Nationwide Health Information Network (NHIN)

Trial Implementations

Service Interface Specifications

Query for Documents

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DRAFT

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1 Preface

1.1 Introduction

The NHIN Trial Implementations Service Interface Specifications constitute the core services of an operational Nationwide Health Information Network. They are intended to provide a standard set of service interfaces that enable Nationwide Health Information Exchange (NHIE) to NHIE exchange of interoperable health information. These services provide such functional capabilities as patient look-up, document query and retrieve, notification of consumer preferences, and access to logs for determining who has accessed what records and for what purpose for use. These functional services rest on a foundational set of messaging and security services. The current set of defined core services includes the following:

1. NHIN Trial Implementations Message Platform Service Interface Specification,
2. NHIN Trial Implementations Authorization Framework Service Interface Specification,
3. NHIN Trial Implementations Subject Discovery Service Interface Specification,
4. NHIN Trial Implementations Query for Documents Service Interface Specification,
5. NHIN Trial Implementations Document Retrieve Service Interface Specification,
6. NHIN Trial Implementations Audit Log Query Service Interface Specification,
7. NHIN Trial Implementations Consumer Preferences Service Interface Specification
8. NHIN Trial Implementations Health Information Event Messaging Service Interface Specification
9. NHIN Trial Implementations NHIE Service Registry Interface Specification
10. NHIN Trial Implementations Authorized Case Follow-Up Service Interface Specification

It is expected that these core services will be implemented together as a suite since the functional level services are dependent on the foundational services. Specifications #1 through #7 were the focus of the August 2008 testing event and September AHIC demonstrations. Specifications #1 through #9 were included in the November testing and demonstrations during the December 2008 NHIN Trial Implementations Forum.

1.2 Intended Audience

The primary audience for the NHIN Trial Implementations Service Interface Specifications is the individuals responsible for implementing software solutions that realize these interfaces for a NHIE. After reading this specification, one should have an understanding of the context in which the service interface is meant to be used, the behavior of the interface, the Web Services Description Language (WSDLs) used to define the service, any Extensible Markup Language (XML) schemas used to define the content and what “compliance” means from an implementation testing perspective.

1.3 Focus of this Specification

This document presents the NHIN Trial Implementations Query for Documents Service Interface Specification. The purpose of this specification is to provide the ability to exchange patient specific clinical documents between NHIEs.

1.4 Related Documents

The following documents and standards were referenced during the development of this specification:

- IHE ITI TF Supplement XCA TI 2007-08-15
- IHE ITI TF Supplement XDS Stored Query document
- ebRIM: OASIS/ebXML Registry Information Model v3.0
- ebRS: OASIS/ebXML Registry Services Specifications v3.0
- Relationship to HITSP Constructs

1.5 Deviations from Standards

This interface specification is based upon standards from HITSP and IHE, as explained in the following sections. Specific deviations from or constraints upon these standards are depicted in the following table.

Standard	Deviation or Constraint
IHE XCA 3.38	Only the FindDocuments stored query is supported.

1.6 Relationship to other NHIN Cooperative Specifications

This specification relies on the NHIN Subject Discovery Interface specification as a precondition.

This specification utilizes the transmission and security standards identified in the NHIN Messaging Platform Interface Specification and NHIN Authorization Framework. Specifically, each transaction identified in this specification must contain assertions about the identity and role of the user or system initiating the request, purpose for user and authentication of the user.

This specification presumes that appropriate audit events as specified in the NHIN Trial Implementations Audit Log Query Service Interface Specification will be generated as a post condition.

2 Interface Description

2.1 Definition

A query initiated from one NHIE to another, requesting a list of available documents meeting the given query parameters for a particular patient for later retrieval. The request is made by a provider in the requesting NHIE with the appropriate authorization to access the NHIE. This query occurs after the subject patient has been identified (see Subject Discovery Specification), and before individual patient documents are retrieved (see Retrieve Documents Specification).
In this Interface definition, a “document” refers to the form of clinical data as it is transferred between NHIEs, not as it is stored in an NHIE. Any NHIE may store clinical data in whatever format or repository it chooses, so long as the NHIE can respond to queries as described in this interface, and respond to “retrieve document” requests as described in the “NHIE Retrieve Documents Interface”[1]. Specifically, a “document” transferred between NHIEs need not meet the criteria for persistence, stewardship, etc. as identified by the HL7 Structured Documents committee.

The primary expected use in the context of the NHIN is that these documents are formatted as XML data following the HL7 Clinical Document Architecture standard, but nothing precludes this interface from being used to query for other kinds of documents, such as Adobe Portable Document Format files or images.

The interface is invoked by another NHIE when querying for documents. The patient:

- has been registered at one or more facilities in the NHIE that is initiating the query
- has provided their consent to share their clinical data; the exact mechanism for providing this consent is the subject of another interface specification document.
- has had identity determined by both the initiating and responding NHIEs; this interface requires the patient identifier assigned by the respondent’s assigning authority.

- The interface will return a list of documents for the query that satisfy the query parameters.

2.2 Triggers

[1] Note that to maintain compliance with HITSP constrains, the document hash value must be consistent between the document query transaction and the document retrieval transaction.

A HIE edge system submits a query to a NHIE Gateway (the format of that query is outside the scope of our group). The NHIE Gateway will submit a query in the specified format to other NHIE Gateways of other HIEs in the network.

This query includes criteria such as patient identifier (a subject of another sub-work group) etc. The variety of criteria used in the query may be limited and "stored queries" may be used to limit only to a small set of query types. Authorization assertion(s) will be included in the query message as specified by the Messaging Platform specification.

The response to this query is a collection of document ids referring to available documents, and some metadata describing each. These references may be used in the Retrieve Document transaction, the subject of a separate document. These document references are valid for a limited duration (the timeframe of which is determined by the implementation of a particular NHIE), and, if the document reference is ever the subject of a successful Retrieve Document transaction, it will persist forever. The intention here is to persist documents that have been actually retrieved across the NHIN, but not persist documents that have never been retrieved (important to those NHIEs that may dynamically generate documents).

Part of the document metadata returned in the response to this message includes a hash value of the actual document. It is required that the hash value of the document be computed either before or during this query transaction so that it may be returned as part of the query. Document Consumers may use this hash value to assess the validity of retrieved documents. In the event that the document hash and/or size are not known at the time of query, -1 may be returned for each; further explanation is provided in section 2.3 and 3.4 below.
This interface does not define whether the response includes references to only those documents that the requester has permission (through consumer access consent directives) to retrieve, or to all documents that meet the query parameters. (In other words, this interface does not specify whether access consent directives should be enforced during a document query or during document retrieval. Consent determination is an open issue of the Security and Technology Working Group.)

2.3 Transaction Standard

This interface identifies the IHE XCA ITI-38: Cross Gateway Query transaction as the standard for Query for Documents.

A NHIE Gateway directs a query/request to another individual NHIE. It is assumed that there is no central or federated service that performs transactions across multiple NHIEs, and how an NHIE determines which other NHIEs to direct queries to is not specified.

The XCA ITI-38 specification has been relaxed within this NHIN specification in an effort to support the query for, and retrieval of, dynamically generated document content. As described further in section 3, the metadata values for document hash and document size are not required to be the actual hash and size of the later retrieved document, as typically mandated by XCA. This relaxation is expected to be removed as alternative specifications for the exchange of dynamic data are developed for the NHIN.

2.4 NHIE Core Services

The following NHIE Core Services are addressed by this specification:

- Data Services: Secure data delivery, and confirmation of delivery, to EHRs, PHRs, other systems and networks.
    - Interchange Capabilities: 5.3.4 Data Integrity Checking; 5.3.5 Error Handling; 5.3.8 Non-repudiation; 5.3.9 Patient Summary Record Support.
- Data Services: Data look-up, retrieval and data location registries.

- Interchange Capabilities: Annex 3. Locate Records.

2.5 Technical Pre-conditions

The following technical pre-conditions exist for this interface specification:

- The NHIE(s) to query have been selected.
- The network location of the target NHIE has been obtained from Connection management.
- The identity of the patient at the NHIE which provides the interface has been determined from the Cross Community Gateway PIX.
- The NHIEs has pre-established trust relationship that enables them to share patient data.

.

2.6 Technical Post-conditions

The following technical post-conditions will result after the execution of this interface specification:

- The list of available documents with metadata is returned to the initiating NHIE for the uniquely identified patient.
- Errors encountered will be handled.

3 Interface Definition

3.1 ITI-38 – Cross Gateway Query:

Described in IHE ITI TF Supplement XCA TI 2007-08-15 Section 3.38. The figure below illustrates the actors and transactions involved in the ITI-38 Cross Gateway Query transaction. Note that the diagram represents the Initiating Community as an IHE XDS-based community. This transaction does not require the XDS architecture within a community; it is merely presented in the diagram for illustrative purposes.

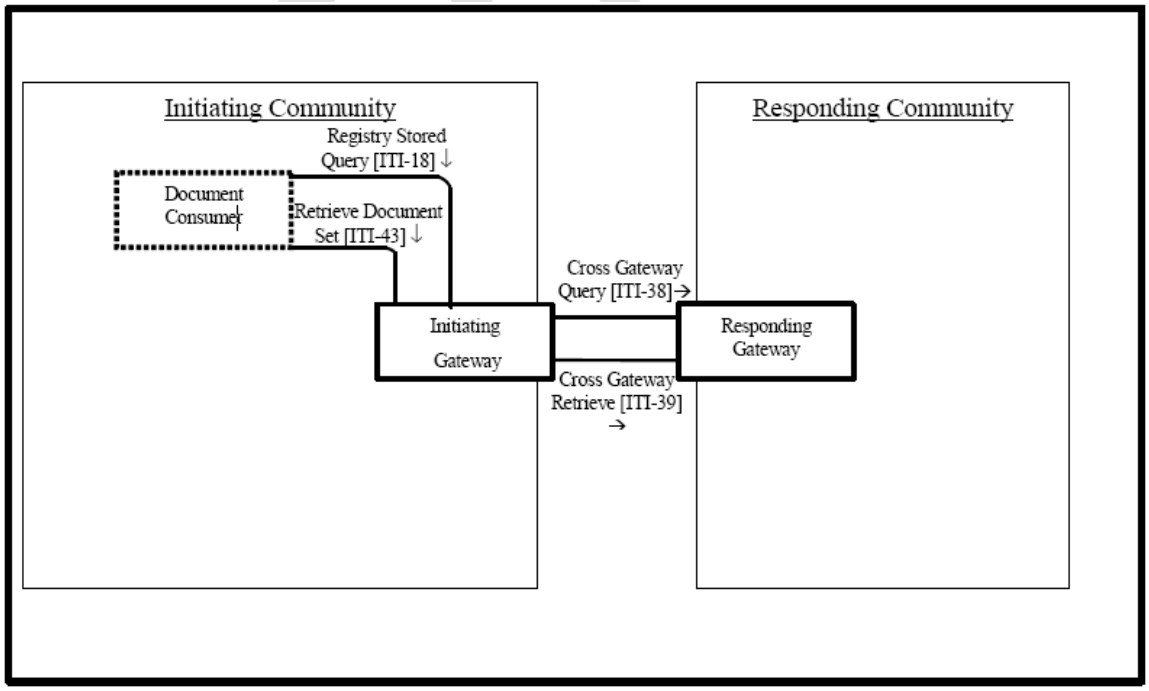

Figure 18.1-1. XCA Actor Diagram

The scope of the Cross Gateway Query transaction is based on the Registry Stored Query transaction [ITI-18]. The FindDocument stored query is the only one supported within this specification. Only the left class version of this stored query is supported.

The Cross Gateway Query occurs between an Initiating Gateway and Responding Gateway. The responding gateway's `homeCommunityID` attribute shall be returned within all appropriate elements.

There shall be an agreed upon common coding/vocabulary scheme used for the meta-data and query parameters of the Cross Gateway Query (these coding schemes are assumed to fall within the scope of the Core Services Content Working Group).

The following information is included in the IHE XCA profile to define the use of the homeCommunityId. Annotations (not from IHE) related to the NHIN are included in square brackets:

- It is returned within the response to Cross Gateway Query and Registry Stored Query transactions to indicate the association of a response element with a community. Document Consumers process the value in the response as an opaque unique identifier.
- homeCommunityId is not a component of Document Query transactions (which implements only the FindDocument with leaf class stored query) as homeCommunityId is not supported or needed in the query criteria).
- It is used by Initiating Gateways [when retrieving documents] to direct requests to the community where the initial data originated.

Each NHIE shall use the homeCommunityId of the form "urn:oid:n.n.n.n" using a globally unique OID assigned to the NHIE when responding to a Cross Gateway Query. The Initiating Gateway is expected to use this homeCommunityId to correlate a subsequent Retrieve Document request with the NHIE that holds the requested data.

Reference Standards:

- ebRIM: OASIS/ebXML Registry Information Model v3.0
- ebRS: OASIS/ebXML Registry Services Specifications v3.0
- SOAP: SOAP v1.2 (note that the SOAP version is subject to the pending Messaging Platform specification)

The `homeCommunityId` is a globally unique identifier for a community used to assist in subsequent requests for locating the data held by that community. `homeCommunityId` is structured as an OID limited to 64 characters and specified in URI syntax, for example the `homeCommunityId` of 2.16.840.1.113883.3.166 would be formatted as `urn:oid: 2.16.840.1.113883.3.166`.

Its use is as follows:

- It is returned within the response to Cross Gateway Query and Registry Stored Query transactions to indicate the association of a response element with a community. It is specified as the ebRIM `home` attribute within the relevant response elements. Document Consumers process the value as an opaque unique identifier.

3.2 ITI-18 Registry Stored Query Transaction

This transaction is described in detailed in IHE ITI TF Supplement XDS Stored Query document, from where the following text was copied:

> "Version 3.0 ebXML Registry XML Schemas shall be used to validate the messages of this transaction. The major differences in the Schema are:
>
> - Different XML namespaces
> - `LeafRegistryObjectList` element becomes `RegistryObjectList`

- `ObjectType` attribute changes format, changing from a text name to a UUID. For example, `RegistryPackage` becomes `urn:oasis:names:tc:ebxmlregrep:ObjectType:RegistryObject:RegistryPackage`
- `Status` attribute value format changes from `Approved` to `urn:oasis:names:tc:ebxmlregrep:StatusType:Approved`
- Order of elements changes – Name, Description, Slot, Classification, ExternalIdentifier ordering becomes Slot, Name, Description, Classification, ExternalIdentifier.
- `Id` attribute is required for `Classification`, `ExternalIdentifier`, and `Association`
- The `registryObject` attribute is required on the `ExternalIdentifier` element.

It is the responsibility of the Document Registry actor to translate between version 2.1 and version 3.0 formats when returning v2.1 objects in v3.0 query responses."

3.3 Sample Query

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing">
  <s:Header>
    <a:Action s:mustUnderstand="1">urn:ihe:iti:2007:RegistryStoredQuery</a:Action>
    <a:MessageID>urn:uuid:def119ad-dc13-49c1-a3c7-e3742531f9b3</a:MessageID>
    <a:ReplyTo>
      <a:Address>http://www.w3.org/2005/08/addressing/anonymous</a:Address>
    </a:ReplyTo>
    <a:To s:mustUnderstand="1">http://localhost/service/IHEXDSRegistry.svc</a:To>
  </s:Header>
  <s:Body>
    <query:AdhocQueryRequest xmlns:query="urn:oasis:names:tc:ebxml-regrep:xsd:query:3.0"
xmlns:rim="urn:oasis:names:tc:ebxml-regrep:xsd:rim:3.0">
    <query:ResponseOption returnComposedObjects="true" returnType="LeafClass"/>
      <rim:AdhocQuery id="urn:uuid:14d4debf-8f97-4251-9a74-a90016b0af0d">
      <rim:Slot name="$XDSDocumentEntryPatientId">
        <rim:ValueList>
<Value>'d8420442513945d^^^&amp;1.3.6.1.4.1.21367.2005.1.1&amp;ISO'</Value>
        </rim:ValueList>
      </rim:Slot>
      <rim:Slot name="$XDSDocumentEntryStatus">
        <rim:ValueList>
          <rim:Value>('urn:oasis:names:tc:ebxml-regrep:StatusType:Approved')</Value>
        </rim:ValueList>
      </rim:Slot>
    </query:AdhocQuery>
    </query:AdhocQueryRequest>
  </s:Body>
```

3.4 Sample Response

```
<s:Envelope xmlns:s="http://www.w3.org/2003/05/soap-envelope"
xmlns:a="http://www.w3.org/2005/08/addressing">
  <s:Header>
    <a:Action s:mustUnderstand="1">urn:ihe:iti:2007:RegistryStoredQueryResponse</a:Action>
      <a:RelatesTo>urn:uuid:def119ad-dc13-49c1-a3c7-e3742531f9b3</a:RelatesTo>
  </s:Header>
  <s:Body>
    <AdhocQueryResponse xmlns:query="urn:oasis:names:tc:ebxml-regrep:xsd:query:3.0"
xmlns:rim="urn:oasis:names:tc:ebxml-regrep:xsd:rim:3.0" status="Success">
      <rim:RegistryObjectList>
        <rim:ExtrinsicObject id="urn:uuid:08a15a6f-5b4a-42de-8f95-89474f83abdf" isOpaque="false"
mimeType="text/xml" objectType="urn:uuid:7edca82f-054d-47f2-a032-9b2a5b5186c1"
status="urn:oasis:names:tc:ebxml-regrep:StatusType:Approved" home="urn:oid:
2.16.840.1.113883.3.166">
          <rim:ExtrinsicObject home="urn:oid: 2.16.840.1.113883.3.166" id="urn:uuid:7b3f363f-0465-
4bc0-bdb3-bb72657284ca" isOpaque="false" lid="urn:uuid:7b3f363f-0465-4bc0-bdb3-bb72657284ca"
mimeType="text/xml" objectType="urn:uuid:7edca82f-054d-47f2-a032-9b2a5b5186c1"
status="urn:oasis:names:tc:ebxml-regrep:StatusType:Approved">
            <rim:Slot name="URI">
```

```
              <rim:ValueList>
                <rim:Value>http://111.111.11.11:2011/IB/servlet/runHXML?IBSite=ihetest&
IBThread=repo_query&doc_id=df7e998e-fc53-4a51-61a0-b31293b046c7</rim:Value>
              </rim:ValueList>
            </rim:Slot>
            <rim:Slot name="creationTime">
              <rim:ValueList>
                <rim:Value>20080516</rim:Value>
              </rim:ValueList>
            </rim:Slot>
            <rim:Slot name="hash">
              <ValueList>
                  <Value>fcd7410538d3ae5a69b5d6d6b7e97b2252191328</rim:Value>
              </rim:ValueList>
            </rim:Slot>
            <rim:Slot name="languageCode">
              <rim:ValueList>
                  <rim:Value>en-us</rim:Value>
              </rim:ValueList>
            </rim:Slot>
            <rim:Slot name="repositoryUniqueId">
              <rim:ValueList>
                <rim:Value>2.16.840.1.113883.3.166.3.1</rim:Value>
              </rim:ValueList>
            </rim:Slot>
            <rim:Slot name="serviceStartTime">
              <rim:ValueList>
                <rim:Value>200805150800</rim:Value>
              </rim:ValueList>
            </rim:Slot>
            <rim:Slot name="serviceStopTime">
              <rim:ValueList>
                <rim:Value>200805151001</rim:Value>
              </rim:ValueList>
            </rim:Slot>
            <rim:Slot name="size">
              <rim:ValueList>
                <rim:Value>35452</rim:Value>
              </rim:ValueList>
            </rim:Slot>
            <rim:Slot name="sourcePatientId">
              <rim:ValueList>
                <rim:Value>NISTTEST12^^^&2.16.840.1.113883.1.166.1.2&ISO</rim:Value>
              </rim:ValueList>
            </rim:Slot>
            <rim:Slot name="sourcePatientInfo">
              <rim:ValueList>
                <rim:Value>PID-3|pid1^^^domain</rim:Value>
                <rim:Value>PID-5|Schnur^Anna^^^</rim:Value>
                <rim:Value>PID-7|19560813</rim:Value>
                <rim:Value>PID-8|F</rim:Value>
                <rim:Value>PID-11|1 King Street NW^^Abingdon^VA^24210^USA</rim:Value>
              </rim:ValueList>
            </rim:Slot>
            <rim:Name>
              <rim:LocalizedString charset="UTF-8" value="Physical Test" xml:lang="en-us" />
            </rim:Name>
            <rim:Description />
            <rim:VersionInfo versionName="1.1" />
            <rim:Classification classificationScheme="urn:uuid:93606bcf-9494-43ec-9b4e-
a7748d1a838d" classifiedObject="urn:uuid:7b3f363f-0465-4bc0-bdb3-bb72657284ca" home="urn:oid:
2.16.840.1.113883.3.166" id="urn:uuid:541d7892-0391-4af0-abf0-cf4c30628f37"
lid="urn:uuid:541d7892-0391-4af0-abf0-cf4c30628f37" nodeRepresentation=""
objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Classification">
              <rim:Slot name="authorInstitution">
                <rim:ValueList>
                  <rim:Value>Adult Clinic</rim:Value>
                  <rim:Value>Beach Community Medical</rim:Value>
                </rim:ValueList>
              </rim:Slot>
```

```
              <rim:Slot name="authorPerson">
                <rim:ValueList>
                  <rim:Value>^Hamilton^Greg^^^</rim:Value>
                </rim:ValueList>
              </rim:Slot>
              <rim:Slot name="authorRole">
                <rim:ValueList>
                  <rim:Value>Chief Internist</rim:Value>
                </rim:ValueList>
              </rim:Slot>
              <rim:Slot name="authorSpecialty">
                <rim:ValueList>
                  <rim:Value>Pulmonary Specialist</rim:Value>
                </rim:ValueList>
              </rim:Slot>
              <rim:Name />
              <rim:Description />
              <rim:VersionInfo versionName="1.1" />
            </rim:Classification>
            <rim:Classification classificationScheme="urn:uuid:93606bcf-9494-43ec-9b4e-
a7748d1a838d" classifiedObject="urn:uuid:7b3f363f-0465-4bc0-bdb3-bb72657284ca" home="urn:oid:
2.16.840.1.113883.3.166" id="urn:uuid:9f602797-f9d0-4ce9-a02c-a45770aebee5"
lid="urn:uuid:9f602797-f9d0-4ce9-a02c-a45770aebee5" nodeRepresentation=""
objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Classification">
              <rim:Slot name="authorInstitution">
                <rim:ValueList>
                  <rim:Value>Caring For Adults Clinic</rim:Value>
                  <rim:Value>Raceway Medical Community</rim:Value>
                </rim:ValueList>
              </rim:Slot>
              <rim:Slot name="authorPerson">
                <rim:ValueList>
                  <rim:Value>^Stewart^Chris^^^</rim:Value>
                </rim:ValueList>
              </rim:Slot>
              <rim:Slot name="authorRole">
                <rim:ValueList>
                  <rim:Value>Department Head</rim:Value>
                </rim:ValueList>
              </rim:Slot>
              <rim:Slot name="authorSpecialty">
                <rim:ValueList>
                  <rim:Value>Teaching Professor</rim:Value>
                </rim:ValueList>
              </rim:Slot>
              <rim:Name />
              <rim:Description />
              <rim:VersionInfo versionName="1.1" />
            </rim:Classification>
            <rim:Classification classificationScheme="urn:uuid:41a5887f-8865-4c09-adf7-
e362475b143a" classifiedObject="urn:uuid:7b3f363f-0465-4bc0-bdb3-bb72657284ca" home="urn:oid:
2.16.840.1.113883.3.166" id="urn:uuid:22dbab5f-f2ef-471c-8a71-920c5e2bbc6a"
lid="urn:uuid:22dbab5f-f2ef-471c-8a71-920c5e2bbc6a" nodeRepresentation="34133-9"
objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Classification">
              <rim:Slot name="codingScheme">
                <rim:ValueList>
                  <rim:Value>2.16.840.1.113883.6.1</rim:Value>
                </rim:ValueList>
              </rim:Slot>
              <rim:Name>
                <rim:LocalizedString charset="UTF-8" value="SUMMARIZATION OF EPISODE NOTE"
xml:lang="en-us" />
              </rim:Name>
              <rim:Description />
              <rim:VersionInfo versionName="1.1" />
            </rim:Classification>
          <rim:Classification classificationScheme="urn:uuid:f4f85eac-e6cb-4883-b524-f2705394840f"
classifiedObject="urn:uuid:7b3f363f-0465-4bc0-bdb3-bb72657284ca" home="urn:oid:
2.16.840.1.113883.3.166" id="urn:uuid:c016bcbf-2a8b-4140-8dfc-e8ca1215a960"
```

```
lid="urn:uuid:c016bcbf-2a8b-4140-8dfc-e8ca1215a960" nodeRepresentation="N"
objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Classification">
            <rim:Slot name="codingScheme">
              <rim:ValueList>
                <rim:Value>2.16.840.1.113883.5.25</rim:Value>
              </rim:ValueList>
            </rim:Slot>
            <rim:Name>
              <rim:LocalizedString charset="UTF-8" value="Normal" xml:lang="en-us" />
            </rim:Name>
            <rim:Description />
            <rim:VersionInfo versionName="1.1" />
          </rim:Classification>
          <rim:Classification classificationScheme="urn:uuid:a09d5840-386c-46f2-b5ad-9c3699a4309d"
classifiedObject="urn:uuid:7b3f363f-0465-4bc0-bdb3-bb72657284ca" home="urn:oid:
2.16.840.1.113883.3.166" id="urn:uuid:220e5350-de61-4955-b253-cb7d5a71f846"
lid="urn:uuid:220e5350-de61-4955-b253-cb7d5a71f846"
nodeRepresentation="2.16.840.1.113883.10.20.1" objectType="urn:oasis:names:tc:ebxml-
regrep:ObjectType:RegistryObject:Classification">
            <rim:Slot name="codingScheme">
              <rim:ValueList>
                <rim:Value>Connect-a-thon formatCodes</rim:Value>
              </rim:ValueList>
            </rim:Slot>
            <rim:Name>
              <rim:LocalizedString charset="UTF-8" value="HL7 CCD Document" xml:lang="en-us" />
            </rim:Name>
            <rim:Description />
            <rim:VersionInfo versionName="1.1" />
          </rim:Classification>
          <rim:Classification classificationScheme="urn:uuid:f33fb8ac-18af-42cc-ae0e-ed0b0bdb91e1"
classifiedObject="urn:uuid:7b3f363f-0465-4bc0-bdb3-bb72657284ca" home="urn:oid:
2.16.840.1.113883.3.166" id="urn:uuid:b2b47841-a48a-4a6c-8713-ff1b3ce202ed"
lid="urn:uuid:b2b47841-a48a-4a6c-8713-ff1b3ce202ed" nodeRepresentation="HOSP"
objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Classification">
            <rim:Slot name="codingScheme">
              <rim:ValueList>
                <rim:Value>2.16.840.1.113883.5.111</rim:Value>
              </rim:ValueList>
            </rim:Slot>
            <rim:Name>
              <rim:LocalizedString charset="UTF-8" value="Hospital" xml:lang="en-us" />
            </rim:Name>
            <rim:Description />
            <rim:VersionInfo versionName="1.1" />
          </rim:Classification>
          <rim:Classification classificationScheme="urn:uuid:cccf5598-8b07-4b77-a05e-ae952c785ead"
classifiedObject="urn:uuid:7b3f363f-0465-4bc0-bdb3-bb72657284ca" home="urn:oid:
2.16.840.1.113883.3.166" id="urn:uuid:3ba60301-14e1-45f7-b1cb-9cda2ee96032"
lid="urn:uuid:3ba60301-14e1-45f7-b1cb-9cda2ee96032" nodeRepresentation="394802001"
objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Classification">
            <rim:Slot name="codingScheme">
              <rim:ValueList>
                <rim:Value>2.16.840.1.113883.6.96</rim:Value>
              </rim:ValueList>
            </rim:Slot>
            <rim:Name>
              <rim:LocalizedString charset="UTF-8" value="General Medicine" xml:lang="en-us" />
            </rim:Name>
            <rim:Description />
            <rim:VersionInfo versionName="1.1" />
          </rim:Classification>
          <rim:Classification classificationScheme="urn:uuid:f0306f51-975f-434e-a61c-c59651d33983"
classifiedObject="urn:uuid:7b3f363f-0465-4bc0-bdb3-bb72657284ca" home="urn:oid:
2.16.840.1.113883.3.166" id="urn:uuid:92989021-5243-40de-9100-c0f509241839"
lid="urn:uuid:92989021-5243-40de-9100-c0f509241839" nodeRepresentation="34133-9"
objectType="urn:oasis:names:tc:ebxml-regrep:ObjectType:RegistryObject:Classification">
            <rim:Slot name="codingScheme">
              <rim:ValueList>
                <rim:Value>2.16.840.1.113883.6.1</rim:Value>
```

```
              </rim:ValueList>
            </rim:Slot>
            <rim:Name>
              <rim:LocalizedString charset="UTF-8" value="SUMMARIZATION OF EPISODE NOTE"
xml:lang="en-us" />
            </rim:Name>
            <rim:Description />
            <rim:VersionInfo versionName="1.1" />
          </rim:Classification>
          <rim:ExternalIdentifier home="urn:oid: 2.16.840.1.113883.3.166" id="urn:uuid:1a27b62c-
c508-4713-b1e5-aec138b93af2" identificationScheme="urn:uuid:58a6f841-87b3-4a3e-92fd-a8ffeff98427"
lid="urn:uuid:1a27b62c-c508-4713-b1e5-aec138b93af2" objectType="urn:oasis:names:tc:ebxml-
regrep:ObjectType:RegistryObject:ExternalIdentifier" registryObject="urn:uuid:7b3f363f-0465-4bc0-
bdb3-bb72657284ca" value="338275^^^&2.16.840.1.113883.3.166.1.1&ISO">
            <rim:Name>
              <rim:LocalizedString charset="UTF-8" value="XDSDocumentEntry.patientId"
xml:lang="en-us" />
            </rim:Name>
            <rim:Description />
            <rim:VersionInfo versionName="1.1" />
          </rim:ExternalIdentifier>
          <rim:ExternalIdentifier home="urn:oid: 2.16.840.1.113883.3.166" id="urn:uuid:b1f8a6fc-
7537-464d-bd09-dfab13853293" identificationScheme="urn:uuid:2e82c1f6-a085-4c72-9da3-8640a32e42ab"
lid="urn:uuid:b1f8a6fc-7537-464d-bd09-dfab13853293" objectType="urn:oasis:names:tc:ebxml-
regrep:ObjectType:RegistryObject:ExternalIdentifier" registryObject="urn:uuid:7b3f363f-0465-4bc0-
bdb3-bb72657284ca" value="129.6.58.92.147">
            <rim:Name>
              <rim:LocalizedString charset="UTF-8" value="XDSDocumentEntry.uniqueId" xml:lang="en-
us" />
            </rim:Name>
            <rim:Description />
            <rim:VersionInfo versionName="1.1" />
          </rim:ExternalIdentifier>
        </rim:ExtrinsicObject>
      </rim:RegistryObjectList>
    </AdhocQueryResponse>
  </s:Body>
</s:Envelope>
```

Note: The AdhocQuery/@id 14d4debf-8f97-4251-9a74-a90016b0af0d is a well known constant which stands for the FindDocuments query. The ITI-18 specification lists about a dozen different such ad hoc query types, but only the FindDocuments (leaf class return type) query shall be used here.

The `FindDocuments` query finds documents (`XDSDocumentEntry` objects) for a given patientID with a matching 'status' attribute. The other parameters can be used to restrict the set of `XDSDocumentEntry` objects returned.

3.5 Query Parameters

Table 1 lists the parameters ("Slots") defined by XDS for the findDocuments query. This specification defines some of these parameters to be "not supported" for NHIE-to-NHIE queries. For those parameters that require coded elements, the "Value Set Name" given in the table refers to a Value Set defined by the NHIN Cooperative core content workgroup, which is part of the NHIN specifications. Specific metadata elements are further defined in section 3.4.

Table 1: Defined "slot" names

Slot Name	Description	Value Set Name or detailed location
$XDSDocumentEntryPatientId	Required unique identifier for the patient within the Responding community. Must be HL7 CX format in single	See section 3.4.1.

	quotes.	
$XDSDocumentEntryClassCode	Coded element describing the type of document.	See section 3.4.2. Maps to /ClinicalDocument/code in CCD or other CDA document.
$XDSDocumentEntryClassCodeScheme	Only LOINC is supported.	only supported value is 2.16.840.1.113883.6.1
$XDSDocumentEntryPracticeSettingCode	Coded element describing the practice setting.	See section 3.4.3.
$XDSDocumentEntryPracticeSettingCodeScheme	SNOMED.CT	Only supported value is 2.16.840.1.113883.6.96
$XDSDocumentEntryCreationTimeFrom	lower bound for the document creation time.	
$XDSDocumentEntryCreationTimeTo	upper bound for the document creation time.	
$XDSDocumentEntryServiceStartTimeFrom	lower bound on begin date of healthcare encounter.	Maps to /ClinicalDocument /documentationOf /serviceEvent/performer/ time/low/@value in CCD or other CDA document.
$XDSDocumentEntryServiceStartTimeTo	upper bound on begin date of healthcare encounter.	
$XDSDocumentEntryServiceStopTimeFrom	lower bound on end date of healthcare encounter.	Maps to /ClinicalDocument /documentationOf /serviceEvent/performer/ time/high/@value in CCD or other CDA document.
$XDSDocumentEntryServiceStopTimeTo	upper bound on begin date of healthcare encounter.	
$XDSDocumentEntryHealthcareFacilityTypeCode	HL7 Service Delivery Location	See Section 3.4.4
$XDSDocumentEntryHealthcareFacilityTypeCodeScheme	HL7 Service Delivery Location	2.16.840.1.113883.5.111
$XDSDocumentEntryEventCodeList	HL7 Confidentiality Codes	See Section 3.4.6
$XDSDocumentEntryEventCodeListScheme	HL7 Confidentiality Codes	2.16.840.1.113883.5.25
$XDSDocumentEntryConfidentialityCode	not supported for NHIN	
$XDSDocumentEntryConfidentialityCodeScheme	not supported for NHIN	
$XDSDocumentEntryFormatCode	The format of the document	See Section 3.4.7
$XDSDocumentEntryStatus	status of the document as defined by XDS.	DocumentStatus

3.6 Document Metadata

Document metadata elements (including non-coded elements defined by the XCA profile) are used in several ways in a document sharing environment such as is being developed for the NHIN Trial Implementation. The primary uses of the metadata are:

1. To facilitate efficient searches for documents,
2. To provide detailed information that users can review to determine which documents they wish to retrieve and view, and
3. To provide information that computer systems can use to determine if they are capable of displaying and/or parsing the document, and to determine if the requesting user has permission to access the document.

Each of the meta-data elements may contribute to some or all of these uses. Efficient document searches can best be facilitated by limiting search parameters to a few elements, each with a coarse granularity. For document searches on the NHIN, it is recommended to use the following elements as the primary search parameters:

- Patient ID
- Class code
- Practice Setting Code
- Healthcare Facility Type
- Document Creation Time (not a coded element and thus not further described in this document)

Implementers should expect that revisions to the recommended value sets for XCA metadata will be forthcoming. It is expected that eventually HITSP will adopt value sets for XCA (and XDS) metadata as part of its specifications.

3.6.1 Patient ID

The Patient ID represents the subject of care of the document. This identifier shall be from an Assigning Authority Domain supporting the NHIE. This specification ***does not*** constrain who the Assigning Authority is, whether it is the same as the Home Community ID, whether more than one might be utilized within a NHIE, or whether a given Assigning Authority may be referenced by more than one NHIE.

The Patient ID shall contain two parts:

- Patient Identity Assigning Authority in the form of an OID
- An identifier in the above Assigning Authority domain.

Within the query request and response, these components of the patient ID are to be specified in the HL7 CX format. In the context of an NHIE, these values are exchanged during subject discovery within the HL7 v3 messages; the Assigning Authority is the *root* of the patient identifier and the Patient ID is the *extension.*

The HL7 identifier type CX consists of several components, but this specification restricts them to the use of two components, the ID Number, and the Assigning Authority (AA). The Assigning Authority identifies the "domain" over which the ID Number represents a unique entity. Furthermore, the AA is represented using a Universal ID and Universal ID Type. In XDS specification, ISO Object Identifiers must be used as Universal ID. Therefore, Universal ID Type is always ISO. The required format is: `IDNumber^^^&OIDofAA&ISO`. No other values/modifications in other components or subcomponents are allowed. Specifically, components 2 and 3 shall be empty as listed above.

An explicit example is: `543797436^^^&1.2.840.113619.6.197&ISO`

Note that the '&' character must be properly encoded in the XML content. Within the AdhocQueryRequest, the patient identifier shall be surrounded by single quotes as in the following example:

```
<rim:Slot name="$XDSDocumentEntryPatientId">
  <rim:ValueList>
    <Value>'d8420442513945d^^^&amp;1.3.6.1.4.1.21367.2005.1.1&amp;ISO'</Value>
  </rim:ValueList>
</rim:Slot>
```

These requirements stem from the IHE specification for the XCA Cross Gateway Query, which bases query parameters on the IHE Stored Query. The Stored Query itself references the XDS document metadata definition and CX data type. These constraints and references are parts of the following specifications:

Topic	Document	Page/Section
XCA Cross Gateway Query ITI-38	IHE ITI Infrastructure Technical Framework Supplement 2007-2008: Cross Community Access (XCA) August 15, 2007	3.38.4.1.2
XDS Registry Stored Query ITI-18	IHE IT Infrastructure Technical Framework Supplement 2007-2008: Registry Stored Query Transaction for XDS Profile [ITI-18] August 20, 2007	Page 11
XDS Document Definition Metadata	IHE IT Infrastructure Technical Framework Volume 2 August 22, 2007	Page 341
XDS CX Data Type	IHE IT Infrastructure Technical Framework Volume 2 August 22, 2007	Page 325

3.6.2 ClassCode

Class Codes should be drawn from a limited set of LOINC document codes. For the NHIN Trial Implementation, this list should be restricted to those in the following table.

The coding scheme for LOINC is 2.16.840.1.113883.6.1.

Code	DisplayName	Additional comments
34133-9	SUMMARIZATION OF EPISODE NOTE	Used for Summary Patient Record (CCD)
11502-2	LABORATORY REPORT.TOTAL	Used for Laboratory Reports
10160-0	History of Medication Use	Used for documents containing only a consumer's medication history
44943-9	Self management:^Patient	Used for patient-provided documents, such as from a Personal Health Record.

3.6.3 PracticeSettingCode

Practice Setting refers to the clinical specialty that performed the act or encounter that resulted in the document creation. No suitable existing value set has been identified that would meet the goal of providing for efficient searches. The value set in the following table has been defined to act as a "provisional" value set (drawing from some medical specialties relevant to the NHIN Use Cases) until a more complete value set is defined. The primary purpose is specifying this incomplete value set at this time is to remind implementers of the importance of practice setting as a document search parameter.

Where possible, NHIEs should support these codes on Document Queries and return one of these codes on Document Query responses.

These codes are taken from SNOMED CT; the coding scheme for these codes is 2.16.840.1.113883.6.96.

Code	DisplayName
394802001	General Medicine

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408478003	Critical Care Medicine
410001006	Military Medicine
408440000	Public Health Medicine

3.6.4 HealthcareFacilityTypeCode

Healthcare Facility Type Code refers to the location of the act or encounter that resulted in the creation of the document. The value set is the same as the value set defined by HL7 for Service Delivery Location, and used in the Continuity of Care Document (CCD) Implementation Guide for specifying location types.

This value set is perhaps too large to facilitate efficient searches, and the "metadata subgroup" will consider consolidating these values into a smaller list.

The list presented in the table below has removed some logically duplicate values present in the HL7 ServiceDeliveryLocationRoleType value set.

The coding scheme for these values is 2.16.840.1.113883.5.111.

Code	DisplayName
281PC2000N	Hospitals; Chronic Disease Hospital; Children
282NC2000N	Hospitals; General Acute Care Hospital; Children
282NR1301N	Hospitals; General Acute Care Hospital; Rural
282NW0100N	Hospitals; General Acute Care Hospital; Women
283XC2000N	Hospitals; Rehabilitation Hospital; Children
2865C1500N	Hospitals; Military Hospital; Community Health
2865M2000N	Hospitals; Military Hospital; Medical Center
2865X1600N	Hospitals; Military Hospital; Operational Component Facility
ACC	accident site
ALL	Allergy clinic
AMB	Ambulance
AMPUT	Amputee clinic
BMTC	Bone marrow transplant clinic
BMTU	Bone marrow transplant unit
BREAST	Breast clinic
CANC	Child and adolescent neurology clinic
CAPC	Child and adolescent psychiatry clinic
CARD	Ambulatory Health Care Facilities; Clinic/Center; Rehabilitation: Cardiac Facilities
CATH	Cardiac catheterization lab
CCU	Coronary care unit
CHEST	Chest unit
CHR	Chronic Care Facility
COAG	Coagulation clinic
COMM	Community Location
CRS	Colon and rectal surgery clinic
CVDX	Cardiovascular diagnostics or therapeutics unit
DADDR	Delivery Address
DERM	Dermatology clinic
DX	Diagnostics or therapeutics unit
ECHO	Echocardiography lab
ENDO	Endocrinology clinic
ENDOS	Endoscopy lab
ENT	Otorhinolaryngology clinic

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Code	DisplayName
EPIL	Epilepsy unit
ER	Emergency room
ETU	Emergency trauma unit
FMC	Family medicine clinic
GACH	Hospitals; General Acute Care Hospital
GI	Gastroenterology clinic
GIDX	Gastroenterology diagnostics or therapeutics lab
GIM	General internal medicine clinic
GYN	Gynecology clinic
HAND	Hand clinic
HD	Hemodialysis unit
HEM	Hematology clinic
HOSP	Hospital
HTN	Hypertension clinic
HU	Hospital unit
ICU	Intensive care unit
IEC	Impairment evaluation center
INFD	Infectious disease clinic
INV	Infertility clinic
LYMPH	Lympedema clinic
MGEN	Medical genetics clinic
MHSP	Military Hospital
MOBL	Mobile Unit
NCCF	Nursing or custodial care facility
NCCS	Neurology critical care and stroke unit
NEPH	Nephrology clinic
NEUR	Neurology clinic
NS	Neurosurgery unit
OB	Obstetrics clinic
OF	Outpatient facility
OMS	Oral and maxillofacial surgery clinic
ONCL	Medical oncology clinic
OPH	Opthalmology clinic
ORTHO	Orthopedics clinic
PAINCL	Pain clinic
PC	Primary care clinic
PEDC	Pediatrics clinic
PEDCARD	Pediatric cardiology clinic
PEDE	Pediatric endocrinology clinic
PEDGI	Pediatric gastroenterology clinic
PEDHEM	Pediatric hematology clinic
PEDHO	Pediatric oncology clinic
PEDICU	Pediatric intensive care unit
PEDID	Pediatric infectious disease clinic
PEDNEPH	Pediatric nephrology clinic
PEDNICU	Pediatric neonatal intensive care unit
PEDRHEUM	Pediatric rheumatology clinic
PEDU	Pediatric unit
PHARM	Pharmacy
PHU	Psychiatric hospital unit
PLS	Plastic surgery clinic
POD	Podiatry clinic

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Code	DisplayName
PRC	Pain rehabilitation center
PREV	Preventive medicine clinic
PROCTO	Proctology clinic
PROFF	Provider's Office
PROS	Prosthodontics clinic
PSI	Psychology clinic
PSY	Psychiatry clinic
PSYCHF	Psychatric Care Facility
PTRES	Patient's Residence
RADDX	Radiology diagnostics or therapeutics unit
RADO	Radiation oncology unit
RH	Rehabilitation hospital
RHEUM	Rheumatology clinic
RHU	Rehabilitation hospital unit
RNEU	Neuroradiology unit
RTF	Residential treatment facility
SCHOOL	school
SLEEP	Sleep disorders unit
SNF	Skilled nursing facility
SPMED	Sports medicine clinic
SU	Surgery clinic
SURF	Substance use rehabilitation facility
TR	Transplant clinic
TRAVEL	Travel and geographic medicine clinic
URO	Urology clinic
WND	Wound clinic
WORK	work site

3.6.5 EventCodeList

Event codes are not required to be supported on NHIN Document Queries or responses.

3.6.6 ConfidentialityCode

Confidentiality Code is intended to provide some information about the sensitivity of the data contained in the document to assist systems in determining if the requesting user should be allowed to access the document.

The only value set widely used for confidentiality code today does not provide sufficient information to be very useful in fulfilling this intended purpose. The “metadata subgroup” will look to identify a richer value set that can be used in conjunction with a NHIN Consumer Preference Profile to allow consumers to control access to their sensitive information.

In the meantime, NHIEs should return a confidentiality code from the HL7 Confidentiality Codes value set on Document Query responses. NHIEs are not required to support Confidentiality Code as a query parameter. The coding scheme for these values is 2.16.840.1.113883.5.25.

Code	DisplayName
N	Normal
R	Restricted
V	very restricted

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3.6.7 FormatCode

According to the IHE profiles, the Format Code "should provide sufficient information to allow any potential XDS Document Consumer to know if it will be able to process the document." There is little additional guidance to follow in selecting a value set to accomplish this purpose. The IHE Patient Care domain defines a format code of "urn:ihe:pcc:xds-ms:2007" for medical summary documents, and the IHE Laboratory domain specifies the use of the document template identifier as defined by the CDA schema for a lab document (1.3.6.1.4.1.19376.1.3.3).

For the NHIN Trial Implementation, in order for an NHIE to process (i.e. display) the Patient Summary Record, it must know that it conforms to the HL7 CCD implementation guide. For web-based viewers, an XML Stylesheet can then be applied to display the document in a web browser. For this reason, the use of the template identifier defined by HL7 for CCD documents (2.16.840.1.113883.10.20.1) seems appropriate.

Those NHIEs supporting unstructured documents using the XDS-Scanned Document profile may use the format types for PDF and text as defined by that profile.

The value set for Format Type to support the document types identified by the Core Services Content working group for the NHIN Trial Implementation is shown in the following table. Since these values are globally unique, no coding scheme attribute is required.

Code	Description
2.16.840.1.113883.10.20.1	HL7 CCD Document
1.3.6.1.4.1.19376.1.3.3	IHE XDS-Lab Document
urn:ihe:iti:xds-sd:pdf:2008	PDF embedded in CDA per XDS-SD profile
urn:ihe:iti:xds-sd:text:2008	Text embedded in CDA per XDS-SD profile

3.6.8 TypeCode

Document Type code is intended to provide a fine-grained classification of the document type. It is not primarily intended to be used as a search parameter, but rather for a user to review in a list of documents returned from a query.

For NHIN Query Document responses, NHIEs should provide a LOINC document code as the document type code. If no other (more granular) code is available, the Document Class Code may be returned.

The complete list of LOINC document codes is over 500 codes and is not reproduced here. LOINC is inconsistent in defining document codes using the six primary LOINC attributes; however, choosing codes whose CLASS attribute begins with "DOC" or "ATTACH" gives a usable subset of LOINC codes for Document Type.

3.6.9 Hash

The hash is intended to contain the hash of the target document, computed following the SHA-1 algorithm. If the hash value is not known at the time of the query, -1 may be returned for the hash value.

3.6.10 Size

The actual size (in bytes) of the document, or -1 if the size of the document is not known at query time.

4 Error Handling

The error codes relevant to the Stored Query are listed in the following table:

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Error Code	Description
XDSRegistryError	Error from the registry in processing the query (eg. invalid query criteria)
XDSRegistryBusy	Too much activity
XDSRegistryOutOfResources	Resources are low.
XDSTooManyResults	
XDSUnknownStoredQuery	The Query ID provided in the request is not recognized.
XDSStoredQueryMissingParam	A required parameter to a stored query is missing.
XDSStoredQueryParamNumber	A parameter which only accepts a single value is coded with multiple values

5 Auditing

The transaction shall be audited by NHIE Gateways as follows (note references to IHE documentation for specific information concerning audits).

The Initiating Gateway:

- If receiving a Registry Stored Query transaction from a Document Consumer, shall audit as if it were a Document Registry. See IHE ITI Technical Framework 2, section 3.18.4.2.5.
- In addition, shall audit the Cross Gateway Query as if it were a Document Consumer except that for EventTypeCode the Initating Gateway shall specify EV("ITI-38", "IHE Transactions", "Cross Gateway Query"). See IHE ITI Technical Framework 2, section 3.18.4.2.4.
- In addition, if interacting with a local Document Registry, shall audit as if it were a Document Consumer. See IHE ITI Technical Framework 2, section 3.18.4.2.5.

The Responding Gateway:

- Shall audit the Cross Gateway Query as if it were a Document Registry except that for EventTypeCode the Initating Gateway shall specify EV("ITI-38", "IHE Transactions", "Cross Gateway Query"). See IHE ITI Technical Framework 2, section 3.18.4.2.4.
- In addition, if interacting with a local Document Registry, shall audit as if it were a Document Consumer. See IHE ITI Technical Framework 2, section 3.18.4.2.5.

Document Query transactions audit the following values (note that this is copied from the IHE documentation and is not intended to constrain or alter IHE's implementation):

	Field Name	**Opt.**	**Value Constraints**
Event AuditMessage/ EventIdentification	EventID	M	EV (110112, DCM, "Query")
	EventActionCode	M	EV "E" (Execute)
	EventDateTime	*M*	*not specialized*
	EventOutcomeIndicator	*M*	*not specialized*
	EventTypeCode	*M*	EV("ITI-38", "IHE Transactions", "Cross Gateway Query").
Audit Source (Document Registry) (1)			
Source (Document Source) (1)			

Destination (Document Registry) (1)			
Human Requestor (0..1)			
Patient (1)			
	ParticipantObjectTypeCode	M	EV 2 (system object)
	ParticipantObjectTypeCodeRole	M	EV 24 (query)
	ParticipantObjectDataLifeCycle	*NA*	
	ParticipantObjectIDTypeCode	M	EV("ITI-18", "IHE Transactions", "Registry Stored Query")
	ParticipantObjectSensitivity	*U*	*not specialized*
	ParticipantObjectID	M	The stored query UUID
	ParticipantObjectName	*U*	*not specialized*
	ParticipantObjectQuery	M	Shall hold the AdhocQueryRequest of the query, base64 encoded
	ParticipantObjectDetail	NA	
	ParticipantObjectDescription	*U*	*not further specialized*

Using the following common blocks:

Audit Source AuditMessage/ AuditSourceIdentification	AuditSourceID	M	The identity of the process issuing the audit message.
	AuditEnterpriseSiteID	*U*	*not specialized*
	AuditSourceTypeCode	*U*	*not specialized*

Source AuditMessage/ActiveParticipant	UserID	M	The identity of the Source. If the source logs, suggested format <process id>@<machine

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			name>. If the destination logs, leave empty.
	AlternateUserID	*U*	*not specialized*
	UserName	*U*	*not specialized*
	UserIsRequestor	M	EV TRUE
	RoleIDCode	M	EV (110153, DCM, “Source”)
	NetworkAccessPointTypeCode	M C	This field shall be present with values selected from those specified in RFC 3881 where applicable.
	NetworkAccessPointID	M C	Shall be present if Net Access Point Type Code is present. Shall use fields as specified in RFC 3881.

Destination AuditMessage/ActiveParticipant	UserID	M	The identity of the Destination process. For SOAP-based services, this is the SOAP endpoint URI.
	AlternateUserID	*U*	*not specialized*
	UserName	*U*	*not specialized*
	UserIsRequestor	M	EV FALSE
	RoleIDCode	M	EV (110152, DCM, “Destination”)
	NetworkAccessPointTypeCode	M C	This field shall be present with values selected from those specified in RFC 3881 where applicable.
	NetworkAccessPointID	M C	Shall be present if Net Access Point Type Code is present. Shall use fields as specified in RFC 3881.

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Source and destination shall always be specified and refer to the systems executing the transaction. If known, human requestor must be used to additionally identify the human that initiated the transaction.

Human Requestor AuditMessage/ ActiveParticipant	UserID	M	Identity of the human that initiated the transaction.
	AlternateUserID	*U*	*not specialized*
	UserName	*U*	*not specialized*
	UserIsRequestor	M	EV TRUE
	RoleIDCode	*U*	*not specialized*
	NetworkAccessPointTypeCode	*NA*	
	NetworkAccessPointID	*NA*	
	ParticipantObjectTypeCode	M	EV 1 (person)
	ParticipantObjectTypeCodeRole	M	EV 1 (patient)
	ParticipantObjectDataLifeCycle	*NA*	
	ParticipantObjectIDTypeCode	M	EV 2 (patient number)
	ParticipantObjectSensitivity	*U*	*not specialized*
	ParticipantObjectID	M	XDS patientId, in CX format as constrained by XDS
	ParticipantObjectName	*U*	*The patient's name. Discouraged for privacy reasons.*
	ParticipantObjectQuery	*NA*	
	ParticipantObjectDetail	*NA*	
	ParticipantObjectDescription	*U*	*not further specialized*

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6 Potential Future Considerations

1. Extend the Consumer Preferences Profile to refer to other Actions besides “Retrieve Documents”.
2. Allow the exchange of Preferences Profiles that are not tied to a consumer.
3. Support other slots (parameters) in the notification of new documents subscription request.
4. Extend the attributes against which a Consent Policy can be applied to include Confidentiality Code, and develop a vocabulary for Confidentiality Code that corresponds to types of data consumers might wish to remain confidential.

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Appendix A: WSDL

IHE provides an example WSDL definition[2] for the Responding Gateway actor, which includes the Cross Gateway Retrieve Transaction.

The WSDL for this NHIN interface specification has been split from the Document Retrieve Transaction in order to facilitate the inclusion of MTOM support. This Document Query interface does not support MTOM, while the Document Retrieve interface does.

```
<?xml version="1.0" encoding="UTF-8"?>
<!--
  NHIN Cross Community Access (XCAD) WSDL defintions for Responding Gateway Query
  -->
<definitions
    xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
    xmlns="http://schemas.xmlsoap.org/wsdl/"
    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:query="urn:oasis:names:tc:ebxml-regrep:xsd:query:3.0"
    targetNamespace="urn:ihe:iti:xds-b:2007"
    xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl"
    name="XCA_RespondingGateway"
    xmlns:wsp="http://schemas.xmlsoap.org/ws/2004/09/policy"
    xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-
1.0.xsd"
    xmlns:wsaws="http://www.w3.org/2005/08/addressing"
    xmlns:sc="http://schemas.sun.com/2006/03/wss/server">
    <documentation>NHIN Responding Gateway Query</documentation>
    <types>
        <xsd:schema>
            <xsd:import namespace="urn:oasis:names:tc:ebxml-regrep:xsd:rs:3.0"
                        schemaLocation="../schemas/ebRS/rs.xsd"/>
            <xsd:import namespace="urn:oasis:names:tc:ebxml-regrep:xsd:query:3.0"
                        schemaLocation="../schemas/ebRS/query.xsd"/>
        </xsd:schema>
    </types>
    <message name="CrossGatewayQuery_Message">
        <documentation>Cross Gateway Query</documentation>
        <part name="body" element="query:AdhocQueryRequest"/>
    </message>
    <message name="CrossGatewayQueryResponse_Message">
        <documentation>Cross Gateway Query Response</documentation>
        <part name="body" element="query:AdhocQueryResponse"/>
    </message>
    <portType name="RespondingGateway_Query_PortType">
        <operation name="RespondingGateway_CrossGatewayQuery">
            <input message="ihe:CrossGatewayQuery_Message"
                   wsaw:Action="urn:ihe:iti:2007:CrossGatewayQuery"/>
            <output message="ihe:CrossGatewayQueryResponse_Message"
                    wsaw:Action="urn:ihe:iti:2007:CrossGatewayQueryResponse"/>
        </operation>
    </portType>
    <binding name="RespondingGateway_Query_Binding_Soap11"
type="ihe:RespondingGateway_Query_PortType">
        <soap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/>
        <operation name="RespondingGateway_CrossGatewayQuery">
            <soap:operation soapAction="urn:ihe:iti:2007:CrossGatewayQuery"/>
            <input>
                <soap:body use="literal"/>
            </input>
            <output>
```

[2] IHE's WSDL may be downloaded from ftp://ftp.ihe.net/IT_Infrastructure/iheitiyr5-2007-2008/Technical_Cmte/SupportMaterial/wsdl/RespondingGateway.wsdl.

```
                <soap:body use="literal"/>
            </output>
        </operation>
    </binding>
    <service name="RespondingGateway_Query_Service">
        <port name="RespondingGateway_Query_Port_Soap11"
binding="ihe:RrespondingGateway_Query_Binding_Soap11">
            <soap:address
location="http://localhost:${HttpDefaultPort}/RespondingGateway_Service"/>
        </port>
    </service>
</definitions>
```

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