

Health informatics — Electronic healthcare record communication —

Part 1: Extended architecture

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National foreword

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Comments arising from the use of this Draft for Development are requested so that UK experience can be reported to the European organization responsible for its conversion into a European Standard. A review of this publication will be initiated 2 years after its publication by the European organization so that a decision can be taken on its status at the end of its three-year life. The commencement of the review period will be notified by an announcement in *Update Standards*.

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Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled “International Standards Correspondence Index”, or by using the “Find” facility of the BSI Standards Electronic Catalogue.

Summary of pages

This document comprises a front cover, an inside front cover, the ENV title page, pages 2 to 112, an inside back cover and a back cover.

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Health informatics - Electronic healthcare record communication - Part 1: Extended architecture

This European Prestandard (ENV) was approved by CEN on 29 July 1999 as a prospective standard for provisional application.

The period of validity of this ENV 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 ENV can be converted into a European Standard.

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Foreword

This European Prestandard 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 European Prestandard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

This multipart standard consists of the following parts, under the general title *Electronic Healthcare Record Communication*:

- Part 1: Extended architecture
- Part 2: Domain term list
- Part 3: Distribution rules
- Part 4: Messages for the exchange of information

This standard builds on the foundations of the previous prENV 12265 Electronic Healthcare Record Architecture but extends it and modifies that standard which is withdrawn.

This standard was drafted using the conventions of the ISO/IEC directive part 3.

All Annexes are Informative.

Introduction

Healthcare records have become an established and intrinsic part of clinical practice. These records will contain information that is deemed to be important for the care of an individual. Such records are used in many different ways for diverse purposes, and are subject to government policies, as well as social, ethical and legal norms that vary from institution to institution, and from country to country.

The trend is towards representing these records in an electronic medium so that they are processable by computer systems. The Electronic Healthcare Record is then a technological means of documenting the care process for an individual person. A high standard of quality is necessary and as such the record requires appropriate representations of structure and content to both capture clinical information and to permit its communication.

The prime purpose of this multipart Prestandard is Electronic Healthcare Record communication; communication being defined as the act of imparting information. Each part of the Prestandard has a specific role to play and combined with the other parts, provides the principles, structures, terms, rules, and formats for open and safe communication of the electronic healthcare record (EHCR).

This part of the Prestandard, i.e. Part 1 the Extended Architecture, is a Reference Architecture. It describes a conceptual model of structure and content suitable for communicating the EHCR. It is a high level template which provides a set of design decisions which can be used by system vendors to develop specific implementations for their customers. To the healthcare organisation and the clinicians this architecture offers protection for their investment in clinical information against the vagaries of incompatible systems and from the changes arising from evolving business requirements, both in the computer industry and in the healthcare sector. To the individual person, insofar as their health and care depends upon the safe communication of clinical information, the architecture offers a more direct benefit. It does this by providing sound principles to ensure that the important original information context regarding the individual person is preserved and not lost nor degraded in the act of communication.

The Prestandard prENV12265 was the first version of an Electronic Healthcare Record Architecture (EHCR) intended to provide a foundation for the safe communication of part or whole of the record in diverse and

legitimate circumstances. The Extended Architecture is an 'updated version' of EHCRA. The new version clarifies the organisation of the architecture and the relationships between its components. The intention is that it 'will enable healthcare record information of any sort to be recognisable and understandable when displaced from its origin, through faithful preservation of its content and context'. In particular, the Extended Architecture emphasises the importance of 'context' as an architectural principle, as many of the other principles necessary for effective communication are reliant to some extent upon this one principle.

'context' has been defined as: 'a text preceding and following any particular passage, giving it a meaning fuller or more identifiable than if it were read in isolation'. With respect to the electronic communication of person based clinical information, the standards being developed are not so much concerned with enriching the context as primarily with safeguarding or preserving the context so that data is not lost or wrongfully interpreted, thereby causing unintentional harm to a person. Furthermore, in the EHCR Architecture, context is represented not just by 'text' but by architectural components that singularly or collectively surround, contain, link, constrain, and/or qualify the content so as to make the communication safe and unambiguous. The content may be multi-media as well as simple text strings.

The CEN Report of the Domain Model, which accompanies this multipart Prestandard, describes how the individual parts of the Prestandard interact and provides more detail on the role and importance of context for the Prestandard as a whole.

Electronic Healthcare Communication – Part 1: Extended Architecture

1 Scope

The Extended Architecture is a Reference Architecture for communicating part or whole of an electronic healthcare record (EHCR). The subject of the record to be communicated is an individual person, and the communication is solely with respect to that person's care. Other uses of healthcare records for purposes such as administration, management, research and epidemiology, which require aggregations of individual people's records, are not directly within the scope of this Prestandard.

The Extended Architecture is Part 1 of a four part Prestandard. Together with Part 2, the Domain Term List, and Part 3, the Distribution Rules, it enables open, safe and secure communication of part or whole of an EHCR. Part 4, the EHCR message, is one example of an enabled communicative act, which exchanges EHCR information in a linear format.

Part 1 is a Reference Architecture; it is a conceptual model providing structures and content schema, and is made concrete with terms from the Term Lists presented in Part 2. The Extended Architecture places no restrictions on the communication of the EHCR with respect to the place, the type of communication used, and the timing of the communication. Communication is defined as the act of imparting information, and this Prestandard does not restrict how that should be done, permitting, for example the interchange mechanism to take the form of a message or a system view.

The Extended Architecture is therefore independent of organisation, (e.g. institutional secondary or primary care records), and independent of temporal categories that are applied to records of care (e.g. episodic or longitudinal). The Extended Architecture also makes minimal assumptions regarding circumstances of its use. For example, it does not assume a particular decomposition of the healthcare domain nor does it assume that systems that might use this Prestandard will be of a particular implementation type or configuration. In particular, the fact that this Reference Architecture is represented conceptually by an object-oriented notation does not require conformant instances to be implemented using object technology.

The Extended Architecture does not say anything specifically about the security aspects of communication and supports integrity as a concept only in as far as the structures in this Prestandard enforce consistency to the original information context.

This Prestandard is a resource for both vendor and user, the first with respect to conformance and the second with respect to compliance. To the vendor it shall be used as a formal guide and pattern for the communication of electronic healthcare records conformant to the multipart Prestandard. Vendors, designers and developers are the intended audience for this document, and as such it is primarily and necessarily a technical document. The Prestandard, however, can also provide a resource for the user community to determine whether or not a specific communicative act involving whole or part of the EHCR, as defined in this Part 1, satisfies the clinical need and is fit for purpose. The user community may find that this document is helpful, although they are not the immediate audience. Examples are provided to help both vendor and user, but never the less, the document is intended primarily for a technical readership.

2 Normative References

This document incorporates by dated or undated references, provisions from other publications. These normative references are cited in the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments and revisions of any of these publications apply to this European Prestandard only when they are incorporated in it by amendment and revision. For undated references the latest edition of the publication referred to, applies.

ISO/IEC 7826-1	Information technology – General structure for the interchange of code values – Part 1: Identification of coding schemes
ISO/IEC 7826-2	Information technology – General structure for the interchange of code values – Part 2: Registration of coding schemes
ISO 2382-4:1987	Information processing - Vocabulary Part 4: Organisation of data
ISO 5281:1977	Information interchange - Representation of human sexes
ISO 639:1988	Symbols for languages, geographical areas and authorities
ISO 8601:1988	Data elements and interchange formats – Information interchange – Representation of dates and times
ISO 8859-1: 1987	Information Processing – Registration of graphics characters subrepertoires – Eight-bit single byte code graphic character sets - Part 1: Latin No 1.
prENV 12265	Medical Informatics - Electronic healthcare record architecture
ENV 12537-1 :1997	Medical Informatics - Registration of information objects used for EDI in healthcare - Part 1: The Register
ENV 12537-2 :1997	Medical Informatics - Registration of information objects used for EDI in healthcare - Part 2: Procedures for the registration of information objects used for electronic data interchange (EDI) in healthcare
ENV 12381 :1996	Medical informatics - Time standards for healthcare specific problems
ENV 12435 :1999	Medical informatics - Expression of the results of measurements in health sciences
ENV 12388 :1996	Medical informatics - Algorithm for digital signature services in healthcare
ENV 12443 :1999	Medical informatics - Medical Informatics healthcare information framework
ENV13606-2 :2000	Electronic healthcare record communication - Part 2: Domain term list
ENV13606-3 :2000	Electronic healthcare record communication - Part 3: Distribution rules
ENV13606-4 :2000	Electronic healthcare record communication - Part 4: Messages for the exchange of information

3 Terms and definitions

For the purpose of this European Prestandard, the following definitions apply:

3.1

annotation identifier

means to summarise the key contextual information pertaining to a Cluster OCC or a Data Item

NOTE The annotations are added to the record component as a coded value. The *component annotation* measure within Part 2 provides in a standardised form the key contextual information pertaining to an elementary or compounded entry, primarily to assist in its safe interpretation. A secondary purpose is to facilitate the retrieval of relevant entries by computerised searches. See Part 2 for more details.

3.2

architectural component

fundamental constituent of the Electronic Healthcare Record Architecture (EHCRA)

NOTE This Prestandard specifies five types of EHCRA component, namely, EHCRA Root Architectural Component, Original Component Complex (sub-typed as Folder OCC, Composition OCC, Headed Section OCC and Cluster OCC), Selected Component Complex, Data Item, and Link Item.

3.3

architectural sub-component

optional constituent of the Electronic Healthcare Record Architecture acting upon an architectural component

NOTE may relate to a higher level of conformance to EHCRA above the minimum level which requires presence of constituents to be mandatory.

3.4

attestation

binding of the healthcare agent (with digital signature) to a unit of information content to confirm the acceptance of the content

3.5

attestation information

architectural sub-component used to supply information about the attestation of an Architectural Component

3.5.1

date and time of attestation

attribute of date and time related to the attestation of the architectural component

3.5.2

attesting agent

attribute providing a reference to a structure which holds information about a healthcare professional, organisation, software or device which provided the attestation including the role being played by this agent

3.5.3

reason for attestation

attribute permitting the reason for attesting to be given

3.6

clinical information

information about a patient, relevant to the health or treatment of that patient, that is recorded by or on behalf of a healthcare professional

NOTE Clinical information about a patient may include information about the patient's environment or about related people where this is relevant.

3.7

cluster OCC

original component complex used to aggregate data items and/or other clusters to represent a compound concept

EXAMPLES A blood pressure measurement consisting of systolic and diastolic pressure, a collection or closely related clinical findings, results of a battery of laboratory investigations, a treatment schedule consisting of several individually specified preparations or dosages.

3.8

code meaning

element within a coded set

EXAMPLE "Paris Charles-De-Gaulle" which is mapped on to the three-letter abbreviation "CDG" by the coding scheme for three-letter abbreviations of airport names.

3.9

code value

result of applying a coding scheme to a code meaning

EXAMPLE "CDG" as the representation of "Paris Charles-De-Gaulle" in the coding scheme for three-letter representations of airport names.

3.10

communicating community

geographically or organisationally defined grouping of healthcare parties that agree to communicate, subject to an agreed set of constraints or guidelines

3.11

component name

attribute that is used to provide a title or label to an instance of an architectural component

NOTE This is a general-purpose name that may be taken from a coding scheme of the terms used in a domain information model.

3.12

component name category

code values representing high level heading that may be attached to certain Record Components

NOTE 1. These headings may be pre-determined by the EHCR system depending upon the nature of the data or the process being carried out.

NOTE 2. See Part 2 for permissible values.

NOTE 3. The values which are relevant depends upon the Record Component type.

3.13

component name structure

attribute that provides a high level indication of the general nature of the content of a record component

NOTE 1. These categories are assigned by or derived from the EHCR, depending upon the nature of the data or the process being carried out.

NOTE 2. See Part 2 for permissible values, which may vary for different types of record component.

3.14

component status information

class representing a change in the state of an architectural component and the associated change details

NOTE This class includes details of 'revision status' as well as changes brought about by events other than creation, e.g. archiving.

3.15

component unique identifier

attribute used to identify an architectural component

NOTE This attribute just draws the attention to the fact that every architectural component needs to be identifiable, it does not necessarily mean that a conformant implementation will have an explicit identifier. This Prestandard does not restrict the implementation as to how this principle is achieved.

3.16

composition OCC

original component complex that contains a set of record components relating to one time and place of care delivery, a single session of recording or a single document included in the EHCR

EXAMPLES Consultation note, operation note, discharge summary, vital signs chart, laboratory report.

3.17

concept

unit of thought constituted through abstraction on the basis of properties common to a set of objects

[ISO 1087]

3.18

data item

DI

single unit of data that in a certain context is considered indivisible

NOTE 1. The content of data is dependent upon the structure and type of the identified data type.

NOTE 2. The context may mean that this component's content may represent for example either a single clinical statement (see Part 2) or a single complex type such as an X-ray report. Its granularity is determined by the context.

3.18.1

data item type reference

attribute identifying the type of information content carried by a Data Item

3.19

digital signature

data appended to, or a cryptographic transformation of, a data unit that allows a recipient of a data unit to prove the source and integrity of the unit and protect against forgery e.g. by the recipient

[ISO 7498-2]

3.20

distribution rule

DR

logical concept or rule intended to convey and govern distribution

NOTE The form of representation of EHCR distribution rules is the subject of Part 3 of this Prestandard.

3.21

distribution rule reference

class containing all the data necessary to apply specific distribution rules to an Architectural Component

NOTE Fully defined in Part 3 of this Prestandard.

3.22

domain information model

conceptual model describing common concepts and their relationships for communication parties required to facilitate exchange of information between these parties within a specific domain of healthcare

3.23

domain term list

specific vocabulary comprising a set of terms corresponding to a domain information model

NOTE Also the title of Part 2 of this Prestandard.

3.24

electronic healthcare record

EHCR

healthcare record in computer readable form

3.25

electronic healthcare record architecture

EH CRA

a set of principles governing the logical structure and behaviour of electronic healthcare records that enables communication of the whole or part of a healthcare record

3.26

EHCR communication view

re-use of stored EHCR data for purposes of communication

3.27

electronic healthcare record architecture context principle

EH CRA context principle

fundamental constituent EH CRA principle required for any safe communicative act

NOTE The architectural principle that ensures that the clinical information as entered into the electronic healthcare record by one or more healthcare agents remains safely intact and unambiguous (i.e. nothing is inadvertently or deliberately lost or added), irrespective of why, when, who, where, and how it is communicated.

3.28

electronic healthcare record architectural principle

EH CRA principle

healthcare domain specific concept held to be qualitatively important with respect to the communication of the healthcare record, irrespective of its form or substance

3.29

EH CRA_ref

data type used to reference an instance of architectural component within the scope of the subject of care's EH CR.

NOTE This Prestandard imposes no constraints as to how these references are organised, nor attempts to define their implementation nature.

3.30

electronic healthcare record architecture root architectural component

EH CRA RAC

architectural component which has as its content the subject of care's electronic healthcare record

3.31

EH CR system

system for recording, retrieving and manipulating information in electronic healthcare records

3.32

folder OCC

original component complex used to group record components collected and/or recorded during several contacts with a subject of care

NOTE A folder may include information collected and recorded at different times and by different people.

3.33

headed section OCC

original component complex representing a sub-division within a composition, the contents of which have a common theme or are derived through the same healthcare process

3.34

healthcare agent

healthcare person, healthcare organisation, healthcare device or healthcare software component that performs a role in a healthcare activity

3.35

healthcare agent function

reference to a healthcare agent that identifies them *only* in terms of their function in relation to another healthcare agent and not by an individual name or identifier

NOTE The healthcare agent function allows a record component to refer to healthcare agents who are not individually identified at the time of recording.

EXAMPLES

- to indicate the contact details for a specialist's secretary,
- to distinguish between the parts of a pre-operative assessment applicable to the "anaesthetist".

3.36

healthcare agent in context

one or more healthcare agents related together in a specified manner for the purposes of performing a particular role in a healthcare activity.

3.37

healthcare agent relationship

relationship between two healthcare agents.

NOTE 1. A healthcare agent relationship may apply for a specified period of time.

EXAMPLE 1 Employee / employer

NOTE 2. A healthcare agent relationship may be specific to a particular healthcare agent role.

EXAMPLE 2 On behalf of / responsible for.

3.38

healthcare device

device or equipment involved in the direct or indirect provision of healthcare services to an individual or to a population.

EXAMPLE ECG machine, auto-analyser, syringe pump.

3.39

healthcare organisation

organisation involved in the direct or indirect provision of healthcare services to an individual or to a population.

NOTE Groupings or subdivisions of an organisation, such as departments or sub-departments, may also be considered as organisations where there is need to identify them.

3.40

healthcare party

organisation or person involved in the direct or indirect provision of healthcare services to an individual or to a population.

3.41

healthcare person

person involved in the direct or indirect provision of healthcare services to an individual or to a population.

NOTE A carer or the patient may be a healthcare person. This enables the role of the patient in providing his/her own care to be recorded.

EXAMPLE Primary care physician, dentist, nurse, social worker, pharmacist, medical secretary.

3.42

healthcare record

repository of information regarding the health of a subject of care.

3.43

healthcare reference architecture

reference architecture

specialisation of the conceptual architectural framework (i.e. collective term for healthcare domain, technology and user requirements) for a particular healthcare domain.

[prENV12443]

NOTE The particular domain for Part 1 is 'EHCR communication' on the application layer.

3.44

healthcare service

service provided with the intention of directly or indirectly improving the health of the person or populations to whom it is provided.

3.45

healthcare software

software component involved in the direct or indirect provision of healthcare services to an individual or to a population.

EXAMPLES EHCR system, decision support software, viewing tools.

3.46

ICSI

unique permanent identifier of a coding scheme as specified by ISO 7826-1.

[ISO7826]

3.47

link item

LI

record component that provides a means of associating two other instances of architectural component and specifying the relationship between them.

NOTE A link item may be used to link not only specialisations of record component but also instances of EHCRA RAC.

3.47.1

link item name

concept describing the nature of the link between a link source and link target.

NOTE An implementation would not need to duplicate name and type for this component. The name or type being represented as a coded concept is drawn from a list defined in Part 2 of this Prestandard.

EXAMPLES: reported in, caused by.

3.47.2

link source

attribute referencing the instance of architectural component which is acting in the role of 'link from'.

3.47.3

link target

attribute referencing the instance of architectural component which is acting in the role of 'link to'

3.48

member

record component instance that is referenced by an EHCR Root Architectural Component, original component complex or selected component complex and which may be considered to be a part of its content.

3.49

Original Component Complex

OCC

record component representing an aggregation of other record components that is determined by the time and situation in which they were originally added to the EHCR.

3.49.1

original component complex type

OCC type

attribute identifying the type of OCC

NOTE An implementation is required to incorporate at least include Folder OCC, Composition OCC, Headed Section OCC, and Cluster OCC, drawn from a list of such concepts defined in Part 2 of this Prestandard.

3.50

original information context

topological placement and position of data in the EHCR precisely as entered by an authoring healthcare agent, be that person, software or device.

3.51

originating date and time

attribute for date and time associated with the creation of an instance of Architectural Component.

3.52

originating healthcare agent

attribute referencing the healthcare agent that originated the architectural component

NOTE The structure provided by healthcare agent in context includes the role in which the healthcare agent is acting.

3.53

organisation

unique framework of authority within which a person or persons act, or are designated to act towards some purpose.

NOTE Groupings or subdivisions of an organisation may also be considered as organisations where there is need to identify them for information interchange.

[ISO 6523-1984]

3.54

presentation information

sub-component used to provide information about the presentation of the content of the content of an Architectural Component.

EXAMPLES: Information about:

- how details were entered into the EHCR
- how they should be viewed
- what type of emphasis should be given to specified components.

3.54.1

presentation reference

attribute providing an external reference to the presentation information.

3.55

record component

RC

part of an electronic healthcare record that is identifiable for the purposes of referencing and revision.

3.56

related date and time

attribute of date and time related to the content of an architectural component including their roles.

EXAMPLES: date and time of observation, date and time of (past) event.

3.57

related healthcare agent

attribute referencing the healthcare agent that had a role connected with the content of an architectural component.

NOTE The structure provided by healthcare agent in context includes the role in which the healthcare professional, organisation or device is acting.

3.58

revision information

sub-component used to provide information about the direct replacement of one instance of an Architectural Component with another.

3.58.1

reason for revision

attribute explaining why a revision of the Architectural Component was necessary.

3.58.2

reason for revision comments

attribute for the provision of comments about the revision.

3.58.3

revised version reference

attribute for the identification of the preceding version.

3.59

selected component complex

SCC

record component representing an aggregation of other record components that is *not* determined by the time or situation in which they were originally added to the EHCR.

NOTE Selected component complexes are used to provide alternative view or groupings of records. They can represent the record as viewed at a particular time or they can represent groupings of clinically or logically associated record components.

3.59.1

selected component complex type

SCC type

attribute identifying the type of selected information drawn from a small list.

3.59.2

Selection Information

sub-component used to define the selection criteria and details of its application for Selected Component Complexes.

3.59.3

splitting restriction

attribute of a SCC which explicitly states that the components selected must be seen as a whole, and warning that it would be unsafe to split.

NOTE This is intended for binding an ad-hoc set of components found in an EHCR but which are not organised together in the same part of the hierarchical structure.

3.60

subject of care

person scheduled to receive, receiving, or having received healthcare.

NOTE The subject of the record is now restricted to an individual person, not a group of persons.

3.61

subject of care identifier

identification of the person whose record this architectural component is a part. This shall be an identifier for the subject of care that is unique within the information system.

NOTE This Prestandard does not specify the nature or scope of the subject of care identifier.

3.62

view

re-use of data in a different context

4 Requirements

This document is Part 1 of a four part document. The conformance criteria set out within this clause is limited to Part 1: the Extended Architecture although . Reference to the other parts of the Prestandard is made only in so far as it affects the behaviour of the Extended Architecture or in those instances in which other parts have common elements necessary for its definition, either structurally or operationally.

In this Part 1, conformance is to do with the EHCR communication requirements as expressed in the text and models of clauses 6, 7 and 8 of this document. In the context of EHCR communication, there are two essential parties, the originator(s) and the recipient(s), who need to conform to this Prestandard to meet these stated requirements. The communication requirements for these two parties are asymmetrical, in that the recipient party must be capable of receiving any or all EHCR information, as described in clauses 6, 7, and 8, whereas the originating party need only send those elements necessary for a particular purpose. The recipient party, except by agreements outside of the Prestandard, can not know in advance precisely what it will receive and therefore must have the potential to deal with all of the requirements.

Conformance can also be considered to be at a number of different levels. A minimal level can be defined as the 'minimum set of requirements necessary to be satisfied to permit EHCR communication to be achieved according to this multipart Prestandard.' Included in this minimal level will be objects defined independently of any one particular part, or to put it another way, objects which will be common to more than one part. An example of this might be the 'Healthcare Agent' (see Clause 8). It is also possible for any Part to specify different levels of conformance according to its particular concern.

In this Part 1 it is possible to identify two categories of conformance, dependent upon 'mandatory conformance criteria' and 'optional conformance criteria'. The mandatory conformance criteria determine the minimum level of conformance (see Clause 6), whereas the latter optionally permit additional requirements to be satisfied (see Clause 7).

Table 1 summarises the conformance levels and scope from the perspective of Part 1.

	Part 1 Specific	Part 1 non-Specific (i.e. Wider Scope)
Minimum Conformance	Clause 6	Clause 8
Additional Conformance	Clause 7	EHCR communication (multipart)

The Extended Architecture does not say anything specifically about the security aspects of communication. It supports the concept of Distribution Rules by reference to Part 3 of the multipart Prestandard, and provides structures for Attestation. It also supports integrity as a concept only in as far as the structures in this Prestandard enforce consistency to the original information context. The other aspects of communication security (e.g. non-repudiation) are outside of the scope of Part 1 and are therefore not subject to conformance in this Prestandard.

5 The EHCR Architecture (EHCRA) for Communication

The multipart Prestandard is not concerned with how the Electronic Healthcare Record is actually stored within a system. It is concerned with how such a record is communicated. Part or whole of a person's healthcare record may be viewed for communication and the act of imparting or exchanging that information is the primary concern of the Prestandard.

An EHCR Communication View is essentially the reuse of stored clinical data in a different context. It may be a System View or a Message Extract. There can be many such Communication Views and each one has to conform to this Part 1 of the multipart Prestandard, i.e. to the Extended Architecture.

The Extended Architecture demands conformance of the communication views with respect to its components. It comprises a number of Architectural Components which individually, or in association with each other provide structures and functionality to enable communication to take place in accordance with this Prestandard.

The main and normative part of this document is concerned with the Architectural Components. These components can be combined in certain ways to permit communication of part or whole of the EHCR. As such this representation provides a documentary companion to the health delivery process, its events, actions, states and flows. It is not an act management system for example, but the Architectural Components are sufficiently rich enough to be able to communicate data generated by such systems by a combination of component complexes and items. Similarly, logical and layout views can be defined as part of 'presentation' to permit clinical information to be communicated in a 'problem-oriented' manner, chronological order, or in some other convention. Views, either predefined or ad hoc, and the use of links enable events and detail to be connected naturally to describe the complexities of the healthcare domain, without having to enumerate every possible combination for the purpose of communication.

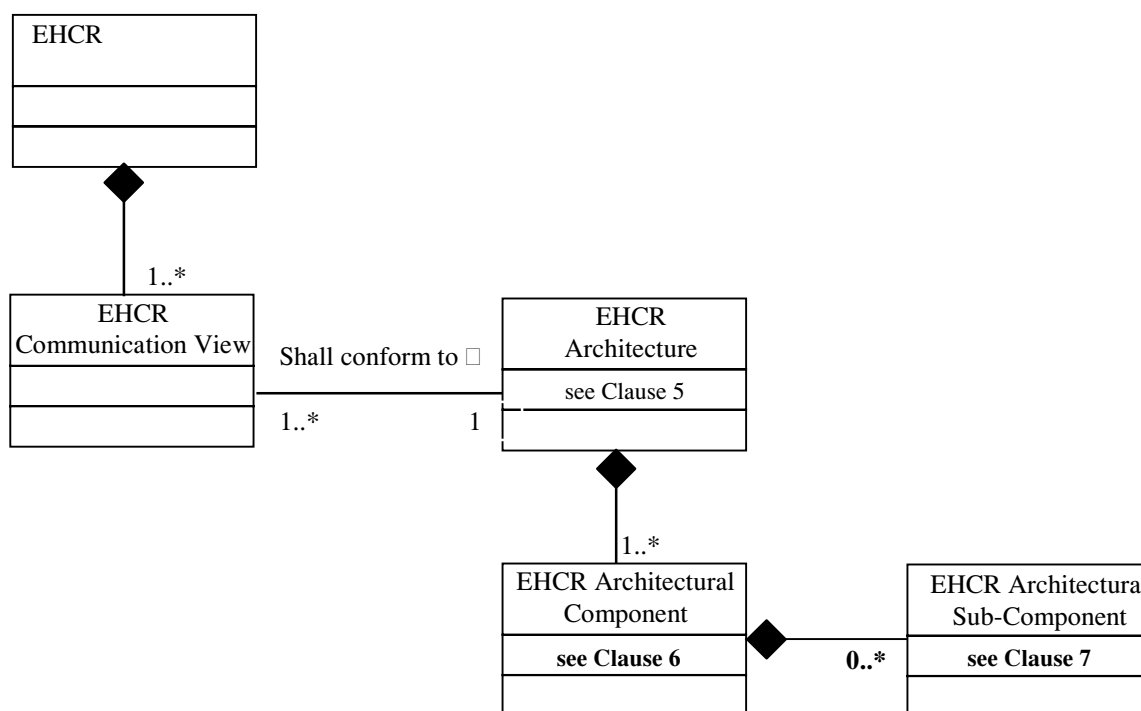


Figure 1 Communication Views

6 Architectural Components

6.1 Introduction

This clause provides the main normative provisions of the Prestandard. In particular it provides a description of the components that shall be used within the Electronic Healthcare Architecture, their relationships, purposes and attributes.

The method used to describe these components follows the Unified Modeling Language (UML) conventions which is essentially based upon an object-oriented paradigm. However, it is not the intention of this Prestandard to specify that conformant systems should utilise object-oriented technology for implementation.

An explanation of the symbols and how they are to be interpreted within this document are presented in Informative Annex A.

A conformant communication view shall be constructed from the set of components shown below in Figure 2 .

Details of the attributes used to represent the various architectural components are presented in 6.4 to 6.14.

6.2 Overview of Architectural Components

Figure 2 below provides a diagrammatic overview of the major components of the architecture.

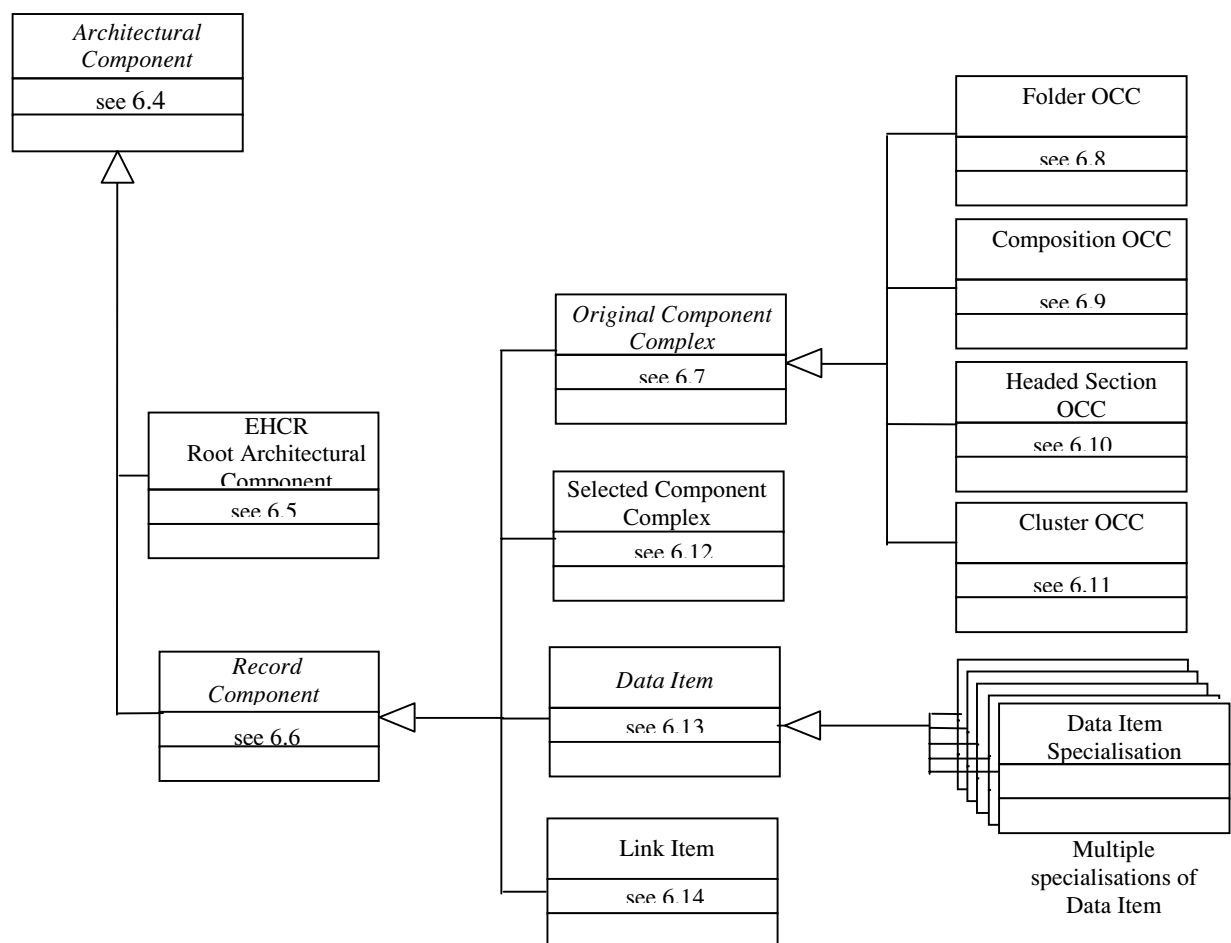


Figure 2 — Architectural Components
(i) Architectural Component (6.4)

Architectural Component is an abstract class which presents those properties which are common to all of its specialisations (collectively called *Architectural Components*).

(ii) EHCR Root Architectural Component (6.5)

An EHCR Root Architectural Component (EHCR RAC) is a type of Architectural Component which represents the 'container' or 'master folder' into which the information concerning a particular subject of care is placed and viewed.

Ideally, each subject of care should have one and only one EHCR RAC instance, however, multiple instances of EHCR RAC for a subject of care are allowed to exist within a conformant system.

(iii) Record Component (6.6)

Record Component is an abstract class whose specialisations represents data and structural components which comprise the content to the subject of care's EHCR.

(iv) Original Component Complex (6.7)

The Original Component Complex (OCC) is an abstract class whose specialisations provide different types of environment for their content. These environments reflect the different levels of granularity of the OCCs. Within this Prestandard four types of OCC are defined:

- **Folder OCC (6.8)** which organises larger sections of the subject's EHCR
e.g. Second Pregnancy, Nursing Record.
- **Composition OCC (6.9)** which represents a single identifiable contribution into the subject's EHCR
e.g. Consultation Record, Orthopaedic Record.
- **Headed Section OCC (6.10)** which contains sub-contribution sets of information.
e.g. Current Medication
- **Cluster OCC (6.11)** which identifies groups of Data Items which need to remain grouped if serious loss of context is to be avoided.
e.g. Blood Pressure Measurement (systolic & diastolic)

(v) Selected Component Complex (6.12)

The Selected Component Complex (SCC) is a structural component whose purpose is to allow original data to be re-used within the same EHCR by viewing it in another information context.

An example of this would be the selection of existing Drug Prescription data (members of one or more Original Component Complexes) in such a way that the members of the Selected Component Complex express the concept 'Current Medication'.

(vi) Data Item (6.13)

The Data Item is an abstract class whose specialisations are designed for the purpose of representing the various type of data within the EHCR.

For example, a 'Quantifiable Observation Data Item' (described fully in Part 4 of this European Prestandard) comprises a set of generic attributes concerning the positioning of the Data Item within the EHCR, attribution information, and headings, together with the data that represents the Quantifiable Observation. Moreover, the definition of the Quantifiable Observation Data Item includes a precise description (template) of how the quantifiable observation is to be described by systems when communicating this type of data.

(vii) Link Item (6.14)

The Link Item provides a mechanism whereby two other components can be linked and the link provided with a context in the form of a label.

NOTE The term 'label' is specified as a 'link item name' and it describes of the nature of the link. In particular the relationship in terms of Component A <link item name> Component B; the label being represented as a coded concept drawn from a limited closed list of such concepts.

EXAMPLE A Link Item may be used to specify that a certain symptom recorded within a Data Item is related to some other patient complaint recorded in another Data Item elsewhere, and the relationship is 'caused by'.

6.3 Original Information Context

6.3.1 General overview

This clause provides the rules which apply to the original positioning of Architectural Components within the subject of care's EHCR at the point of their creation and original entry. The original positioning of each Architectural Component within the EHCR provides the *original information context* of that Architectural Component.

6.3.2 Containment Rules

Table 1 provides an overview of the rules which apply to the original positioning of components within the EHCR, i.e. the Original Information Contexts for each component. The table illustrates the container/contained relationship between the component types present within the architecture, the columns representing the available containers and the rows representing what can be contained. It is followed by a textual description of the rules that apply to each component type.

The table shall be interpreted as follows:

1. select a component from the leftmost vertical column (i.e. the contained component types)
2. read across horizontally
3. where there is a ✓ at an intersection this indicates that the chosen component may have an instance as a part of a component of the type indicated at the top of the intersected column (i.e. the container component type).

EXAMPLE.

A Data Item shall have its original information context (i.e. originally be a part of) a Cluster OCC **or** a Headed Section OCC **or** a Composition OCC.

A Data Item shall NOT have its original information context within another Data Item, a Folder OCC (although see Note 1), an SCC, a Link Item or an EHCR Root Architectural Component.

Table 1 Containment Rules

Contained Type	Containers providing Original Information Context							
	Data Item see Note 1	Cluster OCC	Headed Section OCC	Composition OCC	Folder OCC	SCC	Link Item see Note 1	EHCR RAC
Data Item		✓	✓	✓	see Note 2			
Cluster OCC		✓	✓	✓				
Headed Section OCC			✓	✓				
Composition OCC					✓			✓
Folder OCC					✓			✓
SCC			✓	✓	✓	✓		✓
Link Item				✓	✓			✓
EHCR RAC								

NOTE 1 The empty columns for Data Item and Link Item indicate that these component types do not have a container function in this Prestandard.

NOTE 2 This Prestandard permits a single instance of a Data Item containing *narrative text* imported from a non-compliant system to be contained within a Folder OCC.

- i. A Data Item shall have its original information context in any of the following sub-types of OCC: Cluster OCC, Headed Section OCC or a Composition OCC.
- ii. A Cluster OCC shall have its original information context in another instance of Cluster OCC, a Headed Section OCC or a Composition OCC.
- iii. A Headed Section OCC shall have its original information context in another instance of Headed Section OCC or a Composition OCC.
- iv. A Composition OCC shall have its original information context in a Folder OCC or an EHCR Root Architectural Component.
- v. A Folder OCC shall have its original information context in another instance of Folder OCC or an EHCR Root Architectural Component.
- vi. A SCC shall have its original information context in a Headed Section OCC, a Composition OCC, a Folder OCC, another instance of SCC or an EHCR Root Architectural Component.
- vii. A Link Item shall have its original information context in a Composition OCC, a Folder OCC or an EHCR Root Architectural Component.
- viii. An EHCR Root Architectural Component does not have a part-of relationship with any other Architectural Component that is specified by this Prestandard.

6.4 Architectural Component (AC)

6.4.1 General description

The Extended Architecture is based around the concept of the Architectural Component. This is an abstract class, i.e. it cannot be instantiated except as one of its concrete specialisations and it captures the associations and attributes that are common to all of the main components within the Architecture and which are described in this clause. This allows the presentation of the common properties of the components in a single place and provides a collective noun '*Architectural Component*' which can be used for any of these specialisations.

6.4.2 Diagrammatic Representation

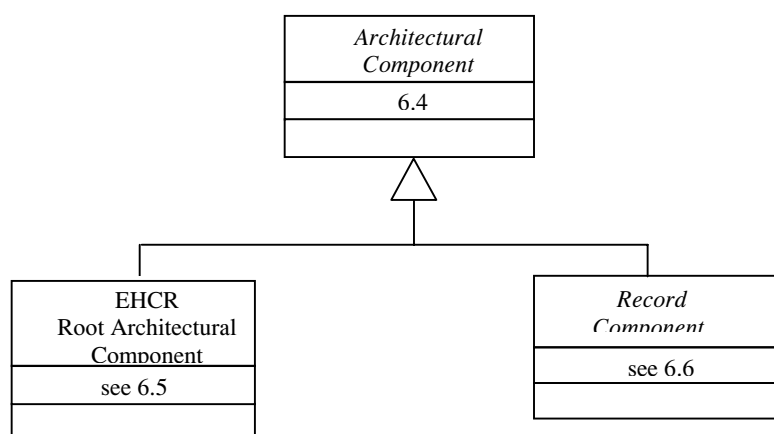


Figure 3 — Diagrammatic representation of Architectural Component

NOTE This diagram indicates that an Architectural Component is specialised as either:

- an EHCR Root Architectural Component, which may be considered as the root of a tree structure which contains the subject of care's EHCR,

OR

- a Record Component which represent Architectural Components that populate a subject of care's EHCRC.

6.4.3 Architectural Component Attributes

Table 2 — Architectural Component Associations and Attributes

Type: Abstract Class		
Specialisations: Each instance of Architectural Component shall be specialised as one of the following: - EHCRC Root Architectural Component (concrete class) or - Record Component (abstract class).		
Associations:		
NOTE The following classes may be associated with an Architectural Component. They are presented here for completeness (note that they are deliberately not included in Figure 4). Minimum conformance to this Prestandard does not require these associations to be implemented. See Clause 4.		
Attestation Information (7.2)	Whole-Part	0 to many
An Architectural Component may be associated with zero to many Attestation Information.		
Presentation Information (7.3)	Whole-Part	0 to many
An Architectural Component may be associated with zero to many Presentation Information.		
Revision Information (7.4)	Whole-Part	0 or 1
An Architectural Component may be associated with zero or one Revision Information.		
Attributes:		
Component unique identifier	Type: EHCRC_ref (8.3.6)	1
A means shall be provided to uniquely identify each Architectural Component. The identifier shall be unique across a communicating community. NOTE There may be circumstances where an architectural component created in one EHCRC and subsequently transferred by into another EHCRC system leads to a duplication of identifiers, or where the form of the identifier is not understood by the receiving system. To protect against this, there is a requirement that systems introduce an identification regime which allows for the possibility of 'foreign' identifiers. This Prestandard does not specify how this is achieved; it is left to local, regional or national bodies to resolve these issues.		
Originating healthcare agent	Type: Healthcare Agent in Context (8.4.8)	1
Details of the healthcare agent that entered the Architectural Component into the EHCRC shall be provided. These details shall be sufficient within the communication environment to uniquely identify the healthcare agent. NOTE The structure provided by Healthcare Agent in Context allows for representation of this agent as a simple identifier through to full details of a related set of agents e.g. professionals, organisations, devices and software, including such detail as name, address, telecommunication, etc. NOTE Within different communication contexts, the amount of information required to identify the healthcare agent may vary.		

Originating date and time	Type: TOCD [date+time]	1
The date and time associated with the creation of the Architectural Component shall be provided. NOTE Each instance of Architectural Component is required to have an associated date and time, this being the date and time when the instance of Architectural Component was first created.		

Table 2 - Continued

related healthcare agent	Type: Healthcare Agent in Context (8.4.8)	0 to many
Details of the healthcare agents with a role connected with the content of the Architectural Component may be provided. The structure provided by Healthcare Agent in Context includes the role in which the healthcare agent is acting. NOTE This attribute subsumes the concept of ‘responsible healthcare party’. EXAMPLES: - Dr. X at Laboratory Y that carried out an investigation. - Dr. Z, who was the consultant in charge at time of data entry.		
related date and time (8.4.20)	class	0 to many
Used to provide dates and times related to the content of the Architectural Component including their roles. NOTE Each instance of Architectural Component may be associated with any number of dates and times in addition to the originating date and time. These dates and times are always qualified with a (coded) role which identifies their meaning or context EXAMPLES: - date and time of observation, - date and time of (past) event (e.g. date of onset of symptoms).		
component name structure (8.4.2)	class	1
Each instance of Architectural Component shall be associated with a component name. The name may be expressed as a simple code, a structured set of codes or, in certain circumstances, as a string. NOTES: This attribute is used to provide the Architectural Component with a descriptor, title, heading, label, etc. depending upon the deployment of the Architectural Component. The component name may be a term drawn from a domain information model. Limiting the use of textual names to EHCR Root Architectural Component, Folder OCCs and SCCs is recommended, although these too may utilise coded names.		
subject of care identifier	Type: identifier (8.4.15)	1
The identification of the subject of care (e.g. the Patient) whose record this Architectural Component is a part of shall be provided. This shall be an identifier for the subject of care that is unique within communicating community. NOTE This Prestandard does not specify the nature or scope of the subject of care identifier other than to specify the requirement that it shall be possible to uniquely identify the subject of care within a communicating community.		

Table 2 - continued

component status information (8.4.3)	class	1
An indication of the current status of the Architectural Component shall be provided. NOTE 1. When an Architectural Component is created its status (as defined in the class 'component status information') shall initially be set to 'current'. NOTE 2. If, at a later date/time the status of the Architectural Component changes, the status change should be date/time stamped and attributed using the attributes in 'component status information'. NOTE 3. Where the change of status leads to the creation of a replacement version of the Architectural Component, the sub-component Revision Information (7.4) may be used.		
Distribution Rule Reference (8.4.4)	class	0 to many
This class, which is fully defined in Part 3 of the Prestandard, contains all the data necessary to apply specific distribution rules to the Architectural Component. NOTE 1. The Distribution Rules are a facilitating mechanism, facilitating access to and/or further distribution of the components to which they are attributed. Under the provisions and requirements of Part 3 of this European Prestandard if a distribution rule is present then the data cannot be accessed or distributed unless the provisions of the rule are complied with. As a consequence it is possible to implement the Distribution Rules principles in such a fashion that the data may become unavailable thereafter. For both Legal and Healthcare reasons this should be prevented by the application of "fall back" rules with a "Super User" type of access that will grant access to all data stored within the information system. NOTE 2. A system may apply 'default' Distribution Rules which apply to all components within an EHCR (i.e. the whole tree), or a part of the EHCR (a sub-tree). However, it should not be implied that inheritance of rules down the tree representation of the EHCR is being recommended. It is not. For communication purposes, all rules that are applicable to a component of the EHCR should be made available explicitly or implicitly for each component. Any implicit rules need to be unambiguous and accepted within a communicating community.		
language	V [code value]	0 or 1
The language in which the content of the Architectural Component is expressed, represented by the abbreviations specified in ISO 639.		

6.5 EHCR Root Architectural Component

6.5.1 General description

The EHCR Root Architectural Component represents the component which has as its content the subject of care's electronic healthcare record.

Ideally there should be only one instance of EHCR Root Architectural Component for each subject of care in an information system. However, it is accepted that duplicate EHCR Root Architectural Components will occur for number reasons, e.g.

- there is a local requirement to carry certain departmental records completely separately,
- an error has occurred in identifying the subject of care leading to a duplicate EHCR Root Architectural Component.

The EHCR Root Architectural Component shall contain at least basic identification information about the subject of care and this shall be accessible within the EHCR Root Architectural Component using a unique identifier.

The EHCR Root Architectural Component has the property that all members are components to which it provides their original information context.

An EHCR Root Architectural Component may have members that shall be instances of:

- Composition OCC
- Folder OCC
- Selected Component Complex
- Link Item

6.5.2 Diagrammatic Representation

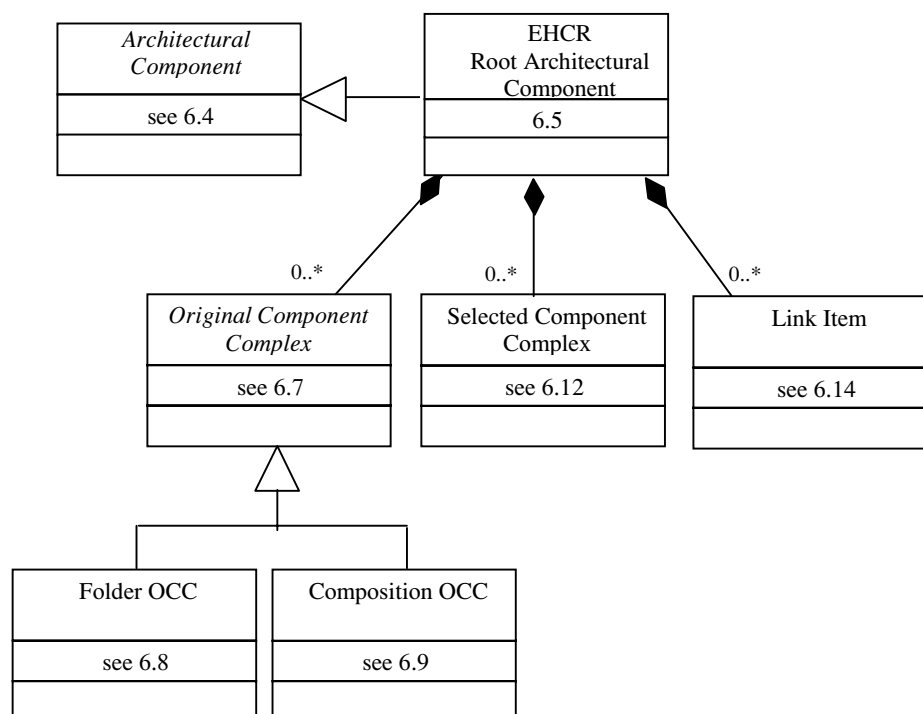


Figure 4 — Diagrammatic representation of EHCR Root Architectural Component

6.5.3 EHCR Root Architectural Component Associations and Attributes

Table 3 — EHCR Root Architectural Component Associations and Attributes

Type: Class		
<u>Specialisation of Architectural Component</u>		
Associations:		
association from generalisation		Architectural Component (6.4)
NOTE The following classes may be associated with an EHCR RAC. Minimum conformance to this Prestandard does not require these associations to be implemented. See Clause 4.		
Attestation Information (7.2)	Whole-Part	0 to many
EHCR Root Architectural Component may be associated with zero to many Attestation Information.		
NOTE The act of attestation effectively closes the EHCR Root Architectural Component since any further changes invalidates the attestation.		
Presentation Information (7.3)	Whole-Part	0 to many
EHCR Root Architectural Component may be associated with zero to many Presentation Information.		
Revision Information (7.4)	Not applicable	
association of specialisation		
Folder Original Component Complex (6.8)	Whole-Part (as member)	0 to many
An instance of EHCR Root Architectural Component may be associated with zero to many instances of Folder OCC that shall be regarded as its members.		
Composition Original Component Complex (6.9)	Whole-Part (as member)	0 to many
An instance of EHCR Root Architectural Component may be associated with zero to many instances of Composition OCC that shall be regarded as its members.		
Selected Component Complex (6.12)	Whole-Part (as member)	0 to many
An instance of EHCR Root Architectural Component may be associated with zero to many instances of Selected Component Complex that shall be regarded as its members.		
Link Item (6.14)	Whole-Part (as member)	0 to many
An instance of EHCR Root Architectural Component may be associated with zero to many instances of Link Item that shall be regarded as its members.		
Attributes:		
attributes from generalisation		Architectural Component (6.4)
component unique identifier	Type: EHCRA_ref (8.3.6)	1
A means shall be provided to uniquely identify the EHCR Root Architectural Component. The identifier shall be unique across a communicating community.		
originating healthcare agent	Type: Healthcare Agent in Context (8.4.8)	1
Details of the healthcare agent that created the EHCR Root Architectural Component shall be provided sufficient to identify this healthcare agent.		

Table 3 - continued

originating date and time	Type: TOCD [date+time]	1
The date and time associated with the creation of the EHCR Root Architectural Component shall be provided.		
related healthcare agent	Type: Healthcare Agent in Context (8.4.8)	0 to many
Details of the healthcare agent that had a role connected with the content of the EHCR Root Architectural Component may be provided. The structure provided by Healthcare Agent in Context includes the role in which the healthcare person, organisation or device is acting. NOTE Should only be used where the healthcare agent has some relationship with the whole of the content of the EHCR. NOTE If the healthcare agent has multiple roles these shall have separate entries.		
related date and time (8.4.20)	class	0 to many
Used to provide dates and times related to the content of the EHCR Root Architectural Component including their roles. NOTE Should only be used where the date and time has some relationship with the whole of the content of the EHCR.		
component name structure (8.4.2)	class	1
A descriptor, title, heading, label, etc. for the EHCR as a whole. NOTE This name should utilise a simple naming structure, i.e. simple code or string.		
subject of care identifier	Type: identifier (8.4.15)	1
The identification of the subject of care (usually a patient) whose record the EHCR Root Architectural Component contains. This shall be an identifier for the subject of care that is unique within communicating community. NOTE This Prestandard does not specify the nature or scope of the subject of care identifier other than to specify the requirement that it shall be possible to uniquely identify the subject of care within a communicating community.		
component status information (8.4.3)	class	1
An indication of the current status of the EHCR Root Architectural Component shall be provided. When an EHCR Root Architectural Component is created its status (as defined in the class 'component status information') shall initially be set to 'current'.		
Distribution Rule Reference	class (8.4.4)	0 to many
This class, which is fully defined in Part 3 of the Prestandard, contains all the data necessary to apply specific distribution rules to the EHCR Root Architectural Component and therefore its content. NOTE Applying Distribution Rules at this level may be considered as 'default' Distribution Rules which apply to all components within an EHCR (i.e. the whole tree). However, it should not be implied that inheritance of rules down the tree representation of the EHCR is being recommended. See Notes attached to Distribution Rules in Architectural Component (6.4)		
language	V [code value]	0 or 1
The language in which the content of the EHCR Root Architectural Component is expressed, represented by the abbreviations specified in ISO 639.		

6.6 Record Component (RC)

6.6.1 General Description

Record Component is a specialisation of Architectural Component and inherits its associations and attributes.

Record Component represents the generalisation of all the classes of components that act as data or structural entries within the EHCR of a subject of care.

Each instance of Record Component is specialised as one of the following:

- Original Component Complex
- Selected Component Complex
- Data Item
- Link Item

Each instance of Record Component has an attribute which is used to identify a 'parent' record component. This gives rise to an EHCR with a hierarchical structure with EHCR Root Architectural Component acting as the root.

6.6.2 Diagrammatic Representation

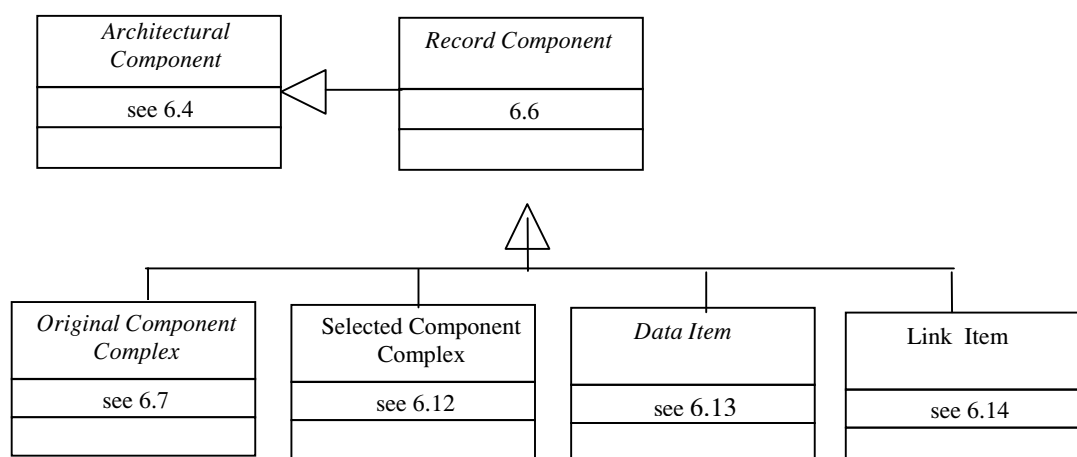


Figure 5 — Diagrammatic representation of Record Component

6.6.3 Record Component Associations and Attributes

Table 4 — Record Component Associations and Attributes

Type: Abstract Class		
<u>Specialisation of Architectural Component</u>		
Specialisations: Each instance of Record Component shall always be specialised as one of the following: Original Component Complex Selected Component Complex Data Item Link Item		
Associations:		
association from generalisation		Architectural Component (6.4)
NOTE The following classes may be associated with a Record Component. Minimum conformance to this Prestandard does not require these associations to be implemented. See Clause 4.		
Attestation Information (7.2)	Whole-Part	0 to many
A Record Component may be associated with zero to many Attestation Information.		
Presentation Information (7.3)	Whole-Part	0 to many
A Record Component may be associated with zero or many Presentation Information.		
Revision Information (7.4)	Whole-Part	0 or 1
A Record Component may be associated with zero or one Revision Information.		
Attributes:		
attributes from generalisation		Architectural Component (6.4)
NOTE See Table 2 Page 22 for more details concerning these inherited attributes.		
component unique identifier	Type: EHCRA_ref (8.3.6)	1
A means shall be provided to uniquely identify each Record Component. The identifier shall be unique across a communicating community. See Table 2 Page 22 for guidance on the scope of this identifier.		
originating healthcare agent	Type: Healthcare Agent in Context (8.4.8)	1
Details of the healthcare agent that entered the Record Component into the EHCR shall be provided and be sufficient for the unique identification of the healthcare agent.		
originating date and time	Type: TOCD [date+time]	1
The date and time associated with the creation of the Record Component shall be provided.		
related healthcare agent	Type: Healthcare Agent in Context (8.4.8)	0 to many
Details of the healthcare agent that had a role connected with the content of the Record Component may be provided. The structure provided by healthcare agent reference includes the role in which the healthcare agent is acting.		

Table 4 - continued

related date and time (8.4.20)	class	0 to many
Used to provide dates and times related to the content of the Record Component including their roles.		
component name structure (8.4.2)	class	1
Each instance of Record Component shall be associated with a component name. The name may be expressed as a simple code, a structured set of codes or as a string. NOTES: This attribute is used to provide the Record Component with a descriptor, title, heading, label, etc. depending upon the deployment of the Record Component. The component name may be a term drawn from a domain information model. Limiting the use of textual names to Folder OCCs and SCCs is recommended, although these too may, and probably should, utilise coded names.		
subject of care identifier	Type: Identifier (8.4.15)	1
The identification of the subject of care (usually a patient) whose record this Record Component is a part of shall be provided. This shall be an identifier for the subject of care that is unique within communicating community.		
component status information (8.4.3)	class	1
An indication of the current status of the Record Component shall be provided.		
Distribution Rule Reference	class (8.4.4)	0 to many
This class, which is fully defined in Part 3 of the Prestandard, contains all the data necessary to apply specific distribution rules to the Record Component.		
language	V [code value]	0 or 1
The language in which the content of the Record Component is expressed, represented by the abbreviations specified in ISO 639.		
attributes of specialisation		
NOTE The following attributes are specific to Record Component specialisations		
component name category	Type: TL [term list value] (8.3.5)	0 or 1 Dependent upon specialisation
Provides a set of categories which allows Record Components to be processed and handled in a homogeneous fashion for navigation, searching and for high level aggregation analyses. NOTE 1. Different lists of categories apply to different specialisations of Record Component, i.e. there will not be a single closed list of code values that apply to all Record Component types. NOTE 2. See Part 2 of this European Prestandard		

6.7 Original Component Complex (OCC)

6.7.1 General Description

An Original Component Complex is a specialisation of Record Component (6.6) and inherits all its associations and attributes.

An Original Component Complex is an abstract class which is specialised as a Folder OCC, Composition OCC, Headed Section OCC or Cluster OCC (see 6.7.3)

The Original Component Complex provides the original information context (see 6.3) for all its members. The types of Record Components which may act as members of an OCC is dependent upon the specialisation of the OCC.

The OCC provides for its members an organisation/structure.

This Prestandard does not specify if, or how, the Original Component Complex refers to or organises its members.

6.7.2 Diagrammatic Representation

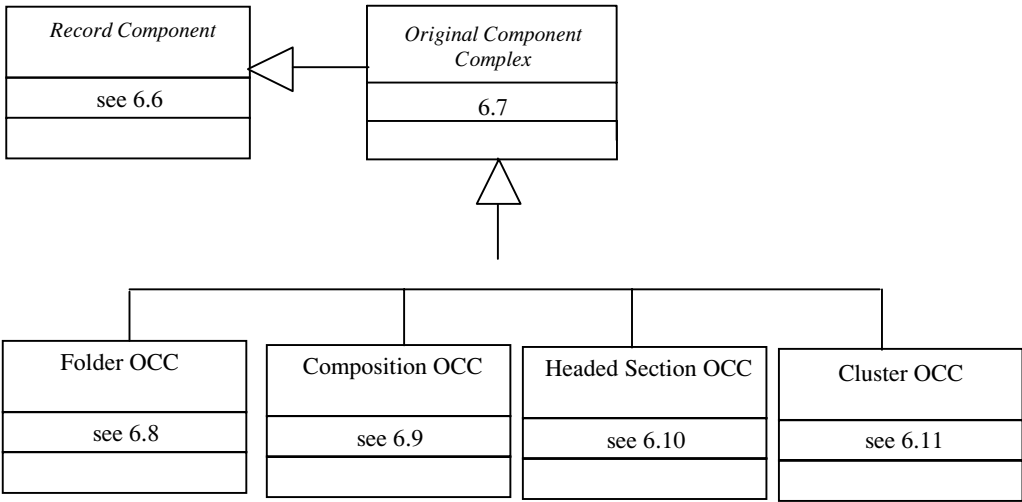


Figure 6 — Diagrammatic representation of Original Component Complex

6.7.3 OCC Types

The OCC serves the purpose of grouping Record Components. However, there are a wide range of such groupings ranging from OCCs which represent whole sections of a subject's life-long health record down to OCCs which group together a closely related set of Data Items. Four sub-types of OCC are defined by this Prestandard as shown in Table 5 .

Table 5 Sub-types of the Original Component Complex class

<i>OCC Type Name</i>	Description	Examples of Component Names
<i>Folder OCC</i>	High-level subdivisions of the entire EHCR for a subject of care, usually grouping entries over long time-spans within one organisation or department, or for a particular health problem	GP Record Inpatient Stay Diabetes Care Record
<i>1.1.1.1.1.1.1.1 Composition</i>	A set of record entries relating to one time and place of care delivery; grouped contributions to an aspect of healthcare activity; composed reports and overviews of clinical progress	Consultation Operation Notes Discharge Summary Drug Prescription Vital Signs Chart
<i>Headed Section</i>	Sub-divisions used to group entries with a common theme or derived through a common healthcare process	Past Medical History Presenting Symptoms Examination Findings Treatment Plan
<i>Cluster</i>	Low-level aggregations of elementary entries (Data Items and/or other Cluster OCCs) to represent a compound clinical concept	Heart Sounds Differential White Cell Count Insulin Schedule

6.7.4 Original Component Complex Associations and Attributes

Table 6 — Original Component Complex Associations and Attributes

Type: Class		
<u>Specialisation of Record Component</u>		
Associations:		
associations of generalisation	Record Component (6.6)	
NOTE The following classes may be associated with an Original Component Complex. Minimum conformance to this Prestandard does not require these associations to be implemented. See Clause 4.		
Attestation Information (7.2)	Whole-Part	0 to many
An Original Component Complex may be associated with zero to many Attestation Information.		
Presentation Information (7.3)	Whole-Part	0 to many
An Original Component Complex may be associated with zero to many Presentation Information.		
Revision Information (7.4)	Whole-Part	0 or 1
An Original Component Complex may be associated with zero or one Revision Information.		