UFDC namespace, must be added.

Additional XML extension schemas may be utilized here, but the references for the schema must be included in the METS header. One such available schema is a small extension for oral interviews which includes interviewer, interview, and interview date. Information on this schema can be found in Appendix 2.

Processing Parameters

There are nine custom UFDC elements which may be included in the METS file in the <procParam> tags. They are listed below:

Element Name	Description	Format
Collection.Primary *(required)*	Primary Collection Code	`<ufdc:Collection.Primary> JUV </ufdc:Collection.Primary>`
Collection.Alternate	Alternate Collection Code	`<ufdc:Collection.Alternate> DLOC </ufdc:Collection.Alternate>` `<ufdc:Collection.Alternate> MAPC </ufdc:Collection.Alternate>`
SubCollection*	Subcollection codes	`<ufdc:SubCollection>MAPFL</ufdc:SubCollection>` `<ufdc:SubCollection>MAPNA</ufdc:SubCollection>`
TextDisplayable	Should text be displayable ?	`<ufdc:TextDisplayable>false</ufdc:TextDisplayable>`
TextSearchable	Should text be searchable ?	`<ufdc:TextSearchable>true</ufdc:TextSearchable>`
MainThumbnail	Main thumbnail file	`<ufdc:MainThumbnail> 0001.jpg </ufdc:MainThumbnail>`

Index Sheet	Custom Index Sheet	<ufdc:MainThumbnail> thisIndex.htm </ufdc:MainThumbnail>
Icon**	Icons to display with item	<ufdc:Icon> <ufdc:url name="NEH"> http:\\www...jpg </ufdc:url> <ufdc:url name="IMLS"> http:\\www....jpg </ufdc:url> </ufdc:Icon>
Download**	Available downloads	<ufdc:Download> <ufdc:url type="PDF" size="12.1"> http:\\www...pdf </ufdc:url> <ufdc:url type="JPEG2000"> http:\\www....jp2 </ufdc:url> </ufdc:Download>
URL	Resource URL	<ufdc:URL> http://www..... </ufdc:URL>

* Entire element is repeatable
** Sub-element is repeatable

A sample processing parameter section appears below:

```
<METS:dmdSec ID="DMD2">
   <METS:mdWrap MIMETYPE="text/xml" MDTYPE="OTHER" LABEL="University of Florida Digital
Collections Metadata">
    <METS:xmlData>
          <ufdc:procParam>
           <ufdc:Collection.Primary>JUV</ufdc:Collection.Primary>
           <ufdc:SubCollection>JUV</ufdc:SubCollection>
           <ufdc:TextDisplayable>true</ufdc:TextDisplayable>
           <ufdc:TextSearchable>true</ufdc:TextSearchable>
           <ufdc:MainThumbnail>00001thm.jpg</ufdc:MainThumbnail>
           <ufdc:IndexSheet>index.html</ufdc:IndexSheet>
           <ufdc:Icon>
              <ufdc:url name="NEH">http://www....jpg</ufdc:url>
           </ufdc:Icon>
           <ufdc:Download>
             <ufdc:url type="PDF" size="8">
                          http://smathersdlcl2.uflib.ufl.edu/docsb/UFDC/JUV/UF00026638.pdf
             </ufdc:url>
           </ufdc:Download>
         </ufdc:procParam>
    </METS:xmlData>
   </METS:mdWrap>
</METS:dmdSec>
```

Bibliographic Description

The elements in the <bibDesc> tags describe the bibliographic resource. Most of these items will appear in the metadata displayed under Full Citation in the UFDC. There are 22 elements which can appear in this section:

Element Name	Description	Format
Abstract**	Abstract	<ufdc:abstract> <ufdc:text language="en"> Abstract </ufdc:text> <ufdc:text language="fr"> Résumé </ufdc:text> </ufdc:abstract>
AltTitle*	Alternate Title	<ufdc:AltTitle> Alternate Title </ufdc:AltTitle> <ufdc:AltTitle language="fr">Titre Alternatif </ufdc:AltTitle>

Attribution*	Attribution Statement	<ufdc:Attribution> Attribution </ufdc:Attribution>
BibID *(required)*	Bibliographic Identifier	<ufdc:BibID> UF00000000 </ufdc:BibID>
Contributor**	Contributor to original	<ufdc:Contributor> <ufdc:name role="role" dates="dates" location="loc" affiliation="affiliation"> Contrib </ufdc:name> <ufdc:name role="Illustrator"> Williams Engraving </ufdc:name> </ufdc:Contributor>
Copyrighted	Is the material copyrighted?	<ufdc:Copyrighted> true </ufdc:Copyrighted>
Creator	Creator of original	<ufdc:Creator> <ufdc:name role="role" dates="dates" location="loc" affiliation="affiliation"> Creator </ufdc:name> <ufdc:name role="Author"> Twain, Mark </ufdc:name> </ufdc:Creator>
Donor	Donor	<ufdc:Donor> Williams, Teddy </ufdc:Donor>
Identifier**	Any item identifiers	<ufdc:Identifier> <ufdc:id type="ead"> ufdl1221 </ufdc:id> <ufdc:id type="sip"> 001201022 </ufdc:id> <ufdc:id type="aleph"> 02320449 </ufdc:id> <ufdc:id type="notis"> AAA1212 </ufdc:id> </ufdc:Identifier>
Genre*	Genre	<ufdc:Genre>Childrens Literature</ufdc:Genre> <ufdc:Genre scheme="lcsh"> Childrens Literature</ufdc:Genre>
Holding	Holding location	<ufdc:Holding> <ufdc:statement code="MCPL">Monroe County Public Library</ufdc:statement> </ufdc:Holding>
Publisher**	Publisher	<ufdc:Publisher> <ufdc:name place="New York, NY"> Publisher </ufdc:name> </ufdc:Publisher>
Note	Resource Notes	<ufdc:Note> Resource Notes </ufdc:Note>
Rights	Rights Statement	<ufdc:Rights> All righs reserved </ufdc:Rights>
Scale	Scale (for maps)	<ufdc:Scale> 1:1000 </ufdc:Scale>
SeriesTitle	Title for a series	<ufdc:SeriesTitle> Series Title </ufdc:SeriesTitle>
Source	Source institution	<ufdc:Source> <ufdc:statement code="UF">University of Florida</ufdc:statement> </ufdc:Source>
Spatial**	Spatial coverage	<ufdc:Spatial> <ufdc:name scheme="fips"> 12011 </ufdc:name> <ufdc:name scheme="lcsh"> Gainesville -- Florida </ufdc:name> </ufdc:Spatial>
Subject**	Subject Keywords	<ufdc:Subject> <ufdc:name> Building Materials </ufdc:name> <ufdc:name scheme="lcsh"> Tin Roof Shack -- Florida </ufdc:name> </ufdc:Subject>
Temporal**	Temporal subject	<ufdc:Temporal> <ufdc:period start="1945" end="1973">post-WW II</ufdc:period> </ufdc:Temporal>

Type *(required)*	Material Type	<ufdc:Type>PHOTOGRAPH</ufdc:Type>
UniformTitle	Uniform title	<ufdc:UniformTitle> Uniform Title </ufdc:UniformTitle>
VID *(required)*	Volume Identifier	<ufdc:VID>00001</ufdc:VID>

* Entire element is repeatable
** Sub-element is repeatable

The structure for this section appears below:

```
<METS:dmdSec ID="DMD2">
   <METS:mdWrap MIMETYPE="text/xml" MDTYPE="OTHER" LABEL="University of Florida Digital
Collections Metadata">
    <METS:xmlData>
     <ufdc:bibDesc>
    <ufdc:BibID> UF00000000 </ufdc:BibID>
    <ufdc:VID>00001</ufdc:VID>
    <ufdc:Abstract>
       <ufdc:text language="en"> Abstract </ufdc:text>
       <ufdc:text language="fr"> Résumé </ufdc:text>
      </ufdc:Abstract>
    <ufdc:AltTitle> Alternate Title </ufdc:AltTitle>
    <ufdc:Attribution> Attribution </ufdc:Attribution>
    <ufdc:Contributor>
       <ufdc:name role="role" dates="dates" location="location">Contrib</ufdc:name>
       <ufdc:name role="Illustrator"> Williams Engraving </ufdc:name>
    </ufdc:Contributor>
    <ufdc:Creator>
       <ufdc:name role="role" dates="dates" location="location"> Creator </ufdc:name>
       <ufdc:name role="Author"> Twain, Mark </ufdc:name>
    </ufdc:Creator>
    <ufdc:Donor> Williams, Teddy </ufdc:Donor>
    <ufdc:Identifier>
       <ufdc:id type="ead"> ufdl1221 </ufdc:id>
       <ufdc:id type="sip"> 001201022 </ufdc:id>
       <ufdc:id type="aleph"> 02320449 </ufdc:id>
       <ufdc:id type="notis"> AAA1212 </ufdc:id>
    </ufdc:Identifier>
    <ufdc:Genre>Childrens Literature</ufdc:Genre>
    <ufdc:Holding>
       <ufdc:statement code="MCPL">Monroe County Public Library</ufdc:statement>
    </ufdc:Holding>
    <ufdc:Publisher>
       <ufdc:name place="New York, NY"> Publisher </ufdc:name>
    </ufdc:Publisher>
    <ufdc:Note> Resource Notes </ufdc:Note>
    <ufdc:Rights> All righs reserved </ufdc:Rights>
    <ufdc:Scale> 1:1000 </ufdc:Scale>
    <ufdc:SeriesTitle> Series Title </ufdc:SeriesTitle>
    <ufdc:Source>
       <ufdc:statement code="UF">University of Florida</ufdc:statement>
    </ufdc:Source>
    <ufdc:Spatial>
       <ufdc:name scheme="fips"> 12011 </ufdc:name>
       <ufdc:name scheme="lcsh"> Gainesville -- Florida </ufdc:name>
    </ufdc:Spatial>
          <ufdc:Subject>
               <ufdc:name>building materials</ufdc:name>
               <ufdc:name scheme="lcsh">Tin roof shacks -- Florida</ufdc:name>
      </ufdc:Subject>
    <ufdc:Temporal>
       <ufdc:period start="1945" end="1973">post-World War II</ufdc:period>
    </ufdc:Temporal>
    <ufdc:Type> BOOK </ufdc:Type>
    <ufdc:UniformTitle> Uniform Title </ufdc:UniformTitle>
```

```
      </ufdc:bibDesc>
     </METS:xmlData>
    </METS:mdWrap>
</METS:dmdSec>
```

5. METS Administrative Metadata

The next section is for administrative metadata, which includes rights and access information. In the future, this will include rights information about the digital resource and may contain additional technical information about the images. For now, this section will contain information necessary for the Digital Archive at FCLA, or be left empty. Administrative metadata is wrapped in amdSec tags.

The following administrative section should be included in all METS files which will be sent to the digital archive. The account code and project code information will be supplied at a later date, when there is a signed agreement.

```
<METS:amdSec>
    <METS:digiprovMD>
      <METS:mdWrap>
        <METS:xmlData>
          <daitss:daitss>
            <daitss:AGREEMENT_INFO ACCOUNT="[required FDA account code]"
              SUB_ACCOUNT="[optional FDA subaccount code]"
              PROJECT="[required FDA project code]" />
          </daitss:daitss>
        </METS:xmlData>
      </METS:mdWrap>
    </METS:digiprovMD>
  </METS:amdSec>
```

If this material is not destined for the Digital Archive at FCLA, the empty tag should be used as appears below.

```
<METS:amdSec />
```

6. METS File Section Metadata

The fourth section is the file section. This lists all of this files which are related to this digital resource. This section also allows different file types to be associated with one another. In a digitized book, for example, you may wish to associate the digital master with its derivatives, including jpeg and text files. This section is wrapped in a fileSec tag.

Each file type is listed in a separate fileGrp tag. However, the GroupID links the different related file types together.

Within each file section, the system name will always appear. The TrackinDB number will only appear on METS files generated locally at the University of Florida. Additionally, each file section should include attributes for the checksum and checksum type. These attributes will be used to ensure the files were safely transferred to the final destination. Thus the file tag should appear like:

```
<METS:file CHECKSUM="f21..43" CHECKSUMTYPE="MD5" GROUPID="P32656" ID="F104135" MIMETYPE="image/tiff 6.0">
```

An example without the checksums appears below.

```
<METS:fileSec>
  <METS:fileGrp>
  <METS:file GROUPID="P32656" ID="F104135" MIMETYPE="image/tiff 6.0">
    <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="SYSTEM" xlink:href="00001.tif" />
    <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="TRACKINGDB" xlink:type="simple" xlink:href="F104135" />
   </METS:file>
   <METS:file GROUPID="P32657" ID="F104136" MIMETYPE="image/tiff 6.0">
   <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="SYSTEM" xlink:href="00002.tif" />
   <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="TRACKINGDB" xlink:type="simple" xlink:href="F104136" />
   </METS:file>
   <METS:file GROUPID="P32658" ID="F104137" MIMETYPE="image/tiff 6.0">
   <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="SYSTEM" xlink:href="00003.tif" />
   <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="TRACKINGDB" xlink:type="simple" xlink:href="F104137" />
   </METS:file>
   <METS:file GROUPID="P32659" ID="F104138" MIMETYPE="image/tiff 6.0">
   <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="SYSTEM" xlink:href="00004.tif" />
   <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="TRACKINGDB" xlink:type="simple" xlink:href="F104138" />
  </METS:file>
  <METS:file GROUPID="P32660" ID="F104139" MIMETYPE="image/tiff 6.0">
  <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="SYSTEM" xlink:href="00005.tif" />
  <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="TRACKINGDB" xlink:type="simple" xlink:href="F104139" />
   </METS:file>
  <METS:file GROUPID="P32661" ID="F104140" MIMETYPE="image/tiff 6.0">
  <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="SYSTEM" xlink:href="00006.tif" />
  <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="TRACKINGDB" xlink:type="simple" xlink:href="F104140" />
   </METS:file>
  <METS:file GROUPID="P32662" ID="F104141" MIMETYPE="image/tiff 6.0">
  <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="SYSTEM" xlink:href="00007.tif" />
  <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="TRACKINGDB" xlink:type="simple" xlink:href="F104141" />
   </METS:file>
  <METS:file GROUPID="P32663" ID="F104142" MIMETYPE="image/tiff 6.0">
  <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="SYSTEM" xlink:href="00008.tif" />
  <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="TRACKINGDB" xlink:type="simple" xlink:href="F104142" />
  </METS:file>
  <METS:file GROUPID="P32664" ID="F104143" MIMETYPE="image/tiff 6.0">
  <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="SYSTEM" xlink:href="00009.tif" />
  <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="TRACKINGDB" xlink:type="simple" xlink:href="F104143" />
   </METS:file>
  <METS:file GROUPID="P32665" ID="F104144" MIMETYPE="image/tiff 6.0">
  <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="SYSTEM" xlink:href="00010.tif" />
  <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="TRACKINGDB" xlink:type="simple" xlink:href="F104144" />
   </METS:file>
</METS:fileGrp>
<METS:fileGrp>
  <METS:file GROUPID="P32656" ID="T104135" MIMETYPE="text/plain">
  <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="SYSTEM" xlink:href="00001.txt" />
  <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="TRACKINGDB" xlink:type="simple" xlink:href="F104135" />
   </METS:file>
```

http://web.uflib.ufl.edu/ufdc/technical/Metadata/UFDC_METS.pdf

```
    <METS:file GROUPID="P32657" ID="T104136" MIMETYPE="text/plain">
    <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="SYSTEM" xlink:href="00002.txt" />
    <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="TRACKINGDB" xlink:type="simple" xlink:href="F104136" />
     </METS:file>
    <METS:file GROUPID="P32658" ID="T104137" MIMETYPE="text/plain">
    <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="SYSTEM" xlink:href="00003.txt" />
    <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="TRACKINGDB" xlink:type="simple" xlink:href="F104137" />
     </METS:file>
    <METS:file GROUPID="P32659" ID="T104138" MIMETYPE="text/plain">
    <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="SYSTEM" xlink:href="00004.txt" />
    <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="TRACKINGDB" xlink:type="simple" xlink:href="F104138" />
     </METS:file>
      <METS:file GROUPID="P32660" ID="T104139" MIMETYPE="text/plain">
      <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="SYSTEM" xlink:href="00005.txt" />
      <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="TRACKINGDB" xlink:type="simple" xlink:href="F104139" />
       </METS:file>
      <METS:file GROUPID="P32661" ID="T104140" MIMETYPE="text/plain">
      <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="SYSTEM" xlink:href="00006.txt" />
      <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="TRACKINGDB" xlink:type="simple" xlink:href="F104140" />
       </METS:file>
      <METS:file GROUPID="P32662" ID="T104141" MIMETYPE="text/plain">
      <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="SYSTEM" xlink:href="00007.txt" />
      <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="TRACKINGDB" xlink:type="simple" xlink:href="F104141" />
       </METS:file>
      <METS:file GROUPID="P32663" ID="T104142" MIMETYPE="text/plain">
      <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="SYSTEM" xlink:href="00008.txt" />
      <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="TRACKINGDB" xlink:type="simple" xlink:href="F104142" />
       </METS:file>
       <METS:file GROUPID="P32664" ID="T104143" MIMETYPE="text/plain">
        <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="SYSTEM" xlink:href="00009.txt" />
        <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="TRACKINGDB" xlink:type="simple" xlink:href="F104143" />
         </METS:file>
     <METS:file GROUPID="P32665" ID="T104144" MIMETYPE="text/plain">
       <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="SYSTEM" xlink:href="00010.txt" />
       <METS:FLocat LOCTYPE="OTHER" OTHERLOCTYPE="TRACKINGDB" xlink:type="simple" xlink:href="F104144" />
        </METS:file>
    </METS:fileGrp>
  </METS:fileSec>
```

7. METS Structural Map Metadata

The last section is the structural map, which is wrapped in a structMap tag. This outlines the hierarchical structure of a digital resource and references the files included in the previous section. This section is used to build the table of contents for the resource.

A very simple example below is included below. While this example does not include sections within the chapters, this is also supported. Divisions can be placed within divisions hierarchically.

```
<METS:structMap TYPE="mixed">
   <METS:div DMDID="DMD1 DMD2" LABEL="Grammar in rhyme" ORDER="0" TYPE="main">
    <METS:div ID="D2455" ORDER="1" TYPE="Cover">
     <METS:div ID="P32656" ORDER="1" TYPE="page">
      <METS:fptr FILEID="F104135" />
      <METS:fptr FILEID="T104135" />
       </METS:div>
    </METS:div>
    <METS:div ID="D2468" LABEL="Grammar" ORDER="2" TYPE="Chapter">
     <METS:div ID="P32657" ORDER="1" TYPE="page">
      <METS:fptr FILEID="F104136" />
      <METS:fptr FILEID="T104136" />
       </METS:div>
     <METS:div ID="P32658" ORDER="2" TYPE="page">
      <METS:fptr FILEID="F104137" />
      <METS:fptr FILEID="T104137" />
       </METS:div>
     <METS:div ID="P32659" ORDER="3" TYPE="page">
      <METS:fptr FILEID="F104138" />
      <METS:fptr FILEID="T104138" />
       </METS:div>
     <METS:div ID="P32660" ORDER="4" TYPE="page">
      <METS:fptr FILEID="F104139" />
      <METS:fptr FILEID="T104139" />
       </METS:div>
     <METS:div ID="P32661" ORDER="5" TYPE="page">
      <METS:fptr FILEID="F104140" />
      <METS:fptr FILEID="T104140" />
       </METS:div>
     <METS:div ID="P32662" ORDER="6" TYPE="page">
      <METS:fptr FILEID="F104141" />
      <METS:fptr FILEID="T104141" />
       </METS:div>
     <METS:div ID="P32663" ORDER="7" TYPE="page">
      <METS:fptr FILEID="F104142" />
      <METS:fptr FILEID="T104142" />
       </METS:div>
     <METS:div ID="P32664" ORDER="8" TYPE="page">
      <METS:fptr FILEID="F104143" />
      <METS:fptr FILEID="T104143" />
       </METS:div>
    </METS:div>
    <METS:div ID="D2469" ORDER="3" TYPE="Cover">
     <METS:div ID="P32665" ORDER="1" TYPE="page">
      <METS:fptr FILEID="F104144" />
      <METS:fptr FILEID="T104144" />
       </METS:div>
    </METS:div>
   </METS:div>
</METS:structMap>
```

ALL DIGITAL OBJECTS:

	REQUIRED FIELDS	REQUIRED IF APPLICABLE	OPTIONAL FIELDS
TITLE STUFF	Title		Alternative Title
CREATOR STUFF		Creator Contributor	Creator Nationality
DATE STUFF	Creation Date Date	Search by Decade	
DESCRIPTION STUFF	Original Form Resource Type	Description Subject:TGM Subject:Name Subject:Topical Subject:Geographic Geographic Location Language Code Language Physical Description of Original	Transcription Style/Period Culture Title Note Caption Contributor Note Notes Medium of Original
SOURCE, RELATION, PUBLISHER STUFF	NC Ed Standard Digital Collection Repository Host	Collection in Repository Is Part Of Has Part Of Is Format Of Is Version Of	Holding Institution
IDENTIFIER STUFF	path filename URL	Raw Scan Filename Local Identifier Creator Identifier	Citation
TECHNICAL STUFF **Note that all fields are listed as required if applicable because of the various ways digital objects come into being (scanned, born that way, etc.)**		Digital Scan Date: Raw Scan Digital Scan Date: filename Creator: Raw Scan Creator: filename Hardware: Raw Scan Hardware: filename Software: Raw Scan Software: filename Pixel Array: Raw Scan Pixel Array: filename Bit Depth: Raw Scan Bit Depth: filename Color Space: Raw Scan Color Space: filename File Format: Raw Scan File Format: filename	
OTHER STUFF		Copyright Holder Usage Rights Sponsor	

TITLE STUFF

FIELD LABEL	DUBLIN CORE	DESCRIPTION/NOTES
Title --required --searchable --do not repeat --viewable	**Title**	A concise statement that identifies the digital object. This may be a formal title (a title appearing on the original item) or a title supplied by the institution. (See *DACS* 2.3 for a discussion of formal and supplied titles, including how to write supplied titles at least for materials described archivally.) Since the title appears next to the thumbnail and is therefore the first descriptive information the user sees, non-specific titles (e.g., "untitled") may not be helpful to users. Note that a caption may sometimes be used as a title, but that at other times, the caption will be more appropriate in the **Caption** field. The decision about whether or not to use a caption as a title should be based primarily on the definition of **Title** as a concise statement. It may be useful to use the **Title Note** field to routinely specify where a title comes from (e.g., "Title taken from caption"; "Title supplied by repository"). There is a stop list for the purposes of searching in CONTENTdm. This list is not operative, however, when CONTENTdm alphabetizes titles. To avoid alphabetized lists with entries beginning *A*, *The*, *Los*, etc., omit initial articles in titles. Use **Alternative Title** if you need to express fuller title segments or title variations. Use **Title** for the title of an article within a journal (use **Relation.IsPartOf** for the journal title). Note that there has been some experimentation with the label for this field (e.g., **Descriptive Title**). Usability studies will determine whether or not there needs to be consistent labeling of this and other fields across collections.
Alternative Title --optional --searchable --repeatable --viewable	**Title**	Another, secondary title for the digital object. Examples include long secondary titles that appear after a colon and translations of titles into other languages. Note that this field is mapped to dc.Title instead of dc.Title.Alternative because CONTENTdm does not index dc,Title.Alternative along with dc.Title. Therefore, if we want these other titles to be searchable, they will have to be mapped to dc.Title. Same deal as **Creator** and **Contributor** below.

CREATOR STUFF

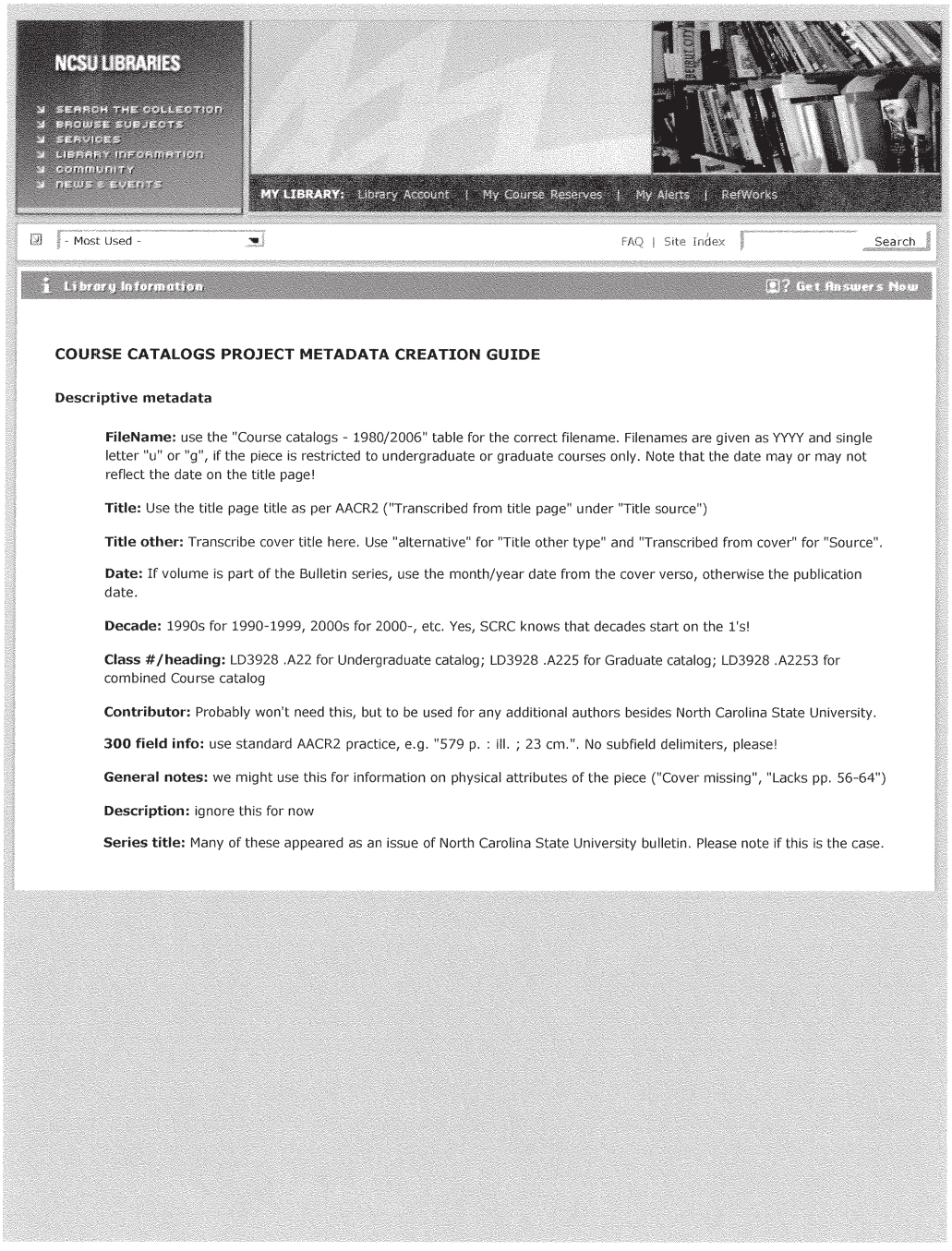
FIELD LABEL	DUBLIN CORE	DESCRIPTION/NOTES
Creator **Controlled Vocabulary Field**--required if applicable --searchable --repeatable --viewable	**Creator**	**CONTROLLED VOCABULARY FIELD**[1] Name of entity principally responsible for creation of the original from which the digital object was derived (e.g., the photographer, cartographer). The creator can be a personal (individual or family) or corporate name. It is possible that the label for this field may be changed from collection to collection to reflect the role of the creator. If there are multiple creators, separate the names with semi-colons. Authority work will normally be performed on these names; the authority version of the name should be used or the name should be written in a standardized authority form. *LCNAF* form is mandatory: Sanford, Terry, 1917- Friday, William C. (William Clyde) Gilmer, Jeremy Francis, 1818-1883. It is the responsibility of the project director to make sure that a project's workflow includes provision for authority work.
Contributor **Controlled Vocabulary Field**--required if applicable --searchable --repeatable --viewable	**Creator**	**CONTROLLED VOCABULARY FIELD** (see footnote 1) Personal or corporate body names that are NOT specified in the **Creator** field, but that made a significant contribution to the original from which the digital object was derived (but not as significant a contribution as the creator). These names should be subjected to the same authority control procedures applied to **Creator** field names. Use the **Contributor Note** to describe the role(s) of contributor(s). *AACR2* 21.29 says to make **Contributor** entries (added entries in *AACR2*) for persons or corporate bodies to provide access in addition to the **Creator** (main entry in *AACR2*). *AACR2* 21.30 (with *LCRI*s relating to very specific types of materials) offers assistance in determining when to make these entries. Briefly, make entries when there are two or more person or bodies involved in the creation of an item (normally only one can be the **Creator**, although there could be exceptions here); when there is an editor, compiler, illustrator, translator who needs to be noted; when there is a corporate body that has a greater role than that of publisher, distributor, or manufacturer; and, perhaps most importantly, generally when there is a name that would provide an important access point (unless the relationship between the name and the item is purely that of a subject--in which case see **Subject**). In fact, 21.29D says that, if you feel the need to make an entry, you should make it. If it is not clear why you have made an entry (a blind reference), 21.29F says to use a note (use the **Description**, **Note**, or other field as appropriate) to clarify the reason. Mapping: In the best of possible worlds, this field would be mapped to dc.Contributor. In CONTENTdm, however, dc.Creator and dc.Contributor are NOT indexed together (unlike the parallel MARC fields (1XXs and 7XXs)) and so not searched together. It seems better to map both **Creator** and **Contributor** to dc.Creator to avoid users having to perform both a **Creator** search and a **Contributor** search (one of those "why should users have to know that" instances). Same deal as **Title** and **Alternative Title** above.

[1] UNDER INVESTIGATION: Tim has had some success in figuring out how to make these controlled vocabulary lists available across collections. Eventually, all controlled vocabulary fields should have controlled vocabulary lists that are available to all CONTENTdm collections and searchable together. This means that the default for all controlled vocabularies will be that they are sharable. Stay tuned.

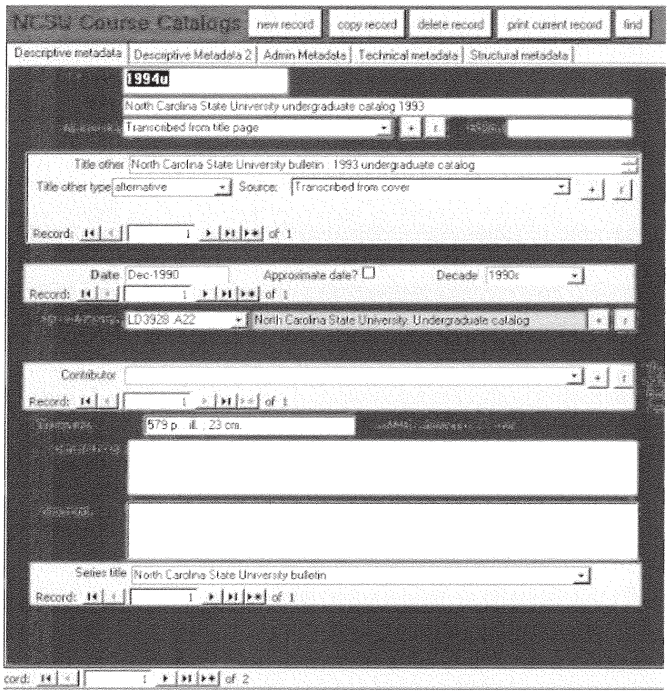
CREATOR STUFF (continued)

FIELD LABEL	DUBLIN CORE	DESCRIPTION/NOTES
Creator Nationality --optional --searchable --repeatable --viewable	**None**	Nationality of the creator. This field will operate with a controlled vocabulary, but one that is NOT to be integrated into the controlled vocabularies that relate to footnote 1. This field was added at the request of the art slide library to coordinate with the VRA CCO term of the same name.

http://www.lib.ncsu.edu/cataloging/metadata/CourseCatalogs/CourseCatalogsMetadataGuide.html



http://www.lib.ncsu.edu/cataloging/metadata/CourseCatalogs/CourseCatalogsMetadataGuide.html



Descriptive metadata 2

This area can be ignored as this data is constant and has been supplied automatically.

Admin metadata

Add your name as MD creator when adding record for new volume. Other information will be supplied when scanning is completed and files put on Web.

Technical metadata

This can be ignored, as this data will be supplied automatically.

Structural metadata

divisionTypeID: Use the appropriate descriptor from the drop-down list. In general, we will be using the following (in approximate order of encounter):

- **Cover:** use for both front and back covers, counting verso as pageSequenceNumber 0002 in each case
- **Title page:** use for title page, verso & preliminaries up to TOC
- **Contents:** for table of contents, which is usually called "Contents" on piece
- **Introduction:** in most volumes, this will have divisionTitle "North Carolina State University" and includes pages up to the next section (usually "Calendar" or "NCSU Administration and Offices")
- **Section:** use for the other headers checked on the TOC photocopies. Do not attempt to control the form of these names in divisionTitle. Rather, use the form as it appears in piece.
- **Index:** use for index near back of monograph

divisionSequenceNumber: four-digit number padded with left zeros. Number should change for each new division encountered (based on change in divisionTitle, not divisionTypeID). Start a new divisionSequenceNumber for each division with "x" on TOC photocopy. Rob has scripted this so that chosing a divisionTypeID will automatically increment the sequence # by one. This can be overridden by simply typing over the supplied number if needed.

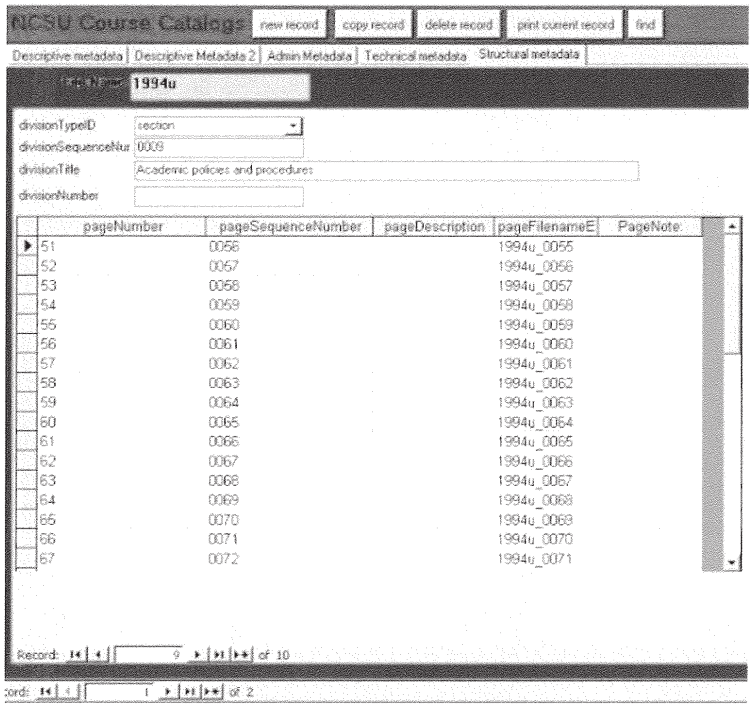
divisionTitle: Use the title as it appears in the header itself. Use AACR2/ISBD practice for capitalization (capitalize only the first word in phrase, plus any proper nouns. Remember, just those that are checked off on the photocopied TOC!

divisionNumber: Ignore

pageNumber, pageSequenceNumber, pageDescription, pageFilenameE, PageNote: There are three numbered sequences here, and they don't necessarily all increment at the same time! Provide pageNumber only where one appears in print. For the covers, there will be no page number, nor for the campus map. The pageSequenceNumber is the only number that will always increment by one, since this is what controls the sequence of Structural Metadata records. PageFilenameE will usually increment by one, but not in those cases where one section ends and another begins on the same page. For these, the page number and filename will remain the same, but the sequence number will still increase by one.

Note that double clicking on pageNumber will add the other two numbers and increment them by one. You will have to manually enter the page number until (unless) Rob figures out how to increment this as well! The increment feature also carries over to new sections.

You may add PageNote to note pages which contain photographs, maps, tables, etc. If in doubt, please feel free to ask!



http://www.lib.virginia.edu/digital/metadata/gdms.html

GDMS (General Descriptive Modeling Scheme)

Metadata Home > GDMS

Introduction
Examples
DTD

Introduction

The General Descriptive Modeling Scheme (GDMS) is a project to create a formal information structure that can be used to construct descriptive models of real-world or imaginary phenomena to create contexts for collections of digital resources. The underlying data structure is provided by an XML DTD, which allows the model to be as hierarchical or as flat, as is appropriate, and provides ways to cross reference data within or among models. Some examples of applications of the GDMS are descriptions of collections that have a complex structure (such as a set of architectural images or a set of resources related to an archeological site), annotated bibliographies of digital resources, virtual exhibitions and descriptions of historic or artistic events.

The content of a model begins with a single division or div element which can contain any number of div elements, recursively. A division description or divdesc can be included to give some meaning to the div; it contains a set of general descriptive metadata fields, each of which is optional and repeatable, that can be used in a wide variety of ways to make the div element a meaningful context for groups of resources. Each resource is included within a res element which also includes a set of Dublin core tags to describe the resource. For more details about the use of the tag set see "Usage".

The project aims to create a tool set that includes the DTD itself, and software that allows XML instances to be created, edited, searched and rendered for display using XSL stylesheets. The tool set is built around a general XML editor that allows a user to create and edit a single GDMS instance. A variety of other modules are planned that provide a way to more efficiently process and include different kinds of digital resources and to make it easy to manipulate a model for particular uses. All software developed for the project will be made freely available when it is ready.

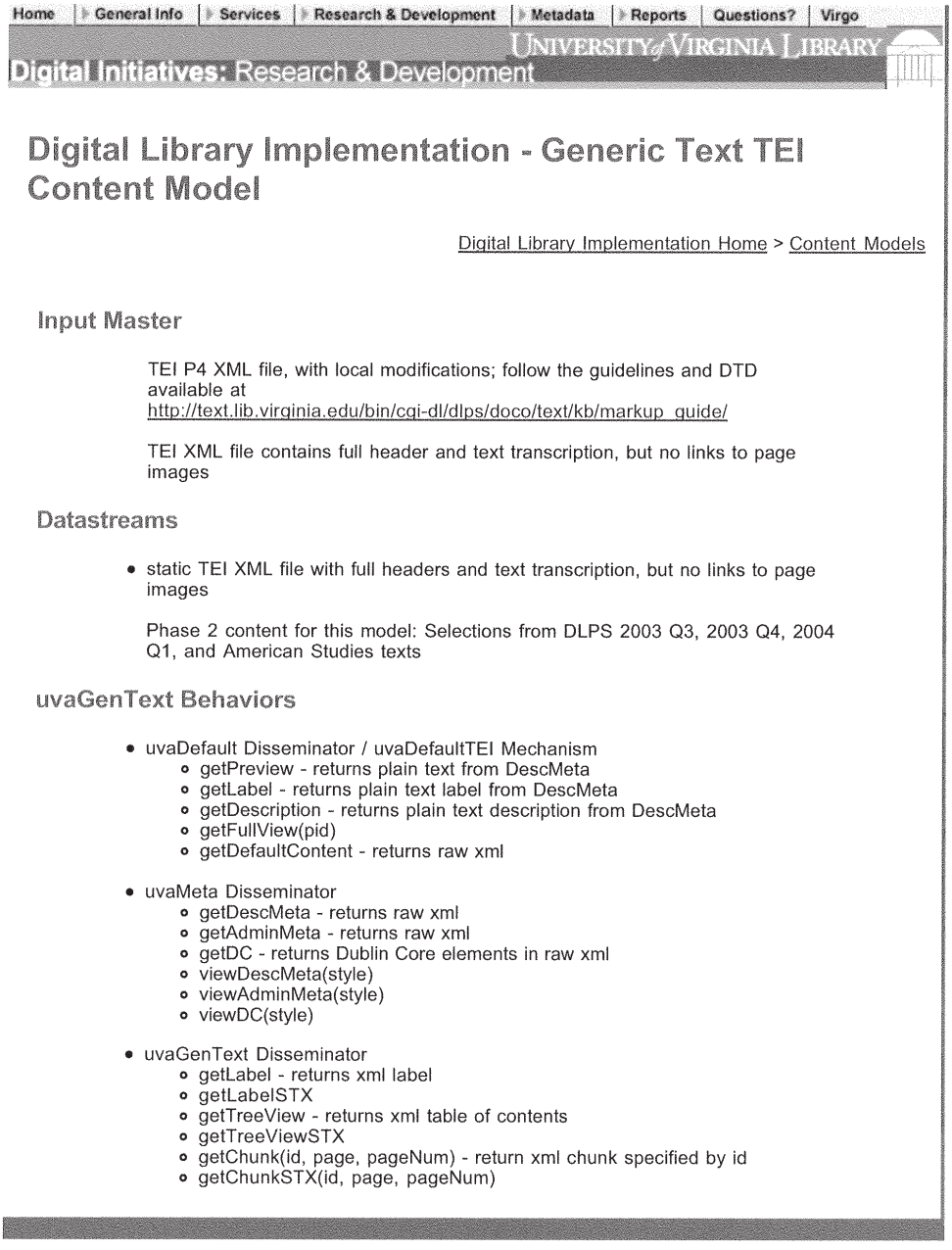
Examples

A Virtual Exhibition

This example shows one way to mark up a virtual exhibition of the works of a particular painter. The exhibition, on the website of the Smithsonian American Art Museum, is a series of HTML pages that describe the works of Abbott Handerson Thayer. It consists of two sections, an introduction that has 3 short essays and a "Paintings" section that contains four thematic collections of paintings, each of which has an introductory essay.

The Smithsonian Online Exhibition
The UVa GDMS Representation

http://www.lib.virginia.edu/digital/resndev/fedora_imp/models_tei_gtext.htm



Digital Library Implementation - Generic Text TEI Content Model

Input Master

TEI P4 XML file, with local modifications; follow the guidelines and DTD available at http://text.lib.virginia.edu/bin/cgi-dl/dlps/doco/text/kb/markup_guide/

TEI XML file contains full header and text transcription, but no links to page images

Datastreams

- static TEI XML file with full headers and text transcription, but no links to page images

  Phase 2 content for this model: Selections from DLPS 2003 Q3, 2003 Q4, 2004 Q1, and American Studies texts

uvaGenText Behaviors

- uvaDefault Disseminator / uvaDefaultTEI Mechanism
  - getPreview - returns plain text from DescMeta
  - getLabel - returns plain text label from DescMeta
  - getDescription - returns plain text description from DescMeta
  - getFullView(pid)
  - getDefaultContent - returns raw xml
- uvaMeta Disseminator
  - getDescMeta - returns raw xml
  - getAdminMeta - returns raw xml
  - getDC - returns Dublin Core elements in raw xml
  - viewDescMeta(style)
  - viewAdminMeta(style)
  - viewDC(style)
- uvaGenText Disseminator
  - getLabel - returns xml label
  - getLabelSTX
  - getTreeView - returns xml table of contents
  - getTreeViewSTX
  - getChunk(id, page, pageNum) - return xml chunk specified by id
  - getChunkSTX(id, page, pageNum)

- getDynamicView(pid*, behav*, refb, id, page, pageNum) - returns cocoon app of dynamic view
- getXML - returns raw xml

- uvaOKI Disseminator
  - getAssetDefs(childPid, parentPid) - returns asset definitions as xml

- uvaRelation Disseminator / uvaRelationTEI behavior
  - getChildDescMeta(childPid) - returns descriptive metadata for childPid

- Other
  - getCitation - returns a true bibliographic citation, plus an actionable, persistent link to the text object. This contains additional elements than are included in the getPreview behavior in the uvaDefault disseminator. **Scheduled for later implementation.**
  - getHeader - returns the header from the TEI datastream file, rather than metadata from the DescMeta elements in the Fedora object. **Scheduled for later implementation.**

uvaBook Behaviors (Transcribed texts with page images)

- uvaDefault Disseminator / uvaDefaultTEI Mechanism
  - getPreview - returns plain text from DescMeta
  - getLabel - returns plain text label from DescMeta
  - getDescription - returns plain text description from DescMeta
  - getFullView(pid)
  - getDefaultContent - returns raw xml

- uvaMeta Disseminator
  - getDescMeta - returns raw xml
  - getAdminMeta - returns raw xml
  - getDC - returns Dublin Core elements in raw xml
  - viewDescMeta(style)
  - viewAdminMeta(style)
  - viewDC(style)

- uvaGenText Disseminator
  - getLabel - returns xml label
  - getLabelSTX
  - getTreeView - returns xml table of contents
  - getTreeViewSTX
  - getChunk(id, page, pageNum) - return xml chunk specified by id
  - getChunkSTX(id, page, pageNum)
  - getDynamicView(pid*, behav*, refb, id, page, pageNum) - returns cocoon app of dynamic view
  - getXML - returns raw xml

- uvaPageBook Disseminator
  - getLabel - returns xml label
  - getLabelSTX
  - getTreeView - returns xml table of contents
  - getTreeViewSTX
  - getPageTurner(pid*, behav*, refb, id, page, pageNum, snum, sblk) - returns cocoon app of page turner
  - getXML - returns raw xml

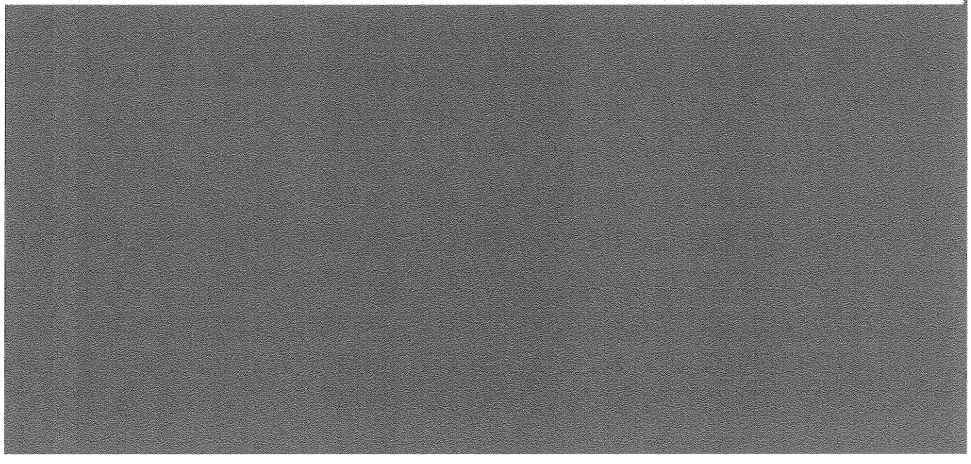
- uvaOKI Disseminator
  - getAssetDefs(childPid, parentPid) - returns asset definitions as xml
- uvaRelation Disseminator / uvaRelationTEI behavior
  - getChildDescMeta(childPid) - returns descriptive metadata for childPid
- Other
  - getCitation - returns a true bibliographic citation, plus an actionable, persistent link to the text object. This contains additional elements than are included in the getPreview behavior in the uvaDefault disseminator. **Scheduled for later implementation.**
  - getHeader - returns the header from the TEI datastream file, rather than metadata from the DescMeta elements in the Fedora object. **Scheduled for later implementation.**

Recommendation: Three TEI models are required to handle the great variation between fully transcribed texts without page images, fully transcribed texts with page images, and page image-only texts without transcriptions.

The existing mechanisms for transcription display can be used on variations of TEI encoding provided we are willing to accept that some elements may be rendered (or not) with the different encoding versions. To have a single TEI content model we must either update the markup to bring all to same encoding standard (over and above parsing against the same DTD), or make the mechanisms more flexible to handle the variations. There are costs in terms of people resources and time to do either.

February 18, 2004; revised April 27, May 19, July 23, August 27, and September 17, 2004

Digital Initiatives
University of Virginia
PO Box 400112
Charlottesville, VA 22904-4112



http://www.lib.washington.edu/msd/mig/advice/default.html

UNIVERSITY OF WASHINGTON Libraries

Libraries Home | Resources | Services | About

ask us
email | chat | phone

Libraries Home > Monographic Services Division > Mig > Advice > **UW Libraries Metadata Guidelines for CONTENT Collections**

Metadata Implementation Group

off-campus access (log in)

UW Libraries Metadata Implementation Group Image Collections Data Dictionaries

Resources about Metadata and Digital Libraries collected by the International Federation of Library Associations (IFLA)

Metadata Guidelines for Collections using CONTENTdm

How metadata is used in CONTENTdm

Setting up CONTENTdm field properties
Includes an introduction to Dublin Core mapping

Basic decisions about metadata
Thinking about your collection and how it will be used

"Flattening complex reality"
Keeping it simple

Formatting data
The importance of consistency and standards

Field properties table
Specific advice about choosing field names, mapping to Dublin Core, formatting data, and choosing controlled vocabularies

How metadata is used in CONTENTdm

A CONTENTdm collection contains digitized images or text. Each of these digital resources has a description (or "metadata") attached to it. It is important to know that the description will not only be displayed with the resource, but that the data contained in it can also be used for searching your collection by itself or in combination with other collections.

Click here to see how CONTENTdm displays metadata

Basic decisions about metadata

Description: What kind of information do you need to describe each resource? What do your users need to know about what the resource is, where it came from, who created it, what its significance is? How much detail do you need to go into?

Retrieval: How will users find resources in your collection? What will they be looking for? What aspects will they be interested in? At what level do you need to distinguish one resource from another, and at what level do you want to bring like resources together?

Formatting data

Using standards for inputting your data is very important. Standards insure consistency, which

- increases coherence and intelligibility of description
- enhances reliability of retrieval
- enables compatibility with other collections (cross-database searching)
- makes maintenance and possible migration of data easier

Data should be formatted in a standard way. Actually, which format you choose may not be as important as always using the same format for data in the same field.

Examples:

- In a field called "Date" make sure that dates are always formatted in the same way.
- In a field called "Photographer" the same person's name should always appear in the same form.
- Similarly, the resources about the same topic should have the same term used to describe them. For example, a user looking for images of retail stores using the field "Subject" should be able to do a single search to find all the relevant images. If different terms are used, the user may not even realize that more than one search is necessary.

This is where a "controlled vocabulary" or "authority file" can be useful. A standard list of authorized terms can eliminate the ambiguity that arises from synonymous terms, homonyms, variant spellings and other pitfalls. There are controlled vocabularies that already exist for many subject areas and disciplines, or you could create your own standardized list of terms if it were reasonably short and you needed something very specialized for your collection. Either way, with a controlled vocabulary you don't have to monitor your own consistency as you input metadata--the act of adhering to the list in itself will create the consistency you need. This is especially useful if more than one person will be inputting metadata in your collection.

Setting up CONTENTdm field properties for your collection

You can set up your metadata fields in the CONTENTdm Server Administration module under "View/edit collection field properties." CONTENTdm allows you to:

- have as many fields in the description as you want
- create your own field names
- decide whether each field will be searchable or will display
- put the fields in any order you want
- make fields available for cross-database searching

CONTENTdm has the capability to search multiple collections at once. In order to achieve this, CONTENTdm uses underlying mapping to simple Dublin Core (DC) elements to create a crosswalk between similar fields with different field names in different collections. (The Dublin Core is an internationally agreed upon basic metadata scheme that defines 15 general descriptive elements, for example, Creator, Title, Date, Subject, Publisher). You may map each field in your collection to a corresponding Dublin Core element. Or you could choose not to map certain fields to any DC element if the fields did not fit well into the DC schema, or if you didn't want to make these fields available for cross-database searching.

Example: The fields in the table below are from different databases and all somehow represent the name of a person (or organization) involved in the creation of a resource. Since all these fields have been mapped to the Dublin Core element "Creator", a cross-database search across multiple collections in the field "Creator" will retrieve the appropriate resources from whichever collection they are in, no matter what the collection-specific field name is.

Collection	Collection-Specific Field Name	DC Mapping
Collection A	Architect	Creator
Collection A	Photographer	Creator
Collection B	Author	Creator
Collection C	Person Interviewed	Creator

"Flattening Complex Reality"

"By 'pretending' that a cross-section of resources is uniformly simple we thereby make it possible to search for them in a simple manner."
--Carl Lagoze, Accommodating Simplicity and Complexity in Metadata, 2000

CONTENTdm's database structure right now is flat. There is no way structurally to distinguish between metadata for different physical manifestations of a resource, for example, between the original object, the photograph of the object, and the digitized scan of the photograph.

UNIVERSITY OF WASHINGTON

http://www.lib.washington.edu/msd/mig/advice/default.html

The UW Libraries has not attempted to follow a strict 1:1 correspondence between metadata and the particular manifestation of the resource. Whatever information seemed important for users of a particular collection was included in the metadata. For example, in a collection of photographs of buildings, both the photographer and the architect are important for searching, so both fields were included and both were mapped to the underlying Dublin Core element "Creator". The name of the person who did the scanning was not considered significant and was completely left out.

Field Properties Table

To set field properties in CONTENTdm, use the Server Administration module, and select "View/edit collection field properties."

Shown below are the default values for field properties as they appear in the CONTENTdm Server Administration module. *Remember*, the field properties as they originally appear in the Administration module are just a starting point–you can add, delete, and reorder the fields in any way, without affecting searching within the collection or across multiple collections. (It is the DC mapping that controls searching across multiple collections, not the order of the fields.)

We have added extra explanatory information to the sample table below. Click on a field property (headers at the top) or on a field name to see advice about how to use the field.

You can also see examples of how other CONTENTdm collections at the UW Libraries have set up their metadata by looking at their data dictionaries. We recommend recording all metadata decisions about your collection in a data dictionary, which would have much more detail than the CONTENTdm field properties table can contain. For instance, in CONTENTdm administration of field properties, there is no place to record decisions about formatting standards, but this can be recorded in your data dictionary.

Field name	DC mapping	Data type	Big field	Searchable	Hidden	ControlVoc
Title	Title	Text	No	Yes	No	No
Subject	Subject	Text	No	Yes	No	No
Description	Description	Text	Yes	Yes	No	No
Creator	Creator	Text	No	No	No	No
Publisher	Publisher	Text	No	No	No	No
Contributors	Contributors	Text	No	No	No	No
Date	Date	Text	No	No	No	No
Type	Type	Text	No	No	No	No
Format	Format	Text	No	No	No	No
Identifier	Identifier	Text	No	No	No	No
Source	Source	Text	No	No	No	No
Language	Language	Text	No	No	No	No
Relation	Relation	Text	No	No	No	No
Coverage	Coverage	Text	No	No	No	No
Rights	Rights	Text	No	No	No	No

Questions? Comments? Click here to contact UW Libraries Metadata Implementation Group
Last modified: Thursday June 03 2004

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DOCUMENTS

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Web Resources

Ariadne
http://www.ariadne.ac.uk/

Best Practices for OAI Data Provider Implementations and Shareable Metadata
http://webservices.itcs.umich.edu/mediawiki/oaibp/?PublicTOC

Cataloger's Learning Workshop: Metadata Basics
http://www.loc.gov/catworkshop/readings/metadatabasics/

D-LIB Magazine
http://www.dlib.org

Dublin Core Metadata Initiative
http://dublincore.org/
IFLA Digital Libraries: Metadata Resources
http://www.ifla.org/II/metadata.htm

Minnesota Historical Society Metadata Resources
http://www.mnhs.org/preserve/records/metadataresources.html

UKOLN Metadata
http://www.ukoln.ac.uk/metadata/

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