nehta

Technical Service Specification

PCEHR Document Exchange Service Using the IHE XDS.b Platform

Version 1.4

12 April 2013

Approved for external release

National E-Health Transition Authority

National E-Health Transition Authority Ltd
Level 25
56 Pitt Street
Sydney, NSW, 2000
Australia.
www.nehta.gov.au

Document Information

Approver	Head of Product Delivery, NEHTA
Owner	Head of Product Delivery, NEHTA
Contact officer	NEHTA Service Desk, tel: 1300 901 001
Contributors	NEHTA, National Infrastructure Operator, PCEHR System Operator

Version History

Date	Version	Comments/type of review
2011-12-20	1.0	Draft for Limited Release.
2012-01-18	1.1	Incorporated stakeholder feedback.
2012-04-26	1.2	**New Additions:** Conformance Points starting with DEXS-T 90+ 3.1.2 SOAP signatures 4.2.3 Transmission timestamp 4.2.4 Transmission Signature Table 3 - XDSDocumentEntry Document Type and Class Code value set 4.3 Supported Responses **Updates:** DEXS-T 3, DEXS-T 5, DEXS-T 18, DEXS-T 53, DEXS-T 55, DEXS-T 56, DEXS-T 61, DEXS-T 83 Figure 1 - Document map Figure 2 - PCEHR functions addressed 3.3.5 setDocumentAccessLevel (Deprecated) 4.3 Common Response Status Table 2 – Document Metadata to XDS.b Document Entry mapping Table 13 - PCEHRHeader (username case changed, HPI-I alternative needs to be approved) Appendix A XSD and WSDL
2012-09-06	1.3	Changes due to HPI-O relaxation for conformant repositories
2012-04-12	1.4	Approved for external release – see details in PCEHR B2B Gateway Service Releaase Note v1.5

Table of Contents

Preface

Purpose

The purpose of this document is to provide an implementable technical interface specification for the Document Exchange services using IHE's Cross-Enterprise Document Sharing-b (XDS-b) specification and accompanying bespoke Web Services.

This document should be read in conjunction with the *PCEHR Document Exchange Service Logical Service Specification* [DOCX-LSS].

Note that all references in this document to "logical service specification" are referring to the *PCEHR Document Exchange Service Logical Service Specification.*

Intended Audience

This document is intended primarily for:

- Implementers of the national PCEHR System (normative)
- Developers and implementers of PCEHR Conformant Repositories (normative)
- NEHTA architects and eSolution managers (normative)
- Jurisdictional eHealth programs (informative)
- The Australian Health Informatics Standards development community (informative)
- Developers and implementers of software products which seek to interact with the PCEHR System (normative)

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

It is assumed that the audience is familiar with:

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

Document Map

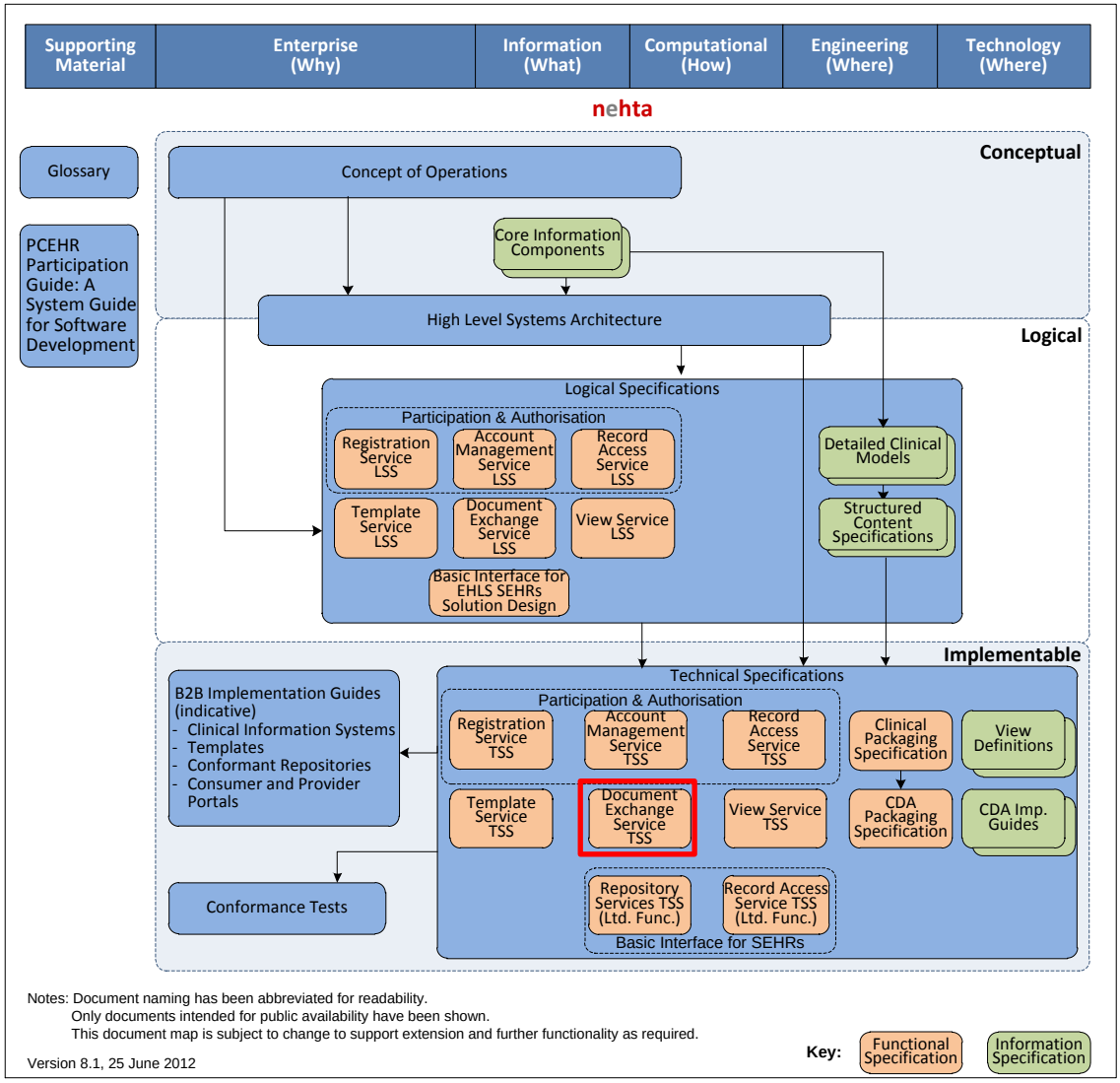

Figure 1 - Document map

Acronyms and Terminology

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

1 Introduction

1.1 Context

This document describes an XDS.b and Web Services-based realisation of the operations specified within the *PCEHR Document Exchange Service Logical Service Specification* [DOCX-LSS].

This document addresses two key solution areas:

- the exchange of documents via the PCEHR System's "B2B" (business to business) interfaces
- interactions between the PCEHR System and Conformant Repositories.

1.1.1 PCEHR B2B Interactions

The PCEHR System provides a suite of interfaces which may be used by connecting systems (Clinical Information Systems and PCEHR Portals) to perform operations on a PCEHR.

The interfaces relevant to PCEHR B2B interactions are provided in section 3.3.

1.1.2 PCEHR Conformant Repositories

A PCEHR Conformant Repository is a system which stores and provides access to clinical documents in a manner conformant with PCEHR specifications.

The interfaces relevant to PCEHR B2B interactions are provided in section 3.4.

Figure 2 shows how the set of operations addressed in this specification fit into the broader set of PCEHR functionality.

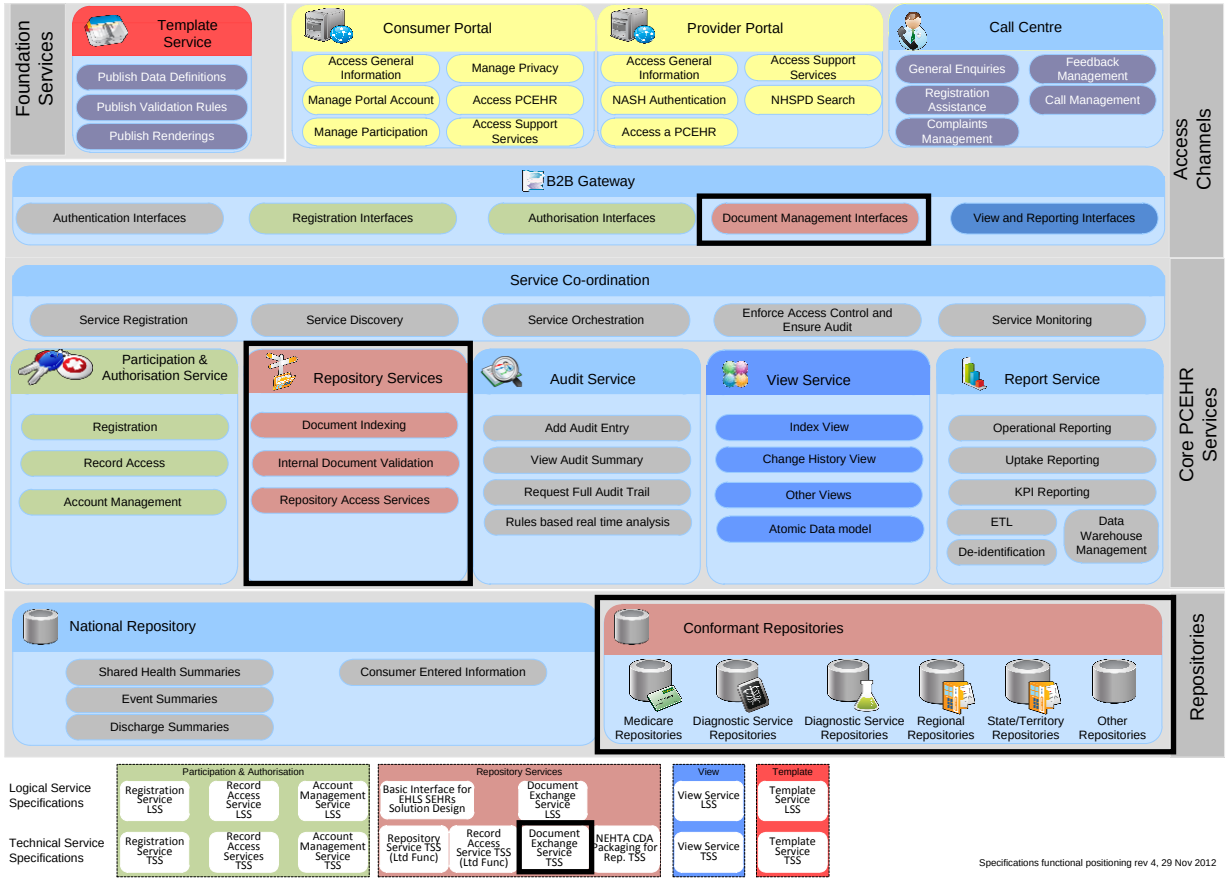

Figure 2 - PCEHR functions addressed

As illustrated in Figure 3 below, the Document Exchange Service is expected to be used by Clinical Systems (which, for the purposes of this illustration, include Contracted Service Providers and Conformant Provider Portals), Conformant Consumer Portals and Conformant Repositories.

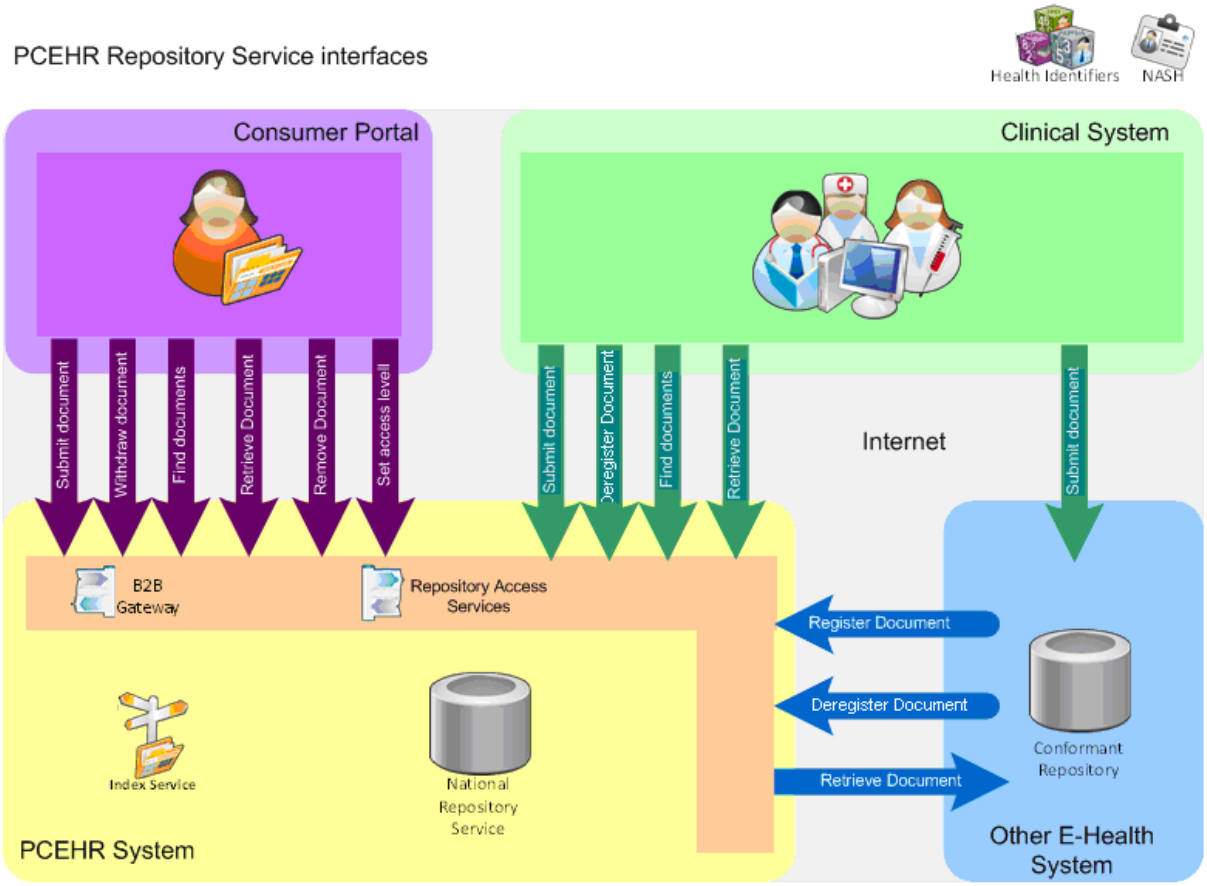

Figure 3 - Document Exchange Service systems and interactions

1.2 Scope of Document

This document provides a realisation of the set of functions outlined in the logical service specification [DOCX-LSS] using IHE's XDS.b platform.

1.2.1 In Scope

- An XDS.b based realisation of all functions specified in the logical service specification [DOCX-LSS].

1.2.2 Out of Scope

- Other PCEHR services which may be used by Clinical Information Systems, Portals or Conformant Repositories.
- The re-statement of the system roles, interactions and conformance points specified in the logical service specification [DOCX-LSS].
- Support for platforms other than those specified in IHE's XDS.b profile. Examples of excluded platforms include those based on the ATS-5822 Secure Message Delivery protocol and HSSP's Retrieve, Locate and Update Service Specification.

1.3 Conformance Points

This specification contains conformance points that identify normative requirements that are to be met by parties fulfilling identified roles within the PCEHR Document Exchange Service.

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 means of the following notation:

DEXS-T 0	This is an example only. Conformance points SHALL be numbered and contain an identifier of 'DEXS-T' which identifies them as being applicable to the PCEHR Document Exchange Service technical service specification.

2 Standards and Technology Platform

A standards and technology platform is a collection of standards and technologies which may be used collectively to realise an implementation of one or more service interfaces specified within a logical service specification.

A single service interface within a logical specification must be realised fully by a single standards and technology platform. However, each service interface specified within a logical specification may be realised wholly on different standards and technology platforms.

The standards and technology platform for this technical service specification is made up from a set of specifications and standards.

- IHE's Cross-Enterprise Document Sharing (XDS.b) is a specification for sharing clinical documents within a trusted community called an Affinity Domain. This Affinity Domain contains a single Document Registry and one or more Document Repositories. References to the set of IHE Specifications are provided in Appendix C.

  The core XDS.b specification does not provide a mechanism for removing documents or updating document metadata. IHE's XDS.b Metadata Update Trial Implementation supplement [IHE_TS] proposes a mechanism for achieving this functionality. However, there are a number of areas where gaps have been identified between this specification and the PCEHR system requirements, specifically:

  - The ITI-62 Remove Document Set transactions specified within the XDS.b Metadata Update supplement specifies a solution that deletes the ebXML registry entries. The PCEHR requirements only support a "logical removal" where the entry is retained but marked as removed.
  - The ITI-57 Update Document Set transaction requires the Document Administrator Actor (in this instance a Clinical Information System, Conformant Repository or Portal) to supply the full XDSDocumentEntry object (which describes the full set of document metadata). The XDS Registry may then perform updates on any index entries where the supplied XDSDocumentEntry differs from the Registry (with the supplied data taking precedence over the stored data). The PCEHR System only allows the XDSDocumentEntry.confidentialityCode and XDsDocumentEntry.availabilityStatus fields to be updated (and only in specific use cases by specific actors). Providing a function which allows a wider set of data to be updated and then constraining this via policy offers an inelegant user interface and may pose a security risk if errors occur within policy enforcement.
  - The XDS Metadata Update specification is a trial implementation supplement and may be changed (or withdrawn). Therefore, it does not represent a stable basis for development.

  Given the above concerns, the setDocumentAccessLevel, removeDocument and deregisterDocument operations are realised as bespoke web services. The XDS.b Metadata Update Trial Implementation supplement is not considered further within this document.

- ATS 5820 Web Service Profile

  The ATS 5820 Web Service Profile, issued by Standards Australia in conjunction with NEHTA, provides a common platform for Web Service communication across Australian eHealth systems.

Figure 4 illustrates the specification and standards included in this technical service specification.

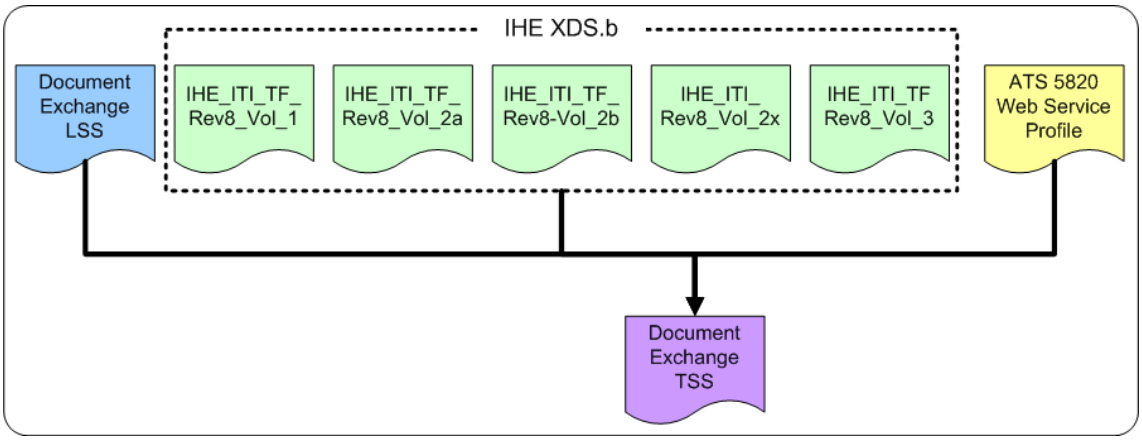

Figure 4 - Document Exchange Standards Platform

In addition to the above items, this specification depends on the following foundation infrastructure services:

- Healthcare Identifiers Service (HI Service) for identification of healthcare provider organisations (via HPI-Os), healthcare provider individuals (via HPI-Is) and the subject of care (an individual identified by an IHI).
- The National Authentication Service for Health (NASH) compliant X.509 certificates.

Conformance points

The following conformance points define the application of the E-health Web Services Profile [ATS 5820-2010] to service interactions:

DEXS-T 1	All implementations SHALL conform to the Web Services Base Profile from the Standards Australia E-health Web Services Profiles [ATS 5820-2010] for all web service invocations with the following conformance point taking precedence:

DEXS-T 2	All implementations SHALL implement the TLS Security Profile from the Standards Australia E-health Web Services Profiles [ATS 5820-2010] for all web service invocations.

Informative note

The naming of operations, data types and services specified within the set of IHE specifications will be re-used by the specification and will not be changed to align with the naming conventions specified in [ATS 5820-2010].

With the exception of naming conventions and explicit support for MTOM-XOP, the IHE XDS.b Specification is closely aligned with the specification provided within the ATS Web Services Profiles document [ATS 5820-2010]. There are no changes required to the IHE XDS.b Specification as a result of alignment with ATS 5820-2010.

3 Computational Viewpoint

The Computational Viewpoint addresses how the Service Interfaces and Service Operations defined in the logical service specification map onto the operation and transport specifications provided by the standards and technology platform.

3.1 Information Security

3.1.1 Security

Conformance points

DEXS-T 3	All implementations SHALL implement the TLS Security Profile provided within the ATS 5820 Standards Australia E-health Web Services Profiles specification [ATS 5820-2010].

3.1.2 SOAP signatures

Conformance points

DEXS-T 90	The service invoker and service provider SHALL include a Transmission Signature (section 4.2.4) containing a signed attestation of elements contained within the SOAP message on all SOAP Request and Response messages, except where the response contains a SOAP Fault.
DEXS-T 91	The service invoker and service provider SHALL create the signature using a certificate that asserts the same identity as that asserted in the TLS connection.
DEXS-T 92	The service provider SHOULD respond to an invalid Transmission Signature by rejecting the entire message and responding with an error.

3.2 Service Interface Realisation

This section shows the service interfaces defined in the logical service specification and specifies how these are realised on the chosen standards and technology platform.

Figure 5 shows how the logical operations are realised in this technical service specification. The IHE transactions are shown with a prefix of the unique ITI code assigned by IHE to each transaction. The prefix "WS:" is used to indicate bespoke web services.

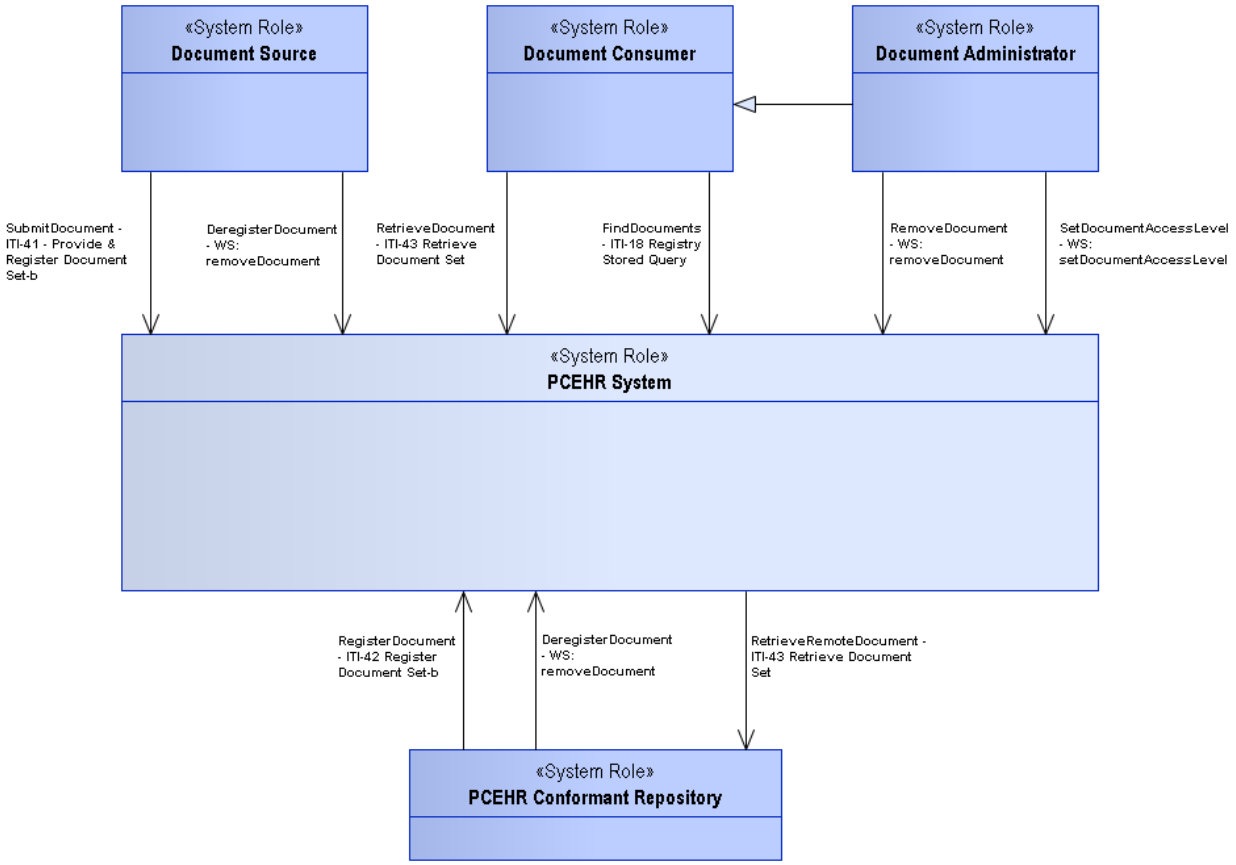

Figure 5 - Mapping of LSS operations to XDS.b transactions

Table 1 – Mapping between logical and technical operations

Logical Service Specification	Technical Service Specification
DocumentSubmission.submitDocument	ITI-41 Provide & Register Document Set – b
DocumentRetrieval.retrieveDocument	ITI-43 Retrieve Document Set
DocumentRetrieval.findDocuments	ITI-18 Registry Stored Query
ConformantRepositoryRetrieval.retrieveRemoteDocument	ITI-43 Retrieve Document Set
DocumentRegistration.registerDocument	ITI-42 Register Document Set - b
DocumentRegistration.deregisterDocument	Bespoke Web Service – removeDocument
DocumentManagement.setDocumentAccessLevel	Bespoke Web Service – setDocumentAccessLevel
DocumentManagement.removeDocument	Bespoke Web Service - removeDocument

Conformance points

DEXS-T 4	Implementations SHALL NOT rely on support for IHE interactions unless they are specified within the 'Technical Service Specification' column in Table 1.

3.3 Interactions Between CISs, PCEHR Portals and the National PCEHR System

3.3.1 ITI-41 Provide & Register Document Set – b

Name in logical service specification: submitDocument

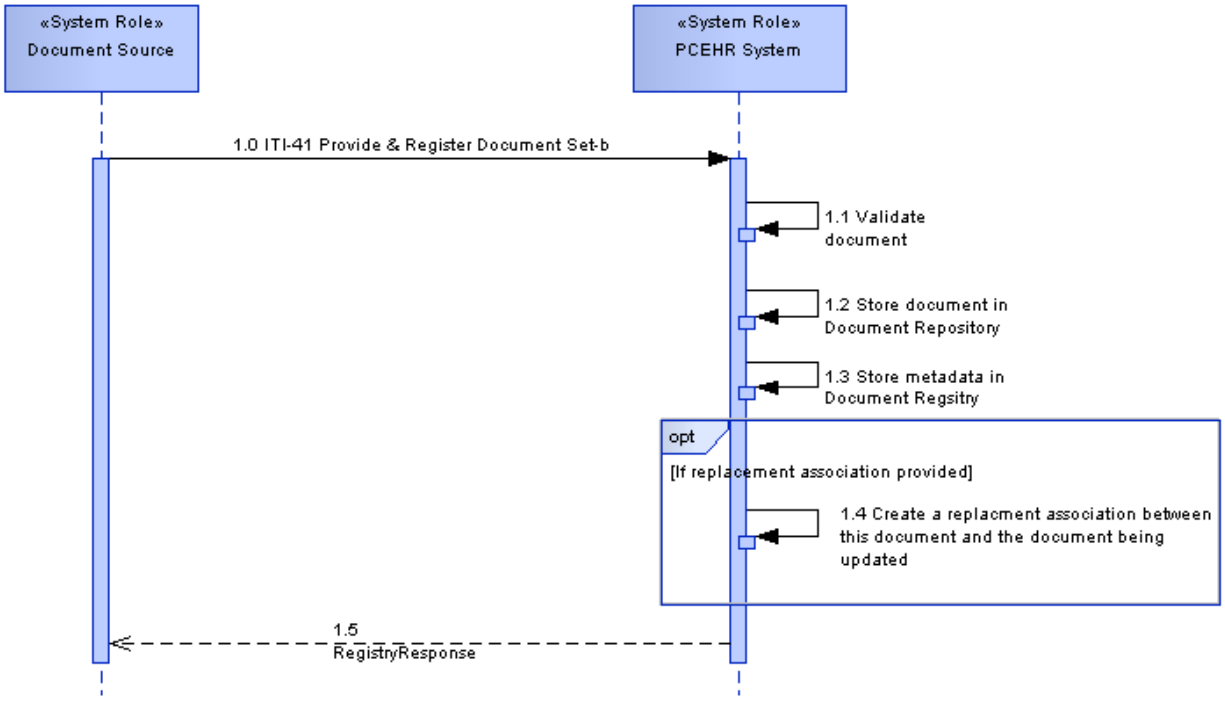

Figure 6 - Provide & Register Document Set-b

The Provide & Register Document Set–b transaction represents an XDS.b realisation of the submitDocument operation defined in the logical service specification.

This operation allows a Document Source to submit a document and associated metadata to the National PCEHR system.

The National PCEHR system will implement the XDS.b Document Repository and XDS.b Document Registry Actors. The XDS.b Document Source actor will be implemented by Clinical Information Systems (CISs) and Consumer Portals (for the submission of items such as Consumer Entered Information) seeking to upload documents to the PCEHR System.

The Provide & Register Document Set-b operations also provide support for document versioning through the use of association constructs. In this model, a document may be submitted with metadata that states that the current document replaces an existing document. If the existing document does not exist within the PCEHR system, then an error will be returned.

3.3.1.1 Preconditions

Within the scope of this section, the Document Repository and Document Registry Roles shall exclusively be fulfilled by the National PCEHR System.

3.3.1.2 Interaction

Conformance points

DEXS-T 5	All conformance points specified in the *PCEHR Document Exchange Service LSS Specification* for the submitDocument operation SHALL apply to this operation, with the following conformance points taking precedence:

a. The XDSDocumentEntry.hash field SHALL be generated using the SHA-1 hashing algorithm.

DEXS-T 6	The normative description of the Provide & Register Document Set – b operation as provided in section 3.41 of volume 2B of the IHE IT Infrastructure Technical Framework Specification [ITITF-2B] SHALL apply, including any further document or section references therein, with the following conformance points taking precedence:

DEXS-T 7	The operation request SHALL include the full "Common Header" as specified in section 4.2.1.
DEXS-T 8	The Provide & Register Document Set transaction SHALL contain exactly one XDS Document element.
DEXS-T 9	The Provide & Register Document Set transaction SHALL contain one or more unique XDSDocumentEntry elements.
DEXS-T 10	The Provide & Register Document Set transaction SHALL NOT contain XDS Folder elements.
DEXS-T 11	The Provide & Register Document Set transaction SHALL only support the Document Replace Option and SHALL NOT support the Document Addendum, Document Transformation and Folder Management options (section 3.4.1.61 within [ITITF-2B] provides the definition of these terms).

Informative note

The specification provides support for submitting a document to a Document Repository and does not provide support for the use of the ITI-41 transaction between entities fulfilling the Document Source and Document Recipient actors (as shown in section 3.41.4 of ITITF-1).

All CDA documents will be contained within CDA Packages. An XDS message will contain one CDA Package.

3.3.1.3 Postconditions

Conformance points

DEXS-T 12	Upon successful execution, the PCEHR System SHALL persist the document and return a status of 'urn:oasis:names:tc:ebxml-regrep:ResponseStatusType:Success'.

3.3.1.4 Inputs, Outputs and Faults

In order to support the inclusion of the Common Header and alignment with ATS-5820 Web Services Profile [ATS 5820-2010], the service will use the WSDL provided in Appendix A rather than those specified within the IHE Specifications.

Operation data fields	Data structures
Input	ihe:ProvideAndRegisterDocumentSetRequest
Output	rs:RegistryResponse

Conformance points

DEXS-T 13	The conformance points specified in sections 4.1.1, 4.1.2 and 4.1.3 SHALL apply to this operation.

3.3.1.5 Service Faults

The specification for Service Faults associated with XDS.b transactions is provided within section 4.1.6.

3.3.2 ITI-43 Retrieve Document Set

Name in logical service specification: retrieveDocument

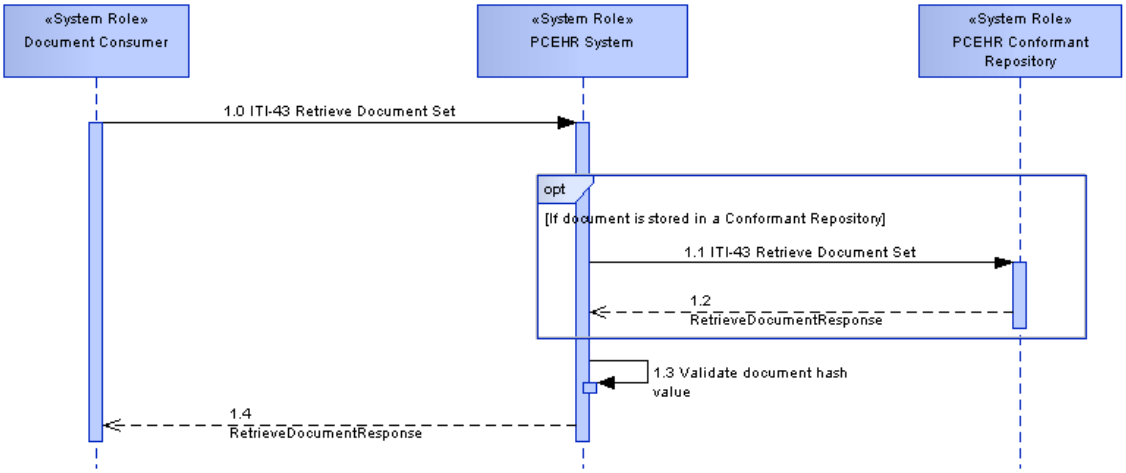

Figure 7 - ITI-43 Retrieve Document Set

The Retrieve Document Set transaction represents an XDS.b realisation of the retrieveDocument operation defined in the logical service specification.

This operation allows a Document Consumer to retrieve a document from the National PCEHR System.

The National PCEHR System will implement the XDS.b Document Repository and XDS.b Document Registry Actors. The XDS.b Document Consumer actor will be implemented by Clinical Information Systems PCEHR Portals seeking to retrieve a document from the PCEHR System.

3.3.2.1 Preconditions

Within the scope of this section, the Document Registry role shall be fulfilled exclusively by the National PCEHR System.

3.3.2.2 Interaction

Conformance points

DEXS-T 14	All conformance points specified in the *PCEHR Document Exchange Service LSS Specification* for the retrieveDocument operation SHALL apply to this operation.

DEXS-T 15	The normative description of the *Retrieve Document Set* operation as provided in section 3.43 of volume 2B of the IHE IT Infrastructure Technical Framework Specification [ITITF-2B] SHALL apply, including any further document or section references therein, with the following conformance points taking precedence:

DEXS-T 16	The operation request SHALL include the full "Common Header" as specified in section 4.2.1.
DEXS-T 17	Retrieve Document Set transactions SHALL contain exactly one XDS document element.

3.3.2.3 Postconditions

Conformance points

DEXS-T 18	Upon successful execution, the PCEHR System SHALL return the requested document along with a status of 'urn:oasis:names:tc:ebxml-regrep:ResponseStatusType:Success'.

3.3.2.4 Inputs, Outputs and Faults

In order to support the inclusion of the Common Header and alignment with ATS-5820 Web Services Profile [ATS 5820-2010], the service will use the WSDL provided in Appendix A rather than those specified within the IHE specifications.

Operation data fields	Data structures
Input	ihe:RetrieveDocumentSetRequest
Output	ihe:RetrieveDocumentSetResponse

Conformance points

DEXS-T 19	The ihe:RetrieveDocumentSetRequest SHALL contain exactly one ihe:DocumentRequest element.
DEXS-T 20	The ihe:RetrieveDocumentRequest SHALL NOT contain an ihe:HomeCommunityId element.
DEXS-T 21	The ihe:RetrieveDocumentSetResponse SHALL contain a maximum of one ihe:DocumentResponse element.
DEXS-T 22	The conformance points specified in section 4.1.4 SHALL apply to this operation.

3.3.2.5 Service Faults

The specification for Service Faults associated with XDS.b transactions is provided within section 4.1.6.

3.3.3 ITI-18 Registry Stored Query

Name in logical service specification: findDocuments.

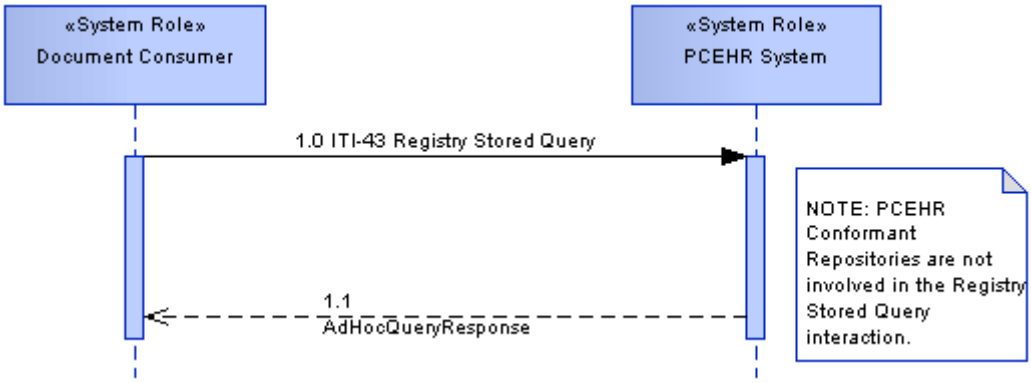

Figure 8 - ITI-43 Registry Stored Query

The Registry Stored Query transaction represents an XDS.b realisation of the findDocuments operation defined in the logical service specification.

This operation allows a Document Consumer to find one or more documents within the National PCEHR System which match a set of provided search criteria.

The National PCEHR System will implement the XDS.b Document Registry Actor. The XDS.b Document Consumer actor will be implemented by Clinical Information Systems, PCEHR Portals and Mobile Clients seeking to find documents within the National PCEHR System.

3.3.3.1 Preconditions

Within the scope of this section, the Document Registry role shall be fulfilled exclusively by the National PCEHR System.

3.3.3.2 Interaction

Conformance points

DEXS-T 23	All conformance points specified in the *PCEHR Document Exchange Service LSS Specification* for the findDocuments operation SHALL apply to this operation.
DEXS-T 24	The normative description of the *Registry Stored Query* operation as provided in section 3.18 of volume 2A of the IHE IT Infrastructure Technical Framework Specification [ITITF-2A] SHALL apply, including any further document or section references therein, with the following conformance point taking precedence:

DEXS-T 25	The operation request SHALL include the full "Common Header" as specified in section 4.2.1.

3.3.3.3 Postconditions

Conformance points

DEXS-T 26	Upon successful execution, the PCEHR System SHALL return the list of documents matching the supplied criteria along with a status of 'urn:oasis:names:tc:ebxml-regrep:ResponseStatusType:Success'.

3.3.3.4 Inputs, Outputs and Faults

In order to support the inclusion of the Common Header and alignment with ATS-5820 Web Services Profile [ATS 5820-2010], the service will use the WSDL provided in Appendix A rather than those specified within the IHE Specifications.

Operation data fields	Data structures
Input	query:AdHocQueryRequest
Output	query:AdHocQueryResponse

Conformance points

DEXS-T 27	The conformance points specified in section 4.1.5 SHALL apply to this operation.

3.3.3.5 Service Faults

The specification for Service Faults associated with XDS.b transactions is provided in section 4.1.6.

3.3.4 removeDocument

Name in logical service specification: removeDocument and deregisterDocument.

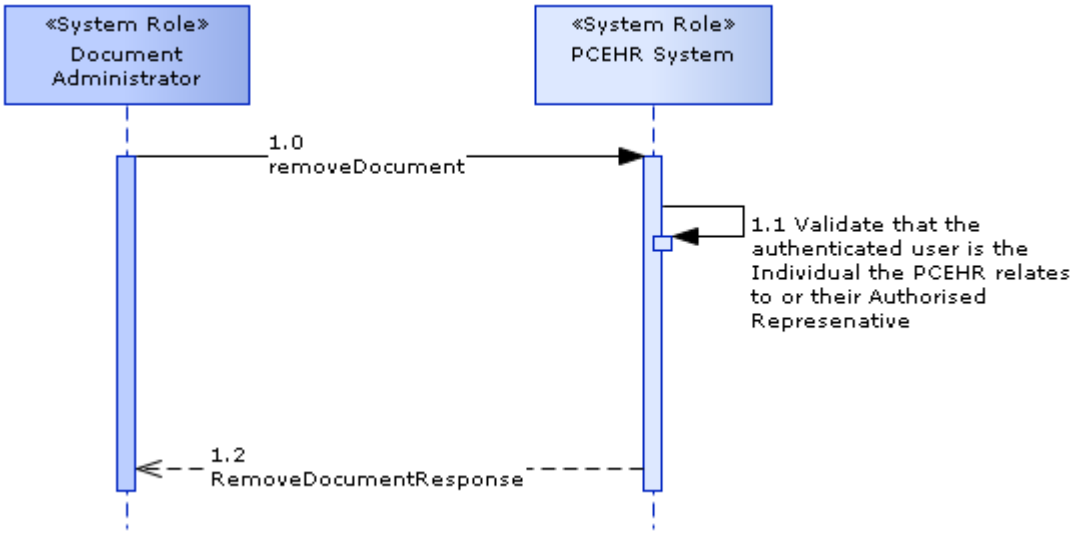

Figure 9 - removeDocument

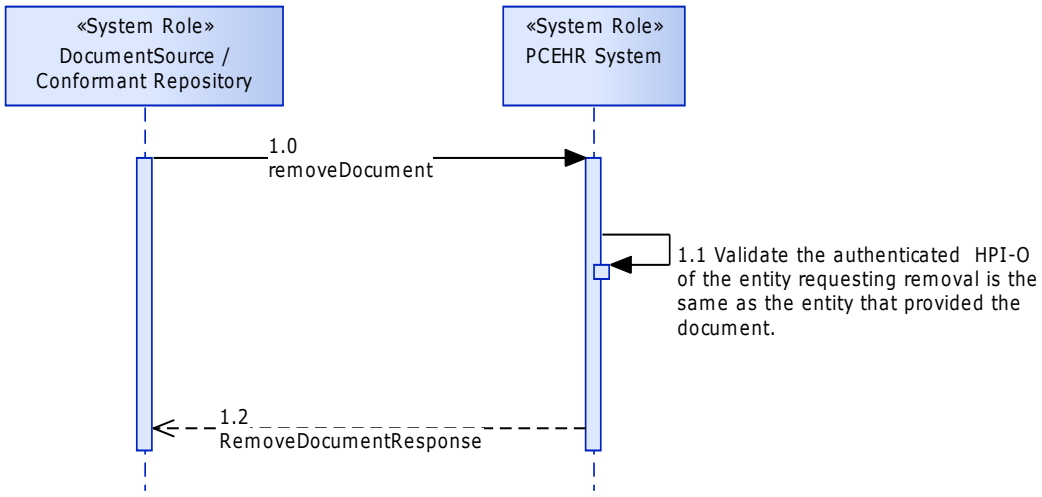

Figure 10 - removeDocument (deregisterDocument)

The logical service specification specifies operations for removing and deregistering documents. These functions are shown as discrete operations in order to highlight the differences in behaviours within the logical model, however the set of parameters and data types used by both services are identical.

At the technical layer, these operations will be realised using the single service interface: removeDocument.

The logical separation provided in the logical service specification still applies and systems are required to conform to a specific logical service specification system role and logical operation when invoking the technical removeDocument operation.

As specified in the logical service specification, the removal of documents is performed at a purely logical level and is realised by manipulating metadata associated with the document.

3.3.4.1 Preconditions

Conformance points

DEXS-T 28	The system seeking to update the status SHALL have the XDSDocumentEntry.uniqueId of the document that is to be removed.

3.3.4.2 Interaction

Conformance points

DEXS-T 29	Any realisation of the removeDocument operation specified in this technical service specification SHALL meet all conformance points specified for the removeDocument operation in the logical service specification [DOCX-LSS].
DEXS-T 30	Where the removeDocument operation provided in this technical service specification is used to realise the deregisterDocument operation, as specified in the logical service specification [DOCX-LSS], those conformance points associated with the deregisterDocument operation in the logical service specification [DOCX-LSS] SHALL apply.
DEXS-T 31	The operation request SHALL include the full "Common Header" as specified in section 4.2.1.
DEXS-T 32	The reasonForRemoval field SHALL be set to either 'IncorrectIdentity', 'ElectToRemove' or 'Withdrawn'.

Informative Note

The response reason of 'ElectToRemove' MAY only be used by those systems acting on behalf of a consumer. The response reason of 'Withdrawn' MAY only be used by those systems acting on behalf of a provider. The response reason of 'IncorrectIdentity' MAY be used by those systems acting on behalf of a consumer or a provider.

3.3.4.3 Postconditions

Conformance points

DEXS-T 33	Upon successful execution, the PCEHR System SHALL logically remove the document and return a positive status response.

3.3.4.4 Inputs, Outputs and Faults

The fields specified for this operation within the request and response entities within the logical service specification are realised directly within the XML Schema Definition referenced within the WSDL.

A representation of the request and response data types is located in section 4.1.7.

The XML Schema Definition and WSDL files for this operation can be found in Appendix A.

3.4 Interactions between the National PCEHR System and PCEHR Conformant Repositories

3.4.1 ITI-42 Register Document Set – b

Name in the logical service specification: registerDocument

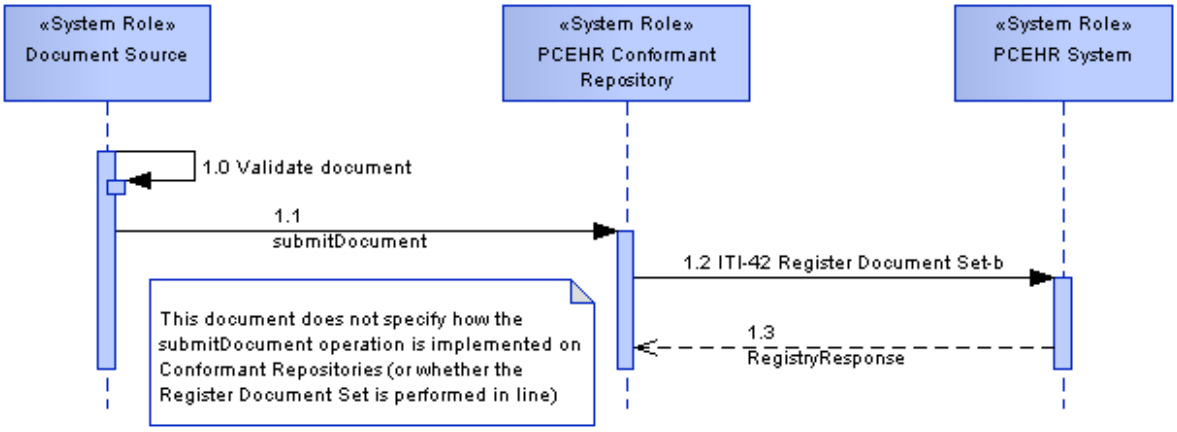

Figure 11 - ITI-42 Register Document Set-b

The Register Document Set – b transaction represents an XDS.b realisation of the registerDocument operation defined within the logical service specification.

This operation allows a Document Repository to register a document with the National PCEHR System.

The National PCEHR System will implement the XDS.b Document Registry Actor. The XDS.b Document Repository actor will be implemented by PCEHR Conformant Repositories.

3.4.1.1 Preconditions

Conformance points

DEXS-T 38	Within the scope of this section, the Document Repository service SHALL be fulfilled by PCEHR Conformant Repositories and the Document Registry Role SHALL be fulfilled by the National PCEHR System.
DEXS-T 39	The PCEHR Conformant Repository SHALL validate the CDA Document against the Template the document conforms to.
DEXS-T 40	The identifier of the template this document asserts to conform to SHALL be included within the XDSDocumentEntry.formatCode element of the Register Document Request transaction.
DEXS-T 41	Documents which fail validation SHALL NOT be registered in the PCEHR System.

3.4.1.2 Interaction

Conformance points

DEXS-T 42	All conformance points specified in the logical service specification for the registerDocument operation SHALL apply to this operation.

DEXS-T 43	The normative description of the Register Document Set –b operation as provided in section 3.42 of volume 2B of the IHE IT Infrastructure Technical Framework Specification [ITITF-2B] SHALL apply, including any further document or section references therein, with the following conformance points taking precedence:

DEXS-T 44	The operation request SHALL include the full "Common Header" as specified in section 4.2.1.
DEXS-T 45	The Register Document Set transaction SHALL contain document metadata for exactly one document.
DEXS-T 46	The Register Document Set transaction SHALL NOT contain Folder elements.
DEXS-T 47	The Register Document set transaction SHALL only support the Document Replace Option and SHALL NOT support the Document Addendum, Document Transformation and Folder Management options (section 3.4.1.61 within [ITITF-2B] provides the definition of these terms).

3.4.1.3 Postconditions

Conformance points

DEXS-T 48	Upon successful execution, the PCEHR System SHALL register the supplied document metadata and return a status of 'urn:oasis:names:tc:ebxml-regrep:ResponseStatusType:Success'.

3.4.1.4 Inputs, Outputs and Faults

In order to support the inclusion of the Common Header and alignment with ATS-5820 Web Services Profile [ATS 5820-2010], the service will use the WSDL provided in Appendix A rather than those specified within the IHE Specifications.

Operation data fields	Data structures
Input	lcm:SubmitObjectsRequest
Output	rs:RegistryResponse

Conformance points

DEXS-T 49	The conformance points specified in sections 4.1.1, 4.1.2 and 4.1.3 SHALL apply to this operation.

3.4.1.5 Service Faults

The specification for Service Faults associated with XDS.b transactions is provided in section 4.1.6.

3.4.2 ITI-43 Retrieve Document Set

Name in the logical service specification: retrieveRemoteDocument

This operation shall be realised in accordance with section 3.3.2.

3.4.3 removeDocument

Name in the logical service specification: deregisterDocument

This operation shall be realised in accordance with section 3.3.4.

4 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, interface developers and information modellers.

Note: The error code tables may be subject to extension as the development of the PCEHR system progresses.

4.1 Document Exchange Service LSS to IHE XDS.b Mapping

The following sub-sections show how the key elements of the information model specified within the logical service specification [DOCX-LSS] are realised using IHE XDS.b data elements.

Where mandatory elements exist within the XDS.b specification and are not present within the logical model, the model is extended to include these additional fields. Optional XDS.b fields which are not present within the logical model are explicitly removed.

Where elements exist within the logical model which do not exist within the XDS.b specification (or the SOAP or Common Headers), the XDS.b specification is extended (there are no such items within this version of the specification).

The IHE XDS Specification provides details of the data types and formats for each of the fields described within this section.

4.1.1 Document Metadata and XDS.b Document Entry Types

The Document Metadata entity presented within the logical model is realised entirely by the XDSDocumentEntry object. Table 2 shows the mapping between these two entities.

Table 2 – Document Metadata to XDS.b Document Entry mapping

LSS Field	Description	XDS.b Field Name
Authoring Organisation	The identifier of the organisation that authored the document.	XDSDocumentEntry. authorInstitution
Authoring Individual	The identifier of the individual that authored the document.	XDSDocumentEntry. authorPerson
Document Type Code	A code relating to the type of document being submitted.	XDSDocumentEntry. classCode
Document Type Display Name	A display friendly name for the document type.	XDSDocumentEntry. classCodeDisplayName
PCEHR Template Identifier	The identifier of the template this document conforms to.	XDSDocumentEntry. formatCode
Document ID	A unique object identifier relating to the document. This must be unique within the PCEHR System and must be equivalent to the identifier of the root CDA Document within the CDA Package.	XDSDocumentEntry. uniqueId
Title	An optional title for the given document.	XDSDocumentEntry. title

LSS Field	Description	XDS.b Field Name
Document Creation Time	The time the document was created.	XDSDocumentEntry.creationTime
Service Start Time	The datetime the service being performed which caused the document to be created started.	XDSDocumentEntry.serviceStartTime
Service Stop Time	The datetime 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.	XDSDocumentEntry.serviceStopTime
Document Hash	A SHA-1 hash representation of the CDA package. This field is mandatory for ITI-42 document registrations.	XDSDocumentEntry.hash
Keyword	One or more keywords which are related to the document submission. Both these fields must be *excluded* from submission.	XDSDocumentEntry.eventCodeList
		XDSDocumentEntry.eventCodeListDisplayName
Healthcare Facility Type Code	A code identifying the type of healthcare facility where the event relating to this document submission request initiated.	XDSDocumentEntry.healthcareFacilityTypeCode
Healthcare Facility Type Name	A display friendly name for the above code.	XDSDocumentEntry.healthcareFacilityTypeCodeDisplayName
Clinical Speciality Code	A code identifying the clinical specialty where the event relating to this document submission request initiated.	XDSDocumentEntry.practiceSettingCode
Clinical Specialty Display Name	A display friendly name for the above specialty.	XDSDocumentEntry.practiceSettingCodeDisplayName
N/A	This field is not present in the LSS definition of the Document Metadata as it is in the Common Header. The value from the common header should be replicated into this field.	XDSDocumentEntry.sourcePatientId
N/A	This mandatory XDS.b field is not supported by PCEHR. It shall be set to a value of 'NA'.	XDSDocumentEntry.confidentialityCode
N/A	This field is not required by the Logical Model presented within the LSS but is a mandatory field within XDS. This field shall be set to the same value as that provided in the classCode field.	XDSDocumentEntry.typeCode

LSS Field	Description	XDS.b Field Name
N/A	This field is not required by the Logical Model presented within the LSS but is a mandatory field within XDS. This field shall be set to the same value as that provided in the classCodeDisplayName field.	XDSDocumentEntry. typeCodeDisplayName
Common Header. IHI Number	This value SHALL be set to the same value as the XDSDocumentEntry.sourcePatientId.	XDSDocumentEntry. patientId
N/A	This field is not required by the Logical Model presented within the LSS but is a mandatory field within XDS. Set to a fixed value of 'en-AU'.	XDSDocumentEntry. languageCode
N/A	The MIME type of the document provided. This field is set to a fixed value of 'application/zip'.	XDSDocumentEntry. mimeType
N/A	The symbolic ID of the document provided. (PCEHR creates the actual value for symbolic fields) This field is set to a fixed value of 'DOCUMENT_SYMBOLICID_01'.	XDSDocumentEntry. entryUUID
N/A	The size of the CDA package. This field is mandatory for ITI-42 document registrations.	XDSDocumentEntry. size

Table 3 - XDSDocumentEntry Document Type and Class Code value set

Coding System	TypeCode ClassCode	ClassCodeDisplayName	TypeCodeDisplayName
LOINC	60591-5	Patient Summary	Shared Health Summary
LOINC	57133-1	Referral note	e-Referral
LOINC	51852-2	Letter	Specialist Letter
LOINC	18842-5	Discharge Summarization Note	Discharge Summary
LOINC	34133-9	Summarization of episode note	Event Summary
NCTIS[1]	100.16100	e-Prescription	e-Prescription
NCTIS	100.16112	Dispense Record	Dispense Record
NCTIS	100.16285	Prescription Request	Prescription Request
NCTIS	100.16650	Pharmaceutical Benefits Report	Pharmaceutical Benefits Report
NCTIS	100.16659	Australian Childhood Immunisation Register	Australian Childhood Immunisation Register
NCTIS	100.16644	Medicare/DVA Benefits	Medicare/DVA Benefits

[1] NCTIS Data Components coding system with an arc of 1.2.36.1.2001.1001.101.

Coding System	TypeCode ClassCode	ClassCodeDisplayName	TypeCodeDisplayName
		Report	Report
NCTIS	102.16671	Australian Organ Donor Register	Australian Organ Donor Register
NCTIS	100.16681	Consumer Entered Notes	Consumer Entered Notes
NCTIS	100.16685	Consumer Entered Health Summary	Consumer Entered Health Summary
NCTIS	100.16696	Advanced Care Directive Custodian Record	Advanced Care Directive Custodian Record
NCTIS	100.16764	PCEHR Prescription Record	PCEHR Prescription Record
NCTIS	100.16765	PCEHR Dispense Record	PCEHR Dispense Record

Conformance points

DEXS-T 50	Any XDSDocumentEntry fields which are not shown in the XDS.b Field Name column of Table 2 SHOULD NOT be provided by connecting systems and SHALL be ignored by the National PCEHR System.
DEXS-T 51	The XDSDocumentEntry.sourcePatientId SHALL contain the 16-digit IHI number provided within the PCEHR Header.
DEXS-T 52	The XDSDocumentEntry.confidentialityCode SHALL be set to 'NA'.
DEXS-T 53	The Document Source SHALL ensure that the XDSDocumentEntry.uniqueId generation algorithm is guaranteed to be globally unique within the PCEHR system. The XDSDocumentEntry.uniqueId SHALL be an OID of format as defined in [ITU-X.667]
DEXS-T 54	The XDSDocumentEntry.typeCode SHALL be set to the same value as the XDSDocumentEntry.classCode field.
DEXS-T 55	The XDSDocumentEntry.typeCodeDisplayName SHALL be set to the value specified in the TypeCodeDisplayName column in Table 3 above.
DEXS-T 56	The XDSDocumentEntry.uniqueId SHALL be set to the OID form of the Document Identifier field within the supplied CDA document. This equivalency shall be created according to the following rules:

a. Where the CDA Document Identifier is represented as an OID without an extensions attribute, the XDSDocumentEntry.uniqueID field SHALL be set to this value.

b. Where the CDA Document Identifier is represented as an OID and includes an extension, the XDS DocumentEntry.uniqueID field SHALL be set to a value constructed as [OID]^[extension].

c. Where the CDA Document Identifier is represented as an UUID, the XDSDocumentEntry.uniqueID field SHALL be set to an OID representation of this UUID. The OID representation SHALL be constructed as specified in section 7 of [ITU-X.667].

DEXS-T 57	The XDSDocumentEntry.sourcePatientId SHALL be identical to the XDSDocumentEntry.patientId field within the supplied CDA Document.
DEXS-T 58	The XDSDocumentEntry.formatCode field SHALL contain the Template ID of the Template to which the CDA Document asserts conformance.
DEXS-T 59	The XDSDocumentEntry.languageCode field SHALL be set to a fixed value of 'en-AU'.

DEXS-T 93	The XDSDocumentEntry.mimeType field SHALL be set to a fixed value of 'application/zip'.
DEXS-T 94	The XDSDocumentEntry.entryUUID field SHALL be set to a symbolic id of "DOCUMENT_SYMBOLICID_01".
DEXS-T 95	The following XDSDocumentEntry fields SHALL NOT be included within the submission: eventCodeList, eventCodeListDisplayName, parentDocumentRelationship, parentDocumentId.
DEXS-T 96	The XDSDocumentEntry.size field SHALL be set for ITI-42 operations.
DEXS-T 97	The XDSDocumentEntry.hash field SHALL be set for ITI-42 operations.
DEXS-T 98	The XDSDocumentEntry.repositoryUniqueId field SHALL be set for ITI-42 operations.
DEXS-T 99	All conformance points specified in the PCEHR Document Exchange Service LSS Specification for the DocumentMetadata entity SHALL apply, including any further document or section references therein, with the following conformance points taking precedence:

DEXS-T 100	The XDSDocumentEntry.authorInstitution field SHALL be set to either: a. the HPI-O of the Organisations issued by the HI Service; or b. PAI-O issued by the PCEHR System Operator.
DEXS-T 101	The XDSDocumentEntry.authorPerson field SHALL be set to: a. the HPI-I of the Individual issued by the HI Service; or b. a device identifier approved by the PCEHR System Operator, such as a PAI-D; or c. an identifier which uniquely and legally identifies the person and is approved by the PCEHR System Operator, such as the IHI of the Individual.
DEXS-T 102	The XDSDocumentEntry.hash field SHALL be generated using the SHA-1 hashing algorithm for ITI-42 operations.

DEXS-T 117	The CDA Package SHALL be created according to the XDM –ZIP representation [CDA_PKG].
DEXS-T 120	The XDSDocument SHALL be provided using the Clinical Package specification [CLN_PKG] and the Signed CDA Package profile [CDA_PKG].

DEXS-T 121	The CDA Package SHALL have exactly one Signature.
DEXS-T 122	The XDSDocumentEntry.creationTime, XDSDocumentEntry.serviceStartTime, XDSDocumentEntry.serviceStopTime dates SHOULD use YYYYMMDDhhmmss precision.
DEXS-T 123	The XDSDocumentEntry.creationTime, XDSDocumentEntry.serviceStartTime, XDSDocumentEntry.serviceStopTime dates SHALL only allow the following precisions: YYYYMMDD, YYYYMMDDhhmm, and YYYYMMDDhhmmss.

Informative Note The IHE XDS Specification requires the usage of the Coordinated Universal Time (UTC) standard for XDS datetimes.

4.1.2 Submission Metadata and XDS.b Submission Set types

The Submission Metadata entity presented within the logical model is realised entirely by the XDSSubmissionSet object. Table 4 below shows the mapping between these two entities. The XDSSubmissionSet duplicates much of the data which is already present within the XDSDocumentEntry (which is mandated to be represented as a singular occurrence within this specification).

Table 4 - Submission metadata to XDS.b submission set mapping

LSS Field	Description	XDS.b Field Name
Submitter Type	This value is realised within the PCEHR Header	N/A
SubmissionDateTime	The date and time that the document was submitted to the PCEHR System.	XDSSubmissionSet. submissionTime
Document Metadata. Authoring Individual	This value shall be set to the same value as the authorPerson specified in the XDSDocumentEntry.	XDSSubmissionSet. authorPerson
Document Metadata. Authoring Organisation	This value shall be set to the same value as the authorInstitution specified in the XDSDocumentEntry.	XDSSubmissionSet. authorInstitution
Document Metadata. Clinical specialty Code	This value shall be set to the same value as the classCode specified in the XDSDocumentEntry.	XDSSubmissionSet. contentTypeCode
Document Metadata. Clinical Specialty Code Display Name	This value shall be set to the same value as the classCodeDisplayName specified in the XDSDocumentEntry.	XDSSubmissionSet. contentTypeCodeDisplayName
N/A	This field shall be populated using a symbolic identifier with a fixed value of 'SUBSET_SYMBOLICID_01'.	XDSSubmissionSet. entryUUID
Common Header. IHI Number	This value shall be set to the same value as the sourcePatientId specified in the XDSDocumentEntry.	XDSSubmissionSet. patientId
N/A	This is not required by the Logical Model but is mandatory field within XDS. This element will be populated using the OID representation of the XDSDocumentEntry.authorInstitution field.	XDSSubmissionSet. sourceId
N/A	A unique identifier for the submission set created by the source. This is not required by the Logical Model but is mandatory field within XDS. This field shall be an OID.	XDSSubmissionSet. uniqueId

Conformance points

DEXS-T 60	Any XDSSubmissionSet fields which are not shown in the XDS.b Field Name column of Table 4 above SHOULD NOT be provided by connecting systems and SHALL be ignored by the National PCEHR System.
DEXS-T 61	The XDSSubmissionSet.entryUUID SHALL have a symbolic identifier of 'SUBSET_SYMBOLICID_01' when used within the ITI-41 Provide & Register Document Set-b and ITI-42 RegisterDocument Set-b transactions.
DEXS-T 62	The value provided within the XDSSubmissionSet.authorPerson entity SHALL be identical to the value provided within the XDSDocumentEntry.authorPerson entity.
DEXS-T 63	The value provided within the XDSSubmissionSet.authorInstitution entity SHALL be identical to the value provided within the XDSDocumentEntry.authorInstitution entity.
DEXS-T 64	The value provided within the XDSSubmissionSet.contentTypeCode entity SHALL be identical to the value provided within the XDSDocumentEntry.classCode entity.
DEXS-T 65	The value provided within the XDSSubmissionSet.contentTypeCodeDisplayName entity SHALL be identical to the value provided within the XDSDocumentEntry.classCodeDisplayName entity.
DEXS-T 66	The value provided within the XDSSubmissionSet.authorPerson entity SHALL be identical to the value provided within the XDSDocumentEntry.authorPerson entity.

DEXS-T 103	All conformance points specified in the PCEHR Document Exchange Service LSS Specification for the DocumentMetadata entity SHALL apply, including any further document or section references therein, with the following conformance points taking precedence:

DEXS-T 104	The value provided within the XDSSubmissionSet.personId entity SHALL be identical to the value provided within the XDSDocumentEntry.sourcePersonId entity.
DEXS-T 105	The value provided within the XDSSubmissionSet. uniqueId entity SHALL be identical to the value provided within the XDSDocumentEntry. uniqueId entity.

4.1.3 Document Version Information and XDS.b Association types

Table 5 - Document version information to XDS.b association mapping

LSS Field	Description	XDS.b Field Name
Previous Version Document ID	The unique identifier of the document which this document replaces.	targetObject A reference to the XDSDocumentEntry.UniqueID already stored in XDS.b Registry provided by the PCEHR System. The XDS meta data must be a UUID. If a Document ID is used, it must be an OID representation form.
Document Metadata	A reference to the document entry which will create a new document or replace the previous document (this will typically be part of the same submission as the association).	sourceObject The id of XDSDocumentEntry provided in the submission which replaces the previously stored document.
N/A	The type of association.	Association Type This shall have a value of 'urn:ihe:iti:2007:AssociationType:RPLC' (Replace).

Conformance points

DEXS-T 67	The XDS.b Association construct SHALL be used to manage document versioning.
DEXS-T 68	The XDS.b Association Type SHALL be set to 'urn:ihe:iti:2007:AssociationType:RPLC' to supersede a document.

DEXS-T 118	The XDS.b Association targetObject field name SHALL contain either the XDSDocumentEntry.uniqueID set to this value OR the Document ID. If the XDSDocumentEntry.uniqueID is used as the unique targetObject, then the format SHALL be UUID. If the UUID format for the XDSDocumentEntry.uniqueID is used for the sourceObject, the superseding of a document SHALL first use the ITI-18 operation (to retrieve the PCEHR XDS Metadata EntryID) before superseding the original document. If the Document Id is used as the unique targetObject, then the format SHALL be one of the following:

a. The Document Identifier SHALL be represented as an OID without an extensions attribute; or

b. The Document Identifier SHALL be represented as an OID and include an extension constructed as [OID]^[extension]; or

c. The Document Identifier SHALL be represented as an OID representation of this UUID. The OID representation SHALL be constructed as specified in section 7 of [ITU-X.667].

Informative note

When the previous version Document ID OID is used for the targetObject, the ITI-18 Registry Stored Query (find documents) operation is not required. This provides a mechanism for superseding a document in one ITI-41 Provide & Register Document Set–b operation by passing the Document Id in the metadata

targetObject field and using the following Association type: 'urn:ihe:iti:2007: AssociationType:RPLC' (for 'Replace').

4.1.4 Document Retrieval Request and XDS.b Retrieve Document Set Request types

Table 6 - Document Retrieval Request to XDS.b Retrieve Document Set Request

LSS Field	Description	XDS.b Field Name
Requested Document ID	The identifier of the document being retrieved.	documentUniqueId
N/A	This value is not supported within the Logical Model but is required by IHE XDS.b. This is the identifier of the XDS Repository containing the document. The value shall be set to the value returned by a call to RegistryStoredQuery (or provided by a view).	repositoryUniqueId

Conformance points

DEXS-T 69	Any XDS.b Retrieve Document Set Request fields which are not shown in the XDS.b Field Name column of Table 6 above SHOULD NOT be provided by connecting systems and SHALL be ignored by the National PCEHR System.
DEXS-T 70	The repositoryUniqueId SHALL be set to the value retrieved from the XDS.b Registry.
DEXS-T 71	The Document Consumer SHALL retrieve all documents directly from the National PCEHR System (regardless of the value provided within the repositoryUniqueId field).

4.1.5 FindDocumentsRequest and XDS.b Registry Stored Queries

The XDS.b Specification uses a set of pre-defined parameterised stored queries to support searching for documents. The Document Consumer provides the name of the query to be executed along with the parameters required by the query.

Section 3.18 of volume 2B of the IHE Specification [ITITF-2B] provides a definition of the queries supported and the associated data types.

4.1.6 Service Faults

The XDS.b mechanism for returning the details of errors which occur during XDS.b transactions is provided in section 4.1.13 of volume 3 within the IHE IT Infrastructure specification [ITITF-3].

An XDS.b RegistryResponse or AdHocQueryResponse may return a RegistryError element.

An XDS.b RegistryError element is made up of an:

- errorCode – The code describing the type of error.
- codeContext – A detailed description of the error.
- location – name of system responsible for raising the error. This is set to 'PCEHR Interface'.

- severity – The severity of the error.
  - urn:oasis:names:tc:ebxml-regrep:ErrorSeverityType:Error

    or
  - urn:oasis:names:tc:ebxml-regrep:ErrorSeverityType:Warning

Section 4.3.3 XDS.b Responses defines specific PCEHR responses returned.

Conformance points

DEXS-T 72	The RegistryResponse or AdHocQueryResponse element SHALL return a status code of 'urn:oasis:names:tc:ebxml-regrep:ResponseStatusType:Failure' upon error and SHALL include a RegistryError element but no response body.
DEXS-T 73	The service SHALL return a status code of 'urn:oasis:names:tc:ebxml-regrep:ResponseStatusType:PartialSuccess' where the request was processed successfully but with a warning. This response SHALL include a registryError element and a response body.
DEXS-T 74	The errorCode returned SHALL be taken from table 4.1-11 within volume 3 of the IHE IT Infrastructure specification [ITITF-3].

4.1.7 removeDocument Message operation message types

Table 7 - RemoveDocumentRequest

Element Name	Type	Cardinality	Remarks
RemoveDocument		**1..1**	
DocumentID	xs:string	1..1	Unique id for the message. E.g. uuid:95b48e68-5dfc-4dbd-ab05-aaa855cec03f
reasonForRemoval	xs:string	1..1	The reason for removing the document. The accepted values for this field are: • Withdrawn • ElectToRemove • IncorrectIdentity
/RemoveDocument			

Table 8 - RemoveDocumentResponse

Element Name	Type	Cardinality	Remarks
RemoveDocumentResponse		**1..1**	
responseStatus	responseStatusType	1..1	The status of the service call.
/RemoveDocumentResponse			

4.2 Other Data Elements

4.2.1 Common Header

The PCEHR Common Header specified within the logical service specification [DOCX-LSS] is realised in this specification using the following SOAP Headers within the web service call. These are:

- WS-Addressing Header
- PCEHRHeader
- Transmission Timestamp
- Transmission Signature

4.2.1.1 WS-Addressing Header (Request)

Table 9 - WS-Addressing Header (Request)

Element Name	Type	Cardinality	Remarks
WS Addressing		**1..1**	
MessageId	UUID	1..1	Unique id for the message. E.g. uuid:95b48e68-5dfc-4dbd-ab05-aaa855cec03f
To	anyURI	1..1	Value: e.g. http://www.w3.org/2005/08/addressing/anonymous
Action	anyURI	1..1	Identifier (full namespace) of the virtual service being invoked.
/WS Addressing			

4.2.1.2 WS-Addressing Header (Response)

Table 10 - WS-Addressing Header (Response)

Element Name	Type	Cardinality	Remarks
WS Addressing		**1..1**	
MessageId	UUID	1..1	Unique id for the message. E.g. uuid:95b48e68-5dfc-4dbd-ab05-aaa855cec03f
RelatesTo	UUID	1..1	MessageId of the original service request.
/WS Addressing			

Conformance points

DEXS-T 75	The service provider SHALL set these values is accordance with ATS 5820-2010 Section 6 – Metadata [ATS 5820-2010].

4.2.2 PCEHRHeader (Request)

PCEHRHeader is used for all interactions with the PCEHR System.

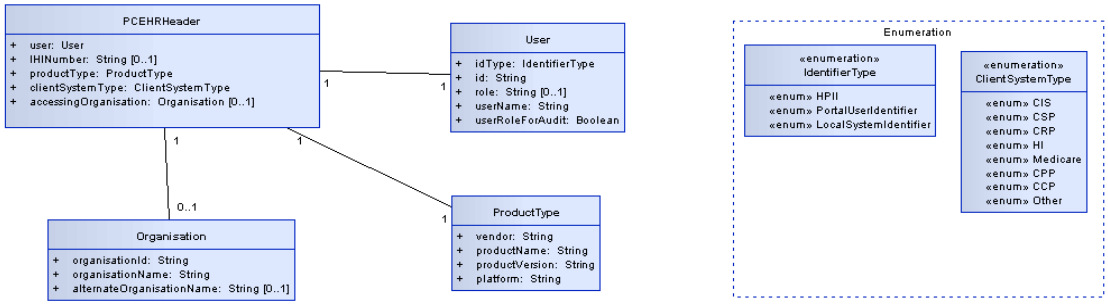

Figure 12 – PCEHRHeader

Table 11 - PCEHRHeader

Element Name	Type	Cardinality	Remarks
PCEHRHeader		**1..1**	
User		**1..1**	
IDType	String	1..1	Values ("HPII", "PortalUserIdentifier", "LocalSystemIdentifier")
ID	String	1..1	PCEHR identity, 16 digit HPI-I number or Other User ID
role	String	0..1	Optional User Role
username	String	1..1	Username
useRoleForAudit	Boolean	1..1	if true PCEHR will use `role` as the user name for audit, else PCEHR will use `username` as the user name for audit
/User			
ihiNumber	String	0..1	PCEHR individual's 16 digit IHI number
productType		**1..1**	
vendor	String	1..1	client system's vendor name
productName	String	1..1	client system's product name
productVersion	String	1..1	client system's product version
platform	String	1..1	client system's platform
/productType			
clientSystemType	String	1..1	Values ("CCP","CPP", "CIS", "CSP", "CRP", "HI", "Medicare", "Other")
accessingOrganisation		**0..1**	
organisationId	String	1..1	The 16 digit Healthcare Organisation Identifier (HPI-O) or approved alternative (a unique identifier issued by the PCEHR System Operator e.g. a PAI-O).

organisationName	String	1..1	Organisation Name
alternateOrganisationName	String	0..1	Alternate Organisation Name
/accessingOrganisation			
/PCEHRHeader			

Conformance points

DEXS-T 76	The Service Invoker SHALL set the IHINumber to the IHI of the Individual who owns the record in the PCEHR System.
DEXS-T 77	The Service Invoker SHALL set the accessingOrganisation to the identifier of the organisation attempting to access the PCEHR.

DEXS-T 78	The Service Invoker SHALL set the user.id to either: • The 16-digit HPI-I of the provider attempting to access the PCEHR (where this is known) • Or, alternatively, a local identifier of the provider/support operator attempting to access the PCEHR.

DEXS-T 79	The Service Invoker SHALL set the productType.vendor to the vendor name of the client system.
DEXS-T 80	The Service Invoker SHALL set the productType.productName to the product name of the client system.
DEXS-T 81	The Service Invoker SHALL set the productType.productVersion to the product version of the client system.
DEXS-T 82	The Service Invoker SHALL set the productType.platform to the client system vendor.

4.2.3 Transmission timestamp

Table 12 – SOAP Header timestamp

Element Name	Type	Cardinality	Remarks
timestamp		**1..1**	
created	dateTime	1..1	Time at SOAP message creation. Inclusive of Date, Time and UTC Timezone. E.g. 2011-10-25T03:06:13Z
expires	dateTime	0..1	For future use.
/timestamp	**-**	**-**	**-**

4.2.4 Transmission Signature

Table 13 - Transmission Signature in SOAP Header

Element Name	Type	Cardinality	Remarks
signature		**1..1**	
signature	ds:signature	1..1	A signed attestation of key SOAP message elements using the ATS 5821 specification.
/signature	**-**	**-**	**-**

Conformance points

DEXS-T 106	The element signed by the Transmission Signature by all parties SHALL include a SOAP Body Element.
DEXS-T 107	The element signed by the Transmission Signature by the Service Invoker SHALL also include a PCEHR Header element (as defined in Section 4.2.2).
DEXS-T 108	The element signed by the Transmission Signature SHOULD include a Transmission Timestamp element (as defined in Section 4.2.4).
DEXS-T 109	The *Service Invoker* and *Service Provider* SHALL calculate the ds:DigestValue as specified in "Section 4. XML Signature Profile" of [ATS 5821—2010] prior to the application of MTOM/XOP.
DEXS-T 110	The ds:SignedInfo element type SHALL be realised in conformance with "Section 4. XML Signature Profile" as specified in [ATS 5821—2010].
DEXS-T 111	The fragment identifier used within the ds:Reference element, specified in "Section 4. XML Signature Profile" of [ATS 5821—2010], SHALL refer to the "ID" attribute specified in section 3.3 of [W3C-XML-1.1] of the element referenced.
DEXS-T 112	The ds:signature element type SHALL be realised in conformance with "Section 4. XML Signature Profile" as specified in [ATS 5821—2010].

4.3 PCEHR Responses

The PCEHR responses are listed in this section. The returned response to a service call may contain the following response types:

- Common Response Status (Section 4.3.1),
- Standard SOAP Faults(Section 4.3.1) or
- XDS.b Responses (Section 4.3.3).

Conformance points

DEXS-T 83	The *Service Provider* SHALL set the appropriate response code as per below:

a. All services SHOULD return the appropriate codes from Table 15 General response and Table 17 SOAP responses.

b. removeDocument service SHALL return appropriate additional codes from Table 16 removeDocument response.

c. ITI-18 Registry Stored Query service SHALL return appropriate additional codes from Table 18 ITI-18 response.

d. ITI-41 Provide & Register Document Set – b service SHALL return appropriate additional codes from Table 19 ITI-41 response.

e. ITI-42 Register Document Set - b SHALL return appropriate additional codes from Table 20 ITI-42 response.

f. ITI-43 Retrieve Document Set service SHALL return appropriate additional codes from Table 21 ITI-43 response.

4.3.1 Common Response Status

PCEHR System supports the common response status.

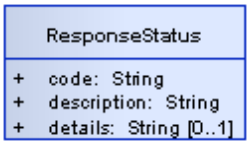

Figure 13 – ResponseStatus

Table 14 ResponseStatus Responses

Element Name	Type	Cardinality	Remarks
ResponseStatus		**1..1**	
code	String	1..1	Status Code for the result of the transaction
description	String	1..1	Brief status description
details	String	0..1	Additional detail of the response
/ ResponseStatus			

Table 15 General responses

Code	description
PCEHR_SUCCESS	SUCCESS

Table 16 removeDocument responses

Code	description
PCEHR_ERROR_3002	Document metadata failed validation
PCEHR_ERROR_2501	Document not found

4.3.2 Standard SOAP Faults

This section lists the standard SOAP codes as per the [ATS 5820-2010] SOAP fault structure.

Table 17 SOAP responses

errorCode	codeContext
badWsaMessageId	PCEHR_ERROR_0001 - Message ID element is missing
badlyFormedMsg	PCEHR_ERROR_0002 - SOAP header fault
badlyFormedMsg	PCEHR_ERROR_0003 - SOAP body fault
notAuthorised	PCEHR_ERROR_0004 - Authorisation denied
serviceTemporaryUnavailable	PCEHR_ERROR_0005 - Back end system temporary unavailable
badParam	PCEHR_ERROR_0006 - Invalid common parameter
badParam	PCEHR_ERROR_0007 - Invalid IHI
badParam	PCEHR_ERROR_0008 - Invalid HPI-I
badParam	PCEHR_ERROR_0009 - Invalid HPI-O
badlyFormedMsg	PCEHR_ERROR_0010 - The request did not contain the expected message format
serviceTemporaryUnavailable	PCEHR_ERROR_0011 - Unexpected service exception error
serviceTemporaryUnavailable	PCEHR_ERROR_0012 - Unexpected back end exception error
serviceTemporaryUnavailable	PCEHR_ERROR_0013 - Invalid back end response
serviceTemporaryUnavailable	PCEHR_ERROR_0014 - Unknown back end error code
badParam	PCEHR_ERROR_0501 - Accessing organisation element is not required
badParam	PCEHR_ERROR_0502 - Accessing organisation element is missing
badParam	PCEHR_ERROR_0503 - User name for audit element is missing
badParam	PCEHR_ERROR_0504 - User role for audit element is missing
badParam	PCEHR_ERROR_0505 - Invalid HPI-O
badlyFormedMsg	PCEHR_ERROR_0506 - Invalid request
serviceTemporaryUnavailable	PCEHR_ERROR_0507 - Unexpected service exception error
badlyFormedMsg	PCEHR_ERROR_0509 - SOAP header fault
badlyFormedMsg	PCEHR_ERROR_0510 - SOAP body fault
badParam	PCEHR_ERROR_0511 - ClientSystemType is missing
badEncryption	PCEHR_ERROR_0512 - Not a HTTPS request
badWsaAction	PCEHR_ERROR_0513 - Invalid WS-addressing action
badWsaTo	PCEHR_ERROR_0514 - WS-addressing "to" field is missing
serviceTemporaryUnavailable	PCEHR_ERROR_0515 - Audit service temporary unavailable
serviceTemporaryUnavailable	PCEHR_ERROR_0516 - Access service temporary unavailable
serviceTemporaryUnavailable	PCEHR_ERROR_0517 - Service temporary unavailable

errorCode	codeContext
serviceTemporaryUnavailable	PCEHR_ERROR_0518 - Back end system temporary unavailable
notAuthorised	PCEHR_ERROR_0519 - System authorisation denied
badSignature	PCEHR_ERROR_0520 - The SOAP request has not been signed, or is signed incorrectly
badAlgorithmC14N	PCEHR_ERROR_0521 - The algorithm used for canonicalizing the data is not acceptable
badAlgorithmDigest	PCEHR_ERROR_0522 - The algorithm used for calculating the digest is not acceptable
badAlgorithmSignature	PCEHR_ERROR_0523 - The algorithm used for signing is not acceptable
badParam	PCEHR_ERROR_0524 - Attachment exceeds maximum supported size
badParam	PCEHR_ERROR_0525 - Request message must be XOP/MTOM
badParam	PCEHR_ERROR_0526 - Attachment MIME type is not supported

4.3.3 XDS.b Responses

This section lists the supported XDS.b responses as per the structure identified in Section 4.1.6 Service Faults.

4.3.3.1 ITI-18 Registry Stored Query service

The following additional responses are supported for the ITI-18 service. The errorCode for the below is "XDSRegistryError".

Table 18 ITI-18 response

contextCode
PCEHR_ERROR_3002 - Document metadata failed validation

4.3.3.2 ITI-41 Provide & Register Document Set – b service

The following additional responses are supported for the ITI-41 service. The errorCode for the below is "XDSRepositoryError".

Table 19 ITI-41 response

contextCode
PCEHR_ERROR_3001 - Invalid document folder structure
PCEHR_ERROR_3002 - Document metadata failed validation
PCEHR_ERROR_3003 - No metadata found
PCEHR_ERROR_3004 - Invalid clinical document
PCEHR_ERROR_3005 - Document validation returned with errors and warnings. Details:<![CDATA..%Validate Templates Response%]>
PCEHR_ERROR_3006 - Document validation returned with errors. Details:<![CDATA..%Validate Templates Response%]>
PCEHR_ERROR_3007 - Document validation returned warnings. Details:<![CDATA..%Validate Templates Response%]>
PCEHR_ERROR_3008 - Invalid template ID for PCEHR

4.3.3.3 ITI-42 Register Document Set - b service

The following additional responses are supported for the ITI-42 service. The errorCode for the contextCodes below is "XDSRegistryError".

Table 20 ITI-42 response

contextCode
PCEHR_ERROR_3002 - Document metadata failed validation
PCEHR_ERROR_3003 - No metadata found
PCEHR_ERROR_3008 - Invalid template ID for PCEHR

4.3.3.4 ITI-43 Retrieve Document Set service

The following additional responses are supported for the ITI-43 service.

The errorCode for below is "XDSRepositoryError".

Table 21 ITI-43 response

contextCode
PCEHR_ERROR_3501 - No metadata found
PCEHR_ERROR_3502 - Insufficient privileges to view the document
PCEHR_ERROR_3503 - Removed document not retrievable from PCEHR
PCEHR_ERROR_3002 - Document metadata failed validation

5 Engineering Viewpoint

The engineering viewpoint includes definitions of mechanisms and functions to support distributed interactions between computational objects as a series of templates (i.e. patterns) for computational interactions. These, in turn, are parameterised to support a range of different policies defined in the enterprise, information or computational specifications.

5.1 Discovery Services

The location of the services exposed by the PCEHR System will be shared between parties before interaction. Dynamic discovery mechanisms will not be provided.

Appendix A XSD and WSDL

A.1 Data Types

A.1.1 IHE Data Types

The IHE XDS.b operations provided within this specification make use of a series of XML Schema Definitions provided by IHE. This specification does not extend, amend or otherwise update the IHE XML Schema Definitions (the WSDLs which use these definitions have been modified and are included in following sections).

The IHE XML Schema Definitions are available from [XDS.b SM].

A.1.2 PCEHR_CommonTypes.xsd

Note: Military Health Number (an element to support the Australian Defence Force's Joint eHealth Data Initiative, *JeDHI*) is included in the PCEHR_CommonTypes XSD to retain alignment of the PCEHR system with the change underway in the HI Service for Military Health Number to be added as a new demographic criteria.

```
<?xml version="1.0" encoding="UTF-8"?>
<!--Version 1.0.2 issued 13 December 2012-->
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns:ns1="http://ns.electronichealth.net.au/pcehr/xsd/common/CommonCoreElements/1.0"
xmlns:ds="http://www.w3.org/2000/09/xmldsig#"
targetNamespace="http://ns.electronichealth.net.au/pcehr/xsd/common/CommonCoreElements/1
.0" elementFormDefault="qualified" attributeFormDefault="unqualified">
   <xs:import namespace="http://www.w3.org/2000/09/xmldsig#" schemaLocation="xmldsig-
core-schema.xsd"/>
   <xs:element name="timestamp" type="ns1:timestampType"/>
   <xs:complexType name="timestampType">
      <xs:sequence>
         <xs:element name="created" type="xs:dateTime" minOccurs="1" maxOccurs="1"/>
         <xs:element name="expires" type="xs:dateTime" minOccurs="0" maxOccurs="1"/>
      </xs:sequence>
   </xs:complexType>
   <xs:element name="signature" type="ns1:signatureContainerType"/>
   <xs:complexType name="signatureContainerType">
      <xs:sequence>
         <xs:element ref="ds:Signature" minOccurs="1" maxOccurs="1"/>
      </xs:sequence>
   </xs:complexType>
   <xs:complexType name="nameType">
      <xs:sequence>
         <xs:element name="nameTitle" minOccurs="0" maxOccurs="1">
            <xs:simpleType>
               <xs:restriction base="xs:string">
                  <xs:maxLength value="40"/>
               </xs:restriction>
            </xs:simpleType>
         </xs:element>
         <xs:element name="familyName" minOccurs="1" maxOccurs="1">
            <xs:simpleType>
               <xs:restriction base="xs:string">
                  <xs:maxLength value="40"/>
                  <xs:minLength value="1"/>
               </xs:restriction>
            </xs:simpleType>
         </xs:element>
         <xs:element name="givenName" minOccurs="0" maxOccurs="2">
            <xs:simpleType>
               <xs:restriction base="xs:string">
                  <xs:minLength value="1"/>
                  <xs:maxLength value="40"/>
               </xs:restriction>
            </xs:simpleType>
         </xs:element>
         <xs:element name="nameSuffix" minOccurs="0" maxOccurs="1">
            <xs:simpleType>
               <xs:restriction base="xs:string">
                  <xs:maxLength value="40"/>
               </xs:restriction>
            </xs:simpleType>
```

```
         </xs:element>
         <xs:element name="nameAlias" minOccurs="0" maxOccurs="1">
            <xs:simpleType>
               <xs:restriction base="xs:string">
                  <xs:maxLength value="40"/>
               </xs:restriction>
            </xs:simpleType>
         </xs:element>
      </xs:sequence>
   </xs:complexType>
   <xs:complexType name="addressType">
      <xs:sequence>
         <xs:element name="type" minOccurs="1" maxOccurs="1">
            <xs:simpleType>
               <xs:restriction base="xs:string">
                  <xs:enumeration value="International"/>
                  <xs:enumeration value="AustralianStreet"/>
                  <xs:enumeration value="AustralianPostal"/>
               </xs:restriction>
            </xs:simpleType>
         </xs:element>
         <xs:element name="state" type="xs:string" minOccurs="1" maxOccurs="1"/>
         <xs:element name="postCode" minOccurs="0" maxOccurs="1">
            <xs:simpleType>
               <xs:restriction base="xs:string">
                  <xs:minLength value="1"/>
                  <xs:maxLength value="4"/>
               </xs:restriction>
            </xs:simpleType>
         </xs:element>
         <xs:element name="suburb" minOccurs="0" maxOccurs="1">
            <xs:simpleType>
               <xs:restriction base="xs:string">
                  <xs:minLength value="1"/>
                  <xs:maxLength value="30"/>
               </xs:restriction>
            </xs:simpleType>
         </xs:element>
         <xs:element name="postalDeliveryGroup" minOccurs="0" maxOccurs="1">
            <xs:complexType>
               <xs:sequence>
                  <xs:element name="postalDeliveryType" type="xs:string" minOccurs="0"
maxOccurs="1"/>
                  <xs:element name="postalDeliveryNumber" minOccurs="0" maxOccurs="1">
                     <xs:simpleType>
                        <xs:restriction base="xs:string">
                           <xs:minLength value="1"/>
                           <xs:maxLength value="11"/>
                        </xs:restriction>
                     </xs:simpleType>
                  </xs:element>
               </xs:sequence>
            </xs:complexType>
         </xs:element>
         <xs:element name="addressSiteName" minOccurs="0" maxOccurs="1">
            <xs:simpleType>
               <xs:restriction base="xs:string">
                  <xs:maxLength value="30"/>
               </xs:restriction>
            </xs:simpleType>
         </xs:element>
         <xs:element name="unitGroup" minOccurs="0" maxOccurs="1">
            <xs:complexType>
               <xs:sequence>
                  <xs:element name="unitType" type="xs:string" minOccurs="0"
maxOccurs="1"/>
                  <xs:element name="unitNumber" minOccurs="0" maxOccurs="1">
                     <xs:simpleType>
                        <xs:restriction base="xs:string">
                           <xs:minLength value="1"/>
                           <xs:maxLength value="6"/>
                        </xs:restriction>
                     </xs:simpleType>
                  </xs:element>
               </xs:sequence>
            </xs:complexType>
         </xs:element>
         <xs:element name="levelGroup" minOccurs="0" maxOccurs="1">
            <xs:complexType>
               <xs:sequence>
                  <xs:element name="levelType" type="xs:string" minOccurs="0"
maxOccurs="1"/>
                  <xs:element name="levelNumber" minOccurs="0" maxOccurs="1">
```

```
                  <xs:simpleType>
                     <xs:restriction base="xs:string">
                        <xs:minLength value="1"/>
                        <xs:maxLength value="4"/>
                     </xs:restriction>
                  </xs:simpleType>
               </xs:element>
            </xs:sequence>
         </xs:complexType>
      </xs:element>
      <xs:element name="lotNumber" minOccurs="0" maxOccurs="1">
         <xs:simpleType>
            <xs:restriction base="xs:string">
               <xs:minLength value="1"/>
               <xs:maxLength value="15"/>
            </xs:restriction>
         </xs:simpleType>
      </xs:element>
      <xs:element name="streetNumber" minOccurs="0" maxOccurs="1">
         <xs:simpleType>
            <xs:restriction base="xs:string">
               <xs:minLength value="1"/>
               <xs:maxLength value="12"/>
            </xs:restriction>
         </xs:simpleType>
      </xs:element>
      <xs:element name="streetName" minOccurs="0" maxOccurs="1">
         <xs:simpleType>
            <xs:restriction base="xs:string">
               <xs:minLength value="1"/>
               <xs:maxLength value="30"/>
            </xs:restriction>
         </xs:simpleType>
      </xs:element>
      <xs:element name="streetType" type="xs:string" minOccurs="0" maxOccurs="1"/>
      <xs:element name="streetSuffix" type="xs:string" minOccurs="0" maxOccurs="1"/>
      <xs:element name="country" type="xs:string" minOccurs="0" maxOccurs="1"/>
      <xs:element name="internationalAddressLine" minOccurs="0" maxOccurs="1">
         <xs:simpleType>
            <xs:restriction base="xs:string">
               <xs:minLength value="1"/>
               <xs:maxLength value="120"/>
            </xs:restriction>
         </xs:simpleType>
      </xs:element>
   </xs:sequence>
</xs:complexType>
<xs:complexType name="responseStatusType">
   <xs:sequence>
      <xs:element name="code" minOccurs="1" maxOccurs="1">
         <xs:simpleType>
            <xs:restriction base="xs:string">
               <xs:minLength value="1"/>
            </xs:restriction>
         </xs:simpleType>
      </xs:element>
      <xs:element name="description" type="xs:string" minOccurs="1" maxOccurs="1"/>
      <xs:element name="details" type="xs:string" minOccurs="0" maxOccurs="1"/>
   </xs:sequence>
</xs:complexType>
<xs:simpleType name="statusType">
   <xs:restriction base="xs:string">
      <xs:enumeration value="Active"/>
      <xs:enumeration value="Deceased"/>
      <xs:enumeration value="Retired"/>
      <xs:enumeration value="Resolved"/>
      <xs:enumeration value="Expired"/>
   </xs:restriction>
</xs:simpleType>
<xs:element name="medicareCardNumber">
   <xs:simpleType>
      <xs:restriction base="xs:token">
         <xs:minLength value="10"/>
         <xs:maxLength value="10"/>
      </xs:restriction>
   </xs:simpleType>
</xs:element>
<xs:element name="medicareIRN">
   <xs:simpleType>
      <xs:restriction base="xs:integer">
         <xs:minInclusive value="1"/>
         <xs:maxInclusive value="9"/>
      </xs:restriction>
```

```
      </xs:simpleType>
   </xs:element>
   <xs:element name="dvaFileNumber">
      <xs:simpleType>
         <xs:restriction base="xs:token">
            <xs:minLength value="2"/>
            <xs:maxLength value="9"/>
         </xs:restriction>
      </xs:simpleType>
   </xs:element>
   <xs:simpleType name="recordStatusType">
      <xs:restriction base="xs:string">
         <xs:enumeration value="Verified"/>
         <xs:enumeration value="Unverified"/>
      </xs:restriction>
   </xs:simpleType>
   <xs:element name="PCEHRHeader">
      <xs:complexType>
         <xs:sequence>
            <xs:element name="User" minOccurs="1" maxOccurs="1">
               <xs:complexType>
                  <xs:sequence>
                     <xs:element name="IDType" minOccurs="1" maxOccurs="1">
                        <xs:simpleType>
                           <xs:restriction base="xs:string">
                              <xs:enumeration value="HPII"/>
                              <xs:enumeration value="PortalUserIdentifier"/>
                              <xs:enumeration value="LocalSystemIdentifier"/>
                           </xs:restriction>
                        </xs:simpleType>
                     </xs:element>
                     <xs:element name="ID" type="xs:string" minOccurs="1"
maxOccurs="1"/>
                     <xs:element name="role" type="xs:string" minOccurs="0"
maxOccurs="1"/>
                     <xs:element name="userName" type="xs:string" minOccurs="1"
maxOccurs="1"/>
                     <xs:element name="useRoleForAudit" type="xs:boolean" minOccurs="1"
maxOccurs="1"/>
                  </xs:sequence>
               </xs:complexType>
            </xs:element>
            <xs:element ref="ns1:ihiNumber" minOccurs="0" maxOccurs="1"/>
            <xs:element name="productType" minOccurs="1" maxOccurs="1">
               <xs:complexType>
                  <xs:sequence>
                     <xs:element name="vendor" type="xs:string" minOccurs="1"
maxOccurs="1"/>
                     <xs:element name="productName" type="xs:string" minOccurs="1"
maxOccurs="1"/>
                     <xs:element name="productVersion" type="xs:string" minOccurs="1"
maxOccurs="1"/>
                     <xs:element name="platform" type="xs:string" minOccurs="1"
maxOccurs="1"/>
                  </xs:sequence>
               </xs:complexType>
            </xs:element>
            <xs:element name="clientSystemType" minOccurs="1" maxOccurs="1">
               <xs:simpleType>
                  <xs:restriction base="xs:string">
                     <xs:enumeration value="CIS"/>
                     <xs:enumeration value="CSP"/>
                     <xs:enumeration value="CRP"/>
                     <xs:enumeration value="HI"/>
                     <xs:enumeration value="Medicare"/>
                     <xs:enumeration value="CPP"/>
                     <xs:enumeration value="CCP"/>
                     <xs:enumeration value="Other"/>
                  </xs:restriction>
               </xs:simpleType>
            </xs:element>
            <xs:element name="accessingOrganisation" minOccurs="0" maxOccurs="1">
               <xs:complexType>
                  <xs:sequence>
                     <xs:element name="organisationID" type="xs:string" minOccurs="1"
maxOccurs="1"/>
                     <xs:element name="organisationName" type="xs:string" minOccurs="1"
maxOccurs="1"/>
                     <xs:element name="alternateOrganisationName" type="xs:string"
minOccurs="0" maxOccurs="1"/>
                  </xs:sequence>
               </xs:complexType>
            </xs:element>
```

```
      </xs:sequence>
   </xs:complexType>
</xs:element>
<xs:element name="PCEHRMobileHeader">
   <xs:complexType>
      <xs:sequence>
         <xs:element ref="ns1:ihiNumber" minOccurs="0" maxOccurs="1"/>
      </xs:sequence>
   </xs:complexType>
</xs:element>
<xs:element name="sex">
   <xs:simpleType>
      <xs:restriction base="xs:string">
         <xs:enumeration value="M"/>
         <xs:enumeration value="F"/>
         <xs:enumeration value="I"/>
         <xs:enumeration value="N"/>
      </xs:restriction>
   </xs:simpleType>
</xs:element>
<xs:complexType name="accessConditionsType">
   <xs:sequence>
      <xs:element name="accessLevel" minOccurs="0" maxOccurs="1">
         <xs:simpleType>
            <xs:restriction base="xs:string">
               <xs:enumeration value="Self"/>
               <xs:enumeration value="General"/>
               <xs:enumeration value="Limited"/>
            </xs:restriction>
         </xs:simpleType>
      </xs:element>
      <xs:element name="accessPermission" minOccurs="0" maxOccurs="1">
         <xs:simpleType>
            <xs:restriction base="xs:string">
               <xs:enumeration value="Permit"/>
               <xs:enumeration value="Deny"/>
            </xs:restriction>
         </xs:simpleType>
      </xs:element>
      <xs:element name="accessConditions" minOccurs="0" maxOccurs="1">
         <xs:simpleType>
            <xs:restriction base="xs:string">
               <xs:enumeration value="OpenAccess"/>
               <xs:enumeration value="AccessRevoked"/>
               <xs:enumeration value="PACAccess"/>
               <xs:enumeration value="PACXAccess"/>
               <xs:enumeration value="EmergencyAccess"/>
               <xs:enumeration value="LocalConsentAccess"/>
               <xs:enumeration value="AuthorisedRepresentativeAccess"/>
               <xs:enumeration value="NominatedRepresentativeAccess"/>
               <xs:enumeration value="IncorrectCode"/>
               <xs:enumeration value="LocalConsentAccessDenied"/>
               <xs:enumeration value="AccessRevoked"/>
            </xs:restriction>
         </xs:simpleType>
      </xs:element>
   </xs:sequence>
</xs:complexType>
<xs:complexType name="organisationServiceType">
   <xs:sequence>
      <xs:element name="organisationType" minOccurs="1" maxOccurs="1">
         <xs:simpleType>
            <xs:restriction base="xs:string">
               <xs:maxLength value="7"/>
            </xs:restriction>
         </xs:simpleType>
      </xs:element>
      <xs:element name="organisationServiceType" minOccurs="1" maxOccurs="1">
         <xs:simpleType>
            <xs:restriction base="xs:string">
               <xs:maxLength value="7"/>
            </xs:restriction>
         </xs:simpleType>
      </xs:element>
      <xs:element name="organisationServiceUnit" minOccurs="0" maxOccurs="1">
         <xs:simpleType>
            <xs:restriction base="xs:string">
               <xs:maxLength value="1000"/>
            </xs:restriction>
         </xs:simpleType>
      </xs:element>
      <xs:element name="serviceComments" minOccurs="0" maxOccurs="1">
         <xs:simpleType>
```

```
               <xs:restriction base="xs:string">
                  <xs:maxLength value="250"/>
               </xs:restriction>
            </xs:simpleType>
         </xs:element>
         <xs:element name="complexDate" minOccurs="1" maxOccurs="unbounded">
            <xs:complexType>
               <xs:sequence>
                  <xs:element name="type" minOccurs="1" maxOccurs="1">
                     <xs:simpleType>
                        <xs:restriction base="xs:string">
                           <xs:enumeration value="StartDate"/>
                           <xs:enumeration value="EndDate"/>
                        </xs:restriction>
                     </xs:simpleType>
                  </xs:element>
                  <xs:element name="date" type="xs:date" minOccurs="1" maxOccurs="1"/>
                  <xs:element name="accuracyIndicator" type="xs:string" minOccurs="1"
maxOccurs="1"/>
               </xs:sequence>
            </xs:complexType>
         </xs:element>
      </xs:sequence>
   </xs:complexType>
   <xs:complexType name="organisationType">
      <xs:sequence>
         <xs:element ref="ns1:ihiNumber" minOccurs="1" maxOccurs="1"/>
         <xs:element name="name" type="xs:string" minOccurs="1" maxOccurs="unbounded"/>
         <xs:element name="organisationService" type="ns1:organisationServiceType"
minOccurs="1" maxOccurs="unbounded"/>
         <xs:element name="participatingOrganisation" minOccurs="0"
maxOccurs="unbounded">
            <xs:complexType>
               <xs:sequence>
                  <xs:element ref="ns1:ihiNumber" minOccurs="1" maxOccurs="1"/>
                  <xs:element name="name" type="xs:string" minOccurs="1"
maxOccurs="unbounded"/>
                  <xs:element name="organisationService"
type="ns1:organisationServiceType" minOccurs="1" maxOccurs="unbounded"/>
               </xs:sequence>
            </xs:complexType>
         </xs:element>
      </xs:sequence>
   </xs:complexType>
   <xs:complexType name="participantDetailsType">
      <xs:sequence>
         <xs:element name="providerID" minOccurs="0" maxOccurs="1">
            <xs:simpleType>
               <xs:restriction base="xs:string"/>
            </xs:simpleType>
         </xs:element>
         <xs:element name="providerName" type="xs:string" minOccurs="0" maxOccurs="1"/>
         <xs:element name="accessingHPIO" minOccurs="0" maxOccurs="1">
            <xs:simpleType>
               <xs:restriction base="xs:string"/>
            </xs:simpleType>
         </xs:element>
         <xs:element name="accessingHPIOName" minOccurs="0" maxOccurs="1">
            <xs:simpleType>
               <xs:restriction base="xs:string"/>
            </xs:simpleType>
         </xs:element>
         <xs:element name="participatingHPIO" minOccurs="0" maxOccurs="1">
            <xs:simpleType>
               <xs:restriction base="xs:string"/>
            </xs:simpleType>
         </xs:element>
         <xs:element name="participatingHPIOName" type="xs:string" minOccurs="0"
maxOccurs="1"/>
         <xs:element name="userID" type="xs:string" minOccurs="0" maxOccurs="1"/>
         <xs:element name="userName" type="xs:string" minOccurs="0" maxOccurs="1"/>
         <xs:element name="displayRole" minOccurs="0" maxOccurs="1">
            <xs:simpleType>
               <xs:restriction base="xs:string"/>
            </xs:simpleType>
         </xs:element>
      </xs:sequence>
   </xs:complexType>
   <xs:complexType name="accessedEntityType">
      <xs:sequence>
         <xs:element ref="ns1:ihiNumber" minOccurs="0" maxOccurs="1"/>
         <xs:element name="ihiName" type="xs:string" minOccurs="0" maxOccurs="1"/>
         <xs:element name="subjectType" type="xs:string" minOccurs="0" maxOccurs="1"/>
```

```
         <xs:element name="subject" type="xs:string" minOccurs="0" maxOccurs="1"/>
      </xs:sequence>
   </xs:complexType>
   <xs:complexType name="participantActionType">
      <xs:sequence>
         <xs:element name="actionType" minOccurs="0" maxOccurs="1">
            <xs:simpleType>
               <xs:restriction base="xs:string">
                  <xs:enumeration value="Create"/>
                  <xs:enumeration value="Read"/>
                  <xs:enumeration value="Update"/>
                  <xs:enumeration value="Delete"/>
               </xs:restriction>
            </xs:simpleType>
         </xs:element>
         <xs:element name="operationPerformed" type="xs:string" minOccurs="0"
maxOccurs="1"/>
         <xs:element name="reason" minOccurs="0" maxOccurs="1">
            <xs:simpleType>
               <xs:restriction base="xs:string">
                  <xs:enumeration value="IncorrectIdentity"/>
                  <xs:enumeration value="MedicalInaccuracy"/>
                  <xs:enumeration value="ElectToRemove"/>
                  <xs:enumeration value="IHIStatusIsDeceased"/>
                  <xs:enumeration value="NoLegallyAppointmentAuthorised"/>
                  <xs:enumeration value="NoOwnershipOfPCEHR"/>
                  <xs:enumeration value="IHINotActive"/>
                  <xs:enumeration value="IHINotVerified"/>
                  <xs:enumeration value="TermsAndConditionsWereNotAccepted"/>
                  <xs:enumeration value="Death"/>
                  <xs:enumeration value="WithdrawalFromParticipation"/>
               </xs:restriction>
            </xs:simpleType>
         </xs:element>
         <xs:element name="approvalDateTime" type="xs:dateTime" minOccurs="0"
maxOccurs="1"/>
         <xs:element name="approvalRole" type="xs:string" minOccurs="0" maxOccurs="1"/>
         <xs:element name="approvalName" type="xs:string" minOccurs="0" maxOccurs="1"/>
         <xs:element name="statusPriorDeactivation" type="xs:string" minOccurs="0"
maxOccurs="1"/>
      </xs:sequence>
   </xs:complexType>
   <xs:element name="ihiNumber">
      <xs:simpleType>
         <xs:restriction base="xs:string">
            <xs:minLength value="16"/>
            <xs:maxLength value="16"/>
         </xs:restriction>
      </xs:simpleType>
   </xs:element>
   <xs:element name="militaryHealthNumber" type="xs:string"/>
   <xs:element name="dateAccuracyIndicatorType">
      <xs:simpleType>
         <xs:restriction base="xs:string">
            <xs:length value="3"/>
            <xs:enumeration value="AAA">
               <xs:annotation>
                  <xs:documentation>Accurate day, accurate month, accurate
year</xs:documentation>
               </xs:annotation>
            </xs:enumeration>
            <xs:enumeration value="AAE">
               <xs:annotation>
                  <xs:documentation>Accurate day, accurate month, estimated
year</xs:documentation>
               </xs:annotation>
            </xs:enumeration>
            <xs:enumeration value="AAU">
               <xs:annotation>
                  <xs:documentation>Accurate day, accurate month, unknown
year</xs:documentation>
               </xs:annotation>
            </xs:enumeration>
            <xs:enumeration value="AEA">
               <xs:annotation>
                  <xs:documentation>Accurate day, estimated month, accurate
year</xs:documentation>
               </xs:annotation>
            </xs:enumeration>
            <xs:enumeration value="AEE">
               <xs:annotation>
                  <xs:documentation>Accurate day, estimated month, estimated
year</xs:documentation>
```

```
               </xs:annotation>
            </xs:enumeration>
            <xs:enumeration value="AEU">
               <xs:annotation>
                  <xs:documentation>Accurate day, estimated month, unknown
year</xs:documentation>
               </xs:annotation>
            </xs:enumeration>
            <xs:enumeration value="AUA">
               <xs:annotation>
                  <xs:documentation>Accurate day, unknown month, accurate
year</xs:documentation>
               </xs:annotation>
            </xs:enumeration>
            <xs:enumeration value="AUE">
               <xs:annotation>
                  <xs:documentation>Accurate day, unknown month, estimated
year</xs:documentation>
               </xs:annotation>
            </xs:enumeration>
            <xs:enumeration value="AUU">
               <xs:annotation>
                  <xs:documentation>Accurate day, unknown month, unknown
year</xs:documentation>
               </xs:annotation>
            </xs:enumeration>
            <xs:enumeration value="EAA">
               <xs:annotation>
                  <xs:documentation>Estimated day, accurate month, accurate
year</xs:documentation>
               </xs:annotation>
            </xs:enumeration>
            <xs:enumeration value="EAE">
               <xs:annotation>
                  <xs:documentation>Estimated day, accurate month, estimated
year</xs:documentation>
               </xs:annotation>
            </xs:enumeration>
            <xs:enumeration value="EAU">
               <xs:annotation>
                  <xs:documentation>Estimated day, accurate month, unknown
year</xs:documentation>
               </xs:annotation>
            </xs:enumeration>
            <xs:enumeration value="EEA">
               <xs:annotation>
                  <xs:documentation>Estimated day, estimated month, accurate
year</xs:documentation>
               </xs:annotation>
            </xs:enumeration>
            <xs:enumeration value="EEE">
               <xs:annotation>
                  <xs:documentation>Estimated day, estimated month, estimated
year</xs:documentation>
               </xs:annotation>
            </xs:enumeration>
            <xs:enumeration value="EEU">
               <xs:annotation>
                  <xs:documentation>Estimated day, estimated month, unknown
year</xs:documentation>
               </xs:annotation>
            </xs:enumeration>
            <xs:enumeration value="EUA">
               <xs:annotation>
                  <xs:documentation>Estimated day, unknown month, accurate
year</xs:documentation>
               </xs:annotation>
            </xs:enumeration>
            <xs:enumeration value="EUE">
               <xs:annotation>
                  <xs:documentation>Estimated day, unknown month, estimated
year</xs:documentation>
               </xs:annotation>
            </xs:enumeration>
            <xs:enumeration value="EUU">
               <xs:annotation>
                  <xs:documentation>Estimated day, unknown month, unknown
year</xs:documentation>
               </xs:annotation>
            </xs:enumeration>
            <xs:enumeration value="UAA">
               <xs:annotation>
```

```
                  <xs:documentation>Unknown day, accurate month, accurate
year</xs:documentation>
               </xs:annotation>
            </xs:enumeration>
            <xs:enumeration value="UAE">
               <xs:annotation>
                  <xs:documentation>Unknown day, accurate month, estimated
year</xs:documentation>
               </xs:annotation>
            </xs:enumeration>
            <xs:enumeration value="UAU">
               <xs:annotation>
                  <xs:documentation>Unknown day, accurate month, unknown
year</xs:documentation>
               </xs:annotation>
            </xs:enumeration>
            <xs:enumeration value="UEA">
               <xs:annotation>
                  <xs:documentation>Unknown day, estimated month, accurate
year</xs:documentation>
               </xs:annotation>
            </xs:enumeration>
            <xs:enumeration value="UEE">
               <xs:annotation>
                  <xs:documentation>Unknown day, estimated month, estimated
year</xs:documentation>
               </xs:annotation>
            </xs:enumeration>
            <xs:enumeration value="UEU">
               <xs:annotation>
                  <xs:documentation>Unknown day, estimated month, unknown
year</xs:documentation>
               </xs:annotation>
            </xs:enumeration>
            <xs:enumeration value="UUA">
               <xs:annotation>
                  <xs:documentation>Unknown day, unknown month, accurate
year</xs:documentation>
               </xs:annotation>
            </xs:enumeration>
            <xs:enumeration value="UUE">
               <xs:annotation>
                  <xs:documentation>Unknown day, unknown month, estimated
year</xs:documentation>
               </xs:annotation>
            </xs:enumeration>
            <xs:enumeration value="UUU">
               <xs:annotation>
                  <xs:documentation>Unknown day, unknown month, unknown
year</xs:documentation>
               </xs:annotation>
            </xs:enumeration>
         </xs:restriction>
      </xs:simpleType>
   </xs:element>
</xs:schema>
```

A.1.3 PCEHR_RemoveDocument.xsd

```
<?xml version="1.0" encoding="UTF-8"?>
<!--Version 1.0.1 issued 17 April 2012-->
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:ns1="http://ns.electronichealth.net.au/pcehr/xsd/common/CommonCoreElements/1.0"
xmlns:ns2="http://ns.electronichealth.net.au/pcehr/xsd/interfaces/RemoveDocument/1.0"
targetNamespace="http://ns.electronichealth.net.au/pcehr/xsd/interfaces/RemoveDocument/1
.0" elementFormDefault="qualified" attributeFormDefault="unqualified">
   <xs:import
namespace="http://ns.electronichealth.net.au/pcehr/xsd/common/CommonCoreElements/1.0"
schemaLocation="../Common/PCEHR_CommonTypes.xsd"/>
   <xs:element name="removeDocument">
      <xs:complexType>
         <xs:sequence>
            <xs:element name="documentID" type="xs:string"/>
            <xs:element name="reasonForRemoval">
               <xs:simpleType>
                  <xs:restriction base="xs:string">
                     <xs:enumeration value="Withdrawn"/>
                     <xs:enumeration value="ElectToRemove"/>
                     <xs:enumeration value="IncorrectIdentity"/>
                  </xs:restriction>
```

```
            </xs:simpleType>
         </xs:element>
      </xs:sequence>
   </xs:complexType>
</xs:element>
<xs:element name="removeDocumentResponse">
   <xs:complexType>
      <xs:sequence>
         <xs:element name="responseStatus" type="ns1:responseStatusType"/>
      </xs:sequence>
   </xs:complexType>
</xs:element>
</xs:schema>
```

A.2 XDS.b interfaces

A.2.1 Interface Definition

The following WSDLs define the PCEHR Specific versions of the IHE XDS.b Web Services.

A.2.1.1 B2B_DocumentRepository.wsdl

```
<?xml version="1.0" encoding="UTF-8"?>
<!--Version 1.1.1 issued 17 April 2012-->
<definitions xmlns="http://schemas.xmlsoap.org/wsdl/"
xmlns:pcehr="http://ns.electronichealth.net.au/pcehr/xsd/common/CommonCoreElements/1.0"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:ihe="urn:ihe:iti:xds-b:2007"
xmlns:rs="urn:oasis:names:tc:ebxml-regrep:xsd:rs:3.0"
xmlns:soap12="http://schemas.xmlsoap.org/wsdl/soap12/"
xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl" xmlns:sp="http://docs.oasis-
open.org/ws-sx/ws-securitypolicy/200702"
xmlns:wsam="http://www.w3.org/2007/05/addressing/metadata"
xmlns:wsp="http://www.w3.org/ns/ws-policy" name="DocumentRepository"
targetNamespace="urn:ihe:iti:xds-b:2007">
   <documentation>IHE XDS.b Document Repository</documentation>
   <types>
      <xsd:schema elementFormDefault="qualified" targetNamespace="urn:ihe:iti:xds-
b:2007">
         <!-- Include the message schema -->
         <xsd:include
schemaLocation="../../schema/External/XDS.b_DocumentRepository.xsd"/>
      </xsd:schema>
      <xsd:schema elementFormDefault="qualified"
targetNamespace="http://ns.electronichealth.net.au/pcehr/xsd/common/CommonCoreElements/1
.0">
         <!-- Include the message schema -->
         <xsd:include schemaLocation="../../schema/Common/PCEHR_CommonTypes.xsd"/>
      </xsd:schema>
         <xsd:schema elementFormDefault="qualified"
targetNamespace="urn:oasis:names:tc:ebxml-regrep:xsd:rs:3.0">
         <!-- Include the message schema -->
         <xsd:include schemaLocation="../../schema/External/rs.xsd"/>
      </xsd:schema>
      <xsd:schema elementFormDefault="qualified"
targetNamespace="urn:oasis:names:tc:ebxml-regrep:xsd:rs:3.0">
         <!-- Include the message schema -->
         <xsd:include schemaLocation="../../schema/External/rs.xsd"/>
      </xsd:schema>
   </types>
   <message name="RetrieveDocumentSet_Message">
      <documentation>Retrieve Document Set</documentation>
      <part name="timestampHeader" element="pcehr:timestamp"/>
      <part name="signatureHeader" element="pcehr:signature"/>
      <part name="PCEHRHeader" element="pcehr:PCEHRHeader"/>
      <part name="parameters" element="ihe:RetrieveDocumentSetRequest"/>
   </message>
   <message name="RetrieveDocumentSetResponse_Message">
      <documentation>Retrieve Document Set Response</documentation>
      <part name="signatureHeader" element="pcehr:signature"/>
      <part name="parameters" element="ihe:RetrieveDocumentSetResponse"/>
   </message>
   <message name="ProvideAndRegisterDocumentSet-b_Message">
      <documentation>Provide and Register Document Set</documentation>
      <part name="timestampHeader" element="pcehr:timestamp"/>
      <part name="signatureHeader" element="pcehr:signature"/>
      <part name="PCEHRHeader" element="pcehr:PCEHRHeader"/>
```

```
      <part name="parameters" element="ihe:ProvideAndRegisterDocumentSetRequest"/>
   </message>
   <message name="ProvideAndRegisterDocumentSet-bResponse_Message">
      <documentation>Provide And Register Document Set Response</documentation>
      <part name="signatureHeader" element="pcehr:signature"/>
      <part name="parameters" element="rs:RegistryResponse"/>
   </message>
   <portType name="DocumentRepository_PortType">
      <operation name="DocumentRepository_RetrieveDocumentSet">
         <input message="ihe:RetrieveDocumentSet_Message"
wsaw:Action="urn:ihe:iti:2007:RetrieveDocumentSet"/>
         <output message="ihe:RetrieveDocumentSetResponse_Message"
wsaw:Action="urn:ihe:iti:2007:RetrieveDocumentSetResponse"/>
      </operation>
      <operation name="DocumentRepository_ProvideAndRegisterDocumentSet-b">
         <input message="ihe:ProvideAndRegisterDocumentSet-b_Message"
wsaw:Action="urn:ihe:iti:2007:ProvideAndRegisterDocumentSet-b"/>
         <output message="ihe:ProvideAndRegisterDocumentSet-bResponse_Message"
wsaw:Action="urn:ihe:iti:2007:ProvideAndRegisterDocumentSet-bResponse"/>
      </operation>
   </portType>
   <binding name="DocumentRepository_Binding" type="ihe:DocumentRepository_PortType">
      <soap12:binding style="document"
transport="http://schemas.xmlsoap.org/soap/http"/>
      <wsp:PolicyReference URI="#AddressingPolicy"/>
      <wsp:PolicyReference URI="#TlsPolicy"/>
      <operation name="DocumentRepository_ProvideAndRegisterDocumentSet-b">
         <soap12:operation soapActionRequired="false" style="document"/>
         <input>
            <soap12:header message="ihe:ProvideAndRegisterDocumentSet-b_Message"
part="timestampHeader" use="literal"/>
            <soap12:header message="ihe:ProvideAndRegisterDocumentSet-b_Message"
part="signatureHeader" use="literal"/>
            <soap12:header message="ihe:ProvideAndRegisterDocumentSet-b_Message"
part="PCEHRHeader" use="literal"/>
            <soap12:body parts="parameters" use="literal"/>
         </input>
         <output>
            <soap12:header message="ihe:ProvideAndRegisterDocumentSet-bResponse_Message"
part="signatureHeader" use="literal"/>
            <soap12:body parts="parameters" use="literal"/>
         </output>
      </operation>
      <operation name="DocumentRepository_RetrieveDocumentSet">
         <soap12:operation soapActionRequired="false" style="document"/>
         <input>
            <soap12:header message="ihe:RetrieveDocumentSet_Message"
part="timestampHeader" use="literal"/>
            <soap12:header message="ihe:RetrieveDocumentSet_Message"
part="signatureHeader" use="literal"/>
            <soap12:header message="ihe:RetrieveDocumentSet_Message" part="PCEHRHeader"
use="literal"/>
            <soap12:body parts="parameters" use="literal"/>
         </input>
         <output>
            <soap12:header message="ihe:RetrieveDocumentSetResponse_Message"
part="signatureHeader" use="literal"/>
            <soap12:body parts="parameters" use="literal"/>
         </output>
      </operation>
   </binding>
   <service name="DocumentRepository_Service">
      <port name="DocumentRepository_Port_Soap12"
binding="ihe:DocumentRepository_Binding">
         <soap12:address location="http://servicelocation/DocumentRepository_Service"/>
      </port>
   </service>
   <wsp:Policy xml:id="AddressingPolicy">
      <wsam:Addressing/>
   </wsp:Policy>
   <wsp:Policy xml:id="TlsPolicy">
      <sp:TransportBinding>
         <wsp:Policy>
            <sp:TransportToken>
               <wsp:Policy>
                  <sp:HttpsToken>
                     <wsp:Policy>
                        <sp:RequireClientCertificate/>
                     </wsp:Policy>
                  </sp:HttpsToken>
               </wsp:Policy>
            </sp:TransportToken>
         </wsp:Policy>
```

```
      </sp:TransportBinding>
   </wsp:Policy>
</definitions>
```

A.2.1.2 B2B_DocumentRegistry-.wsdl

```
<?xml version="1.0" encoding="UTF-8"?>
<!--Version 1.1 issued 17 April 2012-->
<definitions xmlns="http://schemas.xmlsoap.org/wsdl/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:ihe="urn:ihe:iti:xds-b:2007"
xmlns:query="urn:oasis:names:tc:ebxml-regrep:xsd:query:3.0"
xmlns:lcm="urn:oasis:names:tc:ebxml-regrep:xsd:lcm:3.0"
xmlns:rs="urn:oasis:names:tc:ebxml-regrep:xsd:rs:3.0"
xmlns:soap12="http://schemas.xmlsoap.org/wsdl/soap12/"
xmlns:wsam="http://www.w3.org/2007/05/addressing/metadata"
xmlns:wsp="http://www.w3.org/ns/ws-policy" xmlns:sp="http://docs.oasis-open.org/ws-
sx/ws-securitypolicy/200702" xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl"
xmlns:pcehr_b2b="http://ns.electronichealth.net.au/pcehr/xsd/common/CommonCoreElements/1
.0" name="DocumentRegistry" targetNamespace="urn:ihe:iti:xds-b:2007">
   <documentation>IHE XDS.b Document Registry</documentation>
   <types>
      <xsd:schema elementFormDefault="qualified"
targetNamespace="urn:oasis:names:tc:ebxml-regrep:xsd:query:3.0">
         <!-- Include the message schema -->
         <xsd:include schemaLocation="../../schema/External/query.xsd"/>
      </xsd:schema>
      <xsd:schema elementFormDefault="qualified"
targetNamespace="urn:oasis:names:tc:ebxml-regrep:xsd:rs:3.0">
         <!-- Include the message schema -->
         <xsd:include schemaLocation="../../schema/External/rs.xsd"/>
      </xsd:schema>
      <xsd:schema elementFormDefault="qualified"
targetNamespace="urn:oasis:names:tc:ebxml-regrep:xsd:lcm:3.0">
         <!-- Include the message schema -->
         <xsd:include schemaLocation="../../schema/External/lcm.xsd"/>
      </xsd:schema>
      <!-- While no elements are directly used from this schema in the WSDL, it needs to
be present here in order for
      code generating toolkits to work properly -->
      <xsd:schema elementFormDefault="qualified"
targetNamespace="http://ns.electronichealth.net.au/pcehr/xsd/common/CommonCoreElements/1
.0">
         <!-- Include the message schema -->
         <xsd:include schemaLocation="../../schema/Common/PCEHR_CommonTypes.xsd"/>
      </xsd:schema>
   </types>
   <message name="RegistryStoredQuery_Message">
      <documentation>Registry Stored Query</documentation>
      <part name="timestampHeader" element="pcehr_b2b:timestamp"/>
      <part name="signatureHeader" element="pcehr_b2b:signature"/>
      <part name="PCEHRHeader" element="pcehr_b2b:PCEHRHeader"/>
      <part name="parameters" element="query:AdhocQueryRequest"/>
   </message>
   <message name="RegistryStoredQueryResponse_Message">
      <documentation>Registry Stored Query Response</documentation>
      <part name="signatureHeader" element="pcehr_b2b:signature"/>
      <part name="parameters" element="query:AdhocQueryResponse"/>
   </message>
   <message name="RegisterDocumentSet-b_Message">
      <documentation>Register Document Set - b</documentation>
      <part name="timestampHeader" element="pcehr_b2b:timestamp"/>
      <part name="signatureHeader" element="pcehr_b2b:signature"/>
      <part name="PCEHRHeader" element="pcehr_b2b:PCEHRHeader"/>
      <part name="parameters" element="lcm:SubmitObjectsRequest"/>
   </message>
   <message name="RegisterDocumentSet-bResponse_Message">
      <documentation>Register Document Set - b Response</documentation>
      <part name="signatureHeader" element="pcehr_b2b:signature"/>
      <part name="parameters" element="rs:RegistryResponse"/>
   </message>
   <portType name="DocumentRegistry_PortType">
      <operation name="DocumentRegistry_RegisterDocumentSet-b">
         <input message="ihe:RegisterDocumentSet-b_Message"
wsaw:Action="urn:ihe:iti:2007:RegisterDocumentSet-b"/>
         <output message="ihe:RegisterDocumentSet-bResponse_Message"
wsaw:Action="urn:ihe:iti:2007:RegisterDocumentSet-bResponse"/>
      </operation>
      <operation name="DocumentRegistry_RegistryStoredQuery">
         <input message="ihe:RegistryStoredQuery_Message"
wsaw:Action="urn:ihe:iti:2007:RegistryStoredQuery"/>
```

```
         <output message="ihe:RegistryStoredQueryResponse_Message"
wsaw:Action="urn:ihe:iti:2007:RegistryStoredQueryResponse"/>
      </operation>
   </portType>
   <binding name="DocumentRegistry_Binding_Soap12" type="ihe:DocumentRegistry_PortType">
      <soap12:binding style="document"
transport="http://schemas.xmlsoap.org/soap/http"/>
      <wsp:PolicyReference URI="#AddressingPolicy"/>
      <wsp:PolicyReference URI="#TlsPolicy"/>
      <operation name="DocumentRegistry_RegisterDocumentSet-b">
         <soap12:operation soapActionRequired="false" style="document"/>
         <input>
            <soap12:header message="ihe:RegisterDocumentSet-b_Message"
part="timestampHeader" use="literal"/>
            <soap12:header message="ihe:RegisterDocumentSet-b_Message"
part="signatureHeader" use="literal"/>
            <soap12:header message="ihe:RegisterDocumentSet-b_Message"
part="PCEHRHeader" use="literal"/>
            <soap12:body parts="parameters" use="literal"/>
         </input>
         <output>
            <soap12:header message="ihe:RegisterDocumentSet-bResponse_Message"
part="signatureHeader" use="literal"/>
            <soap12:body parts="parameters" use="literal"/>
         </output>
      </operation>
      <operation name="DocumentRegistry_RegistryStoredQuery">
         <soap12:operation soapActionRequired="false" style="document"/>
         <input>
            <soap12:header message="ihe:RegistryStoredQuery_Message"
part="timestampHeader" use="literal"/>
            <soap12:header message="ihe:RegistryStoredQuery_Message"
part="signatureHeader" use="literal"/>
            <soap12:header message="ihe:RegistryStoredQuery_Message" part="PCEHRHeader"
use="literal"/>
            <soap12:body parts="parameters" use="literal"/>
         </input>
         <output>
            <soap12:header message="ihe:RegistryStoredQueryResponse_Message"
part="signatureHeader" use="literal"/>
            <soap12:body parts="parameters" use="literal"/>
         </output>
      </operation>
   </binding>
   <service name="DocumentRegistry_Service">
      <port name="DocumentRegistry_Port_Soap12"
binding="ihe:DocumentRegistry_Binding_Soap12">
         <soap12:address location="http://servicelocation/DocumentRegistry_Service"/>
      </port>
   </service>
   <wsp:Policy xml:id="AddressingPolicy">
      <wsam:Addressing/>
   </wsp:Policy>
   <wsp:Policy xml:id="TlsPolicy">
      <sp:TransportBinding>
         <wsp:Policy>
            <sp:TransportToken>
               <wsp:Policy>
                  <sp:HttpsToken>
                     <wsp:Policy>
                        <sp:RequireClientCertificate/>
                     </wsp:Policy>
                  </sp:HttpsToken>
               </wsp:Policy>
            </sp:TransportToken>
         </wsp:Policy>
      </sp:TransportBinding>
   </wsp:Policy>
</definitions>
```

A.2.1.3 B2B_RemoveDocument.wsdl

```
<?xml version="1.0" encoding="UTF-8"?>
<!--Version 1.1 issued 17 April 2012-->
<wsdl:definitions xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
xmlns:soap12="http://schemas.xmlsoap.org/wsdl/soap12/"
xmlns:pcehr="http://ns.electronichealth.net.au/pcehr/svc/RemoveDocument/1.1"
xmlns:wsam="http://www.w3.org/2007/05/addressing/metadata" xmlns:sp="http://docs.oasis-
open.org/ws-sx/ws-securitypolicy/200702" xmlns:wsp="http://www.w3.org/ns/ws-policy"
name="removeDocument"
targetNamespace="http://ns.electronichealth.net.au/pcehr/svc/RemoveDocument/1.1">
```

```
   <wsdl:import
namespace="http://ns.electronichealth.net.au/pcehr/svc/RemoveDocument/1.1"
location="B2B_RemoveDocumentInterface.wsdl"/>
   <wsdl:binding name="removeDocumentServiceSOAP12Binding"
type="pcehr:RemoveDocumentPortType">
      <soap12:binding style="document"
transport="http://schemas.xmlsoap.org/soap/http"/>
      <wsp:PolicyReference URI="#AddressingPolicy"/>
      <wsp:PolicyReference URI="#TlsPolicy"/>
      <wsdl:operation name="removeDocument">
         <soap12:operation soapActionRequired="false" style="document"/>
         <wsdl:input>
            <soap12:header message="pcehr:removeDocumentInMsg" part="timestampHeader"
use="literal"/>
            <soap12:header message="pcehr:removeDocumentInMsg" part="signatureHeader"
use="literal"/>
            <soap12:header message="pcehr:removeDocumentInMsg" part="PCEHRHeader"
use="literal"/>
            <soap12:body parts="parameters" use="literal"/>
         </wsdl:input>
         <wsdl:output>
            <soap12:header message="pcehr:removeDocumentOutMsg" part="signatureHeader"
use="literal"/>
            <soap12:body parts="parameters" use="literal"/>
         </wsdl:output>
         <wsdl:fault name="standardError">
            <soap12:fault name="standardError" use="literal"/>
         </wsdl:fault>
      </wsdl:operation>
   </wsdl:binding>
   <wsdl:service name="removeDocumentService">
      <wsdl:port name="removeDocumentSOAP12Port"
binding="pcehr:removeDocumentServiceSOAP12Binding">
         <soap12:address location="http://localhost:8011/"/>
      </wsdl:port>
   </wsdl:service>
   <wsp:Policy xml:id="AddressingPolicy">
      <wsam:Addressing/>
   </wsp:Policy>
   <wsp:Policy xml:id="TlsPolicy">
      <sp:TransportBinding>
         <wsp:Policy>
            <sp:TransportToken>
               <wsp:Policy>
                  <sp:HttpsToken>
                     <wsp:Policy>
                        <sp:RequireClientCertificate/>
                     </wsp:Policy>
                  </sp:HttpsToken>
               </wsp:Policy>
            </sp:TransportToken>
         </wsp:Policy>
      </sp:TransportBinding>
   </wsp:Policy>
</wsdl:definitions>
```

A.2.1.4 B2B_RemoveDocumentInterface.wsdl

```
<?xml version="1.0" encoding="UTF-8"?>
<!--Version 1.1 issued 17 April 2012-->
<wsdl:definitions xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:pcehr="http://ns.electronichealth.net.au/pcehr/svc/RemoveDocument/1.1"
xmlns:pcehr_b2b="http://ns.electronichealth.net.au/pcehr/xsd/common/CommonCoreElements/1
.0"
xmlns:ns2="http://ns.electronichealth.net.au/pcehr/xsd/interfaces/RemoveDocument/1.0"
xmlns:tns="http://ns.electronichealth.net.au/wsp/xsd/StandardError/2010"
xmlns:wsam="http://www.w3.org/2007/05/addressing/metadata"
xmlns:ns="http://www.w3.org/2000/09/xmldsig#" name="removeDocument"
targetNamespace="http://ns.electronichealth.net.au/pcehr/svc/RemoveDocument/1.1">
   <wsdl:types>
      <xsd:schema
targetNamespace="http://ns.electronichealth.net.au/pcehr/svc/RemoveDocument/1.1"
elementFormDefault="qualified">
         <xsd:import
namespace="http://ns.electronichealth.net.au/pcehr/xsd/common/CommonCoreElements/1.0"
schemaLocation="../../schema/Common/PCEHR_CommonTypes.xsd"/>
         <xsd:import
namespace="http://ns.electronichealth.net.au/pcehr/xsd/interfaces/RemoveDocument/1.0"
schemaLocation="../../schema/External/PCEHR_RemoveDocument.xsd"/>
```

```
         <xsd:import
namespace="http://ns.electronichealth.net.au/wsp/xsd/StandardError/2010"
schemaLocation="../../schema/Common/wsp-StandardError-2010.xsd"/>
      </xsd:schema>
   </wsdl:types>
   <wsdl:message name="removeDocumentInMsg">
      <wsdl:part name="timestampHeader" element="pcehr_b2b:timestamp"/>
      <wsdl:part name="signatureHeader" element="pcehr_b2b:signature"/>
      <wsdl:part name="PCEHRHeader" element="pcehr_b2b:PCEHRHeader"/>
      <wsdl:part name="parameters" element="ns2:removeDocument"/>
   </wsdl:message>
   <wsdl:message name="removeDocumentOutMsg">
      <wsdl:part name="signatureHeader" element="pcehr_b2b:signature"/>
      <wsdl:part name="parameters" element="ns2:removeDocumentResponse"/>
   </wsdl:message>
   <wsdl:message name="standardErrorMsg">
      <wsdl:part name="parameters" element="tns:standardError"/>
   </wsdl:message>
   <wsdl:portType name="RemoveDocumentPortType">
      <wsdl:operation name="removeDocument" parameterOrder="parameters">
         <wsdl:input message="pcehr:removeDocumentInMsg"
wsam:Action="http://ns.electronichealth.net.au/pcehr/svc/RemoveDocument/1.1/RemoveDocume
ntPortType/removeDocumentRequest"/>
         <wsdl:output message="pcehr:removeDocumentOutMsg"
wsam:Action="http://ns.electronichealth.net.au/pcehr/svc/RemoveDocument/1.1/RemoveDocume
ntPortType/removeDocumentResponse"/>
         <wsdl:fault name="standardError" message="pcehr:standardErrorMsg"
wsam:Action="http://ns.electronichealth.net.au/pcehr/svc/RemoveDocument/1.1/RemoveDocume
ntPortType/Fault/standardError"/>
      </wsdl:operation>
   </wsdl:portType>
</wsdl:definitions>
```

Appendix B Acronyms and Terminology

The core set of terms used within the PCEHR are specified within the PCEHR System Glossary [PCEHRGLOSS].

B.1 Acronyms

Acronym	Explanation
CDA	Clinical Document Architecture
CIS	Clinical Information System
CRP	Conformant Repository Provider
CSP	Contracted Service Provider
HPI-I	Healthcare Provider Identifier Individual
HPI-O	Healthcare Provider Identifier Organisation
IHE XDS.b	Cross-Enterprise Document Sharing (XDS.b) IHE Integration Profile as specified in [ITITF-1] Chapter 10 and extended by material relevant to XDS.b in [ITITF-2A], [ITITF-2B], [ITITF-2x], [ITITF-3].
IHI	Individual Healthcare Identifier
LSS	Logical Service Specification
MTOM	SOAP Message Transmission Optimization Mechanism.
NASH	National Authentication Service for Health
PAI-D	Participation Authentication Identifier for device, for example a computer.
PAI-O	Participation Authentication Identifier for organisation
PCEHR	Personally Controlled Electronic Health Record
TLS	Transport Layer Security
TSS	Technical Service Specification
UML	Unified Modelling Language
WSDL	Web Service Definition Language
WSP	Web Service Profile – Commonly used to refer to the ATS-5820 Web Service Profile.
XOP	XML-binary Optimized Packaging.
XSD	XML Schema Definition

Appendix C References

Tag	Name	Version Release/ Date
[ATS 5820-2010]	ATS 5820-2010 Australian Technical Specification E-health Web Services Profiles	5/3/2010
[ATS 5821—2010]	ATS 5821—2010 Australian Technical Specification E-health XML secured payload profiles	November 2010
[DOCX-LSS]	PCEHR Document Exchange Service Logical Service Specification	V1.2 6 Sept 2012
[CLN_PKG]	Clinical Package Specification	V1.0 November 2011
[CDA_PKG]	CDA Package Specification	V1.0 November 2011
[IHE_TS]	IHE IT Infrastructure Technical Framework Supplement XDS.b Metadata Update Trial Implementation http://www.ihe.net/Technical_Framework/upload/IHE_ITI_Suppl_XDS_Metadata_Update_Rev1-2_TI_2011-08-19.pdf	Revision 1-2 - 19 August 2011
[ITITF-1]	IHE ITI Infrastructure Technical Framework Volume 1 (ITI TF-1), http://www.ihe.net/Technical_Framework/upload/IHE_ITI_TF_Rev8-0_Vol1_FT_2011-08-19.pdf	Revision 8.0 - 19 August 2011
[ITITF-2A]	IHE IT Infrastructure Technical Framework Volume 2a (ITI TF-2a) http://www.ihe.net/Technical_Framework/upload/IHE_ITI_TF_Rev8-0_Vol2a_FT_2011-08-19.pdf	Revision 8.0 - 19 August 2011
[ITITF-2B]	IHE IT Infrastructure Technical Framework Volume 2b (ITI TF-2b) http://www.ihe.net/Technical_Framework/upload/IHE_ITI_TF_Rev8-0_Vol2b_FT_2011-08-19.pdf	Revision 8.0 - 19 August 2011
[ITITF-2x]	IHE IT Infrastructure Technical Framework Volume 2x (ITI TF-2x) http://www.ihe.net/Technical_Framework/upload/IHE_ITI_TF_Rev8-0_Vol2x_FT_2011-08-19.pdf	Revision 8.0 - 19 August 2011
[ITITF-3]	IHE IT Infrastructure Technical Framework Volume 3 (ITI TF-3) http://www.ihe.net/Technical_Framework/upload/IHE_ITI_TF_Rev8-0_Vol3_FT_2011-08-19.pdf	Revision 8.0 - 19 August 2011
[ITU-X.667]	ITU-T Recommendation X.667: Generation and registration of Universally Unique Identifiers (UUIDs) and their use as ASN.1 object identifier components	09/2004
[NS2011]	Namespaces for eHealth http://ns.electronichealth.net.au/index.html	NEHTA 2011
[PCEHR-CON-OPS]	Concept of Operations: relating to a Personally	September 2011

Tag	Name	Version Release/ Date
	Controlled Electronic Health Record System http://www.yourhealth.gov.au/internet/yourhealth/publishing.nsf/Content/PCEHR-document	Release
[PCEHRGLOSS]	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
[RM-ODP]	Reference Model of Open Distributed Processing ISO/IEC 10746-3:2009	2009
[UML2010]	OMG UML Version 2.3 http://www.omg.org/spec/UML/2.3/	Version 2.3 May 2010
[W3C-XML-1.1]	http://www.w3.org/TR/2006/REC-xml11-20060816	Version 1.1 September 2006
[XDS.b SM]	IHE TF Implementation Material ftp://ftp.ihe.net/TF_Implementation_Material/ITI/packages/XDSb.Support.Materials.v8.zip	Version 8 August 2011