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INTEGRATING THE HEALTHCARE ENTERPRISE (IHE) PRE-CONNECTATHON TESTING

Patient Identity Cross Reference (PIX) and Patient Discovery Query (PDQ) Test Tool User Guide

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1.0 OVERVIEW

The National Institute of Standards and Technology (NIST) Patient Identity Cross Reference (PIX) and Patient Discovery Query (PDQ) Test Tool supports testing of the Integrating the Healthcare Enterprise (IHE) PIX and PDQ Pre-Connectathon test cases for both Health Level 7 (HL7) Version 2 (v2) and Version 3 (v3). This test tool is part of the next generation of IHE tools (project Gazelle) to support testing. This tool specifically addresses pre-connectathon testing for the IHE PIX/PDQ HL7 v2 and v3 integration profiles. For the 2010 Pre-connectathon testing cycle, this tool is an alternative/replacement for the MESA PIX v2 tests developed at the Mallinckrodt Institute of Radiology [1] and for the MESA PIX/PDQ v3 tests developed at the University of Quebec [2]. The number and design of the test cases have remained the same as provided by these tools, except for the addition of tests for PDQ v2 actors (tests did not previously exist). In addition to providing automated testing the NIST PIX/PDQ Pre-Connectathon Test Tool provides rigorous testing of the conformance requirements established by the IHE technical framework. It is anticipated that the 2011 and beyond testing cycles will include an exhaustive set of tests for the IHE PIX and PDQ Integration Profiles.

1.1 Access

The NIST PIX/PDQ Pre-Connectathon Test Tool is a web-based application. Therefore, from an end-user perspective, there is nothing to download or to install to conduct a test. The tool is available at the following website:

<http://141.156.15.209:8080/NIST-PreConnectathonTests>

The tool may be used in *anonymous mode* or *registered mode*. Anonymous mode does not require user registration and may be used to conduct ad-hoc system testing. Registered mode is required to conduct pre-connectathon tests and to get credit for completing the tests. Registered mode allows the user to manage their testing activities and to submit test reports to the IHE pre-connectathon project manager. Detailed instructions for user registration can be found in Section 2.2.

A Google Group (IHE_PIX_PDQ_Testing) has been established for discussion of the tool and testing issues. Please submit a request to Rob Snelick (rsnelick@nist.gov) if you would like to become a member of this group. Please provide your e-mail address.

http://groups.google.com/group/ihe_pix_pdq_testing

1.2 Role of NIST

NIST provides the testing tools to examine the system under test (SUT) with respect to the requirements given by the IHE integration profile. NIST will make available the results of the tests to the IHE pre-connectathon project manager; the project manager will make a final determination of pass/fail. NIST will provide assistance to the project manager in this role. NIST may not always interpret the conformance requirements as intended by the integration profile; please submit requests for clarification as appropriate. It should be noted that the test tool provides a rigorous assessment of conformance requirements placed on message content by the underlying HL7 standards and the additional constraints defined in the IHE technical framework.

The NIST PIX/PDQ Pre-Connectathon Test Tool is new for the 2010 testing cycle; we anticipate questions, defects, comments, and suggestions for improvements. Please submit such feedback to Rob Snelick (rsnelick@nist.gov) or to the IHE_PIX_PDQ_Testing Google Group.

1.3 Testing Overview

The NIST PIX/PDQ Pre-Connectathon Test Tool is an automated system that relies on a testing framework developed at NIST. The framework currently supports HL7 v2 and v3 communication protocols. The framework also supports a set of test agents that simulates/implements IHE actors. Systems under test (SUTs) interact with the test tool to exchange messages to complete test case transactions. Messages are captured by the test tool and validated. Below is a summary of how messages are validated and what is being validated.

1.3.1 OVERVIEW OF VALIDATION OF HL7 V2 IHE ACTORS

Talk about conformance testing; this is what the pre-connectathon testing is about
Make a reference to the IHE specification that we are using

1. HL7 v2 Syntax Validation:

- Ensure the message structure is valid with respect to the HL7 V2 message definition and the HL7 V2 conformance profile
- Ensure that the conformance requirements such as usage, cardinality, data type usage, etc. are valid with respect to the standard and the HL7 V2 conformance profile that constrains the message in accordance with the IHE technical framework for a given transaction

When we refer to an HL7 V2 conformance profile we are referring to the XML document that constrains the standard HL7 V2 message definition as indicated by the transaction requirements given in the IHE technical framework. The conformance profiles used for testing can be found at <http://sst116.ncsl.nist.gov:8080/hcrr/>¹. The conformance profile encapsulates the IHE constraints placed on a message for a given transaction.

2. Value Set Semantic Validation:

- Ensure that elements that refer to a table are valid with respect to the value set it references. The value set is given by the HL7 V2 standard or as constrained by the IHE technical framework. An example includes confirming that the administrative sex element (PID.8) of the PID segment contains a value that is given in the HL7 V2 Administrative Sex table (HL70001).

Value sets are contained in an XML file called a table library². The table library contains a reference to the table number along with corresponding code/value pairs. For a given transaction the table library will include the standard HL7 V2 tables and any local tables given in the IHE integration profile.

- Identify conformance violations of constraints implied by the IHE Integration Profile, these constraints are captured in a **validation context file**. An example of such a test includes an element that is fixed in the IHE integration profile.

The validation context is an XML document that is used to identify a location and a value in the message instance. A particular value at a given location in the message instance can then be assessed. At this level of testing this may be a fixed value specified by the IHE technical framework.

3. HL7 v2 MLLP Validation:

- Ensure the message is valid with respect to the HL7 V2 MLLP specification for wrapping and unwrapping HL7 V2 messages

¹ The conformance profiles are modifications to the original profiles developed for IHE PIX/PDQ at INRIA.

² The concept of an external table library is not yet part of the HL7 v2 standard. It is an accepted proposal for HL7 v2.8.

4. Test Case Specific Validation:

- Verify element content against a validation context file that captures test values as defined in the pre-connectathon test cases.

For example, after a sequence of events, a query to an IHE actor SUT (e.g., a PIX Manager) is made and certain elements of the response message are compared to expected values for the test scenario. This may be the correct name of a patient after a patient merge operation. The validation context file will indicate the location of the element and the expected value of the element. The validation context is an XML document that is used to identify a location and a value in the message instance. A particular value at a given location in the message instance can then be assessed. At this level of testing this may be a particular value specified by the pre-connectathon test case.

1.3.2 OVERVIEW OF VALIDATION OF HL7 V3 IHE ACTORS

1. HL7 v3 Syntax Validation:

2. Value Set Semantic Validation:

3. HL7 v3 SOAP Validation:

4. Test Case Specific Validation:

1.4 Test Coverage

The following tables summarize the PIX and PDQ test cases that are supported by the NIST PIX/PDQ Test Tool.

Table 1. PIX HL7 v2 Test Cases

Actor	Test Cases
PIX HL7 v2 Source	Test Case 10512: PIX Patient Feed A04 Test Case 10515: PIX Patient Merge A04
PIX HL7 v2 Consumer	Test Case 10501: PIX Query Case 1 and 2 Test Case 10502: PIX Query Case 3 Test Case 10503: PIX Query Case 4
PIX HL7 v2 Manager	Test Case 10501: PIX Query Case 1 and 2 Test Case 10502: PIX Query Case 3 Test Case 10503: PIX Query Case 4 Test Case 10506: PIX Query, Patient Update Test Case 10507: PIX Query, Patient Merge Test Case 10511: PIX Patient Feed A01 Test Case 10512: PIX Patient Feed A04 Test Case 10513: PIX Patient Feed A05 Test Case 10514: PIX Patient Feed A08 Test Case 10515: PIX Patient Feed A04

Table 2. PDQ HL7 v2 Test Cases

Actor	Test Cases
PDQ HL7 v2 Consumer	Test Case 11311: Exact Name Search Test Case 11312: Exact Name Search – No match Test Case 11315: Partial Name Search Test Case 11320: Complete ID Search – Unspecified Domain Test Case 11325: Complete ID Search – Single Domain Test Case 11330: Complete ID Search – Multiple Domains Test Case 11335: Partial ID Search – Single Domain Test Case 11340: Date of Birth Search Test Case 11350: Multiple Key Search 1 Test Case 11365: Continuation Test 1
PDQ HL7 v2 Supplier	Test Case 11311: Exact Name Search Test Case 11312 : Exact Name Search – No match Test Case 11315 : Partial Name Search Test Case 11320 : Complete ID Search – Unspecified Domain Test Case 11325 : Complete ID Search – Single Domain Test Case 11330 : Complete ID Search – Multiple Domains Test Case 11335 : Partial ID Search – Single Domain Test Case 11340 : Date of Birth Search Test Case 11350 : Multiple Key Search 1 Test Case 11360 : Continuation Test 1

Table 3. PIX HL7 v3 Test Cases

Actor	Test Cases
PIX HL7 v3 Source	Test Case 10512v3: PIX Patient Feed Test Case 10514v3: PIX Patient Feed – Update Test Case 10515v3: PIX Patient Identity Merge
PIX HL7 v3 Consumer	Test Case 10501v3: PIX Query Case 1 and 2 Test Case 10502v3: PIX Query Case 3 Test Case 10503v3: PIX Query Case 4 Test Case 10531v3: PIX Update Notification
PIX HL7 v3 Manager	Test Case 10501v3: PIX Query Case 1 and 2 Test Case 10502v3: PIX Query Case 3 Test Case 10503v3: PIX Query Case 4 Test Case 10506v3: PIX Query, Patient Update Test Case 10512v3: PIX Patient Feed Test Case 10515v3: PIX Patient Identity Merge Test Case 10531v3: PIX Update Notification

Table 4. PDQ HL7 v3 Test Cases

Actor	Test Cases
PDQ HL7 v3 Consumer	Test Case 11311v3: Exact Name Search Test Case 11312v3: Exact name search - No Match Test Case 11315v3: Partial Name Search Test Case 11320v3: Complete ID Search - Unspecified Domain Test Case 11325v3: Complete ID Search - Single Domain Test Case 11330v3: Complete ID Search - Multiple Domains Test Case 11335v3: Partial ID Search - Single Domain Test Case 11340v3: Date of Birth Search Test Case 11350v3: Multi Key Search 1 Test Case 11365v3: Continuation Test 1
PDQ HL7 v3 Supplier	Test Case 11311v3: Exact Name Search Test Case 11312v3: Exact name search - No Match Test Case 11315v3: Partial Name Search Test Case 11320v3: Complete ID Search - Unspecified Domain Test Case 11325v3: Complete ID Search - Single Domain Test Case 11330v3: Complete ID Search - Multiple Domains Test Case 11335v3: Partial ID Search - Single Domain Test Case 11340v3: Date of Birth Search Test Case 11350v3: Multi Key Search 1 Test Case 11365v3: Continuation Test 1

1.5 Test Case Patient Data

The following tables provide a list of patient data needed for the PIX and PDQ test cases that are supported by the NIST PIX/PDQ Test Tool.

Table 5. PIX HL7 V2: Test Case Patient Data

Test Case	Patient ID	Last Name	First Name
10501	PIX10501	ALPHA	ALAN
10501	XYZ10501	ALPHA	ALAN
10501	ABC10501	SIMPSON	CARL
10502	PIX10502	BETA	BETTY
10502	XYZ10502	CROSS	KEN
10506	PIX10506	TAU	TERI
10506	PIX10506	TAU	T/TERI
10512	PIX10512	EPSILON	ELLIE
10514	PIX10514	ETA	ERIC
10514	ABC10514	ETA	ERIC/E

1.6 Document Overview

The PIX/PDQ Test Tool User Guide is organized as follows:

- **Section 1. Overview:** Provides an introduction and background information for the PIX/PDQ Test Tool User Guide.
- **Section 2. Using the PIX and PDQ Test Tool:** Provides step-by-step directions for how to execute a test using the PIX/PDQ Test Tool.
- **Section 3. HL7 v2 Actors:** Outlines test cases for each of the HL7 v2 actors to include a description, references, actors, instructions, and validation criteria.
- **Section 4. HL7 v3 Actors:** Outlines test cases for each of the HL7 v3 actors to include a description, references, actors, instructions, and validation criteria.
- **Section 5. Testing Process:** Currently provides a placeholder for a detailed description of the testing process.
- **Section 6. Glossary:** Provides a list of terms and definitions used throughout the PIX/PDQ Test Tool User Guide.
- **Section 7. References:** Provides a list of references used to inform development of the NIST HL7 PIX/PDQ Test Tool and User Guide.

1.7 Acknowledgements

This test tool and associated testing framework was developed at the National Institute of Standards and Technology. There have been many contributors to the design and development of the software and test cases, they include: Harold Affo, Roch Bertucat, Len Gebase, Sydney Henrard, Mary Laamanen, Andrew McCaffrey, Caroline Rosin, and Robert Snelick.

Eric Poiseau (INRIA/IRISA) provided the initial versions of IHE PIX/PDQ HL7 V2 conformance profiles.

The original MESA test cases for PIX HL7 V2 were developed by Steve Moore at the Mallinckrodt Institute of Radiology under contract with the Healthcare Information and Management Systems Society (HIMSS) and the Radiological Society of North America (RSNA) [1].

The original MESA test cases for PIX and PDQ HL7 V3 were developed by Rita Noumeir and Jean-Francois Pambrun at the University of Quebec [2].

Abby George of Booz-Allen-Hamilton made significant contributions to the creation and editing of this user's guide.

2.0 USING THE PIX AND PDQ TEST TOOL

The NIST PIX/PDQ Test Tool supports testing of the IHE PIX and PDQ Pre-Connectathon test cases for both HL7 v2 and v3. The following sections describe how to use the tool to conduct Pre-Connectathon testing.

2.1 Overview

The 'Overview' tab as show in Figure 1 below provides a brief description of the PIX/PDQ Test Tool capabilities, describes the user registration process, and provides links to the User Guide and Support Files.

Figure 1. Overview Tab



2.2 User Registration and Log-in

The PIX/PDQ Test Tool can be used in two modes; *anonymous* and *registered*. The anonymous mode is available to conduct ad-hoc testing of systems. In this instance, the user is not identified and test results are not saved. This mode can be used to pre-test systems. Registered mode is available for vendors who want to conduct Pre-Connectathon tests and to have their results recorded and made available to the IHE project manager. This mode is for those who want to complete the Pre-Connectathon testing requirements and get credit for completing them. The information gathered in registered mode is made available to only the IHE project manager.

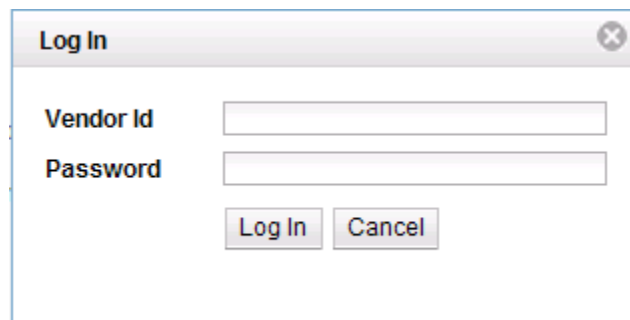
To register for PIX/PDQ Pre-Connectathon Testing, please submit the following information to Rob Snelick (rsnelick@nist.gov):

- Name

- Company Name
- Email Address
- Application Name (MSH 3.1)
- Facility Name (MSH 4.1)
- IHE Integration Profiles Planned to Test
 - *PIX HL7 v2 Source*
 - *PIX HL7 v2 Consumer*
 - *PIX HL7 v2 Manager*
 - *PDQ HL7 v2 Consumer*
 - *PDQ HL7 v2 Supplier*
 - *PIX HL7 v3 Source*
 - *PIX HL7 v3 Consumer*
 - *PIX HL7 v3 Manager*
 - *PDQ HL7 v3 Consumer*
 - *PDQ HL7 v3 Supplier*

Once registration information is processed, users will receive a User ID and Password from a NIST Administrator. Users may then log into the PIX/PDQ Test Tool by entering their credentials into the 'Log-in' tab as shown in Figure 2. The 'Log-in' tab will change to 'Log-out' once a user is successfully logged into the test tool.

Figure 2. Log-in Tab

A screenshot of a 'Log In' dialog box. The dialog has a title bar with the text 'Log In' and a close button (X). Inside the dialog, there are two text input fields. The first field is labeled 'Vendor Id' and the second field is labeled 'Password'. Below the input fields are two buttons: 'Log In' and 'Cancel'.

2.3 Test Case Selection

The 'Tests' tab provides access to the various PIX and PDQ HL7 v2 and v3 test cases. To access a particular test case, users must select the HL7 'Version' to test (v2 or v3), and then select the appropriate 'Actor'. The criteria selected will then filter and display the matching test cases as shown in Figure 3 below.

Figure 3. Tests Tab

IHE PIX and PDQ Pre-Connectathon Test Tool
Dashboard

Overview Tests Admin User Guide Login

Run Reports

Select a HL7 Version (v2 or v3) and Actor to view the list of available Test Cases

HL7 Version ☒ v2 ☐ v3 Actors

List of Test Cases	
<input type="radio"/>	PIX Query Case 1 and 2 (Mesa 10501)
<input type="radio"/>	PIX Query Case 3 (Mesa 10502)
<input type="radio"/>	PIX Query Case 4 (Mesa 10503)
<input type="radio"/>	PIX Query, Patient Update (Mesa 10506)
<input type="radio"/>	PIX Patient Feed A01 (Mesa 10511)
<input type="radio"/>	PIX Patient Feed A04 (Mesa 10512)
<input type="radio"/>	PIX Patient Merge A40 (Mesa 10515,10507)

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Once the list of matching test cases are displayed, users may select a test case by clicking the corresponding radio button. Selecting a test case provides more information for the selected test case to include 'Actor Tested', 'Description', 'References', 'Transactions', and 'Validation Criteria'.

2.4 Test Case Execution

2.4.1 SELECT THE TEST CASE

Any of the IHE PIX or PDQ test cases for HL7 v2 or v3 may be selected for test execution. For example, to test an implementation of a PIX Manager, users should select the appropriate HL7 'Version' (v2 or v3) and then select the 'IHE PIX Manager Actor'. The user then needs to select a test case for execution. In this example, the 'PIX Query Case 3 (Mesa 10502)' has been selected as shown below in Figure 4. The PIX/PDQ Test Tool will then provide a summary of the 'Actor Tested', 'Description', 'References', 'Transactions', and 'Validation Criteria' for the selected test case.

Figure 4. PIX Manager Test Case

The screenshot displays the IHE PIX and PDQ Pre-Connectathon Test Tool interface. The top navigation bar includes links for Overview, Tests, Admin, User Guide, and Login. The main content area is titled "IHE PIX and PDQ Pre-Connectathon Test Tool Dashboard". Below the title, there are tabs for Overview, Tests, Admin, User Guide, and Login. The "Tests" tab is active, showing a "List of Test Cases" table. The table lists several test cases, with "PIX Query Case 3 (Mesa 10502)" selected. Below the table, the "ACTOR TESTED" section shows "PIX Manager". The "DESCRIPTION" section provides details about the test case. The "REFERENCES" section lists "ITTF-2: 3.9.4.2.2". The "TRANSACTIONS" section shows a table of transactions. At the bottom, there are "Configure" and "START TEST" buttons. The footer includes logos for NIST and ITL, along with contact information and a disclaimer.

IHE PIX and PDQ Pre-Connectathon Test Tool Dashboard

Overview Tests Admin User Guide Login

Select a Version (v2 or v3) and Actor to view the list of available Test Cases

Version ☒ v2 ☐ v3 Actors IHE PIXManager

List of Test Cases	
<input type="radio"/>	PIX Query Case 1 and 2 (Mesa 10501)
<input checked="" type="radio"/>	PIX Query Case 3 (Mesa 10502)
<input type="radio"/>	PIX Query Case 4 (Mesa 10503)
<input type="radio"/>	PIX Query Patient Update (Mesa 10504)
<input type="radio"/>	PIX Patient Feed A01 (Mesa 10511)
<input type="radio"/>	PIX Patient Feed A04 (Mesa 10512)
<input type="radio"/>	PIX Patient Merge A40 (Mesa 10515, 10507)

ACTOR TESTED
PIX Manager

DESCRIPTION
Test case 10502 covers the PIX Query case 3. Two patients are registered in a single domain. A PIX consumer sends a query for a third patient who is not recognized as one of the two registered patients. The expected return is a response with the proper ERR segment.

REFERENCES
ITTF-2: 3.9.4.2.2

TRANSACTIONS

Order	Actor	Description
1	IHE PIXSource	Register Patient BETA~BETTY in domain HIMSS200561.3.6.1.4.1.21367.2005.1.1
2	IHE PIXSource	Register Patient CROSS~KEN in domain HIMSS200561.3.6.1.4.1.21367.2005.1.1
3	IHE PIXConsumer	Query Patient with id XX10502 from domain HIMSS200561.3.6.1.4.1.21367.2005.1.1

[Configure](#) [START TEST](#)

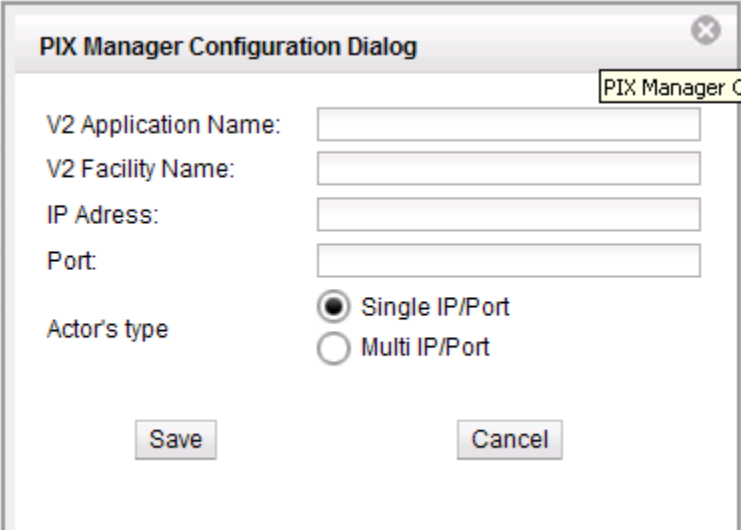
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2.4.2 SYSTEM CONFIGURATION

Once a test case has been selected, the PIX/PDQ Test Tool must then be configured appropriately for test execution. In this example, users may enter the configuration information for their PIX Manager implementation into the tool by selecting the 'Configure' button at the bottom of the 'Run' tab as shown in Figure 4. The configuration dialog will then open as shown in Figure 5 below.

Figure 5. Configuration Dialog

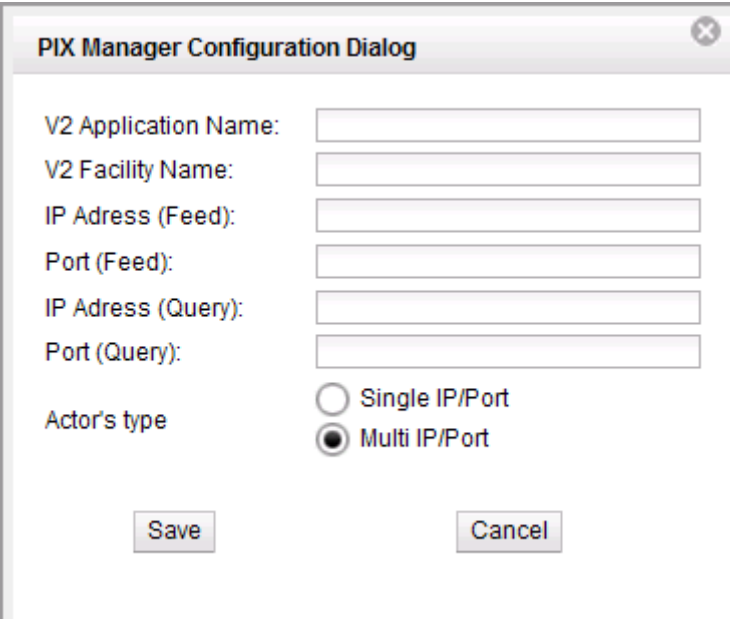


The dialog box is titled "PIX Manager Configuration Dialog" with a close button (X) in the top right corner. It contains the following fields and controls:

- V2 Application Name: [Text Field]
- V2 Facility Name: [Text Field]
- IP Address: [Text Field]
- Port: [Text Field]
- Actor's type:
 - ☒ Single IP/Port
 - ☐ Multi IP/Port
- Buttons: Save, Cancel

The configuration dialog is used to capture information about the SUT (the PIX Manager in this example). This includes the 'Application Name' and 'Facility Name'. These fields are associated with MSH.3.1 and MSH.4.1 in the HL7 v2 message. The user then needs to identify the 'IP Address' and 'Port'. Some applications have multiple ports; for example, one for handling ADT messages and one for handling PDQ messages. If this is the case, users may select the 'Multi IP/Port' radio button to display additional fields to capture the receiving IP/Port information as shown in Figure 6 below.

Figure 6. Configuration Dialog (Multi IP/Port)



The dialog box is titled "PIX Manager Configuration Dialog" with a close button (X) in the top right corner. It contains the following fields and controls:

- V2 Application Name: [Text Field]
- V2 Facility Name: [Text Field]
- IP Address (Feed): [Text Field]
- Port (Feed): [Text Field]
- IP Address (Query): [Text Field]
- Port (Query): [Text Field]
- Actor's type:
 - ☐ Single IP/Port
 - ☒ Multi IP/Port
- Buttons: Save, Cancel

Table 6 provides an example of how configuration information should be entered into the PIX/PDQ Test Tool.

Table 6. Sample Configuration Entry

Configuration Pop-up Field	Sample Configuration Entry
Application Name	• NIST Medical PIX Manager
Facility Name	• NIST Medical Center
IP Address	• 129.6.59.000
Port	• 3600

Once the system configuration information has been entered, users should then select the 'Save' button to save the information and close the configuration dialog. This will automatically enable the 'Start Test' button so that users can initiate a test. It should be noted that configuration information captured will be saved until the user ends the current web application session.

2.4.3 RUN THE TEST

Once the configuration information is correctly captured, users may run the test by selecting the 'Start Test' button. The PIX/PDQ Test Tool will then display a real-time testing dashboard as shown in Figure 7. Test Dashboard displays the test case transactions and a console log, for users to monitor the progress of the test case in real-time.

Figure 7. Test Dashboard

The screenshot displays the IHE PIX and PDQ Pre-Connectathon Test Tool Dashboard. The interface includes a top navigation bar with links for Overview, Tests, Admin, User Guide, and Login. Below this, a sub-navigation bar shows the current test case: PIX Query Case 3 (Mesa 10502) Test. The main content area shows the test steps and a table of results. The table has columns for Order, Actor, Description, and Result. The first step, 'Register Patient BETA*BETTY in domain HIMSS200541.3.6.1.4.1.21367.2005.1.1', is marked as 'Error(x)' with a magnifying glass icon. Below the table, a 'Console Log' section displays the raw HL7 messages and system logs. At the bottom, there are links for 'Result', 'Message Sent', 'Message Received', 'Detailed Results (XML)', and 'Detailed Results (HTML)'. A 'Next Step' button is also visible.

Order	Actor	Description	Result
1	IHE PIX Source	Register Patient BETA*BETTY in domain HIMSS200541.3.6.1.4.1.21367.2005.1.1	Error(x)
2	IHE PIX Source	Register Patient CROSS*WEN in domain HIMSS200541.3.6.1.4.1.21367.2005.1.1	Waiting...
3	IHE PIX Consumer	Query Patient with id XX10502 from domain HIMSS200541.3.6.1.4.1.21367.2005.1.1	Waiting...

Console Log

```

10/7/09 8:02:10 AM - Register Patient BETA*BETTY in domain HIMSS200541.3.6.1.4.1.21367.2005.1.1
10/7/09 8:02:10 AM - Generating the message
10/7/09 8:02:10 AM - HL7 Message Generated Successfully
MSH|^~\&|NIST_Pearl_PIX_Source|NIST|PAT_IDENTITY_X_REF_MGR_MISYS|ALLSCRIPTS|20091007080210||ADT^A04^ADT_A01|H
IST-20091007080210|1|2.3.1
EVN|A04|20090527
PID|||PIX10502^^^HIMSS200541.3.6.1.4.1.21367.2005.1.1&ISO^PI||BETA*BETTY|BRAYAN|19781208|F|||820 JORIE
BLVD^^CHICAGO^IL^60523|||(312)555-1234|(312)555-6789|||163-12-5432
FV1|IV
10/7/09 8:02:10 AM - Sending to PAT_IDENTITY_X_REF_MGR_MISYS./_ALLSCRIPTS_IR.t.198.160.211.53..Port.1, 3600
Port=3600
MSH|^~\&|PAT_IDENTITY_X_REF_MGR_MISYS|ALLSCRIPTS|NIST_Pearl_PIX_Source|NIST|20091007100322-
0400||ACK^A04|OpenPIXPDQ198.160.211.53.200787238915|P|2.3.1
MSA|NA|NIST-20091007080210
10/7/09 8:02:11 AM - Validating...
10/7/09 8:02:13 AM - Validation Finished
10/7/09 8:02:14 AM - Creating a validation report...
10/7/09 8:02:15 AM - Report generated successfully
10/7/09 8:02:16 AM - Transaction Finished...

```

Result
FAILED WITH 1 ERROR(S)

Next Step

Message Sent
Message Received
Detailed Results (XML)
Detailed Results (HTML)

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Once the user clicks 'Start Test', the PIX/PDQ Test Tool will start to execute the test case one transaction at a time. In between each transaction, the tool will display individual validation reports for the messages sent or received which can be viewed by selecting the 'Magnifying Glass Icon' as shown in Figure 7. Hyperlinks are also provided in between each transaction, at the lower left-hand corner of the screen, for users to view the transaction 'Result', 'Message Sent', 'Message Received', 'Detailed Results (XML)', and 'Detailed Results (HTML)'. Users may view the reports at this time and print or save them individually to their local file system.

At the conclusion of each transaction, the user must click 'Next Step' as shown in Figure 7 above to initiate the remaining transactions until the test case has concluded. At the conclusion of the test case, the 'Summary' button will become enabled at the bottom of the screen as shown in Figure 8 below. Users may then click this button to view a list of reports that summarize the test case results within the 'Report' tab. The message validation reports for each transaction will also be available for viewing at this

time by selecting the corresponding 'Magnifying Glass Icon'. Section 2.4.5 provides additional detail regarding the PIX/PDQ Test Tool reports and how to interpret the results.

Figure 8. End of Transaction

IHE PIX and PDQ Pre-Connectathon Test Tool Dashboard

Overview Tests Admin User Guide Login

PIX Query Case 3 (Mesa 10502) Test

Step 3: Query Patient with id XX10502 from domain HIMSS2005&1.3.6.1.4.1.21367.2005.1.1

Order	Actor	Description	Result
1	IHE PIX Source	Register Patient BETA^BETTY in domain HIMSS2005&1.3.6.1.4.1.21367.2005.1.1	Error(x)
2	IHE PIX Source	Register Patient CROSS^KEN in domain HIMSS2005&1.3.6.1.4.1.21367.2005.1.1	Error(x)
3	IHE PIX Consumer	Query Patient with id XX10502 from domain HIMSS2005&1.3.6.1.4.1.21367.2005.1.1	Error(x)

Console Log

```

10/7/09 8:20:23 AM - Query Patient with id XX10502 from domain HIMSS2005&1.3.6.1.4.1.21367.2005.1.1
10/7/09 8:20:23 AM - Generating the message
10/7/09 8:20:23 AM - HL7 Message Generated Successfully
MSG|^~\&|NIST_Hydra_PIX_Consumer|NIST|PAT_IDENTITY_X_REF_MGR_MISYS|ALLSCRIPTS|20091007082023||QBP^Q23^QBP_Q21
|NIST-20091007082023|D|2.5
QPD|IHE_PIX_QUERY|QRY1243434596641|XX10502^^HIMSS2005&1.3.6.1.4.1.21367.2005.1.1&ISO
RCP|I
10/7/09 8:20:23 AM - Sending to PAT_IDENTITY_X_REF_MGR_MISYS / ALLSCRIPTS IP : 198.160.211.53, Port : 3600
Port=3600
MSG|^~\&|PAT_IDENTITY_X_REF_MGR_MISYS|ALLSCRIPTS|NIST_Hydra_PIX_Consumer|NIST|20091007102135-
0400||RSP^K23|OpenPIXPDQ198.160.211.53.20078804733409|P|2.5
MSA|AE|NIST-20091007082023
ERR||QPD^1^3^1^1204^Unknown Key Identifier|E
QAK|QRY1243434596641|AE
10/7/09 8:20:27 AM - Creating a validation report...
10/7/09 8:20:27 AM - Report generated successfully
10/7/09 8:20:29 AM - Transaction Finished...

```

Result
FAILED WITH 2 ERROR(S)

Message Text

Test Details Summary

2.4.4 SUBMIT TEST RESULTS

At the conclusion of a test case, a 'Submit' button will become enabled from the 'Reports' tab to submit test results to the Pre-Connectathon project manager as shown in Figure 9 below. If the user is currently logged into the tool, then the results will automatically be recorded and available for the project manager to review. If the user is not logged into the tool, then they will be prompted to enter their user credentials into the log-in dialog screen at this time.

Figure 9. Submit Test Results

The screenshot shows the 'IHE PIX and PDQ Pre-Connectathon Test Tool Dashboard'. The top navigation bar includes links for 'Overview', 'Tests', 'Admin', 'User Guide', and 'Login'. Below this, there are tabs for 'Run' and 'Reports'. The main content area is titled 'Test's Result (User must submit his test results otherwise they will be lost)'. It contains a 'Test Definition' table and a 'Reports' table.

Actor tested	Test	Version
IHE PIX Manager	PIX Query Case 3 (Mesa 10502)	v2

Order	Actor	Description	Result
1	IHE PIX Source	Register Patient BETA^BETTY in domain HIMSS20056.1.3.6.1.4.1.21367.2005.1.1	Error(s)
2	IHE PIX Source	Register Patient CROSS^KEN in domain HIMSS20056.1.3.6.1.4.1.21367.2005.1.1	Error(s)
3	IHE PIX Consumer	Query Patient with id XX10502 from domain HIMSS20056.1.3.6.1.4.1.21367.2005.1.1	Error(s)

At the bottom of the reports section, there are 'Submit' and 'Finish' buttons.

The footer includes logos for NIST (National Institute of Standards and Technology) and ITL (Information Technology Laboratory), along with a date created/updated notice and links for 'Disclaimer', 'Email Website Administrator', and 'Privacy/Policy'.

2.4.5 INTERPRET THE TEST RESULTS

The PIX/PDQ Test Tool provides individual message validation reports for each transaction executed within a test case. The tool also provides a summary-level report at the conclusion of a test case that summarizes each of the transactions. Users may print reports or save them to their local file system. Reports for registered users will be saved for access by the user or their project manager.

Explain the type of errors:

2.4.5.1 Message Validation Reports

Message validation reports are produced at the end of each test case transaction as shown in Figure 10. This report contains the following information for each transaction:

- Profile Name
- Message Type
- Failure Types and Levels
- Summary Count of Errors and Warnings
- Summary Count of Alerts
- Description of Errors and Warnings
 - Type
 - Description
 - Location
 - Element Content

Figure 10. Message Validation Report

Message Validation Report			Date: 01/2009, 15:33
Profile	Name	TestExample	
	Id		
	Type	ADT^A04^ADT_A01	
	HL7 Version	2.4	
	File	NIST_DemoProfile_ADTA04.xml	
Message	Type	ER7	
	Id		
	File	NIST_DemoMessage_ADTA04.er7	
		Failure Type	Failure Level
MESSAGE_STRUCTURE		ERROR	ERROR
USAGE		ERROR	ERROR
CARDINALITY		ERROR	ERROR
LENGTH		ERROR	ERROR
DATATYPE		ERROR	ERROR
DATA		ERROR	ERROR
VERSION		ERROR	ERROR
MESSAGE_STRUCTURE_ID		ERROR	ERROR
MESSAGE_VALIDATION_CONTEXT		USER	USER
TABLE_NOT_FOUND		USER	USER
AMBIGUOUS_PROFILE		ERROR	ERROR
Summary			
Message	Errors	12	
Validation	Warnings	0	
Results	Ignored	0	
Order	Alerts	14	
Warnings (User Input)	Location Not Found	0	
Validation Errors			
1	Type:	Length	
	Description:	The value 'ADT_A01' specified in the message exceeds the maximum element length '3' specified in profile.	
	Location:	Path:	MSH[1] 8[1] 3
		Segment:	MSH
		Field:	Message Type
		Component:	message structure
	Element Content:	ADT_A01	
2	Type:	Datatype	
	Description:	The value '20040328134602.1234+0600' is not valid with respect to the format specified for datatype NM	
	Location:	Path:	EVN[1] 2[1] 1
		Segment:	EVN
		Field:	Recorded Date Time
		Component:	Date Time
	Element Content:	20040328134602.1234+0600	

2.4.5.2 Summary Results Report

Summary reports are produced at the completion of a test case as shown in Figure 11. This report contains the following information for each test case:

- Test Definition
 - Test Case
 - Actors Tested
 - Version
 - Vendor ID
 - Application Name
 - Facility Name
 - Date of Test
 - Test Result
- Transaction Step
 - Message Sent
 - Message Received
 - Result of Test
 - Message Validation Report

Figure 11. Summary Report

Test Definition	
Test Title	PIX Query Case 1 and 2 (Him 10001)
Author Tested	IHE PIXManager
Version	v2
Vendor Id	admir
Application Name	NIST_Siem_Pix_Manager
Facility Name	NIST
Date of Test	Sep 30, 2009 8:15:00 PM
Result of Test	FAILED

Register Patient ALPHA^ALAN in domain HIMSS2005B1.3.6.1.4.1.21367.2005.1.1	
Message Sent	MSH ^~\& NIST_Pearl_Pix_Source NIST NIST_Siem_Pix_Manager NIST 20090930181300 ADT^A04^ADT_A01 NIST-20090930181300 P 2.3.1 BV N A04 20090930 P10 PIX 10001^^^HIMSS2005B1.3.6.1.4.1.21367.2005.1.1M30^P1 ALPHA^ALAN Barnes 19761208 M 820 JORIE
Message Received	MSH ^~\& NIST_Siem_Pix_Manager NIST NIST_Pearl_Pix_Source NIST 20090930181304 ACK^A04^ACK NIST-090930181304167 P 2.3.1 M3A A NIST-20090930181300
Result of Test	PASSED

Message Validation Report		Date: 30 2009, 18:13
Profile	Name	PIX
	Id	12.15.1545.1006
	Type	ACK^A04^ACK
	HL7 Version	2.3.1
Message	Type	ER7
	Id	
	File	
Failure Type		Failure Level
VERSION		ERROR
LENGTH		IGNORE
DATATYPE		ERROR
MESSAGE_STRUCTURE		ERROR
MESSAGE_STRUCTURE_ID		ERROR
DATA		ERROR
MESSAGE_VALIDATION_CONTEXT		USER
TABLE_NOT_FOUND		USER
AMBIGUOUS_PROFILE		ERROR
USAGE		ERROR
CARDINALITY		ERROR
Summary		
Message	Errors	0
Validation	Warnings	0
Results	Ignored	5
Other	Alerts	4
Warnings	Location Not Found	0
Validation Errors		
Validation Warnings		

3.0 HL7 V2 ACTOR TEST CASES

Note: The validation criterion within this section gives the specific validation criteria for a given test case. Additional common validation is conducted based on the message transaction protocol type (v2 or v3). The general conformance requirements for each message transaction are given in [Section X.X](#) within the User Guide.

The validation criteria documentation given in this section highlights the key assertions for the test case. A list of all assertions can be found in the validation context files in the User Guide supplement containing all of the test messages and validation criteria files.

3.1 PIX HL7 v2 Source

3.1.1 TEST CASE 10512: PIX PATIENT FEED A04

Description	<ul style="list-style-type: none">• Test case 10512 covers PIX Patient Feed and the ADT^A04 message. Patient Identity Source formulates an A04 message with the proper content. Patient Identity Cross-reference Manager can receive and process a properly constructed ADT^A04 message. The nominal patient name is EPSILON^ELLIE.
References	<ul style="list-style-type: none">• ITI TF-2: 3.8.4
Actors	<ul style="list-style-type: none">• Patient Identity Source• Patient Identity Consumer• Patient Identity Cross-reference Manager
Validation Criteria	<ul style="list-style-type: none">•

3.1.2 TEST CASE 10515: PIX PATIENT MERGE A04

Description	<ul style="list-style-type: none">• Test case 10515 covers PIX Patient Feed and the ADT^A40 message.
References	<ul style="list-style-type: none">• ITI TF-2: 3.8.4
Actors	<ul style="list-style-type: none">• Patient Identity Source• Patient Identity Consumer• Patient Identity Cross-reference Manager
Validation Criteria	<ul style="list-style-type: none">•

3.2 PIX HL7 v2 Consumer

3.2.1 TEST CASE 10501: PIX QUERY CASE 1 AND 2

Description	<ul style="list-style-type: none">• Test case 10501 covers the PIX Query Case 1 and 2. One patient (ALPHA) is registered in two different domains. A second patient (SIMPSON) is registered in a single domain. Three registration messages are sent to a Cross Reference Manager.• A PIX Query is sent to resolve a reference to ALPHA. A second PIX Query is sent to resolve a reference to SIMPSON. Because SIMPSON is not registered in the second domain, the response to that PIX Query will indicate no data.		
References	<ul style="list-style-type: none">• ITI TF-2: 3.9.4.2.2		
Actors	<ul style="list-style-type: none">• Patient Identity Source• Patient Identity Consumer• Patient Identity Cross-reference Manager		
Validation Criteria	<ul style="list-style-type: none">•		
Identifier	Description	Source	Destination
10501.102.a04.hl7	Registration message for ALPHA: Domain 1	PID Source, Domain 1	XRef Mgr
10501.104.a04.hl7	Registration message for SIMPSON: Domain 1	PID Source, Domain 1	XRef Mgr
10501.106.a04.hl7	Registration message for ALPHA: Domain 2	PID Source, Domain 2	XRef Mgr
10501.108.q23.hl7	PIX Query for ALPHA	PIX XRef Consumer	XRef Mgr
10501.110.q23.hl7	PIX Query for SIMPSON	PIX XRef Consumer	XRef Mgr

3.2.2 TEST CASE 10502: PIX QUERY CASE 3

Description		<ul style="list-style-type: none">• Test case 10502 covers the PIX Query case 3. Two patients are registered in a single domain. A PIX consumer sends a query for a third patient who is not recognized as one of the two registered patients.	
References		<ul style="list-style-type: none">• ITI TF-2: 3.9.4.2.2	
Actors		<ul style="list-style-type: none">• Patient Identity Source• Patient Identity Consumer• Patient Identity Cross-reference Manager	
Validation Criteria		<ul style="list-style-type: none">•	
Identifier	Description	Source	Destination

Identifier	Description	Source	Destination
10502.102.a04.hl7	Registration message for BETA : Domain 1	PID Source, Domain 1	XRef Mgr
10502.104.a04.hl7	Registration message for CROSS: Domain 1	PID Source, Domain 1	XRef Mgr
10502.106.q23.hl7	PIX Query for BRIDGE	PIX XRef Consumer	XRef Mgr

3.2.3 TEST CASE 10503: PIX QUERY CASE 4

Description	<ul style="list-style-type: none"> Test case 10503 covers the PIX Query case 4. No new patients are registered. A PIX query is sent with a Patient ID that includes an unknown issuer (value is 'XXXX'). The Cross Reference Manager responds appropriately.
References	<ul style="list-style-type: none"> ITI TF-2: 3.9.4.2.2
Actors	<ul style="list-style-type: none"> Patient Identity Source Patient Identity Consumer Patient Identity Cross-reference Manager
Validation Criteria	<ul style="list-style-type: none">

Identifier	Description	Source	Destination
10503.102.q23.hl7	PIX Query for Patient ID with issuer XXXX	PIX XRef Consumer	XRef Mgr

3.3 PIX HL7 v2 Manager

3.3.1 TEST CASE 10501: PIX QUERY CASE 1 AND 2

Description	<ul style="list-style-type: none"> Test case 10501 covers the PIX Query Case 1 and 2. One patient (ALPHA) is registered in two different domains. A second patient (SIMPSON) is registered in a single domain. Three registration messages are sent to a Cross Reference Manager. A PIX Query is sent to resolve a reference to ALPHA. A second PIX Query is sent to resolve a reference to SIMPSON. Because SIMPSON is not registered in the second domain, the response to that PIX Query will indicate no data.
References	<ul style="list-style-type: none"> ITI TF-2: 3.9.4.2.2
Actors	<ul style="list-style-type: none"> Patient Identity Source Patient Identity Consumer Patient Identity Cross-reference Manager

Validation Criteria

- Assert an “AA” acknowledge message for registration of patient “ALPHA” in domain “HIMSS2005”; Patient ID is “PIX10501”
- Assert an “AA” acknowledgement message for registration of patient “ALPHA” in domain “XREF2005”; Patient ID is “XYZ10501”
- Assert an “AA” acknowledgement message for the registration of patient “SIMPSON” in domain “HIMSS2005”; Patient ID is “ABC10501”
- PIX Query Case 1: Assert response message with MSA.1 = “AA”
- PIX Query Case 1: Assert response message with PID.3.1 = “XYZ10501”
- PIX Query Case 1: Assert response message with QAK.2 = “OK”
- PIX Query Case 2: Assert response message with MSA.1 = “AA”
- PIX Query Case 2: Assert response message with QAK.2 = “NF”
- PIX Query Case 2: Assert that no PID segment is found in response message

Identifier	Description	Source	Destination
10501.102.a04.hl7	Registration message for ALPHA: Domain 1	PIX Source, Domain 1	XRef Mgr
10501.104.a04.hl7	Registration message for SIMPSON: Domain 1	PIX Source, Domain 1	XRef Mgr
10501.106.a04.hl7	Registration message for ALPHA: Domain 2	PIX Source, Domain 2	XRef Mgr
10501.108.q23.hl7	PIX Query for ALPHA	PIX XRef Consumer	XRef Mgr
10501.110.q23.hl7	PIX Query for SIMPSON	PIX XRef Consumer	XRef Mgr

3.3.2 TEST CASE 10502: PIX QUERY CASE 3

Description	<ul style="list-style-type: none"> • Test case 10502 covers the PIX Query case 3. Two patients are registered in a single domain. A PIX Consumer sends a query for a third patient who is not recognized as one of the two registered patients.
References	<ul style="list-style-type: none"> • ITI TF-2: 3.9.4.2.2 (ARE THESE REFERENCES STILL CORRECT)?
Actors	<ul style="list-style-type: none"> • Patient Identity Source • Patient Identity Consumer • Patient Identity Cross-reference Manager
Validation Criteria	<ul style="list-style-type: none"> • Assert an “AA” acknowledge message for registration of patient “BETA” in domain “HIMSS2005”; Patient ID is “PIX10502” • Assert an “AA” acknowledgement message for registration of patient “CROSS” in domain “HIMSS2005”; Patient ID is “XYZ10502” • PIX Query Case 3: Assert that the response message for a query of patient with ID “XX10502” in domain “HIMSS2005” is not recognized. The following assertions are used to verify this general assertion: <ul style="list-style-type: none"> • Assert response message with MSA.1 = “AE” • Assert response message with QAK.2 = “AE” • Assert response message with ERR.2.1 = “QPD” • Assert response message with ERR.2.2 = “1” • Assert response message with ERR.2.3 = “3” • Assert response message with ERR.2.4 = “1” • Assert response message with ERR.2.5 = “1” • Assert response message with ERR.3.1 = “204”

Notes

- The TF Line 1420 has a mistake. It refers to ERR-1; what they mean is ERR-2.
- The TF Line 1425 has a mistake. It refers to QPD-4; what they mean is QPD-3.

Identifier	Description	Source	Destination
10502.102.a04.hl7	Registration message for BETA: Domain 1	PID Source, Domain 1	XRef Mgr
10502.104.a04.hl7	Registration message for CROSS: Domain 1	PID Source, Domain 1	XRef Mgr
10502.106.q23.hl7	PIX Query for BRIDGE	PIX XRef Consumer	XRef Mgr

3.3.3 TEST CASE 10503: PIX QUERY CASE 4

Description

- Test case 10503 covers the PIX Query case 4; The PIX Manager does not recognize the Patient Identification Domain of the identifier sent in QPD-3. No new patients are registered. A PIX query is sent with a Patient ID that includes an unknown issuer (value is 'XXXX'). The Cross Reference Manager responds appropriately.

References

- ITI TF-2: 3.9.4.2.2

Actors

- Patient Identity Source
- Patient Identity Consumer
- Patient Identity Cross-reference Manager

Validation Criteria

- PIX Query Case 3: Assert that the response message for a query of patient with ID "ABC10503" in domain "XXXX" is not recognized. The following assertions are used to verify this general assertion:
 - Assert response message with MSA.1 = "AE"
 - Assert response message with QAK.2 = "AE"
 - Assert response message with ERR.2.1 = "QPD"
 - Assert response message with ERR.2.2 = "1"
 - Assert response message with ERR.2.3 = "3"
 - Assert response message with ERR.2.4 = "1"
 - Assert response message with ERR.2.5 = "4"
 - Assert response message with ERR.3.1 = "204"

Identifier	Description	Source	Destination
10503.102.q23.hl7	PIX Query for Patient ID with issuer XXXX	PIX XRef Consumer	XRef Mgr

3.3.4 TEST CASE 10506: PIX QUERY, PATIENT UPDATE

Description	<ul style="list-style-type: none"> Test case 10506 covers PIX Patient Feed, the ADT^A08 message, and PIX queries. Patient TAU^TERI is registered in domain ADT1 with “correct” demographics. This patient is then registered in domain ADT2 with incorrect demographics. The demographics are sufficiently different that a Cross Reference Manager should not link these two records. A patient update message is sent for the patient in domain ADT2 that should synchronize the demographics with those seen in ADT1. The Cross Reference Manager should now link the two records.
References	<ul style="list-style-type: none"> ITI TF-2: 3.8.4
Actors	<ul style="list-style-type: none"> Patient Identity Source Patient Identity Consumer Patient Identity Cross-reference Manager
Validation Criteria	<ul style="list-style-type: none">

Identifier	Description	Source	Destination
10506.102.A04.hl7	ADT^A04: Register TAU	Identity Src 1	XRef Mgr
10506.104.A04.hl7	ADT^A04: Register TAU (bad demographics)	Identity Src 2	XRef Mgr
10506.106.q23.hl7	PIX Query for TAU	PIX XRef Consumer	XRef Mgr
10506.108.a08.hl7	ADT^A04: Update demographics	Identity Src 2	XRef Mgr
10506.110.q23.hl7	PIX Query for TAU	PIX XRef Consumer	XRef Mgr

3.3.5 TEST CASE 10507: PIX QUERY, PATIENT MERGE

Description	<ul style="list-style-type: none"> Test case 10507 covers PIX Patient Feed, the ADT^A40 message, and PIX queries.
References	<ul style="list-style-type: none">
Actors	<ul style="list-style-type: none">
Validation Criteria	<ul style="list-style-type: none">

3.3.6 TEST CASE 10511: PIX PATIENT FEED A01

Description	<ul style="list-style-type: none"> Test case 10511 covers PIX Patient Feed and the ADT^A01 message.
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References	<ul style="list-style-type: none">ITI TF-2: 3.8.4		
Actors	<ul style="list-style-type: none">Patient Identity SourcePatient Identity ConsumerPatient Identity Cross-reference Manager		
Validation Criteria	<ul style="list-style-type: none">		
Identifier	Description	Source	Destination
10512.102.A04.ADT	ADT^A04: Register EPSILON	Identity Src	Xref Mgr

3.3.7 TEST CASE 10512: PIX PATIENT FEED A04

Description	<ul style="list-style-type: none">• Test case 10512 covers PIX Patient Feed and the ADT^A04 message. Patient Identity Source formulates an A04 message with the proper content. Patient Identity Cross-reference Manager can receive and process a properly constructed ADT^A04 message. The nominal patient name is EPSILON^ELLIE.
References	<ul style="list-style-type: none">• ITI TF-2: 3.8.4
Actors	<ul style="list-style-type: none">• Patient Identity Source• Patient Identity Consumer• Patient Identity Cross-reference Manager
Validation Criteria	<ul style="list-style-type: none">•

3.3.8 TEST CASE 10513: PIX PATIENT FEED A05

Description	<ul style="list-style-type: none">• Test case 10513 covers PIX Patient Feed and the ADT^A05 message.
References	<ul style="list-style-type: none">• ITI TF-2: 3.8.4
Actors	<ul style="list-style-type: none">• Patient Identity Source• Patient Identity Consumer• Patient Identity Cross-reference Manager
Validation Criteria	<ul style="list-style-type: none">•

3.3.9 TEST CASE 10514: PIX PATIENT FEED A08

Description	<ul style="list-style-type: none"> Test case 10514 covers PIX Patient Feed and the ADT^A08 message.
References	<ul style="list-style-type: none"> ITI TF-2: 3.8.4
Actors	<ul style="list-style-type: none"> Patient Identity Source Patient Identity Consumer Patient Identity Cross-reference Manager
Validation Criteria	<ul style="list-style-type: none">

3.3.10 TEST CASE 10515: PIX PATIENT FEED A04

Description	<ul style="list-style-type: none"> Test case 10515 covers PIX Patient Feed and the ADT^A04 message.
References	<ul style="list-style-type: none"> ITI TF-2: 3.8.4
Actors	<ul style="list-style-type: none"> Patient Identity Source Patient Identity Consumer Patient Identity Cross-reference Manager
Validation Criteria	<ul style="list-style-type: none">

3.4 PDQ HL7 v2 Consumer

3.4.1 TEST CASE 11311: EXACT NAME SEARCH

Description	<ul style="list-style-type: none"> Test case 11311 covers an exact name search by the Patient Demographics Consumer
References	<ul style="list-style-type: none">
Actors	<ul style="list-style-type: none"> PDQ Consumer
Instructions	<ul style="list-style-type: none"> The Consumer is expected to query by exact patient name. No other keys should be present.
Validation Criteria	<ul style="list-style-type: none"> The Consumer is expected to provide a valid HL7v2 PDQ Query message, correctly populated with the given values.

Message Location	Description	Value
QPD.3[1].1	Demographics Fields/segment field name	@PID.5.1.1

Message Location	Description	Value
QPD.3.[1].2	Demographics Fields/values	MOORE
QPD.3[2].1	Demographics Fields/segment field name	@PID.5.2
QPD.3[2].2	Demographics Fields/values	CHIP

3.4.2 TEST CASE 11312: EXACT NAME SEARCH – NO MATCH

Description	<ul style="list-style-type: none"> Test case 11312 covers an exact name search by the Patient Demographics Consumer that results in no records found/returned by the Supplier.
References	<ul style="list-style-type: none">
Actors	<ul style="list-style-type: none">
Instructions	<ul style="list-style-type: none"> The Consumer is expected to query by exact patient name. No other keys should be present.
Validation Criteria	<ul style="list-style-type: none"> The Consumer is expected to provide a valid HL7v2 PDQ Query message, correctly populated with the given values.

Message Location	Description	Value
QPD.3[1].1	Demographics Fields/segment field name	@PID.5.1.1
QPD.3.[1].2	Demographics Fields/values	ZEBRA
QPD.3[1].1	Demographics Fields/segment field name	@PID.5.1.1

3.4.3 TEST CASE 11315: PARTIAL NAME SEARCH

Description	<ul style="list-style-type: none"> Test case 11315 covers a partial name search by the Patient Demographics Consumer.
References	<ul style="list-style-type: none">
Actors	<ul style="list-style-type: none">
Instructions	<ul style="list-style-type: none"> The Consumer is expected to query with a partial name. No other keys should be present.
Validation Criteria	<ul style="list-style-type: none"> The Consumer is expected to provide a valid HL7v2 PDQ Query message, correctly populated with the given values.

Message Location	Description	Value
QPD.3[1].1	Demographics Fields/segment field name	@PID.5.1.1
QPD.3.[1].2	Demographics Fields/values	MOO*

3.4.4 TEST CASE 11320: COMPLETE ID SEARCH – UNSPECIFIED DOMAIN

Description	<ul style="list-style-type: none">Test case 11320 covers a complete ID search where the return domains are unspecified by the Patient Demographics Consumer.
References	<ul style="list-style-type: none">
Actors	<ul style="list-style-type: none">
Instructions	<ul style="list-style-type: none">The Consumer is expected to query by exact patient ID. No other keys should be present.
Validation Criteria	<ul style="list-style-type: none">The Consumer is expected to query by exact patient ID. No other keys should be present.

Message Location	Description	Value
QPD.3[1].1	Demographics Fields/segment field name	@PID.3.1
QPD.3.[1].2	Demographics Fields/values	100
QPD.3[1].1	Demographics Fields/segment field name	@PID.3.1

3.4.5 TEST CASE 11325: COMPLETE ID SEARCH – SINGLE DOMAIN

Description	<ul style="list-style-type: none">Test case 11325 covers a complete ID search within a single domain that is specified by the Patient Demographics Consumer.
References	<ul style="list-style-type: none">
Actors	<ul style="list-style-type: none">
Instructions	<ul style="list-style-type: none">The Consumer is expected to query by exact patient ID and domain id.
Validation Criteria	<ul style="list-style-type: none">The Consumer is expected to provide a valid HL7v2 PDQ Query message, correctly populated with the given values.

Message Location	Description	Value
QPD.3[1].1	Demographics Fields/segment field name	@PID.3.1
QPD.3.[1].2	Demographics Fields/values	100
QPD.8.4.2	What Domains Returned/assigning authority/universal ID	1.2.3.4.5.1000
QPD.8.4.3	What Domains Returned/assigning authority/universal ID type	ISO

3.4.6 TEST CASE 11330: COMPLETE ID SEARCH – MULTIPLE DOMAINS

Description	<ul style="list-style-type: none"> Test case 11330 covers a complete ID search where the domain of interest is different from the Patient ID Domain associated with Receiving Application.
References	<ul style="list-style-type: none">
Actors	<ul style="list-style-type: none">
Instructions	<ul style="list-style-type: none"> The Consumer is expected to query by exact patient ID and domain id.
Validation Criteria	<ul style="list-style-type: none"> The Consumer is expected to provide a valid HL7v2 PDQ Query message, correctly populated with the given values.

Message Location	Description	Value
QPD.3[1].1	Demographics Fields/segment field name	@PID.3.1
QPD.3.[1].2	Demographics Fields/values	100
QPD.3[2].1	Demographics Fields/segment field name	@PID.3.4.2
QPD.3.[2].2	Demographics Fields/values	1.2.3.4.5.1000
QPD.8.4.2	What Domains Returned/assigning authority/universal ID	1.2.3.4.5.2000
QPD.8.4.3	What Domains Returned/assigning authority/universal ID type	ISO

3.4.7 TEST CASE 11335: PARTIAL ID SEARCH – SINGLE DOMAIN

Description	<ul style="list-style-type: none"> Test case 11335 covers a partial ID search within a single domain that is specified by the Patient Demographics Consumer.
References	<ul style="list-style-type: none">
Actors	<ul style="list-style-type: none">
Instructions	<ul style="list-style-type: none"> The Consumer is expected to query by partial patient id and domain id. No other keys should be present.
Validation Criteria	<ul style="list-style-type: none"> The Consumer is expected to provide a valid HL7v2 PDQ Query message, correctly populated with the given values.

Message Location	Description	Value
QPD.3[1].1	Demographics Fields/segment field name	@PID.3.1
QPD.3.[1].2	Demographics Fields/values	100*
QPD.8.4.2	What Domains Returned/assigning authority/universal ID	1.2.3.4.5.1000
QPD.8.4.3	What Domains Returned/assigning authority/universal ID type	ISO

3.4.8 TEST CASE 11340: DATE OF BIRTH SEARCH

Description	<ul style="list-style-type: none">Test case 11340 covers a date of birth search.
References	<ul style="list-style-type: none">
Actors	<ul style="list-style-type: none">
Instructions	<ul style="list-style-type: none">The Consumer is expected to query by exact date of birth.
Validation Criteria	<ul style="list-style-type: none">The Consumer is expected to provide a valid HL7v2 PDQ Query message, correctly populated with the given values.

Message Location	Description	Value
QPD.3[1].1	Demographics Fields/segment field name	@PID.7.1
QPD.3.[1].2	Demographics Fields/values	19840711

3.4.9 TEST CASE 11350: MULTIPLE KEY SEARCH 1

Description	<ul style="list-style-type: none">Test case 11350 covers search using two search keys.
References	<ul style="list-style-type: none">
Actors	<ul style="list-style-type: none">
Instructions	<ul style="list-style-type: none">The Consumer is expected to query with the following parameters.
Validation Criteria	<ul style="list-style-type: none">The Consumer is expected to provide a valid HL7v2 PDQ Query message, correctly populated with the given values.

Message Location	Description	Value
QPD.3[1].1	Demographics Fields/segment field name	@PID.5.1.1
QPD.3.[1].2	Demographics Fields/values	MOORE
QPD.3[2].1	Demographics Fields/segment field name	@PID.7.1
QPD.3.[2].2	Demographics Fields/values	19840711

3.4.10 TEST CASE 11365: CONTINUATION TEST 1

Description	<p>Test 11365 is a test of the HL7 Continuation Protocol. In this test, a Patient Demographics Consumer needs to configure its request with a specific limit. The Patient Demographics Consumer should successfully process the response from the Patient Demographics Supplier and send 3 other query messages to request the next records.</p> <ul style="list-style-type: none"> •
References	<ul style="list-style-type: none"> •
Actors	<ul style="list-style-type: none"> •
Instructions	<ul style="list-style-type: none"> • Step 1: The Consumer is expected to query with a partial name and an initial quantity. • Step 2: The Patient Demographics sends a PDQ Query Response back containing a continuation pointer. The Consumer is expected to process this message and send the corresponding PDQ Query back to ask for the next set of results. • Step 2 should be repeated 2 more times.
Validation Criteria	The Consumer is expected to provide valid HL7v2 PDQ Query messages, correctly populated with the given values.

Message Location	Description	Value
QPD.3[1].1	Demographics Fields/segment field name	@PID.5.1.1
QPD.3.[1].2	Demographics Fields/values	MOO*
RCP.2.1	Quantity Limited Request/Quantity	1
RCP.2.2.1	Quantity Limited Request/units/identifier	RD

Message Location	Description	Value
QPD.3[1].1	Demographics Fields/segment field name	@PID.5.1.1
QPD.3.[1].2	Demographics Fields/values	MOO*
RCP.2.1	Quantity Limited Request/Quantity	1
RCP.2.2.1	Quantity Limited Request/units/identifier	RD
DSC.1	Continuation Pointer	<i>The value sent by the PDQ Supplier</i>

3.5 PDQ HL7 v2 Supplier

3.5.1 TEST CASE 11311: EXACT NAME SEARCH

Description	<ul style="list-style-type: none"> Test case 11311 covers an exact name search by the Patient Demographics Consumer. Several add new patient messages are sent to the Patient Demographics Supplier. Then the PD test Consumer sends a Patient Demographics Query that includes an exact patient name.
References	<ul style="list-style-type: none">
Actors	<ul style="list-style-type: none">
Instructions	<ul style="list-style-type: none"> Several Patient Feed messages and a PDQ Query message will be sent to your PD Supplier. The PDQ Query will reflected an exact name search on MOORE CHIP
Validation Criteria	<ul style="list-style-type: none"> The Supplier is expected to provide a valid HL7v2 PDQ Query Response message, correctly populated with the given values. A single PID segment shall be returned, containing the demographics of patient MOORE CHIP in domain 1.

Message Location	Description	Value
MSA.1		AA
QAK.2		OK
QPD		<i>All values sent by the PD Consumer</i>

3.5.2 TEST CASE 11312: EXACT NAME SEARCH – NO MATCH

Description	<ul style="list-style-type: none"> Test case 11312 covers an exact name search by last name that results in no patient records found. The Patient Demographics Consumer sends a PDQ Query that includes an exact patient name.
References	<ul style="list-style-type: none">
Actors	<ul style="list-style-type: none">
Instructions	<ul style="list-style-type: none"> A PQD Query will be sent to your PD Supplier
Validation Criteria	<ul style="list-style-type: none"> The Supplier is expected to provide a valid HL7v2 PDQ Query response message, correctly populated with the given values.

Message Location	Description	Value
MSA.1		AA
QAK.2		NF

Message Location	Description	Value
QPD		<i>All values sent by the PD Consumer</i>

3.5.3 TEST CASE 11315: PARTIAL NAME SEARCH

Description	<ul style="list-style-type: none"> Test case 11315 covers a partial name search by the Patient Demographics Consumer. Several add new patient messages are sent to the Patient Demographics Supplier. Then, the PD Consumer sends a PDQ Query that includes a partial patient name.
References	<ul style="list-style-type: none">
Actors	<ul style="list-style-type: none">
Instructions	<ul style="list-style-type: none"> Several Patient Feed messages and a PDQ Query message will be sent to your PD Supplier. The PDQ Query will reflect a partial name search on MOO*.
Validation Criteria	<ul style="list-style-type: none"> The Supplier is expected to provide a valid HL7v2 PDQ Query response message, correctly populated with the given values. 3 different PID segments shall be returned, containing the patient demographics of 3 different patients : <ul style="list-style-type: none"> - MOORE CHIP - MOO JOHN - MOORE CHARLE

Message Location	Description	Value
MSA.1		AA
QAK.2		OK
QPD		<i>All values sent by the PD Consumer</i>

3.5.4 TEST CASE 11320: COMPLETE ID SEARCH – UNSPECIFIED DOMAIN

Description	<ul style="list-style-type: none"> Test case 11320 covers a complete ID search where the return domains are unspecified by the Patient Demographics Consumer. The PD Consumer sends a PDQ Query that includes a complete Patient identifier (PID.3.1) with the 100 value.
References	<ul style="list-style-type: none">
Actors	<ul style="list-style-type: none">
Instructions	<ul style="list-style-type: none"> Several Patient Feed messages and a PDQ Query message will be sent to your PD Supplier. The PDQ Query will reflect an exact search on patient identifier 100.

Validation Criteria	<ul style="list-style-type: none"> The Supplier is expected to provide a valid HL7v2 PDQ Query response message, correctly populated with the given values. A single PID segment shall be returned, containing the patient demographics of patient that was registered with the id 100 in the master domain (MOORE CHIP).
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Message Location	Description	Value
MSA.1		AA
QAK.2		OK
QPD		<i>All values sent by the PD Consumer</i>

3.5.5 TEST CASE 11325: COMPLETE ID SEARCH – SINGLE DOMAIN

Description	<ul style="list-style-type: none"> Test case 11325 covers a complete ID search within a single domain that is specified by the Patient Demographics Consumer. The PD Consumer sends a PQD Query that includes a complete Patient ID and a specific, single domain.
References	<ul style="list-style-type: none">
Actors	<ul style="list-style-type: none">
Instructions	<ul style="list-style-type: none"> Several Patient Feed messages and a PDQ Query message will be sent to your PD Supplier. The PDQ Query will reflect an exact search on patient identifier 100. The PDQ Query will query about domain 1 (What domains returned).
Validation Criteria	<ul style="list-style-type: none"> The Supplier is expected to provide a valid HL7v2 PDQ Query response message, correctly populated with the given values. A single PID segment shall be returned, containing the patient demographics of patient that was registered with the id 100 in the master domain (MOORE CHIP). As MOORE CHIP was only registered in domain 1, no other ids shall be returned.

Message Location	Description	Value
MSA.1		AA
QAK.2		OK
QPD		<i>All values sent by the PD Consumer</i>

3.5.6 TEST CASE 11330: COMPLETE ID SEARCH – MULTIPLE DOMAINS

Description	<ul style="list-style-type: none"> Test case 11330 covers a complete ID search where the domain of interest is different from the Patient ID Domain associated with Receiving Application. The PD Consumer sends a query that will reflect an exact Patient ID search on patient identifier 100 in another domain than the master domain.
References	<ul style="list-style-type: none">
Actors	<ul style="list-style-type: none">
Instructions	<ul style="list-style-type: none"> Several Patient Feed messages and a PDQ Query message will be sent to your PD Supplier. The PDQ Query will reflect an exact search on patient identifier 100. The PDQ Query will query about domain 2 (What domains returned).
Validation Criteria	<ul style="list-style-type: none"> The Supplier is expected to provide a valid HL7v2 PDQ Query response message, correctly populated with the given values. A single PID segment shall be returned, containing the patient demographics of patient that was registered with the id 100 in the master domain (MOORE CHIP). As MOORE CHIP was not registered in domain 2, no other id shall be returned in the domain.

Message Location	Description	Value
MSA.1		AA
QAK.2		OK
QPD		<i>All values sent by the PD Consumer</i>

3.5.7 TEST CASE 11335: PARTIAL ID SEARCH – SINGLE DOMAIN

Description	<ul style="list-style-type: none"> Test case 11335 covers a partial ID search within a single domain that is specified by the Patient Demographics Consumer. The PD Consumer sends a PDQ Query that includes a partial Patient ID with the value of 100* in the master domain.
References	<ul style="list-style-type: none">

Actors	•
Instructions	<ul style="list-style-type: none"> Several Patient Feed messages and a PDQ Query message will be sent to your PD Supplier. The PDQ Query will reflect a partial search on patient identifier 100*. The PDQ Query will query about domain 1 (What domains returned).
Validation Criteria	<ul style="list-style-type: none"> The Supplier is expected to provide a valid HL7v2 PDQ Query response message, correctly populated with the given values. 2 different PID segments shall be returned, containing the demographics for patient : <ul style="list-style-type: none"> - MOORE CHIP, registered in domain1 with the id 100. - SIMPSON ALAN, registered in domain 2 with the id 1000.

Message Location	Description	Value
MSA.1		AA
QAK.2		OK
QPD		<i>All values sent by the PD Consumer</i>

3.5.8 TEST CASE 11340: DATE OF BIRTH SEARCH

Description	<ul style="list-style-type: none"> Test case 11340 covers a date of birth search. The PD consumer sends a PDQ Query that includes an exact date of birth.
References	•
Actors	•
Instructions	<ul style="list-style-type: none"> Several Patient Feed messages and a PDQ Query message will be sent to your PD Supplier. The PDQ Query will reflect an exact search on date of birth 19840711.
Validation Criteria	<ul style="list-style-type: none"> The Supplier is expected to provide a valid HL7v2 PDQ Query response message, correctly populated with the given values. A single PID segment shall be returned, containing the patient demographics of patient that was registered with the date of birth 19840711 in the master domain (MOORE CHIP).

Message Location	Description	Value
MSA.1		AA
QAK.2		OK
QPD		<i>All values sent by the PD Consumer</i>

3.5.9 TEST CASE 11350: MULTIPLE KEY SEARCH 1

Description	<ul style="list-style-type: none"> Test case 11340 covers search using two search keys: patient name and date of birth. The PD consumer will send a PDQ Query that includes a patient name and a patient date of birth.
References	<ul style="list-style-type: none">
Actors	<ul style="list-style-type: none">
Instructions	<ul style="list-style-type: none"> Several Patient Feed messages and a PDQ Query message will be sent to your PD Supplier. The PDQ Query will reflect an exact search on date of birth 19840711 and on family name MOORE.
Validation Criteria	<ul style="list-style-type: none"> A single PID segment shall be returned, containing the patient demographics of patient that was registered with the date of birth 19840711 and with MOORE as a family name in the master domain (MOORE CHIP).

Message Location	Description	Value
MSA.1		AA
QAK.2		OK
QPD		<i>All values sent by the PD Consumer</i>

3.5.10 TEST CASE 11360: CONTINUATION TEST 1

Description	<ul style="list-style-type: none"> Test 11360 is a test of the HL7 Continuation Protocol. In this test, the Patient Demographics Consumer will configure its request with a specific limit. The Patient Demographics Supplier should successfully process the query from the Patient Demographics Consumer. 3 other query messages to request the next records will be sent.
References	<ul style="list-style-type: none">
Actors	<ul style="list-style-type: none">
Instructions	<ul style="list-style-type: none"> Several Patient Feed messages and a PDQ Query message will be sent to your PD Supplier. The PDQ Query will reflect a partial name search on MOO* and limit the result quantity to 1. Then the PD Consumer will process the query response and ask for more results in 3 other PDQ Query messages.
Validation Criteria	<ul style="list-style-type: none"> For each step, the Supplier is expected to provide valid HL7v2 PDQ Query response messages, correctly populated with the given values. Each message will contain one (and only one) PID segment, containing the demographics of one of these patients: <ul style="list-style-type: none"> - MOORE CHIP - MOO JOHN - MOORE CHARLE - MOORE PETER The PD Supplier shall not send two times the information about the same patient.

Message Location	Description	Value
MSA.1		AA

Message Location	Description	Value
QAK.2		OK
QPD		<i>All values sent by the PD Consumer</i>

4.0 HL7 V3 ACTOR TEST CASES

4.1 PIX HL7 v3 Source

4.1.1 TEST CASE 10512V3: PIX PATIENT FEED

Description	<ul style="list-style-type: none">Test case 10512 covers PIX Patient Feed and the Add new patient message. Patient Identify Source can send a patient ID in three different configurations. These may be runtime configurations required by a combination of actors. Each value represents the same concept:<ul style="list-style-type: none">Test A: id assigningAuthorityName="domain1" extension="100" root="1.2.3.4.5.1000"Test B: id assigningAuthorityName="domain1" extension="100"Test C: id extension="100" root="1.2.3.4.5.1000"
References	<ul style="list-style-type: none">ITI TF-2: 3.8B.4.1
Actors	<ul style="list-style-type: none">PIX Source
Instructions	<ul style="list-style-type: none">The consumer is expected to send three new patient message with the following parameters:<ul style="list-style-type: none">addr/streetAddressLine = 1 PINETREEaddr/city = WEBSTERaddr/state = MOaddr/postalCode = 63119telecom@use=WP = 314.555.4444telecom@use=HP = 314.555.1234name/given = ELLIEname/family = EPSILONadministrativeGenderCode = FbirthTime = 19380224and<ul style="list-style-type: none">Test A: id assigningAuthorityName="domain1" extension="100" root="1.2.3.4.5.1000"Test B: id assigningAuthorityName="domain1" extension="100"Test C: id extension="100" root="1.2.3.4.5.1000"
Validation Criteria	<ul style="list-style-type: none">

4.1.2 TEST CASE 10514V3: PIX PATIENT FEED – UPDATE

Description	<ul style="list-style-type: none">Test case 10514v3 covers PIX Patient Feed and the patient update message. The Patient Identify Source should be able to send well formed patient update message.
References	<ul style="list-style-type: none">ITI TF-2: 3.8B.4.1
Actors	<ul style="list-style-type: none">PIX Source

Instructions	<ul style="list-style-type: none">The consumer is expected to send one patient update message with the following parameters:<ul style="list-style-type: none">id assigningAuthorityName="domain2" extension="200" root="1.2.3.4.5.2000"name/given = Johnname/family = SimpsonbirthTime/@value = 19840711
Validation Criteria	<ul style="list-style-type: none">

4.1.3 TEST CASE 10515V3: PIX PATIENT IDENTITY MERGE

Description	<ul style="list-style-type: none">Test case 10515v3 covers patient Identity Merge messages. The Patient Identify Source should be able to send well formed patient update message.
References	<ul style="list-style-type: none">ITI TF-2: 3.8B.4.1
Actors	<ul style="list-style-type: none">PIX Source
Instructions	<ul style="list-style-type: none">The consumer is expected to send one patient merge message with the following parameters:<ul style="list-style-type: none">id assigningAuthorityName="domain1" extension="100" root="1.2.3.4.5.1000"name/given = Johnname/family = SimpsonpriorRegistration / id assigningAuthorityName="domain1" extension="105" root="1.2.3.4.5.1000"
Validation Criteria	<ul style="list-style-type: none">

4.2 PIX HL7 v3 Consumer

4.2.1 TEST CASE 10501V3: PIX QUERY CASE 1 AND 2

Description	<ul style="list-style-type: none">Test case 10501v3 covers the PIX Query Case 1 and 2. One patient (SIMPSON) is registered in two different domains. A second patient (ALPHA) is registered in a single domain. A PIX Query is sent to resolve a reference to SIMPSON.A second PIX Query is sent to resolve a reference to ALPHA. Because ALPHA is not registered in the second domain, the response to that PIX Query will indicate no data.
References	<ul style="list-style-type: none">ITI TF-2: 3.9B.4.2.2
Actors	<ul style="list-style-type: none">PIX Consumer

Instructions	<ul style="list-style-type: none"> Your consumer should perform queries with the following parameters <ul style="list-style-type: none"> - patientId / id root = 1.2.3.4.5.1000, extension = 100, assigningAuthorityName = domain1 AssigningAuthorityId / id root = 1.2.3.4.5.2000, assigningAuthorityName = domain2 - patientId / id root = 1.2.3.4.5.1000, extension = 101, assigningAuthorityName = domain1 AssigningAuthorityId / id root = 1.2.3.4.5.2000, assigningAuthorityName = domain2
Validation Criteria	<ul style="list-style-type: none">

4.2.2 TEST CASE 10502V3: PIX QUERY CASE 3

Description	<ul style="list-style-type: none"> Test case 10502v3 covers the PIX Query case 3. A PIX consumer sends a query for a patient in a known domain who is not recognized as a registered patient.
References	<ul style="list-style-type: none"> ITI TF-2: 3.9B.4.2.2
Actors	<ul style="list-style-type: none"> PIX Consumer
Instructions	<ul style="list-style-type: none"> Your consumer should perform PIX queries. Any requested id and domain will result in an error message being sent to your consumer.
Validation Criteria	<ul style="list-style-type: none">

4.2.3 TEST CASE 10503V3: PIX QUERY CASE 4

Description	<ul style="list-style-type: none"> Test case 10503v3 covers the PIX Query case 4. A PIX query is sent with a Patient ID that includes an unknown issuer. The Cross Reference Manager responds appropriately.
References	<ul style="list-style-type: none"> ITI TF-2: 3.9B.4.2.2
Actors	<ul style="list-style-type: none"> PIX Consumer
Instructions	<ul style="list-style-type: none"> Your consumer should perform pix queries. Any requested ID and domain will result in an error message being sent to your consumer.
Validation Criteria	<ul style="list-style-type: none">

4.2.4 TEST CASE 10531V3: PIX UPDATE NOTIFICATION

Description	<ul style="list-style-type: none">• Test case 10531V3 covers the PIX Update Notification. A PIX Update Notification is sent to your consumer
References	<ul style="list-style-type: none">• ITI TF-2: 3.10B.4.1
Actors	<ul style="list-style-type: none">• PIX Consumer
Instructions	<ul style="list-style-type: none">• A PIX Update Notification is sent to your consumer and it should behave accordingly.
Validation Criteria	<ul style="list-style-type: none">•

4.3 PIX HL7 v3 Manager

4.3.1 TEST CASE 10501V3: PIX QUERY CASE 1 AND 2

Description	<ul style="list-style-type: none">• Test case 10501v3 covers the PIX Query Case 1 and 2. One patient (SIMPSON) is registered in two different domains. A second patient (ALPHA) is registered in a single domain. A PIX Query is sent to resolve a reference to SIMPSON.• A second PIX Query is sent to resolve a reference to ALPHA. Because ALPHA is not registered in the second domain, the response to that PIX Query will indicate no data.
References	<ul style="list-style-type: none">• ITI TF-2: 3.9B.4.2.2
Actors	<ul style="list-style-type: none">• PIX Manager
Instructions	<ul style="list-style-type: none">• Three new patient added messages will be sent to your pix manager, followed by two get corresponding identifier query.
Validation Criteria	<ul style="list-style-type: none">•

4.3.2 TEST CASE 10502V3: PIX QUERY CASE 3

Description	<ul style="list-style-type: none">• Test case 10502v3 covers the PIX Query case 3. Two patients are registered in a single domain. A PIX consumer sends a query for a third patient who is not recognized as one of the two registered patients.
References	<ul style="list-style-type: none">• ITI TF-2: 3.9B.4.2.2
Actors	<ul style="list-style-type: none">• PIX Manager

Instructions	<ul style="list-style-type: none">Two new patient added messages will be sent to your pix manager, followed by a get corresponding identifier query.
Validation Criteria	<ul style="list-style-type: none">

4.3.3 TEST CASE 10503V3: PIX QUERY CASE 4

Description	<ul style="list-style-type: none">Test case 10503v3 covers the PIX Query case 4. No new patients are registered. A PIX query is sent with a Patient ID that includes an unknown issuer. The Cross Reference Manager responds appropriately.
References	<ul style="list-style-type: none">ITI TF-2: 3.9B.4.2.2
Actors	<ul style="list-style-type: none">PIX Manager
Instructions	<ul style="list-style-type: none">A get corresponding identifier query will be sent to your manager.
Validation Criteria	<ul style="list-style-type: none">

4.3.4 TEST CASE 10506V3: PIX QUERY, PATIENT UPDATE

Description	<ul style="list-style-type: none">Test case 10506v3 covers PIX Patient Feed, the Update Patient message, and PIX queries. Patient is registered in domain1 with "correct" demographics.This patient is then registered in domain2 with incorrect demographics. The demographics are sufficiently different that a Cross Reference Manager should not link these two records.A patient update message is sent for the patient in domain domain2 that should synchronize the demographics with those seen in domain1. The Cross Reference Manager should now link the two records.
References	<ul style="list-style-type: none">ITI TF-2: 3.8B.4.1
Actors	<ul style="list-style-type: none">PIX Manager
Instructions	<ul style="list-style-type: none">Two new patient added messages will be sent to your pix manager, followed by an Update Patient message and a get corresponding identifier query.
Validation Criteria	

4.3.5 TEST CASE 10512v3: PIX PATIENT FEED

Description	<ul style="list-style-type: none">• Test case 10512v3 covers PIX Patient Feed and the new patient message. The Patient Identity Cross-reference Manager should be capable of receiving and processing a properly constructed new patient message.
References	<ul style="list-style-type: none">• ITI TF-2: 3.9B.4.2.2
Actors	<ul style="list-style-type: none">• PIX Manager
Instructions	<ul style="list-style-type: none">• Three new patient added messages will be sent to your manager.
Validation Criteria	<ul style="list-style-type: none">•

4.3.6 TEST CASE 10515v3: PIX PATIENT IDENTITY MERGE

Description	<ul style="list-style-type: none">• Test case 10515v3 covers patient identity merge interaction. The Patient Identity Cross-reference Manager should be capable of receiving and processing a properly constructed Patient merge message.
References	<ul style="list-style-type: none">• ITI TF-2: 3.8B.4.1
Actors	<ul style="list-style-type: none">• PIX Manager
Instructions	<ul style="list-style-type: none">• Two new patient added messages will be sent to your pix manager, followed by a patient merge message and a get corresponding identifier query.
Validation Criteria	<ul style="list-style-type: none">•

4.3.7 TEST CASE 10531v3: PIX UPDATE NOTIFICATION

Description	<ul style="list-style-type: none">• Test case 10531v3 covers PIX Update Notification message. A patient is registered in domain1 with "correct" demographics.• This patient is then registered in domain2 with incorrect demographics. The demographics are sufficiently different that a Cross Reference Manager should not link these two records.• A patient update message is sent for the patient in domain domain2 that should synchronize the demographics with those seen in domain1. The Cross Reference Manager should now link the two records and send a PIX Update Notification to all registered consumer. Your manager should be configured to send PIX Update Notification to the test tools.
References	<ul style="list-style-type: none">• ITI TF-2: 3.10B.4.1

Actors	<ul style="list-style-type: none">• PIX Manager
Instructions	<ul style="list-style-type: none">• Two new patient added messages will be sent to your PIX manager, followed by a Update Patient message. Your manager is then expected to send a send PIX Update Notification.
Validation Criteria	<ul style="list-style-type: none">•

4.4 PDQ HL7 v3 Consumer

4.4.1 TEST CASE 11311v3: EXACT NAME SEARCH

Description	<ul style="list-style-type: none">• Test case 11311v3 covers an exact name search by the Patient Demographics Consumer.
References	<ul style="list-style-type: none">• ITI TF-2: 3.21B
Actors	<ul style="list-style-type: none">• PDQ Consumer
Instructions	<ul style="list-style-type: none">• The consumer is expected to query by exact patient name:<ul style="list-style-type: none">- name/family = MOORE- name/given = CHIP• No other keys should be present
Validation Criteria	<ul style="list-style-type: none">• The consumer is expected to provide a valid HL7 v3 find candidate query, correctly populated with the given value.

4.4.2 TEST CASE 11312v3: EXACT NAME SEARCH - NO MATCH

Description	<ul style="list-style-type: none">• Test case 11312v3 covers an exact name search by the Patient Demographics Consumer that results in no records found/returned by the Supplier.
References	<ul style="list-style-type: none">• ITI TF-2: 3.21B
Actors	<ul style="list-style-type: none">• PDQ Consumer
Instructions	<ul style="list-style-type: none">• The consumer is expected to query by exact patient name:<ul style="list-style-type: none">- name/family = ZEBRA
Validation Criteria	<ul style="list-style-type: none">• The Consumer is expected to provide a valid HL7 v3 find candidate query, correctly populated with the given values.

4.4.3 TEST CASE 11315V3: PARTIAL NAME SEARCH

Description	<ul style="list-style-type: none">Test case 11315V3 covers a partial name search by the Patient Demographics Consumer.
References	<ul style="list-style-type: none">ITI TF-2: 3.21B
Actors	<ul style="list-style-type: none">PDQ Consumer
Instructions	<ul style="list-style-type: none">The consumer is expected to query with a partial name:<ul style="list-style-type: none">name/family = MOO*No other query keys should be present.
Validation Criteria	<ul style="list-style-type: none">The Consumer is expected to provide a valid HL7 v3 find candidate query, correctly populated with the given values.

4.4.4 TEST CASE 11320V3: COMPLETE ID SEARCH - UNSPECIFIED DOMAIN

Description	<ul style="list-style-type: none">Test case 11320v3 covers a complete ID search where the return domains are unspecified by the Patient Demographics Consumer.
References	<ul style="list-style-type: none">ITI TF-2: 3.21B
Actors	<ul style="list-style-type: none">PDQ Consumer
Instructions	<ul style="list-style-type: none">The consumer is expected to query by exact patient ID:<ul style="list-style-type: none">id/value/@extension = 100
Validation Criteria	<ul style="list-style-type: none">The Consumer is expected to provide a valid HL7 v3 find candidate query, correctly populated with the given values.

4.4.5 TEST CASE 11325V3: COMPLETE ID SEARCH - SINGLE DOMAIN

Description	<ul style="list-style-type: none">Test case 11325v3 covers a complete ID search within a single domain that is specified by the Patient Demographics Consumer.
References	<ul style="list-style-type: none">ITI TF-2: 3.21B
Actors	<ul style="list-style-type: none">PDQ Consumer
Instructions	<ul style="list-style-type: none">The consumer is expected to query by exact patient and domain id:<ul style="list-style-type: none">id/value/@extension = 100otherIDsScopingOrganization/value/@root = 1.2.3.4.5.1000
Validation Criteria	The Consumer is expected to provide a valid HL7 v3 find candidate query, correctly populated with the given values.

4.4.6 TEST CASE 11330V3: COMPLETE ID SEARCH - MULTIPLE DOMAINS

Description	<ul style="list-style-type: none">Test case 11330 covers a complete ID search where the domain of interest is different from the Patient ID Domain associated with Receiving Application.
References	<ul style="list-style-type: none">ITI TF-2: 3.21B
Actors	<ul style="list-style-type: none">PDQ Consumer
Instructions	<ul style="list-style-type: none">Several Patient Feed messages and a find candidate query will be sent to your PD Supplier. The find candidate query will reflect and exact search on patient identifier 100. The PDQ Query will query about domain 2 (otherIDsScopingOrganization).
Validation Criteria	<ul style="list-style-type: none">The consumer is expected to query by patient and domain id:<ul style="list-style-type: none">id/value/@extension = 100 @root = 1.2.3.4.5.1000otherIDsScopingOrganization/value/@root = 1.2.3.4.5.2000

4.4.7 TEST CASE 11335V3: PARTIAL ID SEARCH - SINGLE DOMAIN

Description	<ul style="list-style-type: none">Test case 11335 covers a partial ID search within a single domain that is specified by the PD Consumer.
References	<ul style="list-style-type: none">ITI TF-2: 3.21B
Actors	<ul style="list-style-type: none">PDQ Consumer
Instructions	<ul style="list-style-type: none">The consumer is expected to query with by patient ID and domain ID.<ul style="list-style-type: none">id/value/@extension = 100*assigningAuthority/value/@root = 1.2.3.4.5.1000No other query keys should be present.
Validation Criteria	<ul style="list-style-type: none">The Consumer is expected to provide a valid HL7v3 find candidate query, correctly populated with the given values.

4.4.8 TEST CASE 11340V3: DATE OF BIRTH SEARCH

Description	<ul style="list-style-type: none">Test case 11340 covers a Date of Birth search.
References	<ul style="list-style-type: none">ITI TF-2: 3.21B
Actors	<ul style="list-style-type: none">PDQ Consumer

Instructions	<ul style="list-style-type: none"> The consumer is expected to query by exact Date of Birth: <ul style="list-style-type: none"> birthTime/value/@value = 19840711
Validation Criteria	<ul style="list-style-type: none"> The Consumer is expected to provide a valid HL7 v3 find candidate, correctly populated with the give values.

4.4.9 TEST CASE 11350V3: MULTI KEY SEARCH 1

Description	<ul style="list-style-type: none"> In test 11350v3, a Patient Demographics Consumer is required to send a search using two search keys, patient name and date of birth.
References	<ul style="list-style-type: none"> ITI TF-2: 3.21B
Actors	<ul style="list-style-type: none"> PDQ Consumer
Instructions	<ul style="list-style-type: none"> The consumer is expected to query with the following parameters: <ul style="list-style-type: none"> name/family = MOORE birthTime = 19840711
Validation Criteria	<ul style="list-style-type: none"> The Consumer is expected to provide a valid HL7 v3 PDQ Query message, correctly populated with the given values.

4.4.10 TEST CASE 11365V3: CONTINUATION TEST 1

Description	<ul style="list-style-type: none"> Test 11365 is a test of the HL7 Continuation Protocol. In this test, a Patient Demographics Consumer needs to configure its request with a specific limit. The Patient Demographics Supplier should successfully process the response from the Patient Demographics Supplier and send 3 other query messages to request the next records.
References	<ul style="list-style-type: none"> ITI TF-2: 3.21B
Actors	<ul style="list-style-type: none"> PDQ Consumer
Instructions	<ul style="list-style-type: none"> Step 1: The Consumer is expected to query with a partial name and an initial quantity. Step 2: The Patient Demographics sends a find candidate response back containing a continuation pointer. The Consumer is expected to process this message and send the corresponding continuation query back to ask for the next set of results. Step 2 should be repeated 2 more times.
Validation Criteria	<ul style="list-style-type: none"> The Consumer is expected to provide valid HL7v3 find candidate and continuation queries, correctly populated with the given values.

Message Location	Description	Value
name/family	Partial family name	MOO*
queryByParameter/initialQuantity/@value	Records quantity	1

Message Location	Description	Value
queryByParameter/initialQuantityCode/@code	Records units	RD

Message Location	Description	Value
name/family	Partial family name	MOO*
queryByParameter/initialQuantity/@value	Records quantity	1
queryByParameter/initialQuantityCode/@code	Records units	RD
	Continuation Pointer	<i>The value sent by the PDQ Supplier</i>

4.5 PDQ HL7 v3 Supplier

4.5.1 TEST CASE 11311V3: EXACT NAME SEARCH

Description	<ul style="list-style-type: none"> Test case 11311 covers an exact name search by the Patient Demographics Consumer. Several add new patient messages are sent to the Patient Demographics Supplier. Then the PD test Consumer sends a find candidates query that includes an exact patient name.
References	<ul style="list-style-type: none"> ITI TF-2: 3.21B
Actors	<ul style="list-style-type: none"> PDQ Supplier
Instructions	<ul style="list-style-type: none"> Several Patient Feed messages and a find candidates query will be sent to your PD Supplier. The find candidates query will reflect an exact name search on MOORE CHIP.
Validation Criteria	<ul style="list-style-type: none"> The Supplier is expected to provide a valid HL7v3 find candidates response message. A single patientPerson element shall be returned, containing the demographics of patient MOORE CHIP in domain 1.

4.5.2 TEST CASE 11312V3: EXACT NAME SEARCH - NO MATCH

Description	<ul style="list-style-type: none"> Test case 11312 covers an exact name search by last name that results in no patient records found. The Patient Demographics Consumer sends a find candidates query that includes an exact patient name.
References	<ul style="list-style-type: none"> ITI TF-2: 3.21B
Actors	<ul style="list-style-type: none"> PDQ Supplier
Instructions	<ul style="list-style-type: none"> A find candidates query will be sent to your PD Supplier.
Validation Criteria	<ul style="list-style-type: none"> The Supplier is expected to provide a valid HL7v3 find candidates response, correctly populated. No patientPerson shall be returned and queryAck/queryResponseCode/@code shall have the value NF (not found).

4.5.3 TEST CASE 11315V3: PARTIAL NAME SEARCH

Description	<ul style="list-style-type: none">Test case 11315 covers a partial name search by the Patient Demographics Consumer. Several add new patient messages are sent to the Patient Demographics Supplier. Then, the PD Consumer sends a find candidates query that includes a partial patient name.
References	<ul style="list-style-type: none">ITI TF-2: 3.21B
Actors	<ul style="list-style-type: none">PDQ Supplier
Instructions	<ul style="list-style-type: none">Several Patient Feed messages and a find candidates query will be sent to your PD Supplier. The PDQ Query will reflect a partial name search on MOO*.
Validation Criteria	<ul style="list-style-type: none">The Supplier is expected to provide a valid HL7v3 find candidates response, correctly populated.3 different patientPerson elements shall be returned, containing the patient demographics of 3 different patients:<ul style="list-style-type: none">- MOORE CHIP- MOO JOHN- MOORE CHARLE

4.5.4 TEST CASE 11320V3: COMPLETE ID SEARCH - UNSPECIFIED DOMAIN

Description	<ul style="list-style-type: none">Test case 11320 covers a complete ID search where the return domains are unspecified by the Patient Demographics Consumer. The PD Consumer sends find candidates that includes a complete Patient identifier with the 100 value.
References	<ul style="list-style-type: none">ITI TF-2: 3.21B
Actors	<ul style="list-style-type: none">PDQ Supplier
Instructions	<ul style="list-style-type: none">Several Patient Feed messages and a find candidate query will be sent to your PD Supplier. The find candidate query will reflect an exact search on patient identifier 100.
Validation Criteria	<ul style="list-style-type: none">The Supplier is expected to provide a valid HL7v3 find candidates response, correctly populated.A single patientPerson element shall be returned, containing the patient demographics of patient that was registered with the id 100 in the master domain (MOORE CHIP).

4.5.5 TEST CASE 11325V3: COMPLETE ID SEARCH - SINGLE DOMAIN

Description	<ul style="list-style-type: none">Test case 11325 covers a complete ID search within a single domain that is specified by the Patient Demographics Consumer. The PD Consumer sends a find candidates query that includes a complete Patient ID and a specific, single domain.
References	<ul style="list-style-type: none">ITI TF-2: 3.21B
Actors	<ul style="list-style-type: none">PDQ Supplier
Instructions	<ul style="list-style-type: none">Several Patient Feed messages and a find candidates query will be sent to your PD Supplier. The find candidates query will reflect an exact search on patient identifier 100. The PDQ Query will query about domain 1 (otherIDsScopingOrganization).
Validation Criteria	<ul style="list-style-type: none">The Consumer is expected to provide a valid HL7v3 find candidates response, correctly populated.A single patientPerson element shall be returned, containing the patient demographics of patient that was registered with the id 100 in the master domain (MOORE CHIP). As MOORE CHIP was only registered in domain 1, no other ids shall be returned.

4.5.6 TEST CASE 11330V3: COMPLETE ID SEARCH - MULTIPLE DOMAINS

Description	<ul style="list-style-type: none">Test case 11330 covers a complete ID search where the domain of interest is different from the Patient ID Domain associated with Receiving Application.
References	<ul style="list-style-type: none">ITI TF-2: 3.21B
Actors	<ul style="list-style-type: none">PDQ Supplier
Instructions	<ul style="list-style-type: none">Several Patient Feed messages and a find candidates query will be sent to your PD Supplier. The find candidates query will reflect an exact search on patient identifier 100. The PDQ Query will query about domain 2 (otherIDsScopingOrganization).
Validation Criteria	<ul style="list-style-type: none">A single patientPerson element shall be returned, containing the patient demographics of patient that was registered with the id 100 in the master domain (MOORE CHIP). As MOORE CHIP was not registered in domain 2, no other id shall be returned in the domain

4.5.7 TEST CASE 11335V3: PARTIAL ID SEARCH - SINGLE DOMAIN

Description	<ul style="list-style-type: none">Test case 11335 covers a partial ID search within a single domain that is specified by the Patient Demographics Consumer. The PD Consumer sends a find candidates query that includes a partial Patient ID with the value of 100* in the master domain.

References	<ul style="list-style-type: none"> ITI TF-2: 3.21B
Actors	<ul style="list-style-type: none"> PDQ Supplier
Instructions	<ul style="list-style-type: none"> Several Patient Feed messages and a find candidates query will be sent to your PD Supplier. The find candidates query will reflect a partial search on patient identifier 100*. The find candidates query will query about domain 1 (otherIdsScopingOrganization).
Validation Criteria	<ul style="list-style-type: none"> The Supplier is expected to provide a valid HL7v3 PDQ Query message, correctly populated 2 different patientPerson element shall be returned, containing the demographics for patients: <ul style="list-style-type: none"> - MOORE CHIP, registered in domain1 with the id 100. - SIMPSON ALAN, registered in domain 2 with the id 1000.

4.5.8 TEST CASE 11340V3: DATE OF BIRTH SEARCH

Description	<ul style="list-style-type: none"> Test case 11340 covers a date of birth search. The PD consumer sends a find candidates query that includes an exact date of birth.
References	<ul style="list-style-type: none"> ITI TF-2: 3.21B
Actors	<ul style="list-style-type: none"> PDQ Supplier
Instructions	<ul style="list-style-type: none"> Several Patient Feed messages and a find candidates query will be sent to your PD Supplier. The find candidates query will reflect an exact search on date of birth 19840711.
Validation Criteria	<ul style="list-style-type: none"> The Supplier is expected to provide a valid HL7v2 PDQ Query response message, correctly populated. A single patientPerson element shall be returned, containing the patient demographics of patient that was registered with the date of birth 19840711 in the master domain (MOORE CHIP).

4.5.9 TEST CASE 11350V3: MULTI KEY SEARCH 1

Description	<ul style="list-style-type: none"> Test case 11350 covers search using two search keys: patient name and date of birth. The PD consumer will send a find candidates query that includes a patient name and a patient date of birth.
References	<ul style="list-style-type: none"> ITI TF-2: 3.21B
Actors	<ul style="list-style-type: none"> PDQ Supplier
Instructions	<ul style="list-style-type: none"> Several Patient Feed messages and a find candidates query will be sent to your PD Supplier. The find candidates query will reflect an exact search on date of birth 19840711 and on family name MOORE.

Validation Criteria

- The Supplier is expected to provide a valid HL7v3 find candidates response message, correctly populated.
- A single patientPerson element shall be returned, containing the patient demographics of patient that was registered with the date of birth 19840711 and with MOORE as a family name in the master domain (MOORE CHIP).

4.5.10 TEST CASE 11365V3: CONTINUATION TEST 1

Description

- Test 11365 is a test of the HL7 Continuation Protocol. In this test, the Patient Demographics Consumer will configure its request with a specific limit. The Patient Demographics Supplier should successfully process the query from the Patient Demographics Consumer. Three continuation queries shall follow to request the next records to be sent.

References

- ITI TF-2: 3.21B

Actors

- PDQ Supplier

Instructions

- Several Patient Feed messages and a PDQ Query message will be sent to your PD Supplier. The find candidate query will reflect a partial name search on MOO* and limit the result quantity to 1. Then the PD Consumer will process the query response and ask for more results in 3 different continuation query messages.

Validation Criteria

- For each step, the Supplier is expected to provide valid HL7v3 PDQ Query response messages, correctly populated.
- Each message will contain one (and only one) patientPerson element, containing the demographics of one of these patients:
 - MOORE CHIP
 - MOO JOHN
 - MOORE CHARLE
 - MOORE PETER
- The PD Supplier shall not send two times the information about the same patient.

5.0 REFERENCES

[1] 2004 Integrating the Healthcare Enterprise (IHE) IT Infrastructure Test Cases. Developed at the Mallinckrodt Institute of Radiology under contract with the Healthcare Information and Management Systems Society (HIMSS) and the Radiological Society of North America (RSNA).

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[3] Integrating the Healthcare Enterprise (IHE) Radiology Technical Frameworks

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