



openEHR Architecture

Support Terminology

Editors: {T Beale, S Heard}¹, {D Kalra, D Lloyd}²

Revision: 0.9

Pages: 21

-
1. Ocean Informatics Australia
 2. Centre for Health Informatics and Multi-professional Education, University College London

© 2003-2005 The *openEHR* Foundation

The *openEHR* foundation

is an independent, non-profit community, facilitating the creation and sharing of health records by consumers and clinicians via open-source, standards-based implementations.

Founding Chairman

David Ingram, Professor of Health Informatics, CHIME, University College London

Founding Members

Dr P Schloeffel, Dr S Heard, Dr D Kalra, D Lloyd, T Beale

email: info@openEHR.org **web:** <http://www.openEHR.org>

Copyright Notice

© Copyright openEHR Foundation 2001 - 2005
All Rights Reserved

1. This document is protected by copyright and/or database right throughout the world and is owned by the openEHR Foundation.
2. You may read and print the document for private, non-commercial use.
3. You may use this document (in whole or in part) for the purposes of making presentations and education, so long as such purposes are non-commercial and are designed to comment on, further the goals of, or inform third parties about, openEHR.
4. You must not alter, modify, add to or delete anything from the document you use (except as is permitted in paragraphs 2 and 3 above).
5. You shall, in any use of this document, include an acknowledgement in the form: "© Copyright openEHR Foundation 2001-2005. All rights reserved. www.openEHR.org"
6. This document is being provided as a service to the academic community and on a non-commercial basis. Accordingly, to the fullest extent permitted under applicable law, the openEHR Foundation accepts no liability and offers no warranties in relation to the materials and documentation and their content.
7. If you wish to commercialise, license, sell, distribute, use or otherwise copy the materials and documents on this site other than as provided for in paragraphs 1 to 6 above, you must comply with the terms and conditions of the openEHR Free Commercial Use Licence, or enter into a separate written agreement with openEHR Foundation covering such activities. The terms and conditions of the openEHR Free Commercial Use Licence can be found at http://www.openehr.org/free_commercial_use.htm

Amendment Record

Issue	Details	Raiser	Completed
0.9	CR-000184. Separate out terminology from Support IM. CR-000182: Rationalise <i>VERSION.lifecycle_state</i> and <i>ATTESTATION.status</i> . Add new term set for attestation reason, deprecate attestation state term set.	T Beale T Beale, D Kalra	05 Dec 2005
RELEASE 0.96			

Acknowledgements

The work reported in this paper has been funded by The University College, London and Ocean Informatics, Australia.

Table of Contents

1 Introduction

1.1 Purpose

This document describes the *openEHR* Support Terminology, which defines the vocabularies needed for the *openEHR* Reference, Archetype and Service models. This terminology is not considered to be in the same space as externally defined terminologies such as Snomed-ct, ICDx etc, but rather a part of the infrastructure of the *openEHR* architecture. The audience includes:

- Standards bodies producing health informatics standards;
- Software development organisations developing EHR systems;
- Academic groups studying the EHR;
- The open source healthcare community.

1.2 Related Documents

Prerequisite documents for reading this document include:

- The *openEHR* Reference Model documents.

1.3 Status

This document is under development, and is published as a proposal for input to standards processes and implementation works.

The latest version of this document can be found in PDF format at <http://svn.openehr.org/specification/BRANCHES/Release-1.0-candidate/publishing/architecture/terminology.pdf>. New versions are announced on openehr-announce@openehr.org.

Blue text indicates sections under active development.

NOTE THAT NOT ALL CHANGES MADE TO THIS DOCUMENT HAVE BEEN APPROVED BY THE OPENEHR ARB, AND MAY BE SUBJECT TO FURTHER CHANGE.

1.4 Peer review

Areas where more analysis or explanation is required are indicated with “to be continued” paragraphs like the following:

To Be Continued: more work required

Reviewers are encouraged to comment on and/or advise on these paragraphs as well as the main content. Please send requests for information to info@openEHR.org. Feedback should preferably be provided on the mailing list openehr-technical@openehr.org, or by private email.

1.5 Conformance

Conformance of a data or software artifact to an *openEHR* Reference Model specification is determined by a formal test of that artifact against the relevant *openEHR* Implementation Technology Specification(s) (ITSs), such as an IDL interface or an XML-schema. Since ITSs are formal, automated derivations from the Reference Model, ITS conformance indicates RM conformance.

2 Terminology

2.1 Overview

This document provides a documentary expression of the *openEHR* terminology, which consists code sets and term lists, which provide values for the dozen or so structural attributes in the *openEHR* Reference Model. The computable form of this terminology is available in the computable part of the *openEHR* specification repository, and should always be considered the definitive expression, rather than this document.

There are two types of coded terms used. The first are ‘proper’ coded terms, where each code is a concept identifier, for which there can be a rubric and description in multiple languages. In other words, the way of ‘saying’ the concept is dependent on the language one is working in. Most clinical terminologies are in this category, e.g. ICD10, ICPC. Terminologies in this category are modelled in *openEHR* by the `TERMINOLOGY` class, and by terms expressed as instances the `DV_CODED_TEXT` class, each of which has as an attribute a defining `CODE_PHRASE` - the actual code.

The second category is codes which are self-defining, and which do not have separate rubrics. The ISO country and language codes are examples of this, as are code groups for such concepts as ‘integrity check algorithm names’. This category is modelled in *openEHR* by the `CODE_SET` which is made up of `CODE_PHRASES`.

Both code set definitions and terminology groups provide mappings to other recognised terminologies or vocabularies. Given that the attributes defined here are mostly structural attributes (i.e. predefined in the *openEHR* Reference Model), mappings tend to be to terms in vocabularies defined by standards organisations such as CEN and HL7, rather than large clinical vocabularies such as ICD10 (WHO). *OpenEHR* does not specify the use of these vocabularies.

2.2 Code Sets

Code sets are not shown in full here, since their codes are derived from resources published by external authorities; however, the *openEHR* code-set databases contain the full set of codes in each case.

2.2.1 Languages

This ISO code set defined by the ISO 639 standard consists of the “alpha-2” form of names of languages. This does not cover all languages, whereas ISO 639 “alpha-3” covers many more languages of cultural or indigenous interest, but which nevertheless are unlikely to be supported by current software or operating systems. See <http://www.loc.gov/standards/iso639-2/langhome.html>.

Issuer: ISO Code set name: “languages”		
Code	Description	Mappings
“ab”	“Abkhazian”	
...	...	
“bg”	“Bulgarian”	
...	...	
“zh”	“Chinese”	
...	...	

2.2.2 Countries

This ISO code set defined by the ISO 3166 standard consists of 2-character names of countries and country subdivisions. For a definitive online rendition see <http://www.unicode.org/unicode/online-dat/countries.html>.

Issuer: ISO Code set name: “countries”		
Code	Description	Mappings
“af”	“Afghanistan”	
“al”	“Albania”	
...	...	

2.2.3 Character Sets

This IANA (Internet Naming Authority) code set consists of the names of recognised character sets. See <http://www.iana.org/assignments/character-sets> for authoritative source.

Issuer: IANA Code set name: “character sets”		
Code	Description	Mappings
ISO-10646-UTF-1		
...		
ISO_8859-3:1988		
...		

2.2.4 Media Types

This IANA (Internet Naming Authority) code set consists of the names of MIME media types. See <http://www.iana.org/assignments/media-types/text/> for authoritative source.

Issuer: IANA Code set name: “media types”		
Code	Description	Mappings
“text/plain”	Plain text encoded according to RFC3676	HL7_MediaType::14826
“text/html”	HTML text encoded according to RFC2854	HL7_MediaType::14828
“text/richtext”	Rich text encoded according to RFC2046	
“text/rtf”	Rich text encoded according to ftp://indri.primete.wisc.edu/pub/RTF/RTF-Spec.rtf .	HL7_MediaType::14831
“text/sgml”		HL7_MediaType::14829
“text/rfc822-headers”		
“text/xml”		HL7_MediaType::14830
“audio/basic”		HL7_MediaType::14836
“audio/mpeg”		HL7_MediaType::14837
“application/pdf”		HL7_MediaType::14833
“application/msword”		HL7_MediaType::14834
...

2.2.5 Compression algorithms

This code set consists of the names of algorithms used to compress data, and is drawn from HL7's CompressionAlgorithms domain.

Issuer: <i>openehr</i> Code set name: “compression algorithms”		
Code	Description	Mappings
“compress”	Original UNIX <i>compress</i> algorithm and file format using the LZC algorithm (a variant of LZW).	HL7_CompressionAlgorithm::10624
“deflate”	The <i>deflate</i> compressed data format as specified in RFC 1951. See ftp://ftp.isi.edu/in-notes/rfc1951.txt .	HL7_CompressionAlgorithm::10621
“gzip”	A compressed data format that is compatible with the widely used GZIP utility as specified in RFC 1952. See ftp://ftp.isi.edu/in-notes/rfc1952.txt .	HL7_CompressionAlgorithm::10622
“zlib”	A compressed data format that also uses the deflate algorithm. Specified as RFC 1950 See ftp://ftp.isi.edu/in-notes/rfc1950.txt	HL7_CompressionAlgorithm::10623
“other”	Some other type of compression; might be retrievable upon direct inspection of data.	

2.2.6 Integrity check algorithms

This code set consists of the names of algorithms used to generate hashes for the purpose of integrity checks on data; its initial values are drawn from the HL7 IntegrityCheckAlgorithm domain.

Issuer: <i>openehr</i> Code set name: “integrity check algorithms”		
Code	Description (en)	Mappings
“SHA-1”	Secure hash algorithm - 1. Defined in FIPS PUB 180-1: Secure Hash Standard. As of April 17, 1995.	HL7_IntegrityCheckAlgorithm::17386
“SHA-256”	secure hash algorithm - 256. Defined in FIPS PUB 180-2: Secure Hash Standard	HL7_IntegrityCheckAlgorithm::17387
...	...	

2.3 Vocabularies and Terminologies

2.3.1 Act Status

This vocabulary codifies act statuses of Entries.

Terminology: <i>openehr</i> Group_name(“en”): “act status”			
Concept id	Rubric (en)	Description (en)	Mappings

2.3.2 Attestation Status [deprecated]

This vocabulary codifies attestation statuses of Compositions or other elements of the health record,

and is drawn from the HL7 ParticipationSignature domain, as used in CDA.

Terminology: <i>openehr</i> Group_name("en"): " <i>attestation status</i> "			
Concept id	Rubric (en)	Description (en)	Mappings
240	"signed"	This attestation has been signed by its required signatory/ies.	HL7_ParticipationSignature::10284
241	"intended"	This attestation is awaiting the signature of its signatory/ies.	HL7_ParticipationSignature::13977
242	"required"	This attestation requires the signature of its signatory/ies.	HL7_ParticipationSignature::10283

2.3.3 Attestation Reason

This vocabulary codifies attestation statuses of Compositions or other elements of the health record, and is drawn from the HL7 ParticipationSignature domain, as used in CDA.

Terminology: <i>openehr</i> Group_name("en"): " <i>attestation reason</i> "			
Concept id	Rubric (en)	Description (en)	Mappings
???	"signed"	The attested information has been signed by its signatory.	
???	"witnessed"	This attested information has been witnessed by the signatory.	
???			

2.3.4 Audit Change Type

This vocabulary codifies the kinds of changes to data which are recorded in audit trails.

Terminology: <i>openehr</i> Group_name("en"): " <i>audit change type</i> "			
Concept id	Rubric (en)	Description (en)	Mappings
249	"creation"	Change type was creation.	HL7_CDA: CEN:
250	"amendment"	Change type was amendment.	HL7_CDA: CEN:
251	"modification"	Change type was modification.	HL7_CDA: CEN:
252	"synthesis"	Change type was synthesis - creation by a conversion gateway.	HL7_CDA: CEN:
253	"unknown"	Type of change unknown.	HL7_CDA: CEN:

2.3.5 Composition Category

This vocabulary codifies the values of the *category* attribute of the COMPOSITION class in the

rm.composition package.

Terminology: <i>openehr</i> Group_name("en"): " <i>composition category</i> "			
Concept id	Rubric (en)	Description (en)	Mappings
	"persistent"	This Composition contains information which remains valid for (more or less) the life of the EHR. Typical persistent Compositions include "family history", "problem list", "current medications", and "vaccination history".	
	"event"		
	"process"		

2.3.6 Event Math Function

This vocabulary codifies mathematical functions of non-instantaneous events.

Terminology: <i>openehr</i> Group_name("en"): " <i>event math function</i> "			
Concept id	Rubric (en)	Description (en)	Mappings
145	"minimum"	Value of the interval-event is the minimum value of the discrete events which the interval-event summarises.	
144	"maximum"	Value of the interval-event is the maximum value of the discrete events which the interval-event summarises.	
267	"mode"	Value of the interval-event is the modal (most common) value of the discrete events which the interval-event summarises.	
268	"median"	Value of the interval-event is the median (centre value in sorted series) value of the discrete events which the interval-event summarises.	
146	"mean"	Value of the interval-event is the average value of the discrete events which the interval-event summarises.	
147	"delta"	Value of the interval-event is the net change over the period which the interval-event summarises.	
148	"total"	Value of the interval-event is the sum of the values of the discrete events which the interval-event summarises (typically differential flow measurements, e.g. blood loss).	

2.3.7 Measurable Properties

This vocabulary codifies purposes for physical properties corresponding to formal unit specifications, and allows comparison of Quantities with different units but which measure the same property. The vocabulary values are taken from:

- CEN ENV 12435 - "Medical Informatics - Expression of results of measurements in health sciences"

- HL7 “Unified Codes for Units of Measure”

Terminology: <i>openehr</i> Group_name(“en”): “ <i>measurable properties</i> ”			
Concept id	Rubric (en)	Description (en)	Mappings
...

2.3.8 Null Flavours

This vocabulary codifies “flavours of null” for missing data items.

Terminology: <i>openehr</i> Group_name(“en”): “ <i>null flavours</i> ”			
Concept id	Rubric (en)	Description (en)	Mappings
271	“no information”	No information provided; nothing can be inferred as to the reason why, including whether there might be a possible applicable value or not.	HL7_NullFlavor::V10610
253	“unknown”	A possible value exists but is not provided.	HL7_NullFlavor::V10612
272	“masked”	The value has not been provided due to privacy settings.	HL7_NullFlavor::17932
273	“not applicable”	No valid value exists for this data item.	HL7_NullFlavor::10611

2.3.9 Participation Function

This vocabulary codifies functions of participation of parties in an interaction (used in PARTICIPATION class).

Terminology: <i>openehr</i> Group_name(“en”): “ <i>participation function</i> ”			
Concept id	Rubric (en)	Description (en)	Mappings

2.3.10 Participation Mode

This vocabulary codifies modes of participation of parties in an interaction (used in PARTICIPATION class). The initial set has been defined to be the same as HL7's ParticipationMode vocabulary domain.

Terminology: <i>openehr</i> Group_name("en"): " <i>participation mode</i> "			
Concept id	Rubric (en)	Description (en)	Mappings
193	"not specified"	Mode of participation is not specified; use only for legacy data.	
216	"face-to-face communication"	Face to face communications between parties in the same room.	HL7_ParticipationMode::16545
223	"interpreted face-to-face communication"	Face to face communications between parties in the same room with an interpreter	HL7_ParticipationMode::16545
217	"signing (face-to-face)"	Live face-to-face communication using a recognised sign language.	
195	"live audiovisual; videoconference; videophone"	Any audio-visual communication in real time	
198	"videoconferencing"	Live audio-visual communication over videoconferencing or other similar equipment.	HL7_ParticipationMode::16548
197	"videophone"	Live audio-visual communication	
218	"signing over video"	Live video communication using sign language.	
224	"interpreted video communication"	Live audio-visual communication involving an interpreter	
194	"asynchronous audiovisual; recorded video"	Audio-visual communication that is not live	
196	"recorded video"	Recorded video or video mail	
202	"live audio-only; telephone; internet phone; teleconference"	Any live audio-only communication.	HL7_ParticipationMode::V16544 (includes live)
204	"telephone"	Live verbal communication over a telephone.	HL7_ParticipationMode::16546
203	"teleconference"	Live verbal communication over teleconference	HL7_ParticipationMode::16546
204	"internet telephone"	Live verbal communication over a the internet.	HL7_ParticipationMode::16546
222	"interpreted audio-only"	Any live audio-only communication using an interpreter.	HL7_ParticipationMode::V16544 (includes live)
199	"asynchronous audio-only; dictated; voice mail"	Audio-only communication that is not live.	
200	"dictated"	Non-interactive audio-only information recorded on some medium, such as cassette tape.	HL7_ParticipationMode::16547
201	"voice-mail"	Audio messaging system	

Terminology: <i>openehr</i> Group_name("en"): " <i>participation mode</i> "			
Concept id	Rubric (en)	Description (en)	Mappings
212	"live text-only; internet chat; SMS chat; interactive written note"	Any live text-only communication	
213	"internet chat"	Live text-only communication over the internet	
214	"SMS chat"	Live text-only chat over mobile/cell phone	
215	"interactive written note"	Live text-only communication using written notes	HL7_ParticipationMode::16550
206	"asynchronous text; email; fax; letter; handwritten note; SMS message"	Any text-only communication including email, written text, SMS message etc.	HL7_ParticipationMode::V16549
211	"handwritten note"	Written communication by handwritten document.	HL7_ParticipationMode::16550
210	"printed/typed letter"	Written communication by typewritten document.	HL7_ParticipationMode::16551
207	"email"	Written communication by email.	HL7_ParticipationMode::16553 [include HL7_ParticipationMode::16554 (electronic data)]
208	"facsimile/telefax"	Non-interactive written communication using a fax machine.	HL7_ParticipationMode::16552
221	"translated text"	Non-interactive written communication requiring translation	HL7_ParticipationMode::V16549
209	"SMS message"	Messages sent via mobile/cell phone	
219	"physically present"	Participation by actions, where the participant is physically present.	HL7_ParticipationMode::16556
220	"physically remote"	Participation by actions, where the participant is not physically present, and the actions are transmitted by electronic means.	HL7_ParticipationMode::16557

2.3.11 Related Party relationship

This vocabulary codifies the relationship between the subject of care and some other party mentioned in the health record.

Terminology: <i>openehr</i> Group_name("en"): " <i>related party relationship</i> "			
Concept id	Rubric (en-uk)	Description (en)	Mappings
0	"self"	The party is the subject of EHR	HL7_RoleCode:: CEN:
3	"foetus"	The party is a foetus	HL7: CEN:
10	"mother"	The party is the mother of the subject of EHR	HL7: CEN:
9	"father"	The party is the father of the subject of the EHR	HL7: CEN:

Terminology: <i>openehr</i> Group_name("en"): "related party relationship"			
Concept id	Rubric (en-uk)	Description (en)	Mappings
6	"donor"	The party is a donor of organs or other body products to the EHR subject.	HL7: CEN:
253	"unknown"	Relationship to party is unknown.	HL7: CEN:
261	"adopted daughter"	Relationship of adopted daughter to subject of EHR	HL7: CEN:
260	"adopted son"	Relationship of adopted son to subject of EHR	HL7: CEN:
259	"adoptive father"	Relationship of adoptive father to subject of EHR	HL7: CEN:
258	"adoptive mother"	Relationship of adoptive mother to subject of EHR	HL7: CEN:
256	"biological father"	Relationship of biological father to subject of EHR	HL7: CEN:
255	"biological mother"	Relationship of biological mother to subject of EHR	HL7: CEN:
23	"brother"	Relationship of brother to subject of EHR	HL7: CEN:
28	"child"	Relationship of child to subject of EHR	HL7: CEN:
265	"cohabitee"	Lives with the subject of EHR	HL7: CEN:
257	"cousin"	Relationship of cousin to subject of EHR	HL7: CEN:
29	"daughter"	Relationship of daughter to subject of EHR	HL7: CEN:
264	"guardian"	Relationship of guardian to subject of EHR	HL7: CEN:
39	"maternal aunt"	Relationship of maternal aunt to subject of EHR	HL7: CEN:
8	"maternal grandfather"	Relationship of maternal grandfather to subject of EHR	HL7: CEN:
7	"maternal grandmother"	Relationship of maternal grandmother to subject of EHR	HL7: CEN:
38	"maternal uncle"	Relationship of maternal uncle to subject of EHR	HL7: CEN:
189	"neonate"	Relationship of neonate to subject of EHR	HL7: CEN:
254	"parent"	Relationship of parent to subject of EHR	HL7: CEN:
22	"partner/spouse"	The husband or wife or life partner of the subject of EHR	HL7: CEN:
41	"paternal aunt"	Relationship of paternal aunt to subject of EHR	HL7: CEN:
36	"paternal grandfather"	Relationship of paternal grandfather to subject of EHR	HL7: CEN:
37	"paternal grandmother"	Relationship of paternal grandmother to subject of EHR	HL7: CEN:

Terminology: <i>openehr</i> Group_name("en"): <i>"related party relationship"</i>			
Concept id	Rubric (en-uk)	Description (en)	Mappings
40	"paternal uncle"	Relationship of paternal uncle to subject of EHR	HL7: CEN:
27	"sibling"	Relationship of sibling to subject of EHR	HL7: CEN:
24	"sister"	Relationship of sister to subject of EHR	HL7: CEN:
31	"son"	Relationship of son to subject of EHR	HL7: CEN:
263	"step father"	Relationship of step father to subject of EHR	HL7: CEN:
262	"step mother"	Relationship of step mother to subject of EHR	HL7: CEN:
25	"step or half brother"	Relationship of step or half brother to subject of EHR	HL7: CEN:
26	"step or half sister"	Relationship of step or half sister to subject of EHR	HL7: CEN:

2.3.12 Setting

This vocabulary codifies broad types of settings in which clinical care is delivered. It is not intended to be a perfect classification of the real world, but instead a practical coarse-grained categorisation to aid querying.

Terminology: <i>openehr</i> Group_name("en"): <i>"setting"</i>			
Concept id	Rubric (en)	Description (en)	Mappings
225	"home"	Care delivered in the patient's home by patient or health professional.	
227	"emergency care"	Care delivered in emergency situation, e.g. by ambulance workers.	
228	"primary medical care"	Care delivered by a doctor within a primary care framework (generalist, non-referred).	
229	"primary nursing care"	Care delivered by nurses within a primary care framework (community based, generalist clinic).	
230	"primary allied health care"	Care delivered by allied health practitioners such as physiotherapists, osteopaths, chiropractors, optometrists, chiropodist/pediatrist etc. within a primary care framework (community based, generalist clinic)	
231	"midwifery care"	Midwifery care in any framework	
232	"secondary medical care"	Care delivered in an institutional or specialist setting - usually as a result of a referral.	
233	"secondary nursing care"	Care delivered by nurses within a secondary care framework (inpatient, specialist clinic).	
234	"secondary allied health care"	Care delivered by allied health care professionals within a secondary care framework (inpatient, specialist clinic).	

Terminology: <i>openehr</i> Group_name("en"): " <i>setting</i> "			
Concept id	Rubric (en)	Description (en)	Mappings
235	"complementary health care"	Care delivered by chinese, ayurvedic, naturopath, homeopath etc practitioner.	
236	"dental care"	Care delivered in a dental practitioner setting.	
237	"nursing home care"	Care to the needs of patients in nursing homes, delivered in an institutional setting.	
238	"other care"	Care delivered in setting not described by other terms in this vocabulary.	

2.3.13 Term Mapping Purpose

This vocabulary codifies purposes for term mappings as used in the class `TERM_MAPPING`. The use-case for this vocabulary is yet to be determined.

Terminology: <i>openehr</i> Group_name("en"): " <i>term mapping purpose</i> "			
Concept id	Rubric (en)	Description (en)	Mappings
...	to be determined	...	

2.3.14 Version Lifecycle State

This vocabulary codifies lifecycle states of Compositions or other elements of the health record.

Terminology: <i>openehr</i> Group_name("en"): " <i>version lifecycle state</i> "			
Concept id	Rubric (en)	Description (en)	Mappings
244	"draft"	Item is in draft state: not ready for viewing by other users. DEPRECATED.	
245	"active"	Item is active and available for shared use. DEPRECATED.	
246	"inactive"	Item is marked inactive due to logical deletion or other similar operation. DEPRECATED.	
247	"awaiting approval"	Item is awaiting to approval to go into active state. DEPRECATED.	
???	"finished"	Item is complete at time of committal.	
???	"unfinished"	Item is incomplete at time of committal, in the view of the author. Further editing or review needed before its status will be set to "finished".	
???	"deleted"	Item has been logically deleted.	

END OF DOCUMENT