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| Elhub  Test Plan System Vendor Trial |



**Version 4.1**

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Table of Content

[1 Introduction 2](#_Toc488842811)

[1.1 Change log 2](#_Toc488842812)

[2 Definitions 2](#_Toc488842813)

[3 Purpose 3](#_Toc488842814)

[3.1 Test basis 3](#_Toc488842815)

[4 Test approach 3](#_Toc488842816)

[4.1 Test round 1 4](#_Toc488842817)

[4.2 Test round 2 4](#_Toc488842818)

[4.3 Test round 3 4](#_Toc488842819)

[4.4 Test round 4 4](#_Toc488842820)

[5 Test scope 4](#_Toc488842821)

[5.1 BRS overview 4](#_Toc488842822)

[6 Test data 6](#_Toc488842823)

[7 Test environments 6](#_Toc488842824)

[8 Participants 6](#_Toc488842825)

[9 Test execution 7](#_Toc488842826)

[9.1 Participants per test round 7](#_Toc488842827)

[9.2 BRS’es for Test round 1 7](#_Toc488842828)

[9.3 BRS’es for Test round 2 8](#_Toc488842829)

[9.4 BRS’es for Test round 3 8](#_Toc488842830)

[9.5 BRS’es for Test round 4 9](#_Toc488842831)

[10 Deliverables 9](#_Toc488842832)

[11 Entry criteria’s / prerequisites 9](#_Toc488842833)

[12 Acceptance criteria’s 10](#_Toc488842834)

[13 Roles and responsibilities 10](#_Toc488842835)

[14 Test schedule 11](#_Toc488842836)

[14.1 Test cases for approval to M6 11](#_Toc488842837)

[14.2 Test cases for approval to M7 12](#_Toc488842838)

[15 Test case descriptions 13](#_Toc488842839)

# Introduction

Elhub represents a significant change regarding business processes and message exchange in the electricity market compared to today’s situation. The most obvious is the transition of a many-to-may communication between the parties in the market to a many to one communication with Elhub as a centralized hub in the market.

Elhub will create a more simplified communication structure for the electricity market, but it also implies that all parties must change their business processes and corresponding message exchange.

Elhub also introduces a change in message syntax from Edifact to XML.

Testing that all the systems in the electricity market have implemented Elhub-functionality in the right way is a critical activity. The System Vendor Trial is the first test where the systems vendors can test their systems against Elhub.

This Test Plan describes the test approach, scope and overall schedule for the System Vendor Trial.

## Change log

|  |  |  |
| --- | --- | --- |
| **Date** | **Version** | **Description** |
| 26.07.2017 | 4.1 | Added new vendors in chapter 9.1  Changed chapter 14 according to revised plans. |
| 20.03.2017 | 4.0 | Updated chapter 14 with list of test cases to be approved in Test round 4. |
| 14.02.2017 | 3.1 | Updated with revised list of test cases to be approved for test round 3 (M5) in chapter 14.  Updated Acceptance criteria’s in Chapter 12. |
| 25.11.2016 | 3.0 | Updated for Test round 3 including list of test cases to be approved in each test round in chapter 14. |
| 15.09.2016 | 2.1 | Updated with new dates according to revised Milestone plan. Removed requirement that all system combinations must be involved in the test. |
| 15.07.2016 | 2.0 | Updated for Test round 2 |
| 09.05.2016 | 1.0 | Approved for Test round 1 |
|  |  |  |

# Definitions

|  |  |
| --- | --- |
| **Term** | **Description** |
| System vendors | Suppliers of KIS and MVS and Proxy-systems in the electricity market |
| KIS | Customer information system being the source for market processes |
| MVS | Metering Value system being the source for metering values |
| Proxy | Front-end systems against Elhub communicating with KIS and MVS-systems (also known as EDI-systems or integration platforms) |
| Market parties | Balance suppliers (BS), Distribution system operators (DSO), Balance responsibles and Third parties |
| BS | Balance Supplier |
| DSO | Distribution System Operators |
| EMIF | Elhub Messaging Interface (technical description) |
| BIM | Business Information Specification (message description) |
| BRS | Business Requirements Specification (process description) |

# Purpose

The System Vendor Trial is the first test where the market parties systems will communicate with Elhub. This makes the System Vendor Trial a very important activity which will set the ground for the upcoming tests.

The purpose of the System Vendor Trial is to

* Verify that all systems can communicate with Elhub according to technical requirements in EMIF including use of certificates
* Verify that all systems can exchange messages according to BIM
* Verify that all systems can handle all relevant processes according to BRS

## Test basis

The basis for the System Vendor Trial is the version of the Elhub-documentation (EMIF, BIM, BRS) that is available for test and that is implemented in the involved systems during the test period.

The following versions are available as per November 2016:

* Elhub-documentation v.1.5 published 5th February 2016 – Will be used in test round 1 and 2
* Elhub-documentation v.1.6 published 1th June 2016 – Will be used in test round 3
* Elhub-documentation v.1.7 published 15th January 2017 – Will be used in test round 4

All Elhub-documentation including planned changes is available on [Elhub.no](http://elhub.no/nb/om-elhub/markedsprosesser-og-spesifikasjoner).

# Test approach

System Vendor trial will be run in 3 test rounds to allow for different actors to participate in different periods. It will also give possibility to test certain groups of BRS’es in the various test rounds based on what is ready for testing both at the Elhub side and on System vendor side.

Finally it will allow for regressions testing after each round.

* Each system vendor may participate in as many test rounds as wanted.
* There may be time overlap between the test rounds
* Each system vendor may run the same BRS several times as part of regression testing.
* Each system vendor must prepare a test report after each test round and send it to Elhub
* Test cases that are approved in one test round must not be performed in later test rounds, but the need for regressions testing must be evaluated.
* The tests will primarily be executed as self-served tests where system vendors run tests on their own.
* If needed we will set up tests where several system vendors are involved in the same test run.

## Test round 1

Test period is 1st August 2016 to 30th September 2016.

Test round 1 will involve a limited number of system vendors who will run self-serviced tests against Elhub. We will define a set of BRS’es as available for test in test round 1 and the system vendors may choose which to run and how many times to run them.

Test data will be defined and inserted into the test systems prior to testing.

## Test round 2

Test period is 5th September 2016 to 30th November 2016.

Test round 2 will involve new system vendors in addition to the ones that have participated in test round 1. New BRS’es that are approved in Elhub System test will be added to the test.

Test data will be defined and inserted into the test systems prior to testing.

## Test round 3

Test period is 12th December 2016 to 28th February 2017.

Test round 3 must involve all systems to be used by Market parties against Elhub. All tests that are not approved must be tested and retested as part of test round 3.

Test data will be defined and inserted into the test systems prior to testing.

## Test round 4

Test period is 1st April to 30th June 2017.

Test round 4 will include tests covering version 1.7 of Elhub and regressions testing of earlier versions. Test data will be defined and inserted into the test systems prior to testing.

# Test scope

The scope for the System Vendor Trial is defined by the market processes /BRS’es that shall be supported by each System vendor. The BRS’es will be tested and approved in internal Elhub-testing before they are included in System Vendor Trial.

* All systems must test all BRS’er they will support both for outgoing and incoming messages.
* All systems must perform minimum one test with a negative result generating a negative Acknowledgement in response.
* Performance test and other non-functional tests are optional to perform.
* If possible we will include the use of the Elhub web-portal in the test.

## BRS overview

The table below is the complete list of BRS’es to be tested in the System Vendor Trial. The detailed test schedule for each test round will identify which BRS to be ran in each round per System vendor. The number of BRS’es available per test round will be determined by what is delivered and is ready for test in Elhub.

| **BRS no** | **Name** |
| --- | --- |
| BRS-NO-101 | Start of supply - change of supplier |
| BRS-NO-102 | Start of supply - move in - in the future |
| BRS-NO-103 | Start of supply - move in - back in time |
| BRS-NO-104 | Change from supplier of last resort |
| BRS-NO-111 | Rollback - start of supply |
| BRS-NO-121 | New metering point |
| BRS-NO-122 | Activation of metering point |
| BRS-NO-123 | Start-up in metering point - move in |
| BRS-NO-131 | Rollback of new metering point |
| BRS-NO-132 | Rollback of activation of metering point |
| BRS-NO-133 | Rollback of start-up in metering point – move-in |
| BRS-NO-201 | End of supply due to move out |
| BRS-NO-202 | End of supply |
| BRS-NO-211 | Move out from metering point - from grid owner |
| BRS-NO-212 | Deactivation of metering point |
| BRS-NO-213 | Removal of metering point |
| BRS-NO-221 | Rollback of end of supply |
| BRS-NO-222 | Rollback of move out |
| BRS-NO-223 | Rollback of deactivation of metering point |
| BRS-NO-224 | Rollback of removal of metering point |
| BRS-NO-301 | Update master data - balance supplier |
| BRS-NO-302 | Update master data - grid owner |
| BRS-NO-303 | Request master data |
| BRS-NO-305 | Structure data change |
| BRS-NO-306 | Settlement type change |
| BRS-NO-311 | Meter indexing and estimated annual consumption from Balance Supplier |
| BRS-NO-312 | Reporting of metering values for profiled metering points |
| BRS-NO-313 | Reporting of metering values for non-profiled metering points |
| BRS-NO-314 | Reminders of metering values from grid owner |
| BRS-NO-315 | Request for metering values |
| BRS-NO-317 | Update estimated annual consumption |
| BRS-NO-321 | Quality assurance - grid owner |
| BRS-NO-322 | Preliminary hourly Consumption for profiled metering points |
| BRS-NO-324 | Request basis for settlement |
| BRS-NO-332 | Withdraw metering values for profiled metering points |
| BRS-NO-402 | Corrections of master data – from grid owner |
| BRS-NO-502 | Reporting data for Imbalance Settlement |
| BRS-NO-503 | Reporting data for reconciliation |
| BRS-NO-601 | Request to Grid Owner |
| BRS-NO-602 | Request to Elhub |
| BRS-NO-611 | Pre-switch check of Metering Point Characteristics |
| BRS-NO-622 | Update third party access |
| BRS-NO-623 | Overview of third party access |

# Test data

Test data is defined as information to be loaded in all systems involved in the test. The need for test data will vary for different BRS’es, but it must consistent among the systems involved.

We need to define several test data sets to enable possibility for retesting.

Test data consists of:

* Structure data: Identification of MGA’s and the definition of actors and roles related to MGA’s
* Master data: Identification of Metering points and contracts

There are two alternative approaches for test data preparation:

1. Test data is created by Elhub and distributed to System vendors. Each vendor will have a range of metering points and other identifiers to use in their testing.
2. Test data is created by System vendors and sent to Elhub in the migration files and inserted into Elhub via the DAM tool. Certain elements must be masked according to defined rules.

Due to DAM development plan we will have to use alternative 1 In all Test rounds.

# Test environments

System Vendor Trial will be run in a separate cloud-based test environment with created test data. We will as soon as possible make available a pre-prod environment where system vendors can run additional tests. These will not be mandatory for system approval.

# Participants

The table below identifies all participants in the System Vendor Trial and a description of type of system.

| **System Vendor** | **Description** |
| --- | --- |
| Enoro | KIS, MVS-system and proxy |
| CGI | KIS, MVS-system and proxy |
| Brady | KIS, MVS-system and proxy |
| Validér | MVS-system and proxy |
| Embriq | MVS-system and proxy |
| Bergen Energi | KIS-system |
| Tieto | KIS, MVS-system and proxy |
| Siemens | MVS-system |
| Empower | KIS, MVS-system and proxy |
| Energi Danmark | KIS, MVS-system and proxy |
| EG Utility | KIS, MVS-system and proxy |
| Statnett | KIS, MVS-system and proxy |
| eSmart Systems | MVS-system |
| Powel | MVS-system |
| Compello | Proxy |
| Smarthub/Greenbird | MVS-system and proxy |

# Test execution

## Participants per test round

The table below identifies all participants in the System Vendor Trial and which test round each vendor will participate in.

| **System Vendor** | **Test round 1**  **1/8-30/9** | **Test round 2**  **5/9-30/11** | **Test round 3**  **12/12-30/6 2017** | **Test round 4**  **1/8 – 30/10** |
| --- | --- | --- | --- | --- |
| Enoro | x | x | x | x |
| CGI | x | x | x | x |
| Brady | x | x | x | x |
| Validér | x | x | x | x |
| Embriq | x | x | x | x |
| Tieto | x | x | x | x |
| Statnett | x | x | x | x |
| Bergen Energi | x | x | x | x |
| Compello | x | x | x | x |
| Powel | x | x | x | x |
| EG Utility |  |  | x | x |
| Siemens |  |  | x | x |
| Empower |  |  | x | x |
| Energi Danmark |  |  | x | x |
| Smarthub/Greenbird |  |  | x | x |
| eRate |  |  |  | x |
| Otovo |  |  |  | x |
| Props |  |  |  | x |
| Gurusoft |  |  |  | x |

## BRS’es for Test round 1

The table below lists all BRS’es that will be available for test from Test round 1.

A set of Test cases will be prepared for each BRS.

| **BRS no** | **Name** |
| --- | --- |
| BRS-NO-101 | Start of supply - change of supplier |
| BRS-NO-121 | New metering point |
| BRS-NO-122 | Activation of metering point |
| BRS-NO-301 | Update master data - balance supplier |
| BRS-NO-302 | Update master data - grid owner |
| BRS-NO-303 | Request master data |
| BRS-NO-312 | Reporting of metering values for profiled metering points |
| BRS-NO-313 | Reporting of metering values for non-profiled metering points |
| BRS-NO-402 | Corrections of master data – from grid owner |
| BRS-NO-611 | Pre-switch check of Metering Point Characteristics |

## BRS’es for Test round 2

The table below lists all BRS’es that will be available for test from Test round 2.

A set of Test cases will be prepared for each BRS.

| **BRS no** | **Name** |
| --- | --- |
| BRS-NO-102 | Start of supply - move in - in the future |
| BRS-NO-103 | Start of supply - move in - back in time |
| BRS-NO-104 | Change from supplier of last resort |
| BRS-NO-123 | Start-up in metering point - move in |
| BRS-NO-201 | End of supply due to move out |
| BRS-NO-202 | End of supply |
| BRS-NO-211 | Move out from metering point - from grid owner |
| BRS-NO-212 | Deactivation of metering point |
| BRS-NO-213 | Removal of metering point |
| BRS-NO-306 | Settlement type change |
| BRS-NO-311 | Meter indexing and estimated annual consumption from Balance Supplier |
| BRS-NO-317 | Update estimated annual consumption |

## BRS’es for Test round 3

The table below lists all BRS’es that will be available for test from Test round 3.

A set of Test cases will be prepared for each BRS.

| **BRS no** | **Name** |
| --- | --- |
| BRS-NO-111 | Rollback - start of supply |
| BRS-NO-132 | Rollback of activation of metering point |
| BRS-NO-133 | Rollback of start-up in metering point – move-in |
| BRS-NO-221 | Rollback of end of supply |
| BRS-NO-222 | Rollback of move out |
| BRS-NO-223 | Rollback of deactivation of metering point |
| BRS-NO-224 | Rollback of removal of metering point |
| BRS-NO-314 | Reminders of metering values from grid owner |
| BRS-NO-324 | Request basis for settlement |
| BRS-NO-332 | Withdraw metering values for profiled metering points |
| BRS-NO-601 | Request to Grid Owner |
| BRS-NO-602 | Request to Elhub |

## BRS’es for Test round 4

The table below lists all BRS’es that will be available for test from Test round 4 and BRS’es that are changed in Elhub 1.7. Some of these may be tested in the Elhub Web-portal.

| **BRS no** | **Name** |
| --- | --- |
| BRS-NO-305 | Structure data change |
| BRS-NO-315 | Request for metering values |
| BRS-NO-318 | Oppdatering av parametre for nettap |
| BRS-NO-321 | Quality assurance - grid owner |
| BRS-NO-322 | Preliminary hourly Consumption for profiled metering points |
| BRS-NO-502 | Reporting data for Imbalance Settlement |
| BRS-NO-503 | Reporting data for reconciliation |
| BRS-NO-611 | Pre-switch check of Metering Point Characteristics |
| BRS-NO-622 | Update third party access |
| BRS-NO-623 | Overview of third party access |

# Deliverables

This chapter identifies all deliverables to be produced by during System Vendor Trial.

| **Deliverable** | **Description** |
| --- | --- |
| Test Plan System Vendor Trial (this document) | Description of test approach and overall plan for the Elhub test project. |
| Test case descriptions | Overview of all test cases to be performed as part of System Vendor Trial |
| Test Case descriptions per vendor | Description of test cases to be performed by each System vendor |
| Test Schedule | Detailed plan for each test round made by Elhub test manager |
| Error reports | Errors/defects in Elhub being detected during the test |
| Test Log per vendor | Description of the result of a tests performed by each System vendor. Overview of tests performed, number of defects and errors and possible action points. |
| Test report overall | Overall test report made by the Elhub Test manager. |
| Test Log total | Overall list of tests that have been performed and the result of each test. The complete test log must be aggregated from test reports from each vendor. |

# Entry criteria’s / prerequisites

All entry criteria’s must be fulfilled before the start of the test. It is each participant’s responsibility to check that the entry criteria’s are met, and to give go-ahead for the System Vendor Trial.

Entry criteria’s:

* All involved systems are ready for test with all software components installed
* All market party systems are certified in the Ediel portal for the relevant version of Elhub specifications.
  + For test round 1 this is version 1.5
  + For test round 2 it depends on when this phase is started
  + For test round 3 this will be version 1.6
  + For test round 3 this will be version 1.7
* Test data are uploaded in all databases
* All certificates are installed and verified OK
* All communication addresses to be used in the test are registered in Elhub.  
  Communication address is combination of GLN’s for juridical ID and physical ID.

# Acceptance criteria’s

The following criteria’s must be met for the System Vendor Trial to be accepted for each System vendor.

* All defined test cases according to chapter 14 have been performed and test log is produced and approved by Elhub
* Test cases that are started but cannot be executed due to errors in Elhub will be reported as approved. These must be retested as soon as possible.
* Test cases that are started but cannot be executed due to errors in own system will be treated as follows:
  + If messages cannot be sent to Elhub this is treated as an A-error (no A-errors are accepted).
  + If messages from Elhub cannot be received in own system this is treated as a B-error (number of B-errors must be reasonable).
  + All other errors are treated as C-errors.

# Roles and responsibilities

The table below identifies all actors and roles in the System Vendor Trial and their responsibilities in test planning and execution.

|  |  |  |
| --- | --- | --- |
| **Role** | **Organization** | **Responsibility** |
| Elhub Test Manager | Elhub | * Prepare Test plan * Prepare Test schedule per test round * Ensure that entry criteria’s are met from Elhub side * Monitor status of test activities performed by System vendors * Produce templates for test case and test reports * Monitor status of test activities performed by the Supplier * Prepare an overall Test report and distributed it to the System vendors after testing |
| Elhub Test team | Elhub | * Assist in test planning and preparations * Prepare Test data * Follow up issues during testing * Follow up error reports |
| Elhub support team | Elhub | * Prepare Elhub test environment * Monitor test environment during testing * Resolve defects and do bug fixing |
| Test responsible | System vendor | * Plan test activities * Ensure that internal development activities are performed as planned * Prepare Test case descriptions and send to Elhub * Ensure that entry criteria’s are met * Monitor own test activities * Prepare test report to Elhub * Report Elhub-errors |

# Test schedule

The test schedule and approval dates for each test case must be coordinated with the Market trials. In addition all test cases from all test round must be retested when new versions of Elhub are released.

Test cases in SVT will be linked to the Market party milestones as follows:

* Test cases to be approved to M6 1st July
* Test cases to be approved to M7 (date not settled)

The chapters below describes the scope for each milestone.

## Test cases for approval to M6

The following tests must be approved to M6, 1st July.

| **Test case** | **Elhub test ID** | **Comment** |
| --- | --- | --- |
| BRS-NO-101 Confirm | ET-3765 |  |
| BRS-NO-101 Reject | ET-3929 |  |
| BRS-NO-101 Cancel | ET-3888 |  |
| BRS-NO-102 Confirm | ET-3971 |  |
| BRS-NO-102 Reject | ET-4345 |  |
| BRS-NO-102 Cancel | ET-4331 |  |
| BRS-NO-103 Profiled | ET-4697 |  |
| BRS-NO-104 | ET-5309 |  |
| BRS-NO-104 Neg | ET-5263 | Optional |
| BRS-NO-111-1 | ET-7613 |  |
| BRS-NO-111-3 | ET-7626 |  |
| BRS-NO-111-4 | ET-7639 |  |
| BRS-NO-121 | ET-3956 |  |
| BRS-NO-121 Neg | ET-3988 | Optional |
| BRS-NO-122 | ET-3980 |  |
| BRS-NO-122 Neg | ET-4107 | Optional |
| BRS-NO-123 | ET-4199 |  |
| BRS-NO-133 | ET-7791 |  |
| BRS-NO-201 | ET-3836 |  |
| BRS-NO-301 | ET-3887 |  |
| BRS-NO-211 | ET-5332 |  |
| BRS-NO-212 | ET-4427 |  |
| BRS-NO-213 | ET-3644 |  |
| BRS-NO-301 | ET-4682 |  |
| BRS-NO-301 Neg | ET-4682 | Optional |
| BRS-NO-303 | ET-5904 |  |
| BRS-NO-303 Neg | ET-5849 | Optional |
| BRS-NO-311 Meter | ET-5227 |  |
| BRS-NO-311 EAC | ET-5228 |  |
| BRS-NO-312 | ET-6448 |  |
| BRS-NO-313 | ET-6491 |  |
| BRS-NO-317 | ET-5378 |  |
| BRS-NO-402 | ET-5514 |  |
| BRS-NO-402 Neg | ET-3706 | Optional |
| BRS-NO-601-1 | ET-7445 |  |
| BRS-NO-601-2 | ET-7522 |  |
| BRS-NO-611 with MPID | ET-4225 |  |
| BRS-NO-611 with ID | ET-3765 | Optional |

## Test cases for approval to M7

The following tests must be approved to M7. Date for M7 will be set during replanning.

System vendors being involved in Pilot Market trial and Extended Market trial will have to finish their testing in time to support these tests.

| **Test case** | **Elhub test ID** | **Comment** |
| --- | --- | --- |
| BRS-NO-111-2 | ET-7721 |  |
| BRS-NO-132 | ET-7158 |  |
| BRS-NO-201 Cancel | ET-3905 |  |
| BRS-NO-202 | ET-4267 |  |
| BRS-NO-202 Cancel | ET-4698 |  |
| BRS-NO-211 Cancel | ET-5749 |  |
| BRS-NO-211 Correct | ET-5847 |  |
| BRS-NO-221-1 | ET-7877 |  |
| BRS-NO-221-2 | ET-8254 |  |
| BRS-NO-222 | ET-7965 |  |
| BRS-NO-223 | ET-7346 |  |
| BRS-NO-224 | ET-7612 |  |
| BRS-NO-302 | ET-5659 |  |
| BRS-NO-302 Neg | ET-5243 | Optional |
| BRS-NO-305 |  |  |
| BRS-NO-306 | ET-5017 |  |
| BRS-NO-314-1 | ET-12254 |  |
| BRS-NO-314-2 | ET-13135 |  |
| BRS-NO-324-1 | ET-8552 |  |
| BRS-NO-324-2 | ET-12265 |  |
| BRS-NO-315 | ET-5808 |  |
| BRS-NO-315 Neg | ET-5887 |  |
| BRS-NO-318 |  | Web-portal |
| BRS-NO-321 |  |  |
| BRS-NO-322 |  |  |
| BRS-NO-332 | ET-13720 |  |
| BRS-NO-502-1 |  |  |
| BRS-NO-502-2 |  |  |
| BRS-NO-502-3 |  |  |
| BRS-NO-503-1 |  |  |
| BRS-NO-503-2 |  |  |
| BRS-NO-602 | ET-7137 |  |
| BRS-NO-611 | ET-3706 | New functionality in Elhub v1.7 |
| BRS-NO-622-1 | UAT-6134, UAT-6136 |  |
| BRS-NO-622-2 | UAT-6145 |  |
| BRS-NO-622-3 | UAT-6146 |  |
| BRS-NO-623 |  | Web-portal |

# Test case descriptions

Excel-sheet containing detailed descriptions of the test cases per test round are published on Elhub.no.

Each System vendor must prepare their own set of test cases for each test round.

Content of Excel-sheets:

* Change log
* Overview of BRS’es and connections between BRS, Process Components and Messages
* Overview of Test cases
* Test case descriptions

Current versions of Test cases:

* Testcase System Vendor Trial – Test round 1 v5
* Testcase System Vendor Trial – Test round 2 v3
* Testcase System Vendor Trial – Test round 3 v2
* Testcase System Vendor Trial – Test round 4