BRITISH STANDARD

BS EN
12967-2:2007

Health informatics — Service architecture —

Part 2: Information viewpoint

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ICS 35.240.80

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The UK participation in its preparation was entrusted to Technical Committee IST/35, Health informatics.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Foreword

This document (EN 12967-2:2007) has been prepared by Technical Committee CEN/TC 251 “Health informatics”, the secretariat of which is held by NEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2008, and conflicting national standards shall be withdrawn at the latest by April 2008.

This document, together with EN 12967-1 and EN 12967-3, supersedes ENV 12967-1:1998.

This document represents part two of a three-part European standard, which is a major revision of ENV 12967-1, produced under a mandate given to CEN by the European Commission and the European Free Trade Association.

This multi-part standard under the general heading: Health informatics – Service architecture consists of the following parts:

Part 1: Enterprise viewpoint

Part 2: Information viewpoint

Part 3: Computational viewpoint

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

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Introduction

This document represents the second part of EN 12967, a multi-part standard that provides guidance for the description, planning and development of new systems as well as for the integration of existing information systems, both within one enterprise and across different healthcare organisations through an architecture integrating the common data and business logic into a specific architectural layer (i.e. the middleware), distinct from individual applications and accessible throughout the whole information system through services, as shown in Figure 1.

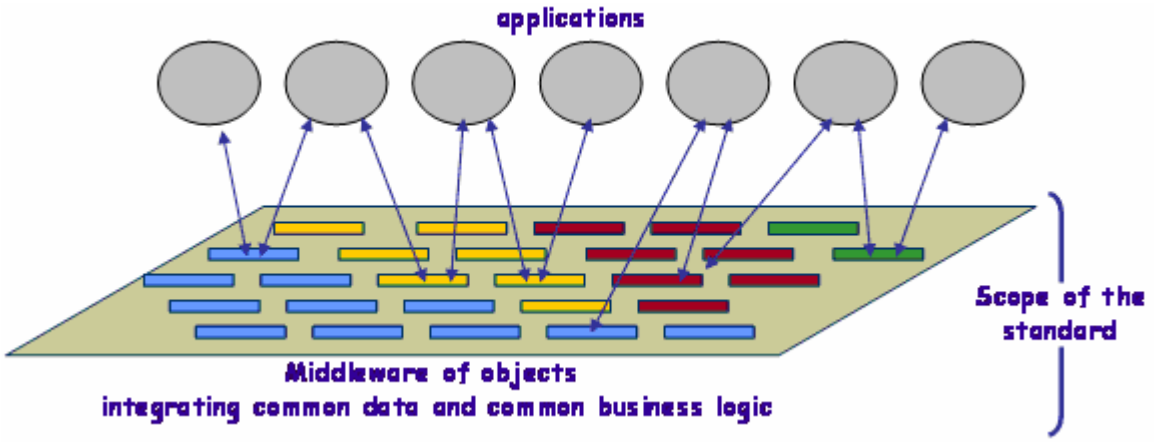


Figure 1

The overall architecture specified by this standard is formalized according to the ISO/IEC 10746 (all parts) criteria and is therefore structured through the three viewpoints:

Enterprise Viewpoint that specifies a set of fundamental common requirements at enterprise level with respect to the Organisational purposes, scopes and policies that must be supported by the information and functionalities of the middleware. It also provides guidance on how one individual enterprise (e.g. a regional healthcare authority, a large hospital or any other where this model is applicable) may specify and document additional specific business requirements, with a view of achieving a complete specification, adequate for the characteristics of that enterprise.

The Enterprise Viewpoint is specified in Part 1 of this multi-part standard; document EN 12967-1.

Information Viewpoint that specifies the fundamental semantics of the information model to be implemented by the middleware to integrate the common enterprise data and to support the enterprise requirements Formalized in the Enterprise Viewpoint. It also provides guidance on how one individual enterprise may extend the standard model with additional concepts, needed to support local requirements in terms of information to be put in common.

The Information Viewpoint is specified in this document EN 12967-2.

Computational Viewpoint that specifies the scope and characteristics of the services that must be provided by the middleware for allowing the access to the common data as well as the execution of the business logic supporting the enterprise processes identified in the Information and Enterprise viewpoints. It also provides guidance on how one individual enterprise may specify additional services, needed to support local specific requirements in terms of business logic to be put in common.

The Computational Viewpoint is specified in Part 3 of this multi-part standard; document EN 12967-3.

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1 Scope

This standard specifies the fundamental characteristics of the information model to be implemented by a specific architectural layer (i.e. the middleware) of the information system to provide a comprehensive and integrated storage of the common enterprise data and to support the fundamental business processes of the healthcare Organisation, as defined in part 1 of this standard “Health Informatics – Service Architecture - Part 1: Enterprise viewpoint”.

The information model is specified without any –explicit or implicit- assumption on the physical technologies, tools or solutions to be adopted for its physical implementation in the various target scenarios. The specification is nevertheless formal, complete and non-ambiguous enough to allow implementers to derive an efficient design of the system in the specific technological environment that will be selected for the physical implementation.

This specification does not aim at representing a fixed, complete, specification of all possible data that may be necessary for any requirement of any healthcare enterprise. It specifies only a set of characteristics –in terms of overall Organisation and individual information objects- identified as fundamental and common to all healthcare Organisations, and that shall be satisfied by the information model implemented by the middleware.

Preserving the consistency with the provisions of this standard, physical implementations shall allow extensions to the standard information model in order to support additional and local requirements. Extensions shall include both the definition of additional attributes in the objects of the standard model, and the implementation of entirely new objects.

Also this standard specification shall be extensible over time according to the evolution of the applicable standardisation initiatives.

The specification of extensions shall be carried out according to the methodology defined in part 1 of this standard EN 12967-1, clause 7, “Methodology for extensions”.

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.

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3 Terms and definitions

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

3.1
Information object
information held by the system about entities of the real world, including the ODP system itself, is represented in an information specification in terms of information objects, their relationships and behaviour

3.2
package
cluster of information objects

3.3
middleware
middleware is the enabling technology of enterprise application integration (EAI). It describes a piece of software that connects two or more software applications so that they can exchange data

3.4
enterprise application integration (EAI)
uses of software and computer systems architectural principles to integrate a set of enterprise computer applications

4 Symbols and abbreviations

ODP Open Distributed Processing

HISA Health Informatics Service Architecture

UML Unified Modelling Language

GPIC General Purpose Information Components

5 Methodological principles

5.1 Language and notation adopted for the specification of the model (informative)

Objective of information viewpoint specification is the description of the information relevant for the enterprise to be handled by the middleware. It shall consist of a formal information model detailing the semantic and syntactic aspects of all data to be managed.

The specification is based on an object model, derived from the enterprise viewpoint by properly structuring and aggregating the information that has been identified as relevant in the specification of the business processes, tasks and activities.

While the general approach of the ODP standard is used also for the Information Viewpoint part of this standard, the modelling language to be used is UML, which was not available at the time of the first edition of the ODP standard.

The information viewpoint is concerned with information modelling (i.e. the kinds of information handled by the system). It focuses on the semantics of information and information processing in the system. The individual components of a distributed system must share a common understanding of the information they communicate when they interact, or the system will not behave as expected. Some of these items of information are handled, in one way or another, by many of the objects in the system. To ensure that the

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interpretation of these items is consistent, the information language defines concepts for the specification of the meaning of information stored within, and manipulated by, an ODP system, independently of the way the information processing functions themselves are to be implemented.

Thus, information held by the ODP system about entities in the real world, including the ODP system itself, is represented in an information specification in terms of information objects, and their associations and behaviour. Atomic information objects represent basic information elements. More complex information is represented as composite information objects each expressing associations over a set of constituent information objects.

Some elements visible from the enterprise viewpoint will be visible from the information viewpoint and vice versa. For example, an activity seen from the enterprise viewpoint may appear in the information viewpoint as the specification of some processing which causes a state transition of an information entity.

Different notations for information specifications model the properties of information in different ways. Emphasis may be placed on classification and reclassification of information types, or on the states and behaviour of information objects. In some specification languages, atomic information objects are represented as values. The approach to be taken will depend on the modelling technique and notation being used.

Assessment of conformance to the information specification of a system involves relating the requirements expressed in the specification to sets of observations of the behaviour of the system at conformance points identified in the engineering and technology specification, and assessing the degree of consistency between the requirements and the observations.

5.2 UML Class Diagram notation guidelines and profile (informative)

For each cluster of objects identified in the EV, the information objects will be illustrated according to the following rationale:

— Information objects (i.e. classes) grouped in the packages will be not be coloured.

— Classes not expressly grouped in the package will also be represented if there are associations from classes belonging to the package to these classes. The classes, however, shall be coloured in yellow.

— Names of classes will be meaningful and start with a capital letter (e.g. Person). If the name is composed of more than one word the blank spaces between the words present in the diagrams shall be instead omitted in the tables describing the classes (e.g. “Period of care” in the diagram shall become “PeriodOfCare” in the tables, “Subject of care” in the diagram shall become “SubjectOfCare”). Blank spaces are left in the diagrams for readability reasons.

— Associations will be labelled when the label adds value to the diagram.

— Associations may be labelled through a property, or through a verb phrase; in this latter case an arrow will be added to the association label to avoid ambiguity.

— Label shall always be in lower case and if it is a verb phrase (with arrow) it will have one blank space in between words.

— Navigability is not relevant when using UML for an information specification and will not be represented.

— In general, for readability reasons, the classes shall contain only the name of the class. Properties shall be described in the tables. Should properties be displayed in the diagrams, the following holds:

— Notation for visibility of properties shall not be used, as it is not pertinent for the conceptual models used in the information viewpoint. Although visibility symbols could be used to indicate access control this is not done as all healthcare-related information should be accessed through careful authorization.

— Data types of the properties shall be displayed in the class in the diagram.

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— For some classes, associations to other classes could be modelled (in the UML diagrams) as attributes to the class. This reflects that the association has value rather than reference semantics, in addition to the resulting simplification of the model. In other cases the same method might be used in the UML diagrams even though the association has reference semantics. This is done just to simplify the models. In the related class descriptions these instances of simplified modelling are described as associations rather than attributes.

— Properties (attributes) of classes shall start with a lower case letter (e.g. name). If the property is composed of more than one word the blank spaces in between words shall be omitted (e.g. familyName, birthDate).

— Current ISO and low-level data types will be preferably used. These will allow mapping to CEN or future ISO when possible.

— Many-to-many binary associations named “related to” may be implemented as a set of specific associations or association classes of specific multiplicities.

— Cardinalities of properties are used in case of associations, especially to distinguish between optional and mandatory properties.

— Cardinality ‘*’ is never used, as the reader might be confused as to whether a 0..* or 1..* was intended.

— When the composition symbol is used, the non-displayed cardinality will always be ‘1’.

5.3 Clusters of objects in the information model

The information specification is built considering the elements of the enterprise viewpoint specification. ODP does not impose any methodology for the definition and use of the viewpoints. Thus, the enterprise specification has been used here for building the UML specification. This approach greatly facilitates the definition of the correspondences between the related entities that appear in the different viewpoints, allowing also the treatment the consistency among the viewpoints.

In particular, this information specification incorporates the information handled by the system as described in clause 6.2 and subsequent paragraphs of the enterprise viewpoint.

The following diagram shows, at a first level of abstraction the main objects of the model and their relations according to the concepts identified in the Enterprise Viewpoint, with respect to the fundamental workflows and groups of users activities to be supported by the middleware.

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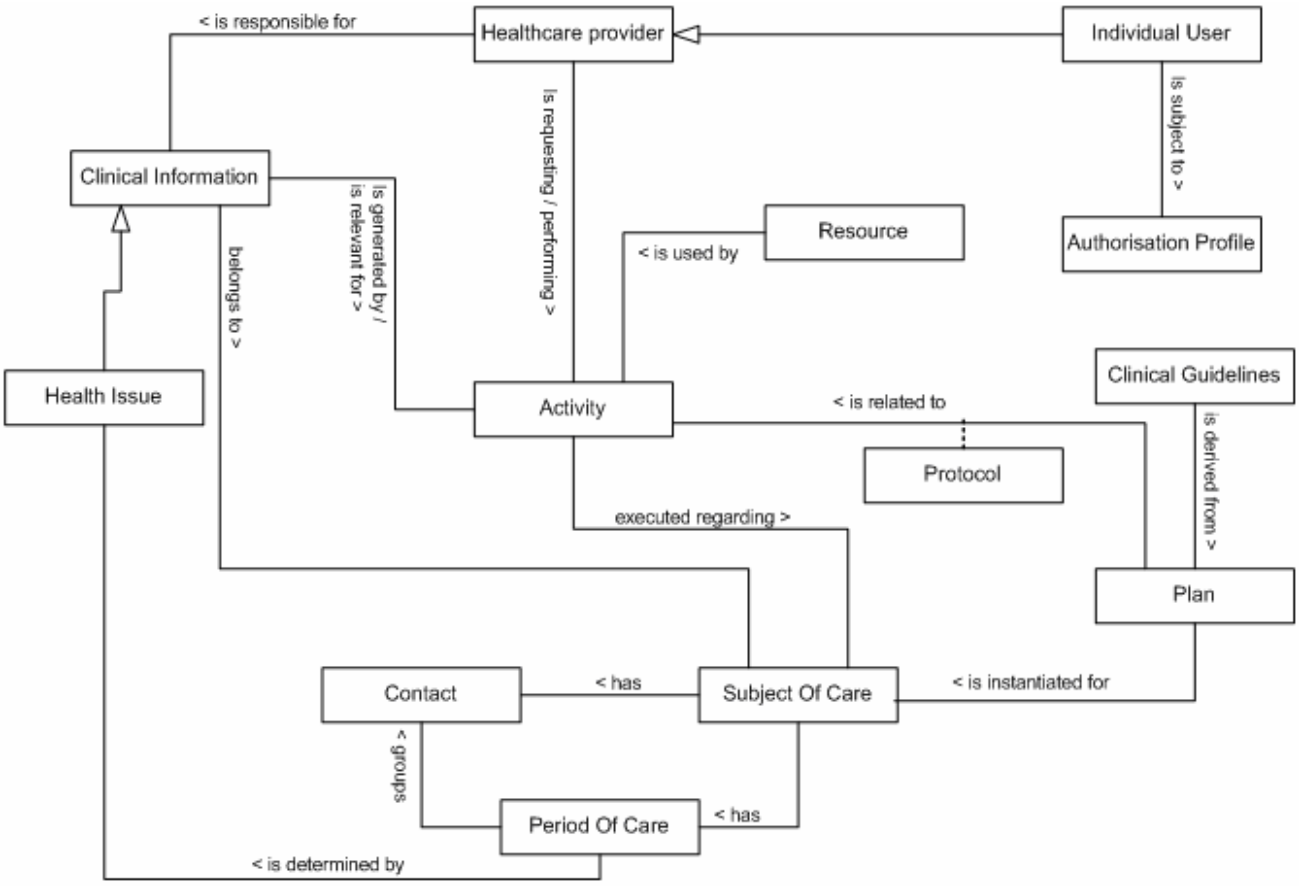


Figure 2 — High level model of the information objects

By proceeding according to the same methodology adopted for the specification of the Enterprise Viewpoint, this high-level model can refined by identifying seven clusters of objects, each of them responsible for organising and storing the information necessary for supporting the users' activities identified in the related areas of the Enterprise viewpoint:

1. Classification objects
These objects shall organize and store the information necessary for supporting the users' activities related to the management of classifications, coding criteria and dictionaries, as identified by the Enterprise view.

2. Subject of care objects
These objects shall organize and store the information necessary for supporting the users' activities identified in the "Subject of Care workflow" of the Enterprise view.

3. Activity management objects
These objects shall organize and store the information necessary for supporting the users' activities identified in the "Activity Management workflow" of the Enterprise view.

4. Clinical and health objects
These objects shall organize and store the information necessary for supporting the users' activities identified in the "Clinical Information workflow" of the Enterprise view.

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5. Resources objects
These objects shall organize and store the information necessary for supporting the users' activities related to the management of resources, as identified in the Enterprise view.

6. Users and authorisation objects
These objects shall organize and store the information necessary for supporting the users' activities related to the management of users and authorisations, as identified in the Enterprise view.

7. Messaging objects
These objects shall organize and store the information necessary for supporting the structuring of data and the communications with other systems through messaging mechanisms, as identified in the Enterprise view.

These clusters of objects are specified in the following sections by means of UML models.

5.4 Operational and descriptive information: classifications, knowledge and its instantiation

From the textual descriptions in the enterprise viewpoint the middleware shall be able to manage not only the daily operational information directly related to the various business processes, but also a knowledge base, allowing managing the descriptive concepts, vocabulary items, and rules required to instantiate particular properties of the operational information. Such "concept descriptive information" is the basic knowledge base required for the actual instantiation of the operational information in the healthcare enterprise.

HISA Information Objects in each package shall thus be classified as:

— "**Operational**", usually representing the actual (clinical, Organisational, etc.) objects that are continuously generated during (and for) the daily activities. These include the personal and healthcare treatment information on patients, the individual resources used for carrying out the actual activities, etc..

  — The operational information objects model the entities involved in the daily activities of the healthcare enterprise in the treatment of subjects of care and in the functioning of the enterprise itself.

— "**Descriptive**", usually Organisation-related, specifying the criteria according to which the Organisation works and is organized. It includes general classifications of clinical concepts, rules according to which the activities are performed, and more (e.g. the types of activities which are carried out in the radiology department, the diagnostic classification in use in the clinical setting, etc.).

  — The descriptive information objects model the entities required for the overall knowledge base that is required by the healthcare enterprises to carry out daily activities related to the treatment of subjects of care and in the functioning of the enterprise itself.

For each "operational" information object, therefore, the model foresees one "descriptive" information object, containing the main classification data, the properties, the rules and the default values that are necessary for the management of the live data instantiated in the "operational" object, as exemplified in Figure 3.

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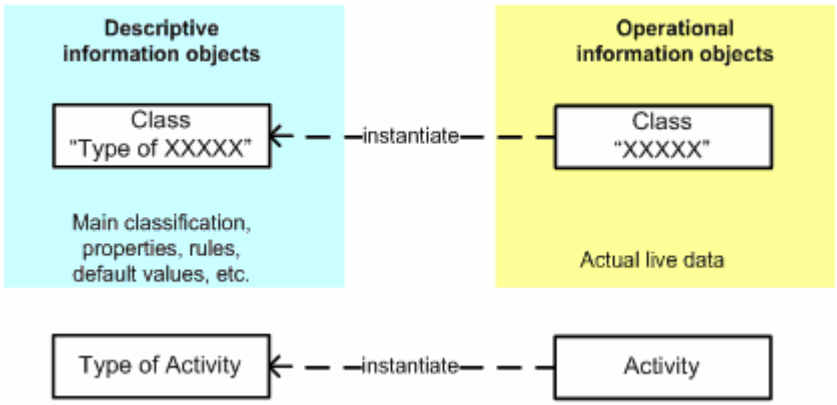


Figure 3 — Knowledge base implemented through the Descriptive Information Objects

In addition to the properties and to the classification provided by the related "descriptive" class, each class and each attribute of each class may need to be classified according to different, multiple, multi-language classifications for different (clinical, epidemiological, statistic, etc.) purposes. To support this requirement, HISA model provides the package of "Concept Information Objects", capable of organising multiple classifications, terminologies and other concepts.

Each individual information element (entire instance of one class or individual attribute of one class) can be related to the Concept class to allow specifying as many classifications as necessary. Also in this case the principle of implementing a knowledge base is implemented by the HISA model that provides:

— "**Descriptive**" information objects, allowing to specify the concepts according to which each class and each attribute of the class may be classified;

— "**Operational**" information objects (natively present in each HISA class, as described in the "Generic HISA class"), allowing to classify each individual instance and each individual attribute according to multiple concepts.

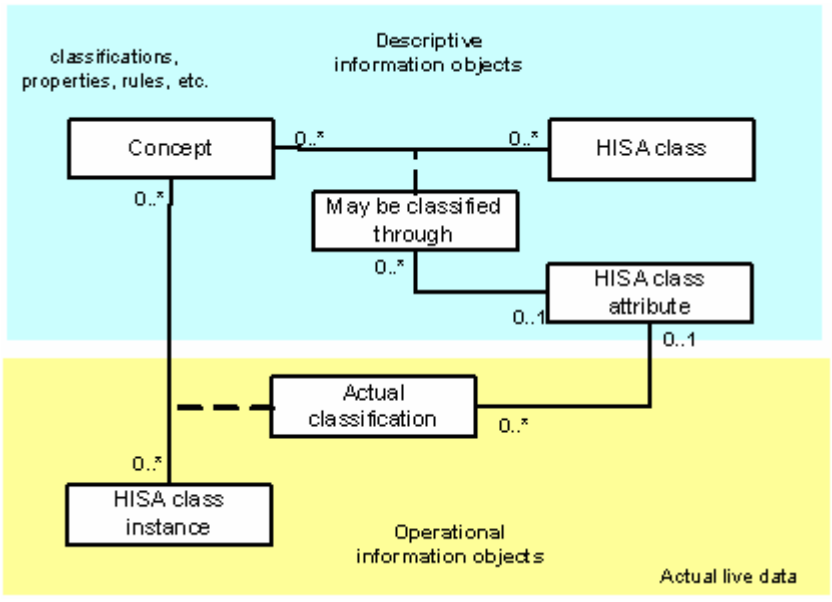


Figure 4 — The further classification criteria for each HISA class

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5.5 DataTypes

The following primitive data types are used in this specification:

Table 1

Data type		Semantics
String		Series of characters, as defined in ISO/IEC 11404:1996
Boolean		Boolean value, as defined in ISO/IEC 11404:1996
Integer		Integer, 32 bit two's complement
Double		Double precision floating point (64-bit IEEE 754)
Octet		8-bit code, as defined in ISO/IEC 11404:1996

On the basis of the primitive data types, the following HISA data types are also used in this specification to further define the meaning of data values that can be assigned to a data element.

Table 2

HISA data type	Primitive data type	Semantics
Byte	Octet	Synonym of Octet
ObjectIdentifier	String	Unchangeable string allowing the permanent and non ambiguous identification of one instance of one information object. The syntax and the structure of the string shall be defined locally by the individual implementations, according to criteria capable of ensuring the uniqueness of the value also across different models and distributed, multiple physical environments.
Identifier	String	Short, human-readable string allowing the non ambiguous identification of one instance of one information object.
InternalTimestamp	Array of Byte	Representation of date and time at least up to the level of the millisecond.
DateTime	String	Representation of date and time at least up to the level of the second.
Ordinal	Integer	A number which defines a position in an ordered series (CEN/TS 14796:2004).
Unit	String	Unit of measure, expressed according to codes defined in the "*Unified Code for Units of Measures*" (http://aurora.rg.iupui.edu/UCUM).
URI	String	Telecommunication address as specified by Internet standard RFC 1738 (http://www.isi.edu/in-notes/rfc1738.txt) as relates to one of the following schema codes: "http" (RFC 2068), "ftp" (RFC 1738), "file" (RFC 1738).
SET<DataType>		Value that contains multiple values of the data type specified as its elements.

5.6 Organisation of the document

The specification of the overall information model is structured through the following sections:

Formalisation of the general criteria and of the properties common to all classes identified in the model.

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One schema for each business process identified in the enterprise view, showing the sole classes relevant for that business process.

NOTE Due to the integration of the whole model, in each schema there are some classes that are related to objects relevant for other business processes and therefore described in the relevant sections; these classes are highlighted with the brown colour.

Specification of the identified objects, with the definition of the related properties and of the relations among them.

Informative Annex A summarises essential guidelines on the UML notation adopted for the specification of the schemas.

6 General characteristics of the model

6.1 Common structure of each information object: the GenericHisaClass

Each object of the information model shall conform to a common structure (i.e. the “GenericHISAClass”) comprising:

— set of attributes (named “specific attributes”), describing the semantic aspects specific to the class itself (e.g. Person’s name, gender, etc.);

NOTE 1 These attributes are the ones that are illustrated in the property list of the classes in the diagrams in the following section 7.

— set of attributes (named “system attributes”), common to all objects, supporting general requirements in terms of accountability, auditing, legal/clinical requirements, etc. (e.g. the date time of registration/updating of the instance);

— indefinite number of multi-media properties (named “extended attributes”), which may be added dynamically at run-time and that allow to record further information on the objects. These properties shall comprise, among other, the following attributes:

  — actual datum (i.e. the value, for example a Person’s photo, the colour of his/her eyes, etc.);

  — characteristics describing the properties of the actual datum (e.g. type [=IMAGE], size, etc. –these shall be described, where possible through the CEN data types);

  — "system attributes”, common to all instances of the object.

— indefinite number of textual properties (named “business rules”), which may be added dynamically at run-time and that allow to record specific (e.g. legal, clinical, Organisational, operational) rules and criteria that may by applicable when operating with the instance in certain contexts.

  These properties shall comprise, among other, the following attributes:

— actual text of the rule;

— scope of applicability of the rule;

— "system attributes”, common to all instances of the object;

NOTE 2 The Formalization of the semantics and of the syntax of such rules is under the responsibility of the specific implementation scenario and is outside the scope of this standard, which only prescribes the capability of each object to allow the recording and management of such type of information.

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— indefinite number of properties (named “state changes”), which shall be added dynamically at run-time automatically by the class itself, and that shall record the changes occurred in the “specific attributes” of the class in order to keep track of the life cycle of the instance during the time;

These properties shall comprise, among other, of the following attributes:

— value of the “system attributes” prior to the change;

— identification of the system attributes that have been changed;

— new values assigned to the system attributes that have been changed;

— date, time of the change;

— identification of the agent (i.e. individual or system process) that has effected the change.

— set of attributes (named “versioning attributes”), common to all objects, supporting the definition and management of multiple versions of the instance of the object, each of them characterised by an identification label and the time frame (i.e. starting date and ending date) of validity;

NOTE 3 At a certain moment either one or no instance shall be valid, therefore time frames of validity shall not overlap.

— relationship linking one version of the object with the instance representing the previous version;

— indefinite number of relationships (named “classification criteria”), which may be added dynamically at run-time and that allow to classify the entire class and/or individual attributes according to multiple classification criteria, defined in the “Concept” class of the model.

6.2 UML Diagram

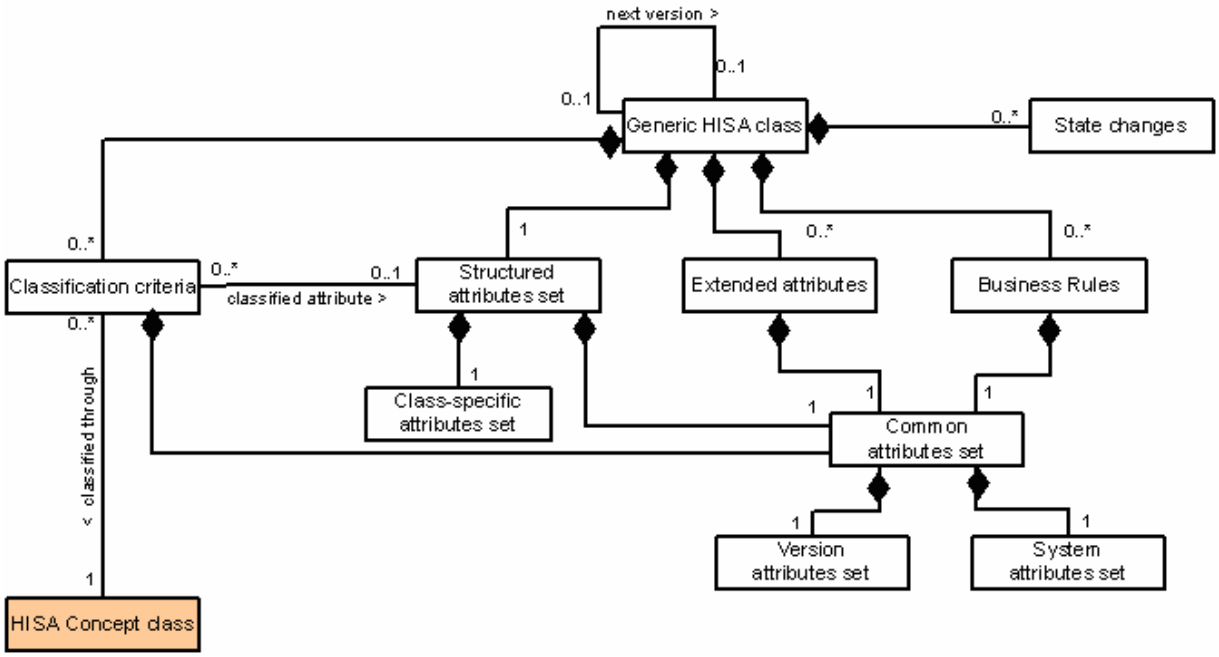


Figure 5 — The generic HISA class

All classes in the above diagram are specified in the following sections except the HISA Concept class, which is specified in clause 7.1.3.2.

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6.3 Specification of Generic HISA Class

6.3.1 General

Class identifier:	GenericHISAClass		
Description	This meta-class represents the HISA information objects belonging to the information model.		
Associated classes		Type of Association	Multiplicity
StructuredAttributes		Composition	1
ExtendedAttributes		Composition	0..*
BusinessRules		Composition	0..*
StateChanges		Composition	0..*
ClassificationCriteria Relating the instance with multiple classifications		Composition	0..*
Versioning Relating the instance with its previous version, if existing		Association	0..1
Attributes	Type	Description	
none			

6.3.2 Class: Set of structured attributes

Class identifier:	StructuredAttributes		
Description	Set of all structured attributes of the HISA information object consisting of the composition of a) the specific attributes peculiar of the HISA information object and b) the set of common attributes that shall be present in all classes.		
Associated classes		Type of Association	Multiplicity
CommonAttributes		Composition	1
ClassSpecificAttributes		Composition	1
Attributes	Type	Description	
none			

6.3.3 Class: Set of class specific attributes

Class identifier:	ClassSpecificAttributes		
Description	Set of attributes specific of the individual HISA information object		
Associated classes		Type of Association	Multiplicity
none			
Attributes	Type	Description	
Dependent on the specific object		detailed for each class in the relevant specifications	

6.3.4 Class: Set of common attributes

Class identifier:	CommonAttributes		
Description	Set of all attributes common to all HISA information objects		
Associated classes		Type of Association	Multiplicity
SystemAttributes		Composition	1
VersionAttributes		Composition	1
Attributes	Type	Description	
none			

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6.3.5 Class: Set of system attributes

Class identifier:	SystemAttributes		
Description	attributes, common to all objects, supporting general requirements in terms of accountability, auditing, etc. of the instance		
Associated classes		Type of Association	Multiplicity
none			

Attributes	Type	Description
instanceID	ObjectIdentifier	Permanent, unchangeable, unique identifier of the instance of the class.
displayName	String	Short, human-readable description of the object, that may be abbreviated for display purposes.
userCode	Identifier	Short, human-readable code of the object, allowing to uniquely identifying the instance of the class.
timestamp	InternalTimestamp	Internal Timestamp of the last update of the instance,
creationTime	DateTime	Identifies time and date of the original creation of the instance
creationAgent	ObjectIdentifier	Identifier (i.e. instanceID) of the individual that has initially created the instance.
creationUnit	ObjectIdentifier	Identifier (i.e. instanceID) of the unit of the organisation that has initially created the instance
updateTime	DateTime	Identifies time and date of the last update of the instance.
updateAgent	ObjectIdentifier	Identifier (i.e. instanceID) of the individual that has executed the last modification in the instance.
updateUnit	ObjectIdentifier	Identifier (i.e. instanceID) of the unit of the organisation that has executed the last modification in the instance.
authorization	String	Specific constraints with respect to the authorization rights on reading, updating or deleting the specific instance.
isDeleted	Boolean	If True, specifies that the instance has been logically deleted.
isFrozen	Boolean	If True, specifies that the instance cannot be modified.

6.3.6 Class: Set of version attributes

Class identifier:	VersionAttributes		
Description	attributes, common to all objects, supporting the definition and management of multiple versions of the instance of the object		
Associated classes		Type of Association	Multiplicity
none			

Attributes	Type	Description
sequence	Ordinal	Progressive sequence number of the version
startValidityDate	DateTime	Starting date of validity of the version of the instance
endValidityDate	DateTime	Ending date of validity of the version of the instance

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6.3.7 Class: Extended attributes

Class identifier:	ExtendedAttributes
Description	Formatted or unformatted texts, multimedia data or structured information as defined by a different standard, which may be attached/removed dynamically at run-time to the instance to record further information in addition to those already specified by the StructuredAttributes
Related terms	See also “Encapsulated data”, as defined in CEN/TS 14796:2004.
Notes	Attributes extend those defined in CEN/TS 14796:2004.

Associated classes	Type of Association	Multiplicity
CommonAttributes	Composition	1

Attributes	Type	Description
sequence	Ordinal	Progressive sequence number of the property
type	String	Specification of the semantics of the property NOTE The classification criteria to be adopted shall be defined and published locally in the individual implementations.
mediaType	String	Identifies –according to the MIME datatypes and notations- the encoding of the data and a method to interpret or render the data
charset	String	Where applicable, specifies –according to the IANA character set- the character set and character encoding used.
language	String	Name of language used, if data is formatted text (according to ISO 639:1988 “Codes for the representation of names of languages”)
compression	String	Id data are compressed, indicates the compression algorithm that was used
reference	URI	URI reference to a location external to the system if the data are not natively stored in the middleware
integrityCheck	Array of Byte	A short binary value representing a cryptographically strong checksum over the binary data
integrityCheckAlgorithm	String	Specifies the algorithm used to compute the integrity check value
data	Array of Byte	Actual value of the datum
alternateString	String	Textual title of the multi-media property, to be displayed in lieu of multimedia display

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6.3.8 Class: State changes

Class identifier:	StateChanges		
Description	properties that may be added dynamically at run-time to document the updates made to the “SpecificAttributes” of the class		
Associated classes		Type of Association	Multiplicity
none			
Attributes	Type	Description	
sequence	Ordinal	Progressive sequence position of the property	
dateOfChange	DateTime	Identifies the time in which the change was made	
authorOfChange	identifier	Identifier (i.e. instanceID) of the individual that has performed the change	
oldInstance	Set<String>	Identifiers and values of all attributes of the instance, prior to the change	
newValues	Set<String>	Identifiers of the attributes that have been changed and new values assigned to each of them	

6.3.9 Class: Business rules

Class identifier:	BusinessRule		
Description	properties that may be added dynamically at run-time to the record to specify rules and criteria (e.g. legal, clinical, Organisational, operational) that may be applicable when operating with the instance in certain contexts		
Associated classes		Type of Association	Multiplicity
none			
Attributes	Type	Description	
sequence	Ordinal	Progressive sequence position of the property	
title	String	Title of the rule property	
context	String	Specification of the context (if any) where the rule is applicable NOTE The notation and criteria to be adopted for the specification of such datum shall be defined locally by the individual implementations.	
value	String	Text of the rule	

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