Assessment Interoperability Framework Test Case Documentation

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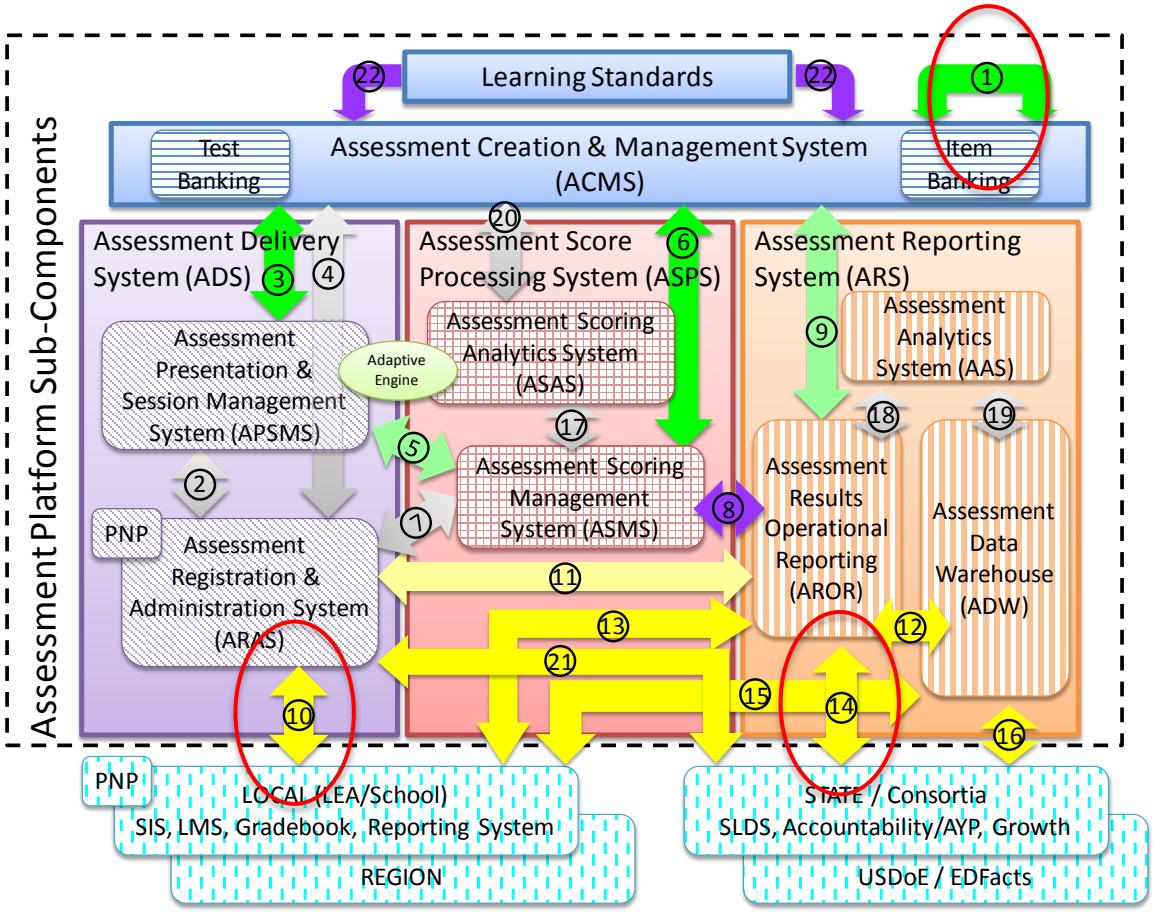
Overview

The test scenarios for the AIF (TSAIF) comprise specific interoperability test scenarios based upon the AIF use cases documentation. The test scenarios are providing a framework for each of the individual work groups and will be used for the full testing plan. Individual work groups were formed based upon the prospectus and interested marketplace providers. References to other standards appear. In order to represent a full implementation, these references are made. These standards incorporate the necessary elements from CEDS.

Arrow 1 conducted a live test with actual coding and applications involved. Given this, four tests occurred, one for each provider. Arrows 10 and 14 oversaw a paper or logical test that included walking through the testing environment.



References to other standards are made. CEDS offers the necessary data entities and elements to support each of these features for APIP, SIF and IMS. It defines the specific elements and lists, if needed. In order to fully implement the AIF, these other standards are needed.

Provider Support

The following providers supported the entire demonstration prototype testing, and without their participation, the testing would not have occurred.

- Choice Solutions
- CTB McGraw-Hill
- ETS
- Houghton Mifflin Harcourt
- Measured Progress
- Pearson
- Rediker Software
- Wireless Generation

Test Scenario TSAIF-0010A Item Bank (ETS)

Scenario Description

The test cases described below are designed to test the agreed to standards for AIF arrow 1. Arrow 1 corresponds to the interface activity that will need to occur between item banking systems and or test banking systems in the Assessment Creation and Management sub components.

Version Control

Version #	Date	Author	Description
0.1	11/15/2012	John McNulty (ETS)	Initial Draft

Contributors

Name	Company
John McNulty	ETS
Mark McKell	IMS Global

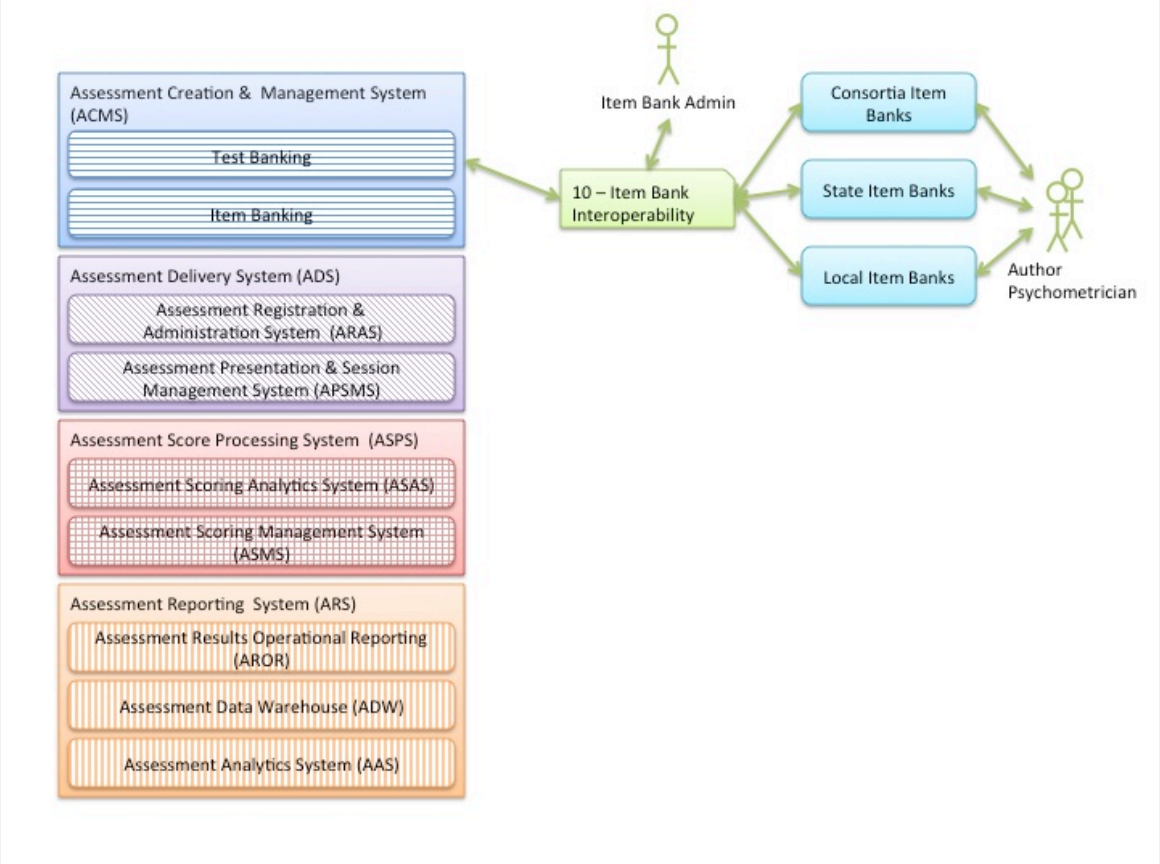
Test Scripts

The following scripts will cover this scenario:

1. TSAIF-0010-001 Export Package Creation
2. TSAIF-0010-002 Export of Package
3. TSAIF-0010-003 Package Receipt and Verification
4. TSAIF-0010-005 Package Import

Use Case

Use Case ID and Name	UCAIF-0010 Assessment Item Bank Interoperability
Use Case Description	Assessment content can be efficiently exchanged between item banking solutions with minimal manual intervention or editing of the content. The exchange may include all or portions of the data and content identified below.
Diagrams	



Applicable Scenarios	• Organization A is developing items that will be administered by Organization B. A sends B the items after they have been developed. • Organization A sub-contracts with organization B to add accessibility extensions to items. A send B items, B adds accessibility information, B sends A updated items. • The consortium provides a centralized item bank that each state can pull from (or the consortia can push to the state) for inclusion in their state programs. • A consortium has a contract with Organization A's item banking capability. At the end of the contract, the consortium awards a new contract to organization B. A sends B all items, assessments, statistics, etc. • The consortium releases items from the summative item bank for use in local assessments. LEA pulls items from the consortium's centralized item bank (or the consortia pushes items to the local item bank) for inclusion in their local benchmark platform.
Actors	• Sending Item Bank • Receiving Item Bank
Pre-Condition	• Assessment content (items, instruments, etc.) is ready to be transferred in the sending item bank.
Processing	• The sending item bank exports and packages desired content into the desired interoperable exchange format. • Content packages are transmitted from sending item bank host system to receiving item bank host system. • Receiving item bank host system inspects content for adherence to

	interoperability exchange format and handles anomalies appropriately. • Receiving item bank imports content into item bank.
Post-Conditions	• Content is now ready for use including reviews, edit, extensions, assessment instrument creation, passing of instruments to delivery system, etc.
Triggers	This process is likely triggered manually when an item bank or content is ready for exchange.
Exceptions	• Content packages are malformed o Receiving item bank import process will identify and handle malformed content appropriately for that application • Content is not supported by current standards and custom extensions have been implemented o Exchanging parties have identified the custom extensions and both parties have agreed on how to handle and process. • Content is not supported by current standards and a proprietary format is exchanged. o Exchanging parties have identified the proprietary content and both have agreed on how to handle and process.
Identify SBAC or PARCC Use Cases or Architecture Items this use case supports	The SBAC architecture does not specifically address item bank to item bank interactions but does address item bank to test bank interactions.
AIF framework references	This is represented by Arrow 1 of the AIF wiring diagram
Expected Use of Interoperability Standard	APIP
Expected Data or Content Requirements	Note: depending upon the nature of the exchange, some or all of the following may be included. • Default item content • Accessibility extensions to default item content • Shared content (passages, charts, art, etc.) • Accessibility extensions to shared content • Feedback (correct, incorrect, distracter, diagnostic, etc.) • Assessment section definitions and packages • Assessment instrument definitions and packages • Scoring information for items (keys, rubrics, etc.) • Scoring information for assessments and sub-tests (item to sub-test composition, weights, performance levels, score tables, etc.) • Assessment and sub-test to learning standard alignment/references • Item to learning standard alignment/references • Content author, copyright, etc. • Item performance statistics
Expected Transport Requirements	• Asynchronous file exchanges. SFTP could be used. • Must be a secure transfer (content cannot be intercepted). • Likely very large content packages (audio, video, graphic art, etc.).
Other assumptions or issues	

Test Components

This test scenario covers the following high-level test requirements (see scripts below for specific requirements covered by each test script):

- Item authoring system
- Sending Item banking system
- Receiving Item banking system

User Groups

- Receiving Item Bank - Request specific items
- Sending Item Bank - Create export package of items
- Sending Item Bank -Export item package
- Receiving Item Bank - Import package and verify contents
- Receiving Item Bank - Import verified package to item bank

Script 001: Create APIP Export Package

Script Description

The tester will access the sending item bank item data and will mark the requested items as appropriate in the item banking system for export to the receiving item bank.

Testing Requirements

This test script covers the following specific testing requirements:

- Creation of package for export

Setup

The sending item bank will have created a series of pre-identified items that will be available for this test.

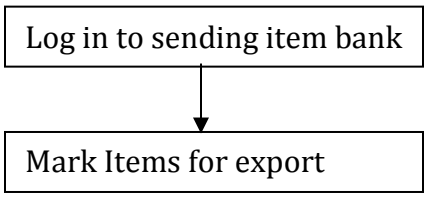
Teardown

Items that were created for this test scenario will be deleted at the discretion of the sending item bank if necessary at the end of the test scenario

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Log into sending item bank	Successful login	P	
2	Select required items for export	Multiple items marked to be exported.	P	

Diagram of Test



Script 002: Export APIP Package

Script Description

The tester will access the sending item bank item data and will create the physical export package.

Testing Requirements

This test script covers the following specific testing requirements:

- Export of package

Setup

Successful completion of Script 001.

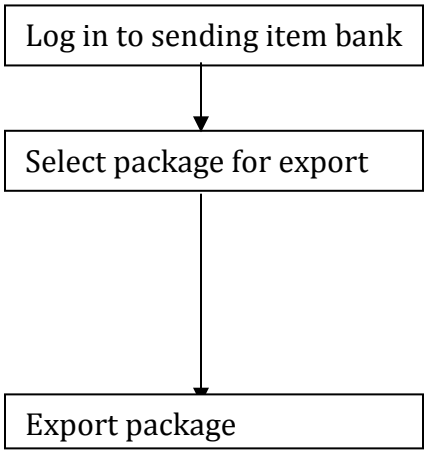
Teardown

Packages that were created for this test scenario will be deleted at the discretion of the sending item bank if necessary at the end of the test scenario.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Log into sending item bank	Successful login	P	
2	Select Appropriate package for export	Package successfully selected	P	
3	Execute export logic	Complete package of assessment content and associated supporting files is created in the pre-defined host transfer area	P	

Diagram of Test



Script 003: Download Package and verify contents

Script Description

The tester will access the export and verify content of the package by accessing the transfer sight and running validations on the package contents. If errors are encountered in the validation they will be discussed with the sending item bank and when resolved the package will be re-exported.

Testing Requirements

This test script covers the following specific testing requirements:

- Package receipt and validation

Setup

Successful completion of Script 002.

Teardown

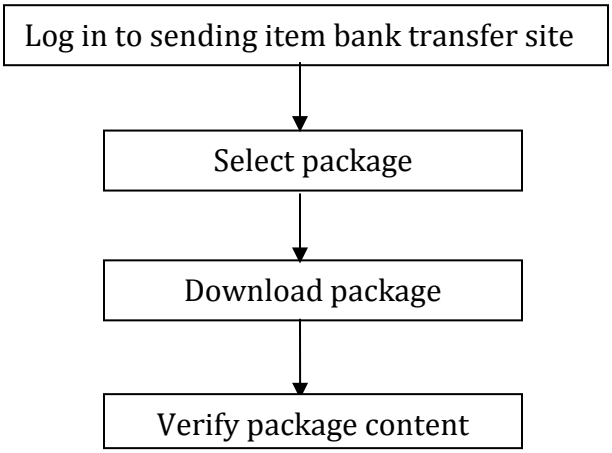
Packages that were created for this test scenario will be deleted at the discretion of the receiving item bank if necessary at the end of the test scenario.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Log into secure transfer site	Successful login	P	
2	Select Appropriate package	Package successfully selected	P	

3	Download package	Successful transfer of package to receiving item bank	P	
4	Examine contents	Package content verified using tools on the IMS website.	P	

Diagram of Test



Script 004: Import Package to receiving item bank

Script Description
The tester will import the validated package into the receiving item bank.

Testing Requirements
This test script covers the following specific testing requirements:

- Package import

Setup
Successful completion of Script 003.

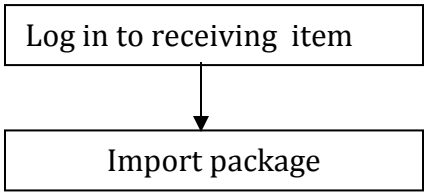
Teardown
Packages that were imported for this test scenario will be deleted at the discretion of the receiving item bank at the end of the test scenario.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Log into receiving item bank	Successful login	P	
2	Execute	Package successfully	P	

	receiving system export load	imported		

Diagram of Test



Test Scenario TSAIF-0010B Item Bank (ETS)

Scenario Description

The test cases described below are designed to test the agreed to standards for AIF arrow 1. Arrow 1 corresponds to the interface activity that will need to occur between item banking systems and/or test banking systems in the Assessment Creation & Management sub components. This scenario will focus on the transmittal of items from an item bank to another system to have APIP extensions and information added to individual items.

Version Control

Version #	Date	Author	Description
0.1	11/15/2012	John McNulty (ETS)	Initial Draft

Contributors

Name	Company
John McNulty	ETS
Mark McKell	IMS Global

Test Scripts

The following scripts will cover this scenario:

1. TSAIF-0011-001 Select items in need of APIP extensions
2. TSAIF-0011-002 Export Items
3. TSAIF-0011-003 Download Package and verify contents
4. TSAIF-0011-004 Import Package to receiving item bank
5. TSAIF-0011-005 Apply APIP information to items
6. TSAIF-0011-006 Return and store items

Use Case

TBD

Test Components

This test scenario covers the following high-level test requirements (see scripts below for specific requirements covered by each test script):

- Item authoring system
- Sending Item banking system
- System to perform APIP application

User Groups

- Sending Item Bank - Create items that are to have APIP extensions applied
- Sending Item Bank -Export items to have APIP extensions applied
- APIPing system - Import items and verify contents

Script 001: Select items in need of APIP extensions

Script Description

The tester accesses the sending item bank item data and marks the items that are to have APIP extensions applied by an external system.

Testing Requirements

This test script covers the following specific testing requirements:

- Selection of items for external APIP work.

Setup

The sending item bank generated a series of pre-identified items that are available for this test.

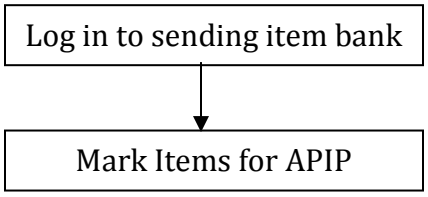
Teardown

Items that created for this test scenario will be deleted at the discretion of the sending item bank if necessary at the end of the test scenario.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Log into item bank	Successful login	P	
2	Select required items	Multiple items marked to have APIP extensions applied.	P	

Diagram of Test



Script 002: Export Items

Script Description

The tester accesses the sending item bank item data and creates the physical export APIP compliant package of items in need of APIP extensions. The items in this package are in APIP format without the accessibility extensions.

Testing Requirements
This test script covers the following specific testing requirements:

- Export of items needing APIP extensions

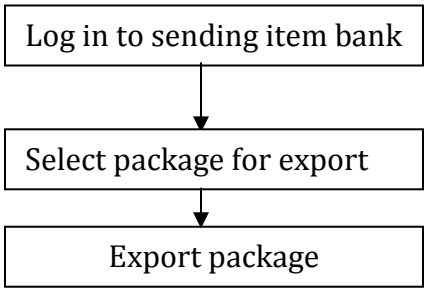
Setup
Successful completion of Script 001.

Teardown
Items created for this test scenario will be deleted at the discretion of the sending item bank if necessary at the end of the test scenario.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Log into sending item bank	Successful login	P	
2	Execute export logic	Complete items and the required manifest data are created in the pre-defined host transfer area as an APIP Item Package.	P	

Diagram of Test



Script 003: Download Package and verify contents

Script Description
The tester accesses the export and verifies content of the package by accessing the transfer sight and running validations on the package contents. If errors are encountered in the validation, these will be discussed with the sending item bank, and when resolved, the package re-exported.

Testing Requirements
This test script covers the following specific testing requirements:

- Item receipt and validation

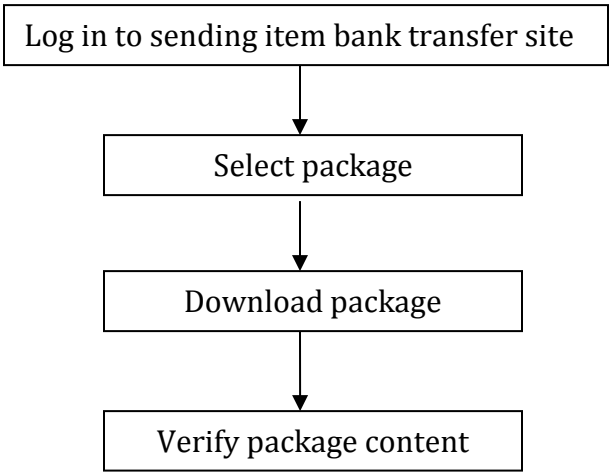
Setup
Successful completion of Script 003.

Teardown
Packages created for this test scenario will be deleted at the discretion of the receiving item bank if necessary at the end of the test scenario.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Log into secure transfer site	Successful login	P	
2	Select Appropriate package	Package successfully selected	P	
3	Download package	Successful transfer of package to receiving item bank	P	
4	Examine contents	Package content verified using tools on the IMS website.	P	

Diagram of Test



Script 004: Import Package to receiving item bank

Script Description
The tester imports the validated package into the receiving item bank.

Testing Requirements
This test script covers the following specific testing requirements:

- Package import

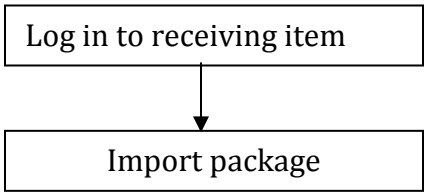
Setup
Successful completion of Script 003.

Teardown
Packages imported for this test scenario will be deleted at the discretion of the receiving item bank at the end of the test scenario.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Log into receiving item bank	Successful login	P	
2	Execute receiving system export load	Package successfully imported	P	

Diagram of Test



Script 005: Apply APIP information to items

Script Description
The tester executes the logic to apply APIP information to imported items.

Testing Requirements
This test script covers the following specific testing requirements:

- APIP extension application

Setup
Successful completion of Script 004.

Teardown

Items imported for this test scenario will be deleted at the discretion of the system applying APIP information at the end of the test scenario.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Execute APIP extension application	Items that were provided successfully have APIP extensions applied.	P	

Diagram of Test

Script 006: Return and store items

Script Description

The tester exports the items containing the APIP information as an APIP Item Package to sourcing system for the sourcing system to maintain in the item bank.

Testing Requirements

This test script covers the following specific testing requirements:

- Return Items

Setup

Successful completion of Script 005.

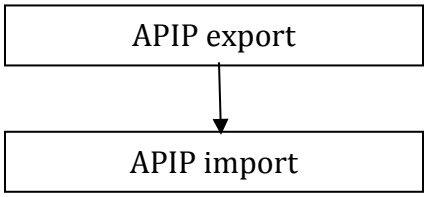
Teardown

N/A.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Execute export	Items that had APIP extensions applied are exported back to the originating system as an APIP Item Package.	P	
2	Import Items	The originating system imports the items that have APIP extensions applied back into the item bank.	P	

Diagram of Test



Test Scenario TSAIF-0010 Item Bank (Measured Progress)

Scenario Description

The purpose of this scenario demonstrates assessment items moving between item authoring systems and item banks or from one item bank to another item bank.

Version Control

Version #	Date	Author	Description
0.1	11/20/12	Thomas Hoffmann	Initial Draft

Contributors

Name	Company
Thomas Hoffmann	Measured Progress
Zachary Pierce	Measured Progress
Mark McKell	IMS Global

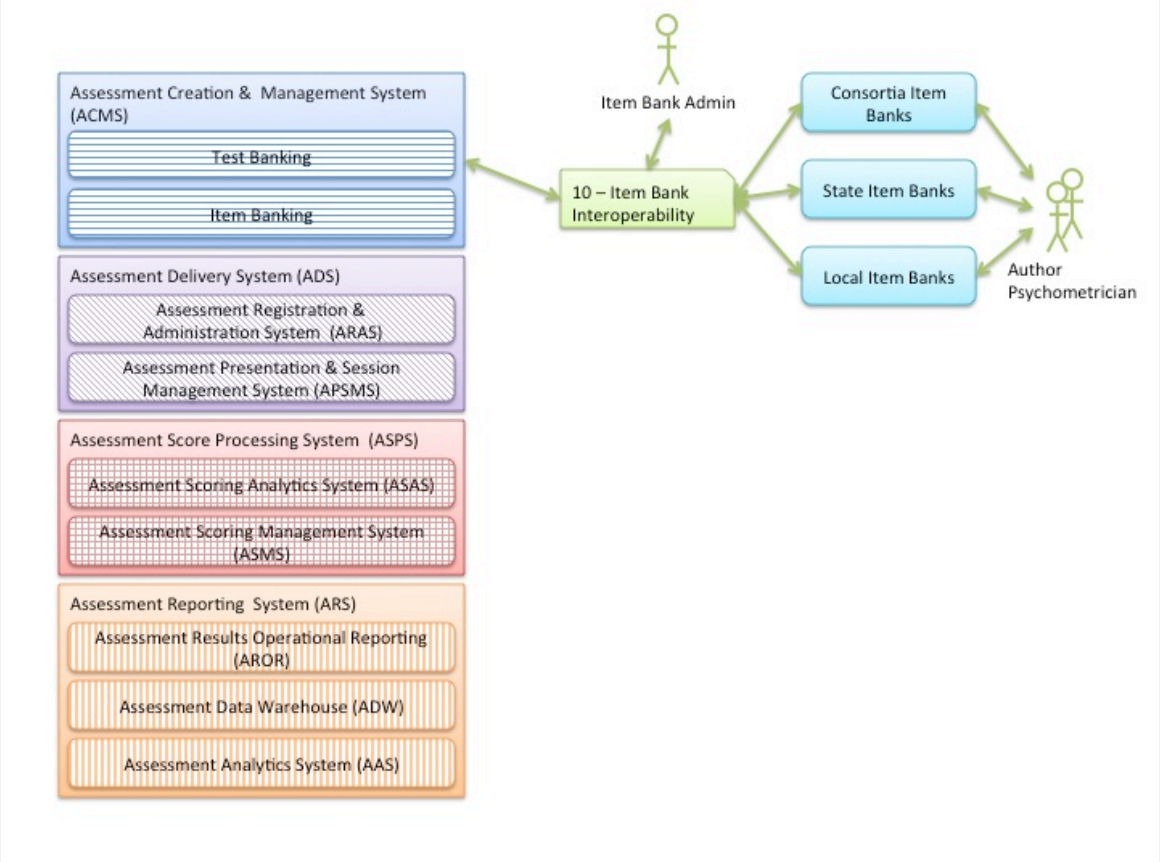
Test Scripts

The following scripts cover this scenario:

- 1.1 Import of QTI 2.1 formatted content package from Item Banking System
- 1.2 Addition of APIP accessibility metatags into package content in APIP Services Content Authoring System
- 1.3 Export of APIP Content Packages from APIP Services to Item Banking System

Use Case

Use Case ID and Name	UCAIF-0010 Assessment Item Bank Interoperability
Use Case Description	Assessment content can be efficiently exchanged between item banking solutions with minimal manual intervention or editing of the content. The exchange may include all or portions of the data and content identified below.
Diagrams	



Applicable Scenarios	• Organization A is developing items that will be administered by Organization B. A sends B the items after they have been developed. • Organization A sub-contracts with organization B to add accessibility extensions to items. A send B items, B adds accessibility information, B sends A updated items. • The consortium provides a centralized item bank that each state can pull from (or the consortia can push to the state) for inclusion in their state programs. • A consortium has a contract with Organization A's item banking capability. At the end of the contract, the consortium awards a new contract to organization B. A sends B all items, assessments, statistics, etc. • The consortium releases items from the summative item bank for use in local assessments. LEA pulls items from the consortium's centralized item bank (or the consortia pushes items to the local item bank) for inclusion in their local benchmark platform.
Actors	• Sending Item Bank • Receiving Item Bank
Pre-Condition	• Assessment content (items, instruments, etc.) is ready to be transferred in the sending item bank.
Processing	• The sending item bank exports and packages desired content into the desired interoperable exchange format. • Content packages are transmitted from sending item bank host system to receiving item bank host system. • Receiving item bank host system inspects content for adherence to

	interoperability exchange format and handles anomalies appropriately. • Receiving item bank imports content into item bank.
Post-Conditions	• Content is now ready for use including reviews, edit, extensions, assessment instrument creation, passing of instruments to delivery system, etc.
Triggers	This process is likely triggered manually when an item bank or content is ready for exchange.
Exceptions	• Content packages are malformed o Receiving item bank import process will identify and handle malformed content appropriately for that application • Content is not supported by current standards and custom extensions have been implemented o Exchanging parties have identified the custom extensions and both parties have agreed on how to handle and process. • Content is not supported by current standards and a proprietary format is exchanged. o Exchanging parties have identified the proprietary content and both have agreed on how to handle and process.
Identify SBAC or PARCC Use Cases or Architecture Items this use case supports	The SBAC architecture does not specifically address item bank to item bank interactions but does address item bank to test bank interactions.
AIF framework references	This is represented by Arrow 1 of the AIF wiring diagram
Expected Use of Interoperability Standard	APIP
Expected Data or Content Requirements	Note: depending upon the nature of the exchange, some or all of the following may be included. • Default item content • Accessibility extensions to default item content • Shared content (passages, charts, art, etc.) • Accessibility extensions to shared content • Feedback (correct, incorrect, distracter, diagnostic, etc.) • Assessment section definitions and packages • Assessment instrument definitions and packages • Scoring information for items (keys, rubrics, etc.) • Scoring information for assessments and sub-tests (item to sub-test composition, weights, performance levels, score tables, etc.) • Assessment and sub-test to learning standard alignment/references • Item to learning standard alignment/references • Content author, copyright, etc. • Item performance statistics
Expected Transport Requirements	• Asynchronous file exchanges. SFTP could be used. • Must be a secure transfer (content cannot be intercepted). • Likely very large content packages (audio, video, graphic art, etc.).
Other assumptions or issues	

User Groups

- Sending Item Bank - Create items that are to have APIP extensions applied
- Sending Item Bank -Export items to have APIP extensions applied

- APIPing system - Import items and verify contents

Test Components

This test scenario covers the following high-level test requirements (see scripts below for specific requirements covered by each test script):

- Item Banking System
- Item Authoring System
- APIP Services Content Authoring System

User Groups

- Sending Item Bank - Create items that are to have APIP extensions applied
- Sending Item Bank -Export items to have APIP extensions applied
- APIPing system - Import items and verify contents

Script 1.1: Import of QTI 2.1 formatted content package from Item Banking System

Script Description

Content created and formatted on the Content Authoring system will be made available for import.

Testing Requirements

This test script covers the following specific testing requirements:

- Content package created needs to be made in valid QTI 2.1 packages. Package should contain 3 items, all single, multiple choice (choice interaction) items.

Setup

- Write the items
- Export Items in QTI 2.1 packages
- Make Items available to engineers

Teardown

- Packages removed from server upon completion of tests

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Create Items	3 items created	Pass	
2	Export Items	Single package containing 3 items	Fail	Invalid QTI packages
3	Make items available	Items available and downloaded by MP	Pass	
4	Export Items	Single package containing 3 items	Pass	
5	Make items	Items available and	Pass	

	available	downloaded by MP		

Script 1.2: Addition of APIP accessibility metatags into package content in APIP Services Content Authoring System

Script Description

Content is uploaded into the APIP Services application. Content undergoes a validity check upon upload. Basic APIP Packages tags are added to the content after validity check. Accessibility information in automatically added based upon predetermined business rules. Modifications to the automated information are performed. Valid APIP Package is exported. As a check, the exported package is sent through the IMS APIP online validator before being sent to content authoring item bank.

Testing Requirements

This test script covers the following specific testing requirements:

- Upon import, system needs to identify if package is valid (either QTI 2.1 or APIP 1.0). On export, package should pass IMS APIP validation.

Setup

- Import QTI 2.1 package

Teardown

- Packages to be removed from server upon completion of tests

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Import package	Successful import after validity check	Fail	Invalid QTI packages
2	Import package	Successful import after validity check	Pass	
3	Add automated accessibility information	Creation of inclusion orders for various audiences with specific accessibility information created	Pass	
4	Modify accessibility information	Can review and edit the accessibility text strings that would be provided to various audiences	Pass	
5	Export APIP package	Export APIP package with added accessibility metadata and resources (sound files)	Pass	
6	Validity Check	Passes IMS APIP online validation	Fail	IMS Validator had processing error and server needed to be restarted

7	Validity Check	Passes IMS APIP online validation	Pass	

Script 1.3: Export of APIP Content Packages from MP APIP Services to ETS IBIS

Script Description

APIP Package imported into item banking system.

Testing Requirements

This test script covers the following specific testing requirements:

- Upon import, system needs to identify if package is valid (either QTI 2.1 or APIP 1.0).

Setup

- Import APIP 1.0 package

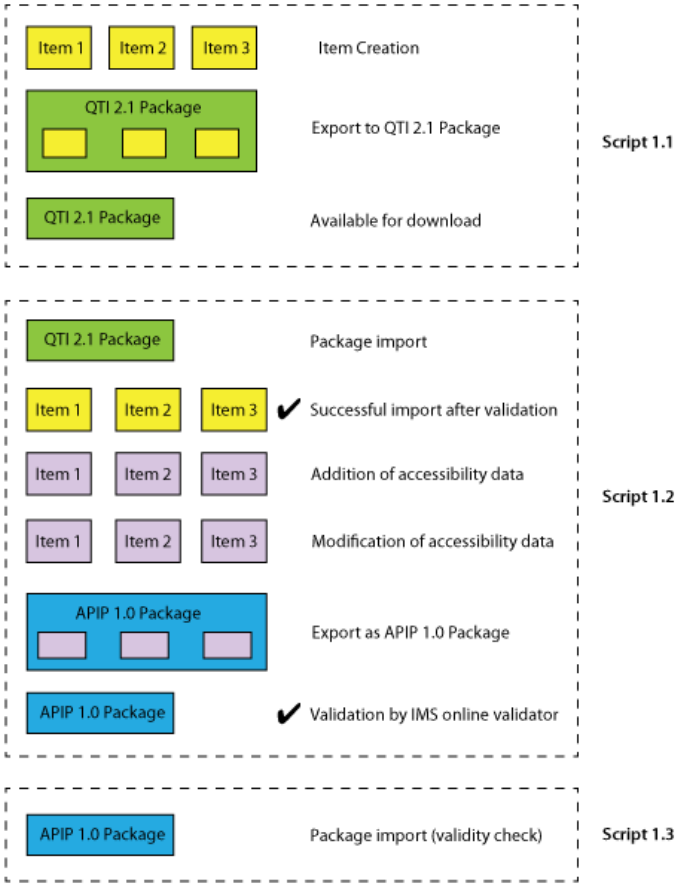
Teardown

- Packages to be removed from server upon completion of tests

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Import package	Successful import after validity check		This Test was not performed

Diagram of Test



Test Execution

Date/Time	Tester	Test Phase	Status
11/13/12	Zachary Pierce	System Cycle 2	Passed

Test Modifications

Test Phase	Modifications Made
Validity Check for online IMS Validator	Server restarted after processing error

Test Scenario TSAIF-0010 Item Bank (Wireless Generation)

Scenario Description

The purpose of this scenario is to demonstrate assessment items moving between item authoring systems and item banks or from one item bank to another item bank.

Version Control

Version #	Date	Author	Description
0.1	11/20/12	Bob	Initial Draft

Test Scripts

The following scripts will cover this scenario:

Item Bank to Item Bank

1.1 ELA Multiple Choice Item Import from Item Bank

1.1.1 Item aligned to known standard in target bank

1.1.2 Item aligned to unknown standard in target bank

1.1.3 Item being re-imported

1.1.4 Multiple-correct answer item correctly imported

1.2 ELA Constructed Response Item Import from Item Bank – Fill In The Blank

1.2.1 Item aligned to known standard in target bank

1.2.2 Item aligned to unknown standard in target bank

1.2.3 Item being re-imported

1.3 ELA Constructed Response Item Import from Item Bank – Free Text

1.3.1 Item aligned to known standard in target bank

1.3.2 Item aligned to unknown standard in target bank

1.3.3 Item being re-imported

1.4 Math Multiple Choice Item Import from Item Bank

1.4.1 Item aligned to known standard in target bank

1.4.2 Item aligned to unknown standard in target bank

1.4.3 Item being re-imported

1.5 Math Constructed Response Item Import from Item Bank

1.5.1 Item aligned to known standard in target bank

1.5.2 Item aligned to unknown standard in target bank

1.5.3 Item being re-imported

1.6 Science Multiple Choice Item Import from Item Bank

1.6.1 Item aligned to known standard in target bank

1.6.2 Item aligned to unknown standard in target bank

1.6.3 Item being re-imported

1.7 Science Constructed Response Item Import from Item Bank – Fill In The Blank

1.7.1 Item aligned to known standard in target bank

1.7.2 Item aligned to unknown standard in target bank

1.7.3 Item being re-imported

1.8 Science Constructed Response Item Import from Item Bank – Free Text

1.8.1 Item aligned to known standard in target bank

1.8.2 Item aligned to unknown standard in target bank

1.8.3 Item being re-imported

1.9 Hybrid Item Type Import From Item Bank

1.9.1 Item exists in both source and target bank

1.9.2 Item exists only in source bank

Item Authoring System to Item Bank

2.1 ELA Multiple Choice Item Import from Item Authoring System

2.1.1 Item aligned to known standard in target bank

2.1.2 Item aligned to unknown standard in target bank

2.2 ELA Constructed Response Item Import from Item Authoring System – Fill In The Blank

2.2.1 Item aligned to known standard in target bank

2.2.2 Item aligned to unknown standard in target bank

2.3 ELA Constructed Response Item Import from Item Authoring System – Free Text

2.3.1 Item aligned to known standard in target bank

2.3.2 Item aligned to unknown standard in target bank

2.4 Math Multiple Choice Item Import from Item Authoring System

2.4.1 Item aligned to known standard in target bank

2.4.2 Item aligned to unknown standard in target bank

2.5 Math Constructed Response Item Import from Item Authoring System

2.5.1 Item aligned to known standard in target bank

2.5.2 Item aligned to unknown standard in target bank

2.6 Science Multiple Choice Item Import from Item Authoring System

2.6.1 Item aligned to known standard in target bank

2.6.2 Item aligned to unknown standard in target bank

2.7 Science Constructed Response Item Import from Item Authoring System – Fill In The Blank

2.7.1 Item aligned to known standard in target bank

2.7.2 Item aligned to unknown standard in target bank

2.8 Science Constructed Response Item Import from Item Authoring System – Free Text

2.8.1 Item aligned to known standard in target bank

2.8.2 Item aligned to unknown standard in target bank

Batch Import Scenario

3.1 All test items imported in one batch

Possible Failure or Exception-handling Scenarios

4.1 Multiple-choice Item has no answer marked correct

4.2 Distractor rationale is missing

4.3 Item linked to passage or rubric which is not present

4.4 Multiple choice Item has only one answer

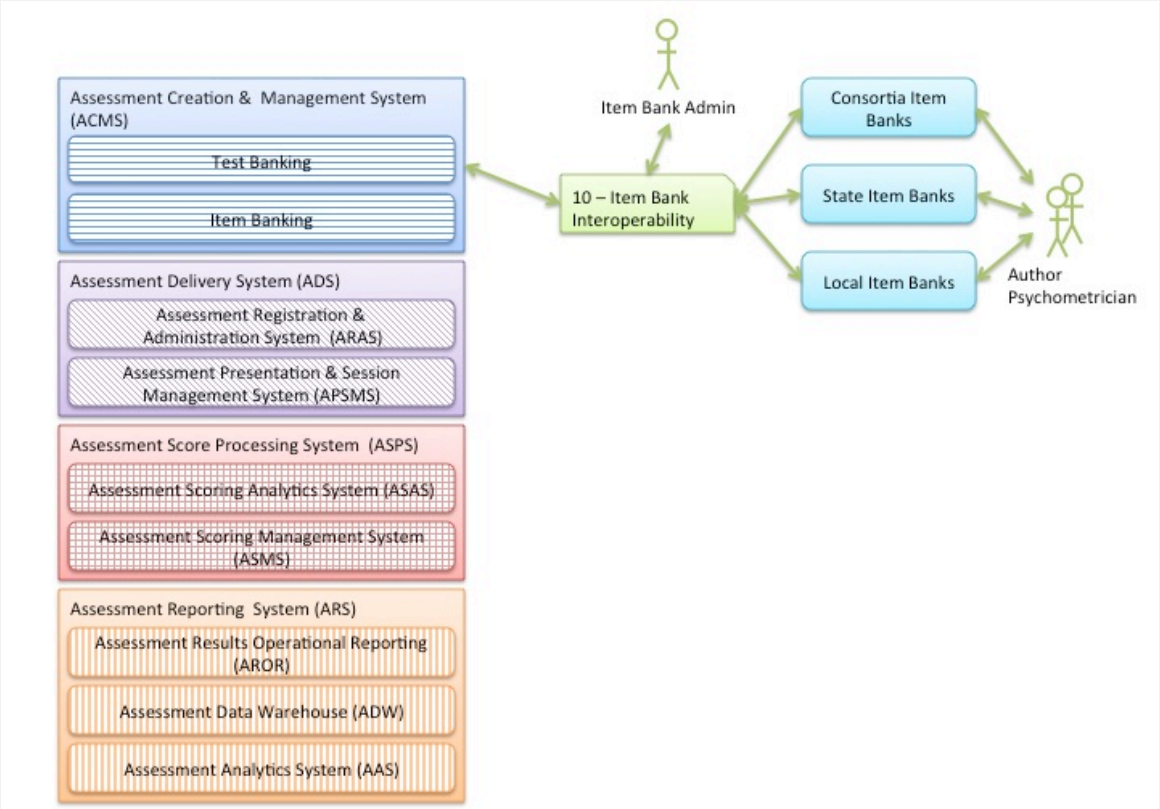
4.5 APIP interchange file or zip is incomplete

4.5.1 Items listed in manifest are missing

4.5.2 Malformed XML in APIP interchange file

4.6 Item Authoring System loses connection to Item Bank

Use Case

Use Case ID and Name	UCAIF-0010 Assessment Item Bank Interoperability
Use Case Description	Assessment content can be efficiently exchanged between item banking solutions with minimal manual intervention or editing of the content. The exchange may include all or portions of the data and content identified below.
Diagrams	
Applicable Scenarios	• Organization A is developing items that will be administered by Organization B. A sends B the items after they have been developed. • Organization A sub-contracts with organization B to add accessibility extensions to items. A send B items, B adds accessibility information, B sends A updated items. • The consortium provides a centralized item bank that each state can pull from (or the consortia can push to the state) for inclusion in their state programs. • A consortium has a contract with Organization A's item banking capability. At the end of the contract, the consortium awards a new contract to organization B. A sends B all items, assessments, statistics,

	etc. • The consortium releases items from the summative item bank for use in local assessments. LEA pulls items from the consortium's centralized item bank (or the consortia pushes items to the local item bank) for inclusion in their local benchmark platform.
Actors	• Sending Item Bank • Receiving Item Bank
Pre-Condition	• Assessment content (items, instruments, etc.) is ready to be transferred in the sending item bank.
Processing	• The sending item bank exports and packages desired content into the desired interoperable exchange format. • Content packages are transmitted from sending item bank host system to receiving item bank host system. • Receiving item bank host system inspects content for adherence to interoperability exchange format and handles anomalies appropriately. • Receiving item bank imports content into item bank.
Post-Conditions	• Content is now ready for use including reviews, edit, extensions, assessment instrument creation, passing of instruments to delivery system, etc.
Triggers	This process is likely triggered manually when an item bank or content is ready for exchange.
Exceptions	• Content packages are malformed o Receiving item bank import process will identify and handle malformed content appropriately for that application • Content is not supported by current standards and custom extensions have been implemented o Exchanging parties have identified the custom extensions and both parties have agreed on how to handle and process. • Content is not supported by current standards and a proprietary format is exchanged. o Exchanging parties have identified the proprietary content and both have agreed on how to handle and process.
Identify SBAC or PARCC Use Cases or Architecture Items this use case supports	The SBAC architecture does not specifically address item bank to item bank interactions but does address item bank to test bank interactions.
AIF framework references	This is represented by Arrow 1 of the AIF wiring diagram
Expected Use of Interoperability Standard	APIP
Expected Data or Content Requirements	Note: depending upon the nature of the exchange, some or all of the following may be included. • Default item content • Accessibility extensions to default item content • Shared content (passages, charts, art, etc.) • Accessibility extensions to shared content • Feedback (correct, incorrect, distracter, diagnostic, etc.) • Assessment section definitions and packages • Assessment instrument definitions and packages • Scoring information for items (keys, rubrics, etc.) • Scoring information for assessments and sub-tests (item to sub-test

	composition, weights, performance levels, score tables, etc.) • Assessment and sub-test to learning standard alignment/references • Item to learning standard alignment/references • Content author, copyright, etc. • Item performance statistics
Expected Transport Requirements	• Asynchronous file exchanges. SFTP could be used. • Must be a secure transfer (content cannot be intercepted). • Likely very large content packages (audio, video, graphic art, etc.).
Other assumptions or issues	

Test Components

This test scenario covers the following high-level test requirements (see scripts below for specific requirements covered by each test script):

- Items of all 8 types that the test scripts cover, including linked passages and rubrics
- Item Transfer functionality
- Two Item Banks
- Item Authoring tool

User Groups

- Quality Assurance Analyst - prepare test items
- Quality Assurance Analyst - run test scripts
- Automation Engineer – automate running of passing scripts on CI environment
- Application Developers - deliver unit-tested software for QA integration testing

English Language Arts (ELA) Test Script Details – Item Bank to Item Bank

1.1.1 Multiple Choice (M-C) Item aligned to known standard in target bank

Script Description

Import ELA M-C item with linked passage and rubric, aligned to known standard in target bank.

Testing Requirements

This test script covers the following specific testing requirements:

- This ensures an ELA M-C item with all required components: answers, one flagged correct, distractor rationale, and other required attributes and metadata (author, copyright, accessibility extensions etc.) is correctly imported from item bank to another.

Setup

Item components verified against standard and item does not yet exist in target bank.

Teardown
Item removed from target bank.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Import item	Item present in target bank	P	
2	Verify each individual attribute as described in testing requirements above	All attributes meet spec	P	
3	Standards alignment verification	Standard is correct in target bank	P	

1.1.2 M-C Item aligned to unknown standard in target bank

Script Description
Import ELA M-C item with linked passage and rubric, aligned to unknown standard in target bank.

Testing Requirements
This test script covers the following specific testing requirements:

- This ensures an ELA M-C item with all required components: answers, one flagged correct, distractor rationale, and other required attributes and metadata (author, copyright, accessibility extensions etc.) is correctly imported from item bank to another, with standards alignments supported by the target bank correctly represented, unknown standards handled without exception.

Setup
Item components verified against standard, item does not yet exist in target bank.

Teardown
Item removed from target bank.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Import item	Item present in target bank	P	

2	Verify each individual attribute as described in testing requirements above	All attributes meet spec	P	
3	Standards alignment verification	Known standard(s) are correct in target bank, unknown handled as defined	P	

1.1.3 M-C Item being re-imported

Script Description

Re-import ELA M-C item with linked passage and rubric, aligned to at least one known standard in target bank.

Testing Requirements

This test script covers the following specific testing requirements:

- This ensures an ELA M-C item that already exists with all required components: answers, one flagged correct, distractor rationale, and other required attributes and metadata (author, copyright, accessibility extensions etc.) is correctly re-imported from item bank to another and updates are made.

Setup

- Item components verified against standard, item exists in target bank (assumption is a prior script which does this has always been run first, a second version of item is reimported).

Teardown

Item removed from target bank.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Import item	Item present in target bank	P	
2	Verify each individual attribute as described in testing requirements above	All attributes meet standard	P	
3	Attribute update	Changes to item are	P	

	verification	correct in target bank		

1.1.4 Multiple-correct answer item correctly imported

Script Description

Import ELA M-C item with linked passage and rubric, which has more than one correct answer choice.

Testing Requirements

This test script covers the following specific testing requirements:

- This ensures an ELA M-C item with all required components: answers, one flagged correct, distractor rationale, and other required attributes and metadata (author, copyright, accessibility extensions etc.) and has multiple correct answer choices is correctly imported from item bank to another, assuming both support this type.

Setup

Item components verified against standard, item does not yet exist in target bank.

Teardown

Item removed from target bank.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Import item	Item present in target bank	P	
2	Verify each individual attribute as described in testing requirements above	All attributes meet standard – in the event target bank doesn't support multiple-correct answer M-C items, a warning should be generated	P	

1.2.1 Fill In The Blank Item aligned to known standard in target bank

Script Description

Import ELA Fill In The Blank Item with linked passage and rubric, aligned to known standard in target bank.

Testing Requirements

This test script covers the following specific testing requirements:

- This ensures a Fill In The Blank item with all required components, attributes and metadata (author, copyright, accessibility extensions etc.) is correctly imported from item bank to another.

Setup
Item components verified against standard, item does not yet exist in target bank.

Teardown
Item removed from target bank.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Import item	Item present in target bank	P	
2	Verify each individual attribute as described in testing requirements above	All attributes meet standard	P	
3	Standards alignment verification	Standard is correct in target bank	P	

1.2.2 Fill In The Blank Item aligned to unknown standard in target bank

Script Description
Import ELA Fill In The Blank item with linked passage and rubric, aligned to unknown standard in target bank.

Testing Requirements
This test script covers the following specific testing requirements:

- This ensures an ELA Fill In The Blank item with all required components, attributes and metadata (author, copyright, accessibility extensions etc.) is correctly imported from item bank to another, with standards alignments supported by the target bank correctly represented, unknown standards handled without exception.

Setup
Item components verified against standard, item does not yet exist in target bank.

Teardown
Item removed from target bank.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Import	Item present in target	P	

	item	bank		
2	Verify each individual attribute as described in testing requirements above	All attributes meet standard	P	
3	Standards alignment verification	Known standard(s) are correct in target bank, unknown handled as defined	P	

1.2.3 Fill In The Blank Item being re-imported

Script Description

Re-import ELA Fill In The Blank item with linked passage and rubric, aligned to at least one known standard in target bank.

Testing Requirements

This test script covers the following specific testing requirements:

- This ensures an ELA Fill In The Blank item that already exists with all required components, attributes and metadata (author, copyright, accessibility extensions etc.) is correctly re-imported from item bank to another and updates are made.

Setup

- Item components verified against standard, item exists in target bank (assumption is a prior script which does this has always been run first, a second version of item is reimported).

Teardown

Item removed from target bank.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Import item	Item present in target bank	P	
2	Verify each individual attribute as described in testing requirements above	All attributes meet standard	P	
3	Attribute update	Changes to item are	P	

	verification	correct in target bank		

1.3.1 Import Constructed Response Free Text Field Item aligned to known standard in target bank

Script Description

Import ELA Constructed Response Free Text Field Item with linked passage and rubric, aligned to known standard in target bank.

Testing Requirements

This test script covers the following specific testing requirements:

- This ensures a Constructed Response Free Text Field Item with all required components, attributes and metadata (author, copyright, accessibility extensions etc.) is correctly imported from item bank to another.

Setup

Item components verified against standard, item does not yet exist in target bank.

Teardown

Item removed from target bank.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Import item	Item present in target bank	P	
2	Verify each individual attribute as described in testing requirements above	All attributes meet standard	P	
3	Standards alignment verification	Standard is correct in target bank	P	

1.3.2 Import Constructed Response Free Text Field Item aligned to unknown standard in target bank

Script Description

Import ELA Constructed Response Free Text Field Item with linked passage and rubric, aligned to unknown standard in target bank.

Testing Requirements

This test script covers the following specific testing requirements:

- This ensures a Constructed Response Free Text Field Item with all required components, attributes and metadata (author, copyright, accessibility extensions etc.) is correctly imported from item bank to another, with standards alignments supported by the target bank correctly represented, unknown standards handled without exception.

Setup
Item components verified against standard, item does not yet exist in target bank.

Teardown
Item removed from target bank.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Import item	Item present in target bank	P	
2	Verify each individual attribute as described in testing requirements above	All attributes meet standard	P	
3	Standards alignment verification	Known standard(s) are correct in target bank, unknown handled as defined	P	

1.3.3 Constructed Response Free Text Field Item being re-imported

Script Description
Re-import ELA Constructed Response Free Text Field Item with linked passage and rubric, aligned to at least one known standard in target bank.

Testing Requirements
This test script covers the following specific testing requirements:

- This ensures a Constructed Response Free Text Field that already exists with all required components, attributes and metadata (author, copyright, accessibility extensions etc.) is correctly re-imported from item bank to another and updates are made.

Setup
- Item components verified against standard, item exists in target bank (assumption is a prior script which does this has always been run first, a second version of item is reimported).

Teardown
Item removed from target bank.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Import item	Item present in target bank	P	
2	Verify each individual attribute as described in testing requirements above	All attributes meet standard	P	
3	Attribute update verification	Changes to item are correct in target bank	P	

Math Test Script Details – Item Bank To Item Bank

1.4.1 M-C Item aligned to known standard in target bank

Script Description
Import Math M-C item with linked passage and rubric, aligned to known standard in target bank.

Testing Requirements
This test script covers the following specific testing requirements:

- This ensures a Math M-C item with all required components: answers, one flagged correct, distractor rationale, and other required attributes and metadata (author, copyright, accessibility extensions etc.) is correctly imported from item bank to another.

Setup
Item components verified against standard, item does not yet exist in target bank.

Teardown
Item removed from target bank.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Import item	Item present in target bank	P	
2	Verify each individual attribute as	All attributes meet standard	P	

	described in testing requirements above			
3	Standards alignment verification	Standard is correct in target bank	P	

1.4.2 M-C Item aligned to unknown standard in target bank

Script Description

Import Math M-C item with linked passage and rubric, aligned to unknown standard in target bank.

Testing Requirements

This test script covers the following specific testing requirements:

- This ensures a Math M-C item with all required components: answers, one flagged correct, distractor rationale, and other required attributes and metadata (author, copyright, accessibility extensions etc.) is correctly imported from item bank to another, with standards alignments supported by the target bank correctly represented, unknown standards handled without exception.

Setup

Item components verified against standard, item does not yet exist in target bank.

Teardown

Item removed from target bank.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Import item	Item present in target bank	P	
2	Verify each individual attribute as described in testing requirements above	All attributes meet standard	P	
3	Standards alignment verification	Known standard(s) are correct in target bank, unknown handled as defined	P	

1.4.3 M-C Item being re-imported

Script Description

Re-import Math M-C item with linked passage and rubric, aligned to at least one known standard in target bank.

Testing Requirements

This test script covers the following specific testing requirements:

- This ensures a Math M-C item that already exists with all required components: answers, one flagged correct, distractor rationale, and other required attributes and metadata (author, copyright, accessibility extensions etc.) is correctly re-imported from item bank to another and updates are made.

Setup

- Item components verified against standard, item exists in target bank (assumption is a prior script which does this has always been run first, a second version of item is reimported).

Teardown

Item removed from target bank.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Import item	Item present in target bank	P	
2	Verify each individual attribute as described in testing requirements above	All attributes meet standard	P	
3	Attribute update verification	Changes to item are correct in target bank	P	

1.5.1 Import Constructed Response Item aligned to known standard in target bank

Script Description

Import Math Constructed Response Item with linked passage and rubric, aligned to known standard in target bank.

Testing Requirements

This test script covers the following specific testing requirements:

- This ensures a Constructed Response Item with all required components, attributes and metadata (author, copyright, accessibility extensions etc.) is correctly imported from item bank to another.

Setup
Item components verified against standard, item does not yet exist in target bank.

Teardown
Item removed from target bank.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Import item	Item present in target bank	P	
2	Verify each individual attribute as described in testing requirements above	All attributes meet standard	P	
3	Standards alignment verification	Standard is correct in target bank	P	

1.5.2 Import Constructed Response Item aligned to unknown standard in target bank

Script Description
Import Math Constructed Response Item with linked passage and rubric, aligned to unknown standard in target bank.

Testing Requirements
This test script covers the following specific testing requirements:

- This ensures a Constructed Response Item with all required components, attributes and metadata (author, copyright, accessibility extensions etc.) is correctly imported from item bank to another, with standards alignments supported by the target bank correctly represented, unknown standards handled without exception.

Setup
Item components verified against standard, item does not yet exist in target bank.

Teardown
Item removed from target bank.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Import item	Item present in target bank	P	
2	Verify each individual attribute as described in testing requirements above	All attributes meet standard	P	
3	Standards alignment verification	Known standard(s) are correct in target bank, unknown handled as defined	P	

1.5.3 Constructed Response Free Text Field Item being re-imported

Script Description

Re-import Math Constructed Response Free Text Field Item with linked passage and rubric, aligned to at least one known standard in target bank.

Testing Requirements

This test script covers the following specific testing requirements:

- This ensures a Constructed Response Free Text Field item that already exists with all required components, attributes and metadata (author, copyright, accessibility extensions etc.) is correctly re-imported from item bank to another and updates are made.

Setup

- Item components verified against standard, item exists in target bank (assumption is a prior script which does this has always been run first, a second version of item is reimported).

Teardown

Item removed from target bank.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Import item	Item present in target bank	P	
2	Verify each individual attribute as	All attributes meet standard	P	

	described in testing requirements above			
3	Attribute update verification	Changes to item are correct in target bank	P	

Science Test Script Details – Item Bank to Item Bank

1.6.1 M-C Item aligned to known standard in target bank

Script Description

Import Science M-C item with linked passage and rubric, aligned to known standard in target bank.

Testing Requirements

This test script covers the following specific testing requirements:

- This ensures a Science M-C item with all required components: answers, one flagged correct, distractor rationale, and other required attributes and metadata (author, copyright, accessibility extensions etc.) is correctly imported from item bank to another.

Setup

Item components verified against standard, item does not yet exist in target bank.

Teardown

Item removed from target bank.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Import item	Item present in target bank	P	
2	Verify each individual attribute as described in testing requirements above	All attributes meet standard	P	
3	Standards alignment verification	Standard is correct in target bank	P	

1.6.2 M-C Item aligned to unknown standard in target bank

Script Description
Import Science M-C item with linked passage and rubric, aligned to unknown standard in target bank.

Testing Requirements
This test script covers the following specific testing requirements:

- This ensures a Science -C item with all required components: answers, one flagged correct, distractor rationale, and other required attributes and metadata (author, copyright, accessibility extensions etc.) is correctly imported from item bank to another, with standards alignments supported by the target bank correctly represented, unknown standards handled without exception.

Setup
Item components verified against standard, item does not yet exist in target bank.

Teardown
Item removed from target bank.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Import item	Item present in target bank	P	
2	Verify each individual attribute as described in testing requirements above	All attributes meet standard	P	
3	Standards alignment verification	Known standard(s) are correct in target bank, unknown handled as defined	P	

1.6.3 M-C Item being re-imported

Script Description
Re-import Science M-C item with linked passage and rubric, aligned to at least one known standard in target bank.

Testing Requirements
This test script covers the following specific testing requirements:

- This ensures a Science M-C item that already exists with all required components: answers, one flagged correct, distractor rationale, and other required attributes and metadata (author, copyright, accessibility extensions etc.) is correctly re-imported from item bank to another and updates are made.

Setup

- Item components verified against standard, item exists in target bank (assumption is a prior script which does this has always been run first, a second version of item is reimported).

Teardown

Item removed from target bank.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Import item	Item present in target bank	P	
2	Verify each individual attribute as described in testing requirements above	All attributes meet standard	P	
3	Attribute update verification	Changes to item are correct in target bank	P	

1.7.1 Fill In The Blank Item aligned to known standard in target bank

Script Description

Import Science Fill In The Blank Item with linked passage and rubric, aligned to known standard in target bank.

Testing Requirements

This test script covers the following specific testing requirements:

- This ensures a Fill In The Blank item with all required components, attributes and metadata (author, copyright, accessibility extensions etc.) is correctly imported from item bank to another.

Setup

Item components verified against standard, item does not yet exist in target bank.

Teardown

Item removed from target bank.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Import item	Item present in target bank	P	
2	Verify each individual attribute as described in testing requirements above	All attributes meet standard	P	
3	Standards alignment verification	Standard is correct in target bank	P	

1.7.2 Fill In The Blank Item aligned to unknown standard in target bank

Script Description

Import Science Fill In The Blank item with linked passage and rubric, aligned to unknown standard in target bank.

Testing Requirements

This test script covers the following specific testing requirements:

- This ensures a Science Fill In The Blank item with all required components, attributes and metadata (author, copyright, accessibility extensions etc.) is correctly imported from item bank to another, with standards alignments supported by the target bank correctly represented, unknown standards handled without exception.

Setup

Item components verified against standard, item does not yet exist in target bank.

Teardown

Item removed from target bank.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Import item	Item present in target bank	P	
2	Verify each individual attribute as described in testing	All attributes meet standard	P	

	requirements above			
3	Standards alignment verification	Known standard(s) are correct in target bank, unknown handled as defined	P	

1.7.3 Fill In The Blank Item being re-imported

Script Description

Re-import Science Fill In The Blank item with linked passage and rubric, aligned to at least one known standard in target bank.

Testing Requirements

This test script covers the following specific testing requirements:

- This ensures a Science Fill In The Blank item that already exists with all required components, attributes and metadata (author, copyright, accessibility extensions etc.) is correctly re-imported from item bank to another and updates are made.

Setup

- Item components verified against standard, item exists in target bank (assumption is a prior script which does this has always been run first, a second version of item is reimported).

Teardown

Item removed from target bank.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Import item	Item present in target bank	P	
2	Verify each individual attribute as described in testing requirements above	All attributes meet standard	P	
3	Attribute update verification	Changes to item are correct in target bank	P	

1.8.1 Import Constructed Response Free Text Field Item aligned to known standard in target bank

Script Description
Import Science Constructed Response Free Text Field Item with linked passage and rubric, aligned to known standard in target bank.

Testing Requirements
This test script covers the following specific testing requirements:

- This ensures a Constructed Response Free Text Field Item with all required components, attributes and metadata (author, copyright, accessibility extensions etc.) is correctly imported from item bank to another.

Setup
Item components verified against standard, item does not yet exist in target bank.

Teardown
Item removed from target bank.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Import item	Item present in target bank	P	
2	Verify each individual attribute as described in testing requirements above	All attributes meet standard	P	
3	Standards alignment verification	Standard is correct in target bank	P	

1.8.2 Import Constructed Response Free Text Field Item aligned to unknown standard in target bank

Script Description
Import Science Constructed Response Free Text Field Item with linked passage and rubric, aligned to unknown standard in target bank.

Testing Requirements
This test script covers the following specific testing requirements:

- This ensures a Constructed Response Free Text Field Item with all required components, attributes and metadata (author, copyright, accessibility extensions etc.) is correctly imported from item bank to another, with

standards alignments supported by the target bank correctly represented, unknown standards handled without exception.

Setup
Item components verified against standard, item does not yet exist in target bank.

Teardown
Item removed from target bank.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Import item	Item present in target bank	P	
2	Verify each individual attribute as described in testing requirements above	All attributes meet standard	P	
3	Standards alignment verification	Known standard(s) are correct in target bank, unknown handled as defined	P	

1.8.3 Constructed Response Free Text Field Item being re-imported

Script Description
Re-import Science Constructed Response Free Text Field Item with linked passage and rubric, aligned to at least one known standard in target bank.

Testing Requirements
This test script covers the following specific testing requirements:

- This ensures a Constructed Response Free Text Field that already exists with all required components, attributes and metadata (author, copyright, accessibility extensions etc.) is correctly re-imported from item bank to another and updates are made.

Setup
- Item components verified against standard, item exists in target bank (assumption is a prior script which does this has always been run first, a second version of item is reimported).

Teardown
Item removed from target bank.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Import item	Item present in target bank	P	
2	Verify each individual attribute as described in testing requirements above	All attributes meet standard	P	
3	Attribute update verification	Changes to item are correct in target bank	P	

Hybrid Item Script Details Item Bank To Item Bank

1.9.1 Item exists in both source and target bank

Script Description

Import a hybrid item for each subject type (ELA, Math, Science) containing both M-C and Constructed Response fields to a bank which a supports such a type.

Testing Requirements

This test script covers the following specific testing requirements:

- This ensures a hybrid item for each subject type (ELA, Math, Science) containing both M-C and Constructed Response fields aligned to known standard in target bank with all required components, attributes and metadata (author, copyright, accessibility extensions etc.) is correctly imported from item bank to another.
- Makes the assumption that the source bank from which item are being imported supports such an item type as does the target bank.

Setup

Item components verified against standard, item does not yet exist in target bank.

Teardown

Item removed from target bank.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Import item	Item present in target bank	P	
2	Verify each individual	All attributes meet standard	P	

	attribute as described in testing requirements above			

1.9.2 Item exists only in source bank

Script Description
Import a hybrid item for each subject type (ELA, Math, Science) containing both M-C and Constructed Response fields from a bank that supports that type to one that does not.

Testing Requirements
This test script covers the following specific testing requirements:

- This verifies the behavior when a hybrid item for each subject type (ELA, Math, Science) containing both M-C and Constructed Response fields aligned to known standard in target bank with all required components, attributes and metadata (author, copyright, accessibility extensions etc.) is exported from a bank which supports that type to one that does not.
- Makes the assumption that only the source bank from which item is being imported supports such an item type.

Setup
Item components verified against standard, item does not yet exist in target bank.

Teardown
Item removed from target bank.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Import item	Fails gracefully with warning message	P	

ELA Test Script Detail - Item Authoring System to Item Bank

2.1.1 ELA Multiple Choice Item aligned to known standard in target bank

Script Description
Author an ELA M-C Item aligned to standards supported by item bank.

Testing Requirements
Authoring software, specification of required and optional fields, linked passage and rubric items are available.

Setup
Create ELA M-C Item with required fields and known standards alignment. Repeat test with optional fields added.

Teardown
Delete items from bank so test can be repeated.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Create item with required fields only; save	Item is present in Item bank, with correct standards alignment and all other data, verified via UI or DB query	P	
2	Create item with required plus optional fields; save	Item is present in Item bank, with correct standards alignment and all other data, verified via UI or DB query	P	

2.1.2 ELA Multiple Choice Item aligned to unknown standard in target bank

Script Description
Author an ELA M-C Item aligned to at least one standard not supported by item bank.

Testing Requirements
Authoring software, specification of required and optional fields, linked passage and rubric items are available.

Setup
Create ELA M-C Item with multiple standards, one unknown. Repeat test with an item aligned solely to an unsupported standard.

Teardown
Delete items from bank so test can be repeated.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Create item aligned to multiple standards, at least on unsupported;	Item is present in Item bank, with known standards alignment and all other data, verified via User Interface (UI) or Database (DB) query	P	

	save			
2	Create item aligned solely with unsupported standard; save	Depending on defined behavior, item will be present with no standard or gracefully rejected	P	

2.2.1 ELA Fill in the Blank Constructed Response Item aligned to known standard in target bank

Script Description

Author an ELA Fill in the Blank Constructed Response Item aligned to standards supported by item bank.

Testing Requirements

Authoring software, specification of required and optional fields, linked passage and rubric items are available.

Setup

Create ELA Fill in the Blank Constructed Response Item with required fields and known standards alignment. Repeat test with optional fields added.

Teardown

Delete items from bank so test can be repeated.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Create item with required fields only; save	Item is present in Item bank, with correct standards alignment and all other data, verified via UI or DB query	P	
2	Create item with required plus optional fields; save	Item is present in Item bank, with correct standards alignment and all other data, verified via UI or DB query	P	

2.2.2 ELA Fill in the Blank Constructed Response Item aligned to unknown standard in target bank

Script Description

Author an ELA Fill in the Blank Constructed Response Item aligned to at least one standard not supported by item bank.

Testing Requirements
Authoring software, specification of required and optional fields, linked passage and rubric items are available.

Setup
Create ELA Fill in the Blank Constructed Response Item with multiple standards, one unknown. Repeat test with an item aligned solely to an unsupported standard.

Teardown
Delete items from bank so test can be repeated.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Create item aligned to multiple standards, at least on unsupported; save	Item is present in Item bank, with known standards alignment and all other data, verified via UI or DB query	P	
2	Create item aligned solely with unsupported standard; save	Depending on defined behavior, item will be present with no standard or gracefully rejected	P	

2.3.1 ELA Free Text Constructed Response Item aligned to known standard in target bank

Script Description
Author an ELA Free Text Constructed Response Item aligned to standards supported by item bank.

Testing Requirements
Authoring software, specification of required and optional fields, linked passage and rubric items are available.

Setup
Create ELA Free Text Constructed Response Item with required fields and known standards alignment. Repeat test with optional fields added.

Teardown
Delete items from bank so test can be repeated.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Create item with required fields only; save	Item is present in Item bank, with correct standards alignment and all other data, verified via UI or DB query	P	
2	Create item with required plus optional fields; save	Item is present in Item bank, with correct standards alignment and all other data, verified via UI or DB query	P	

2.3.2 ELA Free Text Constructed Response Item aligned to unknown standard in target bank

Script Description

Author an ELA Free Text Constructed Response Item aligned to at least one standard not supported by item bank.

Testing Requirements

Authoring software, specification of required and optional fields, linked passage and rubric items are available.

Setup

Create ELA Free Text Constructed Response Item with multiple standards, one unknown.

Teardown

Delete items from bank so test can be repeated.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Create item aligned to multiple standards, at least on unsupported; save	Item is present in Item bank, with known standards alignment and all other data, verified via UI or DB query	P	
2	Create item aligned solely with unsupported standard; save	Depending on defined behavior, item will be present with no standard or gracefully rejected	P	

Math Test Script Detail - Item Authoring System to Item Bank

2.4.1 Math Multiple Choice Item aligned to known standard in target bank

Script Description
Author a Math Multiple Choice Item aligned to standards supported by item bank.

Testing Requirements
Authoring software, specification of required and optional fields, linked passage and rubric items are available.

Setup
Create Math Multiple Choice Item with required fields and known standards alignment. Repeat test with optional fields added.

Teardown
Delete items from bank so test can be repeated.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Create item with required fields only; save	Item is present in Item bank, with correct standards alignment and all other data, verified via UI or DB query	P	
2	Create item with required plus optional fields; save	Item is present in Item bank, with correct standards alignment and all other data, verified via UI or DB query	P	

2.4.2 Math Multiple Choice Item aligned to unknown standard in target bank

Script Description
Author a Math Multiple Choice Item aligned to at least one standard not supported by item bank.

Testing Requirements
Authoring software, specification of required and optional fields, linked passage and rubric items are available.

Setup
Create Math Multiple Choice Item with multiple standards, one unknown.
Repeat test with an item aligned solely to an unsupported standard.

Teardown
Delete items from bank so test can be repeated.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Create item aligned to multiple standards, at least on unsupported; save	Item is present in Item bank, with known standards alignment and all other data, verified via UI or DB query	P	
2	Create item aligned solely with unsupported standard; save	Depending on defined behavior, item will be present with no standard or gracefully rejected	P	

2.5.1 Math Constructed Response Item aligned to known standard in target bank

Script Description
Author a Math Constructed Response Item aligned to standards supported by item bank.

Testing Requirements
Authoring software, specification of required and optional fields, linked passage and rubric items are available.

Setup
Create Math Constructed Response Item with required fields and known standards alignment. Repeat test with optional fields added.

Teardown
Delete items from bank so test can be repeated.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Create item with required fields only; save	Item is present in Item bank, with correct standards alignment and all other data, verified via UI or DB query	P	
2	Create item	Item is present in Item	P	

	with required plus optional fields; save	bank, with correct standards alignment and all other data, verified via UI or DB query		

2.5.2 Math Constructed Response Item aligned to unknown standard in target bank

Script Description
Author a Math Constructed Response Item aligned to at least one standard not supported by item bank.

Testing Requirements
Authoring software, specification of required and optional fields, linked passage and rubric items are available.

Setup
Create Math Constructed Response Item with multiple standards, one unknown. Repeat test with an item aligned solely to an unsupported standard.

Teardown
Delete items from bank so test can be repeated.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Create item aligned to multiple standards, at least on unsupported; save	Item is present in Item bank, with known standards alignment and all other data, verified via UI or DB query	P	
2	Create item aligned solely with unsupported standard; save	Depending on defined behavior (is having not standards alignment allowed?), item will be present with no standard or gracefully rejected	P	

Science Test Script Detail - Item Authoring System to Item Bank

2.6.1 Science Multiple Choice Item aligned to known standard in target bank

Script Description
Author a Science Multiple Choice Item aligned to standards supported by item bank.

Testing Requirements
Authoring software, specification of required and optional fields, linked passage and rubric items available.

Setup
Create Science Multiple Choice Item with required fields and known standards alignment.
Repeat test with optional fields added.

Teardown
Delete items from bank so test can be repeated.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Create item with required fields only; save	Item is present in Item bank, with correct standards alignment and all other data, verified via UI or DB query	P	
2	Create item with required plus optional fields; save	Item is present in Item bank, with correct standards alignment and all other data, verified via UI or DB query	P	

2.6.2 Science Multiple Choice Item aligned to unknown standard in target bank

Script Description
Author a Science Multiple Choice Item aligned to at least one standard not supported by item bank.

Testing Requirements
Authoring software, specification of required and optional fields, linked passage and rubric items available.

Setup
Create Science Multiple Choice Item with multiple standards, one unknown.
Repeat test with an item aligned solely to an unsupported standard.

Teardown
Delete items from bank so test can be repeated.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Create item aligned to multiple standards, at least on unsupported; save	Item is present in Item bank, with known standards alignment and all other data, verified via UI or DB query	P	
2	Create item aligned solely with unsupported standard; save	Depending on defined behavior (is having not standards alignment allowed?), item will be present with no standard or gracefully rejected	P	

2.7.1 Science Fill in the Blank Constructed Response Item aligned to known standard in target bank

Script Description

Author a Science Fill in the Blank Constructed Response Item aligned to standards supported by item bank.

Testing Requirements

Authoring software, specification of required and optional fields, linked passage and rubric items available.

Setup

Create Science Fill in the Blank Constructed Response Item with required fields and known standards alignment. Repeat test with optional fields added.

Teardown

Delete items from bank so test can be repeated.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Create item with required fields only; save	Item is present in Item bank, with correct standards alignment and all other data, verified via UI or DB query	P	
2	Create item	Item is present in Item	P	

	with required plus optional fields; save	bank, with correct standards alignment and all other data, verified via UI or DB query		

2.7.2 Science Fill in the Blank Constructed Response Item aligned to unknown standard in target bank

Script Description

Author a Science Fill in the Blank Constructed Response Item aligned to at least one standard not supported by item bank.

Testing Requirements

Authoring software, specification of required and optional fields, linked passage and rubric items available.

Setup

Create Science Fill in the Blank Constructed Response Item with multiple standards, one unknown.
Repeat test with an item aligned solely to an unsupported standard.

Teardown

Delete items from bank so test can be repeated.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Create item aligned to multiple standards, at least on unsupported; save	Item is present in Item bank, with known standards alignment and all other data, verified via UI or DB query	P	
2	Create item aligned solely with unsupported standard; save	Depending on defined behavior, item will be present with no standard or gracefully rejected	P	

2.8.1 Science Free Text Constructed Response Item aligned to known standard in target bank

Script Description

Author a Science Free Text Constructed Response Item aligned to standards supported by item bank.

Testing Requirements
Authoring software, specification of required and optional fields, linked passage and rubric items available.

Setup
Create Science Free Text Constructed Response Item with required fields and known standards alignment. Repeat test with optional fields added.

Teardown
Delete items from bank so test can be repeated.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Create item with required fields only; save	Item is present in Item bank, with correct standards alignment and all other data, verified via UI or DB query	P	
2	Create item with required plus optional fields; save	Item is present in Item bank, with correct standards alignment and all other data, verified via UI or DB query	P	

2.8.2 Science Free Text Constructed Response Item aligned to unknown standard in target bank

Script Description
Author a Science Free Text Constructed Response Item aligned to at least one standard not supported by item bank.

Testing Requirements
Authoring software, specification of required and optional fields, linked passage and rubric items available.

Setup
Create Science Free Text Constructed Response Item with multiple standards, one unknown. Repeat test with an item aligned solely to an unsupported standard.

Teardown
Delete items from bank so test can be repeated.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Create item aligned to multiple standards, at least on unsupported; save	Item is present in Item bank, with known standards alignment and all other data, verified via UI or DB query	P	
2	Create item aligned solely with unsupported standard; save	Depending on defined behavior, item will be present with no standard or gracefully rejected	P	

Batch Import Scenario

3.1 All test items imported in one batch from one Item Bank to another

Script Description

The test covers both the capacity of the system and allows an end-to-end functional integration test.

Testing Requirements

Examples of all types of items from the individual item tests, in multiple instances are packaged in a single batch file; sftp transfer or RESTful client/server architecture, as agreed upon.

Setup

Command line or other interface to initiate transfer, pre-populated items for verifying re-import scenarios are present.

Teardown

Delete all items.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Initiate batch file transfer from client end	Batch is in agreed upon server folder	P	

2	Initiate import (or wait for automated polling service to pick it up)	Batch import takes place, defined messages sent to client to indicate success or failure	P	
3.	Verify items in target Item bank	All items correctly imported and/or updated as per standard	P	

Possible Failure or Exception-handling Scenarios

4.1 Multiple-choice Item has no answer marked correct

Script Description

Import M-C items of each subject type (ELA, Math, Science) where no answer is marked correct.

Testing Requirements

Constraints that should exist in Authoring System or other Item Bank that should prevent this need to be circumvented.

Setup

Prepare items for import.

Teardown

Delete items.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Import items	Items rejected gracefully, unless target item bank allows them	P	

4.2 Distractor rationale is missing

Script Description

Import M-C items of each subject type (ELA, Math, Science) where Distractor rationale is missing.

Testing Requirements

Constraints that should exist in Authoring System or other Item Bank that should prevent this need to be circumvented.

Setup
Prepare items for import.

Teardown
Delete items.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Import items	Items rejected gracefully, unless target item bank allows them	P	

4.3 Item linked to passage or rubric which is not present

Script Description
Import items of each subject type (ELA, Math, Science) where a linked passage or rubric is not present.

Testing Requirements
Constraints that should exist in Authoring System or other Item Bank that should prevent this need to be circumvented.

Setup
Prepare items for import.

Teardown
Delete items.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Import items	Items rejected gracefully, unless target item bank allows them	P	

4.4 Multiple choice Item has only one answer

Script Description
Import M-C items of each subject type (ELA, Math, Science) where there is only one answer.

Testing Requirements
Constraints that should exist in Authoring System or other Item Bank that should prevent this need to be circumvented.

Setup
Prepare items for import.

Teardown
Delete items.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Import items	Items rejected gracefully, or warning message sent if target item bank allows them	P	

APIP interchange file or zip is incomplete

4.5.1 Items listed in manifest are missing

Script Description
Creates an APIP file in which the imsmanifest.xml lists some items that are not present in the file.

Testing Requirements
The ability to create and edit APIP archive file.

Setup
Run import with incorrect file.

Teardown
Remove any successfully imported items.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Import file	Fail gracefully with warnings according to defined behavior	P	

4.5.2 Malformed XML in APIP interchange file

Script Description
The ability to create an APIP file in with intentionally malformed XML.

Testing Requirements
Ability to create and edit APIP archive files such that it is corrupt in this way.

Setup
Run import with incorrect file.

Teardown
Remove any successfully imported items.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Import file	Fail gracefully with warnings according to defined behavior	P	

4.6 Item Authoring System loses connection to Item Bank

Script Description
Mainly useful when Authoring System and Item Bank are from two different vendors.

Testing Requirements
Item Authoring Software and target Item Bank have the ability to simulate connection failure. The assumption is the Authoring Software has in-memory or local disk storage.

Setup
Create one or more items in the Authoring Software.

Teardown
Clean up Authoring software and Item bank.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	Create items in authoring software	Items are present	P	
2	Initiate connection to Item Bank	Connection is initially valid	P	
3.	Interrupt connection to item bank, attempt to export items from Authoring software	Graceful failure and transactional outcome – both parties to the exchange are aware that it did not succeed.	P	

Diagram of Test

The expected sequence of tests is:

1) Items created and individual item tests run and successful.
2) Individual item tests automated and re-run on a scheduled or ad hoc basis with a single command.
3) Exception handling cases verified and automated.
4) Batch import tests created and executed and also scheduled for periodic repeats as needed.

Test Scenario TSAIF-0020 Assessment Registration

Scenario Description

- This scenario describes the necessary components for an assessment registration. This scenario covers student demographic, teacher, hierarchy and Personal Needs and Preferences (PNP) information.
- A consortium is ready to give an assessment. The student, school, LEA and teacher information have been entered into the SIS or data warehouse. Assessment registration and administration system A pulls over all of the necessary information from the SIS or data warehouse B. Next, the PNP information for students is entered into the registration system. The students are then assigned to a specific administration of an assessment. The registration and administration information is then passed from the assessment registration and administration system A to the assessment delivery system C.

Version Control

Version #	Date	Author	Description
0.1	10/31/12	Jill Abbott	Initial Draft
1.0	11/13/12	Jill Abbott	Completed test script

Contributors

Name	Company
John Lynch, Director of Development	Rediker Software
Devin Loftus	CTB-McGraw Hill
Jill Abbott, CEO	Abbott Advisor Group

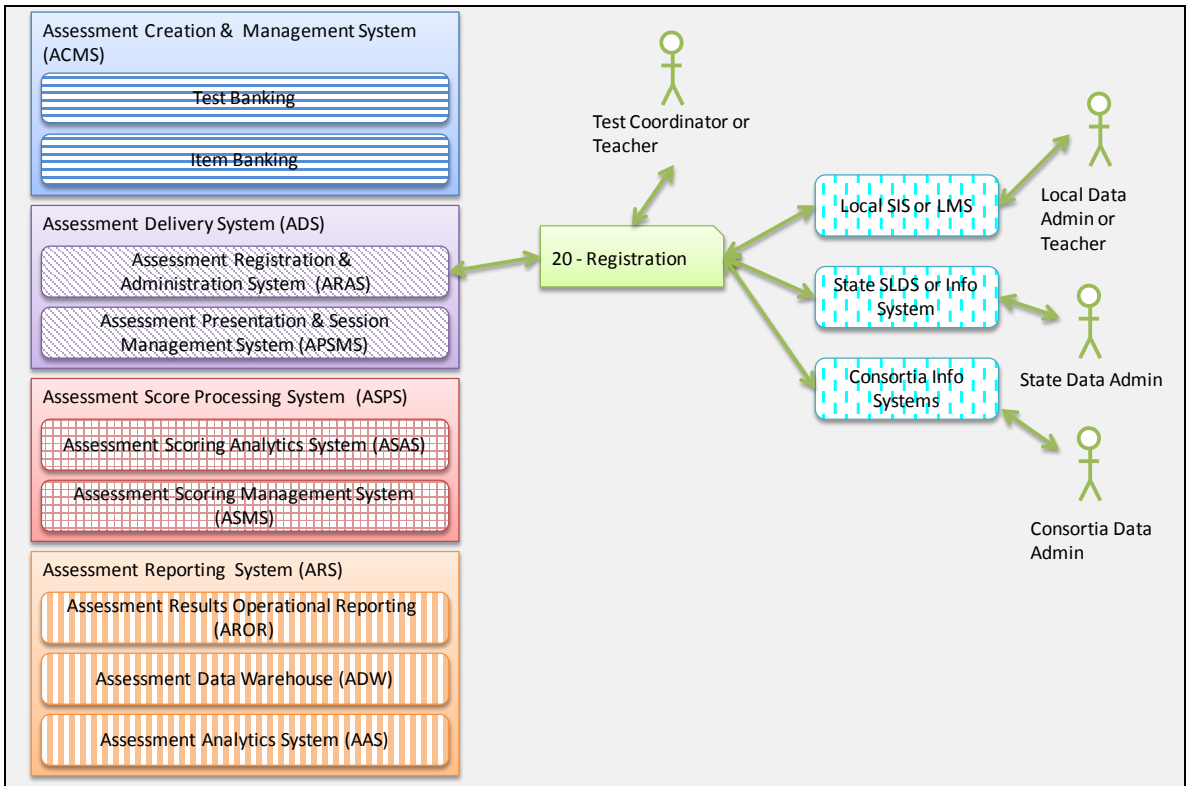
Test Scripts

The following scripts will cover this scenario:

- 1.0 Assessment Registration

Use Case

Use Case ID and Name	**UCAIF-0020 Assessment Registration**
Use Case Description	To identify all students that will be participating in an assessment administration, the assessment registration data will be collected from all LEAs/schools participating in the administration. In some situations, the state or consortia on behalf of the LEAs/schools may provide registration data.
Diagrams	



Applicable Scenarios	• LEA SIS provides necessary registration information to the assessment registration system for a non-summative assessment. • LEA SIS provides necessary registration information to the SEA data warehouse. The SEA data warehouse then provides the registration information to the assessment registration system.
Actors	• Local Information System (SIS) • SEA Data Warehouse • Assessment Registration System
Pre-Condition	• All of the student, school, LEA and teacher information have been entered into the SIS and/or Data Warehouse. • An administration of an assessment(s) has been identified.
Processing	• The necessary information for registration has been captured by the local SIS or the state data warehouse. • Assessment administration system queries the local SIS or the state data warehouse for students ready to take the assessment. • Necessary registration information is transmitted from the local SIS or the state data warehouse. • The assessment registration system accepts the data, validates the data and loads the information. • The assessment registration system uses the assessment administration information to determine which assessments (and possibly forms) are available for administration.
Post-Conditions	• The students are registered for a specific administration(s) of an assessment.
Triggers	• This process is most likely triggered after the administration of an assessment(s) has been identified.
Exceptions	• A student shows up for the assessment and has not been registered (e.g. a new or transfer student). This student would have to be manually entered into the registration system.

	○ A temporary identifier may be assigned to the student if there are delays in getting a state identifier assigned. • 1) The student identifier on the registration record conflicts with another (obviously different) student registration record (i.e. two students have the same identifier). 2) A single student has two registration records with different identifiers (i.e. one student has two identifiers in the system). ○ The registration system should identify the potential conflicts and notify the appropriate users. It is not expected that the registration system can resolve the conflict. Resolution of the identifiers must occur at the source (i.e. the SIS and/or state ID management system).
Identify SBAC or PARCC Use Cases or Architecture Items this use case supports	• SBAC – Test Delivery (p. 42 of SMARTER Balanced Architecture Workshop Deliverables)
AIF framework references	This is represented by Arrow 10 of the AIF wiring diagram
Expected Use of Interoperability Standard	SIF
Expected Data or Content Requirements	• Student Demographic Information • Student Personal information – first name, last name, id, grade, etc. • School and LEA ID for student enrollment or responsible LEA/School information • Retest indicators • IDEA, Title1, Economic Disadvantage, ELL, Section 504, Immigrant • Assessment Administration Information – name, form, date, time, etc. • Staff information • Student accommodations needed for assessment (PNP - that will drive assessment content presentation in the delivery system)
Expected Transport Requirements	• Must be a secure transfer (content cannot be intercepted). • SIF Infrastructure (ZIS) or Bulk transport
Other assumptions or issues supported	That the assessment registration system will house the student information as the "official record" (snapshot) of the student at the time of testing.

Test Components

This test scenario covers the following high-level test requirements (see scripts below for specific requirements covered by each test script):

- Assessment registration
- Assignment of PNP information for each student

User Groups

- Student Information System (SIS)/Data Warehouse
- Assessment Registration System
- Assessment Administrator

Script #1: Assessment Registration

Script Description

- The assessment registration system sends a request to the student information system/data warehouse for all of the necessary student information needed for the Assessment Registration. The SIS/data warehouse acknowledges the request and compiles the necessary data. The administrator of the SIS/data warehouse for data quality then reviews these data. Once reviewed, the data send to the assessment registration system.

Testing Requirements

This test script covers the following specific testing requirements:

- Validations to load the data. Ensure that we are pulling in data and populating appropriate fields.
- Scenarios around loading students who are not assigned to a class and students with accommodations and making certain these are addressed.
- When the test assignment is made, verification as to the number of students has been assigned (the count).
- Ensuring that students are assigned the appropriate form and the counts are accurate.
- When the test ticket is printed, a review for accommodations needs to be done such that it is displayed accurately.
- When defining the criteria of the test session (which test is assigned to which student), check that the 3rd grade student is assigned to a 3rd grade assessment.

Setup

Several setup procedures prior to the execution of the script will occur. All data should be entered into the SIS or data warehouse prior to the request from the Assessment Registration System.

Test data needed:

- Student ID
- Student First Name
- Student Middle Name
- Student Last Name
- Grade
- Class ID
- Class Assignment Effective Date
- Date of Birth
- Gender
- Ethnicity
- Socio-economically Disadvantage
- Disabled
- ESL

- Username
- Password
- School ID
- Staff ID
- Staff First Name
- Staff Last Name
- Class ID
- Class Description
- Section
- Subject
- Staff Email
- Staff Phone Number
- Staff Role
- Assessment Session ID
- Assessment Administration ID
- Assessment Form ID
- Creation Date Time
- Start Date Time
- End Date Time
- Assessment Platform
- Days of Instruction
- Retest Indicator
- Test Attempt Identifier
- Student Special Events
- Testing Statuses
- Score Publish Date
- Student Grade Level
- Assessment Grade Level

SIS provider and registration provider perform a crosswalk of the data prior to the data load based on the CEDS codes.

Teardown

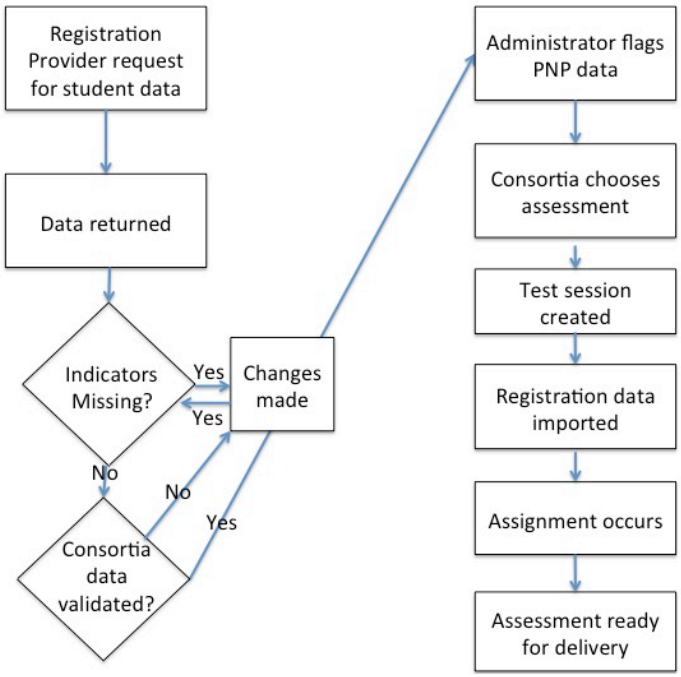
At the conclusion of the test, the connection between the assessment administration system and the SIS/data warehouse should be terminated.

Script Steps

Step	Test Action	Expected Results	Pass/ Fail	Reason for Error
1	The Registration Provider issues a request to the SIS Provider.	The following is returned: • K12 Student • K12 School	P	

		• K12 Staff • Class/Section • Enrollment Status		
2	The Registration Provider checks and validates data for any missing indicators.	No missing indicators.	P	
3	Student data is published to a live area for review by the Consortia for validation.	Data is validated by the Consortia.	P	
4	The Administrator flags students with a PNP on the student record and/or enters in necessary PNP information.	PNP information entered and complete.	P	
5	Consortia chooses the assessment desired to be administered and creates a test session.	• Attributes are assigned to the session (eg. Proctor can stop session). • Consortia designates overall accessibility features in the test session (eg. All students need text to speech in this test session).	P	
6	The registration data imports into the test session and the assignment process occurs.	• Students are flagged with appropriate accommodations and those stay with the student regardless of the test session. • Students are assigned en masse to the appropriate test.	P	
7	If a student has not previously been registered, the student can be registered as a “walk-in”.	Student can take the assessment provided a state ID has been given to the student.	P	
8	Assessment is ready to be delivered.	Test tickets are generated with the test id, username and password.	P	

Diagram of Test



Test Execution

Date/Time	Tester	Test Phase	Status
11/15/12	Name	System Cycle 1	Passed

Test Modifications

Test Phase	Modifications Made
Test Phase I	Role, username and password elements added for the administrator. Username and password elements added for the student. These are to be optional.

Test Scenario TSAIF-0030 Moving Student Results to State Data Warehouse

Version Control

Version #	Date	Author	Description
0.1	10/31/12	Jill Abbott	Initial Draft
1.0	11/13/12	Jill Abbott	Completed Test Script Template
2.0	11/14/2012	Alex Jackl	Used Template to Document Test Scenario: TSAIF-0130
3.0	11/20/2012	Alex Jackl	Updated content based on initial final test output
4.0-6.0	11/23/2012	Alex Jackl	Made final round of iterative edits with team and added conclusion and corporate info

Contributors

These are the people that attended the design and management calls or were on the testing teams for this project. There were many people behind the scenes in both organizations that helped make this happen.

Name	Company
Alex Jackl, CIO/Chief Architect	Choice Solutions, Inc.
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Overview

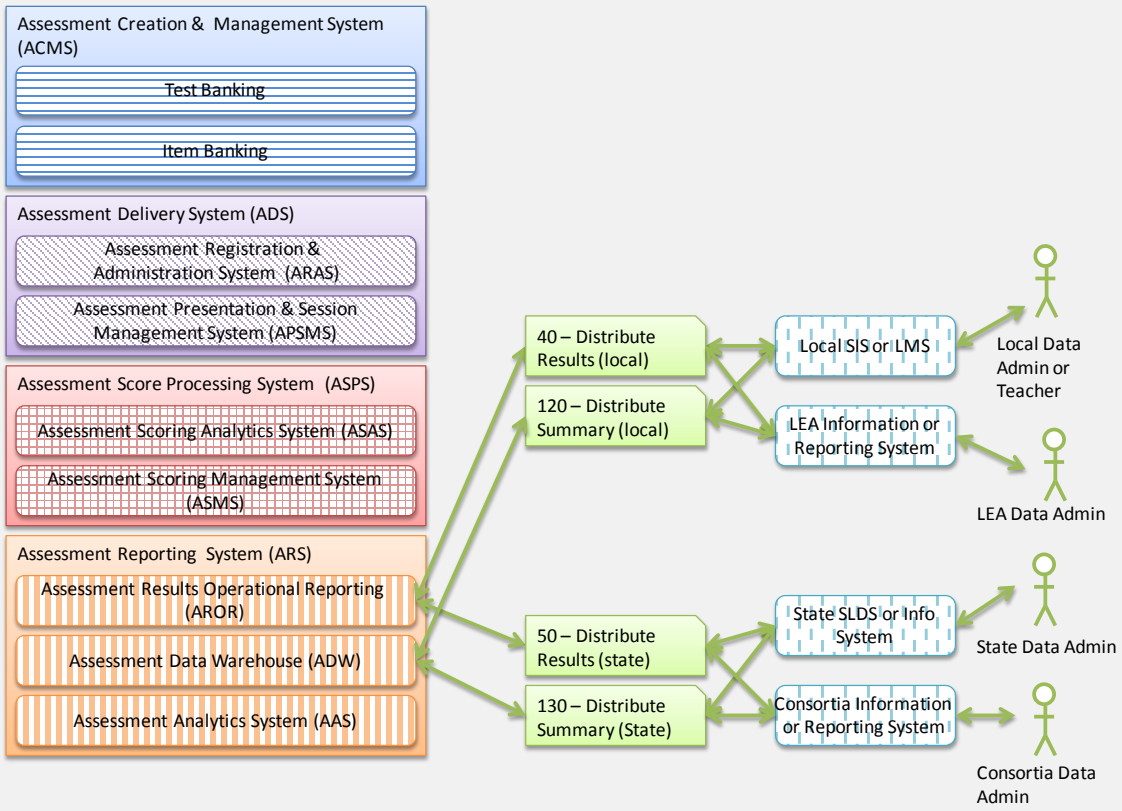
This document utilizes documentation prepared by the Assessment Interoperability Framework (AIF) Working Group in order to determine the viability and correct

direction of the work that group is doing. These initial tests are being done as paper tests. Code for this test scenario was not written and there was no test harness to formally test any inputs or outputs against. Some SQL Scripts and XML management code was used to make it easier for the testers to do work and to produce the initial output, and this was primarily a rigorous manual process.

Test Scenario

Test Scenario ID and Name	**TSAIF-0130 Distributing Aggregated Assessment Results to State Information Systems**
Scenario Description	• The purpose of this scenario is to demonstrate sending assessment results to the SEA from the Consortium-administered assessment. • The Consortium has administered an assessment. The Assessment Results System A has received and compiled all information based upon the assessment. Assessment Results System A compiles, packages, and disseminates the information to the SEA Data Warehouse B.
AIF Arrow(s) Supported	• Arrow 14
Test Scenario Components Required	• Assessment results system • State data warehouse or reporting system
Pre-Condition	Assessment results are available and have been aggregated so that summaries can be produced.
Post-Conditions	The state system has the results loaded.

Use Case

Use Case ID and Name	UCAIF-50/0130 Distributing Aggregated and Specific Assessment Results to State Information Systems
Use Case Description	The assessment reporting data warehouse may derive various summaries or aggregations from the underlying detailed results data. For example, various average scores (school, LEA, or state averages) may be provided to the state systems for reporting or inclusion in their own data warehousing systems. The data warehouse may also disaggregate the data on several dimensions (such as race/ethnicity, gender, etc.) that may also be shared with state systems for reporting.
Diagrams	
Applicable Scenarios	• The consortia produce assessment result information and wish to distribute that data to state systems for use.
Actors	• Assessment Data Warehouse (ADW) • State information systems
Pre-Condition	• Assessment results are available and have been packaged so that summaries can be produced.
Processing	• The ADW exports summary/results information • The ADW packages the summary/results information for transport • The ADW delivers the data to the data warehouse • The state information system (SIS) imports the data
Post-Conditions	• The state information system (SIS) has the results data loaded
Triggers	• Likely to be schedule driven • Manual trigger may also be required

Exceptions	• Some summary data may not be shared to protect personally identifiable information. For example, if less than 5 individuals make up a summary, it may be easy to discern who the individuals are. Summaries may be excluded in these situations. Sometimes referred to as "small cell" rules.
Identify SBAC or PARCC Use Cases or Architecture Items this use case supports	UCAIF-50/0130
AIF framework references	This is represented by Arrow 14 of the AIF wiring diagram.
Expected Use of Interoperability Standard	SIF
Expected Data or Content Requirements	• LEA/school information • Assessment identifiers and names • Sub test identifiers and names • Standards alignment • Demographic dimensions (race, gender, etc.) • Summary scores (means, percentages, counts, etc.)
Expected Transport Requirements	• Asynchronous bulk transportation is likely, although SIF Services will fulfill this use case.
Other assumptions or issues	• In some implementations, summary data may also be "embedded" in the individual results data exchanges (arrows 13 & 14).

Test Description

This test involved a Common-Core-based Interim Assessment utilized by Houghton Mifflin Harcourt's Riverside division (HMH) and edFusion State Data Warehouse implemented by Choice Solutions, Inc. (Choice). The testing of a transfer of assessment results from the assessment vendor to the State Data Warehouse. Occurred. The entities utilized are listed below and an assumption and validation that the SIF Web Services transport could be used to facilitate the exchange of these data objects was made.

Riverside® Interim Assessment Description

Within the HMH portfolio is a set of assessments called the **Riverside Interim Assessments**. These provide a year-long method for tracking growth.

Key Features for Reporting Purposes

- Three forms per grade to monitor growth and achievement in Math and ELA/Literacy, 35-55 assessment items per form, with comprehensive coverage for grades 2-11
- Common Core alignment to provide detailed performance information as you prepare for the transition to the Common Core State Standards accountability

- Cognitive level performance reporting to reflect students' mastery of standards at three levels of complexity
- Research-based derived scores including scaled scores, proficiency scores, and growth scores

edFusion State Data Warehouse

Choice Solutions' edFusion™ Data Warehouse data system includes both relational, hierarchical and OLAP structures designed around education data.

With the ability to support virtually unlimited numbers of student files (including historical data) for as many years as a state requires, there are no functional limits on the numbers of students or end users that State Departments of Education may have built into the system; expansion is a matter of additional hardware rather than application capacity.

Test Components

This test scenario covers the following high-level test requirements (see scripts below for specific requirements covered by each test script):

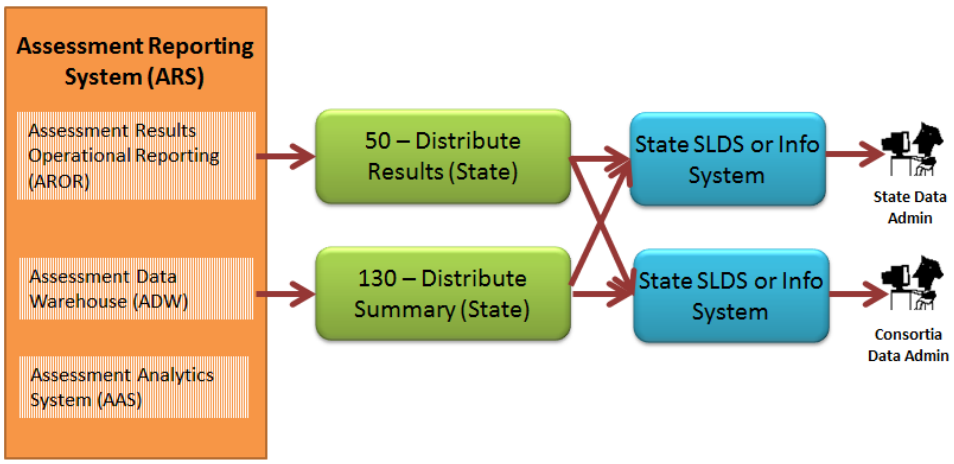
- State or Consortium Data Warehouse (SLDS)
- Assessment Reporting System (ARS)

User Groups

- State or Consortium Data Warehouse (SLDS)
- Assessment Reporting System (ARS)

Diagram of the Test

This diagram outlines the test as derived directly from the use case:



Test: Assessment Reporting to State Data Warehouse

Test Description

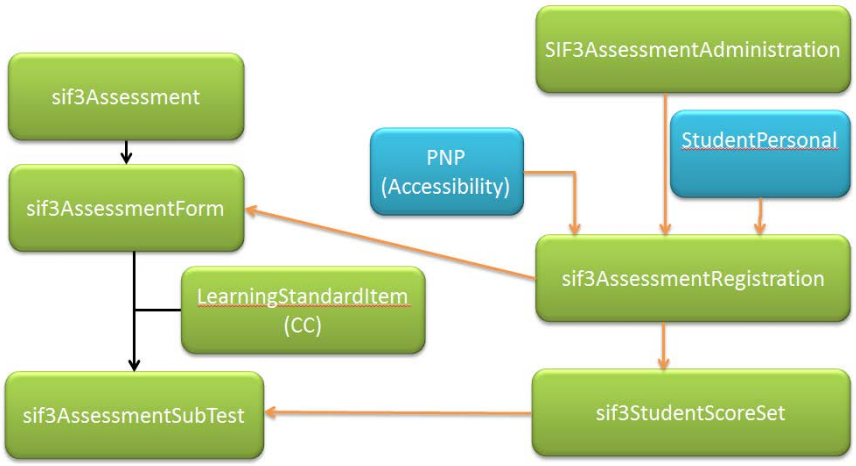
The consortium has administered an assessment. The assessment results system has received and compiled all information based upon the assessment. The assessment results system compiles the AIF packages and disseminates the information to the SEA data warehouse.

Preconditions

- The interim assessment has been executed and stored.
- The result set has been translated into AIF-conformant SIF XML.
- There is an environment established to allow for transport (Assumption of Shared SIF Services).
- Data objects needed:

  - ✓ 3 **sif3StudentScoreSet**s (one for each 'type' of score (raw, percentile and scaled)) for a single student ("Mimi Alat"). This includes the CEDS **AssessmentSubTestResult.**
  - ✓ One **sif3AssessmentRegistration** (for Mimi Alat, providing her demographic data as at the time of the assessment). This includes the CEDS **AssessmentRegistration.**
  - ✓ One **sif3AssessmentAdministration** which is the assignment of this assessment to the school ("School 1"). This includes the CEDS **AssessmentAdministration.**
  - ✓ One example **sif3AssessmentSubTest** for the Mathematics composite assessment. This includes the CEDS **AssessmentFormSubTest.**
  - ✓ One example **sif3Assessment** which is the overall assessment which was assigned. This includes the CEDS **Assessment.**
  - ✓ One example **sif3AssessmentForm** which represents Form A for this assessment. This includes the CEDS **AssessmentForm.**

The diagram below shows the Data Objects that were used in this test.



Test Issues

No fatal issues were uncovered in the testing. The table below lists the issues uncovered in testing the import of result data into data warehouse. The actual mapping results are captured in Appendix A. The Row # column refers to the Column A of Appendix A with contains each of the element structures published to be included in the warehouse. When issues repeated more than twice, the spreadsheet was not marked up or any issue included more than twice in this table for ease of reading.

Issue	Row #	Description	Severity
1	1	NOTE: All RefIds are maintained in the staging tables and history tables of the data warehouse but are replaced by the WarehouseTable keys once imported.	Major
2	1	Score Metric primary key mentioned is stored at the Subject level. The key (and thus table location) changes for different metrics based on the grain level of the metric (Subject Area/Strand Area/Strand)	Minor
3	3	Assessment Administration ID is represented by multiple tables in data warehouse but can be linked to a unique key	Minor
4	7	When a repeating structure is created that has no content, the structure did not receive a row on the mapping sheet. It is included as the parent structure in the XPath in the form of "ObjectNames.ObjectName"	n/a
5	7	ScoreMetric is transposed in the data warehouse from the way it is handled in CEDS and SIF. The score metric is uniquely identified differently at different levels- subject, strand area, and strand. This should not be an issue in storing the results data; it merely requires a slightly more sophisticated mapping. Related to issue 2.	Minor
6	8	The student score set keys are not in the XML but are implicit in the hierarchical structure. In the data warehouse relational structure a separate table for the repeating scores exists.	Minor
7	10	There is no need to repeat all the instances of repeating values in the mapping, only the first one so the structure and mapping is captured.	Minor
8	23	Because the data warehouse captures instructional data independent of assessment, this will be calculated/derived from other tables.	Minor
9	25	The data warehouse does not have this concept. This identifies the assessment and form Instance the student is taking and will be handled by the Assessment ID structure.	Minor
10	33	The birth date field includes only the birth month and the birth year and excludes the birth day itself (for privacy and security reasons). The assessment results engine needs to convert it into a real date. A clear policy on this will need to be established.	Critical
11	34	The age itself includes not only an age in years, but how many	Critical

A direct element-to-element mapping was impossible between the CEDS and SIF transport objects and the reporting data store (RDS) due to the fact that the RDS used a fact- and dimension-based multi-dimensional model optimized for reporting and fast query response and did not exactly match the more normalized entity based structure of the CEDS and SIF objects.

The correlation to the normalized operation data store proved easier; however, it was thought that the mapping to the RDS provided a better test as the end result comprises human-facing visualizations, views and reports on the data. The assessment has some elements to which the data warehouse data structures did not exactly map. This informed the data warehouse team and modifications to the RDS structure were made. This allowed the RDS to handle all the information provided by the assessment team in order to import all the data into the RDS.

This test does indicate that the objects called for in the AIF documents can successfully be used to transport assessment record-level and aggregated-data to a State- or Consortia-data warehouse with little to no modification.

Issue	Row #	Description	Severity
		months since their last birthday. Thus, in some applications someone's age is 12 years, 4 months. In the data warehouse, the age derives from the snapshot date and the date of birth, and thus can be represented as year only or year and months as called for by the reporting use case.	
12	57	In some of the rows of the mapping workbook, there were some repeating structures from the XML when some qualifier like a "type" in one row actually modified the element in the next row to be represented in a different location in the data warehouse. For instance, clients and publishers might point to different structures depending on the context. When this occurred, the rows were put into the mapping document in order to be accurately reflected.	Minor
13	62	The data warehouse did not have the TIER structure in, but added the column to conform to CEDS and SIF.	Minor
14	101	This child table for DIM_ASSESSMENT_FORM can store multiple accommodations.	Minor
15	111	Subtests in the data warehouse are stored in different tables depending on the grain level of assessment results.(Subject Area/StrandArea/Strand/Item)	Major

Test Execution

Date/Time	Tester	Test Phase	Status
11/5/2012	HMH-Choice, Team 1	Initial Phase	Failed- not enough information
11/12/2012	HMH-Choice, Team 1	Phase 2	Failed - didn't have full data to enter into warehouse
11/14/2012	HMH-Choice, Team 1	Phase 3	Passed with qualifiers
11/20/2012	HMH-Choice, Team 2	Phase 4	Passed

Test Modifications

Test Phase	Modifications Made
Initial Phase	Added missing entities.
Phase 2	Added some data components. These data components are being added to the Draft CEDS 3.0 Elements.
Phase 3	Made no changes but clarified some element semantics to Testing Team.

Conclusion

This test scenario was very successful. It was determined that the test results from a common core-based Assessment could transport by the CEDS entities and elements and SIF objects called for in AIF and then mapped to and stored in a state, or Consortium, data warehouse.

Acronyms

AIF	Assessment Interoperability Framework
APIP	Accessible Portable Item Protocol
ARS	Assessment Reporting System
C-R	Constructed Response
DB	Database
IMS	IMS Global Consortium
M-C	Multiple Choice
PARCC	Partnership for Assessment of Readiness for Career and College
PNP	Personal Needs and Preferences
RDS	Reporting Data Store
SBAC	Smarter Balanced Assessment Consortium
SIF	SIF Association
SIS	Student Information System
SLDS	State Longitudinal Data System
TSAIF	Test Scenario for the Assessment Interoperability Framework
UI	User Interface
XML	Extensible Mark-up Language

Appendix A

This will contain the data crosswalk between HMH, Choice, SIF and CEDS.