INTERNATIONAL STANDARD

ISO 8000-140

First edition
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Data quality —

Part 140:
Master data: Exchange of characteristic data: Completeness

Qualité des données —

Partie 140: Données permanentes: Échange de données caractéristiques: Complétude

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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.

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).

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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 Technical Committee ISO/TC 184, Automation systems and integration, Subcommittee SC 4, Industrial data.

This first edition of ISO 8000-140 cancels and replaces ISO/TS 8000-140:2009, which has been technically revised.

ISO 8000 is organized as a series of parts, each published separately. The structure of ISO 8000 is described in ISO/TS 8000-1.

Each part of ISO 8000 is a member of one of the following series: general data quality, master data quality, transactional data quality, and product data quality. This part of ISO 8000 is a member of the master data quality series.

A list of all parts in the ISO 8000 series can be found on the ISO website.

Introduction

The ability to create, collect, store, maintain, transfer, process and present data to support business processes in a timely and cost effective manner requires both an understanding of the characteristics of the data that determine its quality, and an ability to measure, manage and report on data quality.

ISO 8000 defines characteristics that can be tested by any organization in the data supply chain to objectively determine conformance of the data to ISO 8000.

ISO 8000 provides frameworks for improving data quality for specific kinds of data. The frameworks can be used independently or in conjunction with quality management systems.

ISO 8000 covers industrial data quality characteristics throughout the product life cycle from conception to disposal. ISO 8000 addresses specific kinds of data including, but not limited to, master data, transaction data, and product data.

This part of ISO 8000 is an optional addition to ISO 8000-120 and specifies requirements for representation and exchange of information about completeness of master data that consists of characteristic data. ISO 8000-120 is an optional addition to ISO 8000-110 and specifies requirements for representation and exchange of information about provenance of master data that consists of characteristic data. ISO 8000-110 specifies basic requirements for representation and exchange of information about provenance of master data that consists of characteristic data, in particular, conformance to a formal syntax, semantic encoding, and conformance to a data specification.

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Data quality —

Part 140:
Master data: Exchange of characteristic data: Completeness

1 Scope

This part of ISO 8000 is an optional addition to ISO 8000-120 and specifies requirements for representation and exchange of information about completeness of master data that consists of characteristic data.

NOTE 1   ISO 8000-110 specifies that such data be represented as property values. ISO 8000-120 provides additional requirements for property values when data provenance information needs to be captured.

This part of ISO 8000 does not specify a complete model for characteristic data, nor does it specify an exchange format for characteristic data with data completeness information.

NOTE 2   This is done in other standards that reference this part of ISO 8000, e.g. ISO/TS 22745-40.

The following are within the scope of this part of ISO 8000:

— requirements for capture and exchange of data completeness information in the form of statements and assertions of data completeness;

— conceptual data model for data completeness information in the form of statements and assertions of data completeness.

The following are outside the scope of this part of ISO 8000:

— requirements for data completeness;

NOTE 3   The requirements for data completeness depend on many factors, e.g. the kind of data, how the data are being used, industry, and needs of the partners exchanging the data. It is not possible to state general requirements for data completeness.

— exchange format for data completeness information;

— scheme for registering and resolving organization identifiers and person identifiers;

— completeness of data that are not characteristic data represented as property values;

— syntax of identifiers;

— resolution of identifiers.

Some of the requirements in this part of ISO 8000 can apply to exchange of data that is not master data which consists of characteristic data represented as property values.

2 Normative references

The following referenced documents are indispensable for the application 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.

ISO 8000-2, *Data quality — Part 2: Vocabulary*

ISO 8000-120, *Data quality — Part 120: Master data: Exchange of characteristic data: Provenance*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 8000-2 apply.

4 Abbreviated terms

UML   Unified Modeling Language

XML   Extensible Markup Language

5 General

A data provider may declare the completeness of data through either a statement (see Clause 7) or an assertion (see Clause 8).

6 Completeness data model

6.1 Referenced types and entities

The following types and entities are used by the completeness model:

— ISO_6523_identifier, defined in ISO 8000-120;

— date_and_time, defined in ISO 8000-120;

— property_value_assignment, defined in ISO 8000-120.

6.2 Diagram

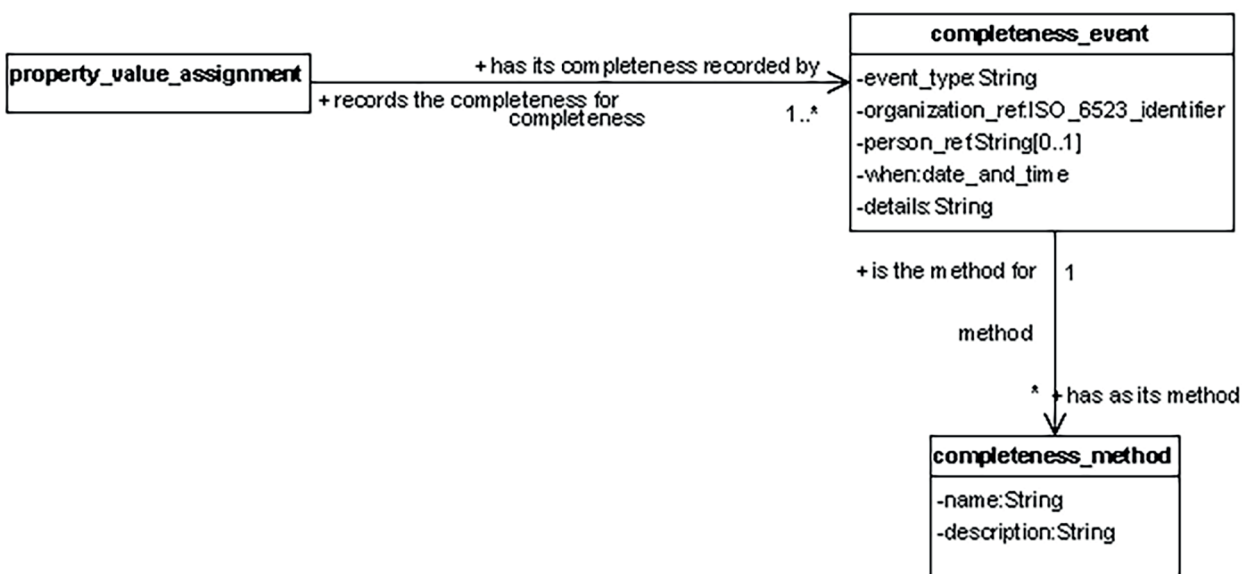The UML class diagram for the completeness model is given in Figure 1.

Figure 1 — UML class diagram for completeness

NOTE   The entity property_value_assignment is the intersection point between this data model and the target data model: the model of data for which completeness information is to be recorded. When the data model in Clause 6 is integrated with the target data model, this entity needs to be replaced with the appropriate entity from the target data model.

6.3   completeness_event

A completeness_event is an event for which data completeness information is recorded.

Attribute definitions:

details:	the details of the completeness_event.
	NOTE 1 This could include the text of the statement or assertion of completeness.
event_type:	the kind of completeness_event.
	The value shall be one of the following:
	— statement: a statement of completeness was provided for the property value;
	— assertion: an assertion of completeness was provided for the property value.
method:	completeness_method used to record the completeness for the completeness_event.
organization_ref:	the unambiguous identifier of the organization and possibly the subdivison of the organization that performed the event, conforming to the structure defined in ISO/IEC 6523-1 and assigned in accordance with ISO/IEC 6523-2.
person_ref:	the identifier assigned by the organization to the person who performed the event.
	NOTE 2 The identifier need only be unique within the organization.
	NOTE 3 The format of the identifier is not specified in this part of ISO 8000.
when:	the point in time at which the event took place.

Assertions:

Each completeness_event has as its method zero, one, or many completeness_method objects. Each completeness_method is the method for exactly one completeness_event.

Each completeness_event records the completeness for exactly one property_value_assignment. Each property_value_assignment has its completeness recorded by one or many completeness_event objects.

6.4   completeness_method

A completeness_method is method used to record completeness.

EXAMPLE   By percent, by real number between 0 to 1,0, by qualitative statement (excellent, good, mediocre, bad).

Attribute definitions:

description:	human-readable string that characterizes the completeness_method.
name:	word or phrase by which the completeness_method is known.

Assertions:

Each completeness_method is the method for exactly one completeness_event. Each completeness_event has as its method zero, one, or many completeness_method objects.

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