CDWA and VRA Metadata Standards and Interoperability for Museum Collections

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Dr. Wu
Introduction

Since the late 1990s, museums have begun to examine the applicability of descriptive standards used by archives and libraries to their collection holdings in order to integrate cultural information across repositories and allow access to museum resources online. Just as libraries and archives have demonstrated for decades, the museum community understands the importance of accessibility to information and the preservation of the cultural heritage materials for which they are the stewards. The Getty Research Institute and the Visual Resource Association are at the forefront of developing tools for the museum community to implement in order to ensure proper record-keeping, interoperability between systems, and the preservation of cultural material.

The purpose of this paper is to compare two data structures, Categories for the Description of Works of Art (CDWA), which was developed by the Getty Research Institute and the Visual Resource Association’s (VRA) Core Categories. Both standards implement Getty’s controlled vocabularies, the Art & Architecture Thesaurus (ATT), the Thesaurus of Geographic Names (TGN), and the Union List of Artist Names (ULAN). Both standards also follow the data content standards described by Cataloging Cultural Objects (CCO). Interoperability between the two standards and personal exposure to CDWA will be briefly discussed. Lastly, a current OCLC research project, the Museum Data Exchange, is presented.

Categories for the Description of Works of Art (CDWA)

CDWA describes the content and format for records of art databases including works of art, architecture, and other material culture. CDWA includes 532 categories and subcategories. The CDWA Lite schema is a small subset of categories (24 total elements, nine of which are required) considered “core” which represent the recommended minimum information necessary to identify and describe a
work of art. See Appendix A for an example of a pastel drawing from the J. Paul Getty Museum cataloged using CDWA Lite standards.¹

CDWA was formed in the early 1990s by the Art Information Task Force (AITF), a group of representatives from communities that provide and use art information (e.g. art historians, museum curators and registrars, visual resource professionals, and art librarians). The task force felt it was necessary to develop guidelines for describing works of art, architecture, groups of objects, and visual and textual surrogates. Essentially, CDWA provides a framework to which existing art information systems can be developed. In addition, CDWA provides vocabulary resources and descriptive practices that will make information residing in diverse systems both more compatible and more accessible. CDWA recommends a relational data structure, where records for objects/works are linked to each other in hierarchical relationships.

**Visual Resource Association (VRA) Core 4.0**

VRA Core 4.0 is another data standard for the cultural heritage community that was developed by the Visual Resources Association's Data Standards Committee. Like CDWA, the standard consists of hierarchically structured elements which provide for the description of works of visual culture and their surrogates. In contrast to CDWA Lite’s nine required elements, the recommended VRA Core’s minimum-level work record should contain the following five elements: WORK TYPE, TITLE, AGENT, LOCATION, and DATE. See Appendix B for an example of a painting from the National Gallery of Art cataloged using VRA Core standards.²

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¹ For a complete listing of CDWA Lite elements, tags, and definitions, see [http://www.getty.edu/research/conducting_research/standards/cdwa/cdwalite.pdf](http://www.getty.edu/research/conducting_research/standards/cdwa/cdwalite.pdf).

Interoperability

Several factors contribute to the interoperability of metadata standards including consistent use of content standards and encoding format. In addition, crosswalks and metadata mapping enable searching across heterogeneous resources. CDWA and VRA both use CCO guidelines for describing content and offer XML encoding for record sharing and exchange purposes.

*Cataloging Cultural Objects: A Guide to Describing Cultural Works and Their Images* (CCO) is a manual for describing, documenting, and cataloging cultural works and their visual surrogates. CCO covers many types of cultural works including architecture, paintings, sculpture, prints, manuscripts, photographs, and other visual media. As the accepted content standard for both CDWA and VRA, CCO assists the visual and cultural communities with cataloging standards and ultimately allows for consistent terminology and interoperability.

The official encoding of CDWA Lite and VRA Core 4.0 data elements into an XML data format provides for cataloging, retrieval, and record sharing. Both CDWA Lite XML and VRA Core 4.0 XML can be easily shared and contributed to union resources, such as the *Open Archives Initiative Protocol for Metadata Harvesting* (OAI-PMH).³

Crosswalks and metadata mapping also contribute to interoperability, which enable searching across heterogeneous resources.⁴ However, there is rarely a one-to-one correspondence between metadata standards as seen in some of the following examples with CDWA Lite and VRA Core:

³ For an example of a CDWA Lite encoded record, see [http://www.getty.edu/research/conducting_research/standards/cdwa/cdwalite/oai1_drawing_gm_113736.cdwalite](http://www.getty.edu/research/conducting_research/standards/cdwa/cdwalite/oai1_drawing_gm_113736.cdwalite). For an example of a VRA Core encoded record, see [http://gort.ucsd.edu/escowles/vracore4/examples/05.xml](http://gort.ucsd.edu/escowles/vracore4/examples/05.xml).
1. A metadata element in CDWA may not have a perfect equivalent in the VRA Core database. For example, the CDWA elements Creator and Nationality may be mapped to VRA Core’s Agent and Culture, respectively.

2. Data that exists in CDWA may be mapped to more than one element in VRA. For example, data values from the CDWA Object/Work Culture element may be mapped to the Cultural Context field in the Work or Collection element in VRA Core.

3. VRA Core may offer a field not present in the CDWA schema. For example, VRA offers five fields pertaining to the commission of a work, whereas CDWA does not offer any fields.

Current Project with CDWA

In a recently published OCLC research report, the Museum Data Exchange, funded by The Andrew W. Mellon Foundation, establishes an infrastructure for standards-based metadata exchange for the museum community. The report also describes the data sharing behavior among nine participating institutions. Free tools created by the project, COBOAT and OAICatMuseum 1.0, allow museums to share standards-based data using the OAI-PMH. COBOAT allows museums to extract collection data and publish it as a CDWA Lite XML. The open source software OAICatMuseum 1.0 makes museum collection data harvestable via OAI-PMH. Both tools are available on the OCLC website for the purpose of publishing a CDWA Lite repository of collections information.

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5 COBOAT software is now available on the OCLC Web site at [www.oclc.org/research/software/coboat/default.htm](http://www.oclc.org/research/software/coboat/default.htm).

6 OAICatMuseum was developed by OCLC Research and is available at [www.oclc.org/research/software/oai/oaicatmuseum.htm](http://www.oclc.org/research/software/oai/oaicatmuseum.htm).
Personal Hands-On Experience with CDWA

Upon employment with the R. W. Norton Art Gallery in Shreveport, LA (May 2008), I realized that the museum did not implement any metadata standards for its new home-grown art collection database. I convinced the museum director to incorporate CDWA metadata standards into the art collection database. Before I left the museum in December 2009, CDWA core fields were incorporated for all collection categories. Although it will take time for the museum staff to populate the fields for each item in the collection, once the information is added to the database, the museum’s collection will comply with an established standard, will provide users with necessary information about each object, and may eventually be shared with other institutions.

Conclusion

CDWA Lite and VRA Core Categories are fairly young data standards, but with the increasing demand for digital images and other media relating to art museum collections, they will play a key role in enhancing description and access to art and cultural heritage resources. Data content standards like CCO, data value standards such as Getty's thesauri and controlled vocabularies, and data format standards like CDWA Lite and VRA Core combined with protocols like OAI-PMH, will enable greater dissemination of metadata and associated digital resources for an increasingly diverse user community. Identifying a relatively small set of metadata elements (as offered with CDWA Lite and VRA Core 4.0) to describe and search across a wide variety of information resources, will ensure that different kinds of descriptive metadata are able to interoperate with one another. The use of the CDWA Lite or VRA Core 4.0 framework will facilitate the migration of data to new systems as information technology continues to evolve. Above all, both standards will help to give end-users consistent, reliable access to cultural heritage information.


Works Cited


Appendix A: Pastel drawing from the J. Paul Getty Museum cataloged using CDWA standards

<table>
<thead>
<tr>
<th>Object/Work</th>
<th>Catalog Level:</th>
<th>Item</th>
<th>Controlled list</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Type:</td>
<td>pastel</td>
<td>Authority</td>
</tr>
<tr>
<td>Classification</td>
<td>Terms:</td>
<td>paintings European art</td>
<td>Controlled list</td>
</tr>
<tr>
<td>Titles or Names</td>
<td>Text:</td>
<td>Portrait of Maria Frederike van Reede-Athlone at Seven Years of Age</td>
<td>Free text</td>
</tr>
<tr>
<td>Creation</td>
<td>Creator Description:</td>
<td>Jean-Etienne Liotard (Swiss, 1702-1789)</td>
<td>Free text</td>
</tr>
<tr>
<td></td>
<td>Identity:</td>
<td>Liotard, Jean-Etienne</td>
<td>Authority</td>
</tr>
<tr>
<td></td>
<td>Role:</td>
<td>draftsman</td>
<td>Authority</td>
</tr>
<tr>
<td></td>
<td>Creation Date:</td>
<td>1755 or 1756</td>
<td>Free text</td>
</tr>
<tr>
<td></td>
<td>Earliest:</td>
<td>1755</td>
<td>Controlled format</td>
</tr>
<tr>
<td></td>
<td>Latest:</td>
<td>1756</td>
<td></td>
</tr>
<tr>
<td>Measurements</td>
<td>Dimensions Description:</td>
<td>57.2 x 47 cm. (22 1/2 x 18 1/2 inches)</td>
<td>Free text</td>
</tr>
<tr>
<td>CDWA and VRA Metadata Standards and Interoperability for Museum Collections – Kristi Kohl</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| **Materials and Techniques** | **Description**: pastel on vellum  
**Material Names:**  
pastels **Role**: medium  
vellum **Role**: support  
**Technique Implement**: stump |
| **Subject Matter** | **Indexing Terms**:  
portrait  
Maria Frederike van Reede-Athlone (Dutch aristocrat, born 1749)  
child  
human figure  
female  
dog |
| **Descriptive Note** | **Text**: Liotard exhibited remarkable skill in the difficult medium of pastels, which he preferred when creating portraits of children. Surfaces, textures, and volume are described with subtle gradations of color. At the time he was working on this picture, portraits of children were becoming very popular in Western Europe. |
| **Citation**: J. Paul Getty Museum online  
**Page**: accessed 10 February 2004 |
| **Current Location** | **Repository Name/Geographic Location**: J. Paul Getty Museum (Los Angeles, California, United States)  
**Repository Numbers**: 83.PC.273 |

Image Credits: Portrait of Maria Frederike van Reede-Athlone at Seven Years of Age; Jean-Étienne Liotard; Swiss, 1755 - 1756; Pastel on vellum; 57.2 x 47 cm. (22 1/2 x 18 1/2 in.); J. Paul Getty Museum (Los Angeles, CA). 83.PC.273. © The J. Paul Getty Trust. All Rights Reserved.
Appendix B: Painting from the National Gallery of Art cataloged using VRA Core standards

**Autumn - On the Hudson River**

**WORK**

[id: w_000777, refid: 000597, source: History of Art Visual Resources Collection, UCB]

agent = Jasper Francis Cropsey (American painter, 1823-1900)

date = 1860

description = Monumental view of the Hudson River Valley painted from memory in the artist’s London studio.

inscription = lower center: Autumn - on the Hudson River / J. F Cropsey / London 1860

location = National Gallery of Art (Washington, DC, USA) 1963.9.1

material = oil paint on canvas

measurements = 151.8 x 274.9 cm (59 3/4 x 108 1/4 in)

relation = Full view [type: images, relids: i_099890, source: History of Art Visual Resources Collection, UCB]

relation = Full view [type: images, relids: i_099989, href: http://www.nga.gov/cgi-bin/pimage?46191+0+0]

rights = Copyright (c)2005 National Gallery of Art, Washington, DC

source = National Gallery of Art Online (accessed 7 September 2005)

stylePeriod = Hudson River School

subject = Hudson River (New York, USA); Storm King Mountain (Orange county, New York, USA); peace; man in harmony with nature

technique = oil painting

title = Autumn - On the Hudson River

worktype = oil painting
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IMAGE

[id: i_099890, refid: 500381, source: History of Art Visual Resources Collection, UCB]

location = History of Art Visual Resources Collection, UCB 500381

measurements = 35 [type: width, unit: mm, extent: overall]

relation = Autumn - On the Hudson River [type: imageOf, relids: w_000777]


title = Full view

worktype = color transparency

IMAGE

[id: i_099989, refid: c500381, source: History of Art Visual Resources Collection, UCB]

location = History of Art Visual Resources Collection, UCB c500381

relation = Autumn - On the Hudson River [type: imageOf, relids: w_000777]

rights = Copyright (c)2005 National Gallery of Art, Washington, DC

source = National Gallery of Art Online (accessed 7 September 2005)

title = Full view

worktype = digital image