nehta

Logical Service Specification

PCEHR View Service

Version 1.1 — 3 February 2012

Final

National E-Health Transition Authority

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Document Information

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Version History

Date	Version	Name	Comments
9 December 2011	1.0	PCEHR Design Authority	Approved for release
3 February 2012	1.1	PCEHR Design Authority	Conformance Points VIEW-L 58 to VIEW-L 77 added. Added getRepresentatitiveListView, getIndividualDetailsView and getMedicareInformationView operations. Updated Table 1 with Version 1.0 and Version 1.1 scope.

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Preface

Purpose

The purpose of this document is to define the logical interaction with the PCEHR View Service for conformant healthcare provider systems to enable interoperability of patient information and clinical records across the wider healthcare community.

This specification covers Computational and Informational viewpoints of the PCEHR View Service solution and is focused on providing all the information required for a healthcare provider, system integrator or software vendor to plan the inclusion of this functionality within their application.

At a functional level, the logical service specification defines a set of system roles and the responsibilities associated with these roles, and sufficient elaboration of the functions and services that are available externally.

The logical service specification for the View Service will allow implementers of healthcare systems and portals to design standardised integration to the PCEHR System to retrieve a specific "view" of information from a consumer's PCEHR.

This logical service specification is supported by one or more technical service specifications which will allow more technical resources to execute the integration with the PCEHR System and to migrate through the Conformance and Certification process before commissioning.

The technical service specifications will also provide a technical realisation of the interfaces that are supported by the PCEHR System, along with details of how to authenticate and authorise service requests across secure channels to use those interfaces.

Intended Audience

This specification is intended primarily for:

- Developers and implementers of software products which seek to interact with the PCEHR System (normative)
- Jurisdictional eHealth programs (informative)
- The Australian Health Informatics Standards development community (informative)

This is a technical document which makes use of the UML2.3 standard [UML2010].

This document assumes that the reader is familiar with:

- UML and service-oriented architecture concepts and patterns
- PCEHR Concept of Operations [PCEHR_CON_OPS], September 2011 release.
- RM-ODP (Reference Model of Open Distributed Processing) reference model [RM-ODP]

Document Map

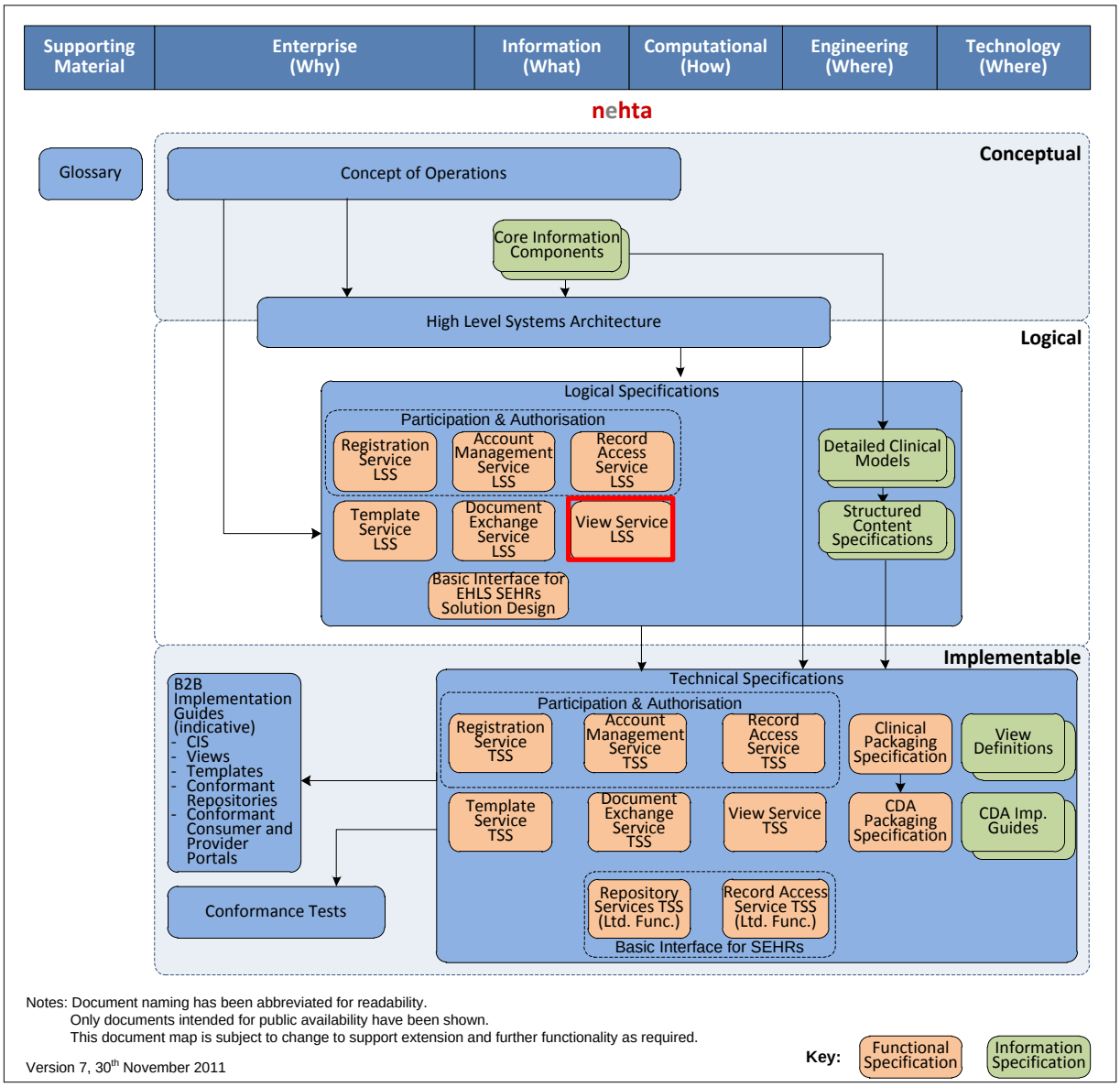

Figure 1 – Document map

Acronyms and Terminology

Please refer to Appendix B for definitions of the acronyms and terminology used in this document.

The keywords SHALL, SHALL NOT, SHOULD and SHOULD NOT in this document are to be interpreted as described in IETF's RFC 2119 [RFC2119].

References

Please refer to Appendix C for details of the references in this document.

1 Introduction

1.1 Context

The Personally Controlled Electronic Healthcare Record (PCEHR) System will be launched in July 2012 and will allow consumers, their representatives, healthcare organisations and providers to manage and share electronic health records based on a regime of personally controlled access and user entitlements that promote a high level of maturity and interoperability.

The View Service provides a mechanism for conformant external systems to retrieve a series of predefined views for a consumer's PCEHR.

Table 1- Views in scope for PCEHR

View Title	Description	Status
Document List	A list of all documents for a consumer's PCEHR	Version 1.0
Consolidated View	A summary of the aspects of a consumer's PCEHR	
Audit View	A list of auditable access events for a consumer's PCEHR	
Change History View	The change history of a specific document in a consumer's PCEHR	
Individual Details	The personal and demographic information of a consumer's PCEHR	Version 1.1
Medicare Information	A summary of all Medicare related information for a consumer's PCEHR	
Representatives Listing	A list of the representatives that have been associated with a consumer's PCEHR	

In the context of the PCEHR solution, the definition of a view is:

> *A collection of related data specific to a given role from across the PCEHR system available on request.*

The PCEHR System is responsible for authentication, authorisation and exposing the View Service interfaces to external systems so that views can be retrieved securely against a regime of access control.

The red highlighted area in Figure 2 shows how this logical service specification fits into the complete set of PCEHR functionality.

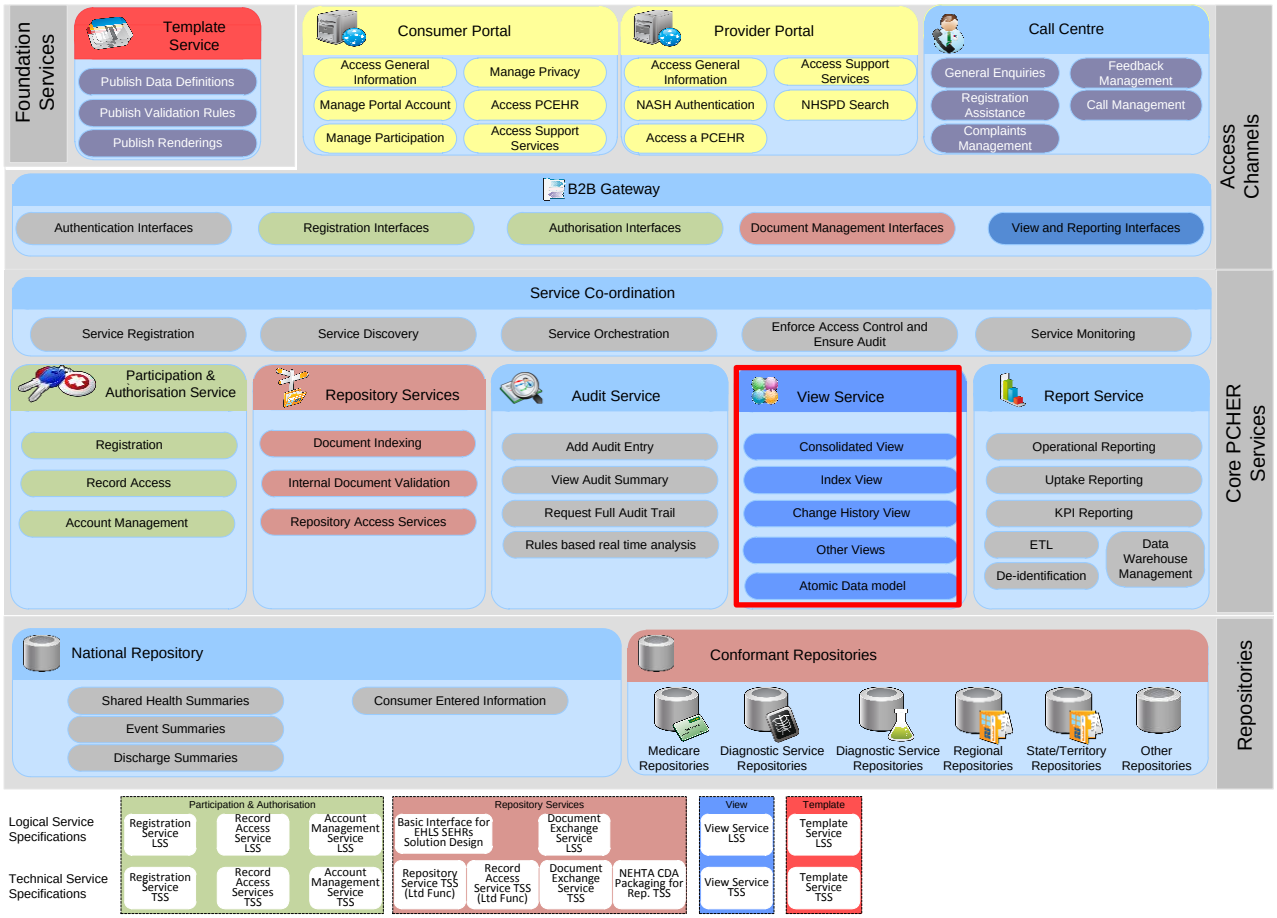

Figure 2 – PCEHR and the View Service

The full suite of documentation that covers the View Service specification is:

- logical service specification (this document)
- technical service specification

For further information and more context around the View Service and the PCEHR System please refer to the Concept of Operations [PCEHR_CON_OPS].

1.2 Scope of Document

1.2.1 In Scope

The scope of this document is restricted to the specification of the logical interfaces supported by the PCEHR View Service. It defines the interactions between the View Service and other systems in terms of the format and content of information exchanged.

1.2.2 Out of Scope

This document does not cover any user interaction via a portal or other user interface and deals solely with machine level interactions.

It does not include the technical definition of the View Service in the context of how they are created or used and it does not include any of the other interfaces associated with the PCEHR System.

1.3 Relationship to eHealth Interoperability Framework

This specification has been produced in accordance with the eHealth Interoperability Framework, which considers three layers of abstraction and five viewpoints (see summary in Appendix A on page 3). The two viewpoints relevant to this logical service specification are each covered in a separate section.

1.4 Conformance Points

This specification contains Conformance Points that identify normative requirements that are to be met by identified roles in order to comply with this specification when interacting with the View Service Interface.

Conformance Points include requirements on a party invoking the service (View User) and the party providing the service (PCEHR System).

Any capability required to meet a conformance point SHALL be considered part of the requirements to be met under this specification.

Conformance Points are identified within this document by the means of the following notation:

VIEW-L 0	This is an example only. Conformance points SHALL be numbered and contain an identifier of 'VIEW-L' which identifies them as being applicable to the View Service Interface logical service specification.

2 Computational Viewpoint

The computational viewpoint is concerned with describing the functional decomposition of the system into computational objects which interact at their interfaces, including descriptions of services that objects offer and other objects consume, i.e. service contracts in general terms. These objects prescribe the key functionality of the system to be built, while assuming that necessary infrastructure support and services are specified elsewhere (in the technical service specification [TSS]).

This viewpoint is mainly relevant for solution architects and software developers, although a high-level computational description of the interaction between information technology systems and users may also be relevant. This can be a refinement of the interactions defined in an enterprise viewpoint and can involve subject matter experts and business analysts.

This section of the document contains conformance statements that specify the services in terms of the:

- messages exchanged
- processing required of the Service Invoker before invoking a service
- dependency between the response messages generated and the request message and the prior state of the Service Provider
- resulting effect (if any) on the state of the Service Provider
- required processing of response message by the Service Invoker.

2.1 Services Architecture

The View Service will be exposed to external systems by the PCEHR System.

2.1.1 Overview

The View Service interface is represented as a simple interaction between two roles – the PCEHR System and the View User as illustrated in Figure 3 below.

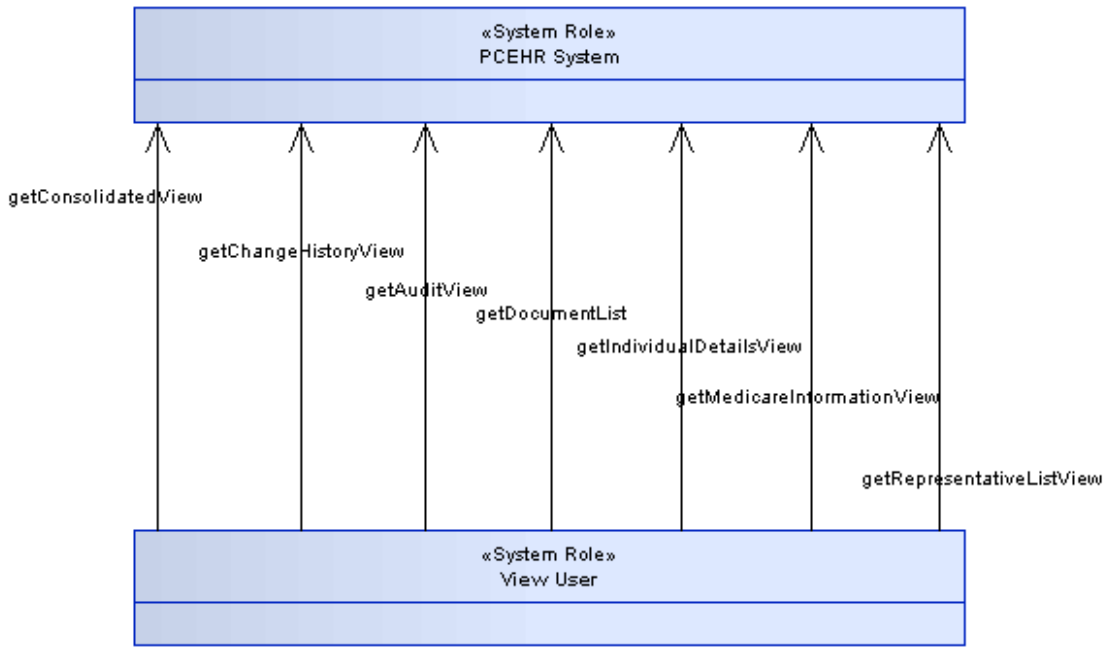

Figure 3 – View Service Interactions

2.1.2 System Roles

The table below provides a summary of the roles to give context to the following sections. The full detail of each role is provided in the section shown in the right hand column.

Table 2 – View Roles

System Role	Description and Rationale	Further Details
PCEHR System	The PCEHR System allows authorised users, consumers and their representatives to access a series of 'views' of a consumer's PCEHR. These views are intended to allow the underlying information within a PCEHR to be assembled in different ways for different categories of users with different needs.	Section 2.4
View User	The View User represents any consumer of views.	Section 2.5

2.1.3 Services

The diagram below illustrates how the interactions between the system roles defined above may be grouped into a service.

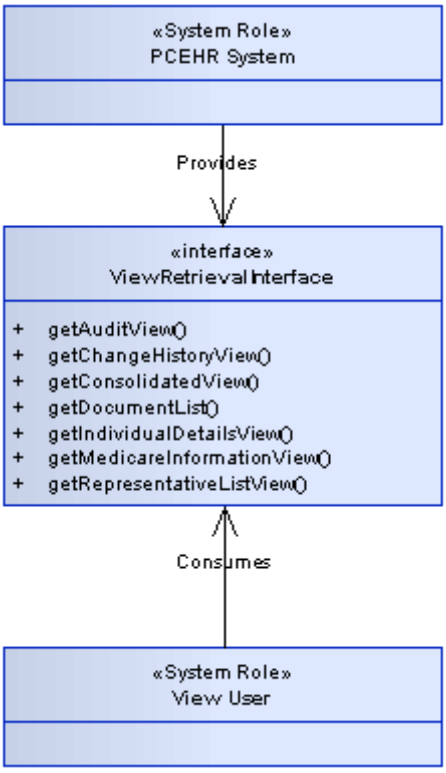

Figure 4 – Mapping of interactions to services

2.2 View-Retrieval – Service Interface

The system roles involved in the View Service interface interact in a single service of View-Retrieval.

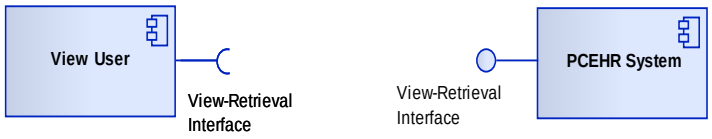

Figure 5 – View-Retrieval

This service is provided by the PCEHR System which makes views available to be retrieved.

The service is invoked by View Users who have been granted access to an individual PCEHR.

View Retrieval provides the following service operations:

- getConsolidatedView
- getChangeHistoryView
- getAuditView
- getDocumentList
- getIndividualDetailsView
- getMedicareInformationView
- getRepresentativeListView

Figure 6 – View Retrieval Service Operations

Table 3 – Service Interface View Retrieval – Operations

Service Interface – Operations	Comment
getConsolidatedView	This operation is used to retrieve the constructed representation of the consolidated view from the PCEHR internal atomic data model.
getChangeHistoryView	This operation provides a view of the documents changed within a predefined timeframe.
getAuditView	The operation is used to retrieve an audit trail from audit repository.
getDocumentList	This operation is used to retrieve a list of clinical documents available in a consumer's PCEHR (Index view).

Service Interface – Operations	Comment
getIndividualDetailsView	This operation is used to retrieve details about the Individual consumer, including information such as name, DOB, age etc.
getMedicareInformationView	This operation provides an index of available Medicare sourced documents available in a consumer's PCEHR (a sub-set of the Index View).
getRepresentativeListView	This operation provides a list of representatives associated with the individual's PCEHR.

2.2.1 Service Operation – getConsolidatedView

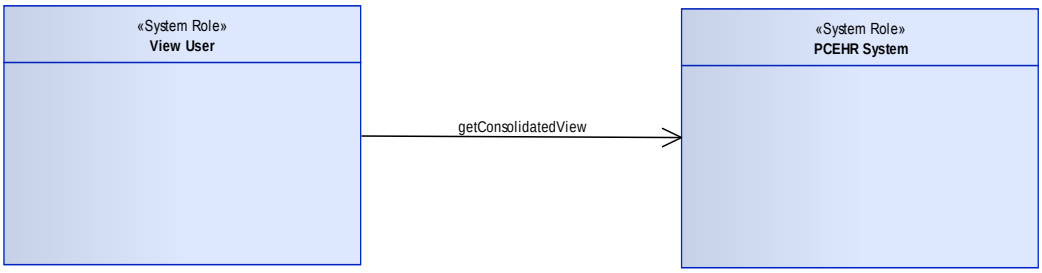

Figure 7 – getConsolidatedView operation

2.2.1.1 Description

The getConsolidatedView operation is responsible for returning the constructed representation of the consolidated view from the PCEHR system.

The consolidated view is constructed from atomic data that is extracted from clinical documents uploaded for a particular PCEHR.

The consolidated view presented to a requestor will only contain data drawn from documents consistent with the requestor's access rights.

2.2.1.2 Precondition

Conformance Points

VIEW-L 1	The *View User* SHALL construct a message conformant with the definition in section 3.1.1 of this document
VIEW-L 2	The *View User* SHALL have access to a PCEHR before being able to use this operation.

2.2.1.3 Postcondition

Conformance Points

VIEW-L 3	The consolidated view response SHALL contain data drawn from documents according to the requestor's access rights.
VIEW-L 4	On successful execution, the *PCEHR System* SHALL return a response message conformant with the response definition in section 3.1.2 of this document

VIEW-L 5	If the *PCEHR System* finds that there is no data to display in the consolidated view for the particular PCEHR, the *PCEHR System* SHALL return a success response that clearly indicates that there is no information to display. The *PCEHR System* SHALL NOT return an error in this instance.

2.2.1.4 Input, Output and Fault

Table 4 – getConsolidatedView Input, Output and Fault

Operation data fields	Data structures
Input	getConsolidatedViewRequest
Output	getConsolidatedViewResponse
Fault	genericServiceFault

2.2.1.5 Exception Conditions

VIEW-L 6	If an error occurs while processing the request, the *PCEHR System* SHALL construct a response message conformant with the fault definition in section 3.1.9.
VIEW-L 7	If the *View User* does not receive a response within n seconds (where n is agreed with the service operator), the *View User* SHALL cease waiting for a response and MAY repeat the request.

2.2.2 Service Operation – getChangeHistoryView

The getChangeHistoryView Service operation returns the list of all historical versions associated with a particular document.

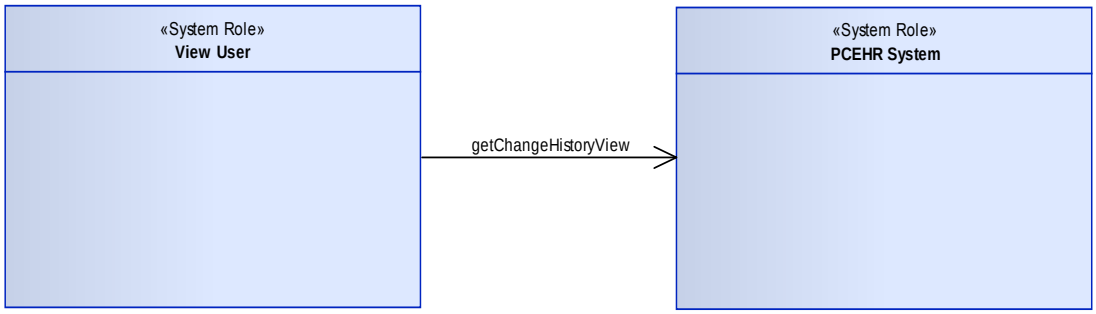

Figure 8 – getChangeHistoryView operation

2.2.2.1 Description

The getChangeHistoryView provides a view of all the versions of a specific document. The view will be sensitive to the requestor's access rights and the associated access sensitivity of each document.

2.2.2.2 Precondition

Conformance Points

VIEW-L 8	The *View User* SHALL construct a message conformant with the definition in section 3.1.3.
VIEW-L 9	The *View User* SHALL have access to a PCEHR before being able to use this operation.

2.2.2.3 Postcondition

Conformance Points

VIEW-L 10	On successful execution, the PCEHR System SHALL return a response message conformant with the response definition in section 3.1.4.
VIEW-L 11	If the *PCEHR System does* not find any document history, the *PCEHR System* SHALL return a success response indicating that there is no document history for this particular document ID. The *PCEHR System* SHALL NOT return an error in this case.

2.2.2.4 Input, Output and Fault

Table 5 getChangeHistoryView Input, Output and Fault

Operation data fields	Data structures
Input	getChangeHistoryViewRequest
Output	getChangeHistoryViewResponse
Fault	genericServiceFault

2.2.2.5 Exception Conditions

VIEW-L 12	If an error occurs while processing the request, the *PCEHR System* SHALL construct a response message *conformant* with the fault definition in section 3.1.9.
VIEW-L 13	If the *View User* does not *receive* a response within n seconds (where n is agreed with the service operator), the *View User* SHALL cease waiting for a response and MAY repeat the request.

2.2.3 Service Operation – getAuditView

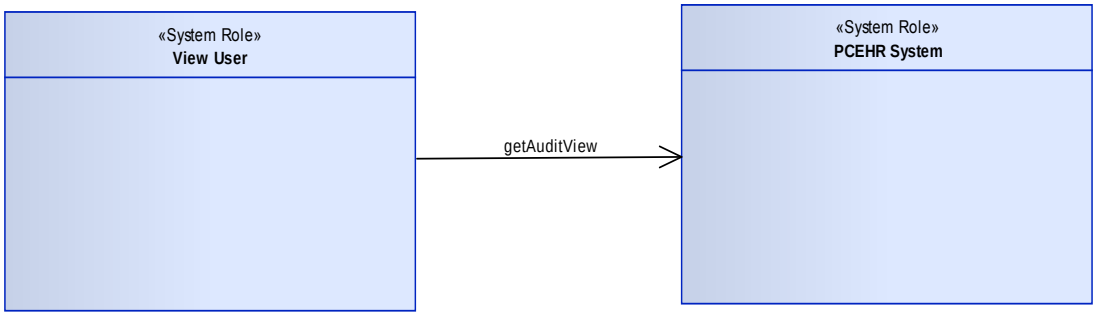

Figure 9 – getAuditView operation

2.2.3.1 Description

The getAuditView operation is responsible for returning an audit trail from the audit repository for either a Healthcare Provider (HPI-O) or an Individual (IHI) as follows:

- If the request is from a Healthcare Provider, then all audit events for the provider across multiple PCEHRs will be returned.
- If the request is from an Individual, then only the audit events for their PCEHR will be returned.

The audit view presented to this requestor will contain data appropriate for the requestor's access rights and role in the system. The Healthcare Provider is only able to access a subset of a consumer's audit events, while the Consumer has access to all their audit events.

2.2.3.2 Precondition

Conformance Points

VIEW-L 14	The *View User* SHALL *construct* a message conformant with the definition in section 3.1.5.
VIEW-L 15	The *View User* SHALL have *appropriate* access to a PCEHR before being able to use this operation.

2.2.3.3 Postcondition

Conformance Points

VIEW-L 16	On successful execution, *the PCEHR System* SHALL return a response message conformant with the response definition in section 3.1.6.
VIEW-L 17	If the *PCEHR System* does *not* find any data which matches the provided search criteria, the *PCEHR System* SHALL return a success response indicating that no matches were found. The *PCEHR System* SHALL NOT return an error.

2.2.3.4 Input, Output and Fault

Operation data fields	Data structures
Input	getAuditViewRequest
Output	getAuditViewResponse
Fault	genericServiceFault

2.2.3.5 Exception Conditions

VIEW-L 18	If an error occurs while processing the request, the *PCEHR System* SHALL construct a response message *conformant* with the fault definition in section 3.1.9.
VIEW-L 19	If the *View User* does not receive a response within n seconds (where n is agreed with the service operator) the *View User* SHALL cease waiting for a response and MAY repeat the request.

2.2.4 Service Operation – getDocumentList

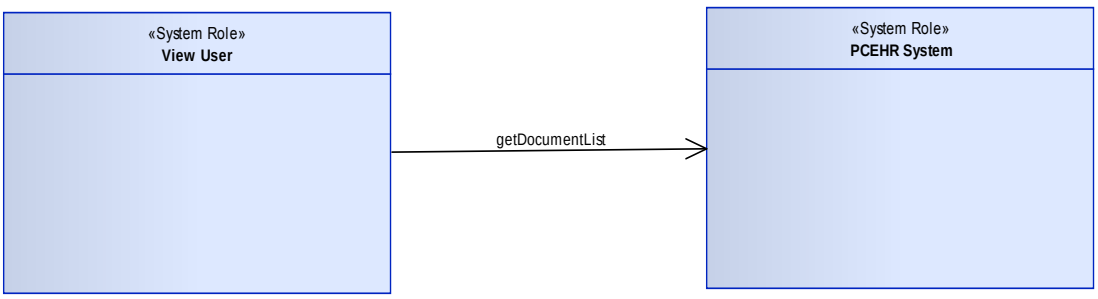

Figure 10 – getDocumentList operation

2.2.4.1 Description

The getDocumentList lists the clinical documents available in a PCEHR (Index view).

2.2.4.2 Precondition

Conformance Points

VIEW-L 20	The *View User* SHALL *construct* a message conformant with the definition in section 3.1.7.
VIEW-L 21	The *View User* SHALL have *access* to a PCEHR before being able to use this operation.

2.2.4.3 Postcondition

Conformance Points

VIEW-L 22	On successful execution, *the PCEHR System* SHALL return a response message conformant with the response definition in section 3.1.8.
VIEW-L 23	If the *PCEHR System* does not find any data which matches the provided search criteria, the *PCEHR System* SHALL return a success response indicating that no matches were found. The *PCEHR System* SHALL NOT return an error.

2.2.4.4 Input, Output and Fault

Operation data fields	Data structures
Input	getDocumentListRequest
Output	getDocumentListResponse
Fault	genericServiceFault

2.2.4.5 Exception Conditions

VIEW-L 24	If an error occurs while processing the request, the *PCEHR System* SHALL construct a response message *conformant* with the fault definition in section 3.1.9.
VIEW-L 25	If the *View User* does not receive a response within n seconds (where n is agreed with the service operator), the *View User* SHALL cease waiting for a response and MAY repeat the request.

2.2.5 Service Operation – getIndividualDetailsView

Figure 11 – getIndividualDetailsView operation

2.2.5.1 Description

The getIndividualDetailsView retrieves details about the consumer, including information such as name, DOB, age, emergency contact and carer information etc. The information retrieved will be sensitive to the requestor's access rights, returning all information to the consumer, but providers will not be able to view the individual's mailing address.

2.2.5.2 Precondition

Conformance Points

VIEW-L 26	The *View User SHALL* construct a message conformant with the definition in section 3.1.11.
VIEW-L 27	The *View User SHALL* have access to a PCEHR before being able to use this operation.

2.2.5.3 Postcondition

Conformance Points

VIEW-L 28	On successful *execution*, the *PCEHR System* SHALL return a response message conformant with the response definition in section 3.1.11.

2.2.5.4 Input, Output and Fault

Operation data fields	Data structures
Input	getIndividualDetailsViewRequest
Output	getIndividualDetailsViewResponse
Fault	genericServiceFault

2.2.5.5 Exception Conditions

VIEW-L 29	If an error occurs while processing the request, the *PCEHR System* SHALL construct a *response* message conformant with the fault definition in section 3.1.9.
VIEW-L 30	If the *View User* does not receive a response within n seconds (where n is agreed with the service operator), the *View User* SHALL cease waiting for a response and MAY repeat the request.

2.2.6 Service Operation – getMedicareInformationView

Figure 12 – getMedicareInformationView operation

2.2.6.1 Description

The getMedicareInformationView operation retrieves a view over Medicare sourced information. The view can contain information from the Medicare Benefits Schedule (MBS), Pharmaceutical Benefits Scheme (PBS), Australian Organ Donor Register (AODR) and Australian Childhood Immunisation Register (ACIR).

2.2.6.2 Precondition

Conformance Points

VIEW-L 31	The *View User* SHALL *construct* a message conformant with the definition in section 3.1.12.
VIEW-L 32	The *View User* SHALL have *access* to a PCEHR before being able to use this operation.

2.2.6.3 Postcondition

Conformance Points

VIEW-L 33	On successful execution, *the PCEHR System* SHALL return a response message conformant with the response definition in section 3.1.13.
VIEW-L 34	If the *PCEHR System* does not find any documents which meet the criteria for the view, the *PCEHR System SHALL* return a success response indicating that no documents exist. The *PCEHR System* SHALL NOT return an error.

2.2.6.4 Input, Output and Fault

Operation data fields	Data structures
Input	getMedicareInformationViewRequest
Output	getMedicareInformationViewResponse
Fault	genericServiceFault

2.2.7 Service Operation – getRepresentativeListView

The getRepresentativeListView Service operation returns the list of representatives associated with a particular individual's PCEHR.

Figure 13 – getRepresentativeListView operation

2.2.7.1 Description

The getRepresentativeListView provides a view of the list of authorised and nominated representatives that are associated with the PCEHR of an individual.

Providers cannot view nominated representatives. Nominated representatives cannot view other nominated representatives. The list provided will depend on the requestor's rights.

2.2.7.2 Precondition

Conformance Points

VIEW-L 35	The View User SHALL *construct* a message conformant with the definition in section 3.1.14.
VIEW-L 36	The View User SHALL have appropriate access to PCEHR before being able to use this operation.

2.2.7.3 Postcondition

Conformance Points

VIEW-L 37	On successful execution, the *PCEHR System* SHALL return a response message conformant with the *response* definition in section 3.1.15.
VIEW-L 38	If the *PCEHR System* does not find any representative, the *PCEHR System* SHALL return a success response indicating that there is no representative for this particular individual. The *PCEHR System* SHALL NOT return an error in this case.

2.2.7.4 Input, Output and Fault

Table 6 – getRepresentativeListView Input, Output and Fault

Operation data fields	Data structures
Input	getRepresentativeListViewRequest
Output	getRepresentativeListViewResponse
Fault	genericServiceFault

2.2.7.5 Exception Conditions

VIEW-L 39	If an error occurs while *processing* the request, the *PCEHR System* SHALL construct a response message conformant with the fault definition in section 3.1.9
VIEW-L 40	If the View User does not receive a response within n seconds (where n is agreed with the service operator), the View User SHALL cease waiting for a response and MAY repeat the request.

2.3 Common Specifications

2.3.1 Audit

The auditing of interaction with the *PCEHR System* is the responsibility of the *PCEHR System*. The *PCEHR System* will retain a record of all access attempts. The *View User* is not required to record audit data.

Conformance Points

VIEW-L 41	The *PCEHR System* role SHALL audit all invocation attempts and results.
VIEW-L 42	The *View User* SHOULD audit all interaction invocation attempts and the associated results. The audit entry SHOULD be logged in alignment with [RFC3881].

2.4 System Role – PCEHR System

This section covers the provision of the View Service only. Other services provided by the *PCEHR System* are addressed in separate logical service specifications (see Figure 1).

2.4.1 Role Considerations

The National *PCEHR System* is the only provider of the *PCEHR System* role.

2.4.1.1 Identification

PCEHR System Identification is deferred to implementable detail within the technical service specification.

2.4.1.2 Authentication and Authorisation

Conformance Points

VIEW-L 43	All inter-system *communication* shall occur over a mutually authenticated secure and encrypted communication channel.

2.4.2 Services Provided

The PCEHR System provides the following logical services.

Conformance Points

VIEW-L 44	The *PCEHR System* SHALL *provide* the View Retrieval Service.
VIEW-L 45	The *PCEHR System* SHALL pro*vide the getConsolidatedView service operation.*
VIEW-L 46	*The PCEHR System SHALL provide the getChangeHistoryView service operation.*
VIEW-L 47	*The PCEHR System SHALL provide the getAuditView service operation.*
VIEW-L 48	*The PCEHR System SHALL provide the getDocumentList service operation.*
VIEW-L 49	*The PCEHR System SHALL provide the getIndividualDetailsView service operation.*
VIEW-L 50	*The PCEHR System SHALL provide the getMedicareInformationView service operation.*
VIEW-L 51	*The PCEHR System SHALL provide* the getRepresentativeListView service operation.

2.4.3 Services Consumed

The *PCEHR System* does not consume other services in the context of the View Service.

2.5 System Role – View User

2.5.1 Role Considerations

The *View User* system role may be fulfilled by a Clinical Information System, a Contracted Service Provider or any Conformant Portal.

2.5.1.1 Identification

Conformance Points

VIEW-L 52	The *View User* SHALL be identified using an Identifier provided by the Healthcare Identifiers (HI) *Service*.

2.5.1.2 Authentication and Authorisation

Conformance Points

VIEW-L 53	The *View User* SHALL *use* an appropriate credential when interacting with the *PCEHR System* to enable mutual authentication.

2.5.2 Services Provided

The *View User* system role does not provide any services.

2.5.3 Services Consumed

Conformance Points

VIEW-L 54	The *View User* SHALL *consume* the View Retrieval Service.

3 Information Viewpoint

The information viewpoint is concerned with the representation of information in the system and is relevant for business (i.e. clinical and administrative) stakeholders and information modellers.

The major interest here is expected from subject matter experts (i.e. clinicians), health informatics experts, (i.e. clinical terminologists and informaticians) and information architects who document information components and the appropriate clinical terminology concepts according to their preferred style of expression.

3.1 Service Operation Data Types

3.1.1 getConsolidatedViewRequest

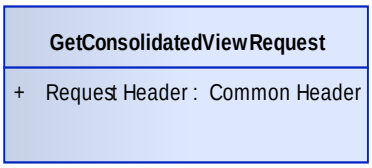

Figure 14 – GetConsolidateViewRequest

Table 7 – GetConsolidateViewRequest

getConsolidatedViewRequest			
Field	**Data Type**	**Description**	**Cardinality**
Request Header	Common Header	Common request header	1..1

3.1.2 getConsolidatedViewResponse

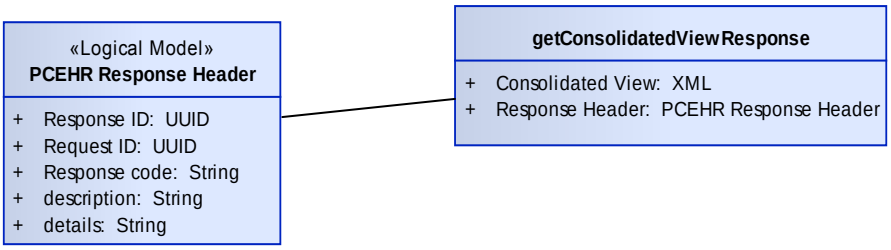

Figure 15 – GetConsolidatedViewResponse

Table 8 – GetConsolidatedViewResponse

getConsolidatedViewResponse			
Field	**Data Type**	**Description**	**Cardinality**
Response Header	PCEHR Response Header	Additional details about the response.	0..1
Consolidated View	XML	The Consolidated View content.	1..1

3.1.3 getChangeHistoryViewRequest

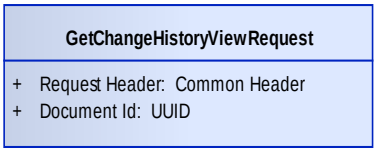

Figure 16 – GetChangeHistoryViewRequest

Table 9 – GetChangeHistoryViewRequest

getChangeHistoryViewRequest			
Field	**Data Type**	**Description**	**Cardinality**
Request Header	Common Header	Common request header	1..1
Document Id	UUID	The identifier for a document matching the request parameter criteria.	1..1

3.1.4 getChangeHistoryViewResponse

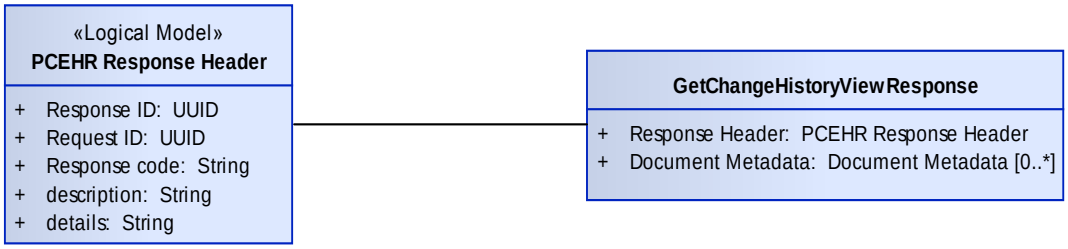

Figure 17 – GetChangeHistoryViewResponse

Table 10 – GetChangeHistoryViewResponse

getChangeHistoryViewResponse			
Field	**Data Type**	**Description**	**Cardinality**
Response Header	PCEHR Response Header	Response Status	1..1
Document Metadata	Document Metadata	The metadata for the documents.	0..*

3.1.4.1 Document Metadata

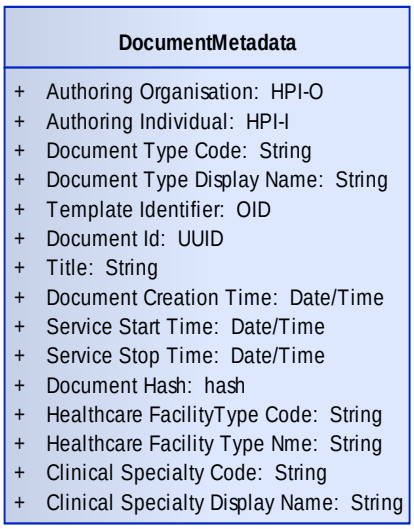

Figure 18 – Document Metadata

Table 11 – Document Metadata

DocumentMetadata			
Field	**Data Type**	**Description**	**Cardinality**
Authoring Organisation	HPI-O	The identifier of the organisation that authored the document.	0..1
Authoring Individual	HPI-I	The identifier of the individual that authored the document.	0..1
Document Type Code	String	A code relating to the type of document being submitted.	1..1
Document Type Display Name	String	A display-friendly name for the document type.	0..1
Template Identifier	OID	The identifier of the template this document conforms to.	1..1
Document ID	UUID	A universally unique identifier relating to the document. This must be unique within the PCEHR System.	1..1
Title	String	An optional title for the given document.	0..1
Document Creation Time	Date time	The time the document was created.	1..1
Service Start Time	Date time	The datetime that the service being performed, which caused the document to be created, started.	1..1

DocumentMetadata			
Field	**Data Type**	**Description**	**Cardinality**
Service Stop Time	Date time	The datetime that the service being performed, which caused the document to be created, stopped. The Service Stop Time may be set to the same value as the Service Start Time in order to indicate the datetime of an event.	1..1
Document Hash	Hash	A SHA-512 hash representation of the document.	0..1
Keyword	String	One or more keywords which are related to the document submission.	0..*
Healthcare Facility Type Code	String	A code identifying the type of healthcare facility where the event relating to this document submission request initiated.	1..1
Healthcare Facility Type Name	String	A display friendly name for the above code.	1..1
Clinical Speciality Code	String	A code identifying the clinical specialty where the event relating to this document submission request initiated.	1..1
Clinical Specialty Display Name	String	A display friendly name for the above specialty.	1..1

3.1.5 getAuditViewRequest

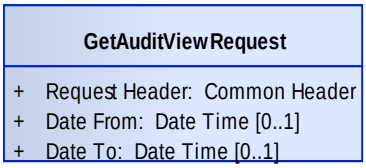

Figure 19 – GetAuditViewRequest

Table 12 – GetAuditViewRequest

getAuditViewRequest			
Field	**Data Type**	**Description**	**Cardinality**
Request Header	Common Header	Common request header	1..1
Date From	Date	The start date of the date range.	0..1
Date To	Date	The end date of the date range.	0..1

Based on the information in the common header the *PCEHR System* will determine whether the request has been sent from a healthcare provider or a consumer.

3.1.6 getAuditViewResponse

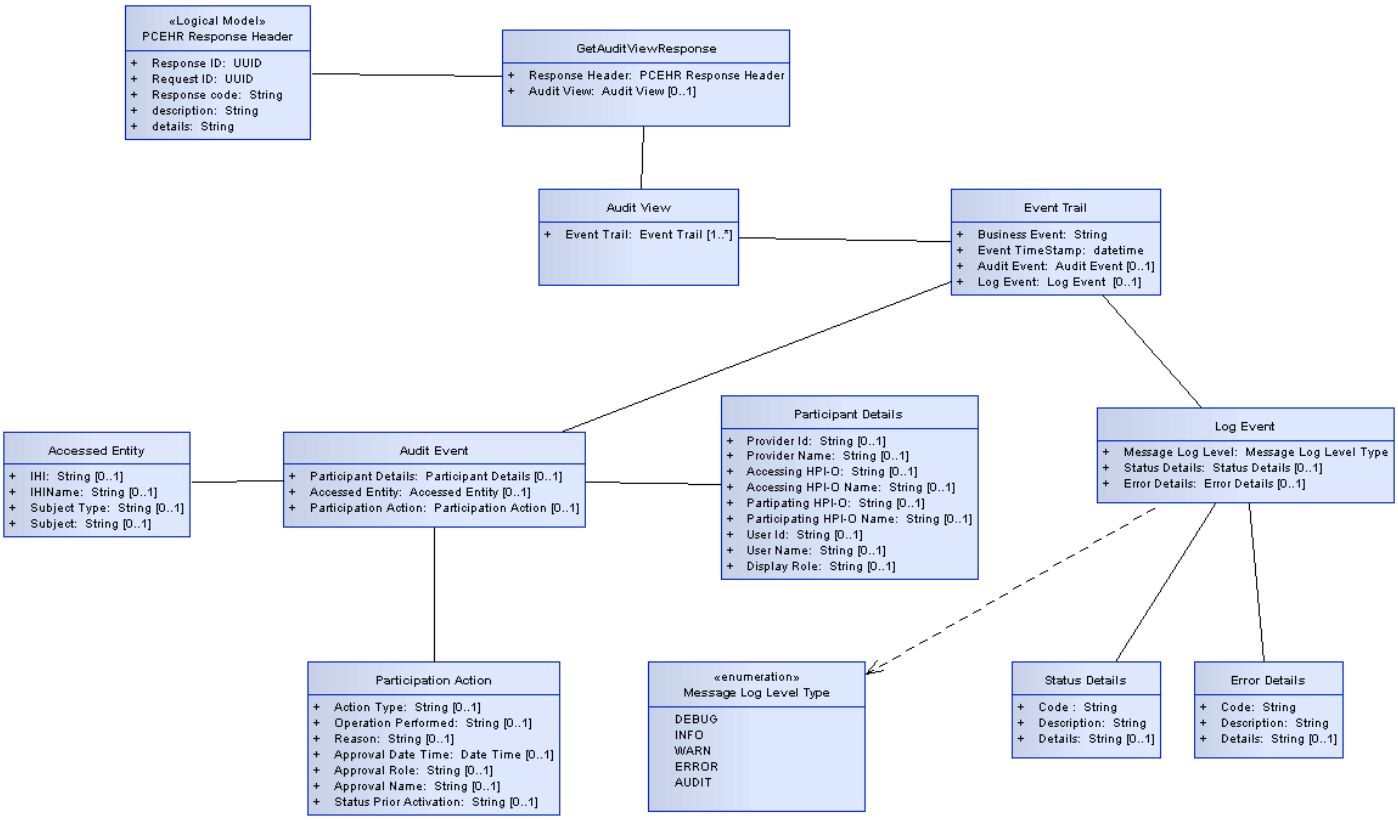

Figure 20 – GetAuditViewResponse

Table 13 – getAuditViewResponse

getAuditViewResponse			
Field	**Data Type**	**Description**	**Cardinality**
Response Status	PCEHR Common Response	Common response header	1..1
Audit View	Audit View	Audit Trail Record, only returned if an audit trail was found	0..1

Table 14 – Audit View

Audit View			
Field	**Data Type**	**Description**	**Cardinality**
Event Trail	Event Trail	Event	1..*

3.1.6.1 Event Trail

Table 15 – Event Trail

Event Trail			
Field	**Data Type**	**Description**	**Cardinality**
Business Event	String	Unique internal event identifier	1..1
Event Time Stamp	Date Time	Business Event date time	1..1
Audit Event	Audit Event	Audit event details	0..1
Log Event	Log Event	Log event details	1..1

3.1.6.2 Audit Event

Table 16 – Audit Event

Audit Event			
Field	**Data Type**	**Description**	**Cardinality**
Participant Details	Participant Details	Participant details for this audit event.	1..1
Accessed Entity	Accessed Entity	PCEHR Details	1..1
Participant Action	Participant Action	Participant action details for this audit event.	1..1
Accessed Conditions	Accessed Conditions	Access conditions details for this event	0..1

3.1.6.3 Log Event

Table 17 – Log Event

Log Event			
Field	**Data Type**	**Description**	**Cardinality**
Message Log Level	MSG Log Level	The log level code for this event	1..1
Status Details	Status Details	The status details for this event	1..1
Error Details	Error Details	The error details for this event	0..1

3.1.6.4 Participant Details

Table 18 – Participant Details

Participant Details			
Field	**Data Type**	**Description**	**Cardinality**
Provider Id	Unique Identifier	HPI-I number	0..1
Provider Name	String	Provider Name	0..1
Accessing HPI-O	Unique Identifier	HPI-O number	0..1
Accessing HPI-O Name	String	Accessing HPI-O Name	0..1
Participating HPI-O	Unique Identifier	Participating HPI-O number	0..1
Participating HPI-O Name	String	Participating HPI-O Name	0..1
User Id	String	User Id	1..1
User Name	String	User Name	1..1

Participant Details			
Field	**Data Type**	**Description**	**Cardinality**
Display Role	Boolean	The role of the participant: eg. "Individual", "Nominated Representative", "Authorised Representative", "PCEHR System Operator", "Healthcare Provider", "Other"	1..1

3.1.6.5 Accessed Entity

Table 19 – Accessed Entity

Accessed Entity			
Field	**Data Type**	**Description**	**Cardinality**
IHI Number	String	IHI Number	1..1
Individual Name	String	Individual Name	1..1
Subject Type	String	Subject Type	1..1
Subject	String	Subject	1..1

3.1.6.6 Participant Action

Table 20 – Participant Action

Participant Action			
Field	**Data Type**	**Description**	**Cardinality**
Action Type	Action Type	"Create", "Read". "Update", "Delete"	1..1
Operation Performed	String	Operation Performed	1..1
Reason	String	"Incorrect identity", "Medical inaccuracy", "Elect to remove", "IHI status is deceased", "No legally appointment authorised", "No ownership of PCEHR", "IHI not active", "IHI not vertified", "Terms and conditions were not accepted", "Death", "Withdrawal from participation"	0..1
Approval Date Time	Date Time	Approval Date Time	0..1
Approval Role	String	Approval Role	0..1
Approval Name	String	Approval Name	0..1
Status Prior Deactivation	String	Status Prior Deactivation	0..1

3.1.6.7 Accessed Condition

Table 21 – Accessed Condition

Accessed Condition			
Field	**Data Type**	**Description**	**Cardinality**
Access Level	String	"Self Access", "General Access", "Limited Access"	0..1
Access Permission	String	"Permit", "Deny"	0..1
Access Conditions	String	"Open Access", "PACC Access", "PACCX Access", "Emergency access", "Local Consent Access", "Authorised Representative access", "Nominated Representative access", "Incorrect code", "Local Consent Access Denied", "Access Revoked"	0..1

3.1.6.8 Status Detail

Table 22 – Status Details

Status Details			
Field	**Data Type**	**Description**	**Cardinality**
Code	String	Code	1..1
Description	String	Description	1..1
Details	String	Details	0..1

3.1.6.9 Error Detail

Table 23 – Error Details

Error Details			
Field	**Data Type**	**Description**	**Cardinality**
Code	String	"PCEHR_SUCCESS" "PCEHR_ERROR_001" "PCEHR_ERROR_002"	1..1
Description	String	"Success" "Technical Failure" "Functional Failure"	1..1
Details	String	Details	0..1

3.1.6.10 Enumerations

Access Level

Table 24 – Access Level

Field	Description
Self Access	Self Access
General Access	General Access
Limited Access	Limited Access

Access Permission

Table 25 – Access Permission

Field	Description
Permit	Permit
Deny	Deny

Access Conditions

Table 26 – Access Conditions

Field	Description
Open Access	Open Access
PAC Access	PACC Access
PACX Access	PACCX Access
Emergency access	Emergency access
Local Consent Access	Local Consent Access
Authorised Representative access	Authorised Representative access
Nominated Representative access	Nominated Representative access
Incorrect code	Incorrect code
Local Consent Access Denied	Local Consent Access Denied
Access Revoked	Access Revoked

Message Log Level

Table 27 -Message Log Level

Field	Description
DEBUG	DEBUG
INFO	INFO
WARN	WARN
ERROR	ERROR
AUDIT	AUDIT

3.1.7 getDocumentListRequest

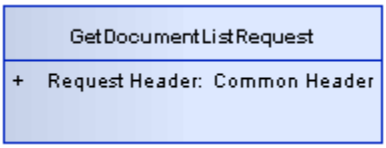

Figure 21 – GetDocumentListRequest

Table 28 – getDocumentListRequest

getDocumentListRequest			
Field	**Data Type**	**Description**	**Cardinality**
Request Header	Common Header	Common request header	1..1

3.1.8 getDocumentListResponse

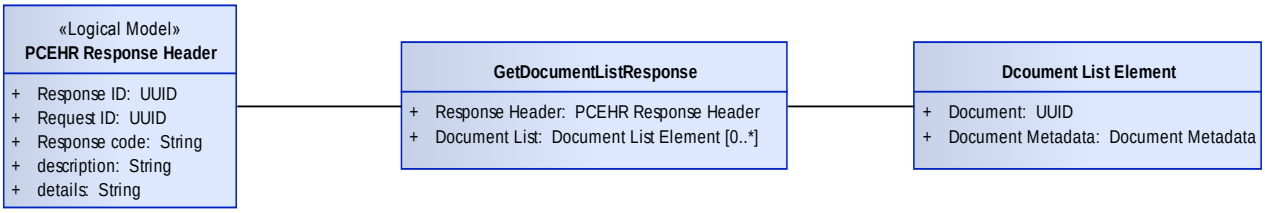

Figure 22 – GetDocumentListResponse

Table 29 – GetDocumentListResponse

getDocumentListResponse			
Field	**Data Type**	**Description**	**Cardinality**
Response Header	PCEHR Response Header	Response Status	1..1
Document List	Document List Element	The list of found documents	0..*

3.1.8.1 Document List Element

Table 30 – Document List Element

Document List Element			
Field	**Data Type**	**Description**	**Cardinality**
Document ID	UUID	The identifier for a document matching the request parameter criteria.	1..1
Document Metadata	Document Metadata	The metadata for the document.	1..1

3.1.8.2 Document Metadata

Refer to section 3.1.4.1.

3.1.9 GenericServiceFault

Table 31 – GenericServiceFault

GenericServiceFault			
Field	**Data Type**	**Description**	**Cardinality**
Status Code	String	The status of the request	1..1
Status Description	String	A text description of the status	1..1
Status Detail	String	Optional additional information about the status, especially for warnings.	0..1

3.1.10 getIndividualDetailsView Request

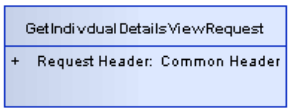

Figure 23 – getIndividualDetailsRequest

Table 32 – getIndividualDetailsRequest

getIndividualDetailsRequest			
Field	**Data Type**	**Description**	**Cardinality**
Request Header	Common Header	Common request header	1..1

3.1.11 getIndividualDetailsView Response

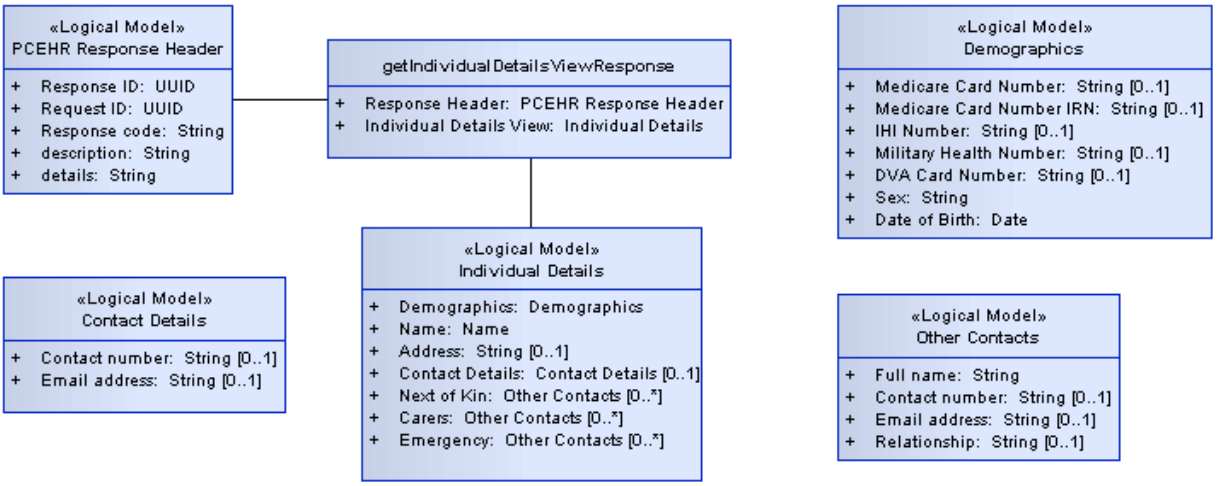

Figure 24 – getIndividualDetailsViewResponse

Table 33 – getIndividualDetailsViewResponse

getIndividualDetailsViewResponse			
Field	**Data Type**	**Description**	**Cardinality**
Response Header	PCEHR Response Header	Additional details about the response	1..1
Individual Details	Individual Details	The Individual Details View content	1..1

Table 34- Individual Details

Individual Details			
Field	**Data Type**	**Description**	**Cardinality**
Demographics	Demographics	The demographics group of information of the individual	1..1
Name	Name	The name group of information of the individual	1..1
Address	String	The address group of the individual	0..1
Contact Details	Contact Details	The contact information for the individual	0..1
Next of Kin	Other Contacts	The next of kin contact information of the individual	0..*
Carers	Other Contacts	The contact information of the carers' for the individual	0..*
Emergency	Other Contacts	The contact information of the individual in case of emergency	0..*

Table 35 – Demographics

Demographics			
Field	**Data Type**	**Description**	**Cardinality**
Medicare Card Number	String	The Medicare card number of the individual	0..1
Medicare Card Number IRN	String	The Medicare card number individual reference number	0..1
IHI Number	String	The Individual Healthcare Identifier of the individual	0..1
Military Health Number	String	The military health number of the individual	0..1
DVA Card Number	String	The DVA number of the individual	0..1
Sex	String	Individual's sex type	1..1
Date of Birth	Date	Date of birth	1..1

Table 36 – Contact Details

Contact Details			
Field	**Data Type**	**Description**	**Cardinality**
Contact number	String	The phone contact number of the individual	0..1
Email address	String	The email address of the individual	0..1

Table 37 – Other Contacts

Other Contacts			
Field	**Data Type**	**Description**	**Cardinality**
Full name	String	The full name of the other contact	1..1
Contact number	String	The phone contact number of the other contact	0..1
Email address	String	The email address of the contact	0..1
Relationship	String	The relationship of the other contact with the individual	0..1

3.1.12 getMedicareInformationViewRequest

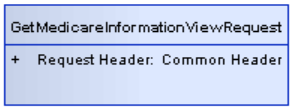

Figure 25 – getMedicareInformationViewRequest

Table 38 – getMedicareInformationViewRequest

getMedicareInformationRequest			
Field	**Data Type**	**Description**	**Cardinality**
Request Header	Common Header	Common request header	1..1

3.1.13 getMedicareInformationViewResponse

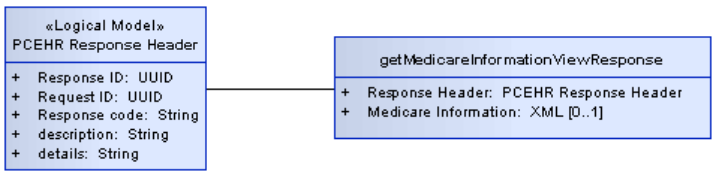

Figure 26 – getMedicareInformationViewResponse

Table 39 – getMedicareInformationViewResponse

getMedicareInformationViewResponse			
Field	**Data Type**	**Description**	**Cardinality**
Response Header	PCEHR Response Header	Response Status	1..1
Medicare Information	XML	Medicare Information view	0..1

3.1.14 getRepresentativeListViewRequest

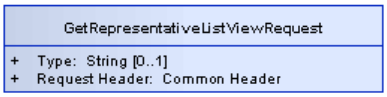

Figure 27 – GetRepresentativeListViewRequest

Table 40 – getRepresentativeListViewRequest

getRepresentativeListViewRequest			
Field	**Data Type**	**Description**	**Cardinality**
Request Header	Common Header	Common request header	1..1
Type	String	Values('Nominated Representative', 'Authorised Representative')	0..1

3.1.15 getRepresentativeListViewResponse

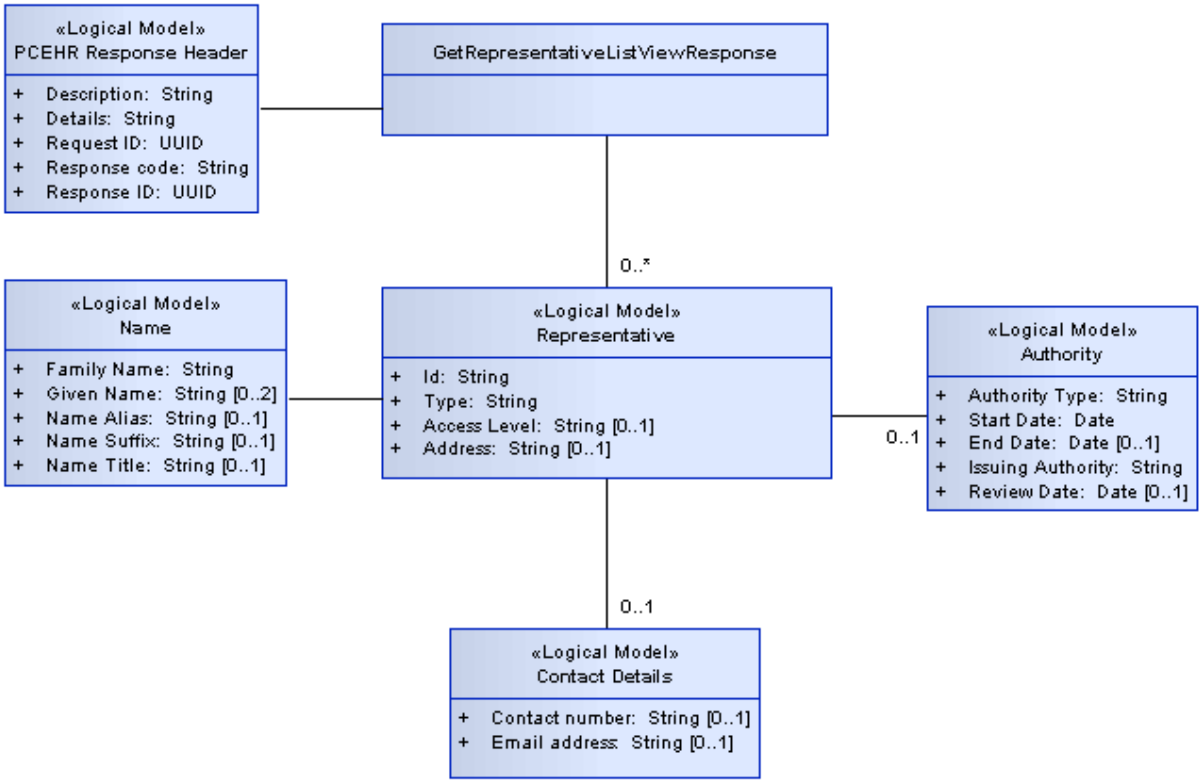

Figure 28 – GetRepresentativeListViewResponse

Table 41 – getRepresentativeListViewResponse

getRepresentativeListViewResponse			
Field	**Data Type**	**Description**	**Cardinality**
Response Header	PCEHR Response Header	Response Status. Common response header	1..1
Representative List	Representative	The list of representatives associated with the individual's PCEHR	0..*

Table 42 – Representative

Representative			
Field	**Data Type**	**Description**	**Cardinality**
Id	String	The identification number of the representative	1..1
Type	String	The type of representative, nominated or authorised	1..1
Access Level	String	The access level the representative has been assigned	0..1
Name	Name	The full name of the authorised representative or the name given to the nominated representative	1..1
Address	String	The address of the representative	0..1
Contact Details	Contact Details	The information to contact the representative	0..1
Authority	Authority	The authority granted to the representative	0..1

Table 43 – Authority

Authority			
Field	**Data Type**	**Description**	**Cardinality**
Authority Type	String	Values ("Authorised Representative Parental", "Authorised Representative Legally Appointed")	1..1
Start Date	Date	Start date of the authority	1..1
End Date	Date	End date of the authority	0..1
Issuing Authority	String	The name of the issuing authority	1..1
Review Date	Date	Date that the authority is to be reviewed	0..1

Table 44 – Contact Details

Contact Details			
Field	**Data Type**	**Description**	**Cardinality**
Contact number	String	The phone contact number of the individual	0..1
Email address	String	The email address of the individual	0..1

Table 45 – Name

Name			
Field	**Data Type**	**Description**	**Cardinality**
Family Name	String	Individual surname	1..1
Given Name	String	Individual given name	0..2
Name Alias	String	Individual alias name	0..1
Name Suffix	String	Individual suffix name	0..1
Name Title	String	Individual title	0..1

3.2 Common Data Types

3.2.1 Common Header

This section encompasses the set of attributes which make up the Common Header used in all PCEHR Service Requests. All fields referring to source or client systems convey information about the service invoker to the service provider.

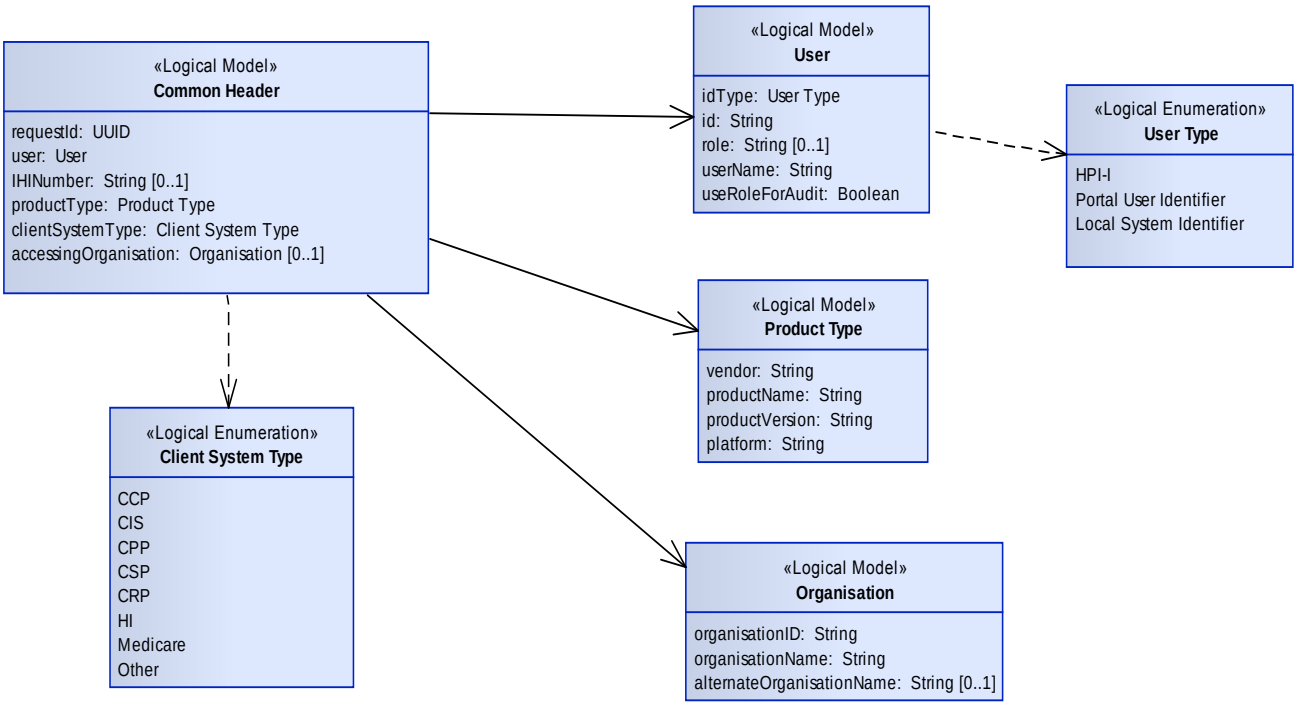

Figure 29 – Common Header

Table 46 – Common Header

Common Header			
Field	**Data Type**	**Description**	**Cardinality**
Request Id	UUID	Unique identification of the request	1..1
User	User	Identification details of the user originating the request	1..1
IHI Number	String	Individual IHI number	0..1
Product Type	Product Type	Identification of the system originating the request	1..1
Client System Type	Enumeration	The type of client system: • Conformant Consumer Portal (CCP) • Clinical Information System (CIS) • Conformant Provider Portal (CPP) • Contracted Service Provider System (CSP) • Conformant Repository Provider System (CRP) • HI Service (HI) • Medicare • Other	1..1
Accessing Organisation	Organisation	The healthcare organisation on behalf of which the request is being made	0..1

Conformance Points

VIEW-L 55	The `Request Id` SHALL be a different value for every request made. It SHALL be created in a way which ensures that the value is unique across all service requests from any system.
VIEW-L 56	The **`IHI Number`** SHALL be supplied for all *getConsolidatedView* requests.
VIEW-L 57	The **`IHI Number`** SHALL be supplied for all *getChangeHistoryView* requests.
VIEW-L 58	The **`IHI Number`** SHALL be supplied for all *getDocumentList* requests.
VIEW-L 59	The **`IHI Number`** SHALL be supplied for *getAuditView* requests IF the **`Accessing Organisation`** is not supplied.
VIEW-L 60	The **`IHI Number`** SHALL NOT be supplied for *getAuditView* requests IF the **`Accessing Organisation`** is supplied.
VIEW-L 61	If the **`IHI Number`** is supplied, it SHALL contain a string representation using only numeric digits of a valid **`Individual Healthcare Identifier`** issued by the HI Service.
VIEW-L 62	The **`IHI Number`** SHALL be supplied for all getMedicareInformationView requests.
VIEW-L 63	The **`IHI Number`** SHALL be supplied for all getRepresentativeListView requests.

3.2.2 User

The User entity encompasses the identity information relating to the end user of the system originating a request.

Table 47 – User

User			
Field	**Data Type**	**Description**	**Cardinality**
Id Type	Enumeration	The type of user ID supplied. • HPI-I • Portal User Identifier • Local System Identifier	1..1
Id	String	User identifier	1..1
Role	String	Optional field for to enter the role of the user for use in audit logging if User Name is not appropriate	0..1
User Name	String	The name of the user	1..1
Use role for audit	Boolean	If "True", indicates that the role is to be used for audit display purposes rather than the User name	1..1

Conformance Points

VIEW-L 64	The **`Id`** SHALL NOT contain leading or trailing spaces. It SHALL NOT be a null or zero length string.
VIEW-L 65	If the **`Id Type`** value of HPI-I is supplied, the Id SHALL contain a string representation using only numeric digits of a valid Healthcare Provider Identifier – Individual issued by the HI Service.

VIEW-L 66	If the **`Id Type`** value of **`Portal User Identifier`** is supplied, the Id SHALL contain a value issued by a trusted identity provider which relates a conformant portal user to a PCEHR identity.
VIEW-L 67	If the **`Id Type`** value of **`Local System Identifier`** is supplied, the **`Id`** SHALL contain a representation of the access credential utilised to access the system originating the request.
VIEW-L 68	If the Id Type value of Local System Identifier is supplied, the Id SHALL NOT contain leading or trailing spaces. It SHALL NOT be a null or zero length string.
VIEW-L 69	If the **`Use role for audit`** flag is set to True, the **`Role`** SHALL be supplied.
VIEW-L 70	If the **`Role`** is supplied, it SHALL NOT contain leading or trailing spaces. It SHALL NOT be a null or zero length string.
VIEW-L 71	The **`User Name`** SHALL NOT contain leading or trailing spaces. It SHALL NOT be a null or zero length string.

3.2.3 Product Type

The Product type entity encompasses the information identifying the system originating the request.

Table 48 – Product Type

Product Type			
Field	**Data Type**	**Description**	**Cardinality**
Vendor	String	The name of the vendor that produced the system	1..1
Product Name	String	A name used to identify the system	1..1
Product Version	String	System version number	1..1
Platform	String	The system platform being used	1..1

Conformance Points

VIEW-L 72	The **`Vendor`** SHALL NOT contain leading or trailing spaces. It SHALL NOT be a null or zero length string.
VIEW-L 73	The **`Product Name`** SHALL NOT contain leading or trailing spaces. It SHALL NOT be a null or zero length string.
VIEW-L 74	The **`Product Version`** SHALL NOT contain leading or trailing spaces. It SHALL NOT be a null or zero length string.
VIEW-L 75	The **`Platform`** SHALL NOT contain leading or trailing spaces. It SHALL NOT be a null or zero length string.

3.2.3.2 Organisation

The organisaton entity encompasses the organisation identity information.

Table 49 – Organisation

Organisation			
Field	**Data Type**	**Description**	**Cardinality**
Organisation ID	String	An HPI-O identifier for the healthcare organisation	1..1
Organisation Name	String	The name of the healthcare organisation	1..1

Conformance Points

VIEW-L 76 The **`Organisation ID`** SHALL contain a string representation using only numeric digits of a valid Healthcare Provider Identifier – Organisation issued by the HI Service.

VIEW-L 77 The **`Organisation Name`** SHALL NOT contain leading or trailing spaces. It SHALL NOT be a null or zero length string.

3.2.3.3 Client System Type

An enumeration of client system types which are supported by the PCEHR System.

Table 50 – Client system types

Field	**Description**
Conformant Consumer Portal	Conformant Consumer Portal
Conformant Provider Portal	Conformant Provider Portal
Clinical Information System	A Clinical Information System such as a Patient Administration System, Radiology Information System, Practice Management Software, Emergency Department System, etc.
Contracted Service Provider	Contracted Service Provider
Conformant Repository	A Conformant Repository
HI Service	The national Healthcare Identifiers Service
Medicare	DHS Medicare systems
Other	Any other system type

3.2.3.4 Source System User Type

An enumeration of Source system user identifiers which are supported by the PCEHR System.

Table 51 – Source system user types

Field	**Description**
HPI-I	A Healthcare Provider Identifier – Individual issued by the HI Service
PCEHR Identity	An identity which is managed and verified by the PCEHR system
Other	A local user id not managed by the PCEHR system

Appendix A eHealth Interoperability Framework

This document has been produced in accordance with the eHealth Interoperability Framework [EIF]. The eHealth Interoperability Framework is based on a combination of the Australian Government Architecture (AGA)[1], RM-ODP [RM-ODP] and HL7's Service Aware Interoperability Framework (SAIF).[2][3]

The eHealth Interoperability Framework is used across NEHTA products to help deliver consistent and cohesive eHealth specifications. It provides a common specification language for teams involved in working in eHealth, supports the identification of secure and interoperable services and assists in analysing eHealth solutions to ensure that they will deliver the intended outcome.

A.1 Three Layers of Abstraction

The framework has three layers of abstraction. The top layer focuses on defining the system in a stakeholder centric fashion at the conceptual level. The detail and refinement of the system definition is covered at the logical level and the implementable level maps the logical specification onto a number of technology-specific implementable specifications.

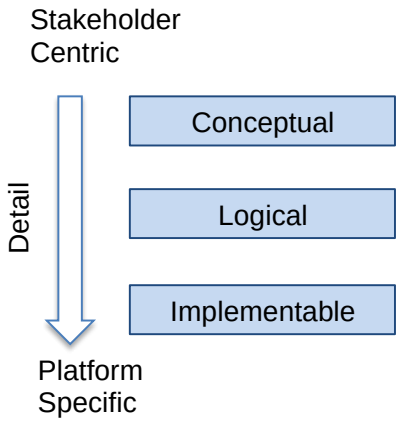

Figure 30- Layers of abstraction

Separating the conceptual from the logical and the logical from the implementable allows service or other system components to be defined independently of technology choices. It also ensures that different stakeholder groups can play to their strengths at the different layers of abstraction.

In particular, the conceptual level is aimed at consumers, healthcare providers and government stakeholders. The logical level is aimed at more technical stakeholders, including health informaticians, implementers and the ICT industry. The implementable level is aimed at developers and testers.

[1] http://www.finance.gov.au/e-government/strategy-and-governance/aga-rm/AGA-RM.html

[2] http://gforge.hl7.org/gf/project/saeaf/docman/?subdir=320

[3] The EIF differs from other popular frameworks such as TOGAF. TOGAF is a process-oriented framework for creating and managing architectural artefacts. EIF is a specification framework used to describe system architectures. EIF, and the SAIF framework it is based on, are strongly influenced by ISO 10746, which is an international standard reference model for open distributed processing (RM ODP). The viewpoints and levels of abstraction in the EIF are more similar to the categories that underpin the Zachman framework. However, RM-ODP also provides a specification language that is compatible with UML.

A.2 Five Viewpoints

The framework has five "viewpoints":

- The *enterprise viewpoint*, which focuses on the purpose, scope, policies and business requirements for the system.
- The *information viewpoint*, which focuses on the semantics of the information and the information processing performed. It describes the information managed by the system and the structure and content type of the supporting data.
- The *computational viewpoint*, which describes the functionality provided by the system and its functional decomposition into objects and interfaces.
- The *engineering viewpoint*, which focuses on describing how the different elements described in the information and computational viewpoints will be deployed or distributed and how the system will meet the operational requirements.
- The *technology viewpoint*, which focuses on the choice of technology of the system and includes both the software and hardware platforms.

This document focuses on the enterprise, information and computational viewpoints and each viewpoint is covered in a separate section.

In addition to the viewpoints, the framework also prescribes three abstraction layers, namely the Conceptual Layer, the Logical Layer and the Implementable Layer.

The interaction between the viewpoints and the layers of abstraction can be represented as a matrix of views, as shown below. This document covers the cells shown.

Table 52-– Matrix of views

	Enterprise	**Information**	**Computation**	**Engineering**	**Technology**
Conceptual					
Logical		**This Document**	**This Document**		
Implementable					

Appendix B Acronyms and Terminology

The core set of terms used within the PCEHR are specified in the PCEHR System – Glossary [PCEHR-SYSTEM-GLOSSARY].

B.1 Acronyms

Acronym	Explanation
B2B	Business to Business
CCP	Conformant Consumer Portal
CIS	Clinical Information System
CPP	Conformant Provider Portal
CSP	Contracted Service Provider
EIF	eHealth Interoperability Framework
HPI-I	Healthcare Provider Identifier – Individual
HPI-O	Healthcare Provider Identifier – Organisation
IETF	Internet Engineering Task Force
IHI	Individual Healthcare Identifier
LSS	Logical Service Specification
NEHTA	National E-Health Transition Authority
PCEHR	Personally Controlled Electronic Health Record
TSS	Technical Service Specification
UML	Unified Modelling Language

B.2 Specialised Terminology

Term	Explanation
Service	A Service encapsulates the collaboration which occurs between two or more parties to achieve a goal. Each participant in the service may offer multiple Service Interfaces.
Service Interface	A Service Interface is a logical grouping of operations which be offered by a participant within the context of a Service.
Service Operation	A Service Operation is a specific function which supports communication between two participants.

Appendix C References

Tag	Name	Version Release Date
[EIF]	eHealth Interoperability Framework Nehta Managed Publication http://www.nehta.gov.au/connecting-australia/ehealth-architecture	V1.0 2 December 2011
[PCEHR_CON_OPS]	PCEHR Concept of Operations: relating to a Personally Controlled Electronic Health Record System http://www.yourhealth.gov.au/internet/yourhealth/publishing.nsf/Content/pcehr-document	0.13.6 September 2011
[PCEHR-SYSTEM-GLOSSARY]	PCEHR System – Glossary	1.0 6/05/2011
[RFC2119]	IETF, *RFC 2119: Keywords for use in RFCs to Indicate Requirement Levels*, S. Bradner http://ietf.org/rfc/rfc2119.txt	March 1997
[RFC3881]	Security Audit and Access Accountability Message XML Data Definitions for Healthcare Applications http://tools.ietf.org/pdf/rfc3881.pdf	September 2004
[RM-ODP]	Reference Model of Open Distributed Processing ISO/IEC 10746-3:2009	2009
[TSS]	View Service Interface Technical Service Specification	To be released
[UML2010]	UML Version 2.3 http://www.omg.org/spec/UML/2.3/	Version 2.3 Release May 2010