

Using Standards in Digital Library Design & Development

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ABSTRACT

This tutorial will cover a set of Standards and defacto Standards that can play a role in the design and development of Digital Library applications. The Standards that will be discussed are the ISO MPEG-21 Digital Item Declaration, the ISO MPEG-21 Digital Item Identification, the ISO MPEG-21 Digital Item Processing, the Open Archives Protocol for Metadata Harvesting, the Internet Archive ARC file format, the NISO OpenURL Framework for Context-Sensitive Services, and the proposed info URI scheme. The tutorial will discuss these Standards by illustrating how they have been used in the context of the aDORe Digital Object repository. aDORe [8] has been designed and implemented for ingesting, storing, and accessing a vast collection of Digital Objects at the Research Library of the Los Alamos National Laboratory. Since aDORe is not a product, the tutorial is not a product advertisement. Rather, it is an opportunity for designers and developers to learn about Standards that can help addressing real-life challenges in DL design and development, and help increase interoperability across systems. The presenters are actively involved in all of the standardization efforts that are discussed.

Categories and Subject Descriptors

H.3.7 [Digital Libraries]: Standards

General Terms: Standardization, Design

1. OUTLINE

1.1 Using MPEG-21 DID to represent Digital Objects

The tutorial examines the use of the MPEG-21 Digital Item Declaration [3] (ISO/IEC 21000-2) to represent Digital Objects as XML-based MPEG-21 DIDL documents.

1.2 Using MPEG-21 DII to identify Digital Objects

The tutorial examines the use of the MPEG-21 Digital Item Identification [4] (ISO/IEC 21000-2) to convey the identifier(s) of a Digital Object, and its constituent datastreams.

1.3 Using MPEG-21 DIP to process Digital Objects

The tutorial examines the use of the MPEG-21 Digital Item Processing Standard [2] (ISO/IEC 21000-10) to facilitate the delivery of various disseminations of Digital Objects.

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Using OAI-PMH to harvest resources represented as Digital Objects

The tutorial examines how digital resources, not just metadata about resources, can be harvested using the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH) [5].

1.4 Using Internet Archive ARC files to store datastreams constituting a Digital Object

The tutorial examines how constituent datastreams of the Digital Object can be provided by reference and physically stored in Internet Archive ARC files [1].

1.5 Using info URI to facilitate the referencing of information assets under the URI allocation

The tutorial examines the use of the info URI scheme [7], proposed to allow referencing by means of URIs those resources that have identifiers in public namespaces but have no representation within the URI allocation.

1.6 Using the OpenURL Framework to convey Context-Sensitive dissemination requests

The tutorial examines the use of the NISO OpenURL Standard [6], which provides a generic framework for the delivery of Context-Sensitive services pertaining to resources referenced in a networked environment.

2. REFERENCES

- [1] Burner, M., & Kahle, B. *Arc File format*. September 15, 1996.
- [2] Drury, G., et al. (Eds.). *ISO/IEC FCD 21000-10 Digital Item Processing*. Palma De Mallorca, Spain, Oct. 2004.
- [3] International Organization for Standardization. *ISO/IEC 21000-2:2003. Information technology -- Multimedia framework (MPEG-21) -- Part 2: Digital Item Declaration (1st ed.)*, Geneva, Switzerland, 2003.
- [4] International Organization for Standardization. *ISO/IEC 21000-3:2003. Information technology -- Multimedia framework (MPEG-21) -- Part 3: Digital Item Identification (1st ed.)*, Geneva, Switzerland, 2003.
- [5] Lagoze, C., et al. (Eds.). *The Open Archives Initiative protocol for metadata harvesting* (2nd ed.), June 2002
- [6] National Information Standards Organization. *ANSI/NISO Z39.88-2004: The OpenURL Framework for Context-Sensitive Services*. NISO Press, Bethesda, MD.
- [7] Van de Sompel, H., et al. *The "info" URI scheme for information assets with identifiers in public namespaces (2nd ed.)*. (IETF Internet-Draft), July 9, 2004.
- [8] Van de Sompel, H, et al. aDORe: *A Modular, Standards-based Digital Object Repository*. February, 2005.
<<http://arXiv.org/abs/cs.DL/0502028>>