Roadmap for development of related standards

(Informative)

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This Reference Model is the core of the OAIS family of standards and explicitly identifies areas suitable for the development of OAIS-related standards as well as progress towards developing related standards. Some of these standards may be developed by CCSDS; others may be developed by other standardization bodies. However, any such work undertaken by other bodies should be coordinated to minimize incompatibilities and efforts. Some areas for potential OAIS-related standards are listed below together with references to relevant standards and/or initiatives:

* standard(s) for the interfaces between OAIS type Archives;
* The Outer OAIS – Inner OAIS (OO-IO) Model (paper to be published in 2017);
* standard(s) for the submission (ingest) methodology used by an Archive:
* CCSDS 651.0-B-1 *Producer-Archive Interface Methodology Abstract Standard (PAIMAS)* (also available as ISO 20652:2006 *Space data and information transfer systems—Producer-Archive Interface—Methodology Abstract Standard)*
* CCSDS 653.0-M-1 *Information Preparation to Enable Long Term Usage* (in development)
* standard(s) for the submission (ingest) of digital data sources to the Archive;
* CCSDS 651.1-B-1 *Producer-Archive Ingest Specification (PAIS)* (also available as ISO 20104:2015*Space data and information transfer systems—Producer-Archive Ingest Specification (PAIS))*;
* standard(s) for the delivery of digital sources from the Archive;
* Open Archives Initiative Object Reuse and Exchange (OAI-ORE)
* standard(s) for the submission of digital metadata, about digital or physical data sources, to the Archive: (or dissemination from the Archive)
* CCSDS 644.0-B-3 *Data Description Language—EAST Specification* (also available as ISO 15889:2003 *Space data and information transfer systems—Data Description Language—EAST Specification)*;
* CCSDS 647.1-B-1 *Data Entity Dictionary Specification Language (DEDSL)—Abstract syntax* (also available as ISO 21961:2003 *Space data and information transfer systems—Data Entity Dictionary Specification Language (DEDSL)—Abstract syntax)*;
* CCSDS 647.2-B-1 *Data Entity Dictionary Specification Language (DEDSL)— PVL syntax (*also available as ISO 21962:2003 *Space data and information transfer systems—Data Entity Dictionary Specification Language (DEDSL)—PVL syntax)*;
* CCSDS 647.3-B-1 *Data Entity Dictionary Specification Language (DEDSL)— XML/DTD syntax (*also available as ISO 22643:2003 *Space data and information transfer systems—Data Entity Dictionary Specification Language (DEDSL)—XML/DTD)*;
* CCSDS 647.5-O-1 *Data Entity Dictionary Specification Language (DEDSL)— XML/XSD* syntax;
* CCSDS 647.4-O-1 *XML Formatted Data Unit (XFDU) Structure and Construction Rules* (also available as ISO 13527:2010 *Space data and information transfer systems—XML formatted data unit (XFDU) structure and construction rules*);
* DIN 31645:2011-11: Information and documentation - Guide to the transfer of information objects into digital long-term archives
* METS: Metadata Encoding and Transmission Standard
* *PREMIS Data Dictionary for Preservation Metadata*. Version 3.0, PREMIS Editorial Committee, March 2015, available at: <http://www.loc.gov/standards/premis/v3/premis-3-0-final.pdf>;

PREMIS was developed with OAIS as its context and with the assumption that digital preservation repositories will comply with the functionality and information that OAIS specifies. The OAIS Information Model categories of Representation Information, and Preservation Descriptive Information, including Fixity Information, Reference Information, Provenance Information, Context Information and Access Rights information are reflected in concrete, implementable PREMIS “semantic units” that mitigate against the threat of loss and support the functionality of the preservation repository to ensure authenticity, renderability, viability, identity and availability. PREMIS also supplies semantic units that fall into the category of Representation Information and its subcategories of Structural and Semantic Information, including a comprehensive description of hardware and software environments and their relationships needed to render, use or provide other functionality for long-term preservation of digital objects. . With its high level of detail, the PREMIS Data Dictionary may be considered a blueprint for the design of metadata in a preservation repository.

Not covered by OAIS but by PREMIS is information recorded about digital objects prior to ingest in the repository. The Rights entity in PREMIS focuses on rights asserted by copyright, license, statute or policy mainly for preservation purposes, although it may be also used to assert access rights, while OAIS supports the latter. Thus, PREMIS provides key pieces of information that cover the whole life-cycle of digital objects, going beyond OAIS’ scope of the preservation repository.

The OAIS information model is organized around categories of information, while the PREMIS data model is organized around the core entities Objects, Events, Agents and Rights. In some cases, this difference in approach has resulted in differences in terminology. One example is the categorization of Objects into various levels (Intellectual Entity, Representation, File, Bitstream)

* syntax standard(s) for the identification of digital sources within the Archive;
* protocol standard(s) to search and retrieve metadata information about digital and physical data sources;
* standard(s) for media access allowing replacement of media management systems without having to rewrite the media;
* standard(s) for specific physical media;
* standard(s) for the migration of information across media and formats;
* standard(s) for recommended archival practices:
* ISO 15489-1:2001 Information and documentation—Records management. Part 1: General;
* ISO/TR 15489-2:2001 Information and documentation—Records management. Part 2: Guidelines;
* ISO 23081-1:2006 Information and documentation—Records management processes—Metadata for records—Part 1: Principles;
* ISO/TS 23081-2:2007 Information and documentation—Records management processes—Metadata for records—Part 2: Conceptual and implementation issues;
* standard(s) for certification of Archives:
* CCSDS 652.0-M-1, Audit *and Certification of Trustworthy Digital Repositories* (also available as ISO 16363:2012 *Space data and information transfer systems—Audit and Certification of Trustworthy Digital Repositories);*
* CCSDS 652.1-M-2, Requirements *for Bodies Performing Audit and Certification of Candidate Trustworthy Digital Repositories* (also available as ISO 16919:2014 *Space data and information transfer systems—Requirements for Bodies Performing Audit and Certification of Candidate Trustworthy Digital Repositories);*
* Core Trust Data Seal of Approval
* DIN 31644-2012: Information and documentation - Criteria for trustworthy digital archives (nestor-Siegel)
* standard(s) for Preservation as a Service (PaaS)
* standard(s) for cloud services