

To: ALA/ALCTS/CaMMS/Committee on Cataloging: Description and Access (CC:DA)
From: Kelley McGrath, Online Audiovisual Catalogers (OLAC)
Subject: Addition of new Chapter 3 elements for optical disc data storage format and optical disc recording method

BACKGROUND:

Online Audiovisual Catalogers (OLAC) would like to revisit the portion of our 2012 proposal (6JSC/ALA/16) that addresses describing characteristics of optical discs in RDA. We would like to see RDA incorporate elements for two basic characteristics of optical discs that are important for use and preservation, which we will refer to as data storage format and recording method. RDA's lack of guidance for recording anything about these characteristics is an ongoing problem. Omissions or inaccuracies in recording this information prevent users from identifying resources that are usable with the equipment that is available to them.

PROPOSED SOLUTION:

OLAC thinks that it is best for RDA to take a pragmatic approach to describing these optical disc characteristics. The instructions in RDA should be easy for catalogers without strong technical backgrounds to understand and apply. They should describe resources at a level that is useful and easily understood by end users and public services staff. Although the JSC previously expressed a preference for referencing external vocabularies for this type of information, we have been unable to identify an appropriate vocabulary, or even a relevant vocabulary, for the concepts described in this proposal. We have consulted with Alex Duryee of AVPreserve to improve the accuracy of our terminology and identify the best and simplest ways to meet our goals. To this end we propose the addition of elements that describe the primary physical aspects of optical discs: Optical disc data storage format and Optical disc recording method.

We propose that only a short list of terms for formats that are currently in common use be maintained within the text of RDA. Less common or obsolete formats could be maintained, as needed, by other groups outside the core text of RDA. Shorter lists will be easier to maintain and should be sufficient for the needs of most general library collections. As discussed at the CC:DA meeting in June 2014, OLAC will maintain a somewhat longer list of terms that includes some obsolete formats. OLAC has created draft vocabularies for the proposed new elements, including the ones that we are not recommending for incorporation into the text of RDA, in the Metadata Registry Sandbox. These lists can be seen at <http://sandbox.metadataregistry.org/uri/opticalDiscPhysicalStandard> (for what we're currently calling Optical disc data storage format) and <http://sandbox.metadataregistry.org/uri/opticalDiscRecordingMethod> (now called Production method for optical disc).

Optical disc data storage format (e.g., DVD, CD, Blu-ray)

The type of data storage format (e.g., DVD, CD, Blu-ray) is important because users need to have a device that will read that type of disc. These are standards that refer to a physical type of optical disc with pits and lands of a certain size arranged in a certain pattern that need to be read by a certain

wavelength of laser. This data storage format can be considered a refinement of optical discs as a type of Storage Medium Format in the RDA/ONIX Framework value vocabularies.

It is important for RDA to include the common types of data storage formats used for commercially-available optical discs. There are only three in widespread distribution today: CD, DVD, and Blu-ray. We have also included Wii U, which is the most common proprietary game disc format. A short list of the most common optical disc data storage formats will be useful and accessible to the vast majority of catalogers, especially those who do not have a technical background. By using an open-ended list, additional disc types can be recorded as needed by institutions that collect more specialized or uncommon materials.

Optical disc recording method

The method of getting data on the disc (stamping or burning) and, to a lesser extent the specific type of recordable disc, such as CD-RW or DVD-R, are important because burned discs are less reliable. Older drives and players, in particular, may not read them, and they deteriorate faster than stamped discs. This information is particularly important for public services staff trying to troubleshoot patron complaints and for assessing the preservation needs of a collection.

Note that the above two elements, taken together, provide enough information about a disc to map into the RDA/ONIX Framework. As all but the most exotic optical discs adhere to well-documented standards set forth by the ISO and ECMA, the RDA/ONIX mappings can be trivially derived from these two elements. For example, knowing that an optical disc is a burned CD-RW is sufficient to derive a complete set of RDA/ONIX physical characteristics - its FixationMethod (heating), FixationTool (780 nanometer laser), IntermediationMethod (780nm laser), etc.

For Optical disc recording method, we propose that the primary distinction be whether the disc is stamped or burned. This fundamental distinction is the most important for access, troubleshooting and preservation. In addition, it is not always practical to determine the specific type of burned or stamped disc.

(1) Stamped discs are mass-produced from glass masters and reliably play in all types of players supporting that disc standard. Stamped discs are also known as pressed discs, prerecorded discs, replicated discs, and CD/DVD/BD-ROMs. This last usage is complicated because terms such as DVD-ROM are popularly used both to mean a read-only, stamped disc and to mean a disc that contains content other than DVD-audio or DVD video, such as software, data, or other kinds of files that usually require a general-purpose computer for use.

(2) Burned discs, or recordable discs, are discs where content is written with a laser on a layer of dye or metal alloy within the disc. Burned discs are also known as recorded discs or duplicated discs. In many cases, burned discs are easily identified by examination of the top and bottom of the disc.

There are many types of recordable discs. In many, but not all, cases, the type of recordable disc, such as DVD-R or CD-RW, is stated on the disc. DVD-R is the recordable disc most commonly encountered by libraries, but not all recordable discs are DVD-R. If the specific type of disc is known, we recommend that it also be recorded if it is thought important. The specific type of recordable disc often appears on the disc label or can usually be definitively determined with appropriate software, such as KProbe (<http://www.k-probe.com/>).

It was previously suggested on the CC:DA blog that this element could be incorporated as a sub-element under production method. We have renamed the element Production method for optical disc and taken this approach below.

Additions to the Glossary

Definitions have been provided for all the new elements and terms. All the definitions are loosely based on Wikipedia.

Proposed new element:

[To be numbered 3.x]¹

3.x Optical Disc Data Storage Format

3.x.1 Basic Instructions on Recording Optical Disc Data Storage Format

3.x.1.1 Scope

Optical disc data storage format ▼ is the set of technical specifications that describe the way that content is stored on and read from an optical disc, including storage capacity, laser wavelength used for reading the disc, and the size and arrangement of pits and lands on the disc.

3.x.1.2 Sources of Information

Use evidence presented by the resource itself (or on any accompanying material or container) as the basis for recording the optical disc data storage format. Take additional evidence from any source.

3.x.1.3 Recording Optical Data Storage Format

Record the optical disc data storage format if it can be readily ascertained and is considered important for identification or selection. Use an appropriate term from the following list:

Blu-ray Disc
CD
DVD
Wii U

If none of the terms in the list is appropriate, use another concise term to indicate the optical disc data storage format.

¹ Note: if the proposal is approved by CC:DA, we should recommend a placement where this new instruction might best belong. It may be reasonable to propose it as the new 3.21, immediately after the existing 3.20 (Equipment or System Requirement).

Proposed new sub-instruction:

3.9.4 Production Method for Optical Disc

3.9.4.1 Scope

Production method for optical disc ▼ is the method used to record data on an optical disc.

3.9.4.2 Sources of Information

Use evidence presented by the resource itself (or on any accompanying material or container) as the basis for recording the method used to record data on an optical disc. Take additional evidence from any source.

3.9.4.3 Recording Production Method for Optical Discs

For an optical disc, record the production method for optical discs if it can be readily ascertained and is considered important for identification or selection. Use an appropriate term from the following list:

burned disc
stamped disc

Optional Addition

Record the specific type of burned disc, in addition to the term *burned disc*, if considered to be important for identification or selection. Use an appropriate term from the following list:

BD-R
BD-RE
CD-R
CD-RW
DVD+R
DVD+RW
DVD-R
DVD-RAM
DVD-RW

If none of the terms in the list is appropriate or sufficiently specific, use another concise term to indicate the production method for an optical disc.

EXAMPLE

stamped disc

production method for a commercially-released Blu-ray Disc of a major motion picture

burned disc

production method for a commercially-released educational video on DVD

burned disc

CD-R

production method for a personal CD with Word documents donated to an archive

Record details of production method for optical disc as instructed at 3.9.4.4.

3.9.4.4 Details of Production Method for Optical Disc

Record details of production method for optical disc ▼ if considered important for identification or selection. For scope and sources of information, see 3.9.4.1 and 3.9.4.2.

In addition, a reference would be needed under the exceptions at 3.9.1.3:

Optical discs. For the method of production for optical discs, see 3.9.4.

Proposed additions to RDA Glossary:

[All definitions are loosely based on Wikipedia.]

BD-R: Blu-ray Disc Recordable; a type of recordable Blu-ray Disc that can be written to only once.

BD-RE: Blu-ray Disc Recordable Erasable; a type of recordable Blu-ray Disc that can be repeatedly written to, erased, and re-recorded.

BD-ROM: stamped disc ▼

Blu-ray Disc: A data storage format for a plastic optical disc that is 1.2 mm thick and usually 120 mm in diameter, which was officially released in 2006. Blu-ray discs are read with a 405 nm diode blue laser at 36 Mbits/s (1×). Disc capacities are 25 GB for single-layer discs, 50 GB for double-layer discs, and the specification leaves room for more layers in the future.

Blu-ray Disc Recordable: BD-R ▼

Blu-ray Disc Recordable Erasable: BD-RE ▼

burned disc: A disc containing data that is encoded by a writing laser, usually in a disc drive, that targets a layer made of dye or a metal alloy on the disc. Use for both record once and rewriteable discs. Also known as duplicated, recorded, or recordable discs.

CD: a data storage format for a plastic optical disc that is 1.2 mm thick and usually 120 mm in diameter, which first became commercially available in October 1982. CDs are read with a 780 nm wavelength (infrared and red edge) semiconductor laser at 1200 Kb/s (1×). Disc capacity is typically up to 700 MB or 80 minutes of audio.

CD-R: Compact Disc-Recordable; a type of recordable CD that can be written to only once.

CD-ROM: Stamped Disc ▼

CD-RW: Compact Disc-ReWritable; a type of recordable CD that can be repeatedly written to, erased, and re-recorded.

compact disc: CD ▼

Compact Disc-Recordable: CD-R ▼

Compact Disc-ReWritable: CD-RW ▼

details of production method for optical disc: Details of the method used to record data on an optical disc.

digital versatile disc: DVD ▼

digital video disc: DVD ▼

duplicated disc: Burned Disc ▼

DVD: A data storage format for a plastic optical disc that is 1.2 mm thick and usually 120 mm in diameter invented in 1995 and became commercially available in Japan in November 1996, the U.S. in March 1997, and later in other countries. DVDs are read with a 650 nm laser at 10.5 Mbit/s (1×). Disc capacities range from 4.7 GB (single-sided, single layer) to 17.08 GB (double-sided, double-layer).

DVD+R: A type of burned DVD that can be written to only once.

DVD+RW: A type of burned DVD that can be repeatedly written to, erased, and re-recorded.

DVD-R: A type of burned DVD that can be written to only once.

DVD-RAM: A type of burned DVD that can be repeatedly written to, erased, and re-recorded.

DVD-Random Access Memory: DVD-RAM ▼

DVD-ROM: stamped disc ▼

DVD-RW: A type of burned DVD that can be repeatedly written to, erased, and re-recorded.

optical disc data storage format: The set of technical specifications that describe the way content is stored on and read from an optical disc, including storage capacity, laser wavelength used for reading the disc, and the size and arrangement of pits and lands on the disc.

prerecorded disc: stamped disc ▼

pressed disc: stamped disc ▼

production method for optical disc: The method used to record data on an optical disc.

recordable disc: burned disc ▼

recorded disc: burned disc ▼

replicated disc: stamped disc ▼

stamped disc: A disc that is mass-produced by a machine that uses a glass mold and stamping process to produce pits and lands. These discs contain prerecorded content that is not recordable or writeable by the consumer. Also known as prerecorded, pressed, or replicated discs. The most common types of stamped discs are CD-ROM, DVD-ROM and BD-ROM.

Wii U: A data storage format for an optical disc designed for playback in Nintendo's Wii U game console.