QHIN Conformance Testing Process: Transport Test Cases

For Candidate QHIN Conformance Testing

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Version History

Version	Description of Change	Version Date
1.0	Initial Publication	September 9, 2022
1.0.1	Added Negative Test Case: RG Reject Metadata: Responding Gateway rejects documents due to Metadata	September 30, 2022
1.0.2	Added test cases to cover additional QHIN Technical Framework (QTF) requirements and simplified language for test steps in test cases. Also, aligned language with the TEFCA Standard Operating Procedures (SOPs)	December 6, 2022
1.0.3	• Changed title of document to say For Candidate QHIN, instead of Prospective QHIN Conformance Testing. • Adjusted tests for Responding Gateway in the Document Query Scenario to take advantage of Purpose of Use tests available in XDS Toolkit. • Explicitly listed Purpose of Use tests for Responding Gateway that exist in XDS Toolkit. Added list of negative tests that exist in XDS Toolkit • Updated RG Patient Discovery Errors Test Case to be optional on page 59 to align with test assessment. • Individual versioning of each test case provides further detail on changes to specific test cases. Look for an update date of May 31, 2023 for changes made from last publication.	May 31, 2023
1.0.4	Added missing references to (Test Tool: XDS Toolkit) for test cases in these sections: • 3.2 Document Query and Retrieve • 3.3 Message Deliver	June 30, 2023

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1. Introduction, Scope, Organization

Please see the *QHIN Conformance Testing Process: Overview* for higher level information about the testing environment. That document includes a broad overview of the process, applications, and documentation for the QHIN Conformance Testing Process, a list of all QHIN test cases, documentation, and the conformity assessment checklists for the QHIN Conformance Testing Process.

This document, *QHIN Conformance Testing Process: Transport Test Cases*, describes tests under three broad categories defined by the QTF. These categories are:

- Patient Discovery (PD) Query
- Document Query (QD) and Retrieve (RD)
- Message Delivery (MD)

Tests for some of the other broad categories are defined in the *QHIN Conformance Testing Process: Security Test Cases* document. Both documents may touch on other requirements defined in the QTF. These test cases are currently in effect and are required for organizations wishing to onboard. For more details: https://rce.sequoiaproject.org/tefca-and-rce-resources/

Chapter 2 describes the test data referenced by this document and procedures for loading that data into the System Under Test (SUT). Chapter 3 is devoted to tests for a QHIN candidate when acting in the role as an Initiating Gateway. Chapter 4 describes the tests for a QHIN candidate when acting in the role of a Responding Gateway.

2. Patient Data Required for Testing

Test Data Load Set – The *QHIN Conformance Testing Process: Initialization Test Cases* document contains the required data and associated document files to execute the test cases within the QHIN Conformance Testing Process including patient demographics, document metadata, as well as the mapping of the documents to the patients. The data must be loaded into the SUT exactly as prescribed in the QTF Test Data load Set Spreadsheet.

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3. TESTS FOR INITIATING QHIN CANDIDATE

As discussed in *QHIN Conformance Testing Process: Overview*, the QHIN candidate receives a Query Solicitation from a participant in its QHIN network triggering a QHIN query. Any internal communication and triggers related to this Query Solicitation are left to the QHIN candidate to implement and are outside the scope of QHIN candidate testing. The test procedures described in this document require the Initiating QHIN candidate to simulate those inputs that will trigger the QHIN query. Test cases are defined to simulate typical workflows a QHIN candidate might encounter, but do not represent all possible workflows.

3.1. Patient Discovery Query

The tests defined in this section use two test patients:

- QTF TEST QTFTEST-001
- QTF TEST QTFTEST-002

These two patients will also be used in the Message Delivery and Document Query/Retrieve tests. The Initiating Gateway will want to complete the tests in this section to determine the patient identifier used in those later tests.

IG Discover Patient 001

Test Case ID:	IG Discover Patient 001
Title:	Initiating Gateway discovers patient QTFTEST-001
IHE Profile:	Cross-community Patient Discovery (XCPD)
Flow:	Basic Success
Optionality:	Required
Test Tool	Gazelle Patient Manager

Purpose/Description

SUT initiates PD Request to the Testing Tool with the required parameters. Testing Tool responds with a match. This test has no requirements for SAML assertions. The test *IG Patient Discovery Secured* provides a more thorough inspection of all required SAML items as well as other security provisions.

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Preconditions

Data Load Set: QTF Data load Set

Test Case Patient Association: QTF TEST QTFTEST-001

Test Steps

1. The SUT sends an immediate PD Request to the Testing Tool with a minimum of the following parameters, with values taken from patient QTF TEST QTFTEST-001; additional demographic parameters that will narrow the query scope are allowed:
   - LivingSubjectName
   - LivingSubjectAdministrativeGender
   - LivingSubjectBirthTime
2. The Testing Tool returns a PD Response with a match for patient QTF TEST QTFTEST-001

Assessment

1. Examine the PD request in the Test Tool. Verify the SUT conforms to the following:
   - QTF conformance statements QTF-027 through QTF-040
2. Audit messages will be examined in the test *IG Patient Discovery Secured.*

Referenced Specifications

IHE XCPD Profile Specification	IHE Cross-Community Patient Discovery (XCPD) profile - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
IHE Audit Trail and Node Authentication (ATNA)	*IHE Audit Trail and Node Authentication (ATNA) profile* - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195

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Change History

Date	Changes
April 1, 2022	Initial Draft Version
December 6, 2022	Removed redundant examination of audit records

IG Discover Patient 002

Test Case ID:	IG Discover Patient 002
Title:	Initiating Gateway discovers patient QTFTEST-002
IHE Profile:	Cross-community Patient Discovery (XCPD)
Flow:	Basic Success
Optionality:	Required
Test Tool	Gazelle Patient Manager

Purpose/Description

SUT initiates PD Request to the Testing Tool with the required parameters. Testing Tool responds with a match. This test has minimal requirements for SAML assertions. The test *IG Patient Discovery Secured* provides a more thorough inspection of all required SAML items as well as other security provisions.

Preconditions

Data Load Set: QTF Data load Set

Test Case Patient Association: QTF TEST QTFTEST-002

Test Steps

1. The SUT sends an immediate PD Request to the Testing Tool with the following parameters, with values taken from patient QTF TEST QTFTEST-002; additional demographic parameters that will narrow the query scope are allowed:
   - LivingSubjectName
   - LivingSubjectAdministrativeGender
   - LivingSubjectBirthTime
2. The Testing Tool returns a PD Response with a match for patient QTF TEST QTFTEST-002

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Assessment

1. Examine the PD Request in the Test Tool. Verify the SUT conforms to the following:
   - QTF conformance statements QTF-027 through QTF-040
2. Audit messages will be examined in the test *IG Patient Discovery Secured.*

Referenced Specifications

IHE XCPD Profile Specification	IHE Cross-Community Patient Discovery (XCPD) profile - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
IHE Audit Trail and Node Authentication (ATNA)	*IHE Audit Trail and Node Authentication (ATNA) profile* - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195

Change History

Date	Changes
April 1, 2022	Initial Draft Version
December 6, 2022	Removed redundant examination of audit records

IG Patient Discovery User Authentication

Test Case ID:	IG Patient Discovery User Authentication
Title:	Initiating Gateway performs Patient Discovery with user authentication
IHE Profile:	Cross-community Patient Discovery (XCPD)
Flow:	Basic Success
Optionality:	Optional
Test Tool	Gazelle Patient Manager

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Purpose/Description

This test builds on *IG Discover Patient 002* by adding user authentication information in the PD Request. This optional test for Initiating Gateways covers a subset of the SAML requirements. The test *IG Patient Discovery Secured* will cover PD requests and all security requirements in the Patient Discovery Scenario.

Preconditions

Data Load Set: QTF Data load Set

Test Case Patient Association: QTF TEST QTFTEST-002

Test Steps

1. The SUT sends an immediate PD Request to the Testing Tool with the following parameters, with values taken from patient QTF TEST QTFTEST-002; additional demographic parameters that will narrow the query scope are allowed:
   - LivingSubjectName
   - LivingSubjectAdministrativeGender
   - LivingSubjectBirthTime
2. The SUT includes SAML assertions in the PD Request per the IHE XUA Integration Profile. The PD Request for this test will include:
   - Exchange Purpose: TREATMENT
   - User Authentication:
3. The Testing Tool returns a PD Response with a match for patient QTF TEST QTFTEST-002

Assessment

1. Verify the SUT generates an audit message and that it conforms to the following:
   - QTF-119 After each test is completed
2. Examine the PD Request in the Test Tool. Verify the SUT conforms to the following:
   - QTF conformance statements QTF-027 through QTF-040
3. Audit messages will be examined in the test *IG Patient Discovery Secured*.

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Referenced Specifications

IHE XCPD Profile Specification	IHE Cross-Community Patient Discovery (XCPD) profile - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
IHE Audit Trail and Node Authentication (ATNA)	*IHE Audit Trail and Node Authentication (ATNA) profile* - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195

Date	Changes
December 6, 2022	Initial Draft Version
May 31, 2023	Removed requirement to submit relevant extract of ATNA log entries for this Optional Test Case

IG Patient Discovery Secured

Test Case ID:	IG Patient Discovery Secured
Title:	Initiating Gateway performs Patient Discovery with all security provisions
IHE Profile:	Cross-community Patient Discovery (XCPD)
Flow:	Basic Success
Optionality:	Required
Test Tool	Gazelle Patient Manager

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Purpose/Description

The system under test performs Patient Discovery queries with all security provisions. Those provisions include:

1. All required SAML assertions in the PD Request
2. Sending at least one request for each of the required values of Exchange Purpose:
    a. TREATMENT
    b. REQUEST
    c. COVERAGE
    d. OPERATIONS
    e. PAYMENT
    f. PUBLICHEALTH
3. Appropriate TLS 1.2 communication with mutual authentication
4. Appropriate audit records generated

Preconditions

Data Load Set: QTF Data load Set

Test Case Patient Association: QTF TEST QTFTEST-002

Test Steps

1. The SUT sends separate PD Request messages for each of the required values of Exchange Purpose:
    - TREATMENT
    - REQUEST
    - COVERAGE
    - OPERATIONS
    - PAYMENT
    - PUBLICHEALTH
2. The SUT sends an immediate PD Request to the Testing Tool with the following parameters, with values taken from patient QTF TEST QTFTEST-002; additional demographic parameters that will narrow the query scope are allowed:
    - LivingSubjectName
    - LivingSubjectAdministrativeGender
    - LivingSubjectBirthTime

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3. The SUT includes SAML assertions in the PD Request per the IHE XUA Integration Profile. The PD Request for this test will include:
   - Exchange Purpose: One of the values listed in Test Step 1.
   - User Authentication:
4. The SUT performs the PD Request using:
   - TLS 1.2 with appropriate parameters
   - Mutual authentication
   - The test certificate issued to the system
5. The Testing Tool returns a PD Response with a match for patient QTF TEST QTFTEST-002
6. After each test is completed, QHIN candidates MUST submit the relevant extract of the ATNA log entries. These audit messages must be submitted by email to qhintesting@sequoiaproject.org. (QTF-119)

Notes:

1) The REQUEST purpose requires two other attributes in the Attribute Statement in the SAML header. These are “csp” and “validated_attributes”.

Assessment

1. Verify that the SUT generates separate PD Request messages for each of the required values of Exchange Purpose:
   - TREATMENT
   - REQUEST (see Note 1 above)
   - COVERAGE
   - OPERATIONS
   - PAYMENT
   - PUBLICHEALTH
2. Verify that each request is fully compliant with all IHE XUA requirements.
3. Verify the SUT generates an audit message for each request and that they conform to the following:
   - QTF-119 After each test is completed, QHIN candidates MUST submit the relevant extract of the ATNA log entries. These audit messages must be submitted by email to qhintesting@sequoiaproject.org
4. Examine the PD Request in the Test Tool. Verify the SUT conforms to the following:
   - QTF conformance statements QTF-027 through QTF-040
5. Verify that each request is made using an HTTPS transaction using TLS 1.2 and required TLS parameters.
6. Verify that each request is made using the test certificate that was assigned to the system.

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Referenced Specifications

IHE XCPD Profile Specification	IHE Cross-Community Patient Discovery (XCPD) profile - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
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Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195

Date	Changes
December 6, 2022	Initial Draft Version
May 31, 2023	Remove incorrect Purpose of Use. Augment list to include all required values for Purpose of Use.

3.2. Document Query and Retrieve

All Document Query (QD) and Retrieve (RD) tests for the Initiating Gateway use patient QTF TEST QTFTEST-002.

The Testing Tool contains at least these document types for patient QTFTEST-002

Document Type	Minimum Count
Continuity of Care Document (CCD)	1
Discharge Summary	1
Progress Note	1
Unstructured Document	1

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IG Query FindDocuments Minimal

Test Case ID:	IG Query FindDocuments Minimal
Title:	Initiating Gateway generates QD Request satisfying minimum requirements
IHE Profile:	Cross-community Access (XCA)
Flow:	Basic Success
Optionality:	Required
Test Tool	XDS Toolkit

Purpose/Description

SUT initiates synchronous QD Request (FindDocuments, IHE ITF 2:3.18.4.1.2.3.7.1) to the Testing Tool. The QD Request must contain at least the minimal set of parameters as defined by the IHE FindDocument query (IHE ITF 2:3.18.4.1.2.3.7.1), the ITI Cross Gateway Query (IHE ITF 2:3.55) and further requirements specified by the QTF. The Testing Tool responds with the matching documents' metadata. See step 1 below for the minimum set of query parameters.

When the user executes step 3, the Test Tool examines all QD Requests sent to the Test Tool simulators. If one or more requests are found that match the minimal criteria, the test is considered a success. Initiating Gateways are allowed to add more parameters to the query. The Test Tool simulators will filter the query response based on any extra parameters, but the evaluation software for this test will only examine the minimum set. Test assessment does not include examination of SAML assertions in the query message. That information will be reviewed in *IG Query Secured*.

Preconditions

Data Load Set: QTF Data load Set

Test Case Patient Association: QTF TEST QTFTEST-002

Test Steps

See XDS Toolkit Conformance Tests: SUT as Initiating QHIN, RCE Document Query and Retrieve, IG.Query.FindDocumentsMinimal.

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1. The SUT sends a synchronous Find Documents Request to the Testing Tool, using the following required parameters:
   - $XDSDocumentEntryPatientID = [QTF TEST QTFTEST-002 PID]
   - $XDSDocumentEntryStatus = Approved. May include Deprecated but must include Approved.
   - returnType = LeafClass

NOTE: Recommendation is to send both Stable AND On-Demand Documents as the $XDSDocumentEntryType default for all queries.

2. The Testing Tool successfully processes the Request and returns a QD Response to the SUT that contains all objects matching the filter criteria for this patient (see table at the front of Section 3.2).
3. Execute XDS Toolkit Test: IG.Query.FindDocuments.Minimal. That test will examine all QD Requests and list any that meet the criteria listed in step 1.

Assessment

1. Verify that test IG.Query.FindDocumentsMinimal has run successfully. This will provide a list of all QD requests that meet the search criteria.
2. Verify the SUT conforms to the following:
   - QTF conformance statements QTF-041 through QTF-058
3. Verify the QD Request contains all required parameters listed in Test Step 1.
4. Audit messages will be examined in the test IG Query Secured.

Referenced Specifications

IHE XCA Profile Specification	IHE Cross-Community Access (XCA) profile - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
IHE Audit Trail and Node Authentication (ATNA)	*IHE Audit Trail and Node Authentication (ATNA) profile* - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195

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Change History

Date	Changes
April 1, 2022	Initial Draft Version
December 6, 2022	Removed redundant examination of audit records

IG Query With User Authentication

Test Case ID:	IG Query With User Authentication
Title:	Initiating Gateway queries with user authentication
IHE Profile:	Cross-community Access (XCA)
Flow:	Basic Success
Optionality:	Optional
Test Tool	XDS Toolkit

Purpose/Description

This test builds on *IG Query FindDocuments Minimal* by adding user authentication information in the PD Request. This optional test for Initiating Gateways covers a subset of the SAML requirements. The test *IG Query Secured* will cover QD requests and all security requirements when querying for documents in the Document Query Scenario.

Run this test if you want to test for minimal SAML information in a QD Request.

Preconditions

Data Load Set: IG Query FindDocuments Minimal

Test Case Patient Association: QTF TEST QTFTEST-002

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Test Steps

See XDS Toolkit Conformance Tests: SUT as Initiating QHIN, RCE Document Query and Retrieve, IG.Query.AvailabilityStatus.

1. Execute the query described in *IG Query FindDocuments Minimal* and include user authentication information per IHE XUA requirements:
   - $XDSDocumentEntryPatientID = [QTF TEST QTFTEST-002 PID]
   - $XDSDocumentEntryStatus = Approved. May include Deprecated but must include Approved.
   - returnType = LeafClass
2. The SUT includes SAML assertions in the QD Request per the IHE XUA Integration Profile. The QD Request for this test will include:
   - Exchange Purpose: TREATMENT
   - User Authentication:
3. Execute XDS Toolkit Test: IG.Query. FindDocuments.Minimal. That test will examine all QD Requests and list any that meet the criteria listed in step 1.

Assessment

1. Verify that test IG.Query. FindDocuments.Minimal has run successfully. This will provide a list of all QD requests that meet the search criteria.
2. Examine the QD Request in the Test Tool. Verify the SUT conforms to the following:
   - QTF conformance statements QTF-041 through QTF-058
3. Verify the QD Request contains all required parameters listed in Test Step 1.
4. Verify that the QD Request contains correctly formatted SAML data that conveys user authentication information.
5. Audit messages will be examined in the test IG Query Secured.

Referenced Specifications

IHE XCA Profile Specification	IHE Cross-Community Access (XCA) profile - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
IHE Audit Trail and Node Authentication (ATNA)	*IHE Audit Trail and Node Authentication (ATNA) profile* - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf

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Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195

Change History

Date	Changes
December 6, 2022	Initial Draft Version

IG Query Secured

Test Case ID:	IG Query Secured
Title:	Initiating Gateway queries with all security provisions
IHE Profile:	Cross-community Access (XCA)
Flow:	Basic Success
Optionality:	Required
Test Tool	XDS Toolkit

Purpose/Description

The system under test submits QD Requests with all security provisions. Those provisions include:

1. All required SAML assertions in the QD Request
2. Sending at least one request for each of the required values of Exchange Purpose:
    a. TREATMENT
    b. REQUEST
    c. COVERAGE
    d. OPERATIONS
    e. PAYMENT
    f. PUBLICHEALTH
3. Appropriate TLS 1.2 communication with mutual authentication
4. Appropriate audit records generated

Notes:

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1) The REQUEST purpose requires two other attributes in the Attribute Statement in the SAML header. These are “csp” and “validated_attributes”.

Preconditions

Data Load Set

IG Query FindDocuments Minimal

Test Case Patient Association: QTF TEST QTFTEST-002

Test Steps

See XDS Toolkit Conformance Tests: SUT as Initiating QHIN, RCE Document Query and Retrieve, IG.Query. FindDocuments.Minimal.

1. Send separate QD Request messages for each of the required values of Purpose of Use:
   - TREATMENT
   - REQUEST (see Note 1 above)
   - COVERAGE
   - OPERATIONS
   - PAYMENT
   - PUBLICHEALTH

   Execute the query described in *IG Query FindDocuments Minimal*. The minimum set of query parameters are:
   - $XDSDocumentEntryPatientID = [QTF TEST QTFTEST-002 PID]
   - $XDSDocumentEntryStatus = Approved. May include Deprecated, but must include Approved.
   - returnType = LeafClass
2. The SUT includes SAML assertions in the QD Request per the IHE XUA Integration Profile. The QD Requests for this test will include:
   - Purpose of Use: One of the values listed in Test Step 1.
   - Other data as required. Exchange Purpose is not the only requirement.
3. The SUT performs the QD Request using:
   - TLS 1.2 with appropriate parameters
   - Mutual authentication
   - The test certificate issued to the system

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4. After you have sent the Query Document requests, you will execute the six tests listed in these bullets. Each test in the tooling system will look for a query that has the required value for Purpose of Use and other query parameters listed in step 1.
   - IG.Query.TREATMENT
   - IG.Query.REQUEST
   - IG.Query.COVERAGE
   - IG.Query.OPERATIONS
   - IG.Query.PAYMENT
   - IG.Query.PUBLICHEALTH
5. QTF-119 After each test is completed, QHIN candidates MUST submit the relevant extract of the ATNA log entries. These audit messages must be submitted by email to qhintesting@sequoiaproject.org.

Assessment

1. Verify that the SUT generates separate QD Request messages for each of the required values of Purpose of Use. Verify that the six tests in the tooling environment listed in step 4 above complete successfully.
2. Verify the SUT generates an audit message for each request and that they conform to the following:
   - QTF-119 After each test is completed, QHIN candidates MUST submit the relevant extract of the ATNA log entries. These audit messages must be submitted by email to qhintesting@sequoiaproject.org
3. Manually check one QD Request in the Test Tool. Verify the SUT conforms to the following:
   - QTF conformance statements QTF-041 through QTF-058
4. Verify that each request is made using an HTTPS transaction using TLS 1.2 and required TLS parameters.
5. Verify that each request is made using the test certificate that was assigned to the system.

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Referenced Specifications

IHE XCA Profile Specification	IHE Cross-Community Access (XCA) profile - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
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Change History

Date	Changes
December 6, 2022	Initial Draft Version
May 31, 2023	Remove incorrect Purpose of Use. Augment list to include all required values for Purpose of Use.

IG Query Stable Documents

Test Case ID:	IG Query Stable Documents
Title:	Initiating Gateway DocumentEntry.objectType filter: Stable
QTF Function / Technology:	Document Query and Retrieve
IHE Profile:	Cross-community Access (XCA)
Flow:	Basic Success
Optionality:	Optional
Test Tool	XDS Toolkit

Purpose/Description

SUT initiates synchronous QD Request that includes a DocumentEntry.objectType filter to the Testing Tool. Testing Tool responds with the matching documents metadata.

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Run this optional test to determine if any of the QD Requests sent by the Initiating Gateway include an explicit filter for stable documents.

Preconditions

Data Load Set: QTF Data load Set

Test Case Patient Association: QTF TEST QTFTEST-002

Test Steps

See XDS Toolkit Conformance Tests: SUT as Initiating QHIN, RCE Document Query and Retrieve, IG.Query.StableDocuments.

1. The SUT sends a synchronous QD Request to the Testing Tool, using the following required parameters:
   - $XDSDocumentEntryPatientID = [QTF TEST QTFTEST-002 PID]
   - $XDSDocumentEntryStatus = Approved. Can also include Deprecated.
   - $XDSDocumentEntryType = Stable. Filter is allowed to include On-Demand
   - returnType = LeafClass
2. The Testing Tool successfully processes the Request and returns a QD Response to the SUT that contains metadata for all objects matching the filter criteria for this patient (see table at the front of Section 3.2).
3. Execute XDS Toolkit Test: IG.Query.StableDocuments. That test will examine all QD Requests and list any that meet the criteria listed in step 1.

Assessment

1. Verify that test IG.Query.StableDocuments has run successfully. This will provide a list of all QD requests that meet the search criteria.
2. Verify the QD Request contains all required parameters listed in Test Step 1.

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Referenced Specifications

IHE XCA Profile Specification	IHE Cross-Community Access (XCA) profile - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
IHE Audit Trail and Node Authentication (ATNA)	*IHE Audit Trail and Node Authentication (ATNA) profile* - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195

Change History

Date	Changes
December 6, 2022	Initial Draft Version

IG Query On-Demand Documents

Test Case ID:	IG Query On-Demand Documents
Title:	Initiating Gateway DocumentEntry.objectType filter: On Demand
IHE Profile:	Cross-community Access (XCA)
Flow:	Basic Success
Optionality:	Optional
Test Tool	XDS Toolkit

Purpose/Description

SUT initiates synchronous QD Request that includes a DocumentEntry.objectType filter to the Testing Tool. Testing Tool responds with the matching documents metadata.

Preconditions

Data Load Set: QTF Data load Set

Test Case Patient Association: QTF TEST QTFTEST-002

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Test Steps

See XDS Toolkit Conformance Tests: SUT as Initiating QHIN, RCE Document Query and Retrieve, IG.Query.OnDemand.

1. The SUT sends a synchronous QD Request to the Testing Tool, using the following required parameters:
   - $XDSDocumentEntryPatientID = [QTF TEST QTFTEST-002 PID]
   - $XDSDocumentEntryStatus = Approved. Can also include Deprecated.
   - $XDSDocumentEntryType = On-Demand Documents; filter is allowed to include Stable
   - returnType = LeafClass
   - returnComposedObjects = true
2. The Testing Tool successfully processes the Request and returns a QD Response to the SUT that contains metadata for all objects matching the filter criteria for this patient (see table at the front of Section 3.2).
3. Execute XDS Toolkit Test: IG.Query.OnDemand. That test will examine all QD Requests and list any that meet the criteria listed in step 1.

Assessment

1. Verify that test IG.Query.OnDemand has run successfully. This will provide a list of all QD requests that meet the search criteria.
2. Verify the QD Request contains all required parameters listed in Test Step 1.

Referenced Specifications

IHE XCA Profile Specification	IHE Cross-Community Access (XCA) profile - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
IHE Audit Trail and Node Authentication (ATNA)	*IHE Audit Trail and Node Authentication (ATNA) profile* - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195

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Change History

Date	Changes
December 6, 2022	Initial Draft Version

IG Query Availability Status Multiple

Test Case ID:	IG Query Availability Status Multiple
Title:	Initiating Gateway DocumentEntry.availabilityStatus filter: Multiple combinations
IHE Profile:	Cross-community Access (XCA)
Flow:	Basic Success
Optionality:	Optional
Test Tool	XDS Toolkit

Purpose/Description

This test allows the SUT to send QD requests with Document Entry filters for Availability Status and Object Type. The Test Tool will look for queries with various combinations for those two filters. Run the steps that are appropriate for your system. The Initiating Gateway is not required to support each of the tested combinations.

Preconditions

Data Load Set: QTF Data load Set

Test Case Patient Association: QTF TEST QTFTEST-002

Test Steps

See XDS Toolkit Conformance Tests: SUT as Initiating QHIN, RCE Document Query and Retrieve, IG.Query.AvailabilityStatus.Multiple.

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1. The SUT sends one or synchronous QD Requests to the Testing Tool, using the following required parameters:
   - $XDSDocumentEntryPatientID = [QTF TEST QTFTEST-002 PID]
   - returnType = LeafClass
2. QD Requests may include different combinations of:
   - $XDSDocumentEntryStatus = Approved. Can also include Deprecated.
   - $XDSDocumentEntryType = [Stable OR On-Demand Documents]
3. The Testing Tool successfully processes the Request and returns a QD Response to the SUT that contains metadata for all objects matching the filter criteria for this patient (see table at the front of Section 3.2).
4. Execute relevant steps of XDS Toolkit Test: IG.Query.AvailabilityStatus.Multiple. The step names should indicate the combinations that are tested. If you attempt to execute the entire test, the first step that fails will cause the entire test to stop.

Assessment

1. This test is designed to help the Initiating Gateway observe what the Testing Tool has received and parsed. There is no formal assessment.

Referenced Specifications

IHE XCA Profile Specification	IHE Cross-Community Access (XCA) profile - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
IHE Audit Trail and Node Authentication (ATNA)	*IHE Audit Trail and Node Authentication (ATNA) profile* - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195

Change History

Date	Changes
December 6, 2022	Initial Draft Version

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IG Query Return Type

Test Case ID:	IG Query Return Type
Title:	Initiating Gateway DocumentEntry.returnType filter: LeafClass
IHE Profile:	Cross-community Access (XCA)
Flow:	Basic Success
Optionality:	Optional
Test Tool	XDS Toolkit

Purpose/Description

SUT initiates synchronous QD Request that includes a DocumentEntry.returnType filter to the Testing Tool. Testing Tool responds with the matching documents metadata.

Preconditions

Data Load Set: QTF Data load Set

Test Case Patient Association: QTF TEST QTFTEST-002

Test Steps

See XDS Toolkit Conformance Tests: SUT as Initiating QHIN, RCE Document Query and Retrieve, IG.Query.ReturnType.

1. The SUT sends one or more synchronous QD Requests to the Testing Tool, using the following required parameters:
   - $XDSDocumentEntryPatientID = [QTF TEST QTFTEST-002 PID]
   - $XDSDocumentEntryStatus = Approved. Can also include Deprecated.
2. QD requests should include this value for returnType:
   - LeafClass.
3. The Testing Tool successfully processes the Request and returns a QD Response to the SUT that contains metadata for all objects matching the filter criteria for this patient (see table at the front of Section 3.2).
4. Execute relevant steps of XDS Toolkit Test: IG.Query.AvailabilityStatus.Multiple. The step names should indicate the combinations that are tested. If you attempt to execute the entire test, the first step that fails will cause the entire test to stop.

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Assessment

1. This test is designed to help the Initiating Gateway observe what the Testing Tool has received and parsed. There is no formal assessment.

Referenced Specifications

IHE XCA Profile Specification	IHE Cross-Community Access (XCA) profile - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
IHE Audit Trail and Node Authentication (ATNA)	*IHE Audit Trail and Node Authentication (ATNA) profile* - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195

Change History

Date	Changes
December 6, 2022	Initial Draft Version
May 31, 2023	Removed QD request ObjectRef filter value requirement

IG Retrieve Community 1

Test Case ID:	IG Retrieve Community 1
Title:	Initiating Gateway retrieves document from Community 1
IHE Profile:	Cross-community Access (XCA)
Flow:	Basic Success
Optionality:	Required
Test Tool	XDS Toolkit

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Purpose/Description

SUT initiates a synchronous RD Request for one document to the Testing Tool. Testing Tool responds with an RD Response containing the requested document.

Preconditions

Data Load Set: QTF Data load Set

Test Case Patient Association: QTF TEST QTFTEST-002

In the Test Steps below, *DOCUMENT 1* refers to any document located by the System Under Test when performing a QD Request. The table listed at the beginning of Section 3.2 lists the types of documents associated with this patient on the test server.

Test Steps

1. The SUT sends a synchronous RD Request to the Testing Tool for one document, using the following required parameters:
   - RepositoryUniqueId: [Repository ID for QTF TEST QTFTEST-002 DOCUMENT 1]
   - DocumentUniqueId: [Document ID for QTF TEST QTFTEST-002 DOCUMENT 1]
   - homeCommunityId: [HCID for the Testing Tool]

2. The Testing Tool returns to the SUT an RD Response containing the requested document:

   RegistryResponse/@status:Success
   DocumentResponse: 1 present, contains document QTF TEST QTFTEST-002 DOCUMENT 1

Assessment

1. Examine the RD Request in the Testing Tool. Verify the SUT conforms to the following:
   - QTF conformance statement QTF-041 through QTF-058
2. Audit messages will be examined in the test *IG Retrieve Secured*.

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Referenced Specifications

IHE XCA Profile Specification	IHE Cross-Community Access (XCA) profile - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
IHE Audit Trail and Node Authentication (ATNA)	*IHE Audit Trail and Node Authentication (ATNA) profile* - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195

Change History

Date	Changes
April 1, 2022	Initial Draft Version
December 6, 2022	Removed redundant examination of audit records

IG Retrieve Secured

Test Case ID:	IG Retrieve Secured
Title:	Initiating Gateway retrieves with all security provisions
IHE Profile:	Cross-community Access (XCA)
Flow:	Basic Success
Optionality:	Required
Test Tool	XDS Toolkit

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Purpose/Description

The system under test submits RD Requests with all security provisions. Those provisions include:

1. All required SAML assertions in the QD Request
2. Sending at least one request for each of the required values of Exchange Purpose:
    a. Treatment
    b. Individual Access Services
3. Appropriate TLS 1.2 communication with mutual authentication
4. Appropriate audit records generated

Test Steps

1. Send separate RD Request messages for each of the required values of Exchange Purpose:
    - TREATMENT
    - REQUEST
2. The SUT sends a synchronous RD Request to the Testing Tool for one document, using the following required parameters:
    - RepositoryUniqueId: [Repository ID for QTF TEST QTFTEST-002 DOCUMENT 1]
    - DocumentUniqueId: [Document ID for QTF TEST QTFTEST-002 DOCUMENT 1]
    - homeCommunityId: [HCID for the Testing Tool]
3. The SUT includes SAML assertions in the PD Request per the IHE XUA Integration Profile. The PD Request for this test will include:
    - Exchange Purpose: One of the values listed in Test Step 1
    - Other required SAML data. Exchange Purpose is explicitly called out; other fields are required.
4. The SUT performs the PD Request using:
    - TLS 1.2 with appropriate parameter
    - Mutual authentication
    - The test certificate issued to the system
5. The Testing Tool returns to the SUT an RD Response containing the requested document:
    RegistryResponse/@status:Success
    DocumentResponse: 1 present, contains document QTF TEST QTFTEST-002 DOCUMENT 1

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6. After you have sent the Retrieve Document requests, you will execute the two tests listed in these bullets. Each test in the tooling system will look for a query that has the required value for Purpose of Use and other query parameters listed in step 1.
   - IG.Retrieve.TREATMENT
   - IG.Retrieve.REQUEST
7. QTF-119 After each test is completed, QHIN candidates MUST submit the relevant extract of the ATNA log entries. These audit messages must be submitted by email to qhintesting@sequoiaproject.org.

Assessment

1. Verify that the SUT generates separate RD Request messages for each of the required values of Purpose of Use. Verify that the two tests in the tooling environment listed in step 6 above complete successfully.
2. Verify the SUT generates an audit message for each request and that they conform to the following:
   - QTF-119 After each test is completed, QHIN candidates MUST submit the relevant extract of the ATNA log entries. These audit messages must be submitted by email to qhintesting@sequoiaproject.org
3. Manually check one RD Request in the Test Tool. Verify the SUT conforms to the following:
   - QTF conformance statements QTF-041 through QTF-058
4. Verify that each request is made using an HTTPS transaction using TLS 1.2 and required TLS parameters.
5. Verify that each request is made using the test certificate that was assigned to the system.

Referenced Specifications

IHE XCA Profile Specification	IHE Cross-Community Access (XCA) profile - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
IHE Audit Trail and Node Authentication (ATNA)	*IHE Audit Trail and Node Authentication (ATNA) profile* - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195

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Change History

Date	Changes
December 6, 2022	Initial Draft Version
May 31, 2023	Remove incorrect Purpose of Use. Augment list to include all required values for Purpose of Use.

3.3. Message Delivery

This section contains 4 cases designed to test the ability to submit a specific type of document. You are required to successfully complete at least one of these tests, and you have the option to decide the document type or types your system will support.

All Message Delivery tests for the Initiating Gateway use patient QTF TEST QTFTEST-001.

IG Deliver Document

Test Case ID:	IG Deliver Document
Title:	Initiating Gateway delivers one document
IHE Profile:	Cross-Community Document Reliable Interchange (XCDR)
Flow:	Basic Success
Optionality:	Required
Test Tool	XDS Toolkit

Purpose/Description

This test is intended to record the successful result of transmitting at least one of the four document types covered by the test cases in this section:

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- C-CDA 2.1 CCD
- C-CDA 2.1 Discharge Summary
- C-CDA 2.1 Progress Note
- C-CDA 2.1 Unstructured Document

This test does not require that the system under test include SAML assertions. Those SAML assertions will be formally tested in the test *IG Deliver Secured*.

Preconditions

Test Steps

1. Run at least one of these tests:
    - IG Deliver C-CDA 2.1 CCD
    - IG Deliver C-CDA 2.1 Discharge Summary
    - IG Deliver C-CDA 2.1 Progress Note
    - IG Deliver C-CDA 2.1 Unstructured Document
2. Inform the Test Manager which deliver test or tests should be included with this test.

Assessment

This test requires no technical evaluation. You will record this test as complete when one or more of *the IG Deliver CDA 2.1* tests are successfully completed.

Referenced Specifications

IHE XCDR Profile Specification	IHE Cross-Community Document Reliable Exchange (XCDR) profile - available as a supplement at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_Suppl_XCDR.pdf
IHE Audit Trail and Node Authentication (ATNA)	*IHE Audit Trail and Node Authentication (ATNA) profile* - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195
HL7 C-CDA R2.1	*HL7 Consolidated CDA Release 2.1 available at http://www.hl7.org/implement/standards/product_brief.cfm?product_id=492*

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Change History

Date	Changes
December 6, 2022	Initial Draft Version

IG Deliver With User Authentication

Test Case ID:	IG Deliver With User Authentication
Title:	Initiating Gateway delivers document with user authentication
IHE Profile:	Cross-Community Document Reliable Interchange (XCDR)
Flow:	Basic Success
Optionality:	Optional
Test Tool	XDS Toolkit

Purpose/Description

This test builds on the *IG Deliver Document* test and the four *IG Deliver C-CDA 2.1* tests. The system under test will complete at least one of the IG Deliver C-CDA 2.1 tests and include user authentication information in the SAML assertions. Other SAML information is allowed but is not tested. This is a diagnostic test for Initiating Gateways and does not cover all security requirements. The test *IG Deliver Secured* will cover MD requests and all security requirements when submitting documents in the Message Delivery Scenario.

You are welcome to reuse any of the messages recorded for other Message Deliver tests if those messages already include the required SAML information.

Preconditions

Data Load Set: QTF Data load Set

Test Case Patient Association: QTF TEST QTFTEST-001

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Test Steps

1. The SUT sends an MD Request to the Testing Tool that includes one C-CDA 2.1 document.
   - General metadata requirements are defined in *QHIN Conformance Testing Process Overview*: Section 7: Metadata Requirements for Message Delivery
   - The MD Request will include a SAML header that contains, at a minimum, user authentication information. Other information is allowed and ignored in this test.
2. The Testing Tool returns to the SUT a response indicating success.
   - RegistryResponse/@status:Success
3. Inform the Test Manager which log messages should be evaluated for SAML data.

Assessment

1. Verify that the log message indicated by the system representative has passed the appropriate IG Deliver test.
2. Review the log message manually and verify that it contains appropriate user authentication information in the SAML header.
3. Audit messages will be examined in the test *IG Deliver Secured*.

Referenced Specifications

IHE XCDR Profile Specification	IHE Cross-Community Document Reliable Exchange (XCDR) profile - available as a supplement at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_Suppl_XCDR.pdf
IHE Audit Trail and Node Authentication (ATNA)	*IHE Audit Trail and Node Authentication (ATNA) profile* - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195
HL7 C-CDA R2.1	*HL7 Consolidated CDA Release 2.1 available at http://www.hl7.org/implement/standards/product_brief.cfm?product_id=492*

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Change History

Date	Changes
December 6, 2022	Initial Draft Version

IG Deliver Secured

Test Case ID:	IG Deliver Secured
Title:	Initiating Gateway delivers document with all security provisions
IHE Profile:	Cross-Community Document Reliable Interchange (XCDR)
Flow:	Basic Success
Optionality:	Required
Test Tool	XDS Toolkit

Purpose/Description

The system under test delivers documents with all security provisions. Those provisions include:

1. All required SAML assertions in the document submission transaction.
2. Appropriate TLS 1.2 communication with mutual authentication
3. Appropriate audit records generated

Preconditions

Data Load Set: QTF Data load Set

Test Case Patient Association: QTF TEST QTFTEST-001

Test Steps

Repeat these steps for each of the document types supported by your system.

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1. Send separate MD Requests for each of the required values of Exchange Purpose:
   - TREATMENT
   - REQUEST
2. The SUT includes SAML assertions in the MD Request per the IHE XUA Integration Profile. The Cross-Gateway Document Provide transaction for this test will include:
   - Exchange Purpose: One of the values listed in Test Step 1
   - User Authentication:
3. The SUT performs the transaction using:
   - TLS 1.2 with appropriate parameter
   - Mutual authentication
   - The test certificate issued to the system
4. The Testing Tool returns to the SUT a response indicating success.
   - RegistryResponse/@status:Success
5. After you have sent the Message Delivery transactions, you will execute the two tests listed in these bullets. Each test in the tooling system will look for a transaction that has the required value for Purpose of Use and other parameters listed in step 1.
   - IG.Deliver.TREATMENT
   - IG.Deliver.REQUEST
6. QTF-119 After each test is completed, QHIN candidates MUST submit the relevant extract of the ATNA log entries. These audit messages must be submitted by email to qhintesting@sequoiaproject.org.

Assessment

1. Verify that the SUT generates separate MD messages for each of the required values of Purpose of Use. Verify that the two tests in the tooling environment listed in step 5 above complete successfully.
2. Verify the SUT generates an audit message for each request and that they conform to the following:
   - QTF-119 After each test is completed, QHIN candidates MUST submit the relevant extract of the ATNA log entries. These audit messages must be submitted by email to qhintesting@sequoiaproject.org
3. Manually check one RD Request in the Test Tool for conformance to XUA requirements.
4. Verify that each request is made using an HTTPS transaction using TLS 1.2 and required TLS parameters.
5. Verify that each request is made using the test certificate that was assigned to the system.

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Referenced Specifications

IHE XCDR Profile Specification	IHE Cross-Community Document Reliable Exchange (XCDR) profile - available as a supplement at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_Suppl_XCDR.pdf
IHE Audit Trail and Node Authentication (ATNA)	*IHE Audit Trail and Node Authentication (ATNA) profile* - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195
HL7 C-CDA R2.1	*HL7 Consolidated CDA Release 2.1 available at http://www.hl7.org/implement/standards/product_brief.cfm?product_id=492*

Change History

Date	Changes
December 6, 2022	Initial Draft Version
May 31, 2023	Replaced incorrect Purpose of Use.

IG Deliver C-CDA 2.1 CCD

Test Case ID:	IG Deliver C-CDA 2.1 CCD
Title:	Initiating Gateway delivers one C-CDA 2.1 CCD
IHE Profile:	Cross-Community Document Reliable Interchange (XCDR)
Flow:	Basic Success
Optionality:	Conditional
Test Tool	XDS Toolkit

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Purpose/Description

SUT transmits one C-CDA R2.1 CCD to the Testing Tool. Tool responds to submission with success and later performs more detailed analysis of the supplied metadata.

Systems will run this test on the condition that they produce and transmit Continuity of Care Documents in the Message Delivery Scenario.

Preconditions

Data Load Set: QTF Data load Set

Test Case Patient Association: QTF TEST QTFTEST-001

Test Steps

1. The SUT sends a Cross-Gateway Document Provide [ITI-80] transaction to the Testing Tool that includes one CCD.
   - General metadata requirements are defined in *QHIN Conformance Testing Process Overview*: Section 7: Metadata Requirements for Message Delivery
   - CCD metadata requirements are defined in *QHIN Conformance Testing Process Overview*: Section 8.1: Initiating QHIN: C-CDA CCD. Table is repeated below.
2. The Testing Tool returns to the SUT a response indicating success.
   - RegistryResponse/@status:Success

C-CDA CCD Metadata Requirements

Level	Field	Value
SubmissionSet	patientId	PID-COMMUNITY1-QTFTEST-001^^^&1.3.6.1.4.1.21367.13.20.2000&ISO
SubmissionSet	sourceId	
DocumentEntry	classCode	34133-9, LOINC
DocumentEntry	formatCode	urn:hl7-org:sdwg:ccda-structuredBody:2.1
DocumentEntry	homeCommunityID	urn:oid:2.16.840.1.113883.3.7204.1.3.1.2.3.1
DocumentEntry	mimeType	text/xml
DocumentEntry	objectType	urn:uuid:7edca82f-054d-47f2-a032-9b2a5b5186c1
DocumentEntry	patientId	PID-COMMUNITY1-QTFTEST-001^^^&1.3.6.1.4.1.21367.13.20.2000&ISO
DocumentEntry	typeCode	34133-9, LOINC

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Assessment

1. Verify that the SUT submitted a C-CDA CCD with metadata as defined by the test requirements.
   - Execute test IG.Deliver.CCD on the Test Tool.

   Audit messages will be examined in the test IG Deliver Secured.

Referenced Specifications

IHE XCDR Profile Specification	IHE Cross-Community Document Reliable Exchange (XCDR) profile - available as a supplement at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_Suppl_XCDR.pdf
IHE Audit Trail and Node Authentication (ATNA)	*IHE Audit Trail and Node Authentication (ATNA) profile* - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195
HL7 C-CDA R2.1	*HL7 Consolidated CDA Release 2.1 available at http://www.hl7.org/implement/standards/product_brief.cfm?product_id=492*

Change History

Date	Changes
April 1, 2022	Initial Draft Version
December 6, 2022	Changed to Conditional test Removed redundant examination of audit records

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IG Deliver C-CDA 2.1 Discharge Summary

Test Case ID:	IG Deliver C-CDA 2.1 Discharge Summary
Title:	Initiating Gateway delivers one C-CDA 2.1 Discharge Summary
IHE Profile:	Cross-Community Document Reliable Interchange (XCDR)
Flow:	Basic Success
Optionality:	Conditional
Test Tool	XDS Toolkit

Purpose/Description

SUT transmits one C-CDA R2.1 Discharge Summary to the Testing Tool. Tool responds to submission with success and later performs more detailed analysis of the supplied metadata.

Systems will run this test on the condition that they produce and transmit Discharge Summary documents in the Message Delivery Scenario.

Preconditions

Data Load Set: QTF DATA LOAD SET

Test Case Patient Association: QTF TEST QTFTEST-001

Test Steps

1. The SUT sends an MD Request to the Testing Tool that includes one Discharge Summary.
   - General metadata requirements are defined in *QHIN Conformance Testing Process Overview*: Section 7: Metadata Requirements for Message Delivery
   - Discharge Summary metadata requirements are defined in *QHIN Conformance Testing Process Overview*: Section 8.2: Initiating QHIN: C-CDA Discharge Summary. Table is repeated below.
2. The Testing Tool returns to the SUT a response indicating success.
   - RegistryResponse/@status:Success

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C-CDA Discharge Summary Metadata Requirements

Level	Field	Value
SubmissionSet	patientId	PID-COMMUNITY1-QTFTEST-001^^^&1.3.6.1.4.1.21367.13.20.2000&ISO
SubmissionSet	sourceId	
DocumentEntry	classCode	18842-5, LOINC
DocumentEntry	formatCode	urn:hl7-org:sdwg:ccda-structuredBody:2.1
DocumentEntry	homeCommunityID	urn:oid:2.16.840.1.113883.3.7204.1.3.1.2.3.1
DocumentEntry	mimeType	text/xml
DocumentEntry	objectType	urn:uuid:7edca82f-054d-47f2-a032-9b2a5b5186c1
DocumentEntry	patientId	PID-COMMUNITY1-QTFTEST-001^^^&1.3.6.1.4.1.21367.13.20.2000&ISO
DocumentEntry	typeCode	The preferred LOINC document type code is 18842-5, Discharge Summary note, although systems may send more specific codes from the DischargeSummaryDocumentTypeCode value set urn:oid:2.16.840.1.113883.11.20.4.1.

Assessment

1. Verify that the SUT submitted a C-CDA Discharge Summary with metadata as defined by the test requirements.
   - Execute test IG.Deliver.DischargeSummary on the Test Tool.
2. Audit messages will be examined in the test IG Deliver Secured.

Referenced Specifications

IHE XCDR Profile Specification	IHE Cross-Community Document Reliable Exchange (XCDR) profile - available as a supplement at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_Suppl_XCDR.pdf
IHE Audit Trail and Node Authentication (ATNA)	*IHE Audit Trail and Node Authentication (ATNA) profile* - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195
HL7 C-CDA R2.1	*HL7 Consolidated CDA Release 2.1 available at http://www.hl7.org/implement/standards/product_brief.cfm?product_id=492*

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Change History

Date	Changes
April 1, 2022	Initial Draft Version
December 6, 2022	Changed to Conditional test Removed redundant examination of audit records

IG Deliver C-CDA 2.1 Progress Note

Test Case ID:	IG Deliver C-CDA 2.1 Progress Note
Title:	Initiating Gateway delivers one C-CDA 2.1 Progress Note
IHE Profile:	Cross-Community Document Reliable Interchange (XCDR)
Flow:	Basic Success
Optionality:	Conditional
Test Tool	XDS Toolkit

Purpose/Description

SUT transmits one C-CDA R2.1 Progress Note to the Testing Tool. Tool responds to submission with success and later performs more detailed analysis of the supplied metadata.

Systems will run this test on the condition that they produce and transmit Progress Note documents in the Message Delivery Scenario.

Preconditions

Data Load Set: QTF DATA LOAD SET

Test Case Patient Association: QTF TEST QTFTEST-001

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Test Steps

1. The SUT sends an MD Request to the Testing Tool that includes one Progress Note.
   - General metadata requirements are defined in *QHIN Conformance Testing Process Overview*: Section 7: Metadata Requirements for Message Delivery
   - Progress Note metadata requirements are defined in *QHIN Conformance Testing Process Overview*: Section 8.3: Initiating QHIN: C-CDA Progress Note. Table is repeated below.
2. The Testing Tool returns to the SUT a response indicating success.
   - RegistryResponse/@status:Success

C-CDA Progress Note Metadata Requirements

Level	Field	Value
SubmissionSet	patientId	PID-COMMUNITY1-QTFTEST-001^^^&1.3.6.1.4.1.21367.13.20.2000&ISO
SubmissionSet	sourceId	
DocumentEntry	classCode	11506-3, LOINC
DocumentEntry	formatCode	urn:hl7-org:sdwg:ccda-structuredBody:2.1
DocumentEntry	homeCommunityID	urn:oid:2.16.840.1.113883.3.7204.1.3.1.2.3.1
DocumentEntry	mimeType	text/xml
DocumentEntry	objectType	urn:uuid:7edca82f-054d-47f2-a032-9b2a5b5186c1
DocumentEntry	patientId	PID-COMMUNITY1-QTFTEST-001^^^&1.3.6.1.4.1.21367.13.20.2000&ISO
DocumentEntry	typeCode	The preferred LOINC document type code is 11506-3, Provider-unspecified Progress note, although systems may send more specific codes from the ProgressNoteDocumentTypeCode urn:oid:2.16.840.1.113883.11.20.8.1 value set.

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Assessment

1. Verify that the SUT submitted a C-CDA Progress Note with metadata as defined by the test requirements.
   - Execute test IG.Deliver.ProgressNote on the Test Tool.
2. Audit messages will be examined in the test IG Deliver Secured.

Referenced Specifications

IHE XCDR Profile Specification	IHE Cross-Community Document Reliable Exchange (XCDR) profile - available as a supplement at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_Suppl_XCDR.pdf
IHE Audit Trail and Node Authentication (ATNA)	*IHE Audit Trail and Node Authentication (ATNA) profile* - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195
HL7 C-CDA R2.1	*HL7 Consolidated CDA Release 2.1 available at http://www.hl7.org/implement/standards/product_brief.cfm?product_id=492*

Change History

Date	Changes
April 1, 2022	Initial Draft Version
December 6, 2022	Changed to Conditional test Removed redundant examination of audit records

IG Deliver C-CDA 2.1 Unstructured Document

Test Case ID:	IG Deliver C-CDA 2.1 Unstructured Document
Title:	Initiating Gateway delivers one C-CDA 2.1 Unstructured Document
IHE Profile:	Cross-Community Document Reliable Interchange (XCDR)
Flow:	Basic Success
Optionality:	Conditional
Test Tool	XDS Toolkit

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Purpose/Description

SUT transmits one C-CDA R2.1 Unstructured Document to the Testing Tool. Tool responds to submission with success and later performs more detailed analysis of the supplied metadata.

Systems will run this test on the condition that they produce and transmit Unstructured Documents in the Message Delivery Scenario.

Preconditions

Data Load Set: QTF DATA LOAD SET

Test Case Patient Association: QTF TEST QTFTEST-001

Test Steps

1. The SUT sends an MD Request to the Testing Tool that includes one w Unstructured Document.
   - General metadata requirements are defined in *QHIN Conformance Testing Process Overview*: Section 7: Metadata Requirements for Message Delivery
   - Unstructured Document metadata requirements are defined in *QHIN Conformance Testing Process Overview*: Section 8.4: Initiating QHIN: C-CDA Unstructured Document. Table is repeated below.
2. The Testing Tool returns to the SUT a response indicating success.
   - RegistryResponse/@status:Success

C-CDA Unstructured Document Metadata Requirements

Level	Field	Value
SubmissionSet	patientId	PID-COMMUNITY1-QTFTEST-001^^^&1.3.6.1.4.1.21367.13.20.2000&ISO
SubmissionSet	sourceId	
DocumentEntry	formatCode	**urn:hl7-org:sdwg:ccda-nonXMLBody:2.1**
DocumentEntry	homeCommunityID	urn:oid:2.16.840.1.113883.3.7204.1.3.1.2.3.1
DocumentEntry	mimeType	text/xml
Document Entry	objectType	urn:uuid:7edca82f-054d-47f2-a032-9b2a5b5186c1
DocumentEntry	patientId	PID-COMMUNITY1-QTFTEST-001^^^&1.3.6.1.4.1.21367.13.20.2000&ISO

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Assessment

1. Verify that the SUT submitted a C-CDA Unstructured Document with metadata as defined by the test requirements.
   - Execute test IG.Deliver.UnstructuredDocument on the Test Tool.
2. Audit messages will be examined in the test IG Deliver Secured.

Referenced Specifications

IHE XCDR Profile Specification	IHE Cross-Community Document Reliable Exchange (XCDR) profile - available as a supplement at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_Suppl_XCDR.pdf
IHE Audit Trail and Node Authentication (ATNA)	*IHE Audit Trail and Node Authentication (ATNA) profile* - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195
HL7 C-CDA R2.1	*HL7 Consolidated CDA Release 2.1 available at http://www.hl7.org/implement/standards/product_brief.cfm?product_id=492*

Change History

Date	Changes
April 1, 2022	Initial Draft Version
December 6, 2022	Changed to Conditional test Removed redundant examination of audit records

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4. Tests for Responding QHIN

As discussed in *QHIN Conformance Testing Process: Overview*, the Responding QHIN acts as a gateway to a collection of participants and communicates with those participants using protocols defined by the network and the QTF requirements. The Responding QHIN needs to provide a participant network of systems that will mimic the actual network and support the test cases defined in this document. The Responding QHIN will also be required to load data in advance of the testing process. If you find that the test cases and/or test data make assumptions that are not valid for your network, please discuss with the Test Manager. Responding QHIN candidates must support all requirements defined in the QTF documentation and are not allowed to opt out of any of the specifications.

4.1. Patient Discovery Query

The tests defined in this section use two test patients:

- QTF TEST QTFTEST-003
- QTF TEST QTFTEST-004

These two patients will also be used in the Message Delivery and Document Query/Retrieve tests.

RG Discover Patient 003

Test Case ID:	**RG Discover Patient 003**
Title:	Gateway responds to Patient Discovery for patient 003
IHE Profile:	Cross-community Patient Discovery (XCPD)
Flow:	Basic Success
Optionality:	Required
Test Tool	Gazelle Patient Manager

Purpose/Description

Testing Tool sends a PD Request to the SUT with the required parameters to discover patient QTF TEST QTFTEST-003. SUT responds with a match.

Preconditions

Data Load Set: QTF DATA LOAD SET

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Test Case Patient Association: QTF TEST QTFTEST-003

Test Steps

1. The Testing Tool sends an immediate PD Request to the SUT with the following parameters, with values taken from patient QTF TEST QTFTEST-003:
   - LivingSubjectName
   - LivingSubjectAdministrativeGender
   - LivingSubjectBirthTime
   - PatientAddress

   NOTE: LivingSubjectName contains 2 given names with middle name in the second <given> element

   NOTE: Include SSN, use value taken from patient QTF TEST QTFTEST-003

2. The SUT returns a PD Response with a match for patient QTF TEST QTFTEST-003

Assessment

1. Verify that the Testing Tool receives a valid response to the PD Request.
2. Verify that the response includes patient QTFTEST-003.
   - Response is allowed to include other patients. Client systems will be required to disambiguate response with multiple patients.
3. Examine the PD Response in the Testing Tool. Verify the SUT conforms to the following:
   - TF conformance statements QTF-027 through QTF-040.
4. Audit messages will be examined in the test RG Discover Patient Secured.

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Referenced Specifications

IHE XCPD Profile Specification	IHE Cross-Community Patient Discovery (XCPD) profile - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
IHE Audit Trail and Node Authentication (ATNA)	*IHE Audit Trail and Node Authentication (ATNA) profile* - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195

Change History

Date	Changes
April 1, 2022	Initial Draft Version
December 6, 2022	Removed redundant examination of audit records
May 31, 2023	Removed LivingSubjectID and Patient Telecom from the Test Step 1 Parameter requirements

RG Discover Patient 004

Purpose/Description

This test is a clone of *RG Discover Patient Basic 003* with the exception that this test will use patient QTF TEST QTFTEST-004. Use the instructions for *RG Discover Patient Basic 003* with patient QTFTEST-004.

In addition to supporting QTF requirements, the Responding Gateway needs to have a demographics record for patient QTFTEST-004 to support Document Query and Retrieve testing.

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RG Discover Patient Secured

Test Case ID:	RG Discover Patient Secured
Title:	Responding Gateway supports Patient Discovery with all security provisions
IHE Profile:	Cross-community Patient Discovery (XCPD)
Flow:	Basic Success and Negative Cases
Optionality:	Required
Test Tool	XDS Toolkit

Purpose/Description

The system under test responds to PD Requests with all security provisions. Those provisions include:

1. Recognition and processing of valid requests with required values of Exchange Purpose:
    a. TREATMENT
    b. REQUEST
    c. COVERAGE
    d. OPERATIONS
    e. PAYMENT
    f. PUBLICHEALTH
2. Denial of requests containing improper values of Exchange Purpose.
3. Appropriate TLS 1.2 communication with mutual authentication
4. Appropriate audit records generated

Preconditions

Data Load Set: QTF DATA LOAD SET

Test Case Patient Association: QTF TEST QTFTEST-004

Test Steps

The Testing Tool is configured to use SAML and TLS 1.2 connections for all test steps.

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1. Use the Testing Tool to execute these tests:
   - RG.PatientDiscovery1_secondpurposeofuse.TREATMENT
   - RG.PatientDiscovery1_secondpurposeofuse.REQUEST
   - RG.PatientDiscovery1_secondpurposeofuse.COVERAGE
   - RG.PatientDiscovery1_secondpurposeofuse.OPERATIONS
   - RG.PatientDiscovery1_secondpurposeofuse.PAYMENT
   - RG.PatientDiscovery1_secondpurposeofuse.PUBLICHEALTH
2. The SUT successfully processes each PD Request and returns a PD Response to the testing tool that contains:
   - Status = Success
   - The matching patient record
3. Use the Testing Tool to execute the negative tests listed below. The system under test should reject the requests.
   - RG.PatientDiscovery2_secondpurposeofuse.LEGACYTREATMENT
   - RG.PatientDiscovery2_secondpurposeofuse.REASSURANCE
   - RG.PatientDiscovery2_secondpurposeofuse.TREATMENTOID
   - RG.PatientDiscovery2_secondpurposeofuse.REQUESTATTRS
4. The user will extract the audit message and send it to qhintesting@sequoiaproject.org. The user should only extract and submit the log information relevant to the transaction described in the test case, and to exclude audit data that may correspond to other, unrelated transactions.

All Patient Discovery requests are for the patient QTFTEST-004. The table below lists each test, values supplied for Purpose of Use, and other notes.

Toolkit Test Name	Purpose of Use Code	Code System	Notes
RG.PatientDiscovery1_secondpurposeofuse.TREATMENT	TREATMENT	2.16.840.1.113883.3.7204.1.5.2.1	
RG.PatientDiscovery1_secondpurposeofuse.REQUEST	REQUEST	2.16.840.1.113883.3.7204.1.5.2.1	1
RG.PatientDiscovery1_secondpurposeofuse.COVERAGE	COVERAGE	2.16.840.1.113883.3.7204.1.5.2.1	
RG.PatientDiscovery1_secondpurposeofuse.OPERATIONS	OPERATIONS	2.16.840.1.113883.3.7204.1.5.2.1	

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Toolkit Test Name	Purpose of Use Code	Code System	Notes
RG.PatientDiscovery1_secondpurposeofuse.PAYMENT	PAYMENT	2.16.840.1.113883.3.7204.1.5.2.1	
RG.PatientDiscovery1_secondpurposeofuse.PUBLICHEALTH	PUBLICHEALTH	2.16.840.1.113883.3.7204.1.5.2.1	
RG.PatientDiscovery2_secondpurposeofuse.LEGACYTREATMENT	TREATMENT	2.16.840.1.113883.3.18.7.1	2,3
RG.PatientDiscovery2_secondpurposeofuse.REASSURANCE	REASSURANCE	2.16.840.1.113883.3.7204.1.5.2.1	2,4
RG.PatientDiscovery2_secondpurposeofuse.TREATMENTOID	TREATMENT	.16.840.1.113883.3.7204.1.5.2.199	2,5
RG.PatientDiscovery2_secondpurposeofuse.REQUESTATTRS	REQUEST	2.16.840.1.113883.3.7204.1.5.2.1	2,6

Notes:

1) Includes attributes for csp and validated_attributes.
2) Negative test. Responding Gateway should not return a matching patient record.
3) Code System is legacy NHIN.
4) Undefined code in RCE Code System.
5) Undefined Code System.
6) REQUEST code without csp, validated_attributes.

Assessment

1. Verify that the RG. PatientDiscovery1… and RG. PatientDiscovery2... tests with TLS 1.2 enabled run successfully.
2. Verify the SUT generates an audit message and that it conforms to the following:
   - QTF-119 After each test is completed, QHIN candidates MUST submit the relevant extract of the ATNA log entries. These audit messages must be submitted by email to qhintesting@sequoiaproject.org.

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Referenced Specifications

IHE XCPD Profile Specification	IHE Cross-Community Patient Discovery (XCPD) profile - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
IHE Audit Trail and Node Authentication (ATNA)	*IHE Audit Trail and Node Authentication (ATNA) profile* - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195

Change History

Date	Changes
December 6, 2022	Initial Draft Version
May 31, 2023	Removed one incorrect value for Purpose of Use. List all positive and negative tests with a table indicating individual test parameters.

RG Patient Discovery Advanced

Test Case ID:	RG Patient Discovery Advanced
Title:	Responding Gateway responds to advanced Patient Discovery Requests
IHE Profile:	Cross-community Patient Discovery (XCPD)
Flow:	Basic Success
Optionality:	Optional
Test Tool	Gazelle Patient Manager

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Purpose/Description

Testing Tool sends different PD Requests with different combinations of query parameters to exercise advanced behavior of the Responding Gateway

Preconditions

Data Load Set: QTF DATA LOAD SET

Test Case Patient Association: QTF TEST QTFTEST-003, QTF TEST QTFTEST-004

Test Steps

1. The Test Manager will have a documented list of PD Requests that exercise different combinations of query values.
2. The Test Management will use the Testing Tool to send each PD Request to the SUT.
3. The SUT will respond to each PD Request with a PD Response that includes matching patient records, no patient records, or an error code as appropriate.

Assessment

The purpose of this optional test is to exercise edge cases and expose Responding Gateways to PD Requests that might contain more items than the bare minimum. Record any PD Requests that are not handled by the Responding Gateway and compare these (privately) across all Responding Gateways.

Referenced Specifications

IHE XCPD Profile Specification	IHE Cross-Community Patient Discovery (XCPD) profile - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
IHE Audit Trail and Node Authentication (ATNA)	*IHE Audit Trail and Node Authentication (ATNA) profile* - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195

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Change History

Date	Changes
April 1, 2022	Initial Draft Version

RG Patient Discovery Errors

Test Case ID:	RG Patient Discovery Errors
Title:	Responding Gateway responds to non-conformant Patient Discovery queries
IHE Profile:	Cross-community Patient Discovery (XCPD)
Flow:	Error
Optionality:	Optional
Test Tool	Gazelle Patient Manager

Purpose/Description

Testing Tool sends different PD Requests that purposely contain errors such as missing values and/or malformed values. The Responding Gateway is expected to respond in a resilient manner.

Preconditions

Data Load Set: QTF DATA LOAD SET

Test Case Patient Association: QTF TEST QTFTEST-003, QTF TEST QTFTEST-004

Test Steps

1. The Test Manager will have a documented list of PD Requests that exercise different combinations of query values.
2. The Test Management will use the Testing Tool to send each PD Request to the SUT.
3. The SUT will respond to each PD Request with a PD Response that includes matching patient records, no patient records, or an error code as appropriate.
    - The SUT is expected to be resilient. That is, it should provide some type of response and be capable of accepting a new PD Request without operator intervention.

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Assessment

The purpose of this optional test is to exercise edge cases and expose Responding Gateways to PD Requests that are out of specification due to missing values and/or malformed values.

1. Examine each PD Response sent by the SUT.
   - Ensure that each response is a valid response.
2. Ensure that the SUT remains responsive to PD Requests after each errant request. This can be done by sending another request as soon as possible after each errant request. The additional requests can also be errant requests.

4.2. Document Query and Retrieve

All Query and Retrieve tests for the Responding Gateway use patient QTF TEST QTFTEST-004. As described in the *QHIN Conformance Testing Process: Initialization Test Cases document*, you are required to:

- Configure your testing environment to include patient QTF TEST QTFTEST-004 with the stated demographics.
- Configure your testing environment to include C-CDA documents to satisfy these test cases.

The Testing Tool will query for and attempt to retrieve the document types listed in the table below. You will only execute the relevant tests for the documents in your network.

Document Type
C-CDA 2.1 Continuity of Care Document (CCD)
C-CDA 2.1 Discharge Summary
C-CDA 2.1 Progress Note
C-CDA 2.1 Unstructured Document

Please see the *Testing User Guide* document that describes how to use the Testing Tool and the section on testing a Responding Gateway. The Supporting Environment Configuration for the Responding Gateway contains the initialization test RG.Init. This test sends an XCPD request to your Responding Gateway for the QTFTEST-004 patient and records the patient identifier returned by your system. That patient identifier is used in the query and retrieve tests below.

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The test plans dictate patient name and demographics, but the software relies on an XCPD request to determine the patient identifier known to your Responding Gateway.

RG Query FindDocuments Minimal

Test Case ID:	RG Query FindDocuments Minimal
Title:	Responding Gateway responds to minimal FindDocuments query
IHE Profile:	Cross-community Access (XCA)
Flow:	Basic Success
Optionality:	Required
Test Tool	XDS Toolkit

Purpose/Description

Testing Tool initiates QD Request (FindDocuments, IHE ITF 2:3.18.4.1.2.3.7.1) to the SUT with the minimum parameters necessary for a conformant FindDocument request. SUT responds with the matching documents' metadata. The testing tool has two separate steps that each send one QD Request. The table below lists the steps and expected results.

Step	Result	$XDSDocumentEntryStatus
01a-leaf-class-approved	1 or more leaf class objects	Approved
02a-leaf-class-approved	1 or more leaf class objects	Approved

Preconditions

Data Load Set: QTF DATA LOAD SET

Test Case Patient Association: QTF TEST QTFTEST-004

Successful completion of test RG.Init in the Testing Tool.

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Test Steps

1. Use the Testing Tool to execute the test RG.Query.FindDocuments.Minimal_valid. The tool will send two different QD Requests.
   - The patient identifier has been previously record by the RG.Init test.
   - QD Request one includes
     i. Patient ID: Determined by RG.Init test
     ii. $XDSDocumentEntryStatus: Approved
     iii. returnType: LeafClass
   - QD Request two includes
     i. Patient ID: Determined by RG.Init test
     ii. $XDSDocumentEntryStatus: Approved
     iii. returnType: LeafClass
2. The SUT successfully processes each QD Request and returns a QD Response to the testing tool that contains:
   - Status = Success
   - At least one object per the request type

Assessment

1. Verify that the RG.Query.FindDocuments.Minimal_valid test runs successfully.
2. Examine the QD Responses in the Testing Tool. Verify the SUT conforms to the following:
   - TF conformance statements QTF-041 through QTF-058
3. Audit messages will be examined in the test *RG Query Secured*.

Referenced Specifications

IHE XCA Profile Specification	IHE Cross-Community Access (XCA) profile - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
IHE Audit Trail and Node Authentication (ATNA)	*IHE Audit Trail and Node Authentication (ATNA) profile* - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195

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Change History

Date	Changes
April 1, 2022	Initial Draft Version
December 6, 2022	Removed redundant examination of audit records
May 31, 2023	Updated XDS Toolkit test name; repair typo in the order of the Find Document queries

RG Query Secured

Test Case ID:	RG Query Secured
Title:	Responding Gateway supports Document Query with all security provisions
IHE Profile:	Cross-community Access (XCA)
Flow:	Basic Success and Negative Cases
Optionality:	Required
Test Tool	XDS Toolkit

Purpose/Description

The system under test responds to QD Requests with all security provisions. Those provisions include:

1. Recognition and processing of valid requests with required values of Exchange Purpose:
    a. TREATMENT
    b. REQUEST
    c. COVERAGE
    d. OPERATIONS
    e. PAYMENT
    f. PUBLICHEALTH
2. Denial of requests containing improper values of Exchange Purpose.
3. Appropriate TLS 1.2 communication with mutual authentication
4. Audit messages will be examined in the test RG Query Secured.

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Preconditions

Data Load Set: QTF DATA LOAD SET

Test Case Patient Association: QTF TEST QTFTEST-004

Successful completion of test RG.Init in the Testing Tool.

Test Steps

The Testing Tool is configured to use SAML and TLS 1.2 connections for all test steps.

1. Use the Testing Tool to execute these tests:
   - RG.DocQuery1_secondpurposeofuse.TREATMENT
   - RG.DocQuery1_secondpurposeofuse.REQUEST
   - RG.DocQuery1_secondpurposeofuse.COVERAGE
   - RG.DocQuery1_secondpurposeofuse.OPERATIONS
   - RG.DocQuery1_secondpurposeofuse.PAYMENT
   - RG.DocQuery1_secondpurposeofuse.PUBLICHEALTH
2. The SUT successfully processes each QD Request and returns a QD Response to the testing tool that contains:
   - Status = Success
   - At least one object per the request type
3. Use the Testing Tool to execute the negative tests listed below. The system under test should reject the requests.
   - RG.DocQuery2_secondpurposeofuse. LEGACYTREATMENT
   - RG.DocQuery2_secondpurposeofuse. REASSURANCE
   - RG.DocQuery2_secondpurposeofuse.TREATMENTOID
   - RG.DocQuery2_secondpurposeofuse.REQUESTATTRS
4. The user will extract the audit message and send it to qhintesting@sequoiaproject.org. The user should only extract and submit the log information relevant to the transaction described in the test case, and to exclude audit data that may correspond to other, unrelated transactions.

All document query tests use the patient identifier recorded in test RG.Init. The table below lists each test, values supplied for Purpose of Use, and other notes.

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Toolkit Test Name	Purpose of Use Code	Code System	Notes
RG.DocQuery1_secondpurposeofuse.TREATMENT	TREATMENT	2.16.840.1.113883.3.7204.1.5.2.1	
RG.DocQuery1_secondpurposeofuse.REQUEST	REQUEST	2.16.840.1.113883.3.7204.1.5.2.1	1
RG.DocQuery1_secondpurposeofuse.COVERAGE	COVERAGE	2.16.840.1.113883.3.7204.1.5.2.1	
RG.DocQuery1_secondpurposeofuse.OPERATIONS	OPERATIONS	2.16.840.1.113883.3.7204.1.5.2.1	
RG.DocQuery1_secondpurposeofuse.PAYMENT	PAYMENT	2.16.840.1.113883.3.7204.1.5.2.1	
RG.DocQuery1_secondpurposeofuse.PUBLICHEALTH	PUBLICHEALTH	2.16.840.1.113883.3.7204.1.5.2.1	
RG.DocQuery2_secondpurposeofuse.LEGACYTREATMENT	TREATMENT	2.16.840.1.113883.3.18.7.1	2,3
RG.DocQuery2_secondpurposeofuse.REASSURANCE	REASSURANCE	2.16.840.1.113883.3.7204.1.5.2.1	2,4
RG.DocQuery2_secondpurposeofuse.TREATMENTOID	TREATMENT	.16.840.1.113883.3.7204.1.5.2.199	2,5
RG.DocQuery2_secondpurposeofuse.REQUESTATTRS	REQUEST	2.16.840.1.113883.3.7204.1.5.2.1	2,6

Notes:

1) Includes attributes for csp and validated_attributes.
2) Negative test. Responding Gateway should not return any document objects.
3) Code System is legacy NHIN.
4) Undefined code in RCE Code System.
5) Undefined Code System.
6) REQUEST code without csp, validated_attributes.

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Assessment

1. Verify that the RG.DocQuery1… and RG.DocQuery2... tests with TLS enabled run successfully.
2. Verify the SUT generates an audit message and that it conforms to the following:
   - QTF-119 After each test is completed, QHIN candidates MUST submit the relevant extract of the ATNA log entries. These audit messages must be submitted by email to qhintesting@sequoiaproject.org.

Referenced Specifications

IHE XCA Profile Specification	IHE Cross-Community Access (XCA) profile - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
IHE Audit Trail and Node Authentication (ATNA)	*IHE Audit Trail and Node Authentication (ATNA) profile* - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195

Change History

Date	Changes
December 6, 2022	Initial Draft Version
May 31, 2023	Replaced single Toolkit test with several tests that each have specific Purpose of Use values in the test name.

RG Query C-CDA 2.1 CCD

Test Case ID:	RG Query C-CDA 2.1 CCD
Title:	Responding Gateway supports Document Query for C-CDA R2.1 CCD
IHE Profile:	Cross-community Access (XCA)
Flow:	Basic Success
Optionality:	Conditional
Test Tool	XDS Toolkit

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Purpose/Description

Testing Tool initiates QD Request to the SUT with a DocumentEntry.classCode filter that uses a LOINC code to request C-CDA R2.1 CCD documents. This test is executed by Responding QHINs that include C-CDA R2.1 CCDs in their network and will respond to QD and RD requests for those documents.

Preconditions

Data Load Set: QTF DATA LOAD SET

Test Case Patient Association: QTF TEST QTFTEST-004

Successful completion of test RG.Init in the Testing Tool.

Test Steps

1. Use the Testing Tool to execute the test RG.Query.CCD. The tool will send one QD Request with the following parameters.
   - The patient identifier has been previously record by the RG.Init test.
   - DocumentEntry.status == urn:oasis:names:tc:ebxml-regrep:StatusType:Approved
   - DocumentEntry.classCode == 34133-9^^2.16.840.1.113883.6.1
   - returnType == LeafClass
2. The SUT successfully processes the QD Request and returns a QD Response to the testing tool that contains:
   - Status = Success
   - At least one object per the request type

Assessment

1. Verify that the RG.Query.CCD test runs successfully.
2. Examine the QD Responses in the Testing Tool. Verify the SUT conforms to the following:
   - TF conformance statements QTF-041 through QTF-058
3. Audit messages will be examined in the test *RG Query Secured*.

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Referenced Specifications

IHE XCA Profile Specification	IHE Cross-Community Access (XCA) profile - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
IHE Audit Trail and Node Authentication (ATNA)	*IHE Audit Trail and Node Authentication (ATNA) profile* - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195

Change History

Date	Changes
December 6, 2022	Initial Draft Version

RG Query C-CDA 2.1 Discharge Summary

Test Case ID:	RG Query C-CDA 2.1 Discharge Summary
Title:	Responding Gateway supports Document Query for C-CDA R2.1 Discharge Summary
IHE Profile:	Cross-community Access (XCA)
Flow:	Basic Success
Optionality:	Conditional
Test Tool	XDS Toolkit

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Purpose/Description

Testing Tool initiates QD Request to the SUT with a DocumentEntry.classCode filter that uses a LOINC code to request C-CDA R2.1 Discharge Summary documents. This test is executed by Responding QHINs that include C-CDA R2.1 Discharge Summary documents in their network and will respond to QD and RD requests for those documents.

Preconditions

Data Load Set: QTF DATA LOAD SET

Test Case Patient Association: QTF TEST QTFTEST-004

Successful completion of test RG.Init in the Testing Tool.

Test Steps

1. Use the Testing Tool to execute the test RG.Query.DischargeSummary. The tool will send one QD Request with the following parameters.
   - The patient identifier has been previously record by the RG.Init test.
   - DocumentEntry.status == urn:oasis:names:tc:ebxml-regrep:StatusType:Approved
   - DocumentEntry.classCode == 18842-5^^2.16.840.1.113883.6.1
   - returnType == LeafClass
2. The SUT successfully processes the QD Request and returns a QD Response to the testing tool that contains:
   - Status = Success
   - At least one object per the request type

Assessment

1. Verify that the RG.Query.DischargeSummary test runs successfully.
2. Examine the QD Responses in the Testing Tool. Verify the SUT conforms to the following:
   - TF conformance statements QTF-041 through QTF-058
3. Audit messages will be examined in the test *RG Query Secured*.

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Referenced Specifications

IHE XCA Profile Specification	IHE Cross-Community Access (XCA) profile - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
IHE Audit Trail and Node Authentication (ATNA)	*IHE Audit Trail and Node Authentication (ATNA) profile* - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195

Change History

Date	Changes
December 6, 2022	Initial Draft Version

RG Query C-CDA 2.1 Progress Note

Test Case ID:	RG Query C-CDA 2.1 Progress Note
Title:	Responding Gateway supports Document Query for C-CDA R2.1 Progress Note
IHE Profile:	Cross-community Access (XCA)
Flow:	Basic Success
Optionality:	Conditional
Test Tool	XDS Toolkit

Purpose/Description

Testing Tool initiates QD Request to the SUT with a DocumentEntry.classCode filter that uses a LOINC code to request C-CDA R2.1 Progress Note documents. This test is executed by Responding

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QHINs that include C-CDA R2.1 Progress Note documents in their network and will respond to QD and RD requests for those documents.

Preconditions

Data Load Set: QTF DATA LOAD SET

Test Case Patient Association: QTF TEST QTFTEST-004

Successful completion of test RG.Init in the Testing Tool.

Test Steps

1. Use the Testing Tool to execute the test RG.Query.ProgressNote. The tool will send one QD Request with the following parameters.
   - The patient identifier has been previously record by the RG.Init test.
   - DocumentEntry.status == urn:oasis:names:tc:ebxml-regrep:StatusType:Approved
   - DocumentEntry.classCode == 11506-3^^2.16.840.1.113883.6.1
   - returnType == LeafClass
2. The SUT successfully processes the QD Request and returns a QD Response to the testing tool that contains:
   - Status = Success
   - At least one object per the request type

Assessment

1. Verify that the RG.Query.ProgressNote test runs successfully.
2. Examine the QD Responses in the Testing Tool. Verify the SUT conforms to the following:
   - TF conformance statements QTF-041 through QTF-058
3. Audit messages will be examined in the test *RG Query Secured*.

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Referenced Specifications

IHE XCA Profile Specification	IHE Cross-Community Access (XCA) profile - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
IHE Audit Trail and Node Authentication (ATNA)	*IHE Audit Trail and Node Authentication (ATNA) profile* - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195

Change History

Date	Changes
December 6, 2022	Initial Draft Version

RG Query C-CDA 2.1 Unstructured Document

Test Case ID:	RG Query C-CDA 2.1 Unstructured Document
Title:	Responding Gateway supports Document Query for C-CDA R2.1 Unstructured Document
IHE Profile:	Cross-community Access (XCA)
Flow:	Basic Success
Optionality:	Conditional
Test Tool	XDS Toolkit

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Purpose/Description

Testing Tool initiates QD Request to the SUT with a DocumentEntry.formatCode filter to request unstructured documents. This test is executed by Responding QHINs that include C-CDA R2.1 Unstructured Documents in their network and will respond to QD and RD requests for those documents.

Preconditions

Data Load Set: QTF DATA LOAD SET

Test Case Patient Association: QTF TEST QTFTEST-004

Successful completion of test RG.Init in the Testing Tool.

Test Steps

1. Use the Testing Tool to execute the test RG.Query.UnstructuredDocument. The tool will send one QD Request with the following parameters.
   - The patient identifier has been previously record by the RG.Init test.
   - DocumentEntry.status == urn:oasis:names:tc:ebxml-regrep:StatusType:Approved
   - DocumentEntry.formatCode == urn:hl7-org:sdwg:ccda-nonXMLBody:2.1^^1.3.6.1.4.1.19376.1.2.3
   - returnType == LeafClass
2. The SUT successfully processes the QD Request and returns a QD Response to the testing tool that contains:
   - Status = Success
   - At least one object per the request type

Assessment

1. Verify that the RG.Query.UnstructuredDocument test runs successfully.
2. Examine the QD Responses in the Testing Tool. Verify the SUT conforms to the following:
   - TF conformance statements QTF-041 through QTF-058
3. Audit messages will be examined in the test *RG Query Secured*.

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Referenced Specifications

IHE XCA Profile Specification	IHE Cross-Community Access (XCA) profile - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
IHE Audit Trail and Node Authentication (ATNA)	*IHE Audit Trail and Node Authentication (ATNA) profile* - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195

Change History

Date	Changes
December 6, 2022	Initial Draft Version

RG Optional Transactions

Test Case ID:	RG Optional Transactions
Title:	Responding Gateway responds to optional transactions
IHE Profile:	Cross-community Access (XCA)
Flow:	Basic Success and Negative Test Cases
Optionality:	Optional
Test Tool	XDS Toolkit

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Purpose/Description

Testing Tool offers different Document Query and Retrieve transactions with combinations of SAML assertions to further exercise a Responding Gateway.

Preconditions

Data Load Set: QTF DATA LOAD SET

Test Case Patient Association: QTF TEST QTFTEST-004

Successful completion of test RG.Init in the Testing Tool.

Test Steps

The tests listed in the Optional tab for the Responding Gateway are run by owner of the system under test or by the Test Manager on an as needed basis. As with other tabs, the user can execute tests individually or by using the Run All button.

Assessment

No formal assessment is provided by the Test Manager. The Test Manager will consult and help interpret results as needed.

Referenced Specifications

IHE XCA Profile Specification	IHE Cross-Community Access (XCA) profile - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
IHE Audit Trail and Node Authentication (ATNA)	*IHE Audit Trail and Node Authentication (ATNA) profile* - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195

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Change History

Date	Changes
December 6, 2022	Initial Draft Version
May 31, 2023	Change test name and description to emphasize the optional nature of this singular test and how it maps to multiple transactions in the Testing Tool.

RG Basic Retrieve

Test Case ID:	RG Basic Retrieve
Title:	Responding Gateway responds to Retrieve Document Request for single document
IHE Profile:	Cross-community Access (XCA)
Flow:	Basic Success
Optionality:	Required
Test Tool	XDS Toolkit

Purpose/Description

Testing Tool initiates a synchronous RD Request for documents to the SUT. SUT responds with the requested document.

Preconditions

Data Load Set: QTF DATA LOAD SET

Test Case Patient Association: QTF TEST QTFTEST-004

Successful completion of test RG.Query.FindDocuments.Minimal_valid in the Testing Tool.

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Test Steps

1. Use the Testing Tool to execute the test RG.Basic.Retrieve_valid.
2. The Testing Tool sends a synchronous RD Request for one document to the SUT, using the following required parameters:
   - RepositoryUniqueId: [Extracted from RG.Query.FindDocuments.Minimal_valid log]
   - DocumentUniqueId: [Extracted from RG.Query.FindDocuments.Minimal_valid log]
   - homeCommunityId: [HCID for the SUT]

   If the SUT is testing as an On-Demand system, the following On-Demand document would also need to be retrieved:
   - RepositoryUniqueId: [Extracted from RG.Query.FindDocuments.Minimal_valid log]
   - DocumentUniqueId: [Extracted from RG.Query.FindDocuments.Minimal_valid log]
   - homeCommunityId: [HCID for the System]
3. The System returns to the Testing Tool an RD Response containing the requested document.
   RegistryResponse/@status:Success
   DocumentResponse: 1 present
   RepositoryUniqueId: [Matches value returned in RG.Query.FindDocuments.Minimal_valid]
   DocumentUniqueId: [Matches value returned in RG.Query.FindDocuments.Minimal_valid]
   homeCommunityId: [HCID for the System]

Assessment

1. Verify that the RG.Basic.Retrieve_valid test runs successfully.
2. Examine the RD Response in the Testing Tool. Verify the SUT conforms to the following:
   - TF conformance statements QTF-041 through QTF-058
3. Audit messages will be examined in the test RG Retrieve Secured.

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Referenced Specifications

IHE XCA Profile Specification	IHE Cross-Community Access (XCA) profile - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
IHE Audit Trail and Node Authentication (ATNA)	*IHE Audit Trail and Node Authentication (ATNA) profile* - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195

Change History

Date	Changes
April 1, 2022	Initial Draft Version
December 6, 2022	Removed redundant examination of audit records
May 31, 2023	Updated Toolkit test names to match updated version of test cases.

RG Retrieve Secured

Test Case ID:	RG Retrieve Secured
Title:	Responding Gateway supports document retrieve with all security provisions
IHE Profile:	Cross-community Access (XCA)
Flow:	Basic Success
Optionality:	Required
Test Tool	XDS Toolkit

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Purpose/Description

The system under test responds to RD Requests with all security provisions. Those provisions include:

1. Recognition and processing of valid requests with required values of Exchange Purpose:
    a. Treatment
    b. Individual Access Services
2. Denial of requests containing improper values of Exchange Purpose.
3. Appropriate TLS 1.2 communication with mutual authentication
4. Appropriate audit records generated

Preconditions

Data Load Set: QTF DATA LOAD SET

Test Case Patient Association: QTF TEST QTFTEST-004

Successful completion of test RG.Init in the Testing Tool.

Test Steps

The Testing Tool is configured to use SAML and TLS 1.2 connections for all test steps.

1. Use the Testing Tool to execute the test RG.Query.FindDocuments.Minimal_valid.
2. The Testing Tool sends a synchronous RD Request for one document to the SUT, using the following required parameters:
    - RepositoryUniqueId: [Extracted from RG.Query.FindDocuments.Minimal_valid log]
    - DocumentUniqueId: [Extracted from RG.Query.FindDocuments.Minimal_valid log]
    - homeCommunityId: [HCID for the SUT]

    If the SUT is testing as an On-Demand system, the following On-Demand document would also need to be retrieved:
    - RepositoryUniqueId: [Extracted from RG.Query.FindDocuments.Minimal_valid log]
    - DocumentUniqueId: [Extracted from RG.Query.FindDocuments.Minimal_valid log]
    - homeCommunityId: [HCID for the System]
3. The System returns to the Testing Tool an RD Response containing the requested document.
    RegistryResponse/@status:Success
    DocumentResponse: 1 present

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RepositoryUniqueId: [Matches value returned in RG.Query.FindDocuments.Minimal_valid]
DocumentUniqueId: [Matches value returned in RG.Query.FindDocuments.Minimal_valid]
homeCommunityId: [HCID for the System]

4. The user will extract the audit message and send it to qhintesting@sequoiaproject.org. The user should only extract and submit the log information relevant to the transaction described in the test case, and to exclude audit data that may correspond to other, unrelated transactions.

Assessment

1. Verify that the RG.Query.FindDocuments.Minimal_valid test with TLS enabled runs successfully.
2. Examine the RD Responses in the Testing Tool. Verify the SUT conforms to the following:
   - TF conformance statements QTF-041 through QTF-058
3. Verify the SUT generates an audit message and that it conforms to the following:
   - QTF-119 After each test is completed, QHIN candidates MUST submit the relevant extract of the ATNA log entries. These audit messages must be submitted by email to qhintesting@sequoiaproject.org.

Referenced Specifications

IHE XCA Profile Specification	IHE Cross-Community Access (XCA) profile - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
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Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195

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Change History

Date	Changes
December 6, 2022	Initial Draft Version
May 31, 2023	Updated Toolkit test names to match updated version of test cases.

RG Retrieve C-CDA 2.1 CCD

Test Case ID:	RG Retrieve C-CDA 2.1 CCD
Title:	Responding Gateway responds to Retrieve Document Request for C-CDA 2.1 CCD
IHE Profile:	Cross-community Access (XCA)
Flow:	Basic Success
Optionality:	Conditional
Test Tool	XDS Toolkit

Purpose/Description

Testing Tool initiates a synchronous RD Request for documents to the SUT. SUT returns an RD Response with the requested document.

This test is specific to retrieving one Continuity of Care Document.

Responding systems will run this test on the condition that their network contains Continuity of Care Documents that can be searched for and retrieved in the Document Query Scenario.

Preconditions

Data Load Set: QTF DATA LOAD SET

Test Case Patient Association: QTF TEST QTFTEST-004

Successful completion of test RG.Query.FindDocuments.Minimal _valid in the Testing Tool.

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Test Steps

1. Use the Testing Tool to execute the test RG.Retrieve.CCD.
2. The Testing Tools sends a synchronous Query Documents Request with a LOINC code that indicates a CCD. If that step is successful, the next step is triggered.
3. The Testing Tool sends a synchronous Retrieve Documents Request for one document to the SUT, using the following required parameters:
   - RepositoryUniqueId:
   - DocumentUniqueId:
   - homeCommunityId: [HCID for the SUT]

   If the SUT is testing as an On-Demand system, the following On-Demand document would also need to be retrieved:
   - RepositoryUniqueId:
   - DocumentUniqueId:
   - homeCommunityId: [HCID for the System]
4. The System returns to the Testing Tool an RD Response containing the requested document.
   a. RegistryResponse/@status:Success
   b. DocumentResponse: 1 present
   c. RepositoryUniqueId:
   d. DocumentUniqueId:
   e. homeCommunityId: [HCID for the System]

Assessment

1. Verify that the RG.Retrieve.CCD test runs successfully.
2. Examine the RD Response in the Testing Tool. Verify the SUT conforms to the following:
   - TF conformance statements QTF-041 through QTF-058
3. Audit messages will be examined in the test RG Retrieve Secured.

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Referenced Specifications

IHE XCA Profile Specification	IHE Cross-Community Access (XCA) profile - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
IHE Audit Trail and Node Authentication (ATNA)	*IHE Audit Trail and Node Authentication (ATNA) profile* - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195

Change History

Date	Changes
April 1, 2022	Initial Draft Version
December 6, 2022	Changed to Conditional test Removed redundant examination of audit records
May 31, 2023	Updated Toolkit test names to match updated version of test cases.

RG Retrieve C-CDA 2.1 Discharge Summary

Test Case ID:	RG Retrieve C-CDA 2.1 Discharge Summary
Title:	Responding Gateway responds to Retrieve Document Request for C-CDA 2.1 Discharge Summary
IHE Profile:	Cross-community Access (XCA)
Flow:	Basic Success
Optionality:	Conditional
Test Tool	XDS Toolkit

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Purpose/Description

Testing Tool initiates a synchronous RD Request for documents to the SUT. SUT returns an RD Response with the requested document.

This test is specific to retrieving one Discharge Summary.

Responding systems will run this test on the condition that their network contains Discharge Summary documents that can be searched for and retrieved in the Document Query Scenario.

Preconditions

Data Load Set: QTF DATA LOAD SET

Test Case Patient Association: QTF TEST QTFTEST-004

Successful completion of test RG.Query.FindDocuments.Minimal _valid in the Testing Tool.

Test Steps

1. Use the Testing Tool to execute the test RG.Retrieve.DischargeSummary.
2. The Testing Tools sends a synchronous Query Documents Request with a LOINC code that indicates a Discharge Summary. If that step is successful, the next step is triggered.
3. The Testing Tool sends a synchronous Retrieve Documents Request for one document to the SUT, using the following required parameters:
   - RepositoryUniqueId:
   - DocumentUniqueId:
   - homeCommunityId: [HCID for the SUT]
4. If the SUT is testing as an On-Demand system, the following On-Demand document would also need to be retrieved:
   - RepositoryUniqueId:
   - DocumentUniqueId:
   - homeCommunityId: [HCID for the System]
5. The System returns to the Testing Tool an RD Response containing the requested document.
   - RegistryResponse/@status:Success
   - DocumentResponse: 1 present
   - RepositoryUniqueId:
   - DocumentUniqueId:

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- homeCommunityId: [HCID for the System]

Assessment

1. Verify that the RG.Retrieve.DischargeSummary test runs successfully.
2. Verify the SUT conforms to the following:
   - TF conformance statements QTF-041 through QTF-058

Referenced Specifications

IHE XCA Profile Specification	IHE Cross-Community Access (XCA) profile - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
IHE Audit Trail and Node Authentication (ATNA)	*IHE Audit Trail and Node Authentication (ATNA) profile* - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195

Change History

Date	Changes
April 1, 2022	Initial Draft Version
December 6, 2022	Changed to Conditional test Removed redundant examination of audit records
May 31, 2023	Updated Toolkit test names to match updated version of test cases.

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RG Retrieve C-CDA 2.1 Progress Note

Test Case ID:	RG Retrieve C-CDA 2.1 Progress Note
Title:	Responding Gateway responds to Retrieve Document Request for C-CDA 2.1 Progress Note
IHE Profile:	Cross-community Access (XCA)
Flow:	Basic Success
Optionality:	Conditional
Test Tool	XDS Toolkit

Purpose/Description

Testing Tool initiates a synchronous RD Request for documents to the SUT. SUT returns an RD Response with the requested document.

This test is specific to retrieving one Progress Note.

Responding systems will run this test on the condition that their network contains Progress Note documents that can be searched for and retrieved in the Document Query Scenario.

Preconditions

Data Load Set: QTF DATA LOAD SET

Test Case Patient Association: QTF TEST QTFTEST-004

Successful completion of test RG.Query.FindDocuments.Minimal _valid in the Testing Tool.

Test Steps

1. Use the Testing Tool to execute the test RG.Retrieve.ProgressNote.
2. The Testing Tools sends a synchronous Query Documents Request with a LOINC code that indicates a Progress Note. If that step is successful, the next step is triggered.
3. The Testing Tool sends a synchronous Retrieve Documents Request for one document to the SUT, using the following required parameters:
   - RepositoryUniqueId:
   - DocumentUniqueId:
   - homeCommunityId: [HCID for the SUT]

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4. If the SUT is testing as an On-Demand system, the following On-Demand document would also need to be retrieved:
   - RepositoryUniqueId:
   - DocumentUniqueId:
   - homeCommunityId: [HCID for the System]
5. The System returns to the Testing Tool an RD Response containing the requested document.
   - RegistryResponse/@status:Success
   - DocumentResponse: 1 present
   - RepositoryUniqueId:
   - DocumentUniqueId:
   - homeCommunityId: [HCID for the System]

Assessment

1. Verify that the RG.Retrieve.ProgressNote test runs successfully.
2. Verify the SUT conforms to the following:
   - TF conformance statements QTF-041 through QTF-058

Referenced Specifications

IHE XCA Profile Specification	IHE Cross-Community Access (XCA) profile - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
IHE Audit Trail and Node Authentication (ATNA)	*IHE Audit Trail and Node Authentication (ATNA) profile* - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195

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Change History

Date	Changes
December 6, 2022	Initial Draft Version
May 31, 2023	Updated Toolkit test names to match updated version of test cases.

RG Retrieve C-CDA 2.1 Unstructured Document

Test Case ID:	RG Retrieve C-CDA 2.1 Unstructured Document
Title:	Responding Gateway responds to Retrieve Document Request for C-CDA 2.1 Unstructured Document
IHE Profile:	Cross-community Access (XCA)
Flow:	Basic Success
Optionality:	Conditional
Test Tool	XDS Toolkit

Purpose/Description

Testing Tool initiates a synchronous RD Request for documents to the SUT. SUT returns an RD Response with the requested document.

This test is specific to retrieving one Unstructured Document

Responding systems will run this test on the condition that their network contains Unstructured Documents that can be searched for and retrieved in the Document Query Scenario.

Preconditions

Data Load Set: QTF DATA LOAD SET

Test Case Patient Association: QTF TEST QTFTEST-004

Successful completion of test RG.Query.FindDocuments.Minimal _valid in the Testing Tool.

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Test Steps

1. Use the Testing Tool to execute the test RG.Retrieve.UnstructuredDocument.
2. The Testing Tools sends a synchronous Query Documents Request with a DocumentEntry.formatCode that indicates unstructured documents. If that step is successful, the next step is triggered.
3. The Testing Tool sends a synchronous Retrieve Documents Request for one document to the SUT, using the following required parameters:
   - RepositoryUniqueId:
   - DocumentUniqueId:
   - homeCommunityId: [HCID for the SUT]
4. If the SUT is testing as an On-Demand system, the following On-Demand document would also need to be retrieved:
   - RepositoryUniqueId:
   - DocumentUniqueId:
   - homeCommunityId: [HCID for the System]
5. The System returns to the Testing Tool an RD Response containing the requested document.
   - RegistryResponse/@status:Success
   - DocumentResponse: 1 present
   - RepositoryUniqueId:
   - DocumentUniqueId:
   - homeCommunityId: [HCID for the System]

Assessment

1. Verify that the RG.Retrieve.UnstructuredDocument test runs successfully.
2. Verify the SUT conforms to the following:
   - TF conformance statements QTF-041 through QTF-058

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Referenced Specifications

IHE XCA Profile Specification	IHE Cross-Community Access (XCA) profile - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
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Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195

Change History

Date	Changes
December 6, 2022	Initial Draft Version
May 31, 2023	Updated Toolkit test names to match updated version of test cases.

4.3. Message Delivery

All Message Delivery tests for the Responding Gateway use patient QTF TEST QTFTEST-003. As described in the *QHIN Conformance Testing Process: Initialization Test Cases document*, you are required to:

- Configure your testing environment to include patient QTF TEST QTFTEST-003 with the stated demographics.

The Testing Tool will send sample documents for patient QTF TEST QTFTEST-003 as shown in the table below. You will execute the relevant accept document test for each of the four document types listed below.

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Document Type
C-CDA 2.1 Continuity of Care Document (CCD)
C-CDA 2.1 Discharge Summary
C-CDA 2.1 Progress Note
C-CDA 2.1 Unstructured Document

Please see the *Testing User Guide* document that describes how to use the Testing Tool and the section on testing a Responding Gateway.

RG Accept Document

Test Case ID:	**RG Accept Document**
Title:	Responding Gateway accepts at least one type of document
IHE Profile:	Cross-Community Document Reliable Interchange (XCDR)
Flow:	Basic Success
Optionality:	Required
Test Tool	XDS Toolkit

Purpose/Description

This test is intended to record the successful result of accepting an MD Request with at least one of the four document types covered by the test cases in this section:

- C-CDA 2.1 CCD
- C-CDA 2.1 Discharge Summary
- C-CDA 2.1 Progress Note
- C-CDA 2.1 Unstructured Document

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Preconditions

Test Steps

1. Run at least one of these tests:
    - RG Accept C-CDA 2.1 CCD
    - RG Accept C-CDA 2.1 Discharge Summary
    - RG Accept C-CDA 2.1 Progress Note
    - RG Accept C-CDA 2.1 Unstructured Document
2. Inform the Test Manager which deliver test or tests should be included with this test.

Assessment

This test requires no technical evaluation. You will record this test as complete when one or more of *the IG Accept CDA 2.1* tests are successfully completed.

Referenced Specifications

IHE XCDR Profile Specification	IHE Cross-Community Document Reliable Exchange (XCDR) profile - available as a supplement at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_Suppl_XCDR.pdf
IHE Audit Trail and Node Authentication (ATNA)	*IHE Audit Trail and Node Authentication (ATNA) profile* - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195
HL7 C-CDA R2.1	*HL7 Consolidated CDA Release 2.1 available at http://www.hl7.org/implement/standards/product_brief.cfm?product_id=492*

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Change History

Date	Changes
December 6, 2022	Initial Draft Version
May 31, 2023	Updated Test Step #1 Test Case Names from IG to RG

RG Accept Document Secured

Test Case ID:	RG Accept Document Secured
Title:	Responding Gateway supports Message Delivery with all security provisions
IHE Profile:	Cross-Community Document Reliable Interchange (XCDR)
Flow:	Basic Success
Optionality:	Required
Test Tool	XDS Toolkit

Purpose/Description

The system under test responds to MD Requests with all security provisions. Those provisions include:

1. Recognition and processing of valid requests with required values of Exchange Purpose:
    a. Treatment
    b. Individual Access Service
2. Denial of requests containing improper values of Exchange Purpose.
3. Appropriate TLS 1.2 communication with mutual authentication
4. Appropriate audit records generated

Preconditions

Data Load Set: QTF Data load Set

Test Case Patient Association: QTF TEST QTFTEST-003

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Test Steps

The Testing Tool is configured to use SAML and TLS 1.2 connections for all test steps.

1. Use the Testing Tool to execute one or more of the following tests:
   - RG.Accept.CCD
   - RG.Accept.DischargeSummary
   - RG.Accept.ProgressNote
   - RG.Accept.Unstructured
2. The System Under Test will respond with a status of Success.
3. After each test is completed, QHIN candidates MUST submit the relevant extract of the ATNA log entries. These audit messages must be submitted by email to qhintesting@sequoiaproject.org.

Assessment

1. Verify that the RG Accept test or tests runs successfully.
2. Verify the SUT generates an audit message and that it conforms to the following:
   - QTF-119 After each test is completed, QHIN candidates MUST submit the relevant extract of the ATNA log entries. These audit messages must be submitted by email to qhintesting@sequoiaproject.org.

Referenced Specifications

IHE XCDR Profile Specification	IHE Cross-Community Document Reliable Exchange (XCDR) profile - available as a supplement at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_Suppl_XCDR.pdf
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Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195
HL7 C-CDA R2.1	*HL7 Consolidated CDA Release 2.1 available at http://www.hl7.org/implement/standards/product_brief.cfm?product_id=492*

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Change History

Date	Changes
December 6, 2022	Initial Draft Version
May 31, 2023	Updated Purpose/Description to call out MD instead of improper RD

RG Accept C-CDA 2.1 CCD

Test Case ID:	RG Accept C-CDA 2.1 CCD
Title:	Responding Gateway accepts C-CDA 2.1 CCD
IHE Profile:	Cross-Community Document Reliable Interchange (XCDR)
Flow:	Basic Success
Optionality:	Required
Test Tool	XDS Toolkit

Purpose/Description

SUT accepts one Message Delivery requesting containing a C-CDA R2.1 CCD that is transmitted by the Testing Tool. The Responding Gateway is expected to return a status of urn:oasis:names:tc:ebxml-regrep:ResponseStatusType:Success.

Preconditions

Data Load Set: QTF Data load Set

Test Case Patient Association: QTF TEST QTFTEST-003

Test Steps

1. Use the Testing Tool to execute the test RG.Accept.CCD.
   - The Testing Tool will send an ITI-80 transaction with one CCD.
   - The System Under Test will respond with a status of Success.
2. After each test is completed, QHIN candidates MUST submit the relevant extract of the ATNA log entries. These audit messages must be submitted by email to qhintesting@sequoiaproject.org.

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Assessment

1. Verify that the RG.Accept.CCD test runs successfully.
2. Audit messages will be examined in the test *RG Accept Secured*.

Referenced Specifications

IHE XCDR Profile Specification	IHE Cross-Community Document Reliable Exchange (XCDR) profile - available as a supplement at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_Suppl_XCDR.pdf
IHE Audit Trail and Node Authentication (ATNA)	*IHE Audit Trail and Node Authentication (ATNA) profile* - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195
HL7 C-CDA R2.1	*HL7 Consolidated CDA Release 2.1 available at http://www.hl7.org/implement/standards/product_brief.cfm?product_id=492*

Change History

Date	Changes
April 1, 2022	Initial Draft Version
December 6, 2022	Changed to required Removed redundant examination of audit records

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RG Accept C-CDA 2.1 Discharge Summary

Test Case ID:	RG Accept C-CDA 2.1 Discharge Summary
Title:	Gateway accepts C-CDA 2.1 Discharge Summary
IHE Profile:	Cross-Community Document Reliable Interchange (XCDR)
Flow:	Basic Success
Optionality:	Required
Test Tool	XDS Toolkit

Purpose/Description

SUT accepts one Message Delivery requesting containing a C-CDA R2.1 Discharge Summary that is transmitted by the Testing Tool. The Responding Gateway is expected to return a status of urn:oasis:names:tc:ebxml-regrep:ResponseStatusType:Success.

Preconditions

Data Load Set: QTF Data load Set

Test Case Patient Association: QTF TEST QTFTEST-003

Test Steps

1. Use the Testing Tool to execute the test RG.Accept.DischargeSummary.
   - The Testing Tool will send an ITI-80 transaction with one Discharge Summary.
   - The System Under Test will respond with a status of Success.

Assessment

1. Verify that the RG.Accept.DischargeSummary test runs successfully.
2. Audit messages will be examined in the test *RG Accept Secured*.

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Referenced Specifications

IHE XCDR Profile Specification	IHE Cross-Community Document Reliable Exchange (XCDR) profile - available as a supplement at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_Suppl_XCDR.pdf
IHE Audit Trail and Node Authentication (ATNA)	*IHE Audit Trail and Node Authentication (ATNA) profile* - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195
HL7 C-CDA R2.1	*HL7 Consolidated CDA Release 2.1 available at http://www.hl7.org/implement/standards/product_brief.cfm?product_id=492*

Change History

Date	Changes
April 1, 2022	Initial Draft Version
December 6, 2022	Changed to required Removed redundant examination of audit records

RG Accept C-CDA 2.1 Progress Note

Test Case ID:	RG Accept C-CDA 2.1 Progress Note
Title:	Responding Gateway accepts C-CDA 2.1 Progress Note
IHE Profile:	Cross-Community Document Reliable Interchange (XCDR)
Flow:	Basic Success
Optionality:	Required
Test Tool	XDS Toolkit

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Purpose/Description

SUT accepts one Message Delivery requesting containing a C-CDA R2.1 Progress Note that is transmitted by the Testing Tool. The Responding Gateway is expected to return a status of urn:oasis:names:tc:ebxml-regrep:ResponseStatusType:Success.

Preconditions

Data Load Set: QTF Data load Set

Test Case Patient Association: QTF TEST QTFTEST-003

Test Steps

1. Use the Testing Tool to execute the test RG.Accept.ProgressNote.
   - The Testing Tool will send an ITI-80 transaction with one Progress Note.
   - The System Under Test will respond with a status of Success.

Assessment

1. Verify that the RG.Accept.ProgressNote test runs successfully.
2. Audit messages will be examined in the test *RG Accept Secured*.

Referenced Specifications

IHE XCDR Profile Specification	IHE Cross-Community Document Reliable Exchange (XCDR) profile - available as a supplement at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_Suppl_XCDR.pdf
IHE Audit Trail and Node Authentication (ATNA)	*IHE Audit Trail and Node Authentication (ATNA) profile* - available in the IHE IT Infrastructure (ITI) Technical Framework Volume 1: Integration Profiles at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_TF_Rev17-0_Vol1_FT_2020-07-20.pdf
Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195
HL7 C-CDA R2.1	*HL7 Consolidated CDA Release 2.1 available at http://www.hl7.org/implement/standards/product_brief.cfm?product_id=492*

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Change History

Date	Changes
April 1, 2022	Initial Draft Version
December 6, 2022	Changed to required Removed redundant examination of audit records

RG Accept C-CDA 2.1 Unstructured Document

Test Case ID:	RG Accept C-CDA 2.1 Unstructured Document
Title:	Responding Gateway accepts C-CDA 2.1 Unstructured Document
IHE Profile:	Cross-Community Document Reliable Interchange (XCDR)
Flow:	Basic Success
Optionality:	Required
Test Tool	XDS Toolkit

Purpose/Description

SUT accepts one Message Delivery requesting containing a C-CDA R2.1 Unstructured Document that is transmitted by the Testing Tool using the Cross-Gateway Document Provide [ITI-80]. The Responding Gateway is expected to return a status of urn:oasis:names:tc:ebxml-regrep:ResponseStatusType:Success.

Preconditions

Data Load Set: QTF Data load Set

Test Case Patient Association: QTF TEST QTFTEST-003

Test Steps

1. Use the Testing Tool to execute the test RG.Accept.Unstructured.
   - The Testing Tool will send an ITI-80 transaction with one Unstructured Document.
   - The System Under Test will respond with a status of Success.

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Assessment

1. Verify that the RG.Accept.Unstructured test runs successfully.
2. Audit messages will be examined in the test RG Accept Secured.

Referenced Specifications

IHE XCDR Profile Specification	IHE Cross-Community Document Reliable Exchange (XCDR) profile - available as a supplement at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_Suppl_XCDR.pdf
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Secure Use of Transport Layer Security (TLS)	*Recommendations for Secure Use of Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)* (IETF BCP 195) - available at: https://tools.ietf.org/html/bcp195
HL7 C-CDA R2.1	*HL7 Consolidated CDA Release 2.1 available at http://www.hl7.org/implement/standards/product_brief.cfm?product_id=492*

Change History

Date	Changes
April 1, 2022	Initial Draft Version
December 6, 2022	Changed to required Removed redundant examination of audit records

RG Reject Metadata: Responding Gateway rejects documents due to Metadata

Test Case ID:	RG Reject Metadata
Title:	Gateway rejects documents due to Metadata
IHE Profile:	Cross-Community Document Reliable Interchange (XCDR)
Flow:	Error conditions: incorrect metadata
Optionality:	Required
Test Tool	XDS Toolkit

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Purpose/Description

The testing tool sends multiple submission sets with XDS metadata that is purposely incorrect. Documents are sent using the Cross-Gateway Document Provide [ITI-80] transaction. The Responding Gateway is required to reject these documents with a status of urn:oasis:names:tc:ebxml-regrep:ResponseStatusType:Failure. All submission sets submitted by this test must be rejected.

This test only uses metadata that is in error and is not intended to use or send C-CDA documents that are in error.

Preconditions

Data Load Set: QTF Data load Set

Test Case Patient Association: QTF TEST QTFTEST-003

Test Steps

1. Use the Testing Tool to execute the test RG.Reject.Metadata.
   - The Testing Tool will send multiple submission sets with purposely incorrect metadata.
   - The System Under Test will respond with a status of Failure.
2. After each test is completed, QHIN candidates MUST submit the relevant extract of the ATNA log entries. These audit messages must be submitted by email to qhintesting@sequoiaproject.org.

Assessment

1. Verify that the RG.Reject.Metadata test runs successfully. Each step expects a Failure response status from the system under test.

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Referenced Specifications

IHE XCDR Profile Specification	IHE Cross-Community Document Reliable Exchange (XCDR) profile - available as a supplement at: https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_Suppl_XCDR.pdf
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HL7 C-CDA R2.1	*HL7 Consolidated CDA Release 2.1 available at http://www.hl7.org/implement/standards/product_brief.cfm?product_id=492*

Change History

Date	Changes
September 30, 2022	Initial Draft Version

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