

The Developers Integration Lab (DIL) Testing Overview for eHealth Exchange Testing Programs

(Participant and Product
Testing)

2010 & 2011 Versions

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Table of Contents

1. TESTING IN THE DIL.....	3
1.1 SELECTING CORRECT VERSION OF SERVICE SET	3
1.2 “TC: MAQD...” TEST CASES	3
1.3 MESSAGE CONFORMANCE CHECKPOINTS (FILTER TEMPLATES IN DIL)	4
1.3.1 FILTER STATUS.....	4
1.3.2 FILTER MESSAGE	5
1.3.3 “CL MA SOAP REQUEST” CHECKLIST COLUMNS.....	5
1.3.4 EXAMPLE MESSAGE VERIFICATION.....	7
1.4 OFFICIAL TEST.....	7
Attachment #1: Test Case List	9
2010 Participant Required Test Cases.....	9
2011 Participant Required Test Cases.....	9
2011 Product Testing Required Test Cases	10

1. TESTING IN THE DIL

After the Applicant has reviewed all of the Test Case Documentation, completed the Testing Readiness Checklist and the DIL Setup Checklist, the Applicant is ready to begin their practice testing in the DIL. During the practice testing in the DIL, the Applicant should run practice tests, but should not submit any results for validation. Submitting results for validation by eHealth Exchange will occur only in the official test phase. As the Applicant practices executing their applicable Service Sets, they should **Close** each Service Set when finished instead of **Submitting** it.

1.1 SELECTING CORRECT VERSION OF SERVICE SET

Applicants should select the Service Set in the DIL that corresponds to the version that they are testing (e.g. 2010, 2011, etc). There are two Service Sets in the DIL for the Smoke Tests:

- 2010 Service Set: SS: PRL-0000.0-2010
- 2011 Service Set: SS: PRL-0000.0-2011

The Smoke Test Case Documentation Package does not have the version specified in the file name, since the smoke test case package is used to test both the 2010 and 2011 versions. To determine which tests apply in the documentation (i.e. whether information relates to 2010, 2011, or both), see which version(s) is specified in the field.

- 2010 Smoke Test Case Documentation Field: “2010 Exchange”
- 2011 Smoke Test Case Documentation Field: “2011 Exchange”

Each version of the specification (2010 and 2011) has its own Reference Implementation (“RI”) in the DIL. As a result, the Applicant should use the appropriate DIL machine name for the version the Applicant is testing:

- 2010 DIL Reference Implementation: RI0002 (Machine Name: dilhn001.dil.aegis.net).
- 2011 DIL Reference Implementation: RI0004 (Machine Name: dilhn003.dil.aegis.net).

To locate endpoint information for either the 2010 or 2011 DIL Reference Implementations (e.g. HCID or AAID):

- Lookup the entry in the DIL UDDI (listed by respective Machine Name)

NOTE: More information regarding the Reference Implementations can be found: i) Test Harness section of the DIL; and ii) DIL User Guide - Section 3.0: Initiator Test Scenario - Executing Test Cases.

1.2 “TC: MAQD...” TEST CASES

Within the documentation of the Scenario(s) that contain the “TC: MAQD...” test cases, the Scenario Steps have a description before the “TC: MAQD” test case that indicate to ‘Execute

TC: PD-R-0000.0 variant' first. The 'TC: PD-R-0000.0 variant' in the step is also known as a seed PD test case.

For every "TC: MAQD..." test case, a seed PD test case immediately precedes it in the Scenario. The seed PD test case is used to establish a correlation for the patient in order to proceed to the "TC: MAQD" test case. The seed PD test case must be run before a "TC: MAQD" test case should be attempted. If the patient has not been correlated before the "TC: MAQD" test case has been run, the test case will not have enough information to be executed successfully. The seed PD test case is a basic PD message similar to the PD test case in the Smoke Test Service Set, but is utilizing the patient that is associated to the "TC: MAQD" that it is above. The seed PD test cases are simply used to set up the correct information for the "TC: MAQD" test case and are not checked for anything other than the patient was correlated.

Also note there are several Security Test Cases that will show as a "Fail" for the 'TC: MAQD' test case if the Applicant is using a lower version than CONNECT 4.0. These Test Cases will be marked in the Summary Report with a "Known Issue" for the reason of override for the 'Fail'. The list of Security Test Cases that falls into this area are marked in the "eHealth Exchange Participant Testing – Test Cases to Execute per Version" document under the Test Case Documentation section of HIE Everywhere

1.3 MESSAGE CONFORMANCE CHECKPOINTS (FILTER TEMPLATES IN DIL)

Within the Initiator test cases, there are several Filter Templates that start with "MA" that display within the Case Results detail screen of the DIL after the test case has been executed. These Filter Templates are checking for the conformance against a few of the checklist items from the "CL MA SOAP Request" checklist excel sheet. The checkpoints in this checklist are from the Exchange Messaging Platform and Authorization Framework specifications indicated by the "MA" as the prefix. The numbers that follow the 'MA' refer to the id reference of the checklist item that the Filter Template is checking. A test case will not Pass until all Filter Templates Pass as well, including the 'MA' checkpoints. A 'MA' checkpoint may Fail if the value of the element is the default value or the example and not a configured actual value for the element.

At the current time, those checkpoints that display as part of the list of Filter Templates in the DIL are the only checkpoints that will be currently checked for conformance.

For additional information about a specific checkpoint, please refer to the "CL MA SOAP Request" checklist located in the Test Case Documentation found on the eHealth Exchange website.

1.3.1 FILTER STATUS

For each Filter Template, there is a corresponding Filter Status. There are four statuses that could potentially be displayed:

- Green check mark – represents a Pass for that checkpoint
- Red "Warning" – represents a checkpoint that has been flagged for consideration

- Hand icon – represents a checkpoint that will be manually checked by an eHealth Exchange tester after the result has been submitted for Validation. The eHealth Exchange tester will determine at that point if the checkpoint is a Pass or a Fail. If the checkpoint has been determined by the eHealth Exchange tester as a Fail, the results of the analysis will be in the Summary Report when the eHealth Exchange tester presents the Test Results to the Applicant. These items will only be manually checked after the Applicant has applied for testing and has officially submitted their first submission of the Test Cases.
- Red “Fail” – represents a Fail for that checkpoint

1.3.2 FILTER MESSAGE

Information will be displayed in the Filter Message to give the Applicant context for the Status shown. If the Status is a ‘Fail’ the Filter Message will typically have at least two rows to indicate the results of the checkpoint. The first row has the information about what was found in the message that was not expected. The second row has the information about what was expected to be found in the message that was not found. The Applicant should compare the two rows and identify the missing or incorrect item(s) for the checkpoint. The following example represents two rows for a Fail status and the type of information that would be displayed. In the example, the first row is showing that the HomeCommunityId value does not have the “urn:oid” that is part of the value the checkpoint is looking for displayed in the second row.

ERROR	HomeCommunityId ‘2.16.840.1.113883.3.1259.90.9000’ RepositoryUniqueld ‘1’ DocumentUniqueld ‘1.RI0004.000000002.D-1’ in message does not match one of the expected document unique ids.
ERROR	Expected HomeCommunityId ‘urn:oid:2.16.840.1.113883.3.1259.90.9000’ RepositoryUniqueld ‘1’ DocumentUniqueld ‘1.RI0004.000000002.D-1’ in message.

Figure 2. Example of Filter Message rows

1.3.3 “CL MA SOAP REQUEST” CHECKLIST COLUMNS

The following sections describe each of the columns from within the “CL MA SOAP Request” Checklist located under the Test Case Documentation section of the eHealth Exchange website.

1.3.3.1 **2010 Exchange Spec**

An ‘X’ in this column indicates that the checkpoint is part of the 2010 Exchange (formerly ‘NwHIN’) specification and will be checked as part of the 2010 Test Cases.

1.3.3.2 **2011 Exchange Spec**

An ‘X’ in this column indicates that the checkpoint is part of the 2011 Exchange (formerly ‘NwHIN’) specification and will be checked as part of the 2011 Test Cases.

1.3.3.3 **Prefix**

This column has the prefix reference of the checkpoint indicating which specification(s) the checkpoint is in reference to.

1.3.3.4 ID

This column has a reference ID number for the checkpoint.

1.3.3.5 Section

An 'X' in this column indicates the section of the message where the item of the checkpoint is found.

1.3.3.6 Field being verified

This column provides the XPath notation or plain text of the "Element" to describe the navigation to the appropriate message element.

1.3.3.7 Verify Presence

This column indicates whether the element is "Required," "Conditional," or "Optional.

If the value in the column is:

- "R" – it means the element is required and must be present in the message. If the element is under a conditional ("C") element, the element is only required if the Conditional element is in the message. Otherwise, the element is not required.
- "C" – it means the element is conditional and must be present if the message meets the conditions specified.
- "O" – it means the element is optional and may be present. If present, it must conform to the checks listed in the checklist.

1.3.3.8 Additional Verification, Description, Example

This column gives additional verification information or checks to be inspected to confirm conformance of the checkpoint. It also gives an example of the element.

1.3.3.9 Notes

This column has additional information on the element for the checkpoint.

1.3.3.10 2011 Exchange Specification

This column has the traceability to the 2011 Exchange (formerly 'NwHIN') specification section for the checkpoint.

1.3.3.11 2010 Exchange Specification

This column has the traceability to the 2010 Exchange (formerly 'NwHIN') specification section.

1.3.3.12 Underlying Specification

For full traceability, this column has the reference to the primary and underlying specifications.

1.3.4 EXAMPLE MESSAGE VERIFICATION

The following is a partial look at a sample SOAP Header in a PD Request message viewed alongside the MA SOAP Request Checklist. Identified in the example is the <To> element in the SOAP Header of the message and the map of the element to the checkpoint for wsa:To.

```

▼<S:Envelope xmlns:S="http://www.w3.org/2003/05/soap-envelope" xmlns:wsse11="http://docs.oasis-open.org
open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd" xmlns:wsu="http://docs.oasis-open.org
xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:ds="http://www.w3.org/2000/09/xmldsig#" xmlns:saml="
c14n#">
▼<S:Header>
▼<To xmlns="http://www.w3.org/2005/08/addressing" mustUnderstand="true">
  https://dilhn003.dil.aegis.net:443/Gateway/PatientDiscovery/1_0/NhinService/NhinPatientDiscovery
</To>
    
```

Figure 3. SOAP Header in a PD Request Message (partial)

Prefix	ID	Section	Field being verified	Verify Presence	Additional verification, description, example	2011 Exchange Specification
MA	1002	SOAP: General	S:Envelope/S:Header	R	Verify: - In the verification steps below, verify only the child elements of S:Header WHERE @role is one of the following: - (@role is not present) - "http://www.w3.org/2003/05/soap-envelope/role/next" - "http://www.w3.org/2003/05/soap-envelope/role/ultimateReceiver" - Child elements with different values for @role are not intended to be processed by the NHIN receiving node, and are not verified in this checklist. - There is no required ordering for the immediate child elements of S:Header.	Messaging Platform 3.0: 1.4
MA	1003	WS-Addressing	S:Envelope/S:Header/wsa:To	R	Verify: @role SHOULD NOT be "http://www.w3.org/2003/05/soap-envelope/role/ultimateReceiver". Description: wsa:To is the URI of the service. Example: https://sin.sipilotdevelopment.org:8181/ntransport/NhinTransportService	Messaging Platform 3.0: 3.5
MA	1004	WS-Addressing	S:Envelope/S:Header/wsa:To/@mustUnderstand	O	Verify: - MUST be either "true", "1", "false", or "0". - SHOULD NOT be "false" or "0".	Messaging Platform 3.0: 3.5

Figure 4. MA SOAP Request Checklist (partial)

1.4 OFFICIAL TEST

Once the Applicant can successfully execute all applicable test cases with no deficiencies, the applicant should run the test cases one final time and submit them in the DIL.

NOTE: There are several Security Test Cases that will show as a “Fail” for the ‘TC: MAQD’ test case if the Applicant is using a lower version than CONNECT 4.0. These Test Cases will be marked in the Summary Report with a “Known Issue” for the reason of override for the ‘Fail’. The list of Security Test Cases that falls into this area are marked in the “eHealth Exchange Participant Testing – Test Cases to Execute per Version” document under the Test Case Documentation.

The Applicant should then email eHealth Exchange staff at testing@sequoiaproject.org to let them know that they have officially submitted the results and provide the DIL Execution Unique ID for that submission. The DIL Execution Unique ID can be copied from the Submission successfully completed page.

Once eHealth Exchange has received the email from the Applicant with the official submission details and DIL Execution Unique IDs, eHealth Exchange will verify the results, including any

manual review items. Any incomplete or failed results will be documented with additional analysis as appropriate into the Summary Report which will be provided to the Applicant.

If the Applicant is testing the 2011 version, they must first resolve the deficiencies of the Smoke Test before moving onto the Security test cases.

If the Applicant is testing the 2011 version, and submits the Smoke Test and the Security test cases at the same time, eHealth Exchange may ask that the Security test cases be submitted again after any deficiencies in the Smoke Test have been resolved. eHealth Exchange will not review or provide any analysis on the Security test cases if any deficiencies are found in the Smoke Test. Therefore, the suggested path is for the Applicant to submit the Smoke Test first, wait for analysis of the Smoke Test before submitting the Security test cases.

For details on the Validation Process, Testing Windows, Test Results or the Retest and Appeals please see the eHealth Exchange Participant Testing Agreement and the Validation Plan.

Attachment #1: Test Case List

The following outlines the list of test cases applicable to those testing 2010 and 2011 versions for eHealth Exchange participant tests.

2010 Participant Required Test Cases (Note: There are no required security tests for the 2010 version)

1. **Smoke Test 2010 – SS: PRL-0000.0-2010 (eHealth Exchange Participant Testing - Smoke Test Package)**
 - a. SS: PRL-0000.0-2010
 - i. TS: PRL-I-0000.0-2010
 1. TC: PD-I-0000.0-2010
 2. TC: QD-I-0000.0-2010
 3. TC: RD-I-0000.0-2010
 - ii. TS: PRL-R-0000.0-2010
 1. TC: PD-R-0000.0-2010
 2. TC: QD-R-0000.0-2010
 3. TC: RD-R-0000.0-2010

2011 Participant Required Test Cases

1. **Smoke Test 2011 – SS: PRL-0000.0-2011 (eHealth Exchange Participant Testing - Smoke Test Package)**
 - a. SS: PRL-0000.0-2011
 - i. TS: PRL-I-0000.0-2011
 1. TC: PD-I-0000.0-2011
 2. TC: QD-I-0000.0-2011
 3. TC: RD-I-0000.0-2011
 - ii. TS: PRL-R-0000.0-2011
 1. TC: PD-R-0000.0-2011
 2. TC: QD-R-0000.0-2011
 3. TC: RD-R-0000.0-2011
2. **Participant Testing MA Required Security Test Scenarios***
 - b. SS: PRL-0006.0-2011
 - i. TS: PRL-R-0006.0-2011
 1. TC: MAQD-R-0003.000-2011
 2. TC: MAQD-R-0003.101-2011
 - ii. TS: PRL-R-0035.0-2011
 1. TC: MAQD-R-0003.301-2011**
 - iii. TS: PRL-R-0036.0-2011
 1. TC: MAQD-R-0003.302-2011
 2. TC: MAQD-R-0003.303-2011

- iv. TS: PRL-R-0037.0-2011
 - 1. TC: MAQD-R-0003.306-2011
 - 2. TC: MAQD-R-0003.307-2011
- v. TS: PRL-R-0038.0-2011
 - 1. TC: MAQD-R-0003.308-2011
- c. SS: PRL-0011.0-2011
 - i. TS: PRL-R-0040.0-2011
 - 1. TC: MAQD-R-0003.315-2011
 - 2. TC: MAQD-R-0003.316-2011
 - ii. TS: PRL-R-0041.0-2011
 - 1. TC: MAQD-R-0003.317-2011
 - iii. TS: PRL-R-0043.0-2011
 - 1. TC: MAQD-R-0003.325-2011
 - iv. TS: PRL-R-0044.0-2011
 - 1. TC: MAQD-R-0003.326-2011
- d. SS: PRL-0012.0-2011
 - i. TS: PRL-R-0046.0-2011
 - 1. TC: MAQD-R-0003.401-2011
- e. SS: PRL-0013.0-2011
 - i. TS: PRL-R-0052.0-2011
 - 1. TC: MAQD-R-0003.421-2011**
 - ii. TS: PRL-R-0053.0-2011
 - 1. TC: MAQD-R-0003.423-2011
 - 2. TC: MAQD-R-0003.424-2011**
 - iii. TS: PRL-R-0054.0-2011
 - 1. TC: MAQD-R-0003.426-2011
 - 2. TC: MAQD-R-0003.427-2011

*The seed PD test cases must be run as well for each 'TC: MAQD' test case. For additional details around "seed PD test cases" please reference the Test Guide.

**These 'TC: MAQD' test cases will show as a 'Fail' for Applicants who are using a lower version than CONNECT 4.0. These Test Cases will be marked in the Summary Report with a "Known Issue" for the reason of override for the 'Fail'

2011 Product Testing Required Test Cases (Note: that the Product Testing Program contains 16 additional Required Security tests. Please see the Required Security Testing Documentation for further details)

- 1. Smoke Test 2011 – SS: PRL-0000.0-2011 (eHealth Exchange Participant Testing - Smoke Test Package)**
 - a. SS: PRL-0000.0-2011
 - i. TS: PRL-I-0000.0-2011
 - 1. TC: PD-I-0000.0-2011

- 2. TC: QD-I-0000.0-2011
- 3. TC: RD-I-0000.0-2011
- ii. TS: PRL-R-0000.0-2011
 - 1. TC: PD-R-0000.0-2011
 - 2. TC: QD-R-0000.0-2011
 - 3. TC: RD-R-0000.0-2011

2. Require Participant MA Security Test Scenarios*

- a. SS: PRL-0006.0-2011
 - i. TS: PRL-R-0006.0-2011
 - 1. TC: MAQD-R-0003.000-2011
 - 2. TC: MAQD-R-0003.101-2011
 - ii. TS: PRL-R-0035.0-2011
 - 1. TC: MAQD-R-0003.201-2011
 - 2. TC: MAQD-R-0003.301-2011**
 - iii. TS: PRL-R-0036.0-2011
 - 1. TC: MAQD-R-0003.302-2011
 - 2. TC: MAQD-R-0003.303-2011
 - iv. TS: PRL-R-0037.0-2011
 - 1. TC: MAQD-R-0003.306-2011
 - 2. TC: MAQD-R-0003.307-2011
 - v. TS: PRL-R-0038.0-2011
 - 1. TC: MAQD-R-0003.308-2011
- b. SS: PRL-0011.0-2011
 - i. TS: PRL-R-0040.0-2011
 - 1. TC: MAQD-R-0003.315-2011
 - 2. TC: MAQD-R-0003.316-2011
 - ii. TS: PRL-R-0041.0-2011
 - 1. TC: MAQD-R-0003.317-2011
 - 2. TC: MAQD-R-0003.318-2011
 - 3. TC: MAQD-R-0003.319-2011
 - iii. TS: PRL-R-0042.0-2011
 - 1. TC: MAQD-R-0003.320-2011
 - 2. TC: MAQD-R-0003.321-2011
 - iv. TS: PRL-R-0043.0-2011
 - 1. TC: MAQD-R-0003.323-2011
 - 2. TC: MAQD-R-0003.324-2011
 - 3. TC: MAQD-R-0003.325-2011
 - v. TS: PRL-R-0044.0-2011
 - 1. TC: MAQD-R-0003.326-2011
- c. SS: PRL-0012.0-2011
 - i. TS: PRL-R-0046.0-2011
 - 1. TC: MAQD-R-0003.401-2011
 - ii. TS: PRL-R-0049.0-2011
 - 1. TC: MAQD-R-0003.410-2011

2. TC: MAQD-R-0003.411-2011
3. TC: MAQD-R-0003.412-2011
- iii. TS: PRL-R-0050.0-2011
 1. TC: MAQD-R-0003.413-2011
- d. SS: PRL-0013.0-2011
 - i. TS: PRL-R-0052.0-2011
 1. TC: MAQD-R-0003.420-2011
 2. TC: MAQD-R-0003.421-2011**
 - ii. TS: PRL-R-0053.0-2011
 1. TC: MAQD-R-0003.422-2011
 2. TC: MAQD-R-0003.423-2011
 3. TC: MAQD-R-0003.424-2011**
 - iii. TS: PRL-R-0054.0-2011
 1. TC: MAQD-R-0003.426-2011
 2. TC: MAQD-R-0003.427-2011
 - iv. TS: PRL-R-0055.0-2011
 1. TC: MAQD-R-0003.429-2011
 2. TC: MAQD-R-0003.430-2011
 3. TC: MAQD-R-0003.431-2011

*The seed PD test cases must be run as well for each 'TC: MAQD' test case. For additional details around "seed PD test cases" please reference the Test Guide.

**These 'TC: MAQD' test cases will show as a 'Fail' for Applicants who are using a lower version than CONNECT 4.0. These Test Cases will be marked in the Summary Report with a "Known Issue" for the reason of override for the 'Fail'

Naming conventions:

- SS: Service Set
- TS: Test Scenario
- TC: Test Case
- PD: Patient Discovery
- QD: Query for Documents
- RD: Retrieve Documents
- I: Initiator transactions
- R: Responder transactions
- MA: Messaging Platform and Authorization Framework