INTERNATIONAL STANDARD

ISO 22938

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Document management — Electronic content/document management (CDM) data interchange format

Gestion de documents — Format d'échange de données pour la gestion de documents/du contenu électronique

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 22938 was prepared by Technical Committee ISO/TC 171, *Document management applications*, Subcommittee SC 2, *Application issues*.

Introduction

This International Standard specifies a consistent interchange format for data contained in electronic content/document management (CDM) systems, including documents, their associated resources, and retrieval index values that are stored in, or managed by, these technologies. Such a standard should facilitate the *exact* interchange of CDM data, i.e. the standard should not require that the data be irreversibly modified or packaged within a format that does not allow the reconstruction of the original data. Therefore, this International Standard avoids choosing one particular data format and anointing it as the interchange standard for CDM. Rather, this International Standard specifies a common markup format, based on the XML (eXtensible Markup Language), which encapsulates all forms of CDM data. A DTD (document type definition) describes the XML markup used for CDM data transfer. The XML format is a W3C (World Wide Web Consortium) standard, adopted in February 1998. XML is extensible, so that additional CDM formats may be easily specified by appropriately updating the DTD.

The purpose of this International Standard is to define standards for information interchange in a way that benefits both the consumers and vendors of content/document management systems. Some possible benefits are as follows:

a) document information can be both exported from and imported to one standards-compliant CDM system to another;

b) disparate CDM systems within an enterprise (due to autonomous selection, replacement, or merger/acquisition) will be able to exchange or consolidate CDM information.

To this end, the standards are defined with the goal of striking a balance between being either too restrictive or too general. They should be broad enough to encompass all common CDM information types and all common uses of CDM systems, as well as ones that might be expected in the future. On the other hand, the standards should be restrictive enough so that CDM vendors do not have inordinate difficulty complying with the standards.

Document management — Electronic content/document management (CDM) data interchange format

1 Scope

This International Standard defines the interchange of content/document management (CDM) data and all associated resources.

2 Normative references

The following referenced documents are indispensable for the application of this International Standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 12651, *Electronic imaging — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 12651 and the following apply.

3.1
document
XML stream containing information content and related metadata

3.2
rendition
electronic encoding of a page of content

4 Symbols and abbreviated terms

CDM content/document management

DTD document type definition

W3C World Wide Web Consortium

WWW World Wide Web

XML eXtensible Markup Language

5 XML-based data interchange format

5.1 General

The document interchange format for electronic documents is an application of the XML. XML is an extensible, flexible, platform-independent format, and has been adopted by the W3C as a standard (officially a “recommendation” in W3C terminology).

The primary use of this International Standard is to exchange data between diverse document management systems that do not already have an exchange methodology in place. This International Standard is considered to be the foundational platform from which other XML-based exchange standards are developed, ensuring a common framework throughout the document management industry.

5.2 Use of XML for content/document management data

5.2.1 Overview of XML structure

XML consists of markup and data. The markup consists of (usually paired) tags called elements, which may contain descriptive data called attributes. Data is the non-markup content residing between element pairs. The elements can be nested, so that one element may contain sub-elements, which can in turn contain sub-sub-elements, etc.

This International Standard defines the elements, element structure, and element attributes suitably, so that the various forms of CDM data, resources, index values, etc., can be clearly and unambiguously described and included as data. The model which describes this is an XML DTD. The precise DTD is the essential content of this International Standard.

5.2.2 Content/document management (CDM) – specific XML structure – the DTD

Figures 1 and 2 describe the high-level model to create the DTD. The elements and their meanings are:

a) cdm_interchange
This is the name of the XML application, or DTD.

b) cdm_collection
This is the collection of documents contained in the XML. It consists of a name, a set of index values for the collection and a set of documents.

c) index_field
This element references index_name, index_description, and index_content elements. Any index_set element shall contain at least one index_field element.

d) index_record
This element organizes multiple index_field entries into a logical group.

e) doc_content
This element defines the document contents being transmitted as part of the cdm_interchange operation. Each doc_content shall contain one or more renditions.

f) rendition
This element defines the renditions, if any, and their attributes. Rendition includes the content and rsrc_data elements. These elements are used to provide a mechanism to define the access_method, encoding and compression for each rendition. The access_method is required, and the encoding and compression attributes are optional. Supported access_method include Base64, URI, and MIME.

g) rsrc_data
This element encloses CDM resource data within each rendition. Examples of resource data are bitmaps and fonts that are needed to render the contained document.

h) annotations
This element encloses the annotation-related information for a rendition. The annotation is expressed as a stream of knowledge that would be defined by the vendor. Some vendors have highlight information, while others might have blobs, bitmaps or data files. The knowledge content of the annotation would be vendor-specific.

i) content
This element provides information related to the required access_method, form of data encoding and compression technique.

j) index_name
This element provides for a name to be associated with the index element record attributes.

k) record attributes
This element provides a name and description for the index record.

l) index_description
This element allows a description containing unconstrained text to be associated with the index for documentation of information purposes.

m) index_content
This element contains the value for the index.