cQube – Test Plan Document

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Current Release 1.7

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Version History

Version	Release Date	Covered Topics	Affected Sections & Reference links
V 1.0	04.06.2020	• One step Installation • Data emission API • Role based login for Admin, Report viewer and Emission users • Change Password • Create New User • Student Attendance Report • CRC App data Report • Semester Assessment Report	Test Summary Sheet: https://github.com/project-sunbird/cQube/blob/release-1.0/tests/documents/Cqube_Test_Summary_sheet.xlsx Test Reports: https://github.com/project-sunbird/cQube/tree/release-1.0/tests/test_reports
V 1.1	16.07.2020	• Infrastructure reports with configuration stage implementation • API development for downloading log files and files, metrics from S3 buckets • Data validations • Admin screens • Access management using Keycloak	Test Summary Sheet: https://docs.google.com/spreadsheets/d/13z5Q-SOGQEWFuRfyoytIMTVrjMdRRccpQM3sl-eA_iw Test Reports: https://github.com/project-sunbird/cQube/tree/release-1.1/tests/src/Reports
V1.2	20.08.2020	• Diksha data content play visualization • Telemetry implementation and telemetry visualization • Enhancement of the process scheduler • cQube Configurations • Keycloak integration automation • User management through admin screens	Test Summary Sheet: https://docs.google.com/spreadsheets/d/1SCy1LHqqDqcorkfbmj1O8R5yerTvkXHScEhSKjTC_yc Test Reports: https://github.com/project-sunbird/cQube/tree/release-1.2/tests/src/Reports
V1.2.1	26.08.2020	• Overall usage count for textbooks, courses in Diksha charts, Metrics for diksha usage count, Diksha report in summary statistics • crc report metric issue	Test Summary Sheet: https://docs.google.com/spreadsheets/d/1SCy1LHqqDqcorkfbmj1O8R5yerTvkXHScEhSKjTC_yc Test Reports: https://github.com/project-sunbird/cQube/tree/release-1.2.1/tests/src/Reports
V1.3	11.09.2020	• UDISE data map based visualization	Test Summary Sheet: https://docs.google.com/spreadsheets/d/1BMZpIlddNTc-Q3z_zSa_2k0dy7h5fKm28LS7Q1AoU5U

			Test Reports: https://github.com/project-sunbird/cQube/tree/release-1.3/tests/src/Reports
V1.4	30.09.2020	• Composite report configuration • Scatter plot visualization using the composite data	Test Summary Sheet: https://docs.google.com/spreadsheets/d/1z5QOv3atjcv-oA-2TRVRmjMvM24oinQI3klQUV2mqxU Test Reports: https://github.com/project-sunbird/cQube/tree/release-1.4/tests/src/Reports
V1.4.1	09.10.2020	• Login page with new design • Landing page with new design • Percentage representation at Diksha column chart	Test Summary Sheet: https://docs.google.com/spreadsheets/d/1z5QOv3atjcv-oA-2TRVRmjMvM24oinQI3klQUV2mqxU Test Reports: https://github.com/project-sunbird/cQube/tree/release-1.4.1/tests/src/Reports
V1.5	16.10.2020	• UDISE Report - Configuration stage implementation • DIKSHA api call • Telemetry dashboard implementation • PAT report enhancement - addition of time range	Test Summary Sheet: https://docs.google.com/spreadsheets/d/1ZHcVcXgPhDyuUp3vdNI-0iW5CZed_fx9CKHvw8aBHg8 Test Reports: https://github.com/project-sunbird/cQube/tree/release-1.5/tests/src/Reports
V1.6	06.11.2020	• PAT Heat Chart Report • Separation of Diksha "Usage by Location & Usage by Content Name" Report • Teacher course enrolment (Diksha TPD) • Responsive code development for Landing page • Keycloak code changes when the Postgres restarted • Nifi Process Optimization for memory issue • Admin - UI Screen updates for the NIfi processor status	Test Summary Sheet: https://docs.google.com/spreadsheets/d/1r3bUU1qa0oR-Bc9KPgWX6Ht_y8J1SxzuIIezvkGCaBE Test Reports: https://github.com/project-sunbird/cQube/tree/release-1.6/tests/src/Reports
V1.6.1	13.11.2020	• Heat map changes for PAT and TPD Reports	Test Summary Sheet: https://docs.google.com/spreadsheets

		• Cropping of India map to Gujarat for all Map reports • Negative values issue in Nifi processing • Addition of PAT and TPD data sources in the admin statistics screen • 5,6,7 and 8 grades not displaying defect fix at the download file of PAT map school level • Adding the i-icon for all landing page dashboard icons • Other UI text alignments for all reports • Digital certificate add to the Emission and S3 output file download APIs	/d/1yog2VBcIg6Z37mMlc4HIwWUrUVD5NEfEJOnulHFmiis Test Reports: https://github.com/project-sunbird/cQube/tree/release-1.6.1/tests/src/Reports
V1.7	08.12.2020	• Load balancer changes from ELB to ALB • Nifi Scheduler for Daily, Weekly, Monthly and Yearly • State specific configurations • State specific Static table configurations from UDISE data • Diksha TPD Enrolment/Completion reports • API Token based authentication • Configuration of session out time • Configuration of Diksha Columns	Test Summary Sheet: https://docs.google.com/spreadsheets/d/1Y0U_Cxd1MK-4J9dPqA2Y3w2-AX6XQoMRjzt2knXrHMA Test Reports:

1. Introduction

Purpose of this document

This document describes the plan for testing the cQube Application. This Test Plan document supports the following objectives:

- Identify existing project information and the software that should be tested.
- List the recommended test requirements (high level).
- Recommend and describe the testing strategies to be employed.
- Identify the required resources and provide an estimate of the test efforts.
- List the deliverable elements of the test activities.

2. Test ITEM

2.1 Project description

cQube is an analytical product which helps the educational ecosystem by providing actionable items/ outcomes to the respective end users/ actors in a controlled manner (through access control). This analytical engine ingests data, analyzes, integrates, stores and creates reports (dashboards and charts).

2.2 TEST Approach(s)

This project is using an agile approach with planned iterations (once a month or shorter). At the end of each iteration, the requirements planned will be delivered to the team and tested. At the end of each week the requirements identified for the planned iteration will be delivered to the team and will be tested. Exploratory testing will play a large part of the testing as the team has never used.

The planned functionalities for each iteration is explained to the testers. A test plan is created and the tests required for the functionalities will be decided and created. Tests for planned functionality will be created and added as we get iterations of the product.

2.2.1 Functional Tests

- Functionality Test
- Regression Test
- System Test
- Smoke Test
- User Acceptance Test

2.2.2 Non-Functional Tests

- Metrics Test
- Load Test
- Manual Test

2.2.3 Test Descriptions

1. Functionality Test

Participants: Testing team

Methodology :

Functional tests are performed by using automation scripts. Selenium python is used to create the automation scripts.

In this each and every component is checked in depth and independently.

Rigorous tests are performed. for the below mentioned functionalities

cQube Admin Console:

- Create user
- Change password
- User list
- Logs
- S3 Download files
- Summary statistics
- Monitoring Details
- Nifi scheduler

cQube Dashboard:

- Student Attendance Report
- CRC Report
- Semester Report
- All Diksha Reports
- School Infrastructure Reports
- Semester exception report,
- Periodic Assessment Test Reports
- Composite Report
- Udise Report
- Telemetry

2. Regression Test

Participants: Testing Team

Methodology: Regression testing can be done by automation scripts using selenium python.

Regression testing can be done, the regression tests help in checking all the changes that have been implemented in the new build. The main aim of regression tests is to make sure that the new implementations (builds) do not have any effect on the other components.

cQube Dashboard:

Login → Dashboard → Student Attendance report
Login → Dashboard → Semester report
Login → Dashboard → CRC Report
Login → Dashboard → School Infrastructure Map and Plot Reports
Login → Dashboard → All Diksha Reports
Login → Dashboard → Semester exception report
Login → Dashboard → Periodic Assessment Test Reports
Login → Dashboard → Composite Report
Login → Dashboard → Udise Report
Login → Dashboard → Telemetry report

cQube Admin Console:

Login → Admin Dashboard → Create User
Login → Admin Dashboard → Change password
Login → Admin Dashboard → User list
Login → Admin Dashboard → Logs
Login → Admin Dashboard → Summary Statistics
Login → Admin Dashboard → S3 Download files
Login → Admin Dashboard → Monitoring Details
Login → Admin Dashboard → Nifi Scheduler

3. System Test

Participants: Testing Team

Methodology: In this test, end-to-end testing can be performed on the complete cQube Application.

System testing involves both manual and automation (using selenium-python) testing.

Manual Testing

- Installation
- Upgradation
- Work-flow

Automation Testing

- cQube Admin console
- cQube Dashboard

4.Smoke Test

Participants: Testing team

Methodology: Smoke testing can be done with automation scripts using selenium python.

Smoke testing can be performed in the release environment. This involved sting all the major functionalities and whether they are working as per the requirement. The following functionalities are included in the smoke testing:

cQube Admin Console:

- Create user, Change password, User list, Logs, S3 Download files, Summary statistics Monitoring Details and Nifi scheduler.

cQube Dashboard:

- Student Attendance Report, CRC Report, Semester Report, All Diksha Reports, School Infrastructure Reports, Semester exception report, Periodic Assessment Test Reports, Composite Report, Udise Report and Telemetry

5. User Acceptance Test (UAT):

Participants: End users

Methodology : Users or client – The user acceptance test is performed by the end user and in this case this can be done by Ekstep. Normally this test will be performed after each release, within the first 3-4 working days after release.

Ekstep UAT Team will cover the below areas in the UAT,

- One step Installation / Upgradation of cQube
- Data flow & Nifi processes efficiency
- Data accuracy by performing the metrics test
- Visualizations (User friendly)

Non-Functional Testing Descriptions

1. Metrics Test

Participants: External cQube Team (Tibil Data analyst)

Methodology: Metrics tests are performed in order to check the calculations on the reports where these calculations are reflected

Queries can be used to determine whether the inputs are correct. This test should be performed by a Data analyst from Tibil who is not a part of cQube.

The steps mentioned below would be followed in the metrics test.

- All the requirements & input data from cQube will be provided to the Analyst.
- Analysts will perform the validations on the data.
- Construct & Execute their own queries based on the requirements.
- Compare their results with cQube results.

2. Load Test:

Participants: cQube Testing Team

Methodology: In this behavior of the application can be determined under a specific expected load

- Load test will be performed on data files to check the maximum files size accepted at Nifi processes
- Load tests will be performed on the maximum number of active users who can access the application.
- Load test will be performed on the data to load the visualizations
- Data load test will be performed on the reposts performance.

3. Manual Test:

Participants: cQube Testing Team

Methodology: In cQube application some of the portions are handled by manual testing.

Manual testing areas are

- Installation
- Upgradation
- Data Work-flow
- Alignment of all the Reports

3. Test criterion

3.1 Test Pass / Fail Criteria

All the major functionalities of the application should work as intended and the pass percentage of test cases should be more than 95% and there should be no critical bugs.

3.2 Test Entry / Exit Criteria

3.2.1 Entry Criteria

- The requirement document should be available.
- Complete understanding of the application flow is required.
- The Test Plan Document should be ready.

3.2.2 Exit Criteria

- Test Cases should be written and reviewed.
- Test Data should be identified and ready.
- Test automation script should be ready if applicable.

3.2.3 Test Deliverable

- Test plan document
- Test cases.
- Test Case Execution Report.

3.2.4 Test Suspension / Resumption Criteria

If any of the major functionality are not functional or system experiences login issues, then testing should be suspended.

3.2.5 Staffing / Training Needs

For this release we learned Selenium grid concept, how to executing scripts parallel and at time opening browser and perform the functionalities

4. Risk and mitigation

4.1 Test Risks / Issues

Assumptions

- This section lists the assumptions that have been made specific to this project. Delivery of the product is in the format that the test team can check it into CVS.

Risks

- The following risks have been identified and the appropriate actions have also been identified to mitigate their impact on the project. The impact (or severity) of the risk is based on how the project would be affected if the risk was triggered. The trigger is what milestone or event would cause the risk to become an issue to be dealt with.

S.No.	Risk	Impact	Trigger	Mitigation Plan
1	Scope Creep –as testers become more familiar with the tool, they will want more functionality.	High	Delays in implementation date	Each iteration, functionality will be closely monitored. Priorities will be set and discussed by stakeholders. Since the driver is functionality and not time, it may be necessary to push the date out.

2	Changes to the functionality may negate the tests already written and we may lose test cases already written.	High – to schedule and quality	Loss of all test cases	Export data prior to any upgrade, massage as necessary and re-import after upgrade.
3	Weekly delivery is not possible because the developer works off site.	Medium	Product will not get delivered on schedule	Plan for the parallel testing to complete the desired testings in the planned time.

4.2 Test Environment and infrastructure

Required Infrastructure

- For this we need separate Testing environment as QA sandbox for both manual and automation

Availability Plan

- Planned for QA sandbox to be used for Automation

4.3 Roles and responsibilities

Role	Responsibility
Test plan	It should be prepared by Test Lead as well as Testers
Test Cases	It should be prepared and executed by Testers.
Test Execution Report	It should be prepared and executed by Testers.

Approvals

Signature:		Date:	
Print Name:			
Title:			
Role:			

Signature:		Date:	
Print Name:			
Title:			
Role:			

Signature:		Date:	
Print Name:			
Title:			
Role:			

Appendix A: References

The following table summarizes the documents referenced in this document.

Document Name and Version	Document name	Document Reference Location
cQube 1.7	Release Notes	https://docs.google.com/document/d/19LmdhNrYgh9KgDG_FqyCporrEjVW0BqtAJnh6fhreho
cQube 1.7	Operational Document	https://docs.google.com/document/d/1J7WZJawNGxd_wYWd9H9ic2UrcmPI0cAAVVnK9F49Ocg
cQube 1.7	Technical Document	https://docs.google.com/document/d/15oakVPuguAwc4oakeJPrLAiE4ipW4F8KFer85w2jjZ8