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Information technology — Metamodel framework for interoperability (MFI) —

Part 13:
Metamodel for form design registration

Technologies de l'information — Cadre du métamodèle pour l'interopérabilité (MFI) —

Partie 13: Métamodèle pour l'enregistrement de la conception des formulaires

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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. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

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 ISO documents 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).

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. 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).

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

For an explanation on 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 the following URL: www.iso.org/iso/foreword.html.

The committee responsible for this document is ISO/IEC JTC 1, *Information Technology*, Subcommittee SC 32, *Data management and interchange*.

A list of all parts in the ISO/IEC 19763 series can be found on the ISO website.

Introduction

There is an increasing demand for systems to interoperate by exchanging data, and for data to be reused outside of the original context of its collection. For data exchange or reuses to be meaningful, the business information requirements that are met by the data stored in these systems must be understood so that suitable data exchange mechanisms can be developed and interpretation of the data is reliable.

Not only does this require a clear understanding of the meaning of the data, it also frequently requires the coordination of data capture. Where data input is manual, the definitive source of data semantics is the design of the data entry form. Indeed if we do not understand the encoding of knowledge in the database schema or we suspect some anomaly in the data captured, we inspect the original form and the context of its use. Furthermore, if we wish to gather interoperable data, it is frequently necessary to harmonize aspects of form design before information systems are developed and data is captured. However, there is no abstract, universal metamodel for form designs that supports the registration and comparison or harmonization of form designs and faithful implementation of these designs in information systems. This is the intent of this document.

The Oxford English dictionary defines a form as "a formulary document with blanks for the insertion of particulars". Other ISO definitions of a form include ISO 5127, "document (printed or otherwise produced), with pre-designated spaces for the recording of specific information", and ISO 9241-143, "structured display of fields and other user-interface elements that the user reads, fills in, selects entries for (e.g. through check boxes or radio buttons) or modifies". While we recognize these definitions, none precisely matches the needs of this document. Thus, we will define a form as a structured collection of spaces, suitable instructions and rules that support the collection of specific information that may be subsequently compared and processed in a routine fashion. A form design is thus a description of a particular form such that it may be rendered in any suitable information system, and the metamodel for registration of form designs contained within this document describes the attributes that are necessary to represent the semantics and syntax of form designs.

Given a standard metamodel for the registration of form designs, ISO/IEC 19763 Metamodel framework for interoperability (MFI) and ISO/IEC 11179 Metamodel for metadata registries provide important facilities for the creation and annotation of form designs. ISO/IEC 19763 supports the registration of form designs and section elements as models and model elements, provides facilities to record associations between the components of two or more form design, particularly derivation, specialization, extension and reuse, and allows the association of form designs with the data models that are used to store data captured by their instances. ISO/IEC 11179 provides classes and types that support the identification, naming, registration and administration of form designs and supporting documents, and provides a model either for an associated, standardized question bank or a rich source of question-level metadata attributes with which to explain the meaning of individual data items. When used together, the International Standards can support the rapid design and reuse of form designs, wrap and hide the complexity of semantic annotation from subject matter experts, and provide a ready reference of associations and transformations for users seeking to collect and use interoperable data.

This document does not supplant or replace computer languages such as XForms, Windows Forms, Adobe Forms or relevant parts of HTML, which describe how a form design is implemented, and is deliberately devoid of domain or content specific semantics to ensure wide applicability. However, given the universal applicability of forms, it should be of no surprise that elements of the model can be recognized in many forms standards. Some of these have been mapped to this document in Annex A to Annex E.

Forms may be printed on paper, or encoded in electronic format. Electronic forms may be rendered natively in standard formats such as HTML, XForms or PDF, or propriety ones such as Windows forms, Cocoa or Java Swing. They may also be implemented in a common survey framework such as Survey Monkey or Lime Survey. Despite this diversity, it is eminently possible to create forms in different formats that support the same comparisons and downstream processing *provided the spaces and instructions share the same semantic intent*. Such a collection of forms could be said to share the same *design*. A model that is adequate to record these *form designs* is the subject of this document.

Information technology — Metamodel framework for interoperability (MFI) —

Part 13:
Metamodel for form design registration

1 Scope

The primary purpose of the ISO/IEC 19763 series is to specify a metamodel framework for interoperability. This document specifies a metamodel for registering form designs.

This document provides a metamodel to describe the structure and semantics of an implemented form devoid of any specific domain semantics, e.g. in healthcare, social science, e-government and e-business, or representation format so that data may be faithfully exchanged between systems and system components, and associations expressed between sets of form designs whose data may be compared, joined or composed for analysis.

2 Normative references

There are no normative references in this document.

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 19763-1, ISO/IEC 19763-10, ISO/IEC 11179-3 and the following apply.

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

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

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

3.1.1
attachment
digital object that is required as a *response* (3.1.15) to a *question* (3.1.14) on a *form* (3.1.9)

Note 1 to entry: Used to indicate that the response to a question includes a file on an accessible file-system that will be loaded when the form transaction is complete.

3.1.2
combinator
operator that joins two *constraints* (3.1.6) (to make a binary constraint) returning a result based upon both

EXAMPLE   Conjunction, disjunction, implication.

3.1.3
compliance rule
<form template> specification for some aspect of a *form design* (3.1.10) that shall be satisfied for that design to be a correct implementation of a *form template* (3.1.11)