INTERNATIONAL STANDARD

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Health informatics — Patient healthcard data —

Part 5: Identification data

Informatique de santé — Données relatives aux cartes de santé des patients —

Partie 5: Données d'identification

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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 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).

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This document was prepared by Technical Committee ISO/TC 215, *Health Informatics*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 251, *Medical informatics,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 21549-5:2015), of which it constitutes a minor revision. The changes are as follows:

— normative references have been updated;

— errors have been corrected in Annex A.

A list of all parts in the ISO 21549 series can be found on the ISO website.

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.

Introduction

With a more mobile population, greater healthcare delivery in the community and at patients' homes, together with a growing demand for improved quality of ambulatory care, portable information systems and stores have increasingly been developed and used. Such devices are used for tasks ranging from identification, through portable medical record files, and on to patient-transportable monitoring systems.

The functions of such devices are to carry and to transmit person-identifiable information between themselves and other systems; therefore, during their operational lifetime, they can share information with many technologically different systems which differ greatly in their functions and capabilities.

Healthcare administration increasingly relies upon similar automated identification systems. For instance, prescriptions can be automated and data exchange carried out at a number of sites using patient transportable computer readable devices. Healthcare funding institutions and providers are increasingly involved in cross-region care, where reimbursement can require automated data exchange between dissimilar healthcare systems. Administrative data objects can require linkage to external parties responsible for their own domains which are not within the scope of this document. For instance, cross-border reimbursement of healthcare services are usually regulated by law and intergovernmental agreements which are not subject to standardization.

The advent of remotely accessible databases and support systems has led to the development and use of "Healthcare Person" identification devices that are also able to perform security functions and transmit digital signatures to remote systems via networks.

With the growing use of data cards for practical everyday healthcare delivery, the need has arisen for a standardized data format for interchange.

The person-related data carried by a data card can be categorised in three broad types: identification (of the device itself and the individual to whom the data it carries relates), administrative and clinical. It is important to realize that a given healthcare data card "de facto" contains device data and identification data and can in addition contain administrative, clinical, medication and linkage data.

Device data are defined to include:

— identification of the device itself;

— identification of the functions and functioning capabilities of the device.

Identification data are defined to include unique identification of the device holder (and not information of other persons).

Administrative data can include:

— complementary person(s) related data;

— identification of the funding of healthcare, whether public or private, and their relationships, i.e. insurer(s), contract(s) and policy(ies) or types of benefits;

— identification of other persons as a part of the insurance contract (e.g. a family contract);

— other data (distinguishable from clinical data) that are necessary for the purpose of healthcare delivery.

Clinical data can include:

— items that provide information about health and health events;

— their appraisal and labelling by a healthcare provider;

— related actions planned requested or performed.

Medication data can include:

— a record of medications received or taken by the patient;

— copies of prescriptions including the authority to dispense records of dispensed medication;

— records of medication bought by the patient;

— pointers to other systems that contain information that makes up an electronic prescription and the authority to dispense.

As a data card essentially provides specific answers to definite queries while having at the same time a need to optimize the use of memory by avoiding redundancies, “high level” object modelling technique (OMT) has been applied with respect to the definition of healthcare data card data structures.

This document describes and defines the basic structure of the identification data objects held on healthcare data cards using UML, plain text and Abstract Syntax Notation (ASN.1).

This document does not establish the common objects defined within ISO 21549-2 even though they are referenced and utilized within this document.

Health informatics — Patient healthcard data —

Part 5: Identification data

1 Scope

This document describes and defines the basic structure of the identification data objects held on healthcare data cards, but it does not specify particular data sets for storage on devices.

This document does not apply to the detailed functions and mechanisms of the following services (although its structures can accommodate suitable data objects elsewhere specified):

— security functions and related services that are likely to be specified by users for data cards depending on their specific application, e.g. confidentiality protection, data integrity protection and authentication of persons and devices related to these functions;

— access control services;

— the initialization and issuing process (which begins the operating lifetime of an individual data card, and by which the data card is prepared for the data to be subsequently communicated to it according to this document).

Therefore, this document does not cover:

— physical or logical solutions for the practical functioning of particular types of data card;

— the forms that data take for use outside the data card, or the way in which such data are visibly represented on the data card or elsewhere.

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/IEC 5218, *Information technology — Codes for the representation of human sexes*

ISO 21549-1, *Health informatics — Patient healthcard data — Part 1: General structure*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 21549-1 and the following apply.

ISO and IEC maintain terminology 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/

3.1
identification data
data that provide for the unique identification of the cardholder to whom the records relate

4 Symbols and abbreviated terms

ASN.1	Abstract syntax notation one
CRT	Cardholder related template
ICAO	International civil aviation organization
L	Length (ASN.1)
LDS	Logical data structure of machine-readable travel documents
N	Numeric
NET	National extensions template
UCS	Universal multiple-octet coded character set
UML	Unified modelling language
UTF8	UCS transformation format 8

5 Identification data objects

5.1 Identification objects and data structure

For the identification of the cardholder, information about the following objects is needed:

— person;

— address;

— telephone;

— miscellaneous.

The structure of the identification information is derived from the LDS set used for machine-readable travel documents (see ISO/IEC 7501-1). No separate objects are introduced for healthcare. Subclause 5.2 contains the table with the definitions of the identification data set.

5.2 Definition of the identification data set

Table 1 shows the definition of identification data according to the ASN.1 basic notation and basic encoding described in ISO/IEC 8824-1 and ISO/IEC 8825-1, respectively. The corresponding ASN.1 definition is given in Annex A. In the ASN.1 definition the ASN.1 data type UTF8String (see ISO/IEC 10646) is used for the coding of alphanumeric data elements. Since the UTF8 encoding uses 1 to 6 bytes for each character, the number of storage bytes which should be provided by the card may be greater than the denoted length in characters. The use of UTF8 should be restricted to a limited international character set, since it does not make sense to provide each country with any unfamiliar character set of another country. The formation of this international character set as a subset of the UCS has to be discussed. Figure 1 shows the UML class diagram. Figure 2 shows the CRT Template of Identification data with an embedded NET.

In case of discrepancies between the definitions and the module in Annex A, Annex A shall takes precedence.

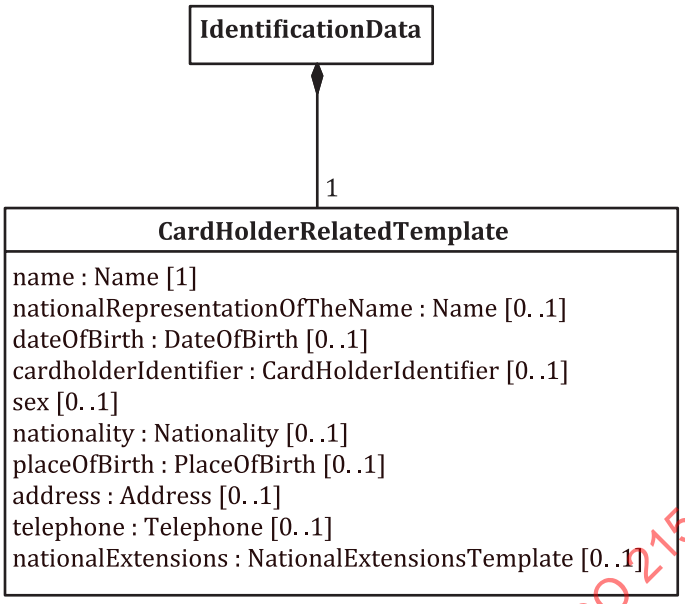

Figure 1 — UML class diagram

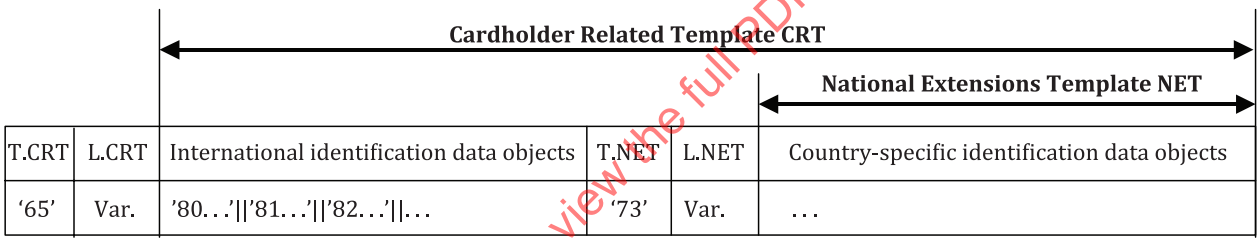

Figure 2 — CRT template of identification data with an embedded NET

Table 1 — Identification data

Tag	L	Value					Data type	Remarks
'65	Var.	Cardholder related template						Tag of cardholder related data (see ISO/IEC 7816-6).
		Tag	**L**	**Value**			**Data type**	**Remarks**
		'80'	X	Name [a]			Class	Mandatory; this will be derived from HL7 entity name data type, see NOTE below.
		'82'	0, 4, 6, 8	Date of birth			N	Optional; data object may be left out only in case the date of birth is unknown. Then the default value, an empty string, applies. Basic date format of YYYYMMDD; also allowed: YYYYMM, YYYY, empty (see ISO 8601-1).
		'83'	x	Cardholder identifier (1–30 characters)			AN	Optional; insurance-independent cardholder identifier according to national regulations of the issuing country. Data object may be left out only in case such an insurance-independent number does not exist; Then, an insured person number should be used instead as part of the administrative data (see ISO 21549-6).
		'84'	1	Sex			N	Optional; values: 0 = Not known, 1 = Male, 2 = Female, 9 = Not applicable (see ISO/IEC 5218). Sex may be missing only if it is not stated or if a national code is not included in ISO/IEC 5218. In the last case, the national code shall be included in the National Extensions Template.
		'85'	2	Nationality			AN	Optional; data object may be left out only in case the nationality is unknown. Then the default value, an empty string, applies; Alpha-2 Code (see ISO 3166-1) or empty (if unknown).
		'86'	X	Place of birth (1-99 characters)			AN	Optional.
		'87'	X	Address (1–255 characters)			AN	Optional; complete address including street name, house number, postal code, place of residence and country of residence.
		'88'	X	Telephone (1–99 characters)			AN	Optional; complete telephone number including international dialling code and area code.
		'89'	x	National representation of the name [a]			Class	Optional; this will be derived from HL7 entity name data type, see NOTE below.
		'73'	Var.	National extension template				Optional; tag of discretionary data objects; The template should only be present if one or more additional data objects used by the issuing country follow (see ISO/IEC 7816-6).
				Tag	**L**	**Value**	**Data type**	**Remarks**
								Additional country-specific data objects not defined in this document.

NOTE There are two fields for names: the "Name" is mandatory and used for the international character set for international use, and the "National representation of the name" is optional and used to represent the name in a domestic character set (Japanese, Chinese, Russian etc.). See ISO/TS 22220:2011, 6.9. It requires several components and as such is a composite entity.

The content of each name field shall be derived from HL7 CDA Entity Name datatype (EN). This content is to allow one family name, more than one field for given names (each given name field is optional) and the fields for suffix and prefix are optional.

Each name field may have an optional qualifier and an optional language subfield (derived from EN datatype).

Where the structure of a name is unable to be determined, the card issuer may record that name in the family name field.

Annex A
(normative)

ASN.1 Data definitions

CardholderRelatedTemplate {iso(1) standard(0) 21549 5 2} DEFINITIONS IMPLICIT TAGS:: =

-- IMPLICIT TAGS: Since all objects are tagged, the tags of universal data types are omitted --

BEGIN

IMPORTS CodedData FROM CommonDataTypes lineFeed, carriageReturn, BasicLatin, Latin-1Supplement FROM ASN1-CHARACTER-MODULE {joint-iso-itu-t asn1(1) specification(0) modules(0) iso10646(0)};

-- Further character sets of [ISO/IEC 10646] may be imported in order to form an internationally usable character subset of the [ISO/IEC 10646] Universal Multiple-Octet Coded Character Set (UCS).

-- Class CodedData are defined in ISO 21549-2

CardholderRelatedTemplate:: = [APPLICATION 5] SEQUENCE

{	Name	[0] Name,	DEFAULT "",
	dateOfBirth	[2] DateOfBirth	OPTIONAL,
	cardholderIdentifier	[3] CardholderIdentifier	OPTIONAL,
	sex	[4] Sex	OPTIONAL,
	nationality	[5] Nationality	OPTIONAL,
	placeOfBirth	[6] PlaceOfBirth	OPTIONAL,
	address	[7] Address	OPTIONAL,
	telephone	[8] Telephone	OPTIONAL,
	nationalRepresentationOfTheName	[9] Name	OPTIONAL,
	nationalExtensions	[APPLICATION 19]	
		IMPLICIT NationalExtensionsTemplate	OPTIONAL
}			

UTF8Latin1String:: = UTF8String (FROM (lineFeed | carriageReturn) UNION BasicLatin UNION Latin-1Supplement)

Name:: = SEQUENCE

```
{
        prefix      [0]     NamePart        OPTIONAL,   -- A prefix has a strong association to the
                                                        -- immediately following name part
        family      [1]     NamePart,                   -- Family name, this is the name that links to the
                                                        -- genealogy
        given       [2]     SEQU ENCE OF                -- Given names
                            NamePart,
        suffix      [3]     NamePart        OPTIONAL    -- A suffix has a strong association to the
                                                        -- immediately preceding name part
}
NamePart:: = SEQUENCE
{
        Language    [0] CodedData OPTIONAL,     -- The language property specifies
                                                -- the human language of the name or
                                                -- the part of the name
        Name        [1] UTF8Latin1String (SIZE (1..63)),
                                                -- A character string token representing
                                                -- a name or a part of a name
        Qualifier   [2] SEQUENCE OF CodedData OPTIONAL
                                                -- The qualifier is a set of codes each of
                                                -- which specifies
                                                -- a certain subcategory of the name part.
                                                -- For example,
                                                -- a given name may be flagged as a
                                                -- nickname, a family name
                                                -- may be a pseudonym or a name of
                                                -- public records
}
```