STATE OF RHODE ISLAND

IV&V FOR THE RHODE ISLAND UNIFIED HEALTH INFRASTRUCTURE PROJECT

UAT SUMMARY REPORT
PHASE 1 RELEASE 6.4
AUGUST 2015

VERSION 1.1
STATUS: FINAL

SEPTEMBER 2, 2015

CSG Government Solutions

Document Information

Document Title	UAT Summary Report - Phase 1 Release 6.4
Version	1.1
Document Approval Date	
Author	Gloria Darby and Alicia Hutcherson
Approved By	

The master copy of this document is available online. Hard copies are for information purposes only and are not subject to document control.

Amendment History

Document Version	Date	Modification
0.1	August 14, 2015	Draft for internal review
0.2	August 18, 2015	Updated draft for internal review
1.0	August 25, 2015	Submission to the client
1.1	September 2, 2015	Modified to include feedback from State

Table of Contents

1. INTRODUCTION

The Rhode Island Unified Health Infrastructure Project (RI UHIP) is an online marketplace for individuals, families, and small businesses to compare and enroll in health insurance coverage and gain access to tax credits, reduced cost sharing, and public programs. The RI UHIP began enrolling consumers on October 1, 2013 for health insurance coverage beginning on January 1, 2014.

Throughout 2014 and 2015, releases were planned for targeted system updates to support the build out for Phase 1 of the project. In addition to requirements mandated by Centers for Medicare and Medicaid Services (CMS), many of these items were identified through change requests submitted by the business unit(s) to enhance the application.

The Release 6.4 included enhancements to existing functionality such as enrollment and eligibility. Change requests were approved to modify the functionality below:

➢ Eligibility Changes (CR178)

➢ Account Dashboard

➢ Special Enrollment Period (SEP)

➢ Age-Out

➢ Removal of Head of Household

1.1   Purpose of the Report

The purpose of this document is to provide the project and executive management team with a summary of the User Acceptance Test (UAT) results for Release 6.4. This report provides detailed information related to the progress, issues, and risks encountered during the UAT cycles. In addition, Lessons Learned are derived from the observations in Section 5.

1.2   Scope of the Report

This report includes summary and detailed information on the results of UAT testing activities for Release 6.4. The functionality below was tested:

➢ Eligibility Changes

➢ Account Dashboard

➢ Special Enrollment Period (SEP)

➢ Age-Out Batch

➢ Removal of Head of Household

1.3   Testing Tools

JAMA Contour is the requirements management tool used to execute, record, and store test cases. It also serves as the RTM software tool to document requirements and associated elements such as designs, source code modules, and bi-directional traceability.

JIRA is the defect management tool where all defects are triaged and managed to closure.

2. EXECUTIVE SUMMARY

Implementation of Release 6.4 was scheduled for August 11, 2015. User Acceptance Testing (UAT) for the Release 6.4 was scheduled to run July 13, 2015 thru July 31, 2015; however, UAT was extended through August 7, 2015, into the week of stabilization.

The State employed two (2) vendors to write test cases and provide UAT support; Northrop Grumman (NG) and KPMG. Testing was executed in two (2) phases with NG writing and supporting Eligibility Changes (CR178), Special Enrollment Period (SEP), and Account Dashboard; the more complicated functionality of Age-Out Batch and Removal of Head of Household were written and supported by KPMG. In addition, ad hoc testing was conducted by KPMG to provide additional functionality verification for Eligibility Changes (CR178).

In total, 116 test cases were executed of which 106 passed. A total of 73 defects were logged. Defect fixes were provided that allowed some failed test cases to be retested and passed. Of the 73 defects logged, 46 were closed, 14 deferred, and 13 cancelled; 19% of the defects logged were deferred to future Maintenance and Operations (M&O) releases, implementations, and/or change requests.

The common theme across all the deferred defects is important; this theme indicates a deficiency in the functional/technical design documents. The design documents lack the detail and steps to write appropriate and sufficient test cases. A number of defects have been noted as existing production issues, and although they may exist in Production, it is unclear whether the State was made aware of these existing issues or why they were not discovered as part of SIT.

The remainder of this report provides the details related to the execution of UAT for Release 6.4.

3. OVERVIEW

3.1   Description of UAT

UAT for Release 6.4 covered the following:

➢ Functional Testing – This testing ensured that all business functions performed as defined in the business requirements and design documentation. It comprised the majority of the UAT effort, and it was based on use cases using two levels of business definition: test scenarios and test scripts.

➢ End-to-End Testing – This included testing the end-to-end business flow with real world scenarios that test interactions with various interfaces too (i.e. DOH, DLT, SWICA, NFP, FDSH etc.).

➢ Regression Testing – This included the re-execution of a select set of functional test cases to ensure that additional changes made to the application, after initial functional testing was executed, did not introduce any new issues.

3.2   Summary of Results

This section contains summaries of UAT execution results for Release 6.4 as of August 7, 2015. These include:

➢   UAT Execution Results by Execution Status

➢   UAT Execution Results by Function

Table 1 - Execution Results by Status

	Count	Percentage
Total Cases	116	N/A
Cases Executed	116	100%
Cases Passed	106	91%
Cases Failed	10	9%
Cases Blocked	0	0%
Cases In Progress	0	0%
Cases Not Run	0	0%

Table 2 - Execution Results by Function

Test Cases	Total Cases	Passed	Failed	In Progress	Blocked	Total Executed
Eligibility (CR178)	20	17	3	0	0	20
Account Dashboard	7	7	0	0	0	7
SEP	15	15	0	0	0	15
Segment 1: Age-Out	19	19	0	0	0	19
Segment 1: Removal of HOH	15	14	1	0	0	15
Pending Grace Period	2	2	0	0	0	2
Segment 2: Age-Out	20	14	6	0	0	20
Segment 2: Removal of HOH	16	16	0	0	0	16
Segment 3: Age-Out	1	1	0	0	0	1
Segment 3: Removal of HOH	1	1	0	0	0	1
Total	**116**	**106**	**10**	**0**	**0**	**116**

4. DETAILED RESULTS

4.1   UAT Defect Reporting

A total of 19 fixes (defect resolutions) were rejected by the UAT team: Five (5) were rejected twice before a resolution was determined. The remaining 14 fixes (defect resolutions) were rejected once prior to being deferred.

4.1.1   UAT Defect Dashboard as of August 7, 2015

This section contains summaries of open defects sorted by severity and priority.

The severity of the defect determines its weight and impact on the application/organization.

Table 3 - Open Defects by Severity

Defect Status	Severity 1	Severity 2	Severity 3	Severity 4	Total
Deferred	3	10	1	0	14
Total	**3**	**10**	**1**	**0**	**14**

The priority determines the weight and rank in which Deloitte will address.

Table 4 - Open Defects by Priority

Defect Status	Priority 1	Priority 2	Priority 3	Total
Deferred	2	11	1	14
Total	**2**	**11**	**1**	**14**

4.1.2   UAT Open Defects as of August 7, 2015

The embedded file below contains a list of all 'open' UAT defects (those not closed or cancelled) as of August 7, 2015. It is sorted by severity within priority.

UAT Remaining Open
Defects.xlsx

4.1.3   UAT Closed Defects as of August 7, 2015

This section contains summaries of closed defects sorted by:

➢ Closed Defects by Reason by Severity

➢ Closed Defects by Reason by Priority

The tables below depict the root causes identified for all defects logged and the overall percentage for each.

4.1.3.1   Status of Closed Defects by Reason by Severity

Table 5 - Closed Defects by Reason by Severity

Root Cause	Severity 1-Critical	Severity 2-High	Severity 3-Medium	Severity 4-Low	Total	Percentage
Environment Issue	1	9	1	0	11	24%
Requirement Not Defined	1	4	2	0	7	15%
Not Reproducible	0	7	0	0	7	15%
Functional Specification	0	5	1	0	6	13%
Code Incorrect	0	3	2	0	5	11%
Test Error	0	3	0	0	3	7%
Invalid Defect	0	3	0	0	3	7%
Change Request	0	2	0	0	2	4%
Code Not Done	0	1	0	0	1	2%
Duplicate	0	1	0	0	1	2%
Total	**2**	**38**	**6**	**0**	**46**	**100%**

4.1.3.2   Status of Closed Defects by Reason by Priority

Table 6 - Closed Defects by Reason by Priority

Root Cause	Priority 1-Critical	Priority 2-High	Priority 3-Medium	Total	Percentage
Environment Issue	1	9	1	11	24%
Requirement Not Defined	1	4	2	7	15%
Not Reproducible	0	6	1	7	15%
Functional Specification	0	5	1	6	13%
Code Incorrect	0	3	2	5	11%
Test Error	0	3	0	3	7%
Invalid Defect	0	3	0	3	7%
Change Request	0	2	0	2	4%
Code Not Done	0	1	0	1	2%
Duplicate	0	1	0	1	2%
Total	**2**	**37**	**7**	**46**	**100%**

5. OBSERVATIONS

Over the course of UAT, observations were tracked to facilitate process improvement discussions. This assists in creating repeatable processes to improve delivery and the overall outcome. Observations were categorized into the following groups:

➤ Productivity

➤ Quality

➤ Completeness

➤ Communication

5.1   Productivity Observations and Impact

Table 7 - Productivity Observations and Impact

Observation	Impact
Environment running slow; database issues	Delay in test case execution; batches running longer than usual
NG's lack of understanding of 834s, Change files, and Notices	Delay in test execution; incorrect information may pass through; errors may be missed
Clean wipe of database	Tables needed to be reset; delay in test execution
Defect management process not followed	Defects not given the correct status; defects not assigned back accurately; delay in addressing triaged defects
Defects currently in Production	Not provided with the list of known defects related to the release functionality; defects logged for existing issue
Number of defects requiring code changes and/or changes in functional specification	Requirements not clearly defined; delay in functionality being implemented; functionality not as expected; delay in test execution

5.2   Quality Observations and Impact

Table 8 - Quality Observations and Impact

Observation	Impact
Defect management process, not followed	Defects not given the correct status; defects not assigned back correctly; delay in addressing triaged defects
Insufficient test cases written by NG	Delay in test execution; multiple defects logged/cancelled due to test script error
High number of defects deferred due to lack of clearly defined scenarios; ambiguity in the FDD	Delay in functionality being implemented; requirements not clearly defined
Functional/Technical designs lack scenarios/use cases; Scenarios not clearly identified	Defects deferred; approach to testing; defects are logged for existing Production functionality; OPA rules in production are not matching the expected

Observation	Impact
	result that is captured in the FDD
Inconsistency in reporting status of defects	Defects are marked ready for test when no code fix has been provided "working as expected" (UHIP-100410)
Defects are commented with 'Existing Production Behavior'; however, a code fix was provided (e.g. UHIP-100127)	Inconsistency in reporting; unclear if modifications are truly being documented and made in both the Production and UAT environments; possible impact in Production; regression testing doesn't appear to be occurring; testing appears to be insufficient, as the issues are often identified during UAT and not readily identified until after Triage
NFP Batch going into 6.4 production without SIT	Potential errors and jobs not running correctly

5.3   Completeness Observations and Impact

Table 9 - Completeness Observations and Impact

Observation	Impact
Number of defects requiring code changes and/or changes in functional specification	Requirements not clearly defined; functionality not as expected; delay in test execution
Attachments not uploaded to test case	Validation of EDI files and correct APTC could not be completed
Delay in completing test scripts due to defects related to incorrect APTC calculations	Delay in completing test cases; test cases failed; execution discontinued in some cases
Test case provided by NG included segments of KPMG's test cases that were not to be used	Test cases remained in an 'in progress's status due not being able to be fully executed; reporting statistics had to be done manually
NG's lack of experience in preparing test execution calendar, batch job requests, etc.	Test execution calendar not prepared and/or shared in a timely fashion; possible delay in UAT; delay in onboarding third party vendors
Test cases incomplete and lack detail; KPMG provided a crash course on test case writing	Delay in test execution; test cases had to be rewritten
Functional/Technical designs lack scenarios/use cases	Scenarios not clearly identified; approach to testing; defects are logged for existing Production functionality

5.4   Communication Observations and Impact

Table 10 - Communication Observations and Impact

Observation	Impact
NG failed to deliver test cases for review and approval on agreed upon dates	Delay in starting UAT; experienced delays in test script execution
NG did not request time travel through written documentation when needed	Delay in executing test scripts
Multiple e-mails, calls, and meetings with NG to address questions, provide clarification, etc.	Information provided was not acted upon or understood; confusion around what was being provided and when
NG failed to confirm APTC validation after urgency was discussed	Possible delay in wiping database clean for next round of UAT
NG's lack of understanding of Phase 1 requirements	Delay in UAT; incomplete and failed test cases
NFP Batch job going into Production was not communicated to the UAT Team; discovered during test execution	Delay in test case execution; unexpected results

6. UAT RESULTS MAPPED TO EXIT CRITERIA

The following table identifies the final status of the UAT exit criteria as having been either met or not met.

Table 11 - Results Mapped To Exit Criteria

#	Item/Objective	Status	Comments	Criteria Met (Yes or No)
1	Test cases have been executed and passed (or deferred to a future release, if approved by State)	Complete	All test cases were executed	Yes
2	Severity 1-Critical or Priority 1-Critical work requests have been resolved and tested.	Incomplete	Three (3) Severity 1-Critical defects have been deferred: UHIP-100042 UHIP-100053 UHIP-100392 Please reference the attached list of open defects in Section 4.1.2	No
3	Mutually-agreed Severity 2-High or Priority 2-High work requests which were not resolved during testing have been reviewed and deferred by the State (i.e., the State has agreed that it is acceptable to launch with these work requests outstanding). In cases where the State does not agree to defer, these Severity 2-High or Priority 2-High work requests will be resolved prior to release. The State and Deloitte will collaborate to identify potential quality or schedule risks and implement appropriate mitigation strategies if necessary.	Complete	The State agreed to defer 10 defects; please reference the attached list of open defects in Section 4.1.2	Yes
4	The State has validated and signed off on UHIP functionality delivered during this release	Complete	There is no official sign-off; however, the State agreed to Go-Live	Yes

7. RECOMMENDATIONS

In order to improve the results of future UAT efforts, CSG makes the following recommendations:

7.1   Test Scenario Development

The State should be an active partner in developing and documenting real-life scenarios that will allow for creation of test cases that fully support end-to-end testing of the functionality. This input is vital to successful test case execution and provides assurance from the business and technical side of test coverage.

7.2   Test Case Review

Deloitte should be required to implement policies and procedures for writing effective test cases to the extent that anyone is able to determine what exactly was executed within SIT. The State should require Deloitte and KPMG to review and develop test scenarios and cases with the State in advance. In addition, the State should require Deloitte to develop and implement risk mitigation strategies to improve the quality of SIT and provide thorough regression testing. In addition, the State needs to be more involved in the UAT test case creation process. This will ensure UAT efforts are comprehensive and meet the State's expectations.

7.3   Best Practices

CSG recommends the following best practices to ensure the success of UAT efforts:

➢ Allow SIT to exit before entering UAT (UAT and SIT should not run simultaneously)

➢ Adhere to a SIT entrance and exit checklist

➢ Joint review of SIT exit criteria and UAT entrance criteria

➢ SIT exit process is always followed to ensure decisions are visible and understood

➢ Thoroughly discuss UAT timelines and plans early in the release scheduling process

➢ Clearly define the scope of the functionality to be tested within UAT

➢ Test end-to-end business flows and avoid fragmented system integration tests

➢ Test the system with real world scenarios and data

➢ Think as an unknown user to the system

➢ Perform usability and Section 508 compliance (Accessibility) testing

➢ Thoroughly discuss and review the total impact of moving a release into Production

➢ Known issues identified as 'existing production behavior' should be provided to the State and UAT Team prior to the start of UAT

7.4   Pending Defect Resolution

➢ Develop a plan of action to ensure all medium and low defects are properly addressed

➢ Develop a plan to ensure and document how and when all deferred defects will be addressed

➢ Ensure that all defects identified for a change request are properly documented with a UHIP ID