

ENWL QUEST 3.7.2 Project

SAT Testing Report

Project Documentation

Version: 0.1

Date: October - 2023

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1. REVISION HISTORY

Version	Authors	Date	Comments
0.1	Veljko Rudan	October - 2023	Initial Version

2. DOCUMENT AUTHORIZATION

Name	Role	Signature	Date
Veljko Rudan	Test Manager		
Steward Godfrey	Test Manager		

3. TERMS AND ABBREVIATIONS

Term	Description
ADMS	Advanced Distribution Management System
RTM	Requirement Traceability Matrix
SE	Schneider Electric
ENWL	Electricity North West Ltd
SAT	Site Acceptance Test
IR	Issue Resolution
TBD	To Be Determined
TestLink	Test management Tool
Defect Tracking Tool	Bugzilla

4. DOCUMENT OVERVIEW

The purpose of this document is to present results of the Site Acceptance Test (SAT) conducted by ENWL QUEST personal from 02-October-2023 to 06-October-2023. SE provided support during the implementation of SAT.

The testing was run by previously defined test plan of 64 test cases, which covered verification of ENWL QUEST functionalities.

In this document, overall test plan statistics, including reported issues information and test case execution details, is provided.

The aim of this Test Report is to inform ENWL QUEST of the completion and outcome of the SAT activity.

5. SAT

The activity commenced after the system installation, deployed into ENWL QUEST virtual machine.

Testing was conducted on ENWL QUEST environment.

Environment	Data
System	QUEST Virtual machine
SCADA version	SCADA_ENWL_REL_1.7.100 + HF 1.7.100.390
DMS Version	HF 3.7.2.1390
Project Extension	HF3.7.2.41

Table 1 - Environment specification

5.1. TEST CASES

The test plan contained 64 test cases.

Table 2 below shows test case execution results:

Module	#Tests	Pass	Fail	Blocked	Skipped	Not Run	Progress%	Pass Rate%
QUEST Simulation	1	1	0	0	0	0	100%	100%
QUEST Triggers	6	6	0	0	0	0	100%	100%
CLASS Enhancements	4	4	0	0	0	0	100%	100%
QUEST Operations in Real Time	35	32	3	0	0	0	100%	91%
QUEST Configuration	10	9	1	0	0	0	100%	90%
QUEST Control & Monitoring	3	3	0	0	0	0	100%	100%
Emergency SYSCONS	5	5	0	0	0	0	100%	100%
Total:	64	58	6	0	0	0	100%	97%

Table 2 - Test Case Execution Results

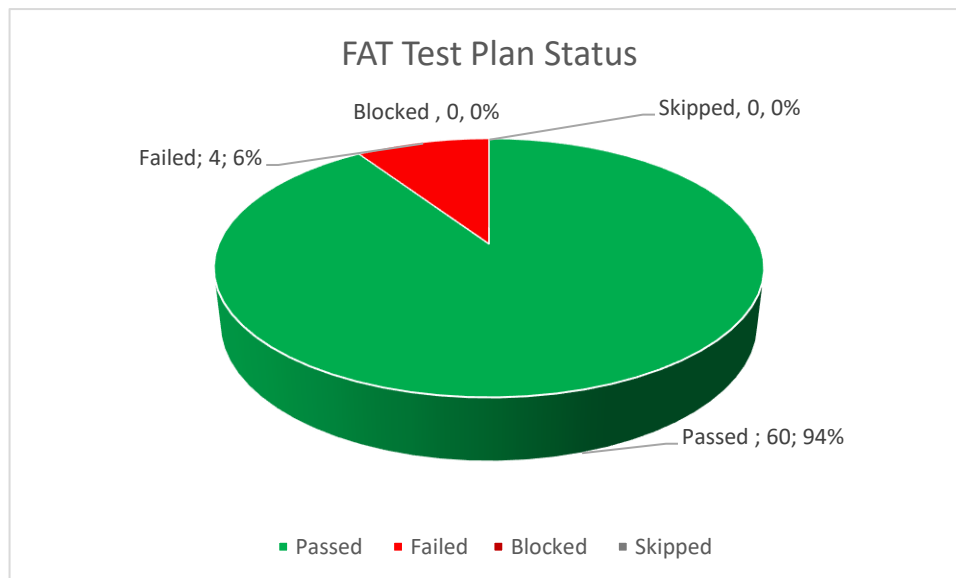


Figure 1: FAT test cases chart by execution results

The lists of all test cases with their outcomes can be found on [ENWL QUEST test link](#). (The Test plan can be invoked by selecting the Test Execution -> "SAT Test Plan" instance in web interface.)

Details about every test case execution are kept in the execution notes field, e.g., reference to reported issue, the reason for TC skipping, etc.

In table below there is a list of all test cases with execution results.

Test Project	:	ENWL Quest	
Test Plan	:	FAT Test Plan	
Test Suite	Test Case	Priority	FAT
QUEST / QUEST Simulation	Quest-99:QUEST Simulation - Simulate Actions on As-Operated Network	Medium	Passed
QUEST / QUEST Triggers	Quest-100:QUEST RT Coordination - QUEST Trigger - On BSP TSF disablement	Medium	Passed
QUEST / QUEST Triggers	Quest-101:QUEST RT Coordination - QUEST trigger - Triggering on change of the profile in use	Medium	Passed
QUEST / QUEST Triggers	Quest-102:QUEST RT Coordination - QUEST trigger - Periodic triggering	Medium	Passed
QUEST / QUEST Triggers	Quest-103:QUEST RT Coordination - QUEST trigger - Triggering after CLASS functions became inhibited on a primary substation	Medium	Passed
QUEST / QUEST Triggers	Quest-104:QUEST RT Coordination - QUEST trigger - Triggering after a primary substation is declared as Test in CLASS	Medium	Passed
QUEST / QUEST Triggers	Quest-105:QUEST RT Coordination - QUEST Trigger - On BSP TSF enablement	Medium	Passed
QUEST / CLASS Enhancements	Quest-111:CLASS Enhancements - Additional levels of Demand Reduction	Medium	Passed
QUEST / CLASS Enhancements	Quest-112:CLASS Enhancements - Tap Stagger Functionality on a BSP level	Medium	Passed
QUEST / CLASS Enhancements	Quest-113:CLASS Enhancements - Long Term Forecast extended for all DR and DB levels	Medium	Passed

QUEST / CLASS Enhancements	Quest-114:CLASS Enhancements - CLASS Scheduler DB target definition	Medium	Passed
QUEST / QUEST Operation in Real Time	Quest-115:QUEST RT Coordination - CLASS DB over SMST	Medium	Passed
QUEST / QUEST Operation in Real Time	Quest-116:QUEST RT Coordination - SMST over CLASS DB	Medium	Passed
QUEST / QUEST Operation in Real Time	Quest-117:QUEST RT Coordination - BSP TSF over NEM	Medium	Passed
QUEST / QUEST Operation in Real Time	Quest-118:QUEST RT Coordination - NEM over BSP TSF	Medium	Passed
QUEST / QUEST Operation in Real Time	Quest-119:QUEST RT Coordination - CLASS over NEM and BSP TSF	Medium	Passed
QUEST / QUEST Operation in Real Time	Quest-120:QUEST RT Coordination - NEM over CLASS DR	Medium	Passed
QUEST / QUEST Operation in Real Time	Quest-121:QUEST RT Coordination - CLASS DR over NEM	Medium	Passed
QUEST / QUEST Operation in Real Time	Quest-122:QUEST RT Coordination - CLASS DR over SMST	Medium	Passed
QUEST / QUEST Operation in Real Time	Quest-123:QUEST RT Coordination - SMST over CLASS DR	Medium	Passed
QUEST / QUEST Operation in Real Time	Quest-124:QUEST RT Coordination - Decentralised and Cloud ANM Demand Reduction Mitigation Mode	Medium	Passed
QUEST / QUEST Operation in Real Time	Quest-125:QUEST RT Coordination - Central ANM Demand Boost Mitigation Mode	Medium	Passed
QUEST / QUEST Operation in Real Time	Quest-126:QUEST RT Coordination - BSP TSF on the lowest tap position	Medium	Failed
QUEST / QUEST Operation in Real Time	Quest-127:QUEST RT Operation - QUEST Simulation in parallel with QUEST Operation in Real Time	Medium	Passed
QUEST / QUEST Operation in Real Time	Quest-128:QUEST RT Coordination - Decentralised and Cloud ANM Demand Boost Mitigation Mode	Medium	Passed

QUEST / QUEST Operation in Real Time	Quest-129:QUEST RT Coordination - Central ANM Demand Reduction Mitigation Mode	Medium	Passed
QUEST / QUEST Operation in Real Time	Quest-130:QUEST RT Coordination - QUEST Coordinates on As-Operated network	Medium	Passed
QUEST / QUEST Operation in Real Time	Quest-131:QUEST RT Coordination - QUEST Dashboard	Medium	Passed
QUEST / QUEST Operation in Real Time / Turning off QUEST	Quest-132:QUEST RT Coordination - Turning off QUEST - CLASS has Priority	Medium	Passed
QUEST / QUEST Operation in Real Time / Turning off QUEST	Quest-133:QUEST RT Coordination - Turning off QUEST - Smart Street has Priority	Medium	Failed
QUEST / QUEST Operation in Real Time / QUEST Schedule	Quest-134:QUEST RT Coordination - Scheduled QUEST Operation	Medium	Passed
QUEST / QUEST Operation in Real Time / Loss of communication	Quest-135:QUEST RT Coordination - Loss of Communication - Loosing control signal for Network Efficiency	Medium	Passed
QUEST / QUEST Operation in Real Time / Loss of communication	Quest-136:QUEST RT Coordination - Loss of Communication - Restoring control signal for Network Efficiency	Medium	Failed
QUEST / QUEST Operation in Real Time / Loss of communication	Quest-137:QUEST RT Coordination - Loss of Communication - Loosing control signal for Smart Street	Medium	Passed
QUEST / QUEST Operation in Real Time / Loss of communication	Quest-138:QUEST RT Coordination - Loss of Communication - Restoring control signal for Smart Street	Medium	Passed
QUEST / QUEST Operation in Real Time / Loss of communication	Quest-139:QUEST RT Coordination - Loss of Communication - Emergency Mode during lost communication	Medium	Passed
QUEST / QUEST Operation in Real Time / Loss of communication	Quest-140:QUEST RT Coordination - Loss of Communication - Decentralized and Cloud ANM signals - Demand Boost	Medium	Passed

QUEST / QUEST Operation in Real Time / Loss of communication	Quest-141:QUEST RT Coordination - Loss of Communication - Decentralized and Cloud ANM signals - Demand Reduction	Medium	Passed
QUEST / QUEST Operation in Real Time / Permission Checks	Quest-142:QUEST Control and Monitoring - Executing QUEST Simulation without Permission	Medium	Passed
QUEST / QUEST Operation in Real Time / Permission Checks	Quest-143:QUEST Control and Monitoring - Blocking Network Efficiency without Permission	Medium	Passed
QUEST / QUEST Operation in Real Time / Permission Checks	Quest-144:QUEST Control and Monitoring - Changing the SYSCON state without Permission	Medium	Passed
QUEST / QUEST Operation in Real Time / Permission Checks	Quest-145:QUEST Control and Monitoring - Modifying QUEST profiles without Permission	Medium	Passed
QUEST / QUEST Operation in Real Time / Permission Checks	Quest-146:QUEST Control and Monitoring - Approving QUEST profile without Permission	Medium	Passed
QUEST / QUEST Operation in Real Time / Permission Checks	Quest-147:QUEST Control and Monitoring - Assigning QUEST profile without Permission	Medium	Passed
QUEST / QUEST Operation in Real Time / Permission Checks	Quest-148:QUEST Control and Monitoring - Activating QUEST without Permission	Medium	Passed
QUEST / QUEST Operation in Real Time / Permission Checks	Quest-149:QUEST Control and Monitoring - Deactivating QUEST without Permission	Medium	Passed
QUEST / QUEST Configuration	Quest-150:QUEST Configuration - Changing global QUEST options for NEM execution	Medium	Failed
QUEST / QUEST Configuration	Quest-151:QUEST Configuration - Global options for QUEST	Medium	Passed
QUEST / QUEST Configuration	Quest-152:QUEST Configuration - Changing the configurations during active QUEST operation	Medium	Passed

QUEST / QUEST Configuration	Quest-153:QUEST Configuration - Modifying an existing QUEST profile and simulate the QUEST execution	Medium	Passed
QUEST / QUEST Configuration	Quest-154:QUEST Configuration - Create new custom QUEST profile and simulate the QUEST execution	Medium	Passed
QUEST / QUEST Configuration	Quest-155:QUEST Configuration - Create new QUEST Profile and simulate the QUEST execution	Medium	Passed
QUEST / QUEST Configuration	Quest-156:QUEST Configuration - Creating a new QUEST profile based on an existing one and simulate the QUEST execution	Medium	Passed
QUEST / QUEST Configuration	Quest-157:QUEST Configuration - Creating a new custom QUEST profile based on an existing one and simulate the QUEST execution	Medium	Passed
QUEST / QUEST Configuration	Quest-158:QUEST Configuration - Deleting profiles	Medium	Passed
QUEST / QUEST Configuration	Quest-159:QUEST Configuration - QUEST Profile Editor Window	Medium	Passed
QUEST / QUEST Control & Monitoring	Quest-160:QUEST Control and Monitoring window	Medium	Passed
QUEST / QUEST Control & Monitoring	Quest-161:QUEST Control and Monitoring - Blocking/Unblocking Network Efficiency	Medium	Passed
QUEST / QUEST Control & Monitoring	Quest-163:QUEST - Yield Summary	Medium	Passed
Emergency SYSCONs	Quest-106:QUEST Control and Monitoring - Emergency SYSCONs - Black Start regime	Medium	Passed
Emergency SYSCONs	Quest-107:QUEST Control and Monitoring - Emergency SYSCONs - OC6 VR	Medium	Passed

Emergency SYSCONs	Quest-108:QUEST Control and Monitoring - Emergency SYSCONs - OC6 DD	Medium	Passed
Emergency SYSCONs	Quest-109:QUEST Control and Monitoring - Emergency SYSCONs - Manual LFDD activation	Medium	Passed
Emergency SYSCONs	Quest-110:QUEST Control and Monitoring - Emergency SYSCONs - Automatic LFDD activation	Medium	Passed

Table 3: List of all test cases

6. DEFECTS ANALYSIS

The table below provides a count of defects per priority and current status after SAT execution. This report was taken from ENWL QUEST project Bugzilla instance.

	<i>P3-Normal</i>	<i>Total</i>
<i>OPEN</i>	<i>6</i>	<i>6</i>
<i>IN_PROGRESS</i>	<i>0</i>	<i>0</i>
<i>QA_IN_PROGRESS</i>	<i>0</i>	<i>0</i>
<i>DELIVERED_TO_TEST</i>	<i>0</i>	<i>0</i>
<i>Total</i>	<i>6</i>	<i>6</i>

Table 4. Defects per priority and current status

Two of these bugs are marked for SAT Exit onsite during execution of SAT.

Links to bugs: [SAT Exit](#).

These two bugs (308 and 309) will be solved by end of November. For all other bugs delivery plan will be January 2024. All is illustrated in the table below.

This prolonged period for delivery is due to other project which SE and ENWL are executing together, currently have a higher priority

ID	Summary	Resolution plan
308	Quest simulation failed when NEM set at 100%	30/11/2023
309	CLASS Contributions are 0	30/11/2023
310	BSP TSF fails to disable when on lowest tap position	To be resolved during January 2024
311	Smart St taps left on manual when QUEST turned off	To be resolved during January 2024
312	Quest NOT enabling CLASS as expected at Primary where SmSt is enabled	To be resolved during January 2024
313	Yield Summary changes. 1 Customer Savings in £ & 2. Quest Output Values in BSP TS after loss of comms	To be resolved during January 2024

7. CONCLUSION

The complete planned scope was tested on SAT. The ENWL QUEST SAT is considered successful because of the following reasons:

- Planned scope was tested.
- Small number of reported defects, total number 6. SE will create a delivery plan for them.
- Significant number of unstructured tests from different subjects were executed during the SAT.

Plan for the next period is to start with Live Trial for one year. During this period we will observe the behavior of the system in terms of the optimization function coordinated by Quest. After that, the benefits that this functionality brings will be assessed.