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English version

Health Informatics - Data Types

Élément introductif - Élément central

Medizinische Informatik - Datentypen

This Technical Specification (CEN/TS) was approved by CEN on 9 February 2004 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

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Foreword

This document CEN/TS 14796:2004 has been prepared by Technical Committee CEN/TC 251 "Health Informatics", the secretariat of which is held by SIS.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this Technical Specification: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Introduction

ISO standards have existed for data types for some time, and especially significant is ISO 11404 (1994) Language Independent Data types. Since 1994 most data typing has been based upon or harmonised with this standard. However, in healthcare information communication a different source of 'data type standardisation' has arisen, sourced by Health Level Seven (HL7), whose data types often resemble but are not wholly compatible with ISO 11404.

In developing this Technical Specification there has been the wish to harmonise with the HL7 data types so that the health informatics industry in Europe and the USA can more easily be aligned. To this end a collaboration agreement was entered into in March 2000 between CEN/TC 251 and HL7. The goal was set for a maximum degree of alignment while maintaining their independence and need to serve the business requirements of the respective markets but also to make the results available to ISO for possible international standardisation.

This Technical Specification differs from the HL7 abstract data types in two major ways:

- Primitive data types are not re-defined here – they are assumed to be available in any engineering environment that implements this specification. All other data types are defined here
- This TS says nothing about operations that are associated with any particular data type. Where a data type has been inherited from previously issued international standards the associated operations may be assumed but are not specifically referred to in this document.

In most other respects, this specification may be regarded as a sub set of the HL7 Version 3 abstract data types although partly described differently due to the fact that CEN is following the ISO rules for drafting and presentation of standards which HL7 is not.

This version attempts to include insights gained as a result of recent CEN/HL7 harmonisation, and to correct errors, where they were known to exist, particularly with respect to improving the technical quality of the underlying abstract models. There are still some incomplete specifications, which are indicated where appropriate.

The distinction between Primitive and Constructed data types has been tightened up.

Constructed types are divided into 4 packages for convenience (Basic, Text, Quantity, Time Specification)

It is intended that, following further harmonisation work with HL7, and after there has been an opportunity to gain implementation experience of using this specification, the TS will be developed into a full European Standard (EN). By that stage the UML model will be extended to include all necessary operations and formal invariants, together with attribute optionalities. For information on this process, see www.cen251.org.

1 Scope

This Technical Specification defines abstract data types for use in communicating healthcare information and for other health informatics purposes.

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/IEC 11404	Information technology -- Programming languages, their environments and system software interfaces -- Language-independent datatypes
ISO 8601:2000(E)	Data elements and interchange formats – Information interchange – Representation of dates and times Second edition 2000-12-15
ISO/IEC 8824-1	Information technology -- Abstract Syntax Notation One (ASN.1): Specification of basic notation
ISO/IEC 10646-1	Information technology -- Universal Multiple-Octet Coded Character Set (UCS) -- Part 1: Architecture and Basic Multilingual Plane.
IEEE 754-1985	Standard for Binary Floating-Point Arithmetic
ISO 639:1988 (E/F)	Code for the representation of names of languages

3 Terms and definitions

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

3.1

data type

a set of distinct values, characterised by properties of those values and by operations on those values

3.2

date

identification of a particular calendar day, expressed by some combination of the data elements calendar year, calendar month, calendar week, calendar day or day of the year

3.3

implementable technology specification

description of how to implement data types in a particular context (organisation, country, programming language etc)