PREMIS RECOMMENDATIONS
Based on PREMIS Data Dictionary Version 2.0
(http://www.loc.gov/standards/premis/)

OBJECT ENTITY

Objects are discrete units of information in digital form. Objects are what the repository preserves. Examples include representation, file, bitstream. At the representation level, the following are mandatory:

Mandatory Semantic Unit	Repeatable?	Definition	Example	Usage notes	Recommendation
objectIdentifier (container)	y	Designation used to uniquely identify the object within the preservation repository	n/a	The objectIdentifier is mandatory if the preservation repository stores and manages objects at that level (i.e., representation, file, bitstream).	Include in METS amdSec in digiprovMD:
objectIdentifierType	n	Designation of the domain within which the object identifier is unique	• DLC • DRS • hdl:4263537	Type of identifier may be implicit within the repository as long as it can be explicitly communicated when the digital object is disseminated outside of it	<PREMIS:objectIdentifierType>identifier</PREMIS:objectIdentifierType>
objectIdentifierValue	n	Value of the objectIdentifier	• 000003112 • 1001/dig/pres/2004-024	Example: uc2.ark:/13960/t3fx76m1n	Example: <PREMIS:objectIdentifierValue>uc2.ark:/13960/t3fx76m1n</PREMIS:objectIdentifierValue>

preservationLevel (container) (optional)	y	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.	n/a	If the repository offers only a single preservation level, this does not need to be explicitly recorded within the repository. Application of a particular set of preservationLevel semantic units may only cover a single representation of an object: representations in other technical forms or serving other functions may have a different preservationLevel applied.	Include in object entity <PREMIS:preservationLevel> <PREMIS:preservationLevelValue> 1</PREMIS:preservationLevelValue > </PREMIS:preservationLevel>
preservationLevelValue	n	A value indicating the set of preservation functions expected to be applied to the object.	• bit-level • full • 0 • 1 • 2	Only one preservationLevelValue may be recorded per preservationLevel container. If a further preservationLevelValue applies to the object in a different context, a separate preservationLevel container should be repeated.	HathiTrust has only one preservation level currently, the highest. The value "1" is used.
significantProperties (container) (optional)	y	Characteristics of a particular object subjectively determined to be important to maintain through preservation actions.	n/a	All of this semantic unit's subunits are optional. At least one of the significantPropertiesValue and significantPropertiesExtension subunits must be present if this container is included or both may be used.	Include file count and page count in Content Information if available

significantProperties Type (optional)	n	The aspect, facet, or attribute of an object about which significant properties are being described.	• Content • Structure • Behavior • page count • page width • typeface • hyperlinks • image count	This semantic unit is optional and may be used as part of a facet:detail pair with significantPropertiesValue.	Examples: file count, page count. The file and page counts are generated as part of the IA METS creation process.
signficantPropertiesValue (optional)	n	Description of the characteristics of a particular object subjectively determined to be important to maintain through preservation actions.	[For detail associated with a significantPropertiesType of "behavior"] "hyperlinks traversable"	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.	Example:<PREMIS:significantProperties> <PREMIS:significantPropertiesType>file count</PREMIS:significantPropertiesType> <PREMIS:significantPropertiesValue>204</PREMIS:significantPropertiesValue> </PREMIS:significantProperties> <PREMIS:significantProperties> <PREMIS:significantPropertiesType>page count</PREMIS:significantPropertiesType> <PREMIS:significantPropertiesValue>68</PREMIS:significantPropertiesValue> </PREMIS:significantProperties>

At the file level, the following are mandatory:

Mandatory Semantic Unit	Repeatable?	Definition	Example	Usage notes	General Recommendations
objectIdentifier (container)	y	Designation used to uniquely identify the object within the preservation repository	n/a		n/a
objectIdentifierType	n	Designation of the domain within which the object identifier is unique	• DLC • DRS • hdl:4263537	Type of identifier may be implicit within the repository as long as it can be explicitly communicated when the digital object is disseminated outside of it	n/a
objectIdentifierValue	n	Value of the objectIdentifier	• 000003112 • 1001/dig/pres/2004-024	File group plus sequence number already ensures uniqueness at file level - ignore	n/a
objectCharacteristics (container)	y	Technical properties of a file or bitstream that are applicable to all or most formats	n/a	Components = Mandatory: compositionLevel, format Optional: Fixity (container for messageDigest info) Size, significantProperties, inhibitors	n/a

compositionLevel	n	Indication of whether the object is subject to one or more processes of decoding or unbundling	• 0 • 1 • 2	compositionLevel of zero indicates that the object is a base object not subject to further encoding, level of 1 or higher indicates that one or more decodings must be applied. Numbering goes lowest to highest – 0 is base, 1-n are subsequent. Use 0 as the default if there is only one compositionLevel.	All our files are 0 so can ignore
format (container)	y	Identification of the format of a file or bitstream where format is the organization of digital information according to preset specifications	n/a	When the bitstream format can be recognized by the repository and the repository might want to treat the bitstream differently from the embedding file for preservation purposes, format can be recorded for embedded bitstreams.	n/a
formatDesignation (container) (optional)	n	Identification of the format of the object	n/a	The most specific format (or format profile) should be recorded.	n/a
formatName (mandatory only if formatDesignation is used)	n	Designation of the format of the file or bitstream	• text/sgml • image/tiff/geotiff	For unidentified formats, formatName may be recorded as "unknown".	This is already recorded in MIMETYPE in METS fileSec so ignore
storage (container)	y	Information about how and where a file is stored in the storage system	Normally there would be single storage location and medium. The storage composite should be repeated if	n/a	n/a

			there are two or more copies that are identical bit-wise and managed as a unit except for the medium on which they are stored. Must have a single objectIdentifier and be managed as a single object by the repository			
storageMedium	n		The physical medium on which the object is stored (magnetic tape, hard disk, etc)	• magnetic tape • hard disk • TSM	In some cases can be masked from direct repository management by storage management systems but the underlying assumption is that the repository ultimately is in control and needs to manage for technical obsolescence. In some cases ay not be the specific medium, but the system that knows the medium (e.g. Tivoli Storage Manager)	All on hard disk so ignore.

EVENT ENTITY

An event is an action that involves or impacts at least one Object or Agent associated with or known by the repository. Recording events helps document digital provenance and can track history of object through chain of events that occur during Object lifecycle. Determining which events are in scope, which should be recorded and at what level of granularity is up to the repository. Note: objectID + eventID = unique event within the repository.

Mandatory Semantic Unit	Repeatable?	Definition	Example	Usage notes	Recommendation
eventIdentifier (container)	n	A designation used to uniquely identify the event within the preservation repository system	n/a	No global scheme/standard; likely to be system generated. Whether or not to record an event depends upon the importance of the event. Actions that modify objects should always be recorded.	Record events in METS amdSec in digiprovMD Occurs after <PREMIS:object> e.g., </PREMIS:object> <PREMIS:event> <PREMIS:eventIdentifier>, etc.
eventIdentifierType	n	A designation of the domain within which the event identifier is unique	• FDA • Stanford Repository Event ID • UUID	Most repositories will use their own internal numbering system. It can be implicit within the system and provided explicitly only if the data is exported	Examples: Internet Archive, IA, UM
eventIdentifierValue	n	The value of the eventIdentifier	[a binary integer] • E-2004-11-13-000119 • 58f202ac-22cf-11d1-b12d-002035b29092	Can make up numbering system/codes. Event ID must be unique for the object e001.1 (Unique id within repository is doi for the volume plus event id. Event could be at object level or file level).	Examples: capture1, transformation1, page feature mapping1, fixity check1, ingestion1, message digest calculation1, validation1 See examples in PREMIS 2.0 Profile
eventType	n	A categorization of the nature of the event	E77 [a code used within a repository for a particular event	Value should be taken from a controlled vocabulary. Each repository should define its	Include - see terms and definitions in PREMIS 2.0 Profile – e.g., <PREMIS:eventType> capture </PREMIS:eventType>

			type], Ingest	own controlled vocabulary.	
eventDateTime	n	Single date and time or date and time range at or during which the event occurred	20050704T0715 30-0500 [July 4, 2005 at 7:15:30 a.m. EST]	Any date/time convention as long as can be translated into ISO8601; Recommended practice is to record the most specific time possible and to designate the time zone.	Include - e.g. <PREMIS:eventDateTime> 2007-09-14T01:20:31 </PREMIS:eventDateTime>
eventDetail (optional)	n	Additional information about the event	Object permanently withdrawn by request of Caroline Hunt.; Program="MIGJ P2JP2K"; version="2.2"	eventDetail is not intended to be processed by machine. It may record any information about an event and/or point to information stored elsewhere.	Include for all events Example: <PREMIS:eventDetail> Initial capture of item </PREMIS:eventDetail>
eventOutcomeInfor mation (container) (optional)	y	Information about the outcome of an event	n/a	A repository may wish to supplement a coded eventOutcome value with additional information in eventOutcomeDetail	Include for fixity check event (HathiTrust METS and IA METS), and package inspection and IA METS creation events (IA METS only)
eventOutcome	n	A categorization of the overall result of the event in terms of success, partial success, or failure.	• 00 [a code meaning "action successfully completed"] • CV-01 [a code meaning "checksum validated"]	Recommended practice is to use a controlled vocabulary that a system can act upon automatically. More detail about the outcome may be recorded in eventOutcomeDetail. Recommended practice is to define events with sufficient granularity that each event has a single outcome.	Example: <PREMIS:eventOutcome> pass </PREMIS:eventOutcome> or <PREMIS:eventOutcome> warning </PREMIS:eventOutcome>
eventOutcomeDetail (container) (optional)	y	A detailed description of the result or product of the	n/a	This may be used to record all error and warning messages issued by a program involved in the	Include if there is a warning Example: <PREMIS:eventOutcomeDetail> <PREMIS:eventOutcomeDetailNote

| | | event. | | 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. All subunits of this semantic unit are optional. At least one subunit (i.e. eventOutcomeDetailNote and/or eventOutcomeDetailExtension) must be present if this container is included. | >Marc data not included because source file was not valid XML</PREMIS:eventOutcomeDetailNote> </PREMIS:eventOutcomeDetail> |
| eventOutcomeDetail Note (optional) | n | A detailed description of the result or product of the event in textual form | • LZWcompressed file
• Non-standard tags found in header | If eventOutcomeDetail is used, either eventOutcomeDetailNote or eventOutcomeDetailExtension must be used | See above |

eventOutcomeDetail Extension (optional)	y	A container to include semantic units defined outside of PREMIS.	Manual audit information from Google (see audit example document)	If eventOutcomeDetailExtension container needs to be associated explicitly with any PREMIS subunit under eventOutcomeDetail, the container eventOutcomeDetail is repeated. If extensions from different external schemas are needed, eventOutcomeDetail should also be repeated.	Mandatory to include if eventOutcomeDetail is included (per page 140 of premis 2.0 – see Usage notes for eventOutcomeDetail). Example: <PREMIS:eventOutcomeInformation> <PREMIS:eventOutcome>warning</PREMIS:eventOutcome> <PREMIS:eventOutcomeDetail> <PREMIS:eventOutcomeDetailNote>files failed checksum validation</PREMIS:eventOutcomeDetailNote> <PREMIS:eventOutcomeDetailExtension> <HT:fileList status="failed"> <HT:file>fatherabrahamida00tarbrich_files.xml</HT:file> <HT:file>fatherabrahamida00tarbrich_meta.xml</HT:file> </HT:fileList> </PREMIS:eventOutcomeDetailExtension> </PREMIS:eventOutcomeDetail> </PREMIS:eventOutcomeInformation>
linkingAgentIdentifier (container)	y	Information about an agent associated with an event.	n/a	Recommended practice is to record the agent if possible.	Include – all eventTypes we have defined should specify an agent and a tool
linkingAgentIdentifierType	n	Designation of the domain in which the agent identifier is unique	• LCNAF • SAN • MARC • Org. Codes • URI • Agent ID	Value should be taken from a controlled vocabulary	Include - e.g., AgentID, tool

linkingAgentIdentifierValue	n	Value of the linkingagentIdentifier	• 92-79917 • Owens, Erik C. • MH-CS. • Info:lccn/n7880990 • Google, Inc. • UM / HathiTrust	May be a unique key or a controlled textual form of name	Include – Examples of AgentID: UM, Internet Archive Examples of tools: scribe8.la.archive.org, md5sum, jhove1.5, exiftool, Xerces-C 3.1.0
linkingAgentRole	y	The role of the agent in relation to this event	• Authorizer • Implementor • Validator • Executing program	Values should be taken from a controlled vocabulary	Examples: Executor, software, image capture