NCPMDO

NC Preservation Metadata for Digital Objects

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Purpose

The Preservation Metadata for Digital Objects (PMDO) contains a list of preservation metadata fields that institutions creating or caring for digital objects might consider recording to help in the long-term access and management of their collections. Elements are mapped to the broader and more comprehensive PREMIS Data Dictionary for Preservation Metadata, to ensure interoperability and shareability.

Audience

The PMDO is meant to be a guidance document, not a mandate. It may be more useful for small to mid-sized institutions that may not have access to automated metadata creation or extraction processes. (For more information about automated metadata creation, please see **Section D**.)

History

The updated edition of this document was written by staff from the Digital Information Management Program at the Government and Heritage Library, State Library of North Carolina. This version addresses the metadata needs of not only digitized images, as the earlier edition did, but also other digitized formats and born-digital files.

Questions and comments may be directed to the staff of the Digital Information Management Program at digital.info@ncdcr.gov.

2007 edition by Katherine M. Wisser, Druscilla R. Simpson, and Peter E. Hymas

The original element set was adapted from "Metadata for Administration and Preservation of Digital Images (MAPDI)" prepared by Dr. Helen R. Tibbo and Claire Eager with assistance from a preservation metadata working group at the School of Information and Library Science for the State Library of North Carolina, Department of Cultural Resources, NC Exploring Cultural Heritage Online (ECHO) program through an LSTA Grant in September 2002. For more information on that project, please see http://www.archimuse.com/mw2003/papers/tibbo/tibbo.html.

STATE LIBRARY of NORTH CAROLINA

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I. INTRODUCTION

Digital preservation is a series of ongoing activities or processes that ensure long-term access to digital files. Some of these activities include validating that files are what they appear to be (for example, that the file format suffix –.jpg, .tif, etc. – is correct), that files remain virus free, and that multiple copies of files are stored in different geographic regions.[1]

Another important activity that increases the likelihood of long-term access to digital files is the creation of appropriate metadata. Metadata, in general, can be anything recorded about a file or object that helps to recognize, locate, describe, or otherwise manage it. "Preservation metadata" includes "rights metadata," which describes who owns and can use a particular file, and "technical metadata," which can describe things like the software used to create a file or the creation date.

This document's main goal is to guide institutions in the creation of preservation metadata for their digital files. It is also meant to assist in identifying the level of preservation metadata creation possible for them, taking into consideration available staffing and resources. Finally, it is the authors' hope that this document will influence institutions to develop a programmatic plan for creating preservation metadata for every digital file that has future value to the people of North Carolina.

A. What is preservation metadata?

Metadata, in general, can be anything recorded about a file or object that helps to recognize, locate, describe, or otherwise manage digital files. **Preservation metadata refers to metadata about an object that helps ensure long-term accessibility and management of that object.** As stated above, "preservation metadata" includes "rights metadata," which describes who owns and can use a particular file, and "technical metadata," which can describe things like the software used to create a file and creation date.

B. Why should we record preservation metadata?

Preservation metadata has become easier to create over the past few years but can still seem onerous for smaller institutions that may have only one person dedicated to the tasks of digitization or digital file archiving. Often, there is pressure to create or acquire and describe files quickly to show progress on a grant or impress the "folks in charge," leaving little time to consider long-term management issues.

[1] To read more about these activities, please see http://digitalpreservation.ncdcr.gov.

It may seem counterintuitive but omitting preservation metadata can be *more* costly to an institution in the long run. Preservation metadata can save time in the following situations:

- Easily and efficiently locating the preservation master within your storage environment
- Aggregating a group of files that may need some sort of maintenance action (like migration of a file format)
- Pulling together files whose rights requirements have changed
- Identifying a group of files created during a certain period of time when workflows or software may have been less sophisticated than they are now

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Recording preservation metadata, even minimally, can leave a much-needed audit trail for future professionals regarding how those files were created. And, as with all structured metadata, the existence of preservation metadata means machine-readable data for bulk processes like moving storage, migrating files, or reusing preservation masters to create access copies. Finally, it can also increase trust in your institution, which is proving that it takes its management of digital objects seriously.

Investing in preservation metadata can seem difficult to justify, because the payoff can be years away. However, without a programmatic approach to building digital collections that considers preservation activities like assigning preservation metadata, digital files that are currently accessible may require an even greater amount of time and money to make them available in the future.

C. What is the PMDO?

The Preservation Metadata for Digital Objects (PMDO) element set addresses the metadata needs for the preservation and long-term management of digital files. It neither addresses descriptive metadata elements such as those in Dublin Core, nor structural metadata such as TEI (Text Encoding Initiative) or EAD (Encoded Archival Description). Instead, the PMDO element set is meant to collect metadata beyond what is already being created using other standards.

Originally, the PMDO was developed to assist institutions with the collection of preservation metadata for scanned images and text. This updated version of the PMDO addresses what are commonly referred to as “born-digital” files, or files originally created on electronic devices, such as word processing and spreadsheet files, digital photographs, websites, and email.

The PMDO, like other element sets, is comprised of a series of *elements* into which data *values* are input. In that way, it is similar to Dublin Core. The PMDO elements are different from those in other metadata element sets and require implementers to create different data values.

There are 21 elements in the PMDO; some are required, others are recommended, and a few are optional. These and more element characteristics are discussed in **Section III**, below.

D. How can my institution implement the PMDO?

There are many considerations when beginning to work with a new metadata element set. We will address two of them here. The first is philosophical, *What is the very best my institution can do?*, and the second is practical, *What software do I use to create preservation metadata?*

While the answer to both questions will be as varied as the institutions that read this document, we will provide some starting points. Once an institution is comfortable with their level of implementation or software, it might consider moving to a stronger level of commitment to the preservation of its digital files.

What is the very best my institution can do?

The answer to this question is dependent on the infrastructure, staffing, and resources of the institution. To help institutions commit to a level of preservation metadata appropriate for their institution, we have categorized elements as **required**, **strongly recommended**, **recommended**, or **optional**. Required elements are the *minimum* that an institution should consider, adding on additional elements as it is able.

Because the PMDO elements are mapped[2] to the Library of Congress's PREMIS (PREservation Metadata: Implementation Strategies) standard, once an institution has begun creating metadata based on the PMDO it will, by default, be following Library of Congress standards for preservation metadata.

Regardless, it is best practice to ensure your metadata can be easily extracted in a structured format from the chosen software, such as xml, or comma- or tab-delimited files.

What software do I use to create preservation metadata?

The answer to this question is determined by available resources. An institution with a dedicated programmer might be able to build a robust metadata database. An institution with a single digital initiatives staffer may want to consider creating spreadsheets that contain both descriptive and preservation metadata. Regardless, it is best practice to ensure your metadata can be easily extracted in a structured format from the chosen software, such as xml, or comma- or tab-delimited files.

Each year, more and more software is developed to help with the automated extraction of metadata from files. Some of this metadata can be easily fed into the preservation metadata elements listed in the PMDO. Automated extraction can be a time saver, and is often considered a requirement when working with born-digital files created outside of the collecting institution.

A few open source tools that can help with automated extraction are listed below. These will be most useful for institutions with moderate to sophisticated technological infrastructure and expertise.

[2] Mapping metadata elements involves identifying and associated the elements from two or more schemes that have the same requirements and characteristics.

- DROID[3] – identifies file formats
- ExifTool[4] – reads, writes, and edits metadata in file headers
- FITS[5] – identifies, validates, and extracts technical metadata (includes ExifTool, DROID, and JHOVE)
- JHOVE[6] - identifies and validates file formats
- Xena[7] - identifies and converts file formats

Additional tools that can help with metadata extraction can be found on the Library of Congress' Digital Preservation website.[8]

E. Examples

To help understand what an institution may choose to record for preservation metadata, here are a few case studies.

Example 1: Historical society scanning a collection of 350 women's club photographs

This institution has asked a single staff member to scan and make this collection available online. All of the photos are the same size and will be scanned on the same scanner, so she is able to repeat many fields. Because this is their first digital collection, **she will be recording as much metadata as possible** to help develop future workflows.

Bit Depth:	8
Checksum:	SHA-1: D83FA38363E72A7B4F0AE7779B81C871D82057DA
Collection Source:	Betterton Women's Club Photograph Collection
Color Space:	RGB
Creation Hardware:	HP Scanjet 7777
Creation Software:	HP Scan Helper; Adobe Photoshop CS4
Digital Creation Date:	2013-02-01
Digital Creator:	Benson, Jane
Digital Object ID:	BWC_0001.tif
Extent:	3.46 MB
File Format:	image/tiff
File Location:	E:/archive/BWC/
Local Repository ID:	Betterton Historical Society
Original Object ID	BWC_0001.tif
Resolution:	600 dpi
Rights Statement:	This item is made available online with the permission of the copyright owner. Responsibility for making an independent legal assessment of an item and securing any necessary permissions ultimately rests with persons desiring to use the item.

[3] http://digital-preservation.github.com/droid/
[4] http://www.sno.phy.queensu.ca/~phil/exiftool/
[5] http://code.google.com/p/fits/
[6] http://jhove.sourceforge.net/
[7] http://xena.sourceforge.net/index.php
[8] http://www.digitalpreservation.gov/tools/

Example 2: Small local museum scanning a loaned postcard collection

A local collector has loaned a small museum his large pre-1923 postcard collection for an online exhibit. While the museum does not normally digitize items they do not own, they have agreed to this project as an effort of good faith with a committed supporter. They have agreed to scan almost 1,000 postcards in 3 weeks. Because of the short deadline, **the institution is going to collect minimal metadata.**

Checksum:	SHA-1: 2FD4E1C67A2D28FC ED849EE1BB76E7391B93EB12
Creation Hardware:	Epson 3490Y
Digital Creation Date:	2013-11-17
Digital Creator:	Fargo, Michael
Digital Object ID:	ambersoncollection_0439.tif
File Location:	localcollections/masterimages/
Rights Statement:	The Carolina Common Museum considers this item to be in the public domain according to U.S. copyright law (see Title 17, U.S.C.). Responsibility for making an independent legal assessment of an item and securing any necessary permissions ultimately rests with persons desiring to use the item.

Example 3: Medium-sized archive taking in a hard drive with a local author's writing

This archive has recently acquired a hard drive that contains over 400 short stories, poems, and articles. The archive has already experimented with **automated metadata extraction**, and will use several tools to help it populate its preservation metadata fields for this collection.

Checksum:	SHA-1: 53D09F3489C450748E1FD892C57ED6084325030C
Collection Source:	Jan Hebrecht Papers
Creation Software:	WordPerfect 10.0
Digital Creation Date:	2002-04-03
Digital Object ID:	20130113_hebrecht045_onmovingcolumbus.wpd
File Format:	application/wordperfect
File Location:	Preservation/manuscripts/MSS.2013.01.13/
Original Object ID	On Moving to Columbus final.wpd
Rights Statement:	This item is made available online with the permission of the copyright owner. Responsibility for making an independent legal assessment of an item and securing any necessary permissions ultimately rests with persons desiring to use the item.

II. PMDO ELEMENT SET: ELEMENTS AT A GLANCE

The following chart describes the elements that make up the PMDO element set. Each element has a *name*, and as discussed earlier in this document, contains some sort of value. The *Obligation* column defines whether an element is optional, recommended, strongly recommended, or required. Required values are colored gold, for easier identification. *Suggested Value Control* indicates whether to use a controlled vocabulary, a date, or an alphanumeric free text (also known as "natural language") value.

There are several new elements, many deprecated elements, and revised usage guidelines in the 2013 edition of the PMDO. Appendix A contains the original element chart with the changes indicated.

	Element name	Obligation	Suggested Value Control
1	Bit Depth	Strongly recommended	Controlled vocabulary
2	Checksum	Strongly recommended	None (free text)
3	Collection Source	Required	Controlled vocabulary
4	Color Space	Optional	Controlled vocabulary
5	Compression Degree	Recommended, if applicable	None (free text)
6	Compression Type	Strongly recommended, if applicable	Controlled vocabulary
7	Creation Hardware	Strongly recommended (digitized); Optional (born-digital)	Controlled vocabulary
8	Creation Software	Recommended (digitized); Strongly recommended (born-digital)	Controlled vocabulary
9	Digital Creation Date	Required	ISO 8601 Date-Time Format
10	Digital Creator	Required, when known	Controlled vocabulary
11	Digital Object ID	Required	None (free text)
12	Extent	Required	None (free text)
13	File Format	Required	Controlled vocabulary with Internet media types
14	File Location	Required	None (free text)
15	Local Repository ID	Strongly recommended	Controlled vocabulary
16	Original Object ID	Required, if applicable	None (free text)
17	Resolution	Required for static images	None (free text)
18	Revision Date	Strongly recommended, if applicable	ISO 8601 Date-Time Format
19	Revision History	Strongly recommended, if applicable	None (free text)
20	Rights Statement	Required	None (free text) or controlled vocabulary
21	Security	Optional	Controlled vocabulary

III. PMDO ELEMENT SET: ELEMENTS IN DETAIL

This section contains detailed information about each element within the PMDO, including the element's description, suggested input guidelines, and examples. Additionally, the relationship of each element to the entities in the Library of Congress's PREMIS Data Dictionary for Preservation Metadata[9] is supplied.

The PMDO contains 21 elements; only 11 are required, and another eight are recommended or strongly recommended. Some elements may be similar to those in an institution's existing descriptive metadata element set, such as "Rights" or "Extent." *Elements do not have to be repeated if the element intent and values for both the preservation and descriptive metadata are identical.* For example, if your descriptive metadata scheme already has a "Copyright Statement" element, and you would supply the same value for the "Rights Statement" element listed below, you may omit the required "Rights Statement" PMDO element.

Elements are organized alphabetically in the list below; they may be used in any order. If multiple examples are provided for a single element, each value is separated by a semi-colon (";").

1. *Bit Depth*

Obligation: Strongly recommended

Definition: Number of bits (1s and 0s) used to represent the smallest unit of information (such as a pixel) in an audio, video, or graphic data file.

Digital audio/video – Describes the number of bits of information recorded for each sample. A sample refers to a value or set of values at a point in time and/or space.

Digital image – The number of bits used to represent the color of a single pixel.

Input guidelines: Create a controlled vocabulary. Standard values may include:

Digital file type	Bit depth	This means
Bi-tonal	1 bit	Each pixel is either black or white
Grayscale	8 bit	Each pixel can be 1 of 256 shades of gray
Color	8 bit	Each pixel can be 1 of 256 shades of color
Color	24 bit	Each pixel can be 1 of 16.8 million shades of color (sometimes referred to as "millions of colors"). This is considered "true" color, and most color files are now created at 24 bit.
Audio	16 bit	Signal-to-noise ratio maximum of 96 dB
Audio	24 bit	Signal-to-noise ratio maximum of 144 dB

[9] http://www.loc.gov/standards/premis/

Repeatability: Not repeatable

Examples: 1; 8; 16; 24

PREMIS entities: 1.5 objectcharacteristics; 1.5.3 size

2. *Checksum*

Obligation: Strongly recommended

Definition: A checksum is a string of numbers and characters that result from a software program running an algorithm against a file's bits. The resulting string is almost 100% unique to that file. As long as the file doesn't change, the checksum will remain the same.

Input guidelines: Generate a checksum on a digital file. Record the type of algorithm used in a consistent way, then the checksum value exactly as it is generated by the utility.[10] Using the same type of algorithm consistently across all objects is recommended.

Repeatability: Not repeatable

Examples: SHA-1: 8b612f155a73c6acc57ffa56d05842c3808e685e; 491fa37f312184d0f8b926a08bb0e0a7 (MD5)

PREMIS entities: 1.5.2.1 messageDigest Algorithm; 1.5.2.2 messageDigest

3. *Collection Source*

Obligation: Required

Definition: Title of the organizational series or collection in which the *original* object is housed.

Input guidelines: Create a controlled vocabulary with the appropriate natural language title as supplied by the original object or created by the institution. Avoid most special characters (>, <, &, #, ?, =, +). Hyphens and underscores are OK.

Examples: Black Mountain College Publications; Johnstone H. Quinan Papers, 1905-1914

Repeatability: Not repeatable

PREMIS entity: 3.5 agentExtension

4. *Color Space*

Obligation: Optional

[10] Free software programs are available to "batch process" digital files so that the checksum can be run on many digital files at one time. A few can be found here: http://goo.gl/Lflb2.

Definition: A system for describing color using an underlying mathematical model. Also known as "color model."

Input guidelines: Create a controlled vocabulary of common color spaces, such as RGB (for scanners, cameras, and displays), CMYK (for color printing), and YUV (for TV/video).

Digitized files – Space can often be chosen during digitization.

Born-digital files – Will vary for born-digital files based on their format and intended use.

Repeatability: Not repeatable

Example: RGB

PREMIS entity: 1.5 objectcharacteristics

5. Compression Degree

Obligation: Recommended, if applicable

Definition: Compression degree describes the amount by which a file's data (and consequently file size) has been reduced, often resulting in a loss of quality.

Input guidelines: Record the compression ratio or amount. Ideally, preservation masters should remain uncompressed. [11]

Repeatability: Not repeatable

Examples: 20; 1:10; [blank = no compression]

PREMIS entity: 2.4 eventDetail

6. Compression Type

Obligation: Strongly recommended, if applicable

Definition: A shorthand method for describing the algorithm used to reduce the size of a file. Types differ between image, audio, video, and other file formats.

Input guidelines: Create a controlled vocabulary of all likely compression types.

Digitized files – Preservation masters should remain uncompressed.[12]

Born-digital files – PDF, .jpg, and .mp3 are a few examples of digital file types that may arrive in a repository already compressed.

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[11] One exception may be uncompressed digital video, which can take up large amounts of storage space. For more information see section 2.4 of the *California Digital Library Digital File Format Recommendations: Master Production Files,* http://www.cdlib.org/gateways/docs/cdl_dffr.pdf (accessed November 5, 2012).
[12] Ibid.

Digital file type	Example compression types
Images	LZW, PNG, GIF, JPG
Audio	MP3, Vorbis, TTA, MPEG-4, RealAudio
Video	MPEG-4, DivX, QuickTime, WMV, Sorenson, RealVideo, Cinepak

Repeatability: Not repeatable

Examples: JPG; MP3; WMV

PREMIS entity: 2.4 eventDetail

7. *Creation Hardware*

Obligation: Strongly recommended (*digitized files*); Optional (*born-digital files*)

Definition: The hardware used to create a digital file. Examples may be a scanner or a digital camera.

Input guidelines: Create a controlled vocabulary of all of the creation hardware in use. It is recommended that device make and model are included in the value.

Repeatability: Not repeatable

Examples: EPSON Expression 10000XL; I2S CopiBook RGB

PREMIS entities: 1.8.6 hardware;1.8.6.1 hwName

8. *Creation Software*

Obligation: Recommended (*digitized files*); Strongly recommended (*born-digital files*)

Definition: The software used to create the digital file.

Input guidelines: Create a controlled vocabulary of all of the creation software used. It is recommended that company name and software version are included in the value. Creation software may be unknown with born-digital files.

Repeatability: Repeatable

Examples: Camtasia Studio 8; Microsoft Word 2010

PREMIS entities: 1.5.5 creatingApplication;1.5.5.1 creatingApplicationName;1.5.5.2 creatingApplicationVersion

9. *Digital Creation Date*

Obligation: Required

Definition: Date of the creation of the *digital* file.

Digitized files – Use the date that the original, physical object was digitized.

Born-digital files – Use the creation date as expressed in the file's properties.

Input guidelines: This should be expressed in ISO 8601[13] date-time format (YYYYMMDD). Record year, month, and day, when available.

Repeatability: Not repeatable

Example: 20030201

PREMIS entity: 1.5.5.3 dateCreatedByApplication

10. Digital Creator

Obligation: Required, when known

Definition: The individual or organization responsible for the creation of the digital file.

Digitized files – the name of the individual(s) responsible for reformatting (scanning, audio transfer, etc.) the original object to digital

Born-digital files – the name and/or organization responsible for authoring, publishing, or creating a digital file

Input guidelines: Create a controlled vocabulary. For individuals, use the format "Last Name, First Name." Consider using Library of Congress authorities.[14]

Repeatability: Repeatable

Examples: Doe, Jane; Smith, John A., Jr.; University of North Carolina at Asheville. Dept. of Education

PREMIS entity: 3.2 agentName

11. Digital Object ID

Obligation: Required

Description: A unique identifier for the digital file generated by the institution.

Input Guidelines: Enter filename of the digital file. Should be an alphanumeric structure. Avoid most special characters (>, <, &, #, ?, =, +). Hyphens and underscores are OK. Must be unique within the institution.

[13] http://www.w3.org/TR/NOTE-datetime
[14] http://authorities.loc.gov/

Repeatability: Not repeatable

Examples: fhp_smithfamily_0921223; noi_card01465.tif

PREMIS entity: 1.1.2 objectIdentifierValue

12. Extent

Obligation: Required

Definition: Values that define the size, duration, or extent of a file. File size is required. Other values that may be included are total number of pages (multi-page items), aspect ratio (video), and playtime (audio or video).

Input guidelines: Include file size in kilobytes (KB), megabytes (MB), etc. Round to the nearest kilobyte or tenth of a megabyte. Record playtime in minutes or hours. Pages should be followed by a unit (p.).

Repeatability: Repeatable

Examples: 6,331 KB; 103 p.; 1 hr., 14 min.

PREMIS entity: 1.5 objectcharacteristics

13. File Format

Obligation: Required

Definition: A file's format contains information about how a computer should store, read, and interpret the file. While often the file format can be derived from the file extension, providing it as a separate element allows for much faster searching and indexing within your system.

Input guidelines: Controlled vocabulary with Internet media type (formerly "MIME" type) is suggested

Repeatability: Repeatable

Examples: application/pdf; audio/mp4

PREMIS entity: 1.5.4 format

14. File Location

Obligation: Required

Definition: The directory or folder address, either local or online, where the preservation master file is located

Input guidelines: For local directory addresses, include the entire directory structure up to, but not including, the name of the file. For online addresses, include the prefix "http" or "ftp," as appropriate. *This field will need to be updated if files are moved from one location to another.*

Repeatability: Not repeatable

Examples: \\archive\archive$\library\preservation_content\fhp\fhp_images_master; ftp://ftp.example.com/subdir1/a/

PREMIS entity: 1.7.1.2 contentLocationValue

15. Local Repository ID

Obligation: Strongly recommended

Definition: Identifies the party (institution, department, etc.) responsible for the object.

Input guidelines: Create a controlled vocabulary of institutional IDs and/or standardized institution names. Consider using Library of Congress authorities.[15]

Repeatability: Not repeatable

Examples: State Library of North Carolina. Government and Heritage Library; ncs [State Library of North Carolina's OCLC number]

PREMIS entities: 3.1 agentIdentifier; 3.1.2 agentIdentifierValue

16. Original Object ID

Obligation: Required, if applicable

Definition: The original file name of the object when it was submitted to or harvested by the repository.

Input guidelines: Required in the case of files collected by but not created by the repository. File name and format, as taken directly from the original file before the name is normalized to the Digital Object ID. May or may not be a unique name.

Repeatability: Not repeatable

Examples: untitled.xls; Meeting Minutes April.docx

PREMIS entities: 1.6 originalName

17. Resolution

Obligation: Required for static images

Definition: In general terms, image resolution is the granular detail of an image or its quality. It quantifies how close lines or pixels are to each other in order for the image to be visually interpreted or resolved correctly.

[15] http://authorities.loc.gov/

Input guidelines: Enter the resolution value in dots per inch (dpi).

Repeatability: Not repeatable

Example: 300 dpi

PREMIS entity: 1.5 objectcharacteristics

18. Revision Date

Obligation: Strongly recommended, if applicable

Definition: Date that a change to the digital file took place as described in *Revision History*.

Input guidelines: Use ISO 8601[16] date-time format (YYYYMMDD).

Repeatability: Repeatable

Example: 20121021

PREMIS entity: 2.3 eventDateTime

19. Revision History

Obligation: Strongly recommended, if applicable

Definition: Notes any changes to the digital file after its creation, such as migrations to other file formats, size changes, exposure changes, etc.

Input guidelines: Briefly describe the revision event using natural language.

Repeatability: Repeatable

Example: Migrated .pdf to .pdf/a

PREMIS entity: 1.10.1 relationshipType

20. Rights Statement

Obligation: Required

Definition: "Typically, rights information includes a statement about various property rights associated with the resource, including intellectual property rights.[17]"

Input guidelines: Create a rights statement for each potential intellectual property concern for items in your collections. A controlled vocabulary is recommended, if possible. Keep in mind that if an object has a copyright statement, permission may need to be obtained before it can be

[16] http://www.w3.org/TR/NOTE-datetime
[17] Dublin Core Element Set, "rights." http://dublincore.org/documents/2012/06/14/dcmi-terms/?v=terms#rights

posted publicly online. Also, even though an object may not have a rights statement, it could still be under copyright.

To help determine rights information:

Digitized files – Use the creation or publication date of the original, physical object.

Born-digital files – Use the creation date as expressed in the file's properties.

See the following websites for further guidance:

Copyright Term and Public Domain in the United States (Cornell University): http://copyright.cornell.edu/resources/publicdomain.cfm

Section 108 of the U.S. Copyright Code: Reproductions by Libraries or Archives for their Users, for Replacement, or for Preservation (American Library Association): http://librarycopyright.net/resources/spinner/

Creative Commons (for creating your own statement of rights or public domain): http://creativecommons.org/

Repeatability: Not repeatable

Examples from the State Library of North Carolina:

Items in the Public Domain: The State Library of North Carolina considers this item to be in the public domain according to U.S. copyright law (see Title 17, U.S.C.). Responsibility for making an independent legal assessment of an item and securing any necessary permissions ultimately rests with persons desiring to use the item.

State Government Documents: Public records and public information compiled by the agencies of North Carolina government or its subdivisions are the property of the people—G.S. 132, consequently the State Library of North Carolina considers this item to be in the public domain according to U.S. copyright law (see Title 17, U.S.C.). Responsibility for making an independent legal assessment of an item and securing any necessary permissions ultimately rests with persons desiring to use the item.

Copyrighted materials for which the State Library has permission to reproduce: This item is made available online with the permission of the copyright owner. The State Library of North Carolina is providing access to this item for educational and research purposes. Responsibility for making an independent legal assessment of an item and securing any necessary permissions ultimately rests with persons desiring to use the item. The written permission of the copyright holder(s) and/or other rights holders (such as for publicity or privacy rights) is required for the distribution, reproduction, or other use of protected items beyond that allowed by fair use or other statutory exemptions. Please contact the State Library if you need help identifying the rights holders(s).

PREMIS entities: 4.1.1.2 rightsStatementIdentifierValue; 1.13 linkingRightsStatementIdentifier

21. Security

Obligation: Optional

Definition: Any feature of a digital file intended to inhibit access, re/use, or migration, such as password protection, encryption, or watermarks. Usually related to rights management. While it is recommended that preservation master files not contain security measures, an institution may acquire a digital file with measures already in place.

Input guidelines: Create a controlled vocabulary of all inhibitors in use.

Repeatability: Repeatable

Example: DES [a type of encryption]; Password protected; Visible watermark

PREMIS entity: 1.5.6.1 inhibitorType

APPENDIX A: REVISIONS TO ELEMENTS IN THE PMDO, VERSION 2007

Deprecated elements are in bold. In some cases, 2007 elements were deprecated due to their presence in descriptive metadata schemas. In other cases, elements were deprecated because they are burdensome, especially for increasingly common mass digitization programs.

Institutions that implemented elements that are now deprecated may retain those elements if desired.

Element Category 2007	Element name 2007	Element name 2012
	Digital Object ID	Digital Object ID
	Title of Original	**Deprecated** – covered by descriptive metadata
	Title of Digital	**Deprecated** – covered by descriptive metadata
Identifying the Digital Object	Local Repository ID	Local Repository ID
	Collection Source	Collection Source
	Project ID	**Deprecated** – covered by descriptive metadata
Creation of the Digital Object	Digital Creation Date	Digital Creation Date
	Digital Creator	Digital Creator
	Capture Hardware	Creation Hardware
	Capture Hardware Accessories	**Deprecated**
	Capture Software	Creation Software
	Capture Software Settings	**Deprecated**
	Manipulation Software	**Deprecated**
	Manipulation Software Settings	**Deprecated**
	Resolution	Resolution
	Compression	**Deprecated**
	Compression Type	Compression Type

	Compression Degree	Compression Degree
	Dimensions	**Deprecated**
	Bit Depth	Bit Depth
	Color Space	Color Space
	Watermark	Security
	File Format	File Format
	Purpose	**Deprecated**
	Checksum	Checksum
Revision of the Digital Object	Revision Date	Revision Date
	Revision History	Revision History
Rights Management	Copyright Ownership	Rights Statement
	Creation Date of Source	**Deprecated**