Annex H
Registry Initialization Test Plan

1. Testing Procedures

1.1 Overview

The purpose of this annex is to provide a standard testing protocol that verifies a registry participation in the tests outlined in Section 9 (Initialization Process). These tests are required for a registry to complete prior to being authorized to submit production transactions to the ITL. This annex specifies each test to be conducted, evaluated and recorded by the ITL.

These tests require interaction between the registry being initialized and the ITL. In some cases, the registry will initiate the action while in other cases the ITL will initiate the action. Therefore, it is necessary for the Registry Manager to coordinate the logistics of executing these tests.

The tests are divided into categories. All tests within a category must be completed and passed within the designated time frame before a registry can proceed to the next category of tests. The following time line is recommended for conducting all acceptance tests.

Figure H1: Acceptance Test Time Line

Test Category	Test(s)	Timeline	Section
Communication Initialization	100 - 103	Week 1, Day 1	1.2
Access to Websites	110 - 111	Week 1, Day 1	1.3
Information Retrieval	116 - 117	Week 1, Day 1	1.4
Issuance	120 - 124	Week 1, Days 2-4	2.2.1
Conversion	130 - 132	Week 1, Days 2-4	2.2.2
Internal Transfer	140 - 142	Week 1, Days 2-4	2.2.3
External Transfer	150 - 156	Week 2, Days 1-3	2.2.4
Cancellation	160 - 162	Week 2, Days 1-3	2.2.5
Retirement	170 - 172	Week 2, Days 1-3	2.2.6
Carry-over	180 - 185	Week 2, Days 4-5	2.2.7
Replacement	190 - 193	Week 2, Days 4-5	2.2.8
Expiry Date Change	200 - 203	Week 2, Days 4-5	2.2.9
Reconciliation	300 -	Week 3	3

1.2 ITL Testing Environment

All Quality and Acceptance tests will be performed on the ITL's test server environment. Registries are expected to do ad-hoc testing on all Web services prior to conducting formal QA tests. The ITL will hold the following schedule in order for all registries to have access to a full Commitment Period life cycle.

- Monday - Wednesday, Friday - Sunday: System DateTime of server shall reflect current year, date, and time. All transaction tests except Carry-over shall occur in these six days.

- Thursday: System DateTime shall be forwarded to simulate a date in the next Commitment Period. All carry-over transaction tests should occur on Thursdays only.

1.3 Initiating Tests

It is the Registry Manager's responsibility to negotiate the time frame to conduct each category of tests. The Registry Manager must provide the following information before proceeding with the tests:

- Principal contact for each category of tests;

- Description of the environment in which the Registry Manager will be conducting the tests;

- Description of the hardware being used for tests;

- Description of the Operating System and Development Software used in tests; and

- Database or data source used for tests.

Additionally, it is assumed that the registry is operational to the point that the Registry Manager has executed some level of ad-hoc testing independent of the testing procedures outlined in this annex.

Prior to commencing the testing procedures outlined in this annex, the Registry Manager must purge any existing test data to ensure a pristine environment for integrated testing.

1.4 Communication Initialization Tests

The following tests will validate the secure infrastructure for the exchange of data to and from the registry and the ITL.

Test ID	100
Test Name	Internet Access
Description	
Test to verify the registry can access the internet.	
Steps	
1. From the registry, ping www.yahoo.com 2. Open a Web browser and navigate to www.yahoo.com In the event that Yahoo! is unavailable, replace www.yahoo.com with www.google.com	
Expected Result	
Pinging www.yahoo.com should be successful (# packets sent = # packets received). The Yahoo! Home page should load normally. Verification is left to the registry.	

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Test ID	101
Test Name	Validate VPN hardware functionality
Description	
Validate that the ITL and registry VPN hardware can see each other.	
Steps	
1. ITL pings the registry's IP address 2. Registry pings the ITL's IP address	
Expected Result	
Pinging is successful in both directions.	

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Test ID	102
Test Name	Third Party Certificate Authentication
Description	
Registry acquires a digital certificate from Third Party Certificate Authority and installs the appropriate files. The ITL is sent the public key of the certificate either from the Certificate Authority or from the registry, and an authentication test of the Digital Certificate is initiated by the sending and receiving of these public keys.	
Steps	
1. ITL Manager will access a HTTPS Web page on the registry network. 2. Registry Manager will access an HTTPS Web page on the ITL. 3. Both the HTTPS Web pages are successfully viewed in both directions.	
Expected Result	

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1.5 Website Access Tests

Two websites are supported by the ITL. The public website does not require security access, only verification of published data. Extranet access requires account and password validation. These tests should be conducted after all of the transaction specific tests have been completed.

Test ID	110
Test Name	Access to ITL public website
Description	
Verify that the registry can access the ITL public website for the purposes of querying unit transparent data.	
Steps	
1. ITL publishes a subset of transaction Log Data for a specified date range to the public website. 2. Registry Manager accesses the ITL public website and verifies the data on the website matches the data in the registry	
Expected Result	
Data on the ITL matches data in the registry.	

Test ID	111
Test Name	Access to ITL extranet
Description	
Verify that the registry can access the ITL extranet which hosts information regarding change management files or patches, as well as XML datasets of all response codes and key identifier tables.	
Steps	
1. Registry manager requests and account and password for access to this site. 2. Access the extranet and verify data	
Expected Result	
Successful access to ITL extranet.	

1.6 Information Retrieval Tests

The following tests demonstrate a registry's capability to query the ITL for information and for the ITL to query the registry for a time response. These tests can be conducted after communication initialisation tests are complete.

Test ID	116
Test Name	Data Identifier Initialization
Description	
Registry is expected to download and import all response code data as well as data for all key identifier lookup tables into its system.	
Steps	
1. Download the following datasets from the ITL: a. Account Type Code b. Registry Code c. Unit Type Code d. Supplementary Unit Type Code e. Transaction Type Code f. Transaction Status Code g. Response Catalog h. Supplementary Transaction Code 2.Verify that these codes have downloaded successfully.	
Expected Result	
All codes should be downloaded successfully. Verification is left to the registry.	

Test ID	117
Test Name	Provide Time
Description	
Verify time synchronization Web service.	
Steps	
The ITL will call the registry's ProvideTime method.	
Expected Result	
The ITL will verify that the time provided in the registry's response is accurate and notify the Registry Manager of the test result.	

2. Transaction Specific Tests

2.1 Overview

The following tests are designed to simulate a complete life cycle of transaction tests using specified test data. To successfully complete these tests, the registry and ITL will have no prior existing data relationship. All of the data used in subsequent tests are created in the Issuance transaction tests. These tests must be executed in the specified order. Each test has dependencies on data that has been affected by preceding tests. If a category of tests must be repeated, the entire suite of transaction specific tests might need to be rolled back and repeated to create a pristine test environment. Following each transaction specific test there follows an immediate reconciliation test where the ITL and Registry Managers confirm the status of the data.

2.1.1 Account Data

The following set of account data must be created in the registry before beginning tests. The account types and ID's to be created are as follows.

Figure H2: Test Account Data

Code	Account Type	Qty	ID(s)
100	Holding Account	2	1, 2
110	Pending Account	2	3, 4
120	Operator Holding Account	1	5
121	Person Holding Account	1	6
210	Net Source Cancellation Account (national registry only)	1	7
220	Non-compliance Cancellation Account (national registry only)	1	8
230	Voluntary Cancellation Account (national registry only)	1	9
240	Excess Issuance Cancellation Account (CDM Registry only)	1	10
250	Mandatory Cancellation Account	1	11
300	Retirement Account	1	12
411	tCER Replacement Account for Expiry	1	13
412	tCER Replacement Account for Reversal in Carbon Storage	1	14
413	tCER Replacement Account for Failure to Submit Certification Report	1	15
421	lCER Replacement Account for Expiry	1	16
422	lCER Replacement Account for Reversal in Carbon Storage	1	17
423	lCER Replacement Account for Failure to Submit Certification Report	1	18

2.2 Transaction Types

The available Web service transaction types and their corresponding codes that will be tested are as follows.

Figure H3: Transaction Type Test Codes

Code	Transaction
1	Issuance – Initial creation of a unit
2	Conversion – Transformation of a unit to create an ERU
3	External – External transfer of unit between registries
4	Cancellation – Internal transfer of a unit
5	Retirement – Internal transfer of a unit
6	Replacement – Replacement of tCER or lCER
7	Carry-over – Extension of unit validity
8	Expiry Date Change
10	Internal – Internal transfer of units/supplementary program transaction

2.3 Web Service Methods

The three Web service method calls that are used in these transaction specific tests are AcceptProposal, AcceptNotification, and AcceptITLNotice. Figures H4 through H6 describe the parameters these methods accept. The test cases that follow refer to these methods and provide only the relevant parameters given the transaction being executed.

As a convention, the code ZZ is used to refer to the code of the registry being tested, and the code YY is a counterparty registry. For the purposes of the transaction tests, the ITL Manager will designate for the purposes of testing an appropriate acquiring registry code.

2.3.1 Accept Proposal Web Service Operation

Figure H4: AcceptProposal

<table>
<tr><th>Name</th><th>Value</th></tr>
<tr><td>From</td><td>ZZ when coming from the registry,
ITL when messages are forwarded onto ZZ.</td></tr>
<tr><td>To</td><td>ITL when coming from ZZ,
ZZ when the ITL is forwarding a message onto ZZ.</td></tr>
<tr><td>Major Version</td><td>Major Version number of the DES.</td></tr>
<tr><td>Minor Version</td><td>Minor Version number of the DES.</td></tr>
<tr><td>Proposed Transaction</td><td>
<table>
<tr><td>Transaction Identifier</td><td>Unique transaction identifier generated by the registry (20 character string). This consists of a registry code concatenated with a unique transaction number. i.e. ZZ113</td></tr>
<tr><td>Transaction Type</td><td>Depends on test</td></tr>
<tr><td>Supplemental Transaction Type</td><td>Optional. Used by example given: STL specific processes.</td></tr>
<tr><td>Transferring Registry Code</td><td>ZZ (YY when ITL is passing external transfer in to ZZ from YY)</td></tr>
<tr><td>Transferring Account Type</td><td>Depends on test</td></tr>
<tr><td>Transferring Account Identifier</td><td>Optional. Used for External Transfers.</td></tr>
<tr><td>Acquiring Registry Code</td><td>YY (ZZ when ITL is passing external transfer into ZZ from YY)</td></tr>
<tr><td>Acquiring Account Type</td><td>Depends on test</td></tr>
<tr><td>Acquiring Account Identifier</td><td>Optional. Used for External Transfers and for cancellation, retirement, and replacement transactions.</td></tr>
<tr><td>Notification Identifier</td><td>Optional. Needed for some Replacement, Cancellation, and All Carry-over transactions.</td></tr>
<tr><td>Unit Block Array</td><td>Repeated for every block in the transaction.
<table>
<tr><td>Unit Block Start</td><td>Depends on test</td></tr>
<tr><td>Unit Block End</td><td>Depends on test</td></tr>
<tr><td>OriginatingRegistry Code</td><td>ZZ</td></tr>
<tr><td>Unit Type</td><td>Depends on test</td></tr>
<tr><td>Supplemental Unit Type</td><td>Optional. Used by STL processes.</td></tr>
</table>
</td></tr>
</table>
</td></tr>
</table>

Original Commitment Period	1
Applicable Commitment Period	1
LULUCF Activity Code (optional)	Code that identifies the type of Project that generated this unit. Optional; only used only used for ERUs.
Project Identifier	Code that identifies the project that generated this unit. Optional; only used for ERU, RMU, CER, lCER, or tCER.
Track	Code that identifier what method was used to convert a unit. Optional; only used for ERUs.
Block Role	Optional. Used only for Replacement. In a replacement transaction, if the unit block is being replaced this value shall be "REP".
Acquiring Account Type	Optional. Only used by STL transactions.
Acquiring Account Identifier	Optional. Only used by STL transactions.
Transferring Account Type	Optional. Only used by STL transactions.
Transferring Account Identifier	Optional. Only used by STL transactions.
Commitment Period Year	Optional. Only used by STL transactions.
Installation Identifier	Optional. Only used by STL transactions.
Expiry Date	Optional. Only for lCER or tCER.

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2.3.2 Accept Notification Web Service Operation

Figure H5: AcceptNotification

<table>
<tr><th>Parameter</th><th>Description</th></tr>
<tr><td>From</td><td>ZZ or ITL</td></tr>
<tr><td>To</td><td>ITL or ZZ</td></tr>
<tr><td>Major Version</td><td>Major Version number of the DES.</td></tr>
<tr><td>Minor Version</td><td>Minor Version number of the DES.</td></tr>
<tr><td>Transaction Identifier</td><td>Identifier used in the proposal for this test</td></tr>
<tr><td>Transaction Status</td><td>Code that indicates the result of the ITL evaluation.</td></tr>
<tr><td>Party Type</td><td>1 if the registry is the Initiating Registry;
2 if the registry is the Acquiring Registry.
Null if the ITL is receiving the message.</td></tr>
<tr><td>Evaluation Result Array</td><td>Array of responses that detail any issues and the unit blocks affected by the issue. The following group of fields is repeated for every response passed.
<table>
<tr><td>Response Code</td><td>0/1</td></tr>
<tr><td>Unit Block Identifiers</td><td>
<table>
<tr><td>Unit Block Start</td><td>Beginning serial number of unit block</td></tr>
<tr><td>Unit Block End</td><td>Ending serial number of unit block</td></tr>
<tr><td>Originating Party Code</td><td>Code for the registry that issued the unit block</td></tr>
</table>
</td></tr>
</table>
</td></tr>
</table>

2.3.3 Accept ITL Notice Web Service Operation

Figure H6: AcceptITLNotice

Parameter	Description
From	ITL
To	ZZ
Major Version	Major Version number of the DES.
Minor Version	Minor Version number of the DES.
Message Content	Content of the message
Message Date	Timestamp of the message
Notification Type	Type of notification
Notification Identifier	Identifier for notification
Notification Status	Status of notification. 1 -Initial; 2 - Incomplete; 3 - Complete
Project Number	Optional; Project associated with notification (Registry/Country code + Project Identifier)
Unit Type	Optional; Type of Unit associated with notification
Target Value	Optional; Number of units. For example, number of units that need to be replaced.
Action Due Date	Optional; Date by which the requirement of the notification must be fulfilled
Unit Block Identifiers	Optional; Unit Blocks associated with the notification. For example, outstanding units which must be either carried over or cancelled.

Unit Block Start	Beginning serial number of unit block
Unit Block End	Ending serial number of unit block
Originating Registry Code	Code for the registry/country that issued the unit block

2.3.4 Reconciliation Confirmation

After each transaction, the ITL will request that the registry provide its current totals by account and unit type, and the current unit block holdings. No option parameters will be specified in the totals request. The unit blocks request will request blocks for the account(s) involved in the transaction. These requests from the ITL and the appropriate data sent by the registry should be comprised of the following parameters.

Figure H7: ProvideTotalsRequest from ITL

Parameter	Description
From	ITL
To	ZZ
Major Version	Major Version number of the DES.
Minor Version	Minor Version number of the DES.
Reconciliation Identifier	Identifier provided by ITL, referenced as XX.
Reconciliation Snapshot DateTime	Current DateTime after last transaction was completed.
Reconciliation Status	1 (initiated)

Note: This request will always look the same.

Figure H8: ReceiveTotalsRequest from Registry

Parameter	Description
From	ZZ
To	ITL
Major Version	Major Version number of the DES.
Minor Version	Minor Version number of the DES.
Reconciliation Identifier	Identifier used by ITL
Totals	For each account type/unit type pair Account Type Account Commit Period — Specified for retirement, cancellation, and replacement accounts; null for other account types. Unit Type Unit Count

Figure H9: ProvideUnitBlocksRequest from ITL

Parameter	Description
From	ITL
To	ZZ
Majo rVersion	Major Version number of the DES.
Minor Version	Minor Version number of the DES.
Reconciliation Identifier	Identifier chosen by ITL, referenced as XX.
Reconciliation Snapshot DateTime	Current DateTime after last transaction was completed.

Figure H10: ReceiveUnitBlocksRequest from Registry

Parameter	Description
From	ZZ
To	ITL
Major Version	Major Version number of the DES.
Minor Version	Minor Version number of the DES.
Reconciliation Identifier	Identifier used by ITL
Unit Blocks	For each block Unit Block Start — Beginning serial number of unit block Unit Block End — Ending serial number of unit block Originating Registry Code — Code for the registry/country that issued the unit block Unit Type Account Type Account Identifier — For use by STL Applicable Commitment Period

2.4 Transaction Life Cycle Tests

Each of the following tests call Web service operations identified in Section 2.3. For each test case, the steps describe the execution process of the transaction type. Most transaction Web services will be called multiple times for each test case.

After each transaction test case, there follows a reconciliation test to verify the status of the data. In the relevant parameters section for the reconciliation tests, the reconciliation identifier is always identified as XX and the reconciliation snapshot date to be the current date and time plus 1 hour (now()). All transaction-specific tests within each category must be completed before proceeding to the next category of tests.

Unless otherwise specified, the original and applicable Commitment Periods for all units will be 1.

2.4.1 Issuance

Steps**:**

1. The registry will propose an issuance transaction (Transaction Type 1).

2. The registry will submit the proposal to the ITL's AcceptProposal, and verify that it receives a response indicating that the proposal was received.

3. The ITL should call the registry's AcceptNotification method to notify the registry whether the proposal is approved or rejected. The ITL will verify that it receives a response indicating that the notification was received.

4. On receiving this notification, the registry will finalise the transaction in its database or terminate the transaction depending on the notification received from the ITL.

5. The registry will then call the ITL's AcceptNotification method to notify the ITL of its result.

Test ID	120
Description	
Issue 500 AAUs to Holding Account	
Relevant Parameters	
Transferring Registry Code	ZZ
Acquiring Registry Code	ZZ
Acquiring Account Type	100 (Holding Account)
Unit Serial Block Start	1
Unit Serial Block End	500
Originating Registry Code	ZZ
Unit Type	1
Expected Result	
500 AAUs successfully issued to Holding Account of registry ZZ. The ITL's notification to the registry should include a Transaction Status Code of 2 (Checked, No Discrepancy). The registry's notification to the ITL should include a Transaction Status Code of 4 (Completed).	

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Test ID	121
Description	
Issue 100 RMUs to Holding Account of registry ZZ	
Relevant Parameters	
Transferring Registry Code	ZZ
Acquiring Registry Code	ZZ
Acquiring Account Type	100
Unit Serial Block Start	501
Unit Serial Block End	600
Originating Registry Code	ZZ
Unit Type	2
LULUCF Activity	1
Expected Result	
100 RMUs successfully issued to Holding Account. The ITL's notification to the registry should include a Transaction Status Code of 2 (Checked, No Discrepancy). The registry's notification to the ITL should include a Transaction Status Code of 4 (Completed).	

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Test ID	122
Description	
Issue 500 AAUs to Holding Account.	
Relevant Parameters	
Transferring Registry Code	ZZ
Acquiring Registry Code	ZZ
Acquiring Account Type	100
Unit Serial Block Start	601
Unit Serial Block End	1100
Originating Registry Code	ZZ
Unit Type	1
Expected Result	
500 AAUs successfully issued to Holding Account of registry ZZ. The ITL's notification to the registry should include a Transaction Status Code of 2 (Checked, No Discrepancy).	

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Test ID	123
Description	
ITL Request Totals	
Relevant Parameters	
Reconciliation Identifier	XX
Reconciliation Snapshot DateTime	Now ()
Expected Result	
accountType unitType unitCount	100 1 1000
accountType unitType unitCount	100 2 100

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Test ID	124
Description	
ITL Request Unit Blocks	
Relevant Parameters	
Reconciliation Identifier	XX
Reconciliation Snapshot DateTime	Now ()
Expected Result	
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType Applicable CommitmentPeriod	1 500 ZZ 1 100 1
unitSerialBlockStart501 unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	501 600 ZZ 2 100 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	600 1100 ZZ 1 100 1

2.4.2 Conversion

Steps:

1. The registry will propose a conversion transaction (Transaction Type 2). Note that the unit type specified should be the resulting unit type, not the current unit type.

2. The registry will submit the proposal to the ITL's AcceptProposal, and verify that it receives a response indicating that the proposal was received.

3. The ITL should call the registry's AcceptNotification method to notify the registry whether the proposal is approved or rejected. The ITL will verify that it receives a response indicating that the notification was received.

4. On receiving this notification, the registry will finalise the transaction in its database or terminate the transaction depending on the notification received from the ITL.

5. The registry will then call the ITL's AcceptNotification method to notify the ITL of its result.

Test ID	130
Description	
Convert 100 of Holding Account's AAUs into ERUs.	
Relevant Parameters	
Transferring Registry Code	ZZ
Transferring Account Type	100
Acquiring Registry Code	ZZ
Unit Serial Block Start	1
Unit Serial Block End	100
Project ID	221
Originating Registry Code	ZZ
Unit Type	3
Track	2
Expected Result	
AAUs with serial numbers 1-100 should be successfully converted into ERUs. The ITL's notification to the registry should include a Transaction Status Code of 2 (Checked, No Discrepancy). The registry's notification to the ITL should include a Transaction Status Code of 4 (Completed).	

Test ID	131
Description	
ITL Request Totals	
Relevant Parameters	
Reconciliation Identifier	XX
Reconciliation Snapshot DateTime	Now ()
Expected Result	
accountType accountCommitPeriod unitType unitCount	100 null 1 900
accountType accountCommitPeriod unitType unitCount	100 null 2 100
accountType accountCommitPeriod unitType unitCount	100 null 3 100

Test ID	132
Description	
ITL Request Unit Blocks	
Relevant Parameters	
Reconciliation Identifier	XX
Reconciliation Snapshot DateTime	Now ()
Expected Result	
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	1 100 ZZ 3 100 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	101 500 ZZ 1 100 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	501 600 ZZ 2 100 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	600 1100 ZZ 1 100 1

2.4.3 External Transfer

Steps:

When the registry is initiating the transfer:

1. The registry will propose an External transfer transaction (Transaction Type 3).

2. The registry will submit the proposal to the ITL's AcceptProposal, and verify that it receives a response indicating that the proposal was received.

3. The ITL would then call the third party registry's (YY) AcceptProposal method and YY should call the ITL's AcceptNotification method after processing the proposal. For the purposes of testing, the ITL will assume that YY has acted appropriately and go directly to step 4.

4. The ITL should call the registry's (ZZ) AcceptNotification method to notify the registry whether the proposal is approved or rejected. The ITL will verify that it receives a response indicating that the notification was received.

5. On receiving this notification, the registry (ZZ) will finalise the transaction in its database or terminate the transaction depending on the notification received from the ITL.

6. The registry will then call the ITL's AcceptNotification method to notify the ITL of its result.

When the registry is the Acquiring Registry Code:

1. For purposes of testing, the ITL will generate proposals and pass them to the registry being tested as if it had received them from a third party.

2. The ITL will call the registry's AcceptProposal method and the registry should call the ITL's AcceptNotification method after processing the proposal.

3. The ITL would notify the third party that the proposal was accepted, and finalise the transaction upon receiving confirmation that the third party had finalised the transaction.

Test ID	150
Description	
Transfer 100 AAUs to an external third party (holding account of country YY). YY agrees to the transaction.	
Relevant Parameters	
Transferring Registry Code	ZZ
Transferring Account Type	100
Transferring Account ID	2
Acquiring Registry Code	YY
Acquiring Account Type	100
Acquiring Account ID	8888
Unit Serial Block Start	601
Unit Serial Block End	700
Originating Registry Code	ZZ
Unit Type	1
Expected Result	
Holding Account #2's AAUs with serial numbers 601-700 should be successfully transferred to the holding account of external registry YY, holding account 8888. The ITL's notification to the registry should include a Transaction Status Code of 2 (Checked, No Discrepancy). (Communications with YY are hidden from ZZ). The registry's notification to the ITL should include a Transaction Status Code of 4 (Completed).	

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Test ID	151
Description	
YY has proposed a transaction transferring the same 100 AAUs back to the ZZ registry.	
Relevant Parameters	
Transferring Registry Code	YY
Transferring Account Type	100
Transferring Account ID	8888
Acquiring Registry Code	ZZ
Acquiring Account Type	100
Acquiring Account ID	2
Unit Serial Block Start	601
Unit Serial Block End	700
Originating Registry Code	ZZ
Unit Type	1
Expected Result	
YY's AAUs with serial numbers 601-700 should be successfully transferred back to national registry ZZ. After receiving the AcceptProposal call, the Acquiring Registry Code (ZZ) should send an acknowledgement that it has received the proposal. ZZ approves the transaction and finalises it in the database. The acquiring registry's notification to the ITL should include a Transaction Status Code of 4 (Completed).	

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Test ID	152
Description	
Transfer 100 of Holding Account's AAUs to an external third party holding account of country YY. YY rejects the transaction.	
Relevant Parameters	
Transferring Registry Code	ZZ
Transferring Account Type	100
Transferring Account ID	2
Acquiring Registry Code	YY
Acquiring Account Type	100
Acquiring Account ID	8888
Unit Serial Block Start	601
Unit Serial Block End	700
Originating Registry Code	ZZ
Unit Type	1
Expected Result	
This time after the registry proposes the transaction, the ITL will send notification indicating that registry YY has rejected the proposal. The notification will have transaction status 6 (Rejected). The registry should terminate the transaction, sending notification to the ITL that it has been done. The notification will have transaction status 5 (Terminated).	

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Test ID	153
Description	
The ITL receives from the CDM ICERs to transfer to the registry.	
Relevant Parameters	
Transferring Registry Code	CDM
Transferring Account Type	110
Transferring Account ID	Null
Acquiring Registry Code	ZZ
Acquiring Account Type	100
Acquiring Account ID	2
Unit Serial Block Start	2001
Unit Serial Block End	2050
Originating Registry Code	YY (country of project location)
LULUCF Activity	1
Project ID	12
Expiry Date	January 1 2028
Unit Type	7
Expected Result	
The CDM transfers ICERs with serial numbers 2001-2050 to the Holding Account in ZZ. After receiving the AcceptProposal call, the Acquiring Registry Code (ZZ) sends an acknowledgement that it has received the proposal. ZZ approves the transaction and finalises it in the database. The acquiring registry's notification to the ITL should include a Transaction Status Code of 4 (Completed).	

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Test ID	154
Description	
The ITL receives from the CDM tCERs to transfer to the registry.	
Relevant Parameters	
Transferring Registry Code	CDM
Transferring Account Type	110
Transferring Account ID	3
Acquiring Registry Code	ZZ
Acquiring Account Type	100
Acquiring Account ID	2
Unit Serial Block Start	3001
Unit Serial Block End	3050
Originating Registry Code	YY (country of project location)
Project ID	15
LULUCF Activity	1
Expiry Date	December 31 2017
Unit Type	6
Expected Result	
The CDM transfers tCERs with serial numbers 3001-3050 to the Holding Account in ZZ. After receiving the AcceptProposal call, the Acquiring Registry Code (ZZ) sends an acknowledgement that it has received the proposal. ZZ approves of the transaction and finalises it in the database. The acquiring registry's notification to the ITL should include a Transaction Status Code of 4 (Completed).	

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Test ID	155
Description	
ITL Request Totals	
Relevant Parameters	
No parameters specified.	
Expected Result	
accountType accountCommitPeriod unitType unitCount	100 1 1 900
accountType accountCommitPeriod unitType unitCount	100 1 2 100
accountType accountCommitPeriod unitType unitCount	100 1 3 100
accountType accountCommitPeriod unitType unitCount	100 1 7 50
accountType accountCommitPeriod unitType unitCount	100 1 6 50

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Test ID	156
Description	
ITL Request Unit Blocks	
Relevant Parameters	
No parameters specified.	
Expected Result	
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	1 100 ZZ 3 100 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	101 200 ZZ 1 100 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	201 300 ZZ 1 100 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	301 500 ZZ 1 100 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	501 600 ZZ 2 100 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	601 700 ZZ 1 100 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	701 1100 ZZ 1 100 1

unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	2001 2050 YY 7 100 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	3001 3050 YY 6 100 1

2.4.4 Cancellation

Steps:

1. The registry will propose a Cancellation transaction (Transaction Type 4).

2. The registry will submit the proposal to the ITL's AcceptProposal, and verify that it receives a response indicating that the proposal was received.

3. The ITL should call the registry's AcceptNotification method to notify the registry whether the proposal is approved or rejected. The ITL will verify that it receives a response indicating that the notification was received.

4. On receiving this notification, the registry will finalise the transaction in its database or terminate the transaction depending on the notification received from the ITL.

5. The registry will then call the ITL's AcceptNotification method to notify the ITL of its result.

Test ID	160
Description	
Holding Account of ZZ will attempt to cancel 100 AAUs	
Relevant Parameters	
Transferring Registry Code	ZZ
Transferring Account Type	100
Acquiring Registry Code	ZZ
Acquiring Account Type	230 (Voluntary Cancellation Account)
Acquiring Account ID	9
Unit Serial Block Start	101
Unit Serial Block End	200
Originating Registry Code	ZZ
Unit Type	1
Expected Result	
AAUs with serial numbers 101-200 should be cancelled (transferred to cancellation account #9) successfully. The ITL's notification to the registry should include a Transaction Status Code of 2 (Checked, No Discrepancy). The registry's notification to the ITL should include a Transaction Status Code of 4 (Completed).	

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Test ID	161
Description	
ITL Request Totals	
Relevant Parameters	
No parameters specified.	
Expected Result	
accountType accountCommitPeriod unitType unitCount	100 Null 1 800
accountType accountCommitPeriod unitType unitCount	100 Null 2 100
accountType accountCommitPeriod unitType unitCount	100 Null 3 100
accountType accountCommitPeriod unitType unitCount	100 Null 7 50
accountType accountCommitPeriod unitType unitCount	100 Null 6 50
accountType accountCommitPeriod unitType unitCount	230 1 1 100

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Test ID	162
Description	
ITL Request Unit Blocks	
Relevant Parameters	
No parameters specified.	
Expected Result	
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	1 100 ZZ 3 100 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	101 200 ZZ 1 230 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	201 300 ZZ 1 100 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	301 500 ZZ 1 100 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	501 600 ZZ 2 100 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	601 700 ZZ 1 100 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	701 1100 ZZ 1 100 1

unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	2001 2050 YY 7 100 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	3001 3050 YY 6 100 1

2.4.5 Retirement

Steps:

1. The registry will propose a Retirement transaction (Transaction Type 5).

2. The registry will submit the proposal to the ITL's AcceptProposal, and verify that it receives a response indicating that the proposal was received.

3. The ITL should call the registry's AcceptNotification method to notify the registry whether the proposal is approved or rejected. The ITL will verify that it receives a response indicating that the notification was received.

4. On receiving this notification, the registry will finalise the transaction in its database or terminate the transaction depending on the notification received from the ITL.

5. The registry will then call the ITL's AcceptNotification method to notify the ITL of its result.

Test ID	170
Description	
Holding Account will retire 100 AAUs	
Relevant Parameters	
Transferring Registry Code	ZZ
Transferring Account Type	100
Acquiring Registry Code	ZZ
Acquiring Account Type	300 (Retirement Account)
Acquiring Account ID	12
Unit Serial Block Start	701
Unit Serial Block End	800
Originating Registry Code	ZZ
ApplicableCommitment Period	1
Unit Type	1
Expected Result	
AAUs with serial numbers 701-800 should be retired (transferred to Retirement account #11) successfully. The ITL's notification to the registry should include a Transaction Status Code of 2 (Checked, No Discrepancy). The registry's notification to the ITL should include a Transaction Status Code of 4 (Completed).	

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Test ID	171
Description	
ITL Request Totals	
Relevant Parameters	
No parameters specified.	
Expected Result	
accountType accountCommitPeriod unitType unitCount	100 Null 1 700
accountType accountCommitPeriod unitType unitCount	100 Null 2 100
accountType accountCommitPeriod unitType unitCount	100 Null 3 100
accountType accountCommitPeriod unitType unitCount	100 Null 7 50
accountType accountCommitPeriod unitType unitCount	100 Null 6 50
accountType accountCommitPeriod unitType unitCount	230 1 1 100
accountType accountCommitPeriod unitType unitCount	300 1 1 100

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Test ID	172
Description	
ITL Request Unit Blocks	
Relevant Parameters	
No parameters specified.	
Expected Result	
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	1 100 ZZ 3 100 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	101 200 ZZ 1 230 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	201 300 ZZ 1 100 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	301 500 ZZ 1 100 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	501 600 ZZ 2 100 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	601 700 ZZ 1 100 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	701 800 ZZ 1 300 1

unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	801 1100 ZZ 1 100 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	2001 2050 YY 7 100 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	3001 3050 YY 6 100 1

2.4.6 Replacement

Steps:

1. Retire lCERs with serial numbers 2001-2050. (The Retirement transaction is described earlier in this document). Verify that this has completed successfully.

2. The ITL will notify the registry that the forest associated with Project 12 was partially destroyed by fire. This message is sent to the registry's AcceptITLNotice method. The message will inform the registry that it must replace 50 lCERs (Originating registry "YY" and Serial numbers 2001-2050), and will specify a notification identifier of 629. This notification will have a status of 1.

3. The registry will propose a Replacement transaction (Transaction Type 6).

4. The registry will submit the proposal to the ITL's AcceptProposal, and verify that it receives a response indicating that the proposal was received.

5. The ITL should call the registry's AcceptNotification method to notify the registry whether the proposal is approved or rejected. The ITL will verify that it receives a response indicating that the notification was received.

6. On receiving this notification, the registry will finalise the transaction in its database or terminate the transaction depending on the notification received from the ITL.

7. The registry will then call the ITL's AcceptNotification method to notify the ITL of its result.

8. The ITL will notify the registry via AcceptITLNotice that they have satisfied this notification. This notice will have a notification identifier of 629 and a status of 3.

Test ID	180
Description	
Holding Account #2 will retire the ICERS	
Relevant Parameters	
Transferring Registry Code	ZZ
Transferring Account Type	100
Acquiring Registry Code	ZZ
Acquiring Account Type	300 (Retirement Account)
Acquiring Account ID	12
Unit Serial Block Start	2001
Unit Serial Block End	2050
Originating Registry Code	YY
Project ID	12
LULUCF Activity	1
Expiry Date	January 1 2028
Unit Type	7
Expected Result	
ICERs with serial numbers 2001-2050 should be retired (transferred to Retirement account #11) successfully. The ITL's notification to the registry should include a Transaction Status Code of 2 (Checked, No Discrepancy). The registry's notification to the ITL should include a Transaction Status Code of 4 (Completed).	

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Test ID	181
Description	
Receipt of the message through AcceptITLNotice	
Relevant Parameters	
Message Content	A note to the effect that the forest associated with project 12 was partially destroyed by fire and unit associated with it must be replaced.
Message Date	Current DateTime
Notification Type	6
Notification Identifier	629
Notification Status	1
Project Number	YY12
Unit Type	7
Target Value	50
Action Due Date	Current Date + 30 days
Expected Result	
The registry should log the notification, and send a response acknowledging its receipt.	

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Test ID	182
Description	
Replacement transaction	
Relevant Parameters	
Transferring Registry Code	ZZ
Transferring Account Type	100
Acquiring Registry Code	ZZ
Acquiring Account Type	422 (ICER Replacement Account for Reversal in Carbon Storage)
Acquiring Account ID	17
Notification Identifier	629
Unit Serial Block Start	801
Unit Serial Block End	850
Originating Registry Code	ZZ
Unit Type	1
(The AAUs described above will move into the replacement account [type 422, ID 16] "replacing" the ICERs described below)	
Unit Serial Block Start	2001
Unit Serial Block End	2050
Originating Registry Code	YY
Project ID	12
LULUCF Activity	1
Block Role	REP
Expiry Date	January 1 2028
Unit Type	7
Expected Result	
AAUs with serial numbers 801-850 should be transferred to Replacement account #16 successfully, and it will be noted that they are replacing ICERs 2001-2050. The ITL's notification to the registry should include a Transaction Status Code of 2 (Checked, No Discrepancy). The registry's notification to the ITL should include a Transaction Status Code of 4 (Completed).	

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Test ID	183
Description	
ITL Request Totals	
Relevant Parameters	
No parameters specified.	
Expected Result	
accountType accountCommitPeriod unitType unitCount	100 Null 1 650
accountType accountCommitPeriod unitType unitCount	100 Null 2 100
accountType accountCommitPeriod unitType unitCount	100 Null 3 100
accountType accountCommitPeriod unitType unitCount	300 1 7 50
accountType accountCommitPeriod unitType unitCount	100 Null 6 50
accountType accountCommitPeriod unitType unitCount	230 1 1 100
accountType accountCommitPeriod unitType unitCount	300 1 1 100
accountType accountCommitPeriod unitType unitCount	422 Null 1 50

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Test ID	184
Description	
ITL Request Unit Blocks	
Relevant Parameters	
No parameters specified.	
Expected Result	
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	1 100 ZZ 3 100 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	101 200 ZZ 1 230 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	201 300 ZZ 1 100 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	301 500 ZZ 1 100 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	501 600 ZZ 2 100 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	601 700 ZZ 1 100 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	701 800 ZZ 1 300 1

unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	801 850 ZZ 1 422 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	851 1100 ZZ 1 100 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	2001 2050 YY 7 300 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	3001 3050 YY 6 100 1

2.4.7 Carry-over

Steps:

1. The ITL will send the registry a notification (Notification Type 8) through its AcceptITLNotice method alerting it that it has outstanding units. This notification will list the units currently held, and will specify that the registry may carry over all of its eligble units. The ITL would send a notification for each unit type held by the registry in its holding accounts; however this test will focus only on the AAUs.

2. The registry will propose a series of Carry-over transactions (Transaction Type 7). Note that these proposals will include the appropriate notification identifier specified by the ITL for the unit type, and that applicable Commitment Period for the unit blocks will be the new Commitment Period.

3. The registry will submit the proposals to the ITL's AcceptProposal, and verify that it receives a response indicating that each proposal was received.

4. The ITL should call the registry's AcceptNotification method to notify the registry whether the proposal is approved or rejected. The ITL will verify that it receives a response indicating that the notification was received.

5. On receiving this notification, the registry will finalise the transaction in its database or terminate the transaction depending on the notification received from the ITL.

6. The registry will then call the ITL's AcceptNotification method to notify the ITL of its result.

7. After the series of transactions has been performed, the ITL will send the registry a second notice confirming that the requirements of the notification have been fulfilled.

Testing the Carry-over transaction will require coordination with the ITL Manager. A standard day and window of time should be chosen during which the ITL will change its date to the next Commitment Period. This Carry-over transaction test should be executed during this set window of time. The ITL Manager will inform all registries testing against the ITL that this will occur.

<table>
<tr><td>Test ID</td><td colspan="2">190</td></tr>
<tr><td colspan="3">Description</td></tr>
<tr><td colspan="3">ITL will send and AcceptITLNotice notification to the registry for its AAUs.</td></tr>
<tr><td colspan="3">Relevant Parameters</td></tr>
<tr><td>Message Content</td><td colspan="2">A note to the effect that units listed are outstanding and must be either cancelled or carried over.</td></tr>
<tr><td>Message Date</td><td colspan="2">Current DateTime</td></tr>
<tr><td>Notification Type</td><td colspan="2">8</td></tr>
<tr><td>Notification Identifier</td><td colspan="2">590</td></tr>
<tr><td>Notification Status</td><td colspan="2">1 (initial notification)</td></tr>
<tr><td>Target Value</td><td colspan="2">650</td></tr>
<tr><td>Action Due Date</td><td colspan="2">Current Date + 30 days</td></tr>
<tr><td>Unit Blocks</td><td colspan="2"><table>
<tr><td>unitSerialBlockStart
unitSerialBlockEnd
originatingRegistryCode</td><td>201
300
ZZ</td></tr>
<tr><td>unitSerialBlockStart
unitSerialBlockEnd
originatingRegistryCode</td><td>301
500
ZZ</td></tr>
<tr><td>unitSerialBlockStart
unitSerialBlockEnd
originatingRegistryCode</td><td>601
700
ZZ</td></tr>
<tr><td>unitSerialBlockStart
unitSerialBlockEnd
originatingRegistryCode</td><td>851
1100
ZZ</td></tr>
</table></td></tr>
<tr><td colspan="3">Expected Result</td></tr>
<tr><td colspan="3">The registry should log the notification, and send a response acknowledging its receipt.</td></tr>
</table>

Test ID	191
Description	
Holding Account of ZZ will carry the following AAUs into the next Commitment Period.	
Relevant Parameters	
Transferring Registry Code	ZZ
Transferring Account Type	100
Acquiring Registry Code	ZZ
Notification Identifier	590
Unit Serial Block Start	301
Unit Serial Block End	500
Originating Registry Code	ZZ
Unit Type	1
Applicable Commitment Period	2
Expected Result	
AAUs with serial numbers 301-500 should be carried over into the next Commitment Period. The ITL's notification to the registry should include a Transaction Status Code of 2 (Checked, No Discrepancy). The registry's notification to the ITL should include a Transaction Status Code of 4 (Completed).	

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Test ID	192
Description	
Holding Account ZZ will attempt to carry the following RMUs into the next Commitment Period.	
Relevant Parameters	
Transferring Registry Code	ZZ
Transferring Account Type	100
Acquiring Registry Code	ZZ
Notification Identifier	590
Unit Serial Block Start	501
Unit Serial Block End	600
Originating Registry Code	ZZ
Unit Type	2
Expected Result	
Holding Account #1's RMUs with serial numbers 501-600 should **not** be carried over into the next Commitment Period, as RMUs are not eligble for carry over. The ITL's notification to the registry should include a Transaction Status Code of (Checked, Discrepancy). Response code returned is 5051. The registry's notification to the ITL should include a Transaction Status Code of Terminated.	

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Test ID	193
Description	
Holding Account of ZZ will attempt to carry the remaining AAUs over into the next Commitment Period.	
Relevant Parameters	
Transferring Registry Code	ZZ
Transferring Account Type	100
Acquiring Registry Code	ZZ
Notification Identifier	590
Unit Serial Block Start	601
Unit Serial Block End	700
Originating Registry Code	ZZ
Unit Type	1
Applicable Commitment Period	2
Unit Serial Block Start	851
Unit Serial Block End	1100
Originating Registry Code	ZZ
Unit Type	1
Applicable Commitment Period	2
Unit Serial Block Start	201
Unit Serial Block End	300
Originating Registry Code	ZZ
Unit Type	1
Applicable Commitment Period	2
Expected Result	
AAUs with serial numbers 201-300, 601-700 and 851-1100 should be carried over into the next Commitment Period. The ITL's notification to the registry should include a Transaction Status Code of 2 (Checked, No Discrepancy). The registry's notification to the ITL should include a Transaction Status Code of 4 (Completed).	

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Test ID	194
Description	
ITL will send an updated AcceptITLNotice notification to the registry.	
Relevant Parameters	
Message Content	A note to the effect that units listed are outstanding and must be either cancelled or carried-over.
Message Date	Current DateTime
Notification Type	8
Notification Identifier	589
Notification Status	3 (complete notification)
Target Value	0
Action Due Date	Current Date + 30 days
Expected Result	
The registry should log the notification, and send a response acknowledging its receipt.	

Test ID	195
Description	
ITL Request Totals	
Relevant Parameters	
No parameter specified.	
Expected Result	
There should be no change from the previous call to Request Totals.	

Test ID	196
Description	
ITL Request Unit Blocks	
Relevant Parameters	
No parameter specified.	
Expected Result	
There should be no change from the previous call to Request Unit Blocks.	

2.4.8 Expiry Date Change

Steps:

1. The registry will propose an Expiry Date Change transaction (Transaction Type 8).

2. The registry will submit the proposal to the ITL's AcceptProposal, and verify that it receives a response indicating that the proposal was received.

3. The ITL should call the registry's AcceptNotification method to notify the registry whether the proposal is approved or rejected. The ITL will verify that it receives a response indicating that the notification was received.

4. On receiving this notification, the registry will finalise the transaction in its database or terminate the transaction depending on the notification received from the ITL.

5. The registry will then call the ITL's AcceptNotification method to notify the ITL of its result.

Test ID	201
Description	
The registry will extend the expiry date on the tCERs.	
Relevant Parameters	
Transferring Registry Code	ZZ
Transferring Account Type	100
Acquiring Registry Code	ZZ
Unit Serial Block Start	3001
Unit Serial Block End	3050
Originating Registry Code	YY
Project ID	15
Expiry Date	January 1 2018
Unit Type	6
Expected Result	
tCERs 3001-3050 will have their expiry date changed to January 1, 2018. The ITL's notification to the registry should include a Transaction Status Code of 2 (Checked, No Discrepancy). The registry's notification to the ITL should include a Transaction Status Code of 4 (Completed).	

Test ID	202
Description	
ITL Request Totals	
Relevant Parameters	
No parameter specified.	
Expected Result	
There should be no change from the previous call to Request Totals.	

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Test ID	203
Relevant Parameters	
No parameter specified.	
Description	
ITL Request Unit Blocks	
Expected Result	
There should be no change from the previous call to Request Unit Blocks.	

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3. Reconciliation Tests

3.1 Overview

The following suite of tests will check that the registry can properly respond to the requests for information that may be asked of it during reconciliation. The ITL and registry will choose a timestamp for reconciliation. Then the ITL will issue calls to the registry's provideTotals, provideUnitBlocks and provideAuditTrail methods, and the registry will respond by passing the requested information to the ITL's receiveTotals, receiveUnitBlocks and receiveAuditTrail methods as appropriate.

3.1.1 Account Data

After the transaction tests in Section 2 have been performed, the accounts should contain the following:

Figure H11: Test Account Holdings

Account Type	Account Identifier	Holdings			
		Unit Type	Serial numbers	Quantity	Applicable Commitment Period
100 (Holding Account)		AAU (1)	301-500 201-300 601-700 851-1100	650	2
		RMU (2)	501-600	100	1
		ERU (3)	1-100	100	1
		tCER (6)	3001-3050	50	1
110 (Pending Account)				0	
110 (Pending Account)				0	
120 (Operator Holding Account)				0	
121 (Person Holding Account)				0	
210 (Net Source Cancellation Account)	7			0	
220 (Non-compliance Cancellation Account)	8			0	
230 (Voluntary Cancellation Account)	9	AAU (1)	101-200	100	1
240 (Excess Issuance Cancellation Account)	10			0	

(cont.)

Figure H11: Test Account Holdings (cont.)

Account Type	Account Identifier	Holdings			
		Unit Type	Serial numbers	Quantity	Applicable Commitment Period
250 (Mandatory Cancellation Account)	11			0	
300 (Retirement Account)	12	AAU (1)	701-800	100	1
		ICER (7)	2001-2050	50	1
411 (tCER Replacement Account for Expiry)	13			0	
421 (lCER Replacement Account for Expiry)	14			0	
422 (lCER Replacement Account for Reversal in Carbon Storage)	15	AAU (1)	801-850	50	1
423 (lCER Replacement Account for Failure to Submit Certification Report)	16			0	

3.2 Reconciliation Tests

All of these tests involve calling Web service methods. For each test case, the steps describe the execution process of the test. Most reconciliation Web services will be called multiple times for each test case, varying the optional parameters used.

3.2.1 Initiate Reconciliation

This test will consist of the ITL sending a request to the registry's initiateReconciliation method as it would when beginning the reconciliation process. This call specifies the timestamp for the snapshot and the reconciliation identifier. Figure H12 describes the parameters this method accepts.

Figure H12: InitiateReconcilation Method

Name	Value
From	ITL
To	ZZ
Major Version	Major Version number of the DES.

(cont.)

Figure H12: InitiateReconcilation Method (cont.)

Name	Value
Minor Version	Minor Version number of the DES.
Reconciliation Identifier	Identifier chosen by ITL referenced as XX.
Snapshot DateTime	Timestamp agreed upon

Steps:

1. The ITL will send a request to the registry's initiateReconciliation method.
2. The registry's response will acknowledge receipt of the request.

Test ID	300
Description	
ITL Initiate Reconcilation	
Relevant Parameters	
Reconciliation Identifier	XX
Reconciliation Snapshot DateTime	Now ()
Expected Result	
The registry should send a response acknowledging receipt of the request, and prepare the snapshot to be used in the susequent reconciliation calls.	

3.2.2 Requests for Totals

These tests will consist of the ITL sending a request to the registry's provideTotals method, and the registry sending the requested information to the ITL's receiveTotals method. Figures H13 and H14 describe the parameters these methods accept.

Figure H13: ProvideTotals Method

Name	Value
From	ITL
To	ZZ
Major Version	Major Version number of the DES.

(cont.)

Figure H13: ProvideTotals Method (cont.)

Name	Value
Minor Version	Minor Version number of the DES.
Reconciliation Identifier	Identifier chosen by ITL referenced as XX.
Reconciliation Snapshot DateTime	Timestamp agreed upon
Reconciliation Status	1
Unit Type	Optional. Return only totals for units of this type.
Supplemental Unit Type	Optional. Return only totals for units of this supplemental unit type
Account Commit Period	Optional. Requests totals for retirement, cancellation, and replacement accounts be returned for the accounts associated with the specified commit period.
Account Type	Optional. Return only totals for units in this type of account
ByAccountFlag	Optional. if 1, return totals for individual accounts; if 0 or not specified, aggregate account totals by account type. Used only for supplementary programs.
Response Codes	Optional. Used to convey information about the inconsistencies which prompted this request.

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Figure H14: ReceiveTotals Method

Name	Value
From	ZZ when coming from the registry, ITL when messages are forwarded onto ZZ.
To	ITL when coming from ZZ, ZZ when the ITL is forwarding a message onto ZZ.
Major Version	Major Version number of the DES.
Minor Version	Minor Version number of the DES.
Reconciliation Identifier	Identifier chosen by ITL referenced as XX.
Totals	Repeated as needed

Account Type	
Account Identifier	Optional; only used when byAccountFlag was set to 1
Account Commit Period	Specified for retirement, cancellation, and replacement accounts. Not for other account types.
Unit Type	
Supplemental Unit Type	Optional
Unit Count	

Steps:

1. The ITL will send a request for totals to the registry's provideTotals method. The values passed in the optional parameters will be described in each case.

2. The registry will provide the requested totals to the ITL's receiveTotals method.

Test ID	301
Description	
ITL Request Totals	
Relevant Parameters	
Reconciliation Identifier	XX
Reconciliation Snapshot DateTime	Now ()
Expected Result	
The registry should return the following totals:	
accountType accountCommitPeriod unitType unitCount	100 Null 1 650
accountType accountCommitPeriod unitType unitCount	100 Null 2 100
accountType accountCommitPeriod unitType unitCount	100 Null 3 100
accountType accountCommitPeriod unitType unitCount	100 Null 6 50
accountType account commit period unitType unitCount	230 1 1 100
accountType account commit period unitType unitCount	300 1 1 100
accountType account commit period unitType unitCount	300 1 7 50
accountType unitType unitCount	422 1 50

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Test ID	302
Description	
The ITL will request totals for a specific unit type	
Relevant Parameters	
Unit Type	1
Expected Result	
The registry should return the following totals:	
accountType accountCommitPeriod unitType unitCount	100 Null 1 650
accountType accountCommitPeriod unitType unitCount	230 1 1 100
accountType accountCommitPeriod unitType unitCount	300 1 1 100
accountType accountCommitPeriod unitType unitCount	422 1 1 50

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Test ID	303
Description	
The ITL will request totals for a specific account type	
Relevant Parameters	
Account Type	100
Expected Result	
The registry should return the following totals:	
accountType accountCommitPeriod unitType unitCount	100 Null 1 650
accountType accountCommitPeriod unitType unitCount	100 Null 2 100
accountType accountCommitPeriod unitType unitCount	100 Null 3 100
accountType accountCommitPeriod unitType unitCount	100 Null 6 50

3.2.3 Requests for Unit Blocks

These tests will consist of the ITL sending a request to the registry's provideUnitBlocks method, and the registry sending the requested information to the ITL's receiveUnitBlocks method. Figures H15 and H16 describe the parameters these methods accept.

565 **Figure H15: ProvideUnitBlocks method**
566

Name	Value
From	ITL
To	ZZ
Major Version	Major Version number of the DES.
Minor Version	Minor Version number of the DES.
Reconciliation Identifier	Identifier chosen by ITL referenced by XX.
Reconciliation Snapshot DateTime	Timestamp agreed upon
Accounts	Repeated as Needed Account Identifier: Optional Unit Type: Optional; Return only units of this type Supplemental Unit Type: Optional. Return only units of this supplemental unit type Account Type: Optional. Return only units in this type of account Account Commit Period: Optional. Return unit blocks from retirement, cancellation, and replacement accounts associated with this commit
Response Codes	Optional. Used to convey information about the inconsistencies which prompted this request.

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Figure H16: ReceiveUnitBlocks method

Name	Value
From	ZZ
To	ITL
Major Version	Major Version number of the DES.
Minor Version	Minor Version number of the DES.
Reconciliation Identifier	Identifier chosen by ITL referenced by XX.
Unit Blocks	Repeated as needed

Unit Block Start	Depends on test
Unit Block End	Depends on test
Originating Registry Code	Depends on test
Unit Type	Depends on test
Supplemental Unit Type	Optional; Depends on test
Account Type	Depends on test
Account Identifier	Optional; Used by STL Processes
Applicable Commitment Period	Depends on test

Steps:

1. The ITL will send a request for totals to the registry's provideUnitBlocks method. The values passed in the optional parameters will be described in each case.

2. The registry will provide the requested unit blocks to the ITL's receiveUnitBlocks method.

Test ID	330
Description	
ITL will request all unit blocks.	
Relevant Parameters	
No optional parameters will be specified	
Expected Result	
The registry should return the following unit blocks:	
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	301 500 ZZ 1 100 2
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	501 600 ZZ 2 100 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	1 100 ZZ 3 100 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	201 300 ZZ 1 100 2
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	601 700 ZZ 1 100 2
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	851 1100 ZZ 1 100 2
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	3001 3050 YY 6 100 1

unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	101 200 ZZ 1 230 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	701 800 ZZ 1 300 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	2001 2050 YY 7 300 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	801 850 ZZ 1 422 1

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Test ID	331
Description	
The ITL will request unit blocks for a specific unit type	
Relevant Parameters	
Unit Type	1
Expected Result	
The registry should return the following unit blocks:	
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	301 500 ZZ 1 100 2
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	201 300 ZZ 1 100 2
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	601 700 ZZ 1 100 2
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	851 1100 ZZ 1 100 2
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	101 200 ZZ 1 230 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	701 800 ZZ 1 300 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	801 850 ZZ 1 422 1

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Test ID	332
Description	
The ITL will request unit blocks for a specific account type	
Relevant Parameters	
Account Type	100
Expected Result	
The registry should return the following unit blocks:	
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	301 500 ZZ 1 100 2
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	501 600 ZZ 2 100 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	1 100 ZZ 3 100 1
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	201 300 ZZ 1 100 2
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	601 700 ZZ 1 100 2
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	851 1100 ZZ 1 100 2
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType AccountType ApplicableCommitmentPeriod	3001 3050 YY 6 100 1

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3.2.4 Requests for Audit Trails

These tests will consist of the ITL sending a request to the registry's provideAuditTrail method, and the registry sending the requested transaction information to the ITL's receiveAuditTrail method. Figures H17 and H18 describe the parameters these methods accept.

Figure H17: ProvideAuditTrail method

Name	Value
From	ITL
To	ZZ
Major Version	Major Version number of the DES.
Minor Version	Minor Version number of the DES.
Reconciliation Identifier	Identifier chosen by ITL
Audit Trail Begin DateTime	Start Date for transaction history. For testing, this will be a timestamp before transaction testing began.
Audit Trail End DateTime	End Date for transaction history. For testing, this will be a timestamp after transaction testing ended.
Account Type	Optional
Account Identifier	Optional
Account Commit Period	Optional. Return audit trail for retirement, cancellation, and replacement accounts associated with this commit period.
Unit Type	Optional
Supplemental Unit Type	Optional
Unit Block Identifiers	Optional – repeated for each unit block requested Unit Block Start Unit Block End Originating Registry Code
Response Codes	Optional. Used to convey information about the inconsistencies which prompted this request.

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Name	Value
From	ZZ
To	ITL
Major Version	Major Version number of the DES.
Minor Version	Minor Version number of the DES.
Reconciliation Identifier	Identifier chosen by ITL referenced by XX.
Transactions	

Transaction Identifier	Unique transaction identifier generated by the registry (20 character string). This consists of a registry code concatenated with a unique transaction number. i.e. ZZ113
Transaction Type	Depends on test
Supplemental Transaction Type	Optional. Used by STL specific processes.
Transferring Registry Code	ZZ (YY when ITL is passing external transfer in to ZZ from YY)
Transferring Account Type	Depends on test
Transferring Account Identifier	Optional. Used in External Transfers.
Acquiring Registry Code	Optional. Only used for External Transfers.
Acquiring Account Type	Optional. Only used for External Transfers.
Acquiring Account Identifier	Optional. Used in External Transfers. Also used to identify Cancellation, Retirement, and Replacement accounts..
Notification Identifier	Optional. Needed for Replacement test.
Unit Block Array	Repeated for every block in the transaction.

Unit Block Start	Depends on test
Unit Block End	Depends on test
OriginatingRegistry Code	Depends on test
Unit Type	Depends on test
Supplemental Unit Type	Optional. Used by STL processes.
Original Commitment Period	1

Applicable Commitment Period	Depends on test
LULUCF Activity Code (optional)	Code that identifies the type of Project that generated this unit. Optional; only used only used for ERUs.
Project Identifier	Code that identifies the project that generated this unit. Optional; only used for ERU, RMU, CER, lCER, or tCER.
Track	Code that identifier what method was used to convert a unit. Optional; only used for ERUs.
Block Role	Optional. Used only for Replacement. In a replacement transaction, if the unit block is being replaced this value shall be "REP."
Acquiring Account Type	Optional. Only used by STL transactions.
Acquiring Account Identifier	Optional. Only used by STL transactions.
Transferring Account Type	Optional. Only used by STL transactions.
Transferring Account Identifier	Optional. Only used by STL transactions.
Commitment Period Year	Optional. Only used by STL transactions.
Installation Identifier	Optional. Only used by STL transactions.
Expiry Date	Optional. Only for lCER or tCER.

Steps:

1. The ITL will send a request for totals to the registry's provideAuditTrail method. The values passed in the optional parameters will be described in each case.

2. The registry will provide the requested transactions to the ITL's receiveAuditTrail method.

Test ID	360
Description	
The ITL request the audit trail for a specific unit type	
Relevant Parameters	
Unit Type	2
Expected Result	
The registry should return the following transactions:	
transactionIdentifier transactionType transactionStatusDateTime transferringRegistryIdentifier acquiringRegistryIdentifier acquiringRegistryAccountType acquiringRegistryAccountIdentifier	ZZ121 1 DateTime test 121 was completed ZZ ZZ 100 1
transactionBlocks	
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType originalCommitPeriod applicableCommitPeriod	501 600 ZZ 1 1 1
transactionIdentifier transactionType transactionStatusDateTime transferringRegistryIdentifier acquiringRegistryIdentifier acquiringRegistryAccountType acquiringRegistryAccountIdentifier	ZZ182 1 DateTime test 182 was completed ZZ 100 1
transactionBlocks	
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType originalCommitPeriod applicableCommitPeriod	501 600 ZZ 1 1 1

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Test ID	361
Description	
The ITL request the audit trail for a specific accountType	
Relevant Parameters	
Account Type	300
Expected Result	
The registry should return the following transactions:	
transactionIdentifier transactionType transactionStatusDateTime transferringRegistryIdentifier transferringRegistryAccountType transferringRegistryAccountIdentifier acquiringRegistryIdentifier acquiringRegistryAccountType acquiringRegistryAccountIdentifier	ZZ170 5 DateTime test 170 was completed ZZ 100 2 ZZ 300 11
transactionBlocks	
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType originalCommitPeriod applicableCommitPeriod	701 800 ZZ 1 1 1
transactionIdentifier transactionType transactionStatusDateTime transferringRegistryIdentifier transferringRegistryAccountType transferringRegistryAccountIdentifier acquiringRegistryIdentifier acquiringRegistryAccountType acquiringRegistryAccountIdentifier	ZZ190 5 DateTime ICERS were retired in test 190 ZZ 100 2 ZZ 300 11
transactionBlocks	
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType originalCommitPeriod applicableCommitPeriod projectIdentifier expiryDate	2001 2050 YY 7 1 1 12 January 1 2028

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Test ID	362
Description	
The ITL request the audit trail for a specific unit block	
Relevant Parameters	
Unit Block Start	701
Unit Block End	800
Originating Registry Code	ZZ
Expected Result	
The registry should return the following transactions:	
transactionIdentifier transactionType transactionStatusDateTime transferringRegistryIdentifier acquiringRegistryIdentifier acquiringRegistryAccountType acquiringRegistryAccountIdentifier	ZZ122 1 DateTime test 122 was completed ZZ ZZ 100 2
transactionBlocks	
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType originalCommitPeriod applicableCommitPeriod	601 1100 ZZ 1 1 2
transactionIdentifier transactionType transactionStatusDateTime transferringRegistryIdentifier transferringRegistryAccountType transferringRegistryAccountIdentifier acquiringRegistryIdentifier acquiringRegistryAccountType acquiringRegistryAccountIdentifier	ZZ170 5 DateTime test 170 was completed ZZ 100 2 ZZ 300 11
transactionBlocks	
unitSerialBlockStart unitSerialBlockEnd originatingRegistryCode unitType originalCommitPeriod applicableCommitPeriod	701 800 ZZ 1 1 1

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