Preservation Metadata Dictionary

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Introduction

In the Preservation Metadata Dictionary V 1.2 (PMD) the Netherlands Institute for Sound and Vision has summarized the definitions of preservation metadata, a combination of a variety of existing standards, to best serve the needs of the institute as an audiovisual archive. Preservation metadata include the categories of technical metadata and provenance metadata. Parts of the descriptive metadata are also included in the category preservation metadata, namely the attributes needed to identify a digital object. The fourth category of preservation metadata are the rights metadata.

This dictionary contains the possible selection and definition of all metadata used in recording the digital preservation process at Sound and Vision. In the PMD, the attributes are defined that can be allocated to each digital object (audio, video, film, text, photograph) ingested in the Digital Archive. This includes both technical metadata attributes of a file and attributes describing actions ('events'), results of those actions ('outcomes') and their associated 'agents' (responsible organization, software or person. After all, these are the data that are required to provide the Digital Archive, its depositors and its users evidence of the digital provenance of a digital object, and hence its authenticity. The Dictionary also contains rights attributes that must be structurally related to a digital object. These rights relate not only to (re)use rights, but also preservation rights. The collection attributes in the Preservation Metadata Dictionary V1.2 are based among others on the standards PBCore, the Library of Congress VideoMD and AudioMD, PREMIS, NARA reVTMD and the ANSI/NISO Z39.87 Data Dictionary Technical Metadata for Digital Still Images. The Dictionary also contains a section for the Persistent Identifiers.

In its current form, the Preservation Metadata Dictionary V1.2 is used at Sound and Vision as a reference document for the gradual identification, standardization and implementation of this category of metadata in the actual workflow and systems. This function is expressed in two concrete applications: the newly purchased Media Asset Management System (MAM), to be rolled out in 2016, logs and stores the outcome of the file quality control as technical preservation metadata attributes defined in the PMD. We are currently using the PMD for a completeness check of the processual and technical metadata that will be logged into the new MAM. The PMD serves as an overview of all metadata that may be involved in audio-visual preservation. Based on the outcome of this analysis the PMD can be adjusted and expanded. Instead of a reference document, version 2.0 of the PMD could become a truly normative PMD to be used in the context of Sound and Vision.

The second application is the use of the technical attributes in the PMD as a possible list of so-called significant properties and transformational migration properties. It is essential that these properties be identified, to be able to check after the event whether the most important properties of a digital object have remained intact following a migration, so that its authenticity can be demonstrated. The PMD V1.2 is not a static document. Updates are made when important internal or external developments (e.g. coming from the developing archival practice, or from a new release of one of the international standards the dictionary is based on) require a change or an addition to the attributes.

By publishing the current version of the PMD, Sound and Vision hopes to contribute to the discussion and development of best practices with regards to the application of preservation metadata standards.

Attribute of	Object Category	Name	Definition	Value type Text/Numeric/Date/Binary	Obligation	Repeatable	Data Constraint	Values allowed, or link to CV-list.	Notes	METS category	Link to Schema
Moving Image Audio Photo	F	**instantiationMediaType**	General, high level: sound recording, moving image, still image	Text	M	NR	CV	For example, see: http://metadataregistry.org/concept/list/vocabulary_id/135.html See also: http://dublincore.org/usage/meetings/2004/10/2004-03-15.DCMIType-sas.html		techMD	PBCore 2.0 pbcoreInstantiation <instantiationMediaType>
Moving Image Audio	F B	**duration**	The elapsed time of the entire item or track in playback	Text	M	NR	Structured form.			techMD	LC VideoMD 2.0 fileDataType and trackDataType <duration> LC AudioMD 2.0 audioInfoType <duration> NARA reVTMD Object and Track Containers <duration>
Moving Image Audio	F B	**language**	This section provides the name of the language or languages of the content of the item. The content may be written, spoken, or sung.	Text	M	R	CV	See for example: http://lcweb.loc.gov/standards/iso639-2/langhome.html or http://www.sil.org/iso639-3/		techMD	LC VideoMD 2.0 fileDataType and trackDataType NARA reVTMD Object and Track Containers <language>
Moving Image Audio	F B	**dataRate**	Also known as bit rate; the rate at which data is presented within the codec. Data rate of the compressed data over time expressed in bytes per second.	Numeric	M	NR	None			techMD	LC Video and AudioMD 2.0 fileDataType and trackDataType <dataRate> NARA reVTMD Object and Track Containers <dataRate>
Moving Image Audio	F B	**dataRateMode**	Indicates whether the stream data has been processed to achieve a fixed (constant) or variable bit rate.	Binary	M	NR	CV	Allowed values (LC): Fixed; Variable.		techMD	Library of Congress VideoMD 2.0 fileDataType and trackDataType variableRateType <dataRateMode> LC AudioMD 2.0 fileDataType <dataRateMode> NARA reVTMD object and track containers dataRate <mode>
Moving Image	F B	**timecodeInitialValue**	Starting value for timecode.	Text	M	NR	Structured form.			techMD	Library of Congress VideoMD 2.0 fileDataType and trackDataType timecodeInfo <timecodeInitialValue> NARA reVTMD Object and Track containers <timecode>
Moving Image	F B	**timecodeRecordMethod**	Method for recording timecode on the video source item					See also: http://rucore.libraries.rutgers.edu/open/projects/openmic/index.php?sec=guides&sub=metadata&pg=t_time-code	RDW :There could be a controlled vocabulary here, as there are a few common types: VITC, LTC, ATC, burnt-in. http://en.wikipedia.org/wiki/Timecode#Video_and_film_timecode	techMD	Library of Congress VideoMD 2.0 fileDataType and trackDataType timecodeInfo <timecodeRecordMethod> NARA reVTMD Object and Track containers timecode <recordMethod>
Moving Image	F B	**timecodeRecordType**	Type of timecode recorded on video source item, e.g., SMPTE dropframe, SMPTE nondropframe, etc..							techMD	Library of Congress VideoMD 2.0 fileDataType and trackDataType timecodeInfo <timecodeRecordType> NARA reVTMD Object and Track containers timecode <type>
Moving Image Audio Photo	F B	**use**	Use of the digital video file, e.g. Preservation Master, Access Copy, Preview, etc								Library of Congress VideoMD and AudioMD 2.0 fileDataType <use> NARA reVTMD object and track containers <use>

Attribute of	Object Category	Name	Definition	Value type Text/Numeric/Date/Binary	Obligation	Repeatable	Data Constraint	Values allowed, or link to CV-list.	Notes	METS category	Link to Schema
Moving Image Photo	F B	**color**	Indicates the overall color, grayscale, or black and white nature of a media item, as a single occurrence or combination of occurrences in or throughout the media item.	Text	M	NR	CV	Value options LC: B&W Color Grayscale B&W with grayscale sequences B&W with color sequences Grayscale with B&W sequences Grayscale with color sequences Color with B&W sequencesColor with grayscale sequences Other		techMD	Library of Congress VideoMD 2.0 fileData Type <color> NARA reVTMD object and track containers <color>
Moving Image Photo	F B	**colorSpace**	Designates the color model of the decompressed image data. A list of the video color channels. (D.Rice)	Text	M	NR	CV	See NISO-Mix element for examples: White is zero ; Black is zero ; RGB ; CMYK ; YCbCr etc. D.Rice: Y,U, and V; R, G, and B; greyscale; or any of the above plus alpha channels.	Wikipedia : a color model with no associated mapping function to an absolute color space is a more or less arbitrary color system with no connection to any globally understood system of color interpretation. Adding a certain mapping function between the color model and a certain reference color space results in a definite "footprint" within the reference color space. This "footprint" is known as a gamut, and, in combination with the color model, defines a new color space. For example, Adobe RGB and sRGB are two different absolute color spaces, both based on the RGB model. can be generated from MediaInfo; D.Rice: mediainfo will presume the colorspace based on what else it can determine about the codec	techMD	NISO-MIX DD 2006 7. Basic Image Information 7.1 Basic Image Characteristics 7.1.3. PhotometricInterpretation 7.1.3.1 <colorSpace>
Moving Image Photo	F B	**pixelsHorizontal**	The width, in pixels, of the video/picture frame	Numeric	M	NR	Integer			techMD	Library of Congress VideoMD 2.0 fileDataType and trackDataType frame <pixelsHorizontal> NARA reVTMD object and track containers frame <pixelsHorizontal> NISO DD 2006 7.0 Basic Image Characteristics <imageWidth>
Moving Image Photo	F B	**pixelsVertical**	The height, in pixels, of the video/picture frame	Numeric	M	NR	Integer			techMD	Library of Congress VideoMD 2.0 fileDataType and trackDataType frame <pixelsVertical> NARA reVTMD object and track level frame <pixelsVertical> NISO DD 2006 7.0 Basic Image Characteristics <imageHeight>
Moving Image	F B	**PAR**	The aspect ratio in which the video was produced Wikipedia: The aspect ratio of the pixels themselves is known as the Pixel Aspect Ratio (PAR)	Text	M	NR	CV	Example values: 1:1 2:1 See: http://en.wikipedia.org/wiki/Pixel_aspect_ratio	L Boch: It happens that the image width and height don't have that ratio! :o (the display ratio) That means that something among decoder, player, screen device has to correct the shape of the pixel in order to provide the wished display aspect ratio. That correction is given by the sample_aspect_ratio, which is the same as pixel_aspect_ratio.	techMD	Library of Congress VideoMD 2.0 fileDataType and trackDataType frame <PAR> NARA reVTMD object and track level frame <PAR>
Moving Image	F B	**DAR**	The desired aspect ratio for the image on screen.	Text	M	NR	CV	Example values: 4:3 16:9	L.Boch: The Display Aspect Ratio is how the the image is intended to be presented to the human viewer (for correct presentation of the picture). It happens that the image width and height don't have that ratio! :o VideoMD: present as a ratio or decimal such as 4/3 or 6/9 or 1.33333 Suggested CV: 4:3; 4:3 (16:9 letterbox); 4:3 (16:9 anamorphic); 16:9; 5:5.3; 7:3 (Panavision or Cinemascope); 2.35:1; 1.85:1 See: http://rucore.libraries.rutgers.edu/open/projects/openmic/index.php?sec=guides&sub=metadata&pg=t_frame	techMD	Library of Congress VideoMD 2.0 fileDataType and trackDataType frame <DAR> NARA reVTMD object and track level frame <DAR>

Attribute of	Object Category	Name	Definition	Value type Text/Numeric/Date/Binary	Obligation	Repeatable	Data Constraint	Values allowed, or link to CV-list.	Notes	METS category	Link to Schema
Moving Image	F B	**frameRate**	The number of frames per second at which the video source was captured.	Numeric	M	NR	Integer			techMD	Library of Congress VideoMD 2.0 fileDataType and trackDataType <frameRate> NARA reVTMD object and track level <frameRate>
Moving Image	F B	**sound**	To indicate if there is sound in video file	Binary	M	NR	CV	Ja; Nee of: Yes; No		techMD	Library of Congress VideoMD 2.0 fileData Type <sound> NARA reVTMD object and track level <sound>
Moving Image Audio	B	**bitsPerSample**	The size of a digital video/audio sample in bits	Numeric	O	NR	CV				Library of Congress VideoMD 2.0 trackData Type <bitsPerSample> LC AudioMD 2.0 fileDataType <bitsPerSample> NARA reVTMD track level <bitsPerSample>
Moving Image	B	**bitsPerPixelsStored**	The number of bits per overall pixel, not bits per channel in each pixel.	Numeric	O	NR	CV				Library of Congress VideoMD 2.0 trackData Type <bitsPerPixelsStored> NARA reVTMD track level <bitsPerPixelsStored>
Moving Image	F B	**sampling**	The sampling format of a moving image object, as expressed by luminance-chrominance ratio.	Text	M	NR	CV	Example values VideoMD: 4:2:0, 4:2:2, 2:4:4. Pbcore Sampling rate: http://metadataregistry.org/concept/list/vocabulary_id/132.html	Suggested CV: 4:1:1; 4:2:0; 4:2:2; 4:4:4; other. See: Sampling size http://rucore.libraries.rutgers.edu/open/projects/openmic/index.php?sec=guides&sub=metadata&pg=t_vid-sampl	techMD	Library of Congress VideoMD 2.0 fileDataType and trackDataType <sampling> NARA reVTMD track container <sampling>
Moving Image Audio	B	**codecName**	Name of the compression algorithm used on audio or video data stream	Text	M	NR	CV	http://metadataregistry.org/concept/list/vocabulary_id/156.html	Rutgers CV: For Item Type "MovingImage": BMP; Conexant YUV 4:1:1 (Y41P, CXY1); Conexant YUV 4:2:0; Conexant YUV 4:2:2 (CPLA, CXY2); IRAW; RAW; YUVP; YV12; YV16; CorePNG; H.264 (MPEG-4 AVC, MPEG-4 Part 10); Huffyuv; Lagarith; LCL; MJPEG2000; MSU; TSCC; AVS; Blackbird FORscene; Cinepak; DV (IEC 61834); Dirac; Firebird Original FORscene; H.261; H.263; MPEG-4 ASP; H.264 (MPEG-4 AVC, MPEG-4 Part 10); Indeo 3/4/5; KVCD; MJPEG (Motion JPEG); MPEG-1 Video; MPEG-2 Video; MPEG-4 ASP; MPEG-4 AVC; VP3; VP6; VP7 (TrueMotion S); Pixlet; RealVideo; Snow Wavelet Codec; Tarkin; Ogg-Theora; VC-1 SMTPE; Windows Media Video; ASF; WAX [source: rulib] For Item Type "Sound": ATRAC; Advanced Audio Codec (AAC); AC3; ALAC; MPEG-1, Layer 3 (MP3); ACELP; CELP; A-law; μ-law; MDCT; Fourier Transform; FLAC; WavPack; Shorten; Speex; Ogg Vorbis; Windows Media Audio; Musepack [source:rulib]	techMD	Library of Congress Video and Audio MD 2.0 trackDataType codec <name> NARA reVTMD track container codec <name> RuCore/AES Bit Rate Reduction Codec <codecName>
Moving Image Audio	B	**codecVersion**	Version (or subtype) of the compression algorithm used on audio or video data stream							techMD	Library of Congress VideoMD 2.0 trackDataType codec <version> NARA reVTMD track container codec <version> RuCore/AES Bit Rate Reduction Codec <codecVersion>
Moving Image Audio	B	**codecQuality**	Impact of the compression on quality e.g. lossless or lossy.	Text	M	NR	CV	Example values: Lossy; Lossless	Mediainfo generates this Harvard Univ Libraries refers to it as Codec Quality	techMD	Library of Congress Video and Audio MD 2.0 trackDataType <quality> NARA reVTMD track container codec <quality> RuCore/AES Bit Rate Reduction Codec <codecQuality>

Attribute of	Object Category	Name	Definition	Value type Text/Numeric/Date/Binary	Obligation	Repeatable	Data Constraint	Values allowed, or link to CV-list.	Notes	METS category	Link to Schema
Moving Image Audio Photo	F B	**compressionRatio**	designates the ratio of the compressed file size to the original file size as the result of the use of a compressionScheme	Numeric	O	NR		Example: 10 = 10:1 compression	Designates the ratio of compressed file size to original file size as a result of the use of a compression scheme. For purposes of recording this number, the original file size is considered to be 1, so only the first half of the ratio (expression compression) will be recorded.	techMD	Library of Congress VideoMD 2.0 trackDataType <compressionRatio> NARA reVTMD track container <compressionRatio> NISO-MIX DD 2006 Basic Digital Object Information 6.6 Compression 6.6.1 <compressionRatio>
Moving Image Audio	F B	**endianness**	The order in which a sequence of bytes are stored in computer memory. Used to indicate whether the file is little-endian or big-endian order.	Binary	M	NR	CV	Allowed values: Little endian; Big endian. http://rucore.libraries.rutgers.edu/open/projects/openmic/index.php?sec=guides&sub=metadata&pg=t_byte-ord		techMD	Library of Congress Video and AudioMD 2.0 trackDataType codec <endianness> NARA reVTMD object and track container codec <endianness>
Moving Image	F B	**scanType**	The temporal scanning structure of the video object.	Text	M	NR	CV	interlaced; progressive (= non-interlaced)	Typical analog NSTC video is interlaced. HD and digital formats can be either interlaced or progressive, often indicated by the notation of the video resolution (480i is interlaced, 720p is progressive). See: http://rucore.libraries.rutgers.edu/open/projects/openmic/index.php?sec=guides&sub=metadata&pg=t_frame	techMD	Library of Congress VideoMD 2.0 trackDataType codec Type <scanType> NARA reVTMD object and track container codec
Moving Image	F B	**scanOrder**	Vocab: Top Field First	Text	M	NR	CV	Suggested values: Top field first; Bottom field first. See: http://www.transcoding.org/transcode?Interlacing	Mediainfo generates this and PP extractor	techMD	Library of Congress VideoMD 2.0 codec Type <scanOrder> NARA reVTMD object and track container codec <scanOrder>
Moving Image Audio	F B	**channelCount**	Number of audio or video channels, e.g., 1, 2, 4, 5, etc	Numeric	M	NR	Integer			techMD	Library of Congress AudioMD 2.0 audioInfo Type <numChannels> NARA reVTMD object and track container codec <channelCount>
Moving Image Audio	F	**alternativeModes**	Identifies equivalent alternatives to the primary visual, sound or textual information that exists in a media item. These are modes that offer alternative ways to see, hear, and read the content of a media item.	Text	M	R	None		Examples: 'Subtitle in French,' 'OpenCaption in Arabic.'	techMD	PBCore 2.0 pbcoreInstantiation <alternative Modes>
Moving Image Audio	B	**annotation**		Text	M	NR	None			techMD	NARA reVTMD track container annotation PBCore 2.0 pbcoreEssenceTrack <essenceTrackAnnotation>
Moving Image	F B	**signalFormat**	Identify a larger technical system/standard or overarching media architecture under which various media formats exist, e.g., NTSC is a system/standard under which many video formats exist.	Text	M	NR	CV	See: http://en.wikipedia.org/wiki/Analog_television#Standards and http://en.wikipedia.org/wiki/Digital_television	maybe not needed if everything is PAL? Not used by EBU. Depends on exchange outside Europe.	techMD	Library of Congress VideoMD 2.0 trackDataType signalFormat NARA reVTMD track container signalFormat PBCore 2.0 pbcoreInstantiation <instantiationStandard> pbcoreessenceTrack <essenceTrackStandard>
Audio	F B	**soundField**	To describe the audio track configuration. Used to express the arrangement or audio tracks e.g. 'stereo', '2+1', 'surround', 'surround (7+1)'	Text	M	NR?	CV		Indicates aural space arrangement of the sound recording, e.g., monaural, stereo, joint stereo, surround sound DTS 5.1, etc.	techMD	Library of Congress AudioMD 2.0 audioInfo Type <soundField>
Audio	F B	**soundChannelMap**	Information about the channel configuration, e.g., mapping the audio channel to their intended aural position/loudspeakers.	Text	M	NR?	Comma as separator for each loudspeaker.	Value example: 1=left_front, 2=right_front, 3=center, 4=left_	Information about the channel configuration. AudioMD: The values represent parseable compound metadata using commas as separators.	techMD	Library of Congress AudioMD 2.0 audioInfo Type <soundChannelMap>
Audio	F B	**samplingFrequency**	For a media item (specifically audio), the descriptor essenceTrackSamplingRate measures How Often data is sampled when information is digitized. For a digital audio signal, the sampling rate is measured in kilohertz and generally the higher the sampling rate, the greater the fidelity.	Numeric	M	NR	Integer		Expressed in Khz.	techMD	Library of Congress AudioMD 2.0 fileData Type <samplingFrequency>

Attribute of	Object Category	Name	Definition	Value type Text/Numeric/Date/Binary	Obligation	Repeatable	Data Constraint	Values allowed, or link to CV-list.	Notes	METS category	Link to Schema
Audio	F B	**wordSize**	Indicates how many bytes are used to represent a single audio sample.	Numeric	M	NR	Integer			techMD	Library of Congress AudioMD 2.0 filedata Type <wordSize>
Audio	F B	**audioBlockSize**	size of an audio block (frame or sample) in bytes	Numeric	M	NR	Integer			techMD	Library of Congress AudioMD 2.0 filedataType <audioBlockSize>
Audio	F B	**firstSampleOffset**	Location of the first valid sound byte in the file	Numeric	M	NR	Integer			techMD	Library of Congress AudioMD 2.0 filedata Type <firstSampleOffset>
Audio	F B	**firstValidByteBlock**	Location of the first valid sound byte in the block	Numeric	M	NR	Integer			techMD	Library of Congress AudioMD 2.0 filedata Type <firstValidByteBlock>
Audio	F B	**byteOrder**	The order of bit significance in a byte from left to right. i.e. 0-least-to-most, 1-most-to-least, 2-mixed-endianess	Numeric	M	NR	Integer			techMD	Library of Congress AudioMD 2.0 filedata Type <byteOrder>
Photo	F B	**samplingFrequencyPlane**	a data element that designates the reference plane location for which xSamplingFreq and ySamplingFreq are designated	Numeric	M	NR	Positive integer	1=camera/scanner focal plane 2=object plane 3=source object plane		techMD	NISO-MIX DD 2006 9. Image Assessment Metadata 9.1 Spacial Metrics <samplingFrequencyPlane>
Photo	F B	**samplingFrequencyUnit**	a data element that specifies the unit of measurement in which xSamplingFreq and ySamplingFreq are designated	Numeric	M	NR	Positive integer	1=no absolute unit of measurement 2=inch 3=centimeter	Value=1 is used for images that have a non-square aspect ratio but no meaningful absolute dimensions. More detail in NISO-MIX dictionary.	techMD	NISO-MIX DD 2006 9. Image Assessment Metadata 9.1 Spacial Metrics <samplingFrequencyUnit>
Photo	F B	**xSamplingFrequency**	a data element that specifies the number of pixels per samplingFrequencyUnit in the image width	Numeric	M	NR	Positive integer		With fields ySamplingFrequency and samplingFrequencyUnit, xSamplingFrequency specifies the dimensions (scale) of the printed image.	techMD	NISO-MIX DD 2006 9. Image Assessment Metadata 9.1 Spacial Metrics <xSamplingFrequency>
Photo	F B	**ySamplingFrequency**	a data element that specifies the number of pixels per samplingFrequencyUnit in the image length	Numeric	M	NR	Positive integer		With fields xSamplingFrequency and samplingFrequencyUnit, ySamplingFrequency specifies the dimensions (scale) of the printed image.	techMD	NISO-MIX DD 2006 9. Image Assessment Metadata 9.1 Spacial Metrics <xSamplingFrequency>
Photo	F B	**bitsPerSampleValue**	a data element that designates the number of bits per component for each pixel	Numeric	M	NR	Positive integer			techMD	NISO-MIX DD 2006 9. Image Assessment Metadata 9.2 ImageColorEncoding 9.2.1 bitsPerSample <bitsPerSampleValue>
Photo	F B	**samplesPerPixel**	a data element that designates the number of color components per pixel	Numeric	M	NR	Positive integer			techMD	NISO-MIX DD 2006 9. Image Assessment Metadata 9.2 ImageColorEncoding <samplesPerPixel>
Moving Image Audio Photo		**1.0 Object Entity**	The Object entity aggregates information about a digital object held by a preservation repository and describes those characteristics relevant to preservation management.								PREMIS 2.2
Moving Image Audio Photo	R F B		Container element for holding a persistent identifier should be used, but the particular identifier scheme is an implementation specific decision.	Text	M	R	Container		Each data object held in the preservation repository must have a unique identifier to relate it to descriptive, technical, and other metadata. Recommended practice is for repositories to use identifiers automatically created by the repository as the primary identifier in order to ensure that identifiers are unique and usable by the repository. Externally assigned identifiers can be used as secondary identifiers in order to link an object to information held outside the repository (hence repeatable). The objectIdentifier is mandatory if the preservation repository stores and manages objects at that level (i.e., representation, file, bitstream). More detail in PREMIS.		
Moving Image Audio Photo	R F B	**1.1.1 objectIdentifierType**	A designation used to uniquely identify the object within the preservation repository system in which it is stored.	Text	M	NR	CV	Examples: DLC; DRS; hdl:4263537 NISO: [content management system] or [MARC organization code]	Identifier values cannot be assumed to be unique across domains; the combination of objectIdentifierType and objectIdentifierValue should ensure uniqueness. The type of the identifier may be implicit within the repository as long as it can be explicitly communicated when the digital object is disseminated outside of it. More detail in PREMIS.	techMD	PREMIS 2.2 Object Entity objectIdentifier <objectIdentifierType> NISO-MIX DD 2006
Moving Image Audio Photo	R F B	**1.1.2 objectIdentifierValue**	The value of the objectIdentifier.	Text	M	NR	None		Examples for R: 0000000312 ; for F: IU2440; WAC1943.56; AMNH; CD269/CD269/70/10; 596.PCD ; for B: IU2440-1 ; IU2440-2.	techMD	PREMIS 2.2 Object Entity objectIdentifier <objectIdentifierValue> NISO-MIX DD 2006

Attribute of	Object Category	Name	Definition	Value type Text/Numeric/Date/Binary	Obligation	Repeatable	Data Constraint	Values allowed, or link to CV-list.	Notes	METS category	Link to Schema
Moving Image Audio Photo	R F B	**1.2 objectCategory**	The category of object to which the metadata applies.	Text	M	NR	CV	Example values used in this schema: Representation File Bitstream	Preservation repositories are likely to treat different categories of objects (representations, files, and bitstreams) differently in terms of metadata and data management functions. A filestream should be considered a file.	techMD	PREMIS 2.2 Object Entity <objectCategory>
Moving Image Audio Photo	R F	**1.3 preservationLevel**	Container element for holding information indicating the decision or policy on the set of preservation functions to be applied to an object and the context in which the decision or policy was made.	Text	O	R	Container		Some preservation repositories will offer multiple preservation options depending on factors such as the value or uniqueness of the material, the "preservability" of the format, the amount the customer is willing to pay, etc. The context (may be assigned by the repository or requested by the depositor and submitted as metadata) surrounding the choice of a particular preservation option for an object may also require further explanation. More detail in PREMIS.		
Moving Image Audio Photo	R F	**1.3.1 preservationLevelValue**	A value indicating the set of preservation functions expected to be applied to the object.	Text	M	NR	CV	Example values for R: bit-level; full; 0; 1; 2. For File: bit-level; full; 0; fully supported with future migrations.	Some preservation repositories will offer multiple preservation options depending on factors such as the value or uniqueness of the material, the "preservability" of the format, the amount the customer is willing to pay, etc. More detail in PREMIS.	techMD	PREMIS 2.2 Object Entity preservationLevel <preservationLevelValue>
Moving Image Audio Photo	R F	**1.3.2 preservationLevelRole**	A value indicating the context in which a set of preservation options is applicable. Repositories may assign preservationLevelValues in different contexts which must be differentiated, and may need to record more than one context	Text	O	NR	CV	Example values: requirement; intention; capability.	Repositories may assign preservationLevelValues in different contexts which must be differentiated, and may need to record more than one context. It is good practice to specify preservationLevelRole for clarity even if the repository only assigns preservationLevelValue in one sense or context. If more than one preservationLevel is recorded, preservationLevelRole should always be supplied. If more than one sense or context needs to be expressed for the same object, (e.g. both the "requirement" and "capability" are recorded), separate preservationLevel containers should be used. This optional semantic unit qualifies the sense or context in which the preservationLevelValue in the current preservationLevel container is applied. For example, a repository may have a legislated obligation to "fully preserve" object X (which is of format F) but is presently only capable of preserving objects of format F at a "bit-level". The repository may need to record both the required or intended level of preservation (e.g. preservationLevelRole="requirement") and the current capability (e.g. reservationLevelRole="capability"). More detail in PREMIS.	techMD	PREMIS 2.2 Object Entity preservationLevel <preservationLevelRole>
Moving Image Audio Photo	R F	**1.3.3 preservationLevelRationale**	The reason a particular preservationLevelValue was applied to the object.	Text	O	R	None		Application of a particular preservationLevelValue may require justification, especially if it differs from that usually applied according to repository policy. Examples: user pays, legislation, defective file, bit-level preservation only available for this format More detail in PREMIS.	techMD	PREMIS 2.2 Object Entity preservationLevel <preservationLevelRationale>
Moving Image Audio Photo	R F	**1.3.4 preservationLevelDateAssigned**	The date, or date and time, when a particular preservationLevelValue was assigned to the object.	Date	O	NR	Structured form.		The preservationLevel applicable to an object is expected to be reviewed and changed over time, in response to changes in repository preservation requirements, policies, or capabilities relevant to the object. The date that the current preservationLevelValue was assigned aids review of decisions.	techMD	PREMIS 2.2 Object Entity preservationLevel <preservationLevelDateAssigned>
Moving Image Audio Photo	R F B	**1.4 SignificantProperties**	Container element for holding **characteristics** of a particular object subjectively determined to be important to maintain through preservation actions. **Objects** that have the same technical properties may still differ as to the properties that should be preserved for future presentation or use. **Listing** significant properties implies that the repository plans to preserve these properties across time and requires them to acceptably survive preservation action; for example, to be maintained during emulation or after format migration. It also implies that the repository would note when preservation action results in modification of significant properties.	Text	O	R	Container		For example, some repositories may define significant properties for objects **related to facets** of content, appearance, structure, behavior, and context. Examples of facet:detail pairs in this case could include: significantPropertiesType = "content" significantPropertiesValue = "all textual content and images" significantPropertiesType = "behavior" significantPropertiesValue = "editable" Significant properties may pertain to all **objects of a certain class** (for example for all PDF files). On the other hand, for example for media art, the significant properties may be unique to each individual object. Illustration of **subjectiveness** of Significant Properties: Future migrations of a TIFF image may require optimization for line clarity or for color; the option chosen would depend upon a curatorial judgment of the significant properties of the image. More detail in PREMIS.		

Attribute of	Object Category	Name	Definition	Value type Text/Numeric/Date/Binary	Obligation	Repeatable	Data Constraint	Values allowed, or link to CV-list.	Notes	METS category	Link to Schema
Moving Image Audio Photo	R F B	**1.4.1 significantPropertiesType**	The aspect, facet, or attribute of an object about which significant properties are being described.	Text	O	NR	None		Repositories may choose to describe significant properties based on a particular aspect or attribute of an object. Examples: content, structure, behavior. This semantic unit is optional and may be used as part of a facet:detail pair with significantPropertiesValue.	techMD	
Moving Image Audio Photo	R F B	**1.4.2 significantPropertiesValue**	Description of the characteristics of a particular object subjectively determined to be important to maintain through preservation actions.	Text	O	NR	None		If facet:detail pairs are used, the content of significantPropertiesValue should describe the significant properties of object relevant to the aspect, facet, or attribute declared in the significantPropertiesType with which it is paired. See for examples: 1.4 Notes. If facet:detail pairs are not used, significantPropertiesValue may be used to freely describe any characteristic of an object. significantPropertiesValue is not repeatable. Multiple significant properties should be described in separate, repeated significantProperties container units.	techMD	
Moving Image Audio Photo	R F B	**1.4.3 significantPropertiesExtension**	A container to include semantic units defined outside of PREMIS for significant properties.	Text	O	R	Container		It is recommended to give information about the metadata used in significantPropertiesExtension including date the metadata was created, status of the metadata, internal linking IDs , type of metadata used and its version, message digest and message digest algorithm of the metadata, and type of identifier for external metadata links. More detail in PREMIS.		
Moving Image Audio Photo	F B	**1.5 objectCharacteristics**	Technical properties of a file or bitstream that are applicable to all or most formats.	Text	M	R	Container		There are some important technical properties that apply to objects of any format. Detailed definition of format-specific properties is outside the scope of this Data Dictionary, although such properties may be included within objectCharacteristicsExtension. More detail in PREMIS.		
Moving Image Audio Photo	F B	**1.5.1 CompositionLevel**	An indication of whether the object is subject to one or more processes of decoding or unbundling.	Text	M	NR	Integer	Example values: 0, 1, 2.	A file or bitstream can be subject to multiple encodings that must be decoded in reverse order. Hence, numbering goes lowest to highest (first encoded = 0). 0 is base object; 1-n are subsequent encodings. Use 0 as the default if there is only one compositionLevel. More detail in PREMIS.	techMD	PREMIS 2.2 Object Entity objectCharacteristics <compositionLevel>
Moving Image Audio Photo	F B	**1.5.2 Fixity**	Container element for holding information used to verify whether an object has been altered in an undocumented or unauthorized way.	Text	O	R	Container		To perform a fixity check, a message digest calculated at some earlier time is compared with a message digest calculated at a later time. If the digests are the same, the object was not altered in the interim. Recommended practice is to use two or more message digests calculated by different algorithms. (Note that the terms “message digest” and “checksum” are commonly used interchangeably. However, the term “checksum” is more correctly used for the product of a cyclical redundancy check (CRC), whereas the term “message digest” refers to the result of a cryptographic hash function, which is what is referred to here.) More detail in PREMIS.		
Moving Image Audio Photo	F B	**1.5.2.1 messageDigestAlgorithm**	The specific algorithm used to construct the message digest for the digital object.	Text	M	NR	CV	Example values for F: MD5; Adler-32; HAVAL; SHA-1; SHA-256; SHA-384; SHA-512; TIGER; WHIRLPOOL.		techMD	PREMIS 2.2 Object Entity objectCharacteristics Fixity <messageDigestAlgorithm> NISO-MIX DD 2006
Moving Image Audio Photo	F B	**1.5.2.2 messageDigest**	The output of the message digest algorithm.	Text	M	NR	None			techMD	PREMIS 2.2 Object Entity Fixity <messageDigest> NISO-MIX DD 2006
Moving Image Audio Photo	F B	**1.5.2.3 messageDigestOriginator**	The agent that created the original message digest that is compared in a fixity check.	Text	O	NR	None		If the calculation of the initial message digest is treated by the repository as an Event, this information could be obtained from an Event record. The originator of the message digest could be represented by a string representing the agent (e.g., “NRS” referring to the archive itself) or a pointer to an agent description (e.g., “A0000987” taken here to be an agentIdentifierValue). More detail in PREMIS.	techMD	PREMIS 2.2 Object Entity objectCharacteristics Fixity <messageDigestOriginator> NISO-MIX DD 2006

Attribute of	Object Category	Name	Definition	Value type Text/Numeric/Date/Binary	Obligation	Repeatable	Data Constraint	Values allowed, or link to CV-list.	Notes	METS category	Link to Schema
Moving Image Audio Photo	F B	**1.5.3 Size**	The size in bytes of the file or bitstream stored in the repository. to indicate the storage requirements or file size of a digital media item. As a standard, express the file size in bytes. -use attribute 'unit of measurement'	Numeric	O	NR	Integer		Size is useful for ensuring the correct number of bytes from storage has been retrieved and that an application has enough room to move or process files. It might also be used when billing for storage. Defining this semantic unit as size in bytes makes it unnecessary to record a unit of measurement. However, for the purpose of data exchange the unit of measurement should be stated or understood by both partners.	techMD	PREMIS 2.2 Object Entity objectCharacteristics <Size> NISO-MIX DD 2006 <fileSize>
Moving Image Audio Photo		**1.5.4 Format**	Container element for holding the identification provided, whether by name or pointer into a format registry, should be sufficient to associate the object with more detailed format information.	Text	M	R	Container		The format of a file or bitstream should be ascertained by the repository on ingest. Even if this information is provided by the submitter, directly in metadata or indirectly via the file name extension, recommended practice is to independently identify the format by parsing the file when possible. If the format cannot be identified at the time of ingest, it is valid to record that it is unknown, but the repository should subsequently make an effort to identify the format, even if manual intervention is required. More detail in PREMIS.	techMD	
Moving Image Audio Photo	F	**1.5.4.1 formatDesignation**	Container element for holding an identification of the format of the object.	Text	O	NR	Container		For any given file or bitstream, the most specific format identified by the repository should be recorded. A restricted or modified version of a format is considered more specific than the format; for example, BWF is more specific than WAVE. If a file or bitstream conforms to more than one format of equal specificity, each should be recorded in separate format containers.	techMD	
Moving Image Audio Photo	F	**1.5.4.1.1 formatName**	A designation of the format of the file or bitstream.	Text	M	NR	CV	See for examples: http://metadataregistry.org/conceptprop/search?concept_term=format&commit=Search+Vocabularies	For unidentified formats, formatName may be recorded as "unknown". NISO-MIX: the most specific format name should be used. If file is valid TIFF and valid GEOTIFF, use GEOTIFF.	techMD	PREMIS 2.2 Object Entity objectCharacteristics Format formatDesignation <formatName> NISO-MIX DD 2006
Moving Image Audio Photo	F	**1.5.4.1.2 formatVersion**	The version of the format named in formatName.	Text	O	NR	None		Many authority lists of format names are not granular enough to indicate version, for example, MIME Media types. If the format is versioned, formatVersion should be recorded. It can be either a numeric or chronological designation.	techMD	PREMIS 2.2 Object Entity objectCharacteristics Format formatDesignation <formatVersion> NISO-MIX DD 2006
Moving Image Audio Photo		**1.5.4.2 formatRegistry**	Container element that identifies and/or gives further information about the format by reference to an entry in a format registry.	Text	O	NR	Container		If central format registries are available to the preservation repository, they may provide an excellent way of referencing detailed format information. Either formatDesignation or at least one instance of formatRegistry is required. More detail in PREMIS.	techMD	
Moving Image Audio Photo	F	**1.5.4.2.1 formatRegistryName**	RegistryName: A Designation identifying the referenced Format registry.	Text	M	NR	None		This can be a formal name, internally used name, or URI.	techMD	PREMIS 2.2 Object Entity objectCharacteristics Format formatRegistry <formatRegistryName> NISO-MIX DD 2006
Moving Image Audio Photo	F	**1.5.4.2.2 formatRegistryKey**	RegistryKey: The unique key used to reference an entry for this Format in A Format registry.	Text	M	NR	None			techMD	PREMIS 2.2 Object Entity objectCharacteristics format formatRegistry <formatRegistryKey> NISO-MIX DD 2006
Moving Image Audio Photo	F	**1.5.4.2.3 formatRegistryRole**	RegistryRole: The purpose or expected use of the registry.	Text	O	NR	CV	Example values for File: validation profile ; specification.	The same format may be defined in different registries for different purposes. If multiple registries are recorded, this semantic unit can be used to distinguish among them.	techMD	PREMIS 2.2 Object Entity format formatRegistry <formatRegistryRole>
Moving Image Audio Photo	F	**1.5.4.3 formatNote**	Additional information about format.	Text	O	R	None		Qualifying information may be needed to supplement format designation and registry information or to record a status for identification. Examples for File: tentative identification disjunction; multiple format identifications found.	techMD	PREMIS 2.2 Object Entity objectCharacteristics format <formatNote>

Attribute of	Object Category	Name	Definition	Value type Text/Numeric/Date/Binary	Obligation	Repeatable	Data Constraint	Values allowed, or link to CV-list.	Notes	METS category	Link to Schema
Moving Image Audio Photo	F B	**1.5.5 creatingApplication**	Container element for holding information about the creating application, including the version of the application and the date the file was created.	Text	O	R	Container		Can be useful for problem solving purposes. If the object was created by the repository, assignment of creating application information should be straightforward. If the object was created outside the repository, it is possible this information could be supplied by the depositor. It might also be extracted from the file itself; the name of the creating application is often embedded within the file. More detail in PREMIS.		
Moving Image Audio Photo	F B	**1.5.5.1 creatingApplicationName**	A designation for the name of the software program that created the object.	Text	O	NR	None		The creatingApplication is the application that created the object in its current format, not the application that created the copy written to storage.	techMD	PREMIS 2.2 Object Entity objectCharacteristics creatingApplication <creatingApplicationName>
Moving Image Audio Photo	F B	**1.5.5.2 creatingApplicationVersion**	The version of the software program that created the object.	Text	O	NR	None			techMD	PREMIS 2.2 Object Entity objectCharacteristics creatingApplication
Moving Image Audio Photo	F B	**1.5.5.3 dateCreatedByApplication**	The actual or approximate date and time the object was created.	Date	O	NR	Structured form.		Use the most precise date available. See Notes 2,3. More detail in PREMIS.	techMD	PREMIS 2.2 Object Entity objectCharacteristics creatingApplication <dateCreatedByApplication>
Moving Image Audio Photo	F B	**1.5.5.4 creatingApplicationExtension**	A container for creating application information using semantic units defined external to PREMIS.	Text	O	R	Container		For more granularity or use of externally defined semantic units, extensibility is provided. More detail in PREMIS.		PREMIS 2.2 Object Entity objectCharacteristics
Moving Image Audio Photo	F B	**1.5.6 Inhibitors**	Container element for holding features of the object intended to inhibit access, use, or migration.	Text	O	R	Container		Format information may indicate whether a file is encrypted, but the nature of the encryption also must be recorded, as well as the access key. More detail in PREMIS. Is the watermarking referred to in the Ketenafspraak Dec 2011, chpt 8.3.10	techMD	PREMIS 2.2 Object Entity objectCharacteristics Reference once determined inhibitors in use
Moving Image Audio Photo	F B	**1.5.6.1 inhibitorType**	The inhibitor method employed.	Text	M	NR	CV	Example values for F: DES; PGP; Blowfish; Password protection.	Common inhibitors are encryption and password protection. When encryption is used the type of encryption should be specifically indicated, that is, record “DES”, not “encryption”.	techMD	PREMIS 2.2 Object Entity objectCharacteristics Inhibitors <inhibitorType>
Moving Image Audio Photo	F B	**1.5.6.2 inhibitorTarget**	The content or function protected by the inhibitor.	Text	O	R	CV	Example values for F: All content Function: Play Function: Print	If not supplied, assume that the target is the content of the object.	techMD	PREMIS 2.2 Object Entity objectCharacteristics Inhibitors <inhibitorTarget>
Moving Image Audio Photo	F B	**1.5.6.3 inhibitorKey**	The decryption key or password.	Text	O	NR	None		The key should be provided if known. However, it is not advisable to actually store the inhibitorKey in plain text in an unsecure database.	techMD	PREMIS 2.2 objectCharacteristics Object Entity Inhibitors <inhibitorKey>
Moving Image Audio Photo	F B	**1.5.7 objectCharacteristicsExtension**	A container to include semantic units defined outside of PREMIS.	Text	O	R	Container		objectCharacteristicsExtension is used for additional object characteristics not covered by PREMIS, for instance format specific metadata that is defined externally. It is not a replacement for units specified in PREMIS. More detail in PREMIS. Not yet determined if we will use this container to hold all our technical metadata.	techMD	PREMIS 2.2 objectCharacteristics Object Entity
Moving Image Audio Photo	R F	**1.6 originalName**	The name of the object as submitted to or harvested by the repository, before any renaming by the repository.	Text	O	NR	None		This is the name of the object as designated in the Submission Information Package (SIP). More detail in PREMIS.	digiprovMD	PREMIS 2.2 Object Entity <originalName>
Moving Image Audio Photo	F B	**1.7 Storage**	Container element for holding information about how and where a file is stored in the storage system. It is necessary for a repository to associate the contentLocation with the storageMedium.	Text	O	R	Container		Although this semantic unit is mandatory, both of its subunits are optional. At least one subunit (i.e. either contentLocation or storageMedium) must be present or both may be used. More detail in PREMIS.		PREMIS 2.2
Moving Image Audio Photo	F B	**1.7.1 contentLocation**	Container element for holding Information needed to retrieve a file from the storage system, or to access a bitstream within a file.	Text	O	NR	Container		If the preservation repository uses the objectIdentifier as a handle for retrieving data, contentLocation is implicit and does not need to be recorded. More detail in PREMIS.		PREMIS 2.2
Moving Image Audio Photo	F B	**1.7.1.1 locationType**	The means of referencing the location of the content.	Text	M	NR	CV	Example values for File: URI; hdl; NTFS; EXT3. Example value for B: byte offset.	To understand the meaning of the value it is necessary to know what location scheme is used. LC VideoMD: CV-list: URN; URL; PURL; HANDLE; DOI; OTHER.	fileSec	PREMIS 2.2 Object Entity Storage contentLocation <locationType>

Attribute of	Object Category	Name	Definition	Value type Text/Numeric/Date/Binary	Obligation	Repeatable	Data Constraint	Values allowed, or link to CV-list.	Notes	METS category	Link to Schema
Moving Image Audio Photo	F B	**1.7.1.2 locationValue**	The reference to the location of the content used by the storage system.	Text	M	NR	None		More detail in PREMIS.	fileSec	PREMIS 2.2 Object Entity Storage contentLocation <locationValue>
Moving Image Audio Photo	F B	**1.7.2 storageMedium**	The physical medium on which the object is stored.	Text	O	NR	CV	Example values: magnetic tape; hard disk; CD-ROM; DVD. PBCore: http://metadataregistry.org/concept/list/vocabulary_id/145.html EBU: http://www.ebu.ch/metadata/cs/web/ebu_StorageMediaTypeCode_p.xml.htm	The repository needs to know the medium on which an object is stored in order to know how and when to do media refreshment and media migration. More detail in PREMIS.	fileSec	PREMIS 2.2 Object Entity Storage <storageMedium>
Moving Image Audio Photo	R F B	**1.8 environment**	Container element for holding hardware/software combinations supporting use of the object.	Text	O	R	Container		Environment is the means by which the user renders and interacts with content. Separation of digital content from its environmental context can result in the content becoming unusable. More detail in PREMIS.		
Moving Image Audio Photo	R F B	**1.8.1 environmentCharacteristic**	An assessment of the extent to which the described environment supports its purpose.	Text	O	NR	CV	Example values for R: unspecified; minimum. Example values for File: recommended; minimum.	If multiple environments are described, this element can help to distinguish among them. Suggested values: unspecified = no attempt made to provide this value ; known to work = the object can be rendered in this environment; minimum = the least demanding (in terms of components or resources needed) environment known to work by the repository; recommended = an environment preferred for optimal rendering. If an environment is both “minimum” and “recommended,” use “recommended.” “Known to work” implies the object is supported by the described environment but the repository doesn’t know if this environment is minimum or recommended. More detail in PREMIS.	techMD	PREMIS 2.2 Object Entity environment <environmentCharacteristic>
Moving Image Audio Photo	R F B	**1.8.2 environmentPurpose**	The use(s) supported by the specified environment.	Text	O	R	CV	Suggested values: render, edit.	Different environments can support different uses of objects. Other uses/values might indicate the ability to transform, print, and manipulate by program.	techMD	PREMIS 2.2 Object Entity environment <environmentPurpose>
Moving Image Audio Photo	R F B	**1.8.3 environmentNote**	Additional information about the environment.	Text	O	R	None		This note could be used to record the context of the environment information. For example, if a file can be rendered through a PC client application or through a browser with a plug-in, this note could be used to identify which situation applies. More detail in PREMIS.	techMD	PREMIS 2.2 Object Entity environment <environmentNote>
Moving Image Audio Photo	R F B	**1.8.4 environmentDependency**	Container element for holding information about a non-software component or associated file needed in order to use or render the representation or file, for example, a schema, a DTD, or an entity file declaration.	Text	O	R	Container		Recommended practice is for a repository to archive objects on which other objects depend. These may be sent by the submitter of the primary object, or they may in some cases be automatically obtained by the repository. For example, a markup file will often contain links to other objects it requires such as DTDs or XML Schema. If it does, these objects can often be identified by the link and downloaded by the repository. It is up to the repository to determine what constitutes a dependency in the context of the designated community.	techMD	PREMIS 2.2 Object Entity
Moving Image Audio Photo	R F B	**1.8.4.1 dependencyName**	A designation for a component or associated file needed by the representation or file.	Text	O	R	None		It may not be self-evident from the dependencyIdentifier what the name of the object actually is. Examples for File: Additional Element; Set for Language; Corpora.	techMD	PREMIS 2.2 Object Entity environment environmentDependency <dependencyName>
Moving Image Audio Photo	R F B	**1.8.4.2 dependencyIdentifier**	Container element for holding a unique designation used to identify a dependent resource.	Text	O	R	Container		The dependencyIdentifier must be unique within the preservation repository, although it might not be globally unique.	techMD	PREMIS 2.2 Object Entity environment environmentDependency dependencyIdentifier

Attribute of	Object Category	Name	Definition	Value type Text/Numeric/Date/Binary	Obligation	Repeatable	Data Constraint	Values allowed, or link to CV-list.	Notes	METS category	Link to Schema
Moving Image Audio Photo	R F B	**1.8.4.2.1 dependencyIdentifierType**	A designation of the domain in which the identifier of the dependent resource is unique.	Text	M	NR	CV	Example value for File: URI.	A preservation repository needs to know both the type of object identifier and the value.	techMD	PREMIS 2.2 Object Entity environment environmentDependency dependencyIdentifier <dependencyIdentifierType>
Moving Image Audio Photo	R F B	**1.8.4.2.2 dependencyIdentifierValue**	The value of the dependencyIdentifier.	Text	M	NR	None		Example value for File: http://www.teic.org/P4X/DTD/teicorp2.dtd	techMD	PREMIS 2.2 Object Entity environment environmentDependency dependencyIdentifier <dependencyIdentifierValue>
Moving Image Audio Photo	R F B	**1.8.5 environmentSoftware**	Container element for holding software required to render or use the object.	Text	O	R	Container		Although at least one software environment should be recorded, it is not necessary to record them all and each repository will have to make its own decisions about which software environments to record. As with environment, metadata may be more efficiently managed in conjunction with a format registry either internal or external to a repository. In the absence of a global mechanism, repositories may be forced to develop their own local “registries” relating format to software environment.		PREMIS 2.2 Object Entity environment environmentSoftware <swName>
Moving Image Audio Photo	R F B	**1.8.5.1 swName**	Manufacturer and title of the software application.	Text	M	NR	None		Include manufacturer when this helps to identify or disambiguate the product, for example, use “Adobe Photoshop” rather than “Photoshop.”	techMD	PREMIS 2.2 Object Entity environment environmentSoftware <swName>
Moving Image Audio Photo	R F B	**1.8.5.2 swVersion**	The version or versions of the software referenced in swName.	Text	O	NR	None		If there is no formal version, the date of issuance can be used.	techMD	PREMIS 2.2 Object Entity environment environmentSoftware <swVersion>
Moving Image Audio Photo	R F B	**1.8.5.3 swType**	Class or category of software.	Text	M	NR	CV	Example values: renderer; ancillary; operatingSystem; driver.	Several different layers of software can be required to support an object. More detail in Premis.	techMD	PREMIS 2.2 Object Entity environment environmentSoftware <swType>
Moving Image Audio Photo	R F B	**1.8.5.4 swOtherInformation**	Additional requirements or instructions related to the software referenced in swName.	Text	O	R	None		This could be a reliable persistent identifier or URI pointing to software documentation within or outside the repository. Example in PREMIS.	techMD	PREMIS 2.2 Object Entity environment environmentSoftware <swOtherInformation>
Moving Image Audio Photo	R F B	**1.8.5.5 swDependency**	The name and, if applicable, version of any software component needed by the software referenced in swName in the context of using this object.	Text	O	R	None		More detail in PREMIS.	techMD	PREMIS 2.2 Object Entity environment environmentSoftware <swDependency>
Moving Image Audio Photo	R F B	**1.8.6 environmentHardware**	Container for hardware components needed by the software referenced in swName or the human user of the referenced software.	Text	O	R	Container		Hardware environment information can be very difficult to provide. Although at least one hardware environment should be recorded, it is not necessary to record them all and each repository will have to make its own decisions about which hardware environments to record. More detail in PREMIS.		PREMIS 2.2 Object Entity environment environmentHardware
Moving Image Audio Photo	R F B	**1.8.6.1 hwName**	Manufacturer, model, and version (if applicable) of the hardware.	Text	M	NR	None		Include manufacturer when this helps to identify or disambiguate the product. Include version for firmware or other components where that information is pertinent.	May not use attribute	PREMIS 2.2 Object Entity environment environmentHardware <hwName>
Moving Image Audio Photo	R F B	**1.8.6.2 hwType**	Class or category of the hardware.	Text	M	NR	CV	Suggested values: processor, memory, input/output device, storage device.		May not use attribute	PREMIS 2.2 Object Entity environment environmentHardware <hwType>
Moving Image Audio Photo	R F B	**1.8.6.3 hwOtherInformation**	Additional requirements or instructions related to the hardware referenced in hwName.	Text	O	R	None		For hardware, the amount of computing resource needed (such as memory, storage, processor speed, etc.) may need to be documented. In addition, more detailed instructions may be needed to install and/or operate the hardware. This could be an identifier or URI used to point to hardware documentation.	May not use attribute	PREMIS 2.2 Object Entity environment environmentHardware <hwOtherInformation>
Moving Image Audio Photo	R F B	**1.8.7 environmentExtension**	A container to include semantic units defined outside of PREMIS.	Text	O	R	Container		For more granularity or use of externally defined semantic units, extensibility is provided. More detail in PREMIS.	May not use attribute	PREMIS 2.2 Object Entity environment <environmentExtension>

Attribute of	Object Category	Name	Definition	Value type Text/Numeric/Date/Binary	Obligation	Repeatable	Data Constraint	Values allowed, or link to CV-list.	Notes	METS category	Link to Schema
Moving Image Audio Photo	F B	**1.9 Signature Information** **1.9.1 signature** **1.9.1.1 signatureEncoding** **1.9.1.2 signer** **1.9.1.3 signatureMethod** **1.9.1.4 signatureValue** **1.9.1.5 signatureValidationRules** **1.9.1.6 signatureProperties** **1.9.1.7 keyInformation** **1.9.2 signatureInformationExtension**	A container for PREMIS defined and externally defined digital signature information, used to authenticate the signer of an object and/or the information contained in the object. Information needed to use a digital signature to authenticate the signer of an object and/or the information contained in the object.	Text	O	R	Container		A repository may have a policy of generating digital signatures for files on ingest, or may have a need to store and later validate incoming digital signatures. *#Does B&G use or plan to use signatures?*		This has not been worked out until confirmation that B&G is involved with signatures
Moving Image Audio Photo	R F B	**1.10 Relationship**	Information about a relationship between this object and one or more other objects.	Text	O	R	Container		A preservation repository must know how to assemble complex objects from component parts (structural relationships) and rigorously track digital provenance (derivation relationships). Documentation about relationships between different objects is crucial to these purposes. Most preservation repositories will want to record all relevant relationships. Derivative relationships at the file and representation level are important for documenting digital provenance. More detail in PREMIS.		
Moving Image Audio Photo	R F B	**1.10.1 relationshipType**	A high-level categorization of the nature of the relationship.	Text	M	NR	CV	Suggested values: structural ; derivation. See also: http://metadataregistry.org/concept/list/vocabulary_id/161.html or http://dublincore.org/documents/1999/04/29/rdf-relation-types/ Other option: http://rucore.libraries.rutgers.edu/open/projects/openmic/index.php?sec=guides&sub=metadata&pg=d_rel-item	Suggested values: structural = a relationship between parts of an object ; derivation = a relationship where one object is the result of a transformation performed on the related object. A repository may find it necessary to define additional relationship types. HS: Note that structural relationships are also in use to indicate which bitstream(s) are contained within which bundle within which item of which collection or of which media object.	digiprovMD	PREMIS 2.2 Object Entity relationship <relationshipType>
Moving Image Audio Photo	R F B	**1.10.2 relationshipSubType**	A specific characterization of the nature of the relationship documented in relationshipType.	Text	M	NR	CV	PREMIS suggestions, see Notes. See also: http://metadataregistry.org/concept/list/vocabulary_id/161.html or http://dublincore.org/documents/1999/04/29/rdf-relation-types/	Suggested values: has sibling = the object shares a common parent with the related object is part of = the object is contained by the related object (when these are the same entity types) has part = the object contains the related object (when these are the same entity types) is source of = the related object is a version of this object created by a transformation has source = the object is derived from the related object as a result of a transformation has root = for a representation only, the related object is the file that must be processed first in order to render the representation includes = for the relationship of a representation to a file, , or a file to a bitstream, the described object includes the referenced object is included in = for the relationship of a file to a representation, or a bitstream to a file, the described object is included in the referenced object A repository may find it necessary to define more or less granular relationships. More detail in PREMIS.	digiprovMD	PREMIS 2.2 Object Entity relationship <relationshipSubType>
Moving Image Audio Photo	R F B	**1.10.3 relatedObjectIdentification**	The identifier and sequential context of the related resource.	Text	M	R	Container		The related object may or may not be held within the preservation repository. Recommended practice is that objects reside within the repository unless there is a good reason to reference an object outside. Internal and external references should be clear.		
Moving Image Audio Photo	R F B	**1.10.3.1 relatedObjectIdentifierType**	A designation of the domain within which the identifier is unique.	Text	M	NR	CV	See: 1.10.1	See Notes 1,1,1 ObjectIdentifierType	digiprovMD	PREMIS 2.2 Object Entity Relationship relatedObjectIdentification <relatedObjectIdentificationType>

Attribute of	Object Category	Name	Definition	Value type Text/Numeric/Date/Binary	Obligation	Repeatable	Data Constraint	Values allowed, or link to CV-list.	Notes	METS category	Link to Schema
Moving Image Audio Photo	R F B	**1.10.3.2 relatedObjectIdentifierValue**	The value of the related object identifier.	Text	M	NR	None		If the related object is held within the preservation repository, this should be the value of that object's objectIdentifierValue.	digiprovMD	PREMIS 2.2 Object Entity Relationship relatedObjectIdentification <relatedObjectIdentificationValue>
Moving Image Audio Photo	R F B	**1.10.3.3 relatedObjectSequence**	The order of the related object relative to other objects with the same type of relationship.	Text	O	NR	None		This semantic unit is particularly useful for structural relationships. In order to reconstruct a representation, it may be necessary to know the order of components with sibling or part-whole relationships. More detail in PREMIS.	digiprovMD	PREMIS 2.2 Object Entity Relationship relatedObjectIdentification <relatedObjectIdentificationSequence>
Moving Image Audio Photo	R F B	**1.10.4 relatedEventIdentification**	The identifier and contextual sequence of an event associated with the relationship.	Text	O	R	Container		An object may be related to another object because of an event, for example, migration. For derivative relationships between objects related EventIdentification must be recorded.		
Moving Image Audio Photo	R F B	**1.10.4.1 relatedEventIdentifierType**	The eventIdentifierType value of the related event.	Text	M	NR	Must be an existing eventIdentifierType value.		For most preservation repositories, the eventIdentifierType will simply be their own internal numbering system. It can be implicit within the system and provided explicitly only if the data is exported. See Notes 2,1,1 for examples.	digiprovMD	PREMIS 2.2 Object Entity Relationship relatedEventIdentification <relatedEventIdentifierType>
Moving Image Audio Photo	R F B	**1.10.4.2 relatedEventIdentifierValue**	The eventIdentifierValue value of the related event.	Text	M	NR	Must be an existing eventIdentifierValue value.		See Notes 2,1,2 for examples.	digiprovMD	PREMIS 2.2 Object Entity Relationship relatedEventIdentification <relatedEventIdentifierValue>
Moving Image Audio Photo	R F B	**1.10.4.3 relatedEventSequence**	The order of the related event.	Text	O	NR	None		The sequence of a related event can be inferred from the eventDateTime associated with the related event.	digiprovMD	PREMIS 2.2 Object Entity Relationship relatedEventIdentification <relatedEventIdentificationSequence>
Moving Image Audio Photo	R F B	**1.11 linkingEventIdentifier**	The eventIdentifier of an event associated with the object.	Text	O	R	Container		Use to link to events that are not associated with relationships between objects, such as format validation, virus checking, etc. More detail in PREMIS.		
Moving Image Audio Photo	R F B	**1.11.1 linkingEventIdentifierType**	The eventIdentifierType value of the related event.	Text	M	NR	Must be an existing eventIdentifierType value.		For most preservation repositories, the eventIdentifierType will simply be their own internal numbering system. It can be implicit within the system and provided explicitly only if the data is exported. See Notes 2,1,1 for examples.	digiprovMD	PREMIS 2.2 Object Entity linkingEventIdentifier <linkingEventIdentifierType>
Moving Image Audio Photo	R F B	**1.11.2 linkingEventIdentifierValue**	The eventIdentifierValue value of the related event.	Text	M	NR	Must be an existing eventIdentifierValue value.		See Notes 2,1,2 for examples.	digiprovMD	PREMIS 2.2 Object Entity linkingEventIdentifier <linkingEventIdentifierValue>
Moving Image Audio Photo	R F B	**1.12 linkingIntellectualEntityIdentifier**	An identifier for an intellectual entity associated with the object.	Text	O	R	Container		Use to link to an intellectual entity that is related to the object. This may be a link to descriptive metadata that describes the intellectual entity or some other surrogate for it that can be referenced. This link will likely be to an identifier of an object that is at a higher conceptual level than the object for which the metadata is provided, for example, to a collection or parent object. More detail in PREMIS.		
Moving Image Audio Photo	R F B	**1.12.1 linkingIntellectualEntityIdentifierType**	A designation of the domain within which the linkingIntellectualEntityIdentifier is unique.	Text	M	NR	CV	Example values for File: URI LCCN		digiprovMD	PREMIS 2.2 Object Entity linkingIntellectualEntityIdentifier <linkingIntellectualEntityIdentifierType>
Moving Image Audio Photo	R F B	**1.12.2 linkingIntellectualEntityIdentifierValue**	The value of the linkingIntellectualEntityIdentifier.	Text	M	NR	None			digiprovMD	PREMIS 2.2 Object Entity linkingIntellectualEntityIdentifier <linkingIntellectualEntityIdentifierValue>
Moving Image Audio Photo	R F B	**1.13 linkingRightsStatementIdentifier**	An identifier for a rights statement associated with the object.	Text	O	R	Container	Example values for File: URI LCCN	A repository may choose to link from a rights statement to an object or from an object to a rights statement or both. Linking semantic units are mandatory in the sense that a repository needs to know the information, but are defined as optional because PREMIS does not specify in which direction the linkage should be.		

Attribute of	Object Category	Name	Definition	Value type Text/Numeric/Date/Binary	Obligation	Repeatable	Data Constraint	Values allowed, or link to CV-list.	Notes	METS category	Link to Schema
Moving Image Audio Photo	R F B	**1.13.1 linkingRightsStatementIdentifierType**	A designation of the domain within which the linkingRightsStatementIdentifier is unique.	Text	M	NR	CV	Example values for File: URI LCCN		rightsMD	PREMIS 2.2 Object Entity linkingRightsStatementIdentifier <linkingRightsStatementIdentifierType>
Moving Image Audio Photo	R F B	**1.13.2 linkingRightsStatementIdentifierValue**	The value of the linkingRightsStatementIdentifier.	Text	M	NR	None			rightsMD	PREMIS 2.2 Object Entity linkingRightsStatementIdentifier <linkingRightsStatementIdentifierValue>
Moving Image Audio Photo	R F B	**2.0 Event Entity**	t							digiprovMD	PREMIS 2.2
Moving Image Audio Photo	R F B	**2.1. eventIdentifier**	Container element for recording a unique identifier for the event being described.	Text	M	NR	Container		Each event recorded by the preservation archive must have a unique identifier to allow it to be related to objects, agents, and other events. The eventIdentifier is likely to be system generated. There is no global scheme or standard for these identifiers. The identifier is therefore not repeatable.		
Moving Image Audio Photo	R F B	**2.1.1 eventIdentifierType**	Type: A designation of the domain within which the event identifier is unique.	Text	M	NR			For most preservation repositories, the eventIdentifierType will be its own internal numbering system. It can be implicit within the system and provided explicitly only if the data is exported.	digiprovMD	PREMIS 2.2 Event Entity eventidentifier < eventidentifierType>
Moving Image Audio Photo	R F B	**2.1.2 eventIdentifierValue**	Value: The value of the eventIdentifier.	Text	M	NR			Examples: [a binary integer] E-2004-11-13-000119 58f202ac-22cf-11d1-b12d-002035b29092	digiprovMD	PREMIS 2.2 Event Entity eventidentifier < eventidentifiervalue>
Moving Image Audio Photo	R F B	**2.2 eventType**	A categorization of the nature of the event. Categorizing events will aid the preservation repository in machine processing of event information, particularly in reporting. Value should be taken from a controlled vocabulary.	Text	M	NR	CV	CV: Transfer, Ingestion, Capture, Virus check, Quarantine, Message Digest Calculation, Fixity Check, SIP Completeness Validation, SA Format Validation, Format Validation, Quality Assurance, Normalization, ID Assignment, Format Identification, Migration, Deaccession, Deletion, Creation	More events may be defined in the future as actual action plans for preservation levels are defined.	digiprovMD	PREMIS 2.2 Event Entity <eventType>
Moving Image Audio Photo	R F B	**2.3 eventDateTime**	The single date and time, or date and time range, at or during which the event occurred.	Date	M	NR	Structured form.		To aid machine processing, value should use a structured form. To facilitate exchange of PREMIS-conformant metadata, use of standard conventions, for instance as used in the date elements in the PREMIS schema, is recommended. Recommended practice is to record the most specific time possible and to designate the time zone.	digiprovMD	PREMIS 2.2Event Entity <eventDateTime>
Moving Image Audio Photo	R F B	**2.4 eventDetail**	Additional information about the event.	Text	O	NR	None		eventDetail is not intended to be processed by machine. It may record any information about an event and/or point to information stored elsewhere.	digiprovMD	PREMIS 2.2Event Entity <eventDetail>
Moving Image Audio Photo	R F B	**2.5 eventOutcomeInformation**	Container element to record Information about the overall result of an event. A repository may wish to supplement a coded eventOutcome value with additional information in eventOutcomeDetail. Since events may have more than one outcome, the container is repeatable.	Text	O	R	Container		Outcome Example Input Guidelines: Value must be "success," "partial success," or "failure." All subunits of this semantic unit are optional. At least one subunit (i.e. eventOutcome or eventOutcomeDetail) must be present if this container is included.		
Moving Image Audio Photo	R F B	**2.5.1 eventOutcome**	A categorization of the overall result of the event in terms of success, partial success, or failure. Encode the success level of the event in a <PREMIS:eventOutcome> subelement within the <PREMIS:eventOutcomeInformation> container element.	Text	O	NR	CV	Examples: 00 [a code meaning "action successfully completed"] CV-01 [a code meaning "checksum validated"]	A coded way of representing the outcome of an event may be useful for machine processing and reporting. If, for example, a fixity check fails, the event record provides both an actionable and a permanent record. Recommended practice is to use a controlled vocabulary that a system can act upon automatically. Recommended practice is to define events with sufficient granularity that each event has a single outcome. More detail about the outcome may be recorded in eventOutcomeDetail.	digiprovMD	PREMIS 2.2 Event Entity eventOutcomeInformation <eventOutcome>

Attribute of	Object Category	Name	Definition	Value type Text/Numeric/Date/Binary	Obligation	Repeatable	Data Constraint	Values allowed, or link to CV-list.	Notes	METS category	Link to Schema
Moving Image Audio Photo	R F B	**2.5.2 eventOutcomeDetail**	Container element for holding a detailed description of the result or product of the event. An event outcome may be sufficiently complex that a coded description is not adequate to document it.	Text	O	R	Container		This may be used to record all error and warning messages issued by a program involved in the event or to record a pointer to an error log. If the event was a validity check (e.g., profile conformance) any anomalies or quirks discovered would be recorded here. More detail in PREMIS.		
Moving Image Audio Photo	R F B	**2.5.2.1 eventOutcomeDetailNote**	A detailed description of the result or product of the event in textual form.	Text	O	NR	None		Example: LZW compressed file Non-standard tags found in header	digiprovMD	PREMIS 2.2 Event Entity eventOutcomeDetail <eventOutcomeDetailNote>
Moving Image Audio Photo	R F B	**2.5.2.2 eventOutcomeDetailExtension**	A container to include semantic units defined outside of PREMIS, if there is the need to.	Text	O	R	Container		For more granularity or use of externally defined semantic units, extensibility is provided. Either local semantic units or metadata using another specified metadata scheme may be included instead of or in addition to PREMIS defined semantic units. More detail in PREMIS.		PREMIS 2.2 Event Entity eventOutcomeDetail <eventOutcomeDetailExtension>
Moving Image Audio Photo	R F B	**2.6 linkingAgentIdentifier**	Container element for holding identification of one or more agents associated with the event.	Text	O	R	Container		Recommended practice is to record the agent if possible. Digital provenance requires often that relationships between agents and events are documented. More detail in PREMIS.		
Moving Image Audio Photo	R F B	**2.6.1 linkingAgentIdentifierType**	A designation of the domain in which the linking agent identifier is unique.	Text	M	NR	CV	Example values that indicate the domain in which the agent identifier is unique: LCNAF SAN MARC Organization Codes URI		digiprovMD	PREMIS 2.2 Event Entity linkingAgentIdentifier <linkingAgentType>
Moving Image Audio Photo	R F B	**2.6.2 linkingAgentIdentifierValue**	The value of the linking agent identifier.	Text	M	NR	None		May be a unique key or a controlled textual form of name. Examples: 92-79971 ; Owens, Erik C. ; 234-5676 ; MH-CS.	digiprovMD	PREMIS 2.2 Event Entity linkingAgentIdentifier <linkingAgentValue>
Moving Image Audio Photo	R F B	**2.6.3 linkingAgentRole**	The role of the agent in relation to this event.	Text	O	R	CV	Example values: Authorizer, Implementer, Validator, Executing program.	Events can have more than one agent associated with them. The role of each agent may need to be documented.	digiprovMD	PREMIS 2.2 Event Entity linkingAgentIdentifier <linkingAgentRole>
Moving Image Audio Photo	R F B	**2.7 linkingObjectIdentifier**	Container element for holding information about an object associated with an event.	Text	O	R	Container		Digital provenance often requires that relationships between objects and events are documented. Linking semantic units are mandatory in the sense that a repository needs to know the information, but are defined as optional because it is not specified in which direction the linkage should be.		
Moving Image Audio Photo	R F B	**2.7.1 linkingObjectIdentifierType**	A designation of the domain in which the linking object identifier is unique	Text	M	NR	CV	Example values that indicate the domain in which the object is unique: DLC DRS hdl:4263537	Identifier values cannot be assumed to be unique across domains; the combination of objectIdentifierType and objectIdentifierValue should ensure uniqueness. A persistent identifier should be used, but the particular identifier scheme is an implementation specific decision. See Notes 1,1,1 for examples.	digiprovMD	PREMIS 2.2 Event Entity linkingObjectIdentifier <linkingObjectIdentifierType>
Moving Image Audio Photo	R F B	**2.7.2 linkingObjectIdentifierValue**	The value of the linking object identifier.	Text	M	NR	None		See Notes 1,1,2 for examples.	digiprovMD	PREMIS 2.2 Event Entity linkingObjectIdentifier <linkingObjectIdentifierValue>
Moving Image Audio Photo	R F B	**2.7.3 linkingObjectRole**	The role of the object associated with an event.	Text	O	R	None		Distinguishes the role of the object in relation to an event. If this is not explicit it is necessary to analyze the relationship between objects in the object metadata. Examples: source; outcome	digiprovMD	PREMIS 2.2 Event Entity linkingObjectIdentifier <linkingObjectIdentifierRole>
Moving Image Audio Photo	R F B	**3.0 Agent Entity**	t								PREMIS 2.2

Attribute of	Object Category	Name	Definition	Value type Text/Numeric/Date/Binary	Obligation	Repeatable	Data Constraint	Values allowed, or link to CV-list.	Notes	METS category	Link to Schema
Moving Image Audio Photo	R F B	**3.1 agentIdentifier**	Container element holding the designation used to uniquely identify the agent within a preservation repository system.	Text	M	R	Container		Each agent associated with the preservation repository must have a unique identifier (unique within repository) to allow it to be related to events and rights statements. An identifier may be created by the repository system, or it may be created or assigned outside of the repository. Similarly, identifiers can be automatically or manually generated. Recommended practice is for repositories to use an identifier automatically created by the repository as the primary identifier in order to ensure that identifiers are unique and usable by the repository. Externally assigned identifiers can be used as secondary identifiers in order to link an agent to information held outside the repository. For this reason the attribute is repeatable.		
Moving Image Audio Photo	R F B	**3.1.1 agentIdentifierType**	A designation of the domain in which the agent identifier is unique.	Text	M	NR	CV	Example values that indicate the domain in which the agent identifier is unique: LCNAF SAN MARC Organization Codes URI		digiprovMD	PREMIS 2.2 Agent Entity agentIdentifier <agentidentifierType>
Moving Image Audio Photo	R F B	**3.1.2 agentIdentifierValue**	The value of the agentIdentifier.	Text	M	NR	None		May be a unique key or a controlled textual form of name. Examples: 92-79971 Owens, Erik C. 234-5676 MH-CS info:lccn/n78890351	digiprovMD	PREMIS 2.2 Agent Entity agentIdentifier <agentidentifierValue>
Moving Image Audio Photo	R F B	**3.2 agentName**	A text string which could be used in addition to agentIdentifier to identify an agent.	Text	O	R	None		This semantic unit provides a more reader-friendly version of the agent identified by the agentIdentifier. The value is not necessarily unique.	digiprovMD	PREMIS 2.2 Agent Entity <agentName>
Moving Image Audio Photo	R F B	**3.3 agentType**	A high-level characterization of the type of agent.	Text	O	NR	CV	Suggested values: person, organization, software.	It might be useful to have more granularity than this, e.g. software - virus checker. [http://www.paradigm.ac.uk/workbook/pdfs/05_administrative_preservation_metadata.pdf]	digiprovMD	PREMIS 2.2Agent Entity <agentType>
Moving Image Audio Photo	R F B	**3.4 agentNote**	Additional information about the agent.	Text	O	R			Additional information may be needed to describe or disambiguate the agent. Use agentNote when relatively limited information must be supplied. If extensive additional information is required, consider using an externally defined schema with agentExtension instead.	digiprovMD	PREMIS 2.2 Agent Entity <agentNote>
Moving Image Audio Photo	R F B	**3.5 agentExtension**	A container to include semantic units defined outside of PREMIS.	Text	O	R	Container		There may be a need to replace or extend PREMIS defined units. It is recommended to give information about the metadata used in agentExtension including date the metadata was created, status of the metadata, internal linking IDs, type of metadata used and its version, message digest and message digest algorithm of the metadata, and type of identifier for external metadata links. More detail in PREMIS.		
Moving Image Audio Photo	R F B	**3.6 linkingEventIdentifier**	The eventIdentifier of an event associated with the agent.	Text	O	R	Container		Use to link to events that are not associated with relationships between objects, such as format validation, virus checking, etc. More detail in PREMIS.		
Moving Image Audio Photo	R F B	**3.6.1 linkingEventIdentifierType**	The eventIdentifierType value of the related event.	Text	M	NR	Must be an existing eventIdentifierType value.		For most preservation repositories, the eventIdentifierType will simply be their own internal numbering system. It can be implicit within the system and provided explicitly only if the data is exported. See Notes 2,1,1 for examples.	digiprovMD	PREMIS 2.2 Agent Entity linkingEventIdentifier <linkingEventIdentifierType>
Moving Image Audio Photo	R F B	**3.6.2 linkingEventIdentifierValue**	The eventIdentifierValue value of the related event.	Text	M	NR	Must be an existing eventIdentifierValue value.		Examples: [a binary integer] E-2004-11-13-000119 58f202ac-22cf-11d1-b12d-002035b29092	digiprovMD	PREMIS 2.2 Agent Entity linkingEventIdentifier <linkingEventIdentifierValue>
Moving Image Audio Photo	R F B	**3.7 linkingRightsStatementIdentifier**	An identifier for a rights statement associated with the agent.	Text	O	R	Container		A repository may choose to link from a rights statement to an agent or from an agent to a rights statement or both. That is why the attribute is optional: PREMIS does not specify in which direction the linkage should be.		
Moving Image Audio Photo	R F B	**3.7.1 linkingRightsStatementIdentifierType**	A designation of the domain within which the linkingRightsStatementIdentifier is unique.	Text	M	NR	CV	Example values of the domain for Files: URI LCCN		digiprovMD	PREMIS 2.2 Agent Entity linkingRightsStatementIdentifier <linkingRightsStatementIdentifierType>

Attribute of	Object Category	Name	Definition	Value type Text/Numeric/Date/Binary	Obligation	Repeatable	Data Constraint	Values allowed, or link to CV-list.	Notes	METS category	Link to Schema
Moving Image Audio Photo	R F B	**3.7.2 linkingRightsStatementIdentifierValue**	The value of the linkingRightsStatementIdentifier.	Text	M	NR	None			digiprovMD	PREMIS 2.2Agent Entity linkingRightsStatementIdentifier <linkingRightsStatementIdentifierValue>
Moving Image Audio Photo	R F B	**4.0 Rights Entity**	The minimum core rights information that a preservation repository must know, however, is what rights or permissions a repository has to carry out actions related to objects within the repository. These may be granted by copyright law, by statute, or by a license agreement with the rightsholder.								PREMIS 2.2
Moving Image Audio Photo	R F B	**4.1 rightsStatement**	Container to document the repository's right to perform one or more acts.	Text	O	R	Container		This semantic unit is optional because in some cases rights may be unknown. The rights of a repository may generally be granted by copyright law, by statute, or by a license agreement with the rightsholder. In some situations the basis for the rights is for other reasons, for instance institutional policy. More detail in PREMIS.		
Moving Image Audio Photo	R F B	**4.1.1 rightsStatementIdentifier**	Container holding the designation used to uniquely identify the rights statement within a preservation repository system.	Text	M	NR	Container		Identifiers must be unique within the repository to allow the statement of rights to be related to events and agents. More detail in PREMIS.		
Moving Image Audio Photo	R F B	**4.1.1.1 rightsStatementIdentifierType**	A designation of the domain within which the rights statement identifier is unique.	Text	M	NR	CV			rightsMD	PREMIS 2.2 Rights Entity rightsStatement rightsStatementIdentifier <rightsStatementIdentifierType>
Moving Image Audio Photo	R F B	**4.1.1.2 rightsStatementIdentifierValue**	The value of the rightsStatementIdentifier.	Text	M	NR	None			rightsMD	PREMIS 2.2 Rights Entity rightsStatement rightsStatementIdentifier <rightsStatementIdentifierValue>
Moving Image Audio Photo	R F B	**4.1.2 rightsBasis**	Designation of the basis for the right or permission described in the rightsStatementIdentifier.	Text	M	NR	CV	Suggested values: copyright, license, statute, other. See also Rightscategory: http://www.loc.gov/standards/rights/METSRights.xsd	When rightsBasis is “copyright”, copyrightInformation should be provided. When rightsBasis is “license”, licenseInformation should be provided. When rightsBasis is “statute”, statuteInformation should be provided. When rightsBasis is “other”, otherRightsBasis (in otherRightsInformation container) should be provided. If the basis for the rights is the item is public domain, use “copyright”. If the basis is Fair Use, use “statute”. If more than one basis applies, the entire rights entity should be repeated.	rightsMD	PREMIS 2.2 Rights Entity rightsStatement <rightsBasis>
Moving Image Audio Photo	R F B	**4.1.3 copyrightInformation**	Container holding information about the copyright status of the object(s).	Text	O	NR	Container		When rightsBasis is “copyright”, copyrightInformation should be provided. Repositories may need to extend this with more detailed information. See the California Digital Library's copyrightMD schema (www.cdlib.org/inside/projects/rights/schema/) for an example of a more detailed scheme.		PREMIS 2.2
Moving Image Audio Photo	R F B	**4.1.3.1 copyrightStatus**	A coded designation for the copyright status of the object at the time the rights statement is recorded.	Text	M	NR	CV	Suggested values: copyrighted ; publicdomain; unknown. See also Rightscategory: http://www.loc.gov/standards/rights/METSRights.xsd	Suggested values: copyrighted = Under copyright. publicdomain = In the public domain. unknown = Copyright status of the resource is unknown.	rightsMD	PREMIS 2.2 Rights Entity rightsStatement copyrightInformation <copyrightStatus>
Moving Image Audio Photo	R F B	**4.1.3.2 copyrightJurisdiction**	The country whose copyright laws apply.	Text	M	NR	CV	See: http://www.iso.org/iso/country_names_and_code_elements	Values should be taken from ISO 3166.	rightsMD	PREMIS 2.2 Rights Entity rightsStatement copyrightInformation <copyrightJurisdiction>
Moving Image Audio Photo	R F B	**4.1.3.3 copyrightStatusDeterminationDate**	The date that the copyright status recorded in copyrightStatus was determined.	Date	O	NR	Structured form.		To aid machine processing, value should use a structured form. To facilitate exchange of PREMIS-conformant metadata, use of standard conventions, for instance as used in the date elements in the PREMIS schema, is recommended.	rightsMD	PREMIS 2.2 Rights Entity rightsStatement copyrightInformation <copyrightStatusDeterminationDate>
Moving Image Audio Photo	R F B	**4.1.3.4 copyrightNote**	Additional information about the copyright status of the object.	Text	O	R	None		Examples: Copyright expiration expected in 2010 unless renewed. Copyright statement is embedded in file header.	rightsMD	PREMIS 2.2 Rights Entity rightsStatement copyrightInformation <copyrightNote>

Attribute of	Object Category	Name	Definition	Value type Text/Numeric/Date/Binary	Obligation	Repeatable	Data Constraint	Values allowed, or link to CV-list.	Notes	METS category	Link to Schema
Moving Image Audio Photo	R F B	**4.1.3.5 copyrightDocumentationIdentifier**	Container holding the designation used to uniquely identify documentation supporting the specified rights granted according to copyright within the repository system.	Text	O	R	Container		This semantic unit is intended to refer to a document detailing the granting of permission when the rights basis is copyright. If repeated, use copyrightDocumentationRole to distinguish the role of the given documentation.		
Moving Image Audio Photo	R F B	**4.1.3.5.1 copyrightDocumentationIdentifierType**	A designation of the domain within which the copyright documentation identifier is unique.	Text	M	NR	CV			rightsMD	PREMIS 2.2 Rights Entity rightsStatement copyrightInformation copyrightDocumentationIdentifier <copyrightDocumentationIdentifierType>
Moving Image Audio Photo	R F B	**4.1.3.5.2 copyrightDocumentationIdentifierValue**	The value of the copyrightDocumentationIdentifier.	Text	M	NR	None			rightsMD	PREMIS 2.2 Rights Entity rightsStatement copyrightInformation copyrightDocumentationIdentifier <copyrightDocumentationIdentifierValue>
Moving Image Audio Photo	R F B	**4.1.3.5.3 copyrightDocumentationRole**	A value indicating the purpose or expected use of the documentation being identified.	Text	O	NR	CV		This information distinguishes the purpose of the supporting documentation especially when there are multiple documentation identifiers.	rightsMD	PREMIS 2.2 Rights Entity rightsStatement copyrightInformation copyrightDocumentationIdentifier <copyrightDocumentationIdentifierRole>
Moving Image Audio Photo	R F B	**4.1.3.6 copyrightApplicableDates**	Container holding the date range during which the particular copyright applies or is applied to the content. This is distinct from termOfGrant, which applies to a particular act expressed in rightsGranted and may differ from the period of time the license, statute or other basis applies to the content.	Text	O	NR	Container		The repository may wish to retain the history of rights and restrictions associated with the content over time. Associating active dates with particular rights bases allows applications to identify which of several rightsStatements are in force at a given time.		
Moving Image Audio Photo	R F B	**4.1.3.6.1 startDate**	The beginning date of the rights granted.	Date	O	NR	Structured form.		To aid machine processing, value should use a structured form. To facilitate exchange of PREMIS-conformant metadata, use of standard conventions, for instance as used in the date elements in the PREMIS schema, is recommended.	rightsMD	PREMIS 2.2 Rights Entity rightsStatement copyrightInformation copyrightApplicableDates <startDate>
Moving Image Audio Photo	R F B	**4.1.3.6.2 endDate**	The ending date of the rights granted.	Date	O	NR	Structured form.		Use “OPEN” for an open ended term of restriction. Omit endDate if the ending date is unknown or the permission statement applies to many objects with different end dates.	rightsMD	PREMIS 2.2 Rights Entity rightsStatement copyrightInformation copyrightApplicableDates <endDate>
Moving Image Audio Photo	R F B	**4.1.4 licenseInformation**	Container holding information about a license or other agreement granting permissions related to an object.	Text	O	NR	Container		When rightsBasis is “license”, licenseInformation should be provided.		
Moving Image Audio Photo	R F B	**4.1.4.1 licenseIdentifier**	Container holding a designation used to uniquely identify documentation supporting the specified rights granted by license within the repository system.	Text	O	R	Container		This semantic unit is intended to refer to a document recording the granting of permission when the rights basis is license. For some repositories this may be a formal signed contract with a customer. If the granting agreement is verbal, this could point to a memo by the repository documenting the verbal agreement. The identifier is optional because the agreement may not be stored in a repository with an identifier. In the case of a verbal agreement, for example, the entire agreement may be included or described in the licenseTerms. More detail in PREMIS.		
Moving Image Audio Photo	R F B	**4.1.4.1.1 licenseDocumentationIdentifierType**	A designation of the domain within which the license documentation identifier is unique.	Text	M	NR	CV		Example: HUL_DRS_OBJECT_URN	rightsMD	PREMIS 2.2 Rights Entity rightsStatement licenseInformation licenseIdentifier <licenseDocumentationIdentifierType>
Moving Image Audio Photo	R F B	**4.1.4.1.2 licenseDocumentationIdentifierValue**	The value of the licenseDocumentationIdentifier.	Text	M	NR	None		Example: http://nrs.harvard.edu/urn-3:HUL.DRS.OBJECT:6789	rightsMD	PREMIS 2.2 Rights Entity rightsStatement licenseInformation licenseIdentifier <licenseDocumentationIdentifierValue>
Moving Image Audio Photo	R F B	**4.1.4.1.3 licenseDocumentationIdentifierRole**	A value indicating the purpose or expected use of the documentation being identified. This information distinguishes the purpose of the supporting documentation especially when there are multiple documentation identifiers.	Text	O	NR	CV		Example: donor agreement	rightsMD	PREMIS 2.2 Rights Entity rightsStatement licenseInformation licenseIdentifier <licenseDocumentationIdentifierRole>
Moving Image Audio Photo	R F B	**4.1.4.2 licenseTerms**	Text describing the license or agreement by which permission was granted.	Text	O	NR	None		This could contain the actual text of the license or agreement or a paraphrase or summary.	rightsMD	PREMIS 2.2Rights Entity rightsStatement licenseInformation < licenseTerms>

Attribute of	Object Category	Name	Definition	Value type Text/Numeric/Date/Binary	Obligation	Repeatable	Data Constraint	Values allowed, or link to CV-list.	Notes	METS category	Link to Schema
Moving Image Audio Photo	R F B	**4.1.4.3 licenseNote**	Additional information about the license. Information about the terms of the license should go in licenseTerms. licenseNotes is intended for other types of information related to the license, such as contact persons, action dates, or interpretations. The note may also indicate the location of the license, for example, if it is available online or embedded in the object itself.	Text	O	R	None		Example: License is embedded in XMP block in file header. More detail in PREMIS.	rightsMD	PREMIS 2.2 Rights Entity rightsStatement licenseInformation < licenseNote>
Moving Image Audio Photo	R F B	**4.1.4.4 licenseApplicableDates**	Container holding the date range during which the license applies or is applied to the content. This is distinct from termOfGrant, which applies to a particular act expressed in rightsGranted and may differ from the period of time the license, statute or other basis applies to the content.	Date	O	NR	Container				
Moving Image Audio Photo	R F B	**4.1.4.4.1 startDate**	The beginning date of the rights granted.	Date	O	NR	Structured form.		To aid machine processing, value should use a structured form. To facilitate exchange of PREMIS-conformant metadata, use of standard conventions, for instance as used in the date elements in the PREMIS schema, is recommended.	rightsMD	PREMIS 2.2 Rights Entity rightsStatement licenseInformation
Moving Image Audio Photo	R F B	**4.1.4.4.2 endDate**	The ending date of the rights granted.	Date	O	NR	Structured form.		Use “OPEN” for an open ended term of restriction. Omit endDate if the ending date is unknown or the permission statement applies to many objects with different end dates.	rightsMD	PREMIS 2.2 Rights Entity rightsStatement licenseInformation licenseApplicableDates <endDate>
Moving Image Audio Photo	R F B	**4.1.5 statuteInformation**	Container holding information about the statute allowing use of the object.	Text	O	R	Container		When rightsBasis is “statute”, statuteInformation should be provided.		
Moving Image Audio Photo	R F B	**4.1.5.1 statuteJurisdiction**	The country or other political body enacting the statute.	Text	M	NR	CV	See: http://www.iso.org/iso/country_names_and_code_elements	The connection between the object and the rights granted is based on jurisdiction.	rightsMD	PREMIS 2.2 Rights Entity rightsStatement statuteInformation <statuteJurisdiction>
Moving Image Audio Photo	R F B	**4.1.5.2 statuteCitation**	An identifying designation for the statute.	Text	M	NR	None		Example: National Library of New Zealand (Te Puna Mātauranga o Aotearoa) Act 2003 no 19 part 4 s 34	rightsMD	PREMIS 2.2 Rights Entity rightsStatement statuteInformation
Moving Image Audio Photo	R F B	**4.1.5.3 statuteInformationDeterminationDate**	The date that the determination was made that the statute authorized the permission(s) noted. The permission in question may be the subject of some interpretation. These assessments are made within a specific context and at a specific time. At another time the context, and therefore the assessment, could change. For this reason it can be important to record the date of the decision.	Date	O	NR	Structured form.		To aid machine processing, value should use a structured form. To facilitate exchange of PREMIS-conformant metadata, use of standard conventions, for instance as used in the date elements in the PREMIS schema, is recommended.	rightsMD	PREMIS 2.2 Rights Entity rightsStatement statuteInformation <statuteInformationDeterminationDate>
Moving Image Audio Photo	R F B	**4.1.5.4 statuteNote**	Additional information about the statute.	Text	O	R	None		Example: Applicability to web-published content sent for review by general counsel 9/19/2008.	rightsMD	PREMIS 2.2 Rights Entity rightsStatement statuteInformation <statuteNote>
Moving Image Audio Photo	R F B	**4.1.5.5 statuteDocumentationIdentifier**	Container element holding the designation used to uniquely identify documentation supporting the specified rights granted by statute within the repository system.	Text	O	R	Container		This semantic unit is intended to refer to a document detailing the granting of permission when the rights basis is statute. If repeated, use statuteDocumentationRole to distinguish the role of the given documentation.		
Moving Image Audio Photo	R F B	**4.1.5.5.1 statuteDocumentationIdentifierType**	A designation of the domain within which the statute documentation identifier is unique.	Text	M	NR	CV			rightsMD	PREMIS 2.2 Rights Entity rightsStatement statuteInformation statuteDocumentationIdentifier <statuteDocumentationIdentifierType>
Moving Image Audio Photo	R F B	**4.1.5.5.2 statuteDocumentationIdentifierValue**	The value of the statuteDocumentationIdentifier.	Text	M	NR	None			rightsMD	PREMIS 2.2 Rights Entity rightsStatement statuteInformation statuteDocumentationIdentifier <statuteDocumentationIdentifierValue>
Moving Image Audio Photo	R F B	**4.1.5.5.3 statuteDocumentationRole**	A value indicating the purpose or expected use of the documentation being identified.	Text	O	NR	CV		More detail in PREMIS.	rightsMD	PREMIS 2.2 Rights Entity rightsStatement statuteInformation statuteDocumentationIdentifier <statuteDocumentationRole>
Moving Image Audio Photo	R F B	**4.1.5.6 statuteApplicableDates**	Container element holding the date range during which the statute applies or is applied to the content.	Date	O	NR	Container		Specific dates may apply to the particular rights granted. More detail in PREMIS.		

Attribute of	Object Category	Name	Definition	Value type Text/Numeric/Date/Binary	Obligation	Repeatable	Data Constraint	Values allowed, or link to CV-list.	Notes	METS category	Link to Schema
Moving Image Audio Photo	R F B	**4.1.5.6.1 startDate**	The beginning date of the rights granted.	Date	O	NR	Structured form.		To aid machine processing, value should use a structured form. To facilitate exchange of PREMIS-conformant metadata, use of standard conventions, for instance as used in the date elements in the PREMIS schema, is recommended.	rightsMD	PREMIS 2.2 Rights Entity rightsStatement statuteInformation statuteApplicableDates <startDate>
Moving Image Audio Photo	R F B	**4.1.5.6.2 endDate**	The ending date of the rights granted. Use "OPEN" for an open ended term of restriction. Omit endDate if the ending date is unknown or the permission statement applies to many objects with different end dates.	Date	O	NR	Structured form.		Use "OPEN" for an open ended term of restriction. Omit endDate if the ending date is unknown or the permission statement applies to many objects with different end dates.	rightsMD	PREMIS 2.2 Rights Entity rightsStatement statuteInformation
Moving Image Audio Photo	R F B	**4.1.6 otherRightsInformation**	Container element holding information about the rights status of the object(s). This semantic unit is used to supply information about rights granted when the basis is something other than copyright, license or statute.	Text	O	NR	Container		This semantic unit is used to supply information about rights granted when the basis is something other than copyright, license or statute.		
Moving Image Audio Photo	R F B	**4.1.6.1 otherRightsDocumentationIdentifier**	Container element holding a designation used to uniquely identify documentation supporting the specified rights within the repository system, when the basis for these rights is something other than copyright, license or statute.	Text	O	R	Container		This semantic unit provides a mechanism to link to documentation for rightsBasis values other than those granted through copyright, license or statute. The rights basis may be specified in otherRightsBasis. More detail in PREMIS.		
Moving Image Audio Photo	R F B	**4.1.6.1.1 otherRightsDocumentationIdentifierType**	A designation of the domain within which the rights statement documentation identifier is unique.	Text	M	NR	CV			rightsMD	PREMIS 2.2 Rights Entity rightsStatement otherRightsInformation otherRightsDocumentationIdentifier <otherRightsDocumentationIdentifierType>
Moving Image Audio Photo	R F B	**4.1.6.1.2 otherRightsDocumentationIdentifierValue**	The value of the otherRightsDocumentationIdentifier.	Text	M	NR	None			rightsMD	PREMIS 2.2 Rights Entity rightsStatement otherRightsInformation otherRightsDocumentationIdentifier <otherRightsDocumentationIdentifierValue>
Moving Image Audio Photo	R F B	**4.1.6.1.3 otherRightsDocumentationRole**	A value indicating the purpose or expected use of the documentation being identified. This information distinguishes the purpose of the supporting documentation especially when there are multiple documentation identifiers.	Text	O	NR	CV		This information distinguishes the purpose of the supporting documentation especially when there are multiple documentation identifiers.	rightsMD	PREMIS 2.2 Rights Entity rightsStatement otherRightsInformation otherRightsDocumentationIdentifier otherRightsDocumentationRole
Moving Image Audio Photo	R F B	**4.1.6.2 otherRightsBasis**	Designation of the basis for the other right or permission described in the rightsStatementIdentifier. Use this semantic unit for specific rights bases other than copyrightInformation, licenseInformation or, statuteInformation. When this semantic unit is used 4.1.2 rightsBasis is "other". The rights basis may be specific to the repository, but it is recommended to use a value from a local or globally controlled vocabulary for machine actionability.	Text	M	NR	CV		More detail in PREMIS.	rightsMD	PREMIS 2.2 Rights Entity rightsStatement otherRightsInformation <otherRightsBasis>
Moving Image Audio Photo	R F B	**4.1.6.3 otherRightsApplicableDates**	Container element holding the date range during which the particular rights applies or applied to the content. This is distinct from termOfGrant, which applies to a particular act expressed in rightsGranted and may differ from the period of time the license, statute or other basis applies to the content.	Date	O	NR	Container		Specific dates may apply to the particular rights granted. More detail in PREMIS.		
Moving Image Audio Photo	R F B	**4.1.6.3.1 startDate**	The beginning date of the rights granted.	Date	O	NR	Structured form.		To aid machine processing, value should use a structured form. To facilitate exchange of PREMIS-conformant metadata, use of standard conventions, for instance as used in the date elements in the PREMIS schema, is recommended.	rightsMD	PREMIS 2.2 Rights Entity rightsStatement otherRightsInformation otherRightsApplicableDates <startDate>
Moving Image Audio Photo	R F B	**4.1.6.3.2 endDate**	The ending date of the rights granted.	Date	O	NR	Structured form.		Use "OPEN" for an open ended term of restriction. Omit endDate if the ending date is unknown or the permission statement applies to many objects with different end dates.	rightsMD	PREMIS 2.2 Rights Entity rightsStatement otherRightsInformation otherRightsApplicableDates <endDate>
Moving Image Audio Photo	R F B	**4.1.6.4 otherRightsNote**	Additional information about the rights of the object.	Text	O	R	None		Example: 80-year rule	rightsMD	PREMIS 2.2 Rights Entity rightsStatement otherRightsInformation <otherRightsNote>
Moving Image Audio Photo	R F B	**4.1.7 rightsGranted**	The action(s) that the granting agency has allowed the repository.	Text	O	R	Container				

Attribute of	Object Category	Name	Definition	Value type Text/Numeric/Date/Binary	Obligation	Repeatable	Data Constraint	Values allowed, or link to CV-list.	Notes	METS category	Link to Schema
Moving Image Audio Photo	R F B	**4.1.7.1 act**	The action the preservation repository is allowed to take.	Text	M	NR	CV	See also Permissions Type: http://www.loc.gov/standards/rights/METSRights.xsd	Suggested values: replicate = make an exact copy migrate = make a copy identical in content in a different file format modify = make a version different in content use = read without copying or modifying (e.g., to validate a file or run a program) disseminate = create a copy or version for use outside of the preservation repository delete = remove from the repository It is up to the preservation repository to decide how granular the controlled vocabulary should be. It may be useful to employ the same controlled values that the repository uses for eventType.	rightsMD	PREMIS 2.2 Rights Entity rightsStatement rightsGranted <act>
Moving Image Audio Photo	R F B	**4.1.7.2 restriction**	A condition or limitation on the act.	Text	O	R	None	See also Constraints Type: http://www.loc.gov/standards/rights/METSRights.xsd	Examples: No more than three ; Allowed only after one year of archival retention has elapsed ; Rightsholder must be notified after completion of act	rightsMD	PREMIS 2.2 Rights Entity rightsStatement rightsGranted <restriction>
Moving Image Audio Photo	R F B	**4.1.7.3 termOfGrant**	Container element holding the time period for the permissions granted.	Text	O	NR	Container		The permission to preserve may be time bounded.		
Moving Image Audio Photo	R F B	**4.1.7.3.1 startDate**	The beginning date of the permission granted.	Date	M	NR	Structured form.		To aid machine processing, value should use a structured form. To facilitate exchange of PREMIS-conformant metadata, use of standard conventions, for instance as used in the date elements in the PREMIS schema, is recommended.	rightsMD	PREMIS 2.2 Rights Entity rightsStatement rightsGranted termOfGrant <startDate>
Moving Image Audio Photo	R F B	**4.1.7.3.2 endDate**	The ending date of the permission granted.	Date	O	NR	Structured form.		Use “OPEN” for an open ended term of restriction. Omit endDate if the ending date is unknown or the permission statement applies to many objects with different end dates.	rightsMD	PREMIS 2.2 Rights Entity rightsStatement rightsGranted termOfGrant <endDate>
Moving Image Audio Photo	R F B	**4.1.7.4 termOfRestriction**	Container element holding the time period for the restriction granted.	Text	O	NR	Container		The current definition of termOfGrant is "time period for the permissions granted." This allows for expressing information about the rights granted, but some repositories may need to express timebounded restrictions like embargoes. If this is applicable startDate for the beginning of the embargo and endDate for the end of the embargo should be recorded.		
Moving Image Audio Photo	R F B	**4.1.7.4.1 startDate**	The beginning date of the restriction granted.	Date	M	NR	Structured form.		To aid machine processing, value should use a structured form. To facilitate exchange of PREMIS-conformant metadata, use of standard conventions, for instance as used in the date elements in the PREMIS schema, is recommended.	rightsMD	PREMIS 2.2 Rights Entity rightsStatement rightsGranted termOfRestriction <startDate>
Moving Image Audio Photo	R F B	**4.1.7.4.2 endDate**	The ending date of the restriction granted.	Date	O	NR	Structured form.		Use “OPEN” for an open ended term of restriction. Omit endDate if the ending date is unknown or the permission statement applies to many objects with different end dates.	rightsMD	PREMIS 2.2 Rights Entity rightsStatement rightsGranted termOfRestriction <endDate>
Moving Image Audio Photo	R F B	**4.1.7.5 rightsGrantedNote**	Additional information about the rights granted. A textual description of the rights granted may be needed for additional explanation.	Text	O	R	None		This semantic unit may include a statement about risk assessment, for example, when a repository is not certain about what permissions have been granted.	rightsMD	PREMIS 2.2 Rights Entity rightsStatement rightsGranted <rightsGrantedNote>
Moving Image Audio Photo	R F B	**4.1.8 linkingObjectIdentifier**	Container element holding the identifier on an object associated with the rights statement.	Text	O	R	Container		Rights statements must be associated with the objects to which they pertain, either by linking from the rights statement to the object(s) or by linking from the object(s) to the rights statement. This provides the mechanism for the link from the rights statement to an object. linkingObjectIdentifier is optional because in some cases it will be more practical to link from the object(s) to the rights statement; for example, a repository may have a single rights statement covering thousands of public domain objects. More detail in PREMIS.		
Moving Image Audio Photo	R F B	**4.1.8.1 linkingObjectIdentifierType**	A designation of the domain in which the linking object identifier is unique.	Text	M	NR	CV	See 1.1.1 ObjectIdentifierType.		rightsMD	PREMIS 2.2 Rights Entity rightsStatement linkingObjectIdentifier <linkingObjectIdentifierType>
Moving Image Audio Photo	R F B	**4.1.8.2 linkingObjectIdentifierValue**	The value of the linkingObjectIdentifier.	Text	M	NR	None		See examples 1.1.2 ObjectIdentifierValue.	rightsMD	PREMIS 2.2 Rights Entity rightsStatement linkingObjectIdentifier <linkingObjectIdentifierValue>

Attribute of	Object Category	Name	Definition	Value type Text/Numeric/Date/Binary	Obligation	Repeatable	Data Constraint	Values allowed, or link to CV-list.	Notes	METS category	Link to Schema
Moving Image Audio Photo	R F B	**4.1.8.3 linkingObjectRole**	The role of the object associated with an agent. Distinguishes the role of the object in relation to an agent. If this is not explicit it is necessary to analyze the relationship between objects in the object metadata.	Text	O	R	None		This value need not be supplied in the ordinary case where the role of the linked-to object is to be governed by the rights statement. If the object has a different relationship to the rights statement, however, it should be noted here.	rightsMD	PREMIS 2.2 Rights Entity rightsStatement linkingObjectIdentifier <linkingObjectRole>
Moving Image Audio Photo	R F B	**4.1.9 linkingAgentIdentifier**	Container element holding the identification of one or more agents associated with the rights statement.	Text	O	R	Container		Rights statements may be associated with related agents, either by linking from the rights statement to the agent(s) or by linking from the agents(s) to the rights statement. This provides the mechanism for the link from the rights statement to the agent. linkingAgentIdentifier is optional because a relevant agent may be unknown, or in no agent may be relevant. The latter is likely when the rights basis is statute. More detail in PREMIS.		
Moving Image Audio Photo	R F B	**4.1.9.1 linkingAgentIdentifierType**	A designation of the domain in which the linking agent identifier is unique.	Text	M	NR	CV	See 3.1.1 AgentIdentifierType.		rightsMD	PREMIS 2.2 Rights Entity rightsStatement linkingAgentIdentifier <linkingAgentIdentifierType>
Moving Image Audio Photo	R F B	**4.1.9.2 linkingAgentIdentifierValue**	The value of the linkingAgentIdentifier.	Text	M	NR	None		See examples 3.1.2 AgentIdentifierValue.	rightsMD	PREMIS 2.2 Rights Entity rightsStatement linkingAgentIdentifier <linkingAgentIdentifierValue>
Moving Image Audio Photo	R F B	**4.1.9.3 linkingAgentRole**	The role of the agent in relation to the rights statement.	Text	O	R	CV	Examples: contact ; creator ; publisher ; rightsholder ; grantor.		rightsMD	PREMIS 2.2 Rights Entity rightsStatement linkingAgentIdentifier <linkingAgentRole>
Moving Image Audio Photo	R F B	**4.2 rightsExtension**	A container to include semantic units defined outside of PREMIS. There may be a need to replace or extend PREMIS defined units.	Text	O	R	Container		If the repository records rights information, either rightsStatement or rightsExtension must be present.		