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Information technology — JPSearch —

Part 2: Registration, identification and management of schema and ontology

Technologies de l'information — JPSearch —

Partie 2: Enregistrement, identification et gestion des schémas et de l'ontologie

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives or www.iec.ch/members_experts/refdocs).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents) or the IEC list of patent declarations received (see patents.iec.ch).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html. In the IEC, see www.iec.ch/understanding-standards.

This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

This second edition cancels and replaces the first edition (ISO/IEC 24800-2:2011), which has been technically revised. It also incorporates the amendment ISO/IEC 24800-2:2011/Amd.1:2015.

The main changes compared to the previous edition are as follows:

— editorial changes throughout the text to fully align this document with ISO/IEC Directives;

— changes to the registration procedure for JPOnto in 8.3 and Annex A.

A list of all parts in the ISO/IEC 24800 series can be found on the ISO and IEC websites.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html and www.iec.ch/national-committees.

Introduction

This document provides a standardized set of technologies for metadata representation, querying and management of images. It specifies the JPSearch's Core Metadata Schema as the cornerstone of metadata interoperability in the ISO/IEC 24800 series. It also specifies the structure and rules to which any metadata annotation of images must conform in order to be considered valid within a JPSearch compliant system.

In addition to the definition of JPSearch Core Metadata Schema, the ISO/IEC 24800 series provides a mechanism which allows a JPSearch compliant system taking profit from proprietary or community-specific metadata schemas. A translation rules language is defined, allowing the publication of machine-readable translations between metadata terms belonging to proprietary metadata schemas and metadata terms in the JPSearch Core Metadata Schema. Users can choose which metadata language to use in a JPSearch-based interaction (annotation, querying, etc.) if the proper translations are available.

In order to specify the issues in a detailed manner in this document, this document first provides the fundamental information including scope definition, description of terms and definitions, and conventions that are necessary to understand this document. The definition of JPSearch Core Metadata Schema is described in the context of XML structure. Management of information regarding other metadata schema is also described in respect of registration, maintenance, and translation rules.

Information technology — JPSearch —

Part 2: Registration, identification and management of schema and ontology

1 Scope

This document specifies a series of interfaces to allow disparate systems an interoperable management of image repositories. It also specifies the general rules which govern the usage of metadata in JPSearch and provides a specification which

— provides rules for the representation of image metadata descriptions, consisting of the definition of the JPSearch Core Metadata Schema,

— provides rules for the publication of machine-readable translations between metadata terms belonging to proprietary metadata schemas and metadata terms in the JPSearch Core Metadata Schema, and

— provides rules for the registration and request of metadata schemas and its translation rules or links to them.

JPSearch is an extensible standard. The method of extending the structures and rules beyond the JPSearch Core Metadata Schema is provided in this document.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

W3C Recommendation. *Extensible Markup Language (XML) 1.0 (Fifth Edition).* 26 November 2008, available at http://www.w3.org/TR/xml/

W3C Recommendation. *XML Schema Part 1: Structures Second Edition*. 28 October 2004, available at http://www.w3.org/TR/xmlschema-1/

W3C Recommendation. *XML Schema Part 2: Datatypes Second Edition*. 28 October 2004, available at http://www.w3.org/TR/xmlschema-2/

W3C Recommendation. *XML Path Language (XPath)*. 16 November 1999, available at http://www.w3.org/TR/xpath

W3C Recommendation. *Resource Description Framework (RDF): Concepts and Abstract Syntax*. 10 February 2004, available at http://www.w3.org/TR/2004/REC-rdf-concepts-20040210

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
core schema
metadata basis supporting interoperability during search among multiple image retrieval systems

Note 1 to entry: The core schema is used by clients to formulate in combination with the JPEG Query Format search requests to JPSearch compliant search systems. Note, that only metadata described by the core schema is guaranteed to be processed by JPSearch compliant systems.

3.2
translation rules
machine-readable declaration of the semantic and syntactic mappings between a proprietary metadata schema and the JPSearch's core metadata schema

4 Conventions

4.1 Naming convention

In order to specify the JPSearch Core metadata description scheme, this document uses constructs provided by XML such as "element" and "complexType." The names associated to these constructs are created on the basis of the following conventions:

If the name is composed of multiple words, the first letter of each word is capitalized, with the exception that the capitalization of the first word depends on the type of construct and is described below.

— Element naming: the first letter of the first word is capitalized (e.g. `Identifier` element of `JPSearchCoreType`).

— Attribute naming: the first letter of the first word is not capitalized (e.g. jpsearchID attribute of `ManagementType` type).

— complexType naming: the first letter of the first word is capitalized, and the suffix "Type" is used at the end of the name (e.g. `JPSearchCoreType`).

— simpleType naming: the first letter of the first word is not capitalized, the suffix "Type" may be used at the end of the name (e.g. `xPathType`).

4.2 Document convention

The syntax of each description is specified using the constructs provided by XML as defined in XML, XML Schema Part 1, and XML Schema Part 2, and is presented in this document using a specific font and background as shown in the following example:

```
<complexType name="ExampleType">
   <sequence>
      <element name="Element1" type="string"/>
   </sequence>
   <attribute name="attribute1" type="string" default="attrvalue1"/>
</complexType>
```

The semantics of each description tool is specified in text using a table format, where each row contains the name and a definition of a type, element or attribute as shown in the following example:

Name	Definition
ExampleType	Specifies an …
element1	Describes the …
attribute1	Describes the …

4.3 Wrapper of the schema

The description examples and syntax of description tools specified in this document assume that a schema wrapper is provided which identifies the XML Schema namespace (XML Schema) and JPSearch namespace:

```
<schema xmlns="http://www.w3.org/2001/XMLSchema"
        xmlns:JPCore="JPSearch:schema:coremetadata"
        targetNamespace="JPSearch:schema:coremetadata"
        elementFormDefault="qualified"
        attributeFormDefault="unqualified">
```

The following tag is used to close the schema:

```
</schema>
```


5 JPSearch Core Metadata Schema

5.1 General

JPSearch Core Metadata Schema contains four types: `PersonNameType`, `SourceType`, `PublisherType` and `JPSearchCoreType`. Moreover, in order to support `JPSearchCoreType`, several types are defined: `RightsDescriptionType`, `PlaceType`, `PersonType`, `OrganizationType`, `EventType`, `ObjectType`, `RegionOfInterestType`, `RegionLocatorType`, `ExternalDescriptionType`, `ControlledRatingTermType`, `ImageIdentifierType` and `GPSPositionType`.

NOTE See Annex A for details of the registration process for this document.

5.2 JPSearchCoreType

5.2.1 General

The `JPSearchCoreType` type is devised in order to describe the information about an image in metadata layer. At the same time, as JPSearch core metadata is utilized for image search among the set of images that are described by using heterogeneous metadata schemes, `JPSearchCoreType` contains the most important fields in JPSearch core metadata, as shown in Figure 1.

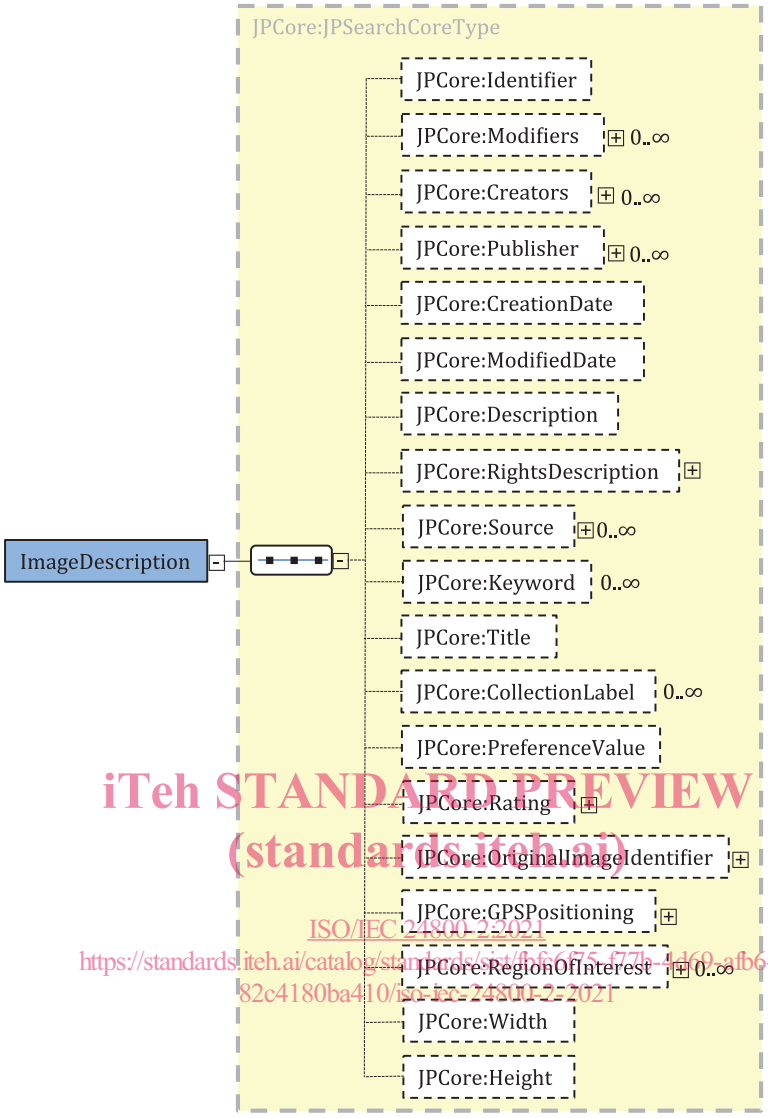

Figure 1 — Diagram representing the JPSearchCoreType

5.2.2 Syntax

```
<element name="ImageDescription" type="JPCore:JPSearchCoreType"/>
<complexType name="JPSearchCoreType">
   <sequence>
     <element name="Identifier" type="anyURI"
              minOccurs="0"/>
     <element name="Modifiers" type="JPCore:PersonNameType"
              minOccurs="0" maxOccurs="unbounded"/>
     <element name="Creators" type="JPCore:PersonNameType"
              minOccurs="0" maxOccurs="unbounded"/>
     <element name="Publisher" type="JPCore:PublisherType"
              minOccurs="0" maxOccurs="unbounded"/>
     <element name="CreationDate" type="dateTime"
              minOccurs="0"/>
     <element name="ModifiedDate" type="dateTime"
              minOccurs="0"/>
     <element name="Description" type="string"
              minOccurs="0"/>
     <element name="RightsDescription" type="JPCore:RightsDescriptionType"
              minOccurs="0"/>
     <element name="Source" type="JPCore:SourceType"
              minOccurs="0" maxOccurs="unbounded"/>
     <element name="Keyword" type="string" minOccurs="0"
              maxOccurs="unbounded"/>
     <element name="Title" type="string" minOccurs="0"/>
     <element name="CollectionLabel" type="string" minOccurs="0"
              maxOccurs="unbounded"/>
     <element name="PreferenceValue" type="integer"
              minOccurs="0"/>
     <element name="Rating"
              type="JPCore:ControlledRatingTermType"
              minOccurs="0"/>
     <element name="OriginalImageIdentifier" type="JPCore:ImageIdentifierType"
minOccurs="0"/>
     <element name="GPSPositioning"
              type="JPCore:GPSPositioningType" minOccurs="0"/>
     <element name="RegionOfInterest"
              type="JPCore:RegionOfInterestType" minOccurs="0"
              maxOccurs="unbounded"/>
     <element name="Width" type="int"/>
     <element name="Height" type="int"/>
   </sequence>
 </complexType>
```