
HIMSS and RSNA
Integrating the Healthcare Enterprise

IHE/MESA Cross Reference
Consumer Tests

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1 Cross Reference Consumer

1.1 Introduction

The MESA tests include a number of cases each of which rely on a sequence of messages between actors. These tests range across different integration profiles:

- Retrieve Information for Display
- Enterprise User Authentication
- Patient Identity Cross Reference for MPI
- Patient Synchronized Application
- Consistent Time

This document lists the transactions and messages for a number of cases. It may not describe the clinical scenario behind each case, but listing the transactions should clearly define what is expected of each actor. These are all of the transactions involving all of the actors. When you test with your particular actor, you may see only a subset of these messages.

1.2 Patient Identification

1.3 Configuration

The MESA scripts are run from the directory *\$MESA_TARGET/ mesa_tests/iti/xref_consumer*. The ASCII configuration file *xref_consumer.cfg* contains parameters that configure the MESA Cross Reference Manager. The default port number is 3600. You should only change this port number if there is a conflict with another service on the MESA test computer. There will be no conflicts with other MESA servers; the only conflict would occur with something from the operating system or other software package.

You should configure your Cross Reference Consumer to send HL7 query messages to the MESA Cross Reference Manager listening on port 3600. HL7 communication uses TCP sockets and the minimal lower level protocol.

1.4 Starting the MESA Servers

MESA servers are started from a DOS/CMD window or a terminal emulator. Follow these steps for Unix systems

1. `cd $MESA_TARGET/ mesa_tests/rid/actors/xref_consumer`
2. `scripts/start_mesa_servers.csh`

To stop the servers:

```
scripts/stop_mesa_servers.csh
```

The start instructions for MESA tools on a Windows system are:

1. `cd %MESA_TARGET%\mesa_tests\rid\actors\xref_consumer`
2. `scripts\start_mesa_servers.bat`

To stop the MESA servers:

Kill the server using ^C in the same DOS window where you started the server. When you started the server, it ran the server in the foreground.

1.5 Installation Test

1.6 Submission of Results

Test descriptions below inform the reader to “submit results to the Project Manager”. This is does not mean “email”. The current submission process should be documented by the Project Manager, but will not include emailing files directly to the Project Manager.

2 Test Cases: PIX

This section describes test cases that are generally associated with the PIX Integration Profile. There may be some overlap with other profiles.

Each test case involves a series of transactions involving one test patient. Some patients may require that a single actor participate in multiple transactions. The tables in this section give the order of messages for an integrated system with all actors. This is provided as a centralized reference. To test an individual IHE actor, refer to the appropriate test document.

2.1 Test Case 10501: PIX Query Case 1 and Case 2

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.

2.1.1 References

ITI TF-2: 3.9.4.2.2

2.1.2 Instructions

To run this test, follow these steps using a DOS window or terminal emulator:

1. Set the current directory to \$MESA_TARGET/ mesa_tests/iti/actors/xref_consumer.
2. The file *xref_consumer.cfg* describes the MESA servers for this test. You should be aware of this file but should not modify it unless you have problems starting the MESA servers.
3. Make sure the MESA servers have been started. See section 1.4 for details.
4. Run the test script as follows:

```
perl scripts/xref_cons_pix.pl 10501 <log level>
```

where <log level> is a value between 1 and 4.

5. The test script will send three A04 registration messages to the MESA Cross Reference Manager. After the three A04 messages, your system is prompted to send two PIX queries.

2.1.3 Evaluation

To evaluate your response to this test:

1. Run the evaluation script

```
perl 10501/eval_10501.pl 4
```

2. The output file is 10501/grade_10501.txt. This test is successfully completed when the last line in the output file indicates 0 errors.
3. The evaluation script does not examine the contents of your query messages. The script dumps the contents of the QPD segment; the Project Manager will examine the query parameters. This will allow you to send multiple queries and vary the order.
4. Submit the grade file to the Project Manager. The Project Manager may examine the file and require you to modify your query and/or to perform additional queries.

Notes:

1. The evaluation script takes a single argument, <log level>. When debugging output, it is sometimes helpful to use a log level of 1 to see only differences. When submitting results, we prefer the output with the most verbose level, 4.
2. If you want to see a query generated by a MESA Cross Reference Consumer, run test 10501 in self test mode. Then run the evaluation as above and examine the grade file. To run in self test mode:

```
perl scripts/xref_cons_pix.pl 10501 4 self
```

2.2 Test Case 10502: PIX Query Case 3

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.

2.2.1 References

ITI TF-2: 3.9.4.2.2

2.2.2 Instructions

To run this test, follow these steps using a DOS window or terminal emulator:

1. Set the current directory to \$MESA_TARGET/mesa_tests/iti/actors/xref_consumer.
2. The file *xref_consumer.cfg* describes the MESA servers for this test. You should be aware of this file but should not modify it unless you have problems starting the MESA servers.
3. Make sure the MESA servers have been started. See section XXX for details.
4. Run the test script as follows:

```
perl scripts/xref_cons_pix.pl 10502 <log level>
```

where <log level> is a value between 1 and 4.

5. The test script will send two A04 registration messages to the MESA Cross Reference Manager. After the two A04 messages, the script prompts you to send a query for a third patient who is not recognized as one of the two registered patients.

2.2.3 Evaluation

To evaluate your response to this test:

1. Run the evaluation script

```
perl 10502/eval_10502.pl 4
```

2. The output file is 10502/grade_10502.txt. This test is successfully completed when the last line in the output file indicates 0 errors.

3. The evaluation script does not examine the contents of your query messages. The script dumps the contents of the QPD segment; the Project Manager will examine the query parameters. This will allow you to send multiple queries and vary the order.
4. Submit the grade file to the Project Manager. The Project Manager may examine the file and require you to modify your query and/or to perform additional queries.

Notes:

1. The evaluation script takes a single argument, <log level>. When debugging output, it is sometimes helpful to use a log level of 1 to see only differences. When submitting results, we prefer the output with the most verbose level, 4.

2.3 Test Case 10503: PIX Query Case 4

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.

2.3.1 References

ITI TF-2: 3.9.4.2.2

2.3.2 Instructions

To run this test, follow these steps using a DOS window or terminal emulator:

1. Set the current directory to \$MESA_TARGET/mesa_tests/iti/actors/xref_consumer.
2. The file *xref_consumer.cfg* describes the MESA servers for this test. You should be aware of this file but should not modify it unless you have problems starting the MESA servers.
3. Make sure the MESA servers have been started. See section XXX for details.
4. Run the test script as follows:

```
perl scripts/xref_cons_pix.pl 10503 <log level>
```

where <log level> is a value between 1 and 4.

5. The test script will prompt the user to send a query with a PID that includes the issuer XXXX. The MESA Cross Reference Manager should respond as defined in Case 4.

2.3.3 Evaluation

To evaluate your response to this test:

1. Run the evaluation script

```
perl 10503/eval_10503.pl 4
```

2. The output file is 10503/grade_10503.txt. This test is successfully completed when the last line in the output file indicates 0 errors.

3. The evaluation script does not examine the contents of your query messages. The script dumps the contents of the QPD segment; the Project Manager will examine the query parameters. This will allow you to send multiple queries and vary the order.
1. Submit the grade file to the Project Manager. The Project Manager may examine the file and require you to modify your query and/or to perform additional queries.

Notes:

1. The evaluation script takes a single argument, <log level>. When debugging output, it is sometimes helpful to use a log level of 1 to see only differences. When submitting results, we prefer the output with the most verbose level, 4.

2.4 Test Case 10531: PIX Update Notification: MESA 1

Test case 10531 covers a use case involving the PIX Update Notification transaction and behavior of the Cross-reference Manager.

2.4.1 References

ITI TF-2: 3.10

2.5 Test Case 10532: PIX Update Notification: MESA 2

Test case 10532 covers a use case involving the PIX Update Notification transaction and behavior of the Cross-reference Manager.

2.5.1 References

ITI TF-2: 3.10

2.6 Test Case 10533: PIX Update Notification: MESA 3

Test case 10533 covers a use case involving the PIX Update Notification transaction and behavior of the Cross-reference Manager.

2.6.1 References

ITI TF-2: 3.10

2.7 Test Case 10541: PIX Integrated Test 1

Test case 10541 covers a use case with several PIX transactions integrated into a larger test.

2.7.1 References

ITI TF-2: 3.10

2.8 Test Case 10542: PIX Integrated Test 2

Test case 10542 covers a use case with several PIX transactions integrated into a larger test.

2.8.1 References

ITI TF-2: 3.10

2.9 Test Case 10543: PIX Integrated Test 3

Test case 10543 covers a use case with several PIX transactions integrated into a larger test.

2.9.1 References

ITI TF-2: 3.10

3 Test Cases: PSA

This section describes test cases that are generally associated with the PSA Integration Profile. There may be some overlap with other profiles.

Each test case involves a series of transactions involving one test patient. Some patients may require that a single actor participate in multiple transactions. The tables in this section give the order of messages for an integrated system with all actors. This is provided as a centralized reference. To test an individual IHE actor, refer to the appropriate test document.

4 Test Cases: CT

This section describes test cases that are generally associated with the CT component. There may be some overlap with other profiles.