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Data quality —

Part 115: Master data: Exchange of quality identifiers: Syntactic, semantic and resolution requirements

Qualité des données —

Partie 115: Données permanentes: Échange des identificateurs qualité: Exigences syntaxiques, sémantiques et de résolution

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Foreword

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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 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 the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 184, *Automation systems and integration*, Subcommittee SC 4, *Industrial data*.

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 information and to support business processes in a timely and cost effective manner requires both an understanding of the characteristics of the information and data that determine its quality, and an ability to measure, manage and report on information and data quality.

ISO 8000 defines characteristics of information and data that determine its quality, and provides methods to manage, measure and improve the quality of information and data.

It is useful to perform the assessment in accordance with documented methods. It is also important to document the tailoring of standardized methods with respect to the expectation and requirements pertinent to the business.

ISO 8000 includes parts applicable to all types of data, and parts applicable to specific types of data.

ISO 8000 can be used independently or in conjunction with quality management systems.

Most commonly an identifier is a reference to a data set managed by the owner of the identifier and, as such, it is an alias for a master data record. Identifiers are widely exchanged by governments and commercial companies to refer to data used to describe individuals, organizations, locations, goods, services, assets, processes, procedures, laws, rules and regulations.

Examples of identifiers include vehicle registration number (license plate), vehicle identification number (VIN), driver's permit number, social security number, national identity card number, student number, employee number, passport number, tax identification number, IP address, telephone number, email address, domain name, part number, batch number, serial number, customer number, supplier number and concept identifiers.

Data quality —

Part 115:
Master data: Exchange of quality identifiers: Syntactic, semantic and resolution requirements

1 Scope

This document specifies the requirements for the quality identifiers that form part of an exchange of master data. These requirements supplement those of ISO 8000-110.

The following are within the scope of this document:

— the syntax and semantics of quality identifiers to allow the unambiguous identification of the owner of the identifier and any restrictions on the use of the identifier;

— the principles of resolving quality identifiers to the data set they represent;

— the characteristics that define quality identifiers.

The following are outside the scope of this document:

— the methods used for the creation of identifiers;

— the syntax of the query and of the response used in the resolution of identifiers;

— the methods used for the resolution of identifiers.

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.

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

ISO 8000-110, *Data quality — Part 110: Master data: Exchange of characteristic data: Syntax, semantic encoding, and conformance to data specification*

ISO/IEC 10646, *Information technology — Universal Coded Character Set (UCS)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 8000-2 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 https://www.electropedia.org/

4 Fundamental principles and assumptions

While identifiers are initially designed to be used internally within a system that belongs to an organization, frequently those organizations exchange identifiers with external parties. These identifiers become aliases for data that is controlled and managed by the owner of the identifier.

Verifying and validating the quality of master data depends on an ability to identify the owner of data and any use restrictions on that data. This verification and validation also requires an ability to resolve identifiers to the data sets that they identify.

5 Quality identifier requirements

5.1 Scope of the requirements

This document specifies requirements for:

— the syntax of quality identifiers (see 5.2);

— the semantics of quality identifiers (see 5.3);

— the resolution of quality identifiers (see 5.4).

5.2 Syntax requirements for quality identifiers

a) A quality identifier shall begin with a prefix element and end with an identifier element.

b) The prefix element shall represent the owner of the quality identifier and may include any character combination capable of being represented in UTF-8 encoding, as specified by ISO/IEC 10646, other than the full stop character "." (UTF-8 character 2E) or the colon character ":" (3A). The element shall be at least one character in length.

c) The identifier element shall consist of the colon character ":" (3A) followed by a character combination assigned by the owner to identify a specific set of data. This element may include any character combination capable of being represented in UFT-8 encoding. The element shall be at least two characters in length (i.e. at least one character in addition to the starting ":").

d) A quality identifier may include one or more sub-domain elements between the prefix element and the identifier element. A sub-domain element shall consist of the full stop character "." (2E) followed by a character combination that represents a sub-domain determined by the owner to resolve the uniqueness of the identifier of the data set. Other than the first character of each, these elements may include any character combination capable of being represented in UFT-8 encoding other than the full stop character "." (2E) or the colon character ":" (3A). Each sub-domain element shall be at least two characters in length (i.e. at least one character in addition to the starting ".").

e) The quality identifier shall not exceed a total length of 254 UTF-8 characters.

EXAMPLE The quality identifier "Corning.LS:2962-1L" consists of the prefix element "Corning" (to represent the owner), the (optional) sub-domain element ".LS" (including the string "LS" assigned by the owner) and the identifier element ":2962-1L" (including the identifier "2962-1L" assigned by the owner to identify a one litre glass hydrometer cylinder for laboratory use and the data describing this item).

5.3 Semantic requirements for quality identifiers

a) The prefix element of a quality identifier shall resolve to a definitive identification of the owner of the quality identifier.

b) The prefix element shall resolve to any restrictions on use of the quality identifier.

c) The prefix element shall resolve to an electronic address where the complete quality identifier can be resolved.

EXAMPLE As specified by the Internet Engineering Task Force Request for Comments 3986[9], the uniform resource identifier is an electronic address.

5.4 Resolution requirements for quality identifiers

A quality identifier shall resolve to a data set that conforms to ISO 8000-110.

6 Conformance

A quality identifier conforms to this document when 5.2 a), 5.2 b), 5.2 c), 5.2 e) 5.3 a), 5.3 b), 5.3 c) and 5.4 are met.

NOTE 1 5.2 d) is optional.

NOTE 2 In order for two or more parties to implement the unambiguous exchange of quality identifiers, those parties will need to agree the specific syntax of the query and of the response used in the resolution of those identifiers.