

Music Library Association
Bibliographic Control Committee

Metadata Working Group

Final Report

February 4, 2008

Charge

1. To examine the descriptive, structural, and administrative metadata elements currently being used to control music materials, including, but not limited to, those elements employed in the projects identified by the International Music Metadata Projects Working Group.
2. Formulate a schema of required elements for music metadata applications, along with recommendations for their standardized use.
3. Develop "best practices" with regard to the use of, extension of, and/or transmission of data between the new schema and the other major metadata schemas.

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¹ Antonio Calvo passed away before the conclusion of the committee's work. His name and affiliation are included here in recognition of his contributions to our work.

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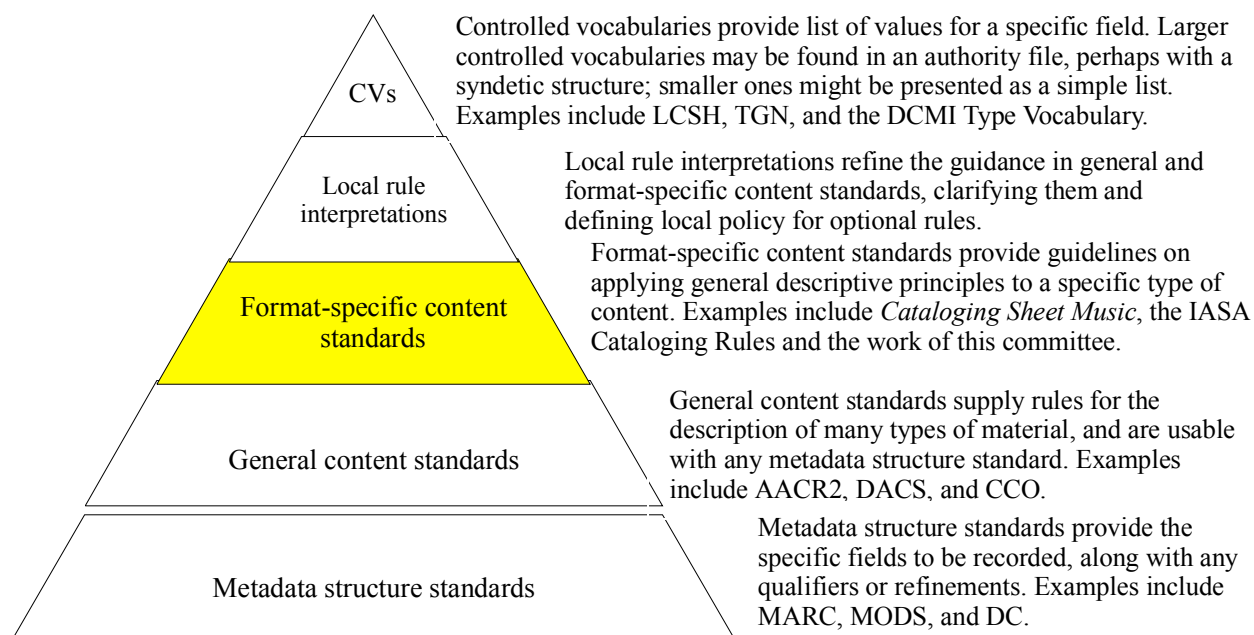
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1. Introduction

The charge to the working group falls into three tasks: examination of existing metadata schema; formulation of a new music schema; and creation of best practices for its use. Much has been learned, however, in the metadata community since the formulation of this charge in 2003 about the interaction between metadata structure standards and various types of content standards (see illustration below). This progression of thinking led the working group to interpret the development of a “schema” as format-specific content guidelines rather than a formal metadata structure standard.

Types of metadata standards



Several other factors support our decision that music metadata guidelines are of more use to the community at this time than a music-specific metadata structure standard in the form of an XML Schema. “Music” is an almost impossibly diverse field, reaching far beyond the notion of Western art music to jazz, endless genres of “popular” music, and indigenous musics throughout the world that are increasingly a focus of study. The data elements to support discovery for, and even the fundamental way of thinking about these various types of music differs, most notably in the relative importance of “composition” versus “performance.” It is therefore unlikely that one single metadata structure standard could adequately meet the needs of music in all of these traditions. Practical considerations enter as well—the ability of libraries to choose the appropriate metadata standard for a given set of materials has not developed as far as anyone would have hoped. Few if any ILS packages provide a robust, easy-to-use, and fully supported mechanism for usefully integrating non-MARC metadata together with existing MARC records, and widely-used Digital Asset Management systems such as CONTENTdm and DSpace provide only minimal metadata customization capabilities beyond their default Qualified Dublin Core models. Archival-focused repositories generally have a strong need to treat music materials in the same way they treat other collections, including personal papers and photograph collections. Most repositories with music materials, therefore, have very little hope

of being able to implement an MLA-defined music metadata structure standard in a production environment at this time.

A comparison with the Visual Resources Association's VRA Core metadata schema is illustrative. Among visual resource collections—primarily slide libraries supporting instruction in the visual arts—there have historically been a variety of descriptive practices. Slide libraries are typically not part of the academic library system, and staff often are not trained librarians. Slide libraries can be part of academic institutions, or museums of various sorts. Therefore, with the advent of digitization there was a need for the creation of standard practices for description and a schema to contain them. VRA Core is widely known in the VR community, but still not widely adopted, largely due to a lack of systems that effectively handle the distinction between a Work and Images of that Work outlined by the VRA Core Schema and the lack of technical support in slide libraries to support systems that do allow for the use of VRA Core. The music library community should monitor developments in the visual resources community to help determine if specialized music metadata structure standards should be developed in the future.

The working group limited the scope of our investigations to the musical nature of materials, leaving guidelines on non-musical aspects such as bindings and visual elements to specialists in these areas. Similarly, our recommendations only hold for works of music, not works *about* music. We were, on the other hand, able to keep a broad scope with respect to different descriptive traditions. We believe our recommendations will be useful across the library, archives, and museum spheres, and will be compatible with metadata structure standards and general content standards (such as AACR2², DACS³, and CCO⁴) from each of these communities. Our guidelines, however, will be most useful for item-level description of materials. For multi-level description in the archival tradition, relevant archival standards will likely provide better guidance.

2. Review of Current Metadata Standards

Various metadata element sets and schema were examined by the working group, including:

- Descriptive metadata
 - Metadata Object Description Schema (MODS)⁵
 - Dublin Core Metadata Initiative⁶
 - The metadata component of Variations 2: Indiana University Digital Music Library,⁷
- Archival finding aids markup
 - Encoded Archival Description (EAD)⁸
- Rights metadata
 - Open Digital Rights Language (ODRL)⁹

² Anglo-American Cataloging Rules, 2nd edition, <http://www.aacr2.org/>

³ Describing Archives: A Content Standard, <http://www.archivists.org/catalog/pubDetail.asp?objectID=1279>

⁴ Cataloging Cultural Objects, <http://www.vraweb.org/ccoweb/>

⁵ <http://www.loc.gov/standards/mods>

⁶ <http://www.dublincore.org>

⁷ <http://www.dml.indiana.edu/metadata.html>

⁸ <http://www.loc.gov/ead/>

⁹ <http://www.odrl.net/>

- MPEG Rights Expression Language (MPEG-21/5)¹⁰
 - METS Rights Extension Schema (METSRights)¹¹
- Metadata exchange
 - Metadata Encoding and Transmission Standard (METS)¹²
- Music notation and transmission
 - Standard Music Description Language (SMDL)¹³ (note: SMDL seems to have no current support or maintenance)
 - Music Encoding Initiative (MEI)¹⁴
 - MusicXML¹⁵
- Other standards
 - MPEG Multimedia Content Description Interface (MPEG-7)¹⁶ (low-level audio features)
 - Metadata Authority Description Schema (MADS)¹⁷ (authority data)
 - Metadata for Images in XML Schema (MIX)¹⁸ (technical metadata for still images)

There are many additional metadata standards either specifically music-related, or which are used for the control of music materials, but the working group felt that these were the standards that are most important for us to track at the present time.

A number of these standards are supported by the Library of Congress, and are widely used for the control of digital objects of all types. They are:

- Metadata Object Description Schema (MODS)
- Metadata Authority Description Schema (MADS)
- Metadata Encoding and Transmission Standard (METS)
- Encoded Archival Description (EAD)
- Metadata for Images in XML Schema (MIX)

Of these MODS and EAD are standards that have been used extensively to describe music materials. These two, along with Dublin Core, are the descriptive metadata standards that we need to track and for which we should create best practices.

METS is a standard for creating containers for the metadata, file inventories, and digital object structure and behavior that make up digital objects. Usage of METS for object storage and exchange is growing, and METS profiles for musical objects are beginning to appear.¹⁹ This area should be monitored but it does not seem necessary for us to make any specific recommendations for its use with musical materials at this time. The descriptive portions of a

¹⁰ See <http://www.chiariglione.org/mpeg/standards/mpeg-21/mpeg-21.htm>. See also <http://xml.coverpages.org/mpegRights.html> for discussion and additional references.

¹¹ <http://www.loc.gov/standards/mets/news080503.html>

¹² <http://www.loc.gov/standards/mets/>

¹³ See <http://xml.coverpages.org/smdl10743-1995.pdf> for a copy of the ISO standard in PDF format.

¹⁴ <http://www.lib.virginia.edu/digital/resndev/mei/>

¹⁵ <http://www.musicxml.org/xml.html>

¹⁶ <http://www.mp7c.org/>

¹⁷ <http://www.loc.gov/standards/mads/>

¹⁸ <http://www.loc.gov/standards/mix/>

¹⁹ Two music-specific METS profiles have been registered by the Library of Congress; one for recorded events, and one for audio compact discs. See <http://www.loc.gov/standards/mets/mets-registered-profiles.html>

METS file however, will typically be coded using MODS or DC, for which we will provide recommendations.

Encoded Archival Description is the standard encoding language for archival finding aids. When used to describe musical materials at the item level it becomes important to be able to map between the EAD encoding and other descriptive element sets to enhance interoperability. Recommendations for EAD encoding or music materials are included in the working group's guidelines.

A number of Rights Expression Languages (RELs) are currently under development. None of them are fully deployed at this date.²⁰ RELs have three principal goals: expression of copyright, expression of contract or license agreements, and control over access and/or use. The various RELs have been created to meet differing needs. For instance, METSRights is intended to accompany digital library materials; ODRL is a general-purpose language that allows for some actionable control over resource use; and MPEG-21/5 is a general language for use within a trusted system environment and is designed to provide protection from unauthorized use of resources. The California Digital Library has performed an extensive analysis of rights metadata standards, and has proposed an end-to-end Rights Management Framework.²¹

After reviewing the listed standards, the working group concluded that recommendations were needed only for descriptive metadata. Music notation standards seem to operate in a different sphere, and can stand on their own, and technical, structural, rights, and other types of administrative metadata appeared to need to special guidelines for their application to musical materials.

3. Music Metadata Guidelines

The working group presents guidelines for 14 descriptive attributes. These attributes represent *classes* of metadata elements that commonly appear in descriptive metadata structure standards. They are intended to be used whenever an element in a structure standard falls into the defined class, and in conjunction with appropriate general content standards. While the attributes listed here are likely to be relevant to the description of music materials, these guidelines do not go so far as to say they are *required* in description, as the presence or absence of a metadata element is affected by the choice of both metadata structure standards and general content standards. The guidelines do not contain recommendations for *every* descriptive element likely to be found in the metadata structure standard in use at a given institution; rather, they represent only those attributes the working group believed require special interpretation for music materials. Descriptive data elements such as topical subjects, series, edition statements, and relationships between entities are therefore absent from our recommendations. The attributes listed in the working group's guidelines are:

1. Creator
2. Culture
3. Date
4. Description

²⁰ For a discussion of rights expression languages see Karen Coyle's report to the Library of Congress, <http://www.loc.gov/standards/relreport.pdf> Coyle's paper focuses on CreativeCommons, METSRights, Open Digital Rights Language, and MPEG 21, Part 5.

²¹ <http://www.cdlib.org/inside/projects/rights/>. See http://www.cdlib.org/inside/projects/rights/gap_analysis.html for an assessment of other rights metadata encoding schemes and a gap analysis.

5. Extent
6. Format
7. Genre/Form/Style
8. Identifier
9. Instrumentation
10. Language
11. Location
12. Publisher
13. Rights
14. Title

Usage of these attributes is presented for each of the following three entities:

1. The musical work
2. Notated music
3. Recorded performances

The “musical work” is defined here as both an abstract concept (i.e., the canonical Work as understood in the Western art music tradition) and the interpretation of that work in a given representation, either in notation or performance. Guidelines presented for the musical work therefore refer to the content present on a given item. “Notated music” is defined here as the carrier, physical or digital, in which the notated musical content is contained, and a “recorded performance” is similarly defined as the carrier, physical or digital, in which the performed musical content is contained. This separation of guidelines is heavily influenced by recent work in the library community to clarify description of content vs. carrier, and to some degree is influenced by the Functional Requirements for Bibliographic Records (FRBR)²² conceptual model, although the working group’s guidelines do not follow the FRBR model closely.

The accompanying document lists the 14 selected attributes, along with:

1. Definition: brief explanation of the attribute, specifically for music materials
2. Usage: general best practices, along with specific recommendations for the application of the attribute to the description of a musical work, notated music, and recorded performances
3. Refinements: suggested values
4. Mappings to common metadata formats (Dublin Core, MODS, EAD, MARC)

Note the mappings to other metadata formats presented are rarely exact, precise mappings as general-purpose metadata standards often lack elements in which music-specific data can be unambiguously recorded.

²² Functional Requirements for Bibliographic Records, <http://www.ifla.org/VII/s13/frbr/frbr.pdf>

4. Recommendations

It is clear the non-MARC metadata standards are in increasingly greater use within libraries, for music materials as much as anything else. It is therefore of strategic importance for the Association to find ways to increase knowledge of metadata issues and standards amongst its members, as well as to position itself to engage in the development and revision of these standards. It is not clear, however, that the current committee structure and/or membership is the right one to engage in these activities.

The report submitted here is not a blueprint for a new metadata standard, but provides guidelines for the use of existing standards. As metadata standards continue to develop in general it is imperative that the Association either provide a forum for discussion and further development of guidelines and best practices for music—e.g. through the creation of a successor committee to the current working group—or embed the discussion of metadata issues within the current committee structure.

The advantage in creating a new “Metadata Subcommittee” is that metadata issues will be discussed and the Association will have expressed a strong commitment in this area. The disadvantage is that this will artificially disassociate the discussion of metadata from the discussion of cataloging, reinforcing the misconception that metadata and cataloging are separate, rather than different views of the same activity.

We therefore recommend that the Association appoint a metadata committee that is separate from other BCC committees, but that it contain as part of its charge the task of integrating metadata activities into the activities of the other BCC committees. The ultimate aim would be to phase out the metadata-specific committee once this integration was clearly achieved.

APPENDICES

APPENDIX 1: Metadata Object Description Schema (MODS)

The Library of Congress' Network Development and MARC Standards Office, with interested experts, has developed a schema for a bibliographic element set that may be used for a variety of purposes, and particularly for library applications. As an XML schema, the Metadata Object Description Schema (MODS) is intended to be able to carry selected data from existing MARC 21 records as well as to enable the creation of original resource description records. It includes a subset of MARC fields and uses language-based tags rather than numeric ones, in some cases regrouping elements from the MARC 21 bibliographic format. MODS is maintained by the Network Development and MARC Standards Office of the Library of Congress with input from users.

MODS can carry the major data elements from a MARC record but does not use the MARC tagging that one finds in the MARC XML schema. Instead, MODS represents key bibliographic data with easily understood element names such as "title," "name," and "subject." This makes it more friendly to communities that are not accustomed to the MARC numeric tagging. MODS can be used to translate MARC records into XML, but it is also suitable for creating original metadata records. MODS exists in relation to, but does not replace, MARC XML, and it supports, but is not identical to, MARC-encoded metadata. It serves well as a bridge between traditional library applications and bibliographic applications that do not make use of library cataloging or metadata formats.

MODS was, in part, a response to the need to have a metadata format that was not specific to the library community and the MARC standard, but that would have a richer data element set than Dublin Core. MODS can function as a crossover metadata format for XML applications that may make use of traditional library cataloging data together with metadata with other origins. It does not attempt to define every data element that is found in the MARC record, but rather it has distilled that record down to a selection of key elements that can serve a fairly wide variety of metadata needs.

MODS will be modified as the MARC standard changes to maintain parallelism with the MARC record so that translation from MARC to MODS will be possible. It can also be modified in response to requests from the community that uses MODS, at the discretion of the Library of Congress office that is shepherding the MODS standard.

Advantages:

- MODS was developed with both digital objects and MARC format firmly in mind, therefore MODS has a high level of compatibility with MARC records.
- The MODS element set is richer than Dublin Core and simpler than MARC, yet retains most of the rich information in MARC. MODS' language-based tags are easier to work with than MARC's numeric ones.
- MODS doesn't assume the use of any particular cataloging code. It accommodates record content that is full AACR2 with authoritative name and subject headings, content uncontrolled by cataloging rules, the use of alternative content standards such as Describing Archives: A Content Standard or Cataloging Cultural Objects, and anything in between. MODS accommodates metadata from a variety of sources.
- LC offers a number of stylesheet tools for converting data between Dublin Core, MARCXML and MODS.

- MODS is able to represent constituent parts, e.g. a CD with its constituent songs by different artists on separate tracks, and express relationships among musical works.
- MODS allows for the various dates associated with sound recordings.

Limitations:

- MODS has the potential to develop in a number of different directions, depending on feedback from users. It is not yet a widely used standard with time-tested implementation, but use is growing.
- MODS does not support lossless round-tripability with MARC 21. In other words, an original MARC 21 record converted to MODS will not convert back to MARC 21 in its entirety without some loss of specificity in tagging or loss of data. In some cases if reconverted into MARC 21, the data may not be placed in exactly the same field that it started in because a MARC field may have been mapped to a more general one in MODS. In some cases the element in MARC may not have an equivalent element in MODS and then the specific data could be lost when converting to MODS.

Authority Control

MODS allows for linking to authority records from elements likely to be under authority control. In these cases, authority attribute appears in which a user can enter the code for the authority from which a term was taken. One could also use the xlink:href attribute to give a URI that points to a full authority record.

Example:

In LC authority file:
Rite of spring (Choreographic work)
LCCN: n 94024219

MODS record:
<titleInfo authority="naf" xlink:href="info:lccn/n94024219"><title>Rite of spring (Choreographic work)</title></titleInfo>

In addition, the Library of Congress' Network Development and MARC Standards Office has drafted the Metadata Authority Description Schema (MADS), an XML schema for an authority element set that may be used to provide metadata about agents (people, organizations), events, and terms (topics, geographics, genres, etc.). MADS was created to serve as a companion to the Metadata Object Description Schema (MODS). As such, MADS has a relationship to the MARC 21 Authority format, as MODS has to MARC 21 Bibliographic – both carry selected data from MARC 21. In the future, one will be able to use the MODS xlink:href attribute for a URI in the MADS namespace.

MODS Examples

I. Samples from MODS site

For an example of a score:

<http://www.loc.gov/standards/mods/v3/mods85753651.html> (public version)
<http://www.loc.gov/standards/mods/v3/mods85753651.xml> (coded)

For a list of MODS records in a variety of formats:

<http://www.loc.gov/standards/mods/mods-guidance.html>

II. Sound Recording (Library of Congress)

<http://lcweb2.loc.gov/diglib/ihas/loc.natlib.ihas.200003802/mods.xml>

III. Sheet Music (Indiana University)

<http://oai.dlib.indiana.edu/phpoai/oai2.php?verb=GetRecord&metadataPrefix=mods&identifier=L-LSDV-001001>

Resources

[Digital Library Federation/Aquifer Implementation Guidelines for Shareable MODS Records](http://www.diglib.org/aquifer/dlffmodsimplesimplementationguidelines_finalnov2006.pdf)

<http://www.diglib.org/aquifer/dlffmodsimplesimplementationguidelines_finalnov2006.pdf>

“Primers in Standards.” *Computers in Libraries* 24/2 (Feb. 2004), 18+

MADS: Metadata Authority Description Schema Official Web Site

<<http://www.loc.gov/standards/mads/>>

MODS: Metadata Object Description Schema Official Web Site

<<http://www.loc.gov/standards/mods/>>

MODS User Guidelines <<http://www.loc.gov/standards/mods/v3/mods-userguide.html>>

APPENDIX 2: MODS & Music Materials

<u>Scores: Important Elements</u>	<u>MODS Element</u>
024: Other Standard Identifier International Standard Music Number (ISMN)	<identifier> type="ismn"
028: Publisher Number Plate Number Other Music Number	<identifier> type="music plate" type="music publisher"
041/546: Language of Sung/Spoken Text	<language><languageTerm> <i>and</i> <note> type="language"
130/240/730: Uniform Title 130/240/730 \$n: Part Number 130/240/730 \$p: Part Name	<title><titleInfo> type="uniform" <i>and</i> <partNumber> <partName>
246: Varying Form of Title (including First Line of Text/Chorus)	<title><titleInfo> type="alternative"
300: Physical Description (crucial elements are presence of parts and accompanying material)	<physicalDescription> <extent>
306/500: Duration	<note> type="duration"
4xx/8xx: Series	<relatedItem> type="series"
505: Contents	<note> type="contents"
6xx \$t: Name/Title Subject	<subject><name> <titleInfo><title>
7xx \$t/740 _2: Constituent Parts (analytics)	<relatedItem> type="constituent"
Roles of contributors	<name><role><role term> type="text"
Cover illustration information	could include <note> about image and illustrator, <name><role> for illustrator, <subject> of image
Collection and manuscript attributes	collection="yes" manuscript="yes"

Sound Recordings: Important Elements**MODS Element**

024: Other Standard Identifier International Standard Recording Code (ISRC) Universal Product Code (UPC)	<identifier> type="isrc" type="upc"
028: Publisher Number Issue Number Matrix Number Other Music Number Videorecording Number	<identifier> type="issue number" type="matrix number" type="music publisher" type="videorecording identifier"
033/518: Date/Time & Place of Event (e.g. broadcast, recording)	<originInfo><dateCaptured> <i>and</i> <note> type="venue"
041/546: Language of Sung/Spoken Text	<language><languageTerm> <i>and</i> <note> type="language"
045: Time Period of Content (i.e., Date of Composition)	<originInfo><dateCreated>
130/240/730: Uniform Title 130/240/730 \$n: Part Number 130/240/730 \$p: Part Name	<title><titleInfo> type="uniform" <i>and</i> <partNumber> <partName>
246: Varying Form of Title	<title><titleInfo> type="alternative"
300: Physical Description (crucial element is accompanying material)	<physicalDescription> <extent>
306/500: Duration	<note> type="duration"
4xx/8xx: Series	<relatedItem> type="series"
505: Contents	<note> type="contents"
511: Performer Note	<name> for performer, with <role> <note> type="performers"
6xx \$t: Name/Title Subject	<subject><name> <titleInfo><title>
7xx \$t/740 _2: Constituent Parts (analytics) Roles of contributors	<relatedItem> type="constituent" <name><role><role term> type="text"
Collection attribute	collection="yes"

Other Important Elements

Control issues, e.g. restrictions on access and reproduction	<accessCondition>
Meta-metadata	<recordInfo>
Digital information, e.g. file type	<physicalDescription><internetMediaType>
Structural information, i.e., providing access to internal structure of music representations, e.g. acts, movements	<relatedItem> <note> type="contents"

APPENDIX 3: Dublin Core Metadata Initiative

Purpose of Dublin Core:

Dublin Core is an international metadata standard for describing networked resources. It is designed to be simple to use and maintain. It contains 15 elements that describe not only the digital manifestation of the work but administrative and structural facets of the digitization process.

Dublin Core exists in two “flavors”:

- 1) Simple Dublin Core, also known as unqualified Dublin Core. This flavor includes the 15 core elements, with no refinements or qualifiers.
- 2) Qualified Dublin Core. Adds two new elements, element refinements that provide more specificity for the meaning of an element, and encoding schemes that specify which encoding standard or controlled vocabulary was used to generate an element value.

Issues that are specific to (or more prevalent in) music materials:

Multiple titles: Additional titles (first line of verse and chorus) for sheet music can be listed as alternative titles.

Versions: Possible use of Relation [Is version of] for different manifestations of the same work.

Vocabularies:

Dublin Core suggested vocabularies for language and type should be usable for music records. In any field where authority control is desired, values may be taken from any controlled vocabulary deemed appropriate.

Recommendations for content:

Western States Dublin Core Metadata Best Practices
 <<http://www.cdpheritage.org/cdp/documents/cdpdcmbp.pdf>> could provide some basic information and ideas for usage of specific elements. Specific additional elements to consider: Use of two date elements (Date Original and Date Digital) and Digitization Specifications to provide information related to the creation of the digital object.

General issues relating to music materials:

Collections, whether in score or sound recording format, with multiple creators and works pose a problem in connecting each composer with his or her works, i.e. no name/title element.

APPENDIX 4: Encoded Archival Description

The Encoded Archival Description initiative (EAD) is designed to represent the hierarchical nature of a collection of material through an online version of a "finding aid." Finding aids typically consist of a narrative portion and a list of contents by box or container. They emphasize the connections between items in the collections, promoting the archival principles of provenance and original order, and often include a history of the collection and biographical information about the collector or subject of the collection. The EAD standard responds to the needs of archival researchers who typically are accustomed to browsing through large amounts of material in order to understand the collection as a whole, then locate the items that they wish to investigate further. These researchers generally don't expect to have access to individual titles within the collection, but want to browse broad categories that are then arranged according to a logical manner (e.g., correspondence arranged by date).

EAD version 1.0 Design principles (<http://www.loc.gov/ead/tglib1998/tlprinc.html>) outlines some important points about the standard.

1. Although the term "finding aid" traditionally encompasses a wide variety of tools to describe, control, and provide access to archives and manuscript collections, this encoding standard is primarily intended for a particular type of document known as inventories and registers. Its design, however, does not preclude further development to accommodate other types of finding aids, such as repository guides, or the development of ancillary encoding standards to accommodate archival authority information based on the International Standard Archival Authority Record for Corporate Bodies, Persons, and Families (ISAAR(CF)).

5. Although the encoding scheme does not define or prescribe intellectual content for finding aids, it does define content designation and is intended to be used with available data content standards such as the General International Standard Archival Description (ISAD(G)). It identifies the essential data elements within finding aids and establishes codes and conventions necessary for capturing and distinguishing information within those elements for future action or manipulation. While there are certain elements that ought to appear in any finding aid, various intellectual and economic factors influence the depth and detail of analysis employed. Taking this into consideration, the encoding scheme is designed with a minimum of required elements, but allows for progressively more detailed and specific levels of description as desired.

6. The standard preserves and enhances the current functionality of existing registers and inventories. It identifies and provides markup for finding aid structures and content that support the following functions: description, control, navigation, indexing, and online and print presentation. If a structure does not support one of these functions, then specific markup for it is not provided. The terms "description" and "control" refer not only to original source materials but also to digital representations and surrogates.

There is a listserv devoted to EAD and in November, 2003 there was a very interesting exchange on the subject exploring the use of EAD for music materials, including comments by Clay Redding, a member of this MLA working group and Bob Kosovsky, a MLA member with considerable experience working with EAD at the New York Public Library.

EAD is well designed to encode inventories and registers, but it doesn't lend itself well to providing access to individual titles, although it is difficult but possible (for example, the Duke Historic American Sheet Music collection uses EAD). EAD provides tags for marking up specific pieces of data of interest to archives. For instance, in the following example from the NYPL, the preferred citation is given and a section set out for biography and history. Although this example

does not make use of this possibility, EAD also allows marking of personal names within the text of the finding aid so that these names could be searched more specifically. The names of Gian Carlo Menotti, Samuel Barber, Leonard Bernstein, Virgil Thomson in this example could have been specifically identified in this way.

Ex. 1. Biography

```
<prefercite><head>Preferred Citation</head>
<p>Arnold Arnstein Collection, JPB 91-60, Music Division, The New York Public Library,
Astor, Lenox and Tilden Foundations.</p></prefercite>
<bioghist><head>Biography</head>
<p>Arnold Arnstein was born in Budapest in 1898, and came to New York with his family
when he was 4 years old. After attending Stuyvesant High School, he graduated from City
College in 1919, with a degree in chemistry. He played violin until an accident prevented further
study. </p>
<p>In 1925 he began to work for Paramount Publix Corporation as a music copyist. By
1932 he was able to set up his own office on west 72nd Street in New York City which he used
until his death. Over the course of fifty-seven years, he was the copyist for Gian Carlo Menotti,
Samuel Barber, Leonard Bernstein, Virgil Thomson, and many other leading as well as less
well-known composers. In time the staff of his office grew to at least seven regular staff
members, in addition to other staff on call.</p>
<p>From the mid-1960s until his death, Arnstein taught classes in the preparation and
copying of music manuscript at The Juilliard School of Music. Arnstein died on December 2,
1989.</p></bioghist>
```

Example 2 is an item from the container list. Here the name of the composer is identified, but the author, if different, isn't mentioned.

Ex. 2 Container list

```
<c03 level="item"><did><container type="Folder">11</container>
<unittitle><persname>Antheil, George (1900-1959)</persname><lb />[<title>Happy
Journey. Selection</title>]<lb /><title>I Must Give His Shirts a Laundering</title>,
<unitdate>[n.d.]</unitdate></unittitle>
<physdesc>1 score, 1 reproduction of ms. vocal score.</physdesc></dic></c03>
```

Example 3 may be a published work, but this information isn't included, although elements related to an imprint are allowed within <unittitle> in EAD. The level of detail is clearly a local option and isn't a particular limitation of the standard.

Ex. 3 Container list, published work?

```
<c03 level="item"><did><container type="Folder">19</container>
<unittitle><persname>Bach, Johann Sebastian (1685-1750)</persname><lb
/>[<title>Wohltemperiertes Clavier. T. 1. Praeludium und Fuge, BWV 853, arr.</title>],
<unitdate>[n.d.]</unitdate></unittitle>
<physdesc>4 parts.</physdesc>
```

Libraries that have used EAD to create finding aids for music materials have adapted the basic structure and either forced the collection to conform to the basic archival standard (biography, scope and content, organization, container list, etc.) or developed a non-standard, redefined DTD (Document Type Definition) (note: this approach is not recommended!). Elizabeth Shaw, in a November 6, 2003 posting to the EAD listserv, described the first approach as "tag abuse"—cramming things into elements where they don't belong. In a follow-up

message to this exchange on the EAD listserv, Bob Kosovsky (who processed and encoded many of the collections at the New York Public Library) described cases where EAD would be suitable for use with music materials.

The New York Public Library Digital Library Collections, Music Division has an extensive collection of finding aids available for researchers. They have a variety of music collections described in this manner and you can search all of the finding aids at once, or just one. An example of a collection of music and other types of material is the Arnold Arnstein Collection <<http://www.nypl.org/research/manuscripts/music/musarnstein.xml>>. Note the context for the collection made clear by its scope and content note, and the item-level description.

The narrative portion of a finding aid is a very valuable way to put the collection into historical context and to outline its history. For collections that include music materials, it is an appropriate way to provide access to groups of materials, some of which are music. The hierarchical nature of the display allows the user to browse through types of material as well as the list of items in a particular box. An example is the Alexander Weinmann papers at Duke University <<http://library.duke.edu/digitalcollections/rbmscl/weinmann/inv/>>. The list of series indicates the type of material, and the container list gives more detail but only gives a general idea of the contents.

Even when the container list identifies individual works, most finding aids don't provide the level of detail found in a cataloging record. For instance, in the Mischa Levitski papers at the NYPL, some of the published music is described only briefly <<http://www.nypl.org/research/manuscripts/music/muslevit.xml>>.

Box 3 - Folder 1

Bach, Johann Sebastian--*Album* for piano, 1898

Box 3 - Folder 2

Brahms, Johannes--*Waltzes (Opus 39)*, undated (piano)

Box 3 - Folder 3

Chopin, Frédéric François--*Pianoforte Werke*, undated (Edition Peters)

Box 3 - Folder 4

Debussy, Claude--*Children's Corner*, 1908

(piano score; Rosalind M. Lorwin signature on title page)

Box 3 - Folder 5

Fomeen, Basil--*Songs of Inspiration*, 1940 (voice and piano)

Many of the tags in EAD are those used to create the hierarchy of display in the finding aid. Many still are used to describe the finding aid itself rather than the archival collection or its contents. Other elements are used to provide controlled access points for searching. Some EAD elements that might be applicable to music are: corporate name, family name, genre/physical characteristic, geographic name, imprint, language, name, occupation, organization, personal name, physical description, subject, unitdate, and unittitle. Music-specific elements, such as composer, lyricist, first line of text, first line of refrain, manufacturer's number, publisher number, plate number, opus number, uniform title, and instrumentation, are not available for use in EAD, as it was not specifically designed for music. There is no obvious way, other than creating a link to a URL, to display music notation or symbols.

Recommendations concerning content

As may be seen by the preceding paragraph, there are no elements in the current EAD standard that allow specialized access to music materials. Several libraries have adapted it for music materials, but it is rather like putting square pegs in round holes. While usable, it doesn't

allow for the kind of specialized access that would be desirable. EAD should generally be used to describe music when an archival, rather than a bibliographic, approach is desired.

APPENDIX 5: METSRights²³

The METS Rights Schema is a simple Rights extension schema for use in METS documents while more comprehensive Rights Expression Language (REL) schemas such as XrML, ODRL, and others are being developed, and debated. The focus of the simple Rights schema is to simply declare or document some basic facts about the digital collections being created and/or included in institutional digital repositories. The schema is currently available for review, comment, and discussion.

The METS Rights Schema was created after close review of the ODRL REL, the XrML REL, the federated digital rights requirements as crafted by Mairead Martin from the University of Tennessee, Grace Agnew from Rutgers, and others, and the efforts by the Digital Library Federation's Electronic Resource Management Initiative (DLF ERMI) to document terms related to licensed electronic resources.

The schema focuses upon:

- digital resources owned or controlled by the digital repository rather than e-resources accessed remotely, formally licensed and subscribed to by an organization (the area covered by the DLF ERMI group)
- declaring the rights holders and rights associated with the digital resources mentioned above rather than trying to fully express all rights as would a REL designed to be used with a Digital Rights Management system or product
- simplifying the declaration as much as possible given the fact that the whole DRM & REL scene is changing so rapidly

This Rights Declaration schema has 3 main elements:

- A simple declaration of type of rights (copyrighted, licensed, public domain, contractual, other) and the public statement of that Rights Declaration,
- The naming of the Rights Holder(s) with appropriate contact information,
- The Context(s) for the rights declaration based on type of users who have a set of permissions for a digital object or part of a digital object. If there are any constraints to the permissions, those are also expressed within the context by listing the constraints and explaining them in a constraint description element.

²³ This appendix summarizes information contained in <http://www.loc.gov/standards/mets/news080503.html>

APPENDIX 6: CopyrightMD

The CopyrightMD schema was developed by the California Digital Library. The schema is a mixture of bibliographic and other descriptive elements that are needed to determine the copyright status of an item, and therefore the legal status of public display, publication, reuse, etc. The CDL working group determined that the following fields were needed to determine copyright:

- Creator, personal
- Creator, corporate
- Creator (unspecified)
- Creator death date
- Copyright holder
- Date of publication
- Date of copyright
- Date of creation
- Date of renewal
- Publisher
- Country of publication
- Published/unpublished
- Type of resource

The intention of this schema is that it contain actionable elements as much as possible, so these elements contain elements that are not always gathered with other descriptive metadata (e.g. death date), but which are important in determining the copyright status of an object. In addition, they proposed two text fields:

- **Contact information:** Contact information for the rights holder or for the institution that can negotiate rights or inform the user about the rights status of the item.
- **Other terms and conditions:** A brief statement of terms and conditions that can be displayed to users. This will not be an actionable field, and should refer to the contact information for those who wish to make specific uses of the item.

It remains to be seen how widely accepted CopyrightMD becomes. METS profiles are beginning to be written that allow for the use of either METSrights or CopyrightMD in the administrative metadata section. Because it is so detailed its use could be burdensome if used unintelligently, but used well it could be used to drive access mechanisms to digital content very effectively. Whether CopyrightMD will be useful in describing rights pertaining to music has not been demonstrated. As copyright is only one of the aspects of rights that apply to music, an extension of the schema would probably be needed. In addition, because the rights pertaining to sound recordings and the underlying music follow different sets of rules depending on the country of publication and the publication date—among other things—a more nuanced version of CopyrightMD would be needed.

The CopyrightMD home page is: <http://www.cdlib.org/inside/projects/rights/schema/>

User guidelines can be found here:

http://www.cdlib.org/inside/projects/rights/schema/copyrightMD_user_guidelines.pdf