

Digital Collection Management Software Employed by Libraries and Museums: Examination of Metadata Semantic Mapping Functionality

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introduction

A growing number of organizations are building digital collections using both commercial digital collection management software such as CONTENTdm, Encompass, etc., and open source software such as Greenstone and D-Space [see Table 1]. This rapidly growing number of distributed digital collections has brought to the fore the critical issues of resource discovery and sharing across these collections.

The goal of this project is to examine the functionality of metadata creation and mapping and the configuration of digital collection management software. This goal relates to the issue of semantic interoperability of concept representation across digital collections. For this, this project aims at examining how digital collection management software provides a mechanism for semantic mapping either between different metadata schemes such as Dublin Core (DC) and MARC or between cataloger-defined field names and a given metadata scheme such as DC. As a first step, we will examine features related to metadata semantic mapping of CONTENTdm software, which provides a feature that allows for catalogers to map cataloger-defined field names onto DC metadata elements [see Table 2].

research questions

How are cataloger-defined field names mapped onto DC metadata elements?

Which field names produce the most frequent incorrect mappings and null mappings?

What factors produce the most frequent incorrect mappings?

To what extent do ambiguities of concept in relation to the specific object and the general collection described by the field name engender incorrect semantic mapping?

What mediation mechanism can be devised to address and mitigate inconsistencies of semantic mapping?

methodology

Qualitative research design by comparing and analyzing 20 digital image metadata templates and 659 metadata records collected from the digital image collections built on CONTENTdm software configuration [see Table 3].

By conducting survey and phone interviews with catalogers. A sample of proposed questions follows:

- What procedures/steps did you follow in creating field names and mapping them onto DC metadata elements?
- How did you map the field names onto DC?
- What is your concept of the role played by the semantic mapping process?
- Which field names were most difficult in mapping onto DC and why?
- What support mechanism geared toward the mapping task would you like to have from both digital collection management software developers and LIS educators?

preliminary results

Strongly suggest the critical need for a mediation mechanism such as metadata mapping guidelines and a mediation model (e.g., concept maps) that catalogers can refer to during the process of mapping cataloger-defined field names onto DC metadata elements in order to increase semantic mapping consistency and enhance semantic interoperability across digital collections.

The analysis of 659 metadata records [see Table 4] evinces frequent incorrect and null mappings. Null mapping field names:

contact information, ordering information, full text, note, digital collection, scan date, copy right, full resolution, acquisition, image modification, record last updated, category.

Incorrect mapping field names: physical description, format, type, source, relation.

future studies

- Consulting with catalogers through survey and interviews in order to elicit factors that engender null and incorrect mapping.
- Metadata creation and mapping configuration of other digital collection management software.
- Development of metadata semantic mapping guidelines.



Name of the Software	Name of the Vendor	Type of Software	Number of Users
1. AdobePaper	Adobe	Newspaper Collection Management Software	170
2. ADLib Library & Museum	ADLib Information Systems	Library & Museum Collection Management Software	600
3. CONTENTdm	CONTENTdm, Inc.	Library Collection Management Software	200
4. DSpace	Image	Digital Collection Management Software	42
5. DSpace	Library Research Group	Library Collection Management Software	N/A
6. DSpace	Library	Museum/Library Collection Management Software	20
7. ENCompass	Encompass	Library Collection Management Software	148
8. Greenstone	Greenstone Foundation, Inc.	Library Collection Management Software	N/A
9. Inlight	LLNA	Museum/Library Collection Management Software	82
10. K&E	K&E Software	Library Collection Management Software	200
11. M&L	ExLibris	Library Collection Management Software	351
12. MIMSY Software	Wingology	Library Collection Management Software	800
13. OpenSpace with METU	LibandTech	Digital Collection Management Software	N/A
14. Museum Systems	Gallery Systems	Museum Collection Management Software	130
15. Panopticon	Parsons Software	Museum Collection Management Software	3700
16. STAM/Archives/MARC & Museum	Clarke Associates, Inc.	Digital Collection & Museum Management Software	N/A
17. Visual Repository	Visual Repository Software	Museum Collection Management Software	00

Table 1. Digital Collection Management Software Survey (Based on Licensed User Group as of November 2004)

Field Name	Mapping
Title	DC Title
Description	DC Description
Subject	DC Subject
Topic	DC Subject
Keywords	DC Subject
Neighborhood	DC Coverage-Spatial
Date	DC Date
Alternative Dates	DC Coverage-Temporal
Photographer/Author/Interviewee	DC Creator
Donor & Others	DC Contributor
Media	Format-Medium
Media Measurement	Format Extent
Type	DC Type
Format	DC Format
Identifier	DC Identifier
Language	DC Language
Repository Name	Source
Collection	DC Relation
Repository Number	Source
Call Number	Identifier
Finding Aid	DC Relation
Relation	DC Relation
Physical Name	DC Identifier
Date Digitized	DC Date-Issued
Publisher	DC Publisher
Physical View	Relation
Language Version	Relation

Table 2. San Fernando Valley History Digital Library <http://digital.library.csun.edu/metadata.html>



Table 3. Metadata Record: Oviatt Library Collections Item View (California State University, Northridge 2004)

Total Collection	DC Metadata Usage in Digital Image Collections				Percentage
	203	215	241	659	
Element Name	# of Elements in SFV Collection	# of Elements in DL of Appalachia	# of Elements in Wabash V&AV	Total # of DC Elements	(Total DC Elements / Total Documents) * 100
Title	203	217	241	661	100.3%
Creator	196	148	30	374	56.8%
Subject	580	416	448	1444	219.1%
Description	203	210	263	676	102.6%
Publisher	203	231	0	434	65.9%
Contributor	289	100	19	408	61.9%
Date	201	113	236	550	83.5%
Type	0	150	235	385	58.4%
Format	384	139	417	940	142.6%
Identifier	265	107	7	379	57.5%
Source	362	0	0	362	54.9%
Language	63	0	5	68	10.3%
Relation	121	98	4	223	33.8%
Coverage	203	281	241	725	110.0%
Rights	203	215	241	659	100.0%
Non-Mapping	0	296	219	515	78.1%

Table 4. DC Metadata Usage in Digital Image Collections