

Discovery Systems I: Challenges and Needs for Music Discovery

Nara L. Newcomer
Head, Music/Media Library, University of Missouri-Kansas City, United States
IAML Conference – Vienna, Austria
30 July 2013 | newcomern@umkc.edu

“Discovery” has become a library buzzword, but it refers to a traditional concept: enabling users to find library information and materials. The discovery environment is changing rapidly today, both within libraries and externally. Today, we’ ll examine where the unique needs of music materials fit into this environment.

Outline

- Exploring music discovery
- The Music Discovery Requirements
- Music attributes and discovery: two examples

First, we'll explore the topic of music discovery. Next, we'll learn about the Music Discovery Requirements document. Finally, we'll dig into two problematic areas of music discovery, as examples of how to face today's challenges.

Exploring Music Discovery

Cataloging's historical bias towards the book
Attributes important for music
“Puzzle pieces” for successful discovery

In this first section, we'll look at cataloging's historical bias towards the book, start thinking about what attributes are important to music, and examine the “puzzle pieces” for successful discovery.

History: Book Bias

- Charles Ammi Cutter, *Rules for a Printed Dictionary Catalog* 1876, p. 10.
- “The object of a library catalog is to enable a person to find a book of which the **author**, **title**, or **subject** is known.”

Library cataloging has long been biased towards the book, reflecting the preeminence of written and spoken language in our society.

Indeed, we can go all the way back to Cutter’s 3 access points (1876): author, title, subject.

“Beethoven’s 9th Symphony”

- Author: Beethoven
 - clear, but insufficient due to prolific composers & multiple versions
- Title: 9th Symphony? Ode an die Freiheit? Symphonies, no. 9, op. 125, D minor? etc.
 - outside cataloging codes, formulation is inconsistent
- Subject: ???
 - music “subject headings” often reflect non-subject attributes (medium of performance, genre, geographic area, function/occasion, etc.)

Let’s consider these three access points, using a well-known musical work I’ll call for now “Beethoven’s 9th Symphony.”

The **author**, Beethoven, is clear, and, indeed, personal name is frequently used as an access point for music. However, due to prolific composers and the multiple expressions and manifestations libraries regularly hold of each musical work, personal name alone is an insufficiently precise access point.

There are many options for the **title**, thus the development of uniform titles which in actuality frequently combine many attributes like form, medium, work numbers, etc.

Subject is a problematic concept for music, because many musical works are arguably not “about” anything. Indeed, music “subject headings” often reflect attributes other than subject. The 9th Symphony probably is about *something*, but that’s an interesting topic for musicological debate, not a good access point.

So, we see that author, title, and subject alone, though they may work fairly well for books, are insufficient access points for music.

Music Attributes Include:

- Titles
- Identifying Numbers
- Medium of Performance
- Musical Key/Range
- Dates
- Persons and Corporate Bodies
- Topical Subjects
- Genre/Form
- Geographic Area
- Format: Content and Carriers
- Musical Presentation
- Edition
- Language

List created from sections II, III of the
“Music Discovery Requirements” document

Many attributes are important for identifying musical works, as listed here. Users seeking a musical work frequently start with attributes other than author or title, or with a title which is not the same one found in the library catalog.

The Research: In Music...

- More common: known-item searching, use of personal name as an access point
 - David M. King, "Catalog User Search Strategies in Finding Music Materials," *Music Reference Services Quarterly* 9:4 (2007): 1-24.
 - Beth Christensen, Mary Dumont, and Alan Green, "Taking Note: Assessing the Performance of Reference Service in Academic Music Libraries: A Progress Report." *Notes* 58/1 (Sept. 2001): 39-54 (see p. 52.)

This is backed up by research.

In 2007, David King summarized and synthesized the research to that date regarding user search strategies for printed music and recordings, and concluded that music searching differs in specific ways from general searching, particularly in that known-item searching is more common for music materials and personal name is used more frequently as an access point. Similarly, a study of music reference service found that, in comparison to general reference, music questions "focus much more heavily on locating specific, known items" and were answered via different means, with music reference employees relying on "their local catalogs, the circulating collection and their own knowledge much more frequently than librarians in general reference situations."

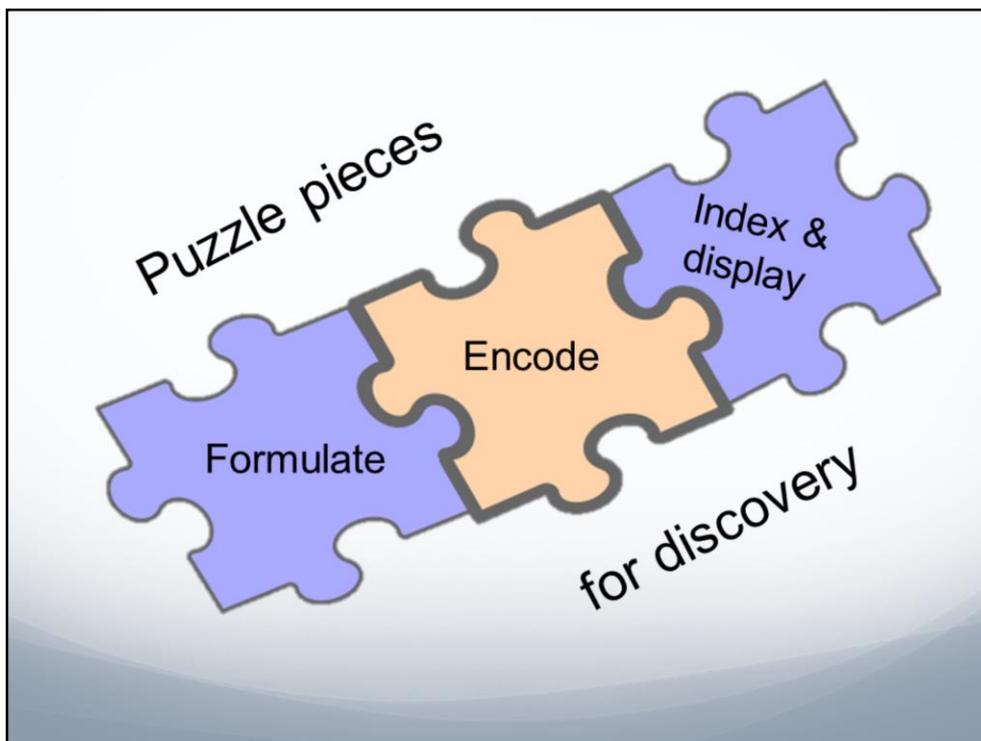
David M. King, "Catalog User Search Strategies in Finding Music Materials," *Music Reference Services Quarterly* 9:4 (2007): 1-24.

Beth Christensen Mary Dumont, and Alan Green, "Taking Note: Assessing the Performance of Reference Service in Academic Music Libraries: A Progress Report." *Notes* 58/1 (Sept. 2001): 52.

The Research: In Music...

- Popular music study: known-item queries are common, but users often don't know much about the item they seek, especially, don't know author/title.
- Lee, Jin Ha. "Analysis of User Needs and Information Features in Natural Language Queries Seeking Music Information." *Journal of the American Society for Information Science and Technology*, 61, no. 5 (2010): 1025-1045.

Jin Ha Lee's study is particularly interesting because it goes beyond Western Art Music. Lee harvested queries from Google Answers' music category in 2005. Google Answers was a service, now discontinued, where people could post their queries and then a "Google researcher" tried to supply an answer. These questions tended to be about "popular" music. Example: "I heard this song by a female singer in an ARBY's. I believe it is from the 70s or early 80s. The main chorus of the song says, "over and over again." Kind of a sad, slow, easy listening love song." Lee then broke these queries apart into the attributes desired, similar to what librarians do in a reference interview. Lee found that, though "known item" queries were common, users often didn't "know" a lot about the item sought and especially lacked commonly recorded bibliographic information.

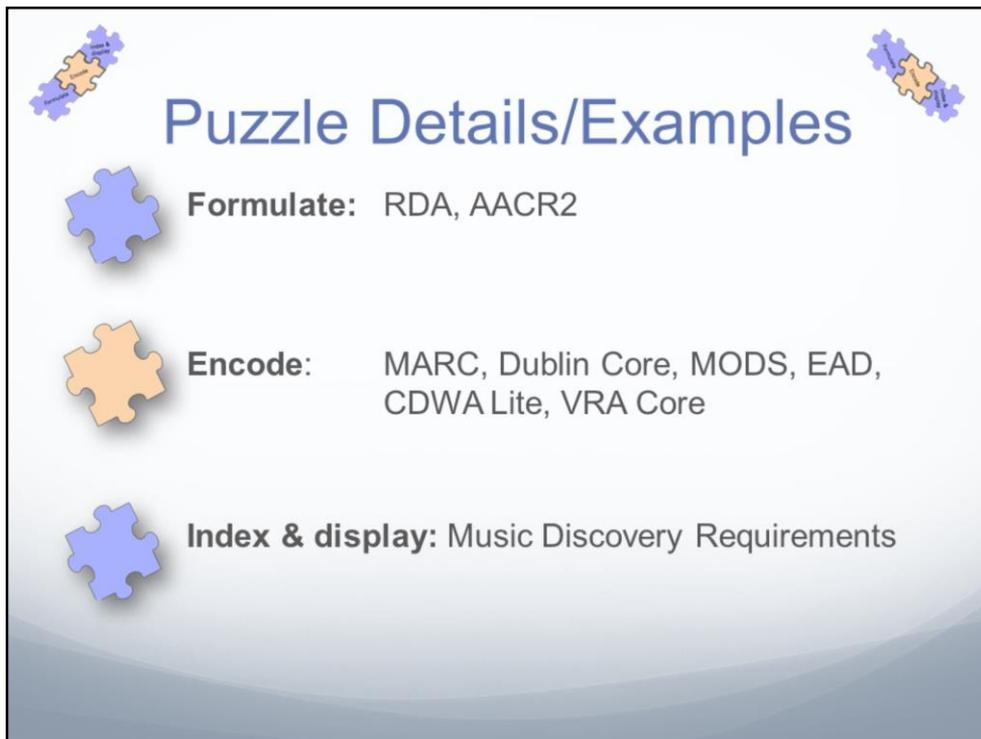


For a successful discovery interface, three major pieces of the puzzle must work together: formulating data, encoding the data thus formulated, and indexing and displaying that formulated, encoded data. A problem or breakdown in any piece can cause the system to fail, creating difficulties for users in finding materials and information.



No score for the *Surprise Symphony*? And the only recordings we have are on LP? What's wrong with this library?!?

When a puzzle piece breaks down, users won't know which one it is. They'll just know it doesn't work. But, as librarians, it's our job to understand the pieces, pinpoint the problem, and fix it.



To help understand the puzzle pieces, I've listed some standards currently used for each.

AACR2, and now RDA, provide the rules for formulating data-determining what bits of information to record down and how to express them.

Once that data is formulated we encode it in "metadata format" like MARC. The metadata formats listed here are the ones for which we provided mappings in the Music Discovery Requirements.

Finally, we present the data in a user interface. Since the card catalog died, this has been largely a free-for-all without a recognized standard. Furthermore, interface designers regularly operate from a book-centric mindset, leaving music poorly served. The Music Discovery Requirements' purpose is to provide the final piece of this puzzle.

The Music Discovery Requirements



Let's examine the Music Discovery Requirements: its background, goals, and organization

Music Discovery Requirements

- Not a standard; “recommendations and possible best practices”
- Created under auspices of MLA's Emerging Technologies and Services Committee
 - Group members: Nara Newcomer (leader), Rebecca Belford, Deb Kulczak, Kimmy Szeto, Jennifer Matthews, Misti Shaw
- Endorsed by the MLA Board of Directors, Aug. 8, 2012.

Due to today's rapidly changing bibliographic landscape, and the urgent need for a document to aid in discovery implementations, the Music Discovery Requirements is not a standard but a set of “recommendations and possible best practices.” While the work was in many ways precipitated by the onslaught of faceted and web-scale discovery tools, and strongly informed by AACR2, RDA, and MARC, the MDR can be used with any recorded and encoded data.

The MDR was created under the auspices of the Music Library Association's Emerging Technologies and Services Committee and bears the official endorsement of MLA's Board of Directors.

Availability

- MLA web site
<http://committees.musiclibraryassoc.org/ETSC/MDR>
- Newcomer, Nara L., Rebecca Belford, Deb Kulczak, and Kimmy Szeto with Jennifer Matthews, Misti Shaw, “Music Discovery Requirements: A Guide to Optimizing Resources,” *Notes* 69, no. 3 (March 2013): 494-524. [sans appendixes]
- Newcomer, Nara L. with Rebecca Belford, Deb Kulczak, Kimmy Szeto, Jennifer Matthews, and Misti Shaw. “Anforderungen an Musik-Discovery-Systeme.” *Forum Musikbibliothek* 34, no. 2 (July 2013): 14-22. [abbreviated German translation]

It is available on MLA’s web site and published in the March 2013 issue of MLA’s journal, *Notes*. An abbreviated version in German translation is published in *Forum Musikbibliothek*.

Target audience

- Those creating or guiding the development of discovery interfaces that will include music materials.
- Not just music specialists, but including vendors, programmers, system administrators, etc.

The MDR's target audience moves beyond music specialists to include those people who often design and control the systems we all use: vendors, programmers, system administrators, etc.

Focus

- Musical works
 - “Notated music” (scores)
 - “Performed music” (recordings)
- Not secondary literature (books/articles *about* music)

The MDR focuses on musical works, and their expressions and manifestations in scores and recordings, rather than secondary literature about music, because musical works present the most unique discovery needs.

Contents

- Music Discovery Requirements Document
- Appendix A. Compiled Details of Indexing and Display Requirements (Bibliographic/Descriptive): Index Focused version (spreadsheet)
- Appendix B. Compiled Details of Indexing and Display Requirements (Bibliographic/Descriptive): Tag Focused version (spreadsheet)
- Appendix C. MARC Bibliographic Record Mapping for Content and Carrier

The MDR consists of a main document plus 3 appendixes. The appendixes are designed to be practical: three spreadsheets containing mapping guidelines which came out of the committee members' own experiences and frustrations creating similar documents for our institutions' discovery implementations. Discovery systems' "default" indexing and display recommendations frequently appear to be guesses made by a programmer without a music background. Not surprisingly, errors are common. That's a major reason for the MDR's appendixes – to provide guidance to non-music people. So, if you don't think your vendor/system administrator/developers will read the whole document and appendixes – point them to the appendixes.

Outline

I. Introduction

II. Musical Works

- A. Introduction
- B. Titles
- C. Identifying Numbers
- D. Medium of Performance
- E. Musical Key/Range
- F. Dates
- G. Persons and Corporate Bodies
- H. Topical Subjects
- I. Genre/Form
- J. Geographic Area

III. Expressions and Manifestations

- A. Introduction
- B. Format: Content and Carriers
- C. Identifying Numbers

- D. Musical Presentation

- E. Edition

- F. Language

- G. Medium of Performance

- H. Musical Key/Range

- I. Dates

- J. Persons and Corporate Bodies

- K. Geographic Area

IV. Other Aspects of Music Discovery

- A. Introduction

- B. Authority Records

- C. Compilations

- D. Searching: Alphabetical and Keyword

- E. Enhancements: Third-party Content

- F. Music-Specific Interface/View

The MDR is based on FRBR, with section II focusing on attributes & relationships for musical works, and section III on attributes and relationships for expressions and manifestations. For each attribute or item, the MDR begins with a discussion of the needs for discovery and challenges to meeting those needs. This is followed with a summary recommendation and proposed best practices for indexing, display, and use in facets/limits. When applicable, relevant MARC authority fields are listed.

Music Attributes & Discovery: Two Examples

Format: Content and Carriers
Medium of Performance

As you saw in the outline, the Music Discovery Requirements covers a lot of ground. Today, we'll examine just two attributes, as examples. Both are problematic, but the first is relatively solvable while the second is more complex.

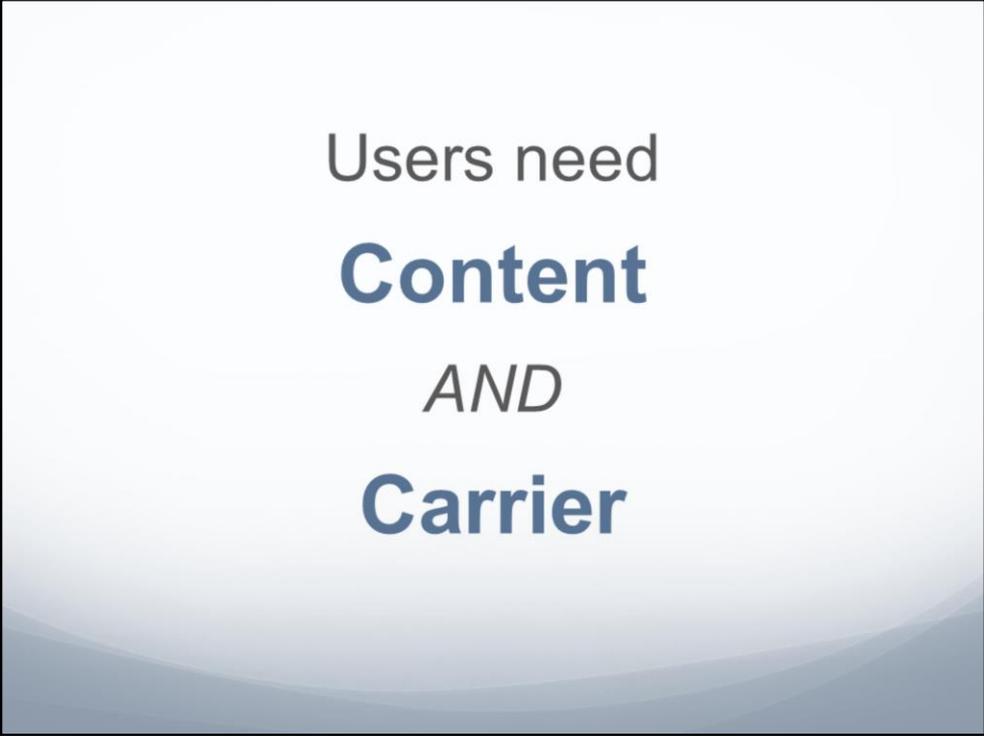
Format: Content & Carriers (MDR II.B)

First, format, or, in FRBR terminology, content and carrier.

Content and Carrier

- Content type: “a categorization reflecting the fundamental form of communication in which the content is expressed and the human sense through which it is intended to be perceived.” (RDA 6.9.1.1)
 - Ex.: notated music, performed music, text
- Carrier type: “categorization reflecting the format of the storage medium and housing of a carrier in combination with the type of intermediation device required to view, play, run, etc., the content of a resource.” (RDA 3.3.1.1)
 - Ex.: audio disc, audio cassette

I – and the Music Discovery Requirements - use FRBR terminology, not just because FRBR is integral to RDA, but because the vocabulary is so useful for talking precisely about these issues. Here are the FRBR definitions of content and carrier type. In common language: content type is what distinguishes between a score, a recording, and a book. Carrier type is a subcategory which distinguishes between, for example, a CD, an LP, and online audio.



Users need
Content
AND
Carrier

Music users need to search and sort by content type *and* by carrier type.

My experience with multiple systems has shown it is crucial to pay attention to this discovery need. The problem comes when vendors group content and carrier type into a single facet, making it impossible to, for example, find any kind of sound recording in one search, and then, in another search, find just CDs. I've even encountered a vendor whose default was to lump recordings and scores together under the generic term "music."

From MDR III.B Format: Content & Carrier

- User needs: find, identify, and select content type as well as specific carriers
- Problems with existing data formulation/encoding:
 - Ex.: RDA's "performed music, audio, audio disc"
- Proposes solutions:
 - MARC coding as best way
 - Detailed in Appendix 3

The MDR addresses content & carrier from a discovery interface perspective. After examining user needs, the MDR explores problems and possibilities given existing data formulation and encoding standards. For example, RDA's "performed music, audio, audio disc" is insufficient to distinguish between CDs and LPs.

Finally, the MDR proposes solutions for the current environment, suggesting MARC coding as the best way to facilitate searching and sorting by both content and carrier. In this particular case, appendix 3 details recommended mapping.

Facets & Limits

1.

Format

- All Formats (7,743)
- Music (5745)
 - CD (3196)
 - LP (774)
 - Cassette (453)
 - eMusic (219)
- Musical score (996)
 - Downloadable musical score (39)
- Video (358)
 - DVD (195)
 - VHS (108)
 - Film (9)
 - Bluray (7)
 - eVideo (3)
- Book (284)
 - eBook (17)
 - Thesis/dissertation (15)
 - Microform (4)

[Show more...](#)

2. Audio and Video Formats:

All Sound Recording Formats

- Audio cassettes
- CDs
- LPs
- 45 rpm

3. Recordings and scores

Recordings and/or Scores (587)

- Recordings (529)
- Scores (58)

[See More →](#)

Recording format

- CD (84)
- LP (79)
- Cassette (7)

[See More →](#)

1. WorldCat Local
2. University of Missouri system, III Millennium
3. University of Virginia, Blacklight

The MDR rarely cites specific systems, but today I've included examples (not endorsements), identifying the systems for those who might want to take a further look.

Here are a few examples of facets and limits which allow searching by both content type and specific carriers. They all do it a bit differently. #1 uses post-search facets in a hierarchical layout. #2 uses a similar hierarchy, but in a pre-search limit. #3 uses two completely separate facets.



In addition to limiting to specific content or carriers, users need to identify the content/carrier in results lists. Icons are frequently useful for this task, as shown here.

In summary: content & carrier problems are solvable, particularly if needed functionality is built into systems from the ground up. Though it is often problematic, systems exist which meet this need well. It is also an area where meeting music users' needs will help general users. The same infrastructure that allows searching for both "sound recording" and "CD" will allow searching for "book" (this would be any format, electronic or print) and "e-book."

Medium of Performance (MDR II.D)

Let's move on to the second example: medium of performance.

Currently: Medium of Performance

- AACR2
 - no separate attribute; some access via uniform titles; might be transcribed in titles or given in notes
- LCSH
 - but combined with genre/form
 - *Library of Congress Medium of Performance Thesaurus and Genre/Form Terms* will split out
- MARC21
 - may be coded in 048
- Classification
 - but infrequently applied to recordings
- RDA
 - a core element for identifying works & expressions

Unlike format, medium of performance is unique to music. That is, many kinds of materials have creators, titles, publishers, etc. But only music has a medium of performance. Therefore, general library standards often address it poorly, or not at all. We have many ways which “sort of” get at medium of performance, none that works really well. Using U.S. cataloging as an example, let’s consider how librarians have tried to provide medium of performance access, examining each method listed on this slide....

028	3	0	L.P.S. 61--L.P.S. 64 #b Lea Pocket Scores
028	2	0	50--53 #b Lea Pocket Scores
041	0		#g eng
045	2		#b d1800 #b d1826
048			sa02 #a sb01 #a sc01
050	4		M451.B4 #b U7
082	0	4	785.714
100	1		Beethoven, Ludwig van, #d 1770-1827.
240	1	0	Quartets #m strings
245	1	4	The 12 string quartets, complete in four volumes / #c Beethoven.
250			Urtext ed. (unedited).
260			New York : #b Lea Pocket Scores, #c 1955.
300			1 miniature score (4 v.) : #b facsim. ; #c 17 cm.
500			"The present edition is based on Breitkopf & Härtel's Gesamtausgabe (Complete Edition) of Beethoven's works ..."-V. 1, p. [ii].
505	0	0	#g v. 1. #t Quartet no. 1 in F major, op. 18, no. 1 ; #t Quartet no. 2 in G major, op. 18, no. 2 ; #t Quartet no. 3 in D major, op. 18, no. 3 ; #t Quartet no. 4 in C minor, op. 18, no. 4 ; #t Quartet no. 5 in A major, op. 18, no. 5 ; #t Quartet no. 6 in B major, op. 18, no. 6 -- #g v. 2. #t Three "Rasoumovsky" quartets. #t Quartet no. 7 in F major, op. 59, no. 1 ; #t Quartet no. 8 in E minor, op. 59, no. 2 ; #t Quartet no. 9 in C major, op. 59, no. 3 -- #g v. 3. #t Quartet no. 10 in E major, op. 74 ("Harp") ; #t Quartet no. 11 in F minor, op. 95 ("Serioso") ; #t Quartet no. 12 in E major, op. 127 ; #t Quartet no. 13 in B major, op. 130 -- #g v. 4. #t Quartet no. 14 in C minor, op. 131 ; #t Quartet no. 15 in A minor, op. 132 ; #t Quartet no. 16 in F major, op. 135 ; #t Quartet no. 17 in B major, op. 133 ("Grosse Fuge."
500			Publisher's nos.: L.P.S. no. 61-64.
500			Includes notes.
650	0		String quartets #v Scores.
655	6		Quatuors à cordes #v Partitions.

OCLC # 21452326 (some fields omitted)

...using this bibliographic record as an example. I've circled in red all the places in this record that try to get at medium of performance.

AACR2	
028	3 0 L.P.S. 61--L.P.S. 64 #b Lea Pocket Scores
028	2 0 50--53 #b Lea Pocket Scores
041	0 #g eng
045	2 #b d1800 #b d1826
048	sa02 #a sb01 #a sc01
050	4 M451.B4 #b U7
082	0 4 785.714
100	1 Beethoven, Ludwig van, #d 1770-1827.
240	1 0 Quartets #m strings
245	1 4 The 12 string quartets, complete in four volumes / #c Beethoven.
250	Urtext ed. (unedited).
260	New York : #b Lea Pocket Scores, #c 1955.
300	1 miniature score (4 v.) : #b facsim. ; #c 17 cm.
500	"The present edition is based on Breitkopf & Härtel's Gesamtausgabe (Complete Edition) of Beethoven's works ..."-V. 1, p. [ii].
505	0 0 #g v. 1. #t Quartet no. 1 in F major, op. 18, no. 1 ; #t Quartet no. 2 in G major, op. 18, no. 2 ; #t Quartet no. 3 in D major, op. 18, no. 3 ; #t Quartet no. 4 in C minor, op. 18, no. 4 ; #t Quartet no. 5 in A major, op. 18, no. 5 ; #t Quartet no. 6 in B major, op. 18, no. 6 -- #g v. 2. #t Three "Rasoumovsky" quartets. #t Quartet no. 7 in F major, op. 59, no. 1 ; #t Quartet no. 8 in E minor, op. 59, no. 2 ; #t Quartet no. 9 in C major, op. 59, no. 3 -- #g v. 3. #t Quartet no. 10 in E major, op. 74 ("Harp") ; #t Quartet no. 11 in F minor, op. 95 ("Serioso") ; #t Quartet no. 12 in E major, op. 127 ; #t Quartet no. 13 in B major, op. 130 -- #g v. 4. #t Quartet no. 14 in C minor, op. 131 ; #t Quartet no. 15 in A minor, op. 132 ; #t Quartet no. 16 in F major, op. 135 ; #t Quartet no. 17 in B major, op. 133 ("Grosse Fuge.")
500	Publisher's nos.: L.P.S. no. 61-64.
500	Includes notes.
650	0 String quartets #v Scores.
655	6 Quatuors à cordes #v Partitions.

OCLC # 21452326 (some fields omitted)

First, the title and uniform title, in fields 240 and 245, created according to AACR2. Under AACR2, medium of performance is sometimes used in the process of creating unique text strings -- uniform titles -- to identify musical works. But, medium of performance is not always required for uniform titles; broadly speaking, it is only recorded in generically titled works (like sonata, symphony, or quartet), not in distinctively titled works (like *Appalachian Spring* or *Die Winterreise*). In addition, a note about medium of performance might be added, if the medium was not apparent from the rest of the bibliographic record. The end result is that a human who has found a bibliographic record can determine the medium of performance, but the attribute is not optimized for computerized searching, since neither the location of the data nor the vocabulary are standardized.

MARC21
 may be coded in 048

028	3	0	L.P.S. 61--L.P.S. 64 #b Lea Pocket Scores
028	2	0	50--53 #b Lea Pocket Scores
041	0		#g eng
045	2		#b d1800 #b d1826
048			sa02 #a sb01 #a sc01
050	4		M451.B4 #b U7
082	0	4	785.714
100	1		Beethoven, Ludwig van , #d 1770-1827.
240	1	0	Quartets #m strings
245	1	4	The 12 string quartets, complete in four volumes / #c Beethoven.
250			Urtext ed. (unedited).
260			New York : #b Lea Pocket Scores, #c 1955.
300			1 miniature score (4 v.) : #b facsim. ; #c 17 cm.
500			"The present edition is based on Breitkopf & Härtel's Gesamtausgabe (Complete Edition) of Beethoven's works ..."-V. 1, p. [ii].
505	0	0	#g v. 1. #t Quartet no. 1 in F major, op. 18, no. 1 ; #t Quartet no. 2 in G major, op. 18, no. 2 ; #t Quartet no. 3 in D major, op. 18, no. 3 ; #t Quartet no. 4 in C minor, op. 18, no. 4 ; #t Quartet no. 5 in A major, op. 18, no. 5 ; #t Quartet no. 6 in B major, op. 18, no. 6 -- #g v. 2. #t Three "Rasoumovsky" quartets. #t Quartet no. 7 in F major, op. 59, no. 1 ; #t Quartet no. 8 in E minor, op. 59, no. 2 ; #t Quartet no. 9 in C major, op. 59, no. 3 -- #g v. 3. #t Quartet no. 10 in E major, op. 74 ("Harp") ; #t Quartet no. 11 in F minor, op. 95 ("Serioso") ; #t Quartet no. 12 in E major, op. 127 ; #t Quartet no. 13 in B major, op. 130 -- #g v. 4. #t Quartet no. 14 in C minor, op. 131 ; #t Quartet no. 15 in A minor, op. 132 ; #t Quartet no. 16 in F major, op. 135 ; #t Quartet no. 17 in B major, op. 133 ("Grosse Fuge."
500			Publisher's nos.: L.P.S. no. 61-64.
500			Includes notes.
650	0		String quartets #v Scores.
650	6		Quatuors à cordes #v Partitions.

OCLC # 21452326 (some fields omitted)

The MARC 048 field can be coded for instrumentation. For example, here we see sa02 |a sb01 |sc01 = music for string quartet. But not all libraries code 048, so it is not always present and only a few discovery systems have exploited the field. In a moment, We'll look at two interfaces which have exploited 048.

Classification
 but infrequently applied to recordings

028	3	0	L.P.S. 61--L.P.S. 64 #b Lea Pocket Scores
028	2	0	50--53 #b Lea Pocket Scores
041	0		#g eng
045	2		#b d1800 #b d1826
048			sa02 #a sb01 #a sc01
050	4		M451.B4 #b U7
082	0	4	785.714
100	1		Beethoven, Ludwig van, #d 1770-1827.
240	1	0	Quartets #m strings
245	1	4	The 12 string quartets, complete in four volumes / #c Beethoven.
250			Urtext ed. (unedited).
260			New York : #b Lea Pocket Scores, #c 1955.
300			1 miniature score (4 v.) : #b facsim. ; #c 17 cm.
500			"The present edition is based on Breitkopf & Härtel's Gesamtausgabe (Complete Edition) of Beethoven's works ..."-V. 1, p. [ii].
505	0	0	#g v. 1. #t Quartet no. 1 in F major, op. 18, no. 1 ; #t Quartet no. 2 in G major, op. 18, no. 2 ; #t Quartet no. 3 in D major, op. 18, no. 3 ; #t Quartet no. 4 in C minor, op. 18, no. 4 ; #t Quartet no. 5 in A major, op. 18, no. 5 ; #t Quartet no. 6 in B major, op. 18, no. 6 -- #g v. 2. #t Three "Rasoumovsky" quartets. #t Quartet no. 7 in F major, op. 59, no. 1 ; #t Quartet no. 8 in E minor, op. 59, no. 2 ; #t Quartet no. 9 in C major, op. 59, no. 3 -- #g v. 3. #t Quartet no. 10 in E major, op. 74 ("Harp") ; #t Quartet no. 11 in F minor, op. 95 ("Serioso") ; #t Quartet no. 12 in C major, op. 127 ; #t Quartet no. 13 in B major, op. 130 -- #g v. 4. #t Quartet no. 14 in C minor, op. 131 ; #t Quartet no. 15 in A minor, op. 132 ; #t Quartet no. 16 in F major, op. 135 ; #t Quartet no. 17 in B major, op. 133 ("Grosse Fuge."
500			Publisher's nos.: L.P.S. no. 61-64.
500			Includes notes.
650	0		String quartets #v Scores.
650	6		Quatuors à cordes #v Partitions.

OCLC # 21452326 (some fields omitted)

Classification is frequently a very useful way of getting at instrumentation. In the Library of Congress classification system, instrumentation is the primary organizing factor. However, classification numbers are code-like and thus better for facilitating shelf browsing than for facilitating computerized searching. Also, LC classification is not regularly used for recordings.

RDA & LCMPT

- RDA – recognized as an independent attribute
- *Library of Congress Medium of Performance Thesaurus* (LCMPT)
 - to retrieve music, as Library of Congress Subject Headings did now
 - to record RDA “Medium of Performance” attribute

Finally (finally!), RDA, following FRBR, has recognized Medium of Performance as its own, separately coded attribute. MARC21 field 382 has been defined to contain medium of performance. However, wide-scale US implementation of RDA has only just begun, and many questions remain, including:

- 382 is defined for both bibliographic and authority records: where will it be recorded?
- Second, the vocabulary is still being developed via the *Library of Congress Medium of Performance Thesaurus*. This vocabulary will replace LCSH.
- Finally, how will discovery interfaces actually fully exploit medium of performance data?

The Music Discovery Requirements addresses medium as follows:

First, it identifies medium of performance as an important attribute, something developers of library discovery interfaces often forget or ignore. Next, it analyzes and summarizes the current situation, as I’ve just done today, noting the importance of “recording medium in a way that permits machine actionable, granular description of expressions.”

Finally, it gives concrete recommendations for indexing and display of existing fields, given the current state of affairs.

Now, some real-life examples of medium of performance in discovery interfaces.

Music (5,418)
by (2,857)
Hathi Trust Digital Library (473)

Sort by Relevancy Show 20 per page Starred Items

All

1. [Sonatas \[electronic resource\]](#)

Author Beethoven, Ludwig van, 1770-1827
Format Online
Publication Date 1987
Online Versions Access online

Format
Online (7,334)
Sound Recording (4,145)
Musical Score (4,126)

Recordings and scores
Recordings and/or Scores
Recordings (10,795)
Scores (4,439)

Recording format
LP (2,124)
CD (1,861)
Cassette (206)

Instrument
Piano (3,602)
Violin (2,438)
Continuo (1,134)

Availability AVAILABLE Music (Circulation Desk)
Call Number CD25803 d 49

Browse by Instrument

Sort by: Number of Results · A-Z

Piano (3,602)	Bass clarinet (14)
Violin (2,438)	Woodwinds, Other (14)
Continuo (1,134)	Piccolo (13)
Violoncello (1,060)	Plucked Strings, Other (13)
Flute (752)	Viola d'amore (12)
Harpichord (517)	Larger ensemble, Other (9)
Viola (449)	Baritone horn (8)
Oboe (292)	Electronic, Other (8)
Organ (252)	English horn (8)
Clarinet (238)	Bowed Strings, Unspecified (7)

close

University of Virginia, Blacklight
http://search.lib.virginia.edu/music?q=sonatas&sort=date_received_facet+desc

The University of Virginia's Blacklight instance uses MARC 048 data to allow faceting by instrument. With proper programming, many systems could do this now. However, there is a data encoding problem with this approach due to the prevalence in music of manifestations with multiple expressions, particularly among sound recordings. That is, a CD often has several pieces on it, with differing instrumentations. Historically, we have not tied each instrumentation to the relevant work/expression, so, for example, narrowing to piano, and then to violin, would find a CD that had a piano and violin somewhere, but not necessarily playing together or without other instruments.

Chamber Music

Select as many or as few options as you wish. Clicking 'Find Music' below will bring up a list of musical recordings or scores available at University Libraries that meet all of your qualifications. Your search results will open in a new browser window. To return to this search screen, simply close the new window.

Format: All formats ▾

Search for items with

- This EXACT instrumentation** (and possibly others)
- INCLUDING these instruments** (and possibly others)
- EXACTLY 1** (Example: choose 2 parts and select 1 flute below to find duets part(s))

Common Instrumentation

Woodwind Quintet Brass Quintet String Quartet
 Piano Trio String Quintet

Woodwinds

0 ▾ Piccolo 0 ▾ Oboe 0 ▾ Clarinet 0 ▾ Bassoon
0 ▾ Flute 0 ▾ English Horn 0 ▾ Saxophone 1 ▾ Select other ▾

Brass

0 ▾ Horn 0 ▾ Cornet 0 ▾ Baritone 1 ▾ Select other ▾
0 ▾ Trumpet 0 ▾ Trombone 0 ▾ Tuba

Strings

0 ▾ Violin 0 ▾ Violoncello 0 ▾ Guitar 1 ▾ Select Other ▾
0 ▾ Viola 0 ▾ Double Bass 0 ▾ Harp 1 ▾ Select Other ▾

Keyboard

0 ▾ Piano 0 ▾ Organ 0 ▾ Harpsichord 1 ▾ Select Other ▾

Percussion Select instrument ▾ Select instrument ▾ Select instrument ▾

Electronic & Other

0 ▾ Tape 0 ▾ Synthesizer 0 ▾ Computer 1 ▾ Select Other ▾

Genre: Any ▾

Search for: _____ as Keyword ▾

Search terms are optional. **Note that results for search terms will relate to the same score or recording as the selected instrumentation and genre, but they may relate to a different piece. So choosing string quartet and typing in Mozart might result in a CD with a string quartet by Beethoven and a piano concerto by Mozart. If you are not finding what you're looking for, please contact the Music Collection for more help.

Media Finder for Chamber Music (Ball State)
<http://www.bsu.edu/libraries/librarycatalogs/chambermusic.htm>

Ball State's media finder also uses 048 data and gets around this problem somewhat with more sophisticated programming. Notice the options for "exact instrumentation" and "including these instruments."

As a side note, the Ball State Chamber Music Finder uses IAML medium of performance codes, which are more specific than the MARC medium of performance codes more commonly used in the United States.

The screenshot shows a search results page on the JW Pepper website. The search term is "danny boy" and 356 results were found. The results are sorted by Relevance. The left sidebar contains filters for Department, Exclusions, Preview Tools, Voicing, Instrument, and Accompaniments & Recordings. The main content area displays three results for "Danny Boy":

- Danny Boy** by Joseph Flummerfelt - Hinshaw Music, Inc. (Basic Library). Description: "Written specifically to showcase the beauty of good choral sound through the simplicity of the music and text, this a cappella setting by Joseph Flummerfelt of this well-loved folk song from the British Isles." Preview Tools table shows 1002560 SATB for \$1.40.
- Danny Boy** by Walter Todenhof - Northeastern Music Publications. Description: "The familiar folk song in an effective, straightforward setting for three Bb clarinets and bass clarinet." Preview Tools table shows 5967889 Clarinet Quartet-Mixed for \$15.00.
- Danny Boy (Build A Band)** by Andy Clark - C. I. Barnhouse Company. Description: "This all-time favorite setting has been adapted to be effectively performed by small bands or bands with incomplete instrumentation. With all the charm and lyricism of the original, it provides small bands an..." Preview Tools table shows two items: 10094323 Band Set & Score for \$50.00 and 10094324 Additional Score for \$5.00.

Below the screenshot, the text reads: JW Pepper <http://www.jwpepper.com/sheet-music/search.jsp?keywords=danny+boy>

Beyond libraries – but not far beyond: JW Pepper, a commercial vendor of sheet music, provides 3 facets that address medium of performance: “department” “voicing” and “instrument”. Obviously, medium is a very important attribute for Pepper’s customers, many of whom are also our music library users.

Alexander Street Press new “Music Online” interface (subscription database)

Alexander Street Press’ new “Music Online” interface brings us back to the library world. “Music Online” is a subscription resource for online audio, video, and scores (plus non-music resources). Notice how you can drill down through the facets using instrument families. Another innovative – at least for libraries – feature is that the facets available change based on your search, meaning that the music facets show up when people search for music, but won’ t be there to “clutter things up” in non-music searches.

Hochschule für Musik und Theater "Felix Mendelssohn Bartholdy" Leipzig
 MT-Katalog (VuFind) <https://katalog.hmt-leipzig.de/>

Finally, the MT-Katalog, which you'll be hearing more about later, provides an example of facets based on combined medium of performance and genre/form data.

In summary, Medium of Performance is a problematic attribute for discovery interfaces. Data is not uniformly present to easily support the discovery our users want, and the attribute is often ignored because it is unique to music.

Obviously, the Music Discovery Requirements covers many more attributes. I encourage you to read the document in its entirety and to pass it along, especially outside the music library community.

The Music Discovery Requirements is only a starting point to improve music discovery. The real benefit comes with implementation, and here we all come in. The Music Discovery Requirements is a guide for music librarians advocating for better interfaces, yes, but even more it's a guide for non-music people, so systems can be built from the ground up to consider music, rather than retrofitted. It's often said that "if you can catalog music, you can catalog anything" and I'd argue that a discovery system that works well for music will work well for other materials also. I urge you to bring up these important issues with your vendor/system administrator/developers. Especially with vendor-based products, it is important for vendors to hear about concerns from

many customers. Every successful implementation gives another example to point to, and more guidance to follow, and moves us closer to our ultimate goal: systems which easily, accurately connect our users to music information and materials.