Conduit - Test Plan

2/20/2023

Project Name: Conduit

Version : 1.0

Created : 2/20/2023

Last updated: 2/22/2023

Status: Draft *(The status would change to finalized post the BA, PM and dev team review and sign off)*

# Revision and Sign off sheet

**Document History**

| Version | Date | Author | Changes/Update Description |
| --- | --- | --- | --- |
| 1 | 2/20/2023 | Sajina Dangol | Draft (in review) |
|  |  |  |  |

**Approvers List**

| Name | Role | Approver/reviewer | Approval / Reviewal Date |
| --- | --- | --- | --- |
|  |  |  |  |
|  |  |  |  |

**Reference Documents**

| Version | Date |  |
| --- | --- | --- |
| 1.0 | 2/20/2023 | Requirement Documents |
| 1.0 | 2/20/2023 | Design Files |

# **1. Introduction**

## 1.1 Purpose of the test plan:

This test plan describes the testing approach and overall framework that will drive the testing of the Conduit Version 1.0 The document introduces:

1. Test Strategy: rules the test will be based on, including the givens of the project (e.g.: start / end dates, objectives, assumptions); description of the process to set up a valid test (e.g.: entry / exit criteria, creation of test cases, specific tasks to perform, scheduling, data strategy).
2. Execution Strategy: describes how the test will be performed and process to identify and report defects, and to fix and implement fixes.
3. Test Management: process to handle the logistics of the test and all the events that come up during execution (e.g.: communications, escalation procedures, risk and mitigation, team roster)

## 1.2 Project Overview

Conduit is a website providing users with the ability to register and sign in to the website to view articles, create articles and update articles. Users hold the privilege to create and update their own profiles, own articles along with adding their own and others’ articles to favorites. The functionality of this project spans through making information available anywhere, anytime.

## 1.3 Audience

* Project team members perform tasks specified in this document, and provide input and recommendations on this document.
* Project Manager Plans for the testing activities in the overall project schedule, reviews the document, tracks the performance of the test according to the task herein specified, approves the document and is accountable for the results.
* The stakeholders’ representatives and participants may take part in the UAT test to ensure the business is aligned with the results of the test.
* Technical Team ensures that the test plan and deliverables are in line with the design, provides the environment for testing and follows the procedures related to the fixes of defects.
* Business analysts will provide their inputs on functional changes.

# **2. Test Strategy**

## 2.1. Test Objectives

The objective of the test is to verify that the functionality of CONDUIT VERSION 1.0 works according to the specifications.

The test will execute and verify the test scripts, identify, fix and retest all high and medium severity defects per the entrance criteria and prioritize lower severity defects

The final product of the test is twofold:

* A production-ready software;
* A set of stable test scripts that can be reused for Functional and UAT test execution.

## 2.2 Test Assumptions

Key Assumptions

* Production like data required and be available in the system prior to the start of Functional Testing.
* In each testing phase, if the defect rate is high in the current phase, the next phase of testing will be initiated.

General

* Exploratory Testing would be carried out once the build is ready for testing.
* Performance Testing would be carried out for this estimation.
* The Test Team will be provided with access to the Test environment.
* The Test Team assumes all necessary inputs required during Test design and execution will be supported by Development/ Business Analyst appropriately.
* Test case design activities will be performed by QA Group.
* Test environment and preparation activities will be owned by the Dev Team.
* Dev team will provide Defect fix plans based on the Defect meetings during each cycle to plan. The same will be informed to the Test team prior to the start of Defect fix cycles.
* Business Analyst will review and sign-off all Test cases prepared by the Test Team prior to start of Test execution.
* The defects will be tracked through Jira. Any defect fixes planned will be shared with the Test Team prior to applying the fixes on the Test environment.
* Project Manager/ Business Analyst will review and sign-off all test deliverables.
* The project will provide test planning, test design and test execution support.
* Test team will manage the testing effort with close coordination with the Project Manager / Business Analyst.
* The system will be treated as a black box; if the information shows correctly online, it will be assumed that the database is working properly.
* During Functional testing, the testing team will use preloaded data which is available on the system at the time of execution.
* Automation testing will be performed by QA after a stable test version is released.
* User Acceptance Testing (UAT) test execution will be performed by end users and QA Group will provide their support on creating UAT script.

## 2.3. Test Principles

* Testing will be focused on meeting the business objectives, cost efficiency, and quality.
* There will be common, consistent procedures for all teams supporting testing activities.
* Testing processes will be well defined, yet flexible, with the ability to change as needed.
* Testing activities will build upon previous stages to avoid redundancy or duplication of effort.
* Testing environment and data will emulate a production environment as much as possible.
* Testing will be a repeatable, quantifiable, and measurable activity.
* Testing will be divided into distinct phases, each with clearly defined objectives and goals.
* There will be entrance and exit criteria.

## 2.4 Data Approach

In functional testing, Conduit will contain preloaded test data and which is used for testing activities.

## 2.5 Scope and Levels of Testing

### 2.5.1 Exploratory

Purpose: To make sure critical defects are removed before the next levels of testing can start.

Scope: First level navigation, Dashboard and CRUD operations for article

Testers: Testing team.

Method: Carried out in the application without any test scripts and documentation

Timing: At the beginning of each cycle.

### 2.5.2 Functional Test

Purpose**:** Functional testing will be performed to check the functions of the application. The functional testing is carried out by feeding the input and validates the output from the application against the requirement specification documents.

Scope: The test scenarios below details about the scope of the Functional test. Note: The scope is high level due to changes in the requirement.

Test scenario 1. Verify Signup with valid/ invalid user input

Test scenario 2. Verify Login with valid/ invalid credentials

Test scenario 3. Verify Settings (View and Edit)

Test scenario 4. Verify New post create

Test scenario 5. Veriy Edit, update and delete the articles

Test scenario 6. Verify logout (session timeouts)

Testers: Testing Team.

Method: The test will be performed according to Functional scripts, which are stored in HP ALM.

Timing: after the Exploratory test is completed.

Test Acceptance Criteria

1. Approved Functional Specification document, Use case documents must be available prior to the start of the Test design phase.
2. Test cases approved and signed-off prior to start of Test execution
3. Development completed, unit tested with pass status and results shared to Testing team to avoid duplicate defects
4. Test environment with application installed, configured and ready to use state

Test Deliverables

| S.No | Deliverable Name | Author | Reviewer |
| --- | --- | --- | --- |
| 1 | Test Plan | Test Lead | PM/ BA |
| 2 | Functional Test Cases | Test Team | BA |
| 3 | Logging Defects in Jira | Test Team | Test Lead/ Tech Lead |
| 4 | Daily/ weekly status report | Test Team/ Test Lead | Test Lead/ PM |
| 5 | Test Closure report | Test Lead | PM |

### 2.5.3 Automation testing

Purpose: To execute software tests automatically and repeatedly to improve efficiency and accuracy, and to identify defects or issues in the software system.

Testers: Testing team

Method: Test team to automation scripts based regression test plan and critical cases which can be performed with minimum human interference

Timing: After all other levels of testing are done in a stable testing environment

Test deliverables

| S.No | Deliverable Name | Author | Reviewer |
| --- | --- | --- | --- |
| 1 | Automated Test Scripts | Test Team | Test Lead |

### 2.5.4 User Acceptance Test (UAT)

Purpose: Focuses on validating the business logic. It allows the end users to complete one final review of the system prior to deployment.

Testers: UAT is performed by the end users with the guidance of testers.

Method: Test team to write the UAT test cases based on the inputs from End users on the basis of their experience and feedback after UAT

Timing: After all other levels of testing (Exploratory and Functional) are done. Only after this test is completed the product can be released to production.

Test deliverables

| S.No | Deliverable Name | Author | Reviewer |
| --- | --- | --- | --- |
| 1 | UAT Test Cases | Test team | BA |

## 2.6 Test Effort Estimate

| QA activities | Effort in hours | Remarks |
| --- | --- | --- |
| Requirement Analysis | …… |  |
| Test Plan / Test Strategy |  |  |
| Test Environment setup |  |  |
| Ad hoc testing |  |  |
| Test case development including Peer review and updates |  |  |
| Test lead/Coordination/status reporting efforts |  |  |
| Test execution |  |  |
| Logging defects |  |  |
| Bug Fixes |  |  |
| Final defect round to meet exit criteria |  |  |
| Test lead coordination effort |  |  |
| UAT |  |  |
| UAT support |  |  |
| Post Production support |  |  |
| Training period |  |  |
| Total effort in days | 80 days (example) |  |

# **3. Execution Strategy**

## 3.1. Entry and Exit Criteria

* The entry criteria refer to the desirable conditions in order to start test execution; only the migration of the code and fixes need to be assessed at the end of each cycle.
* The exit criteria are the desirable conditions that need to be met in order proceed with the implementation.
* Entry and exit criteria are flexible benchmarks. If they are not met, the test team will assess the risk, identify mitigation actions and provide a recommendation. All this is input to the project manager for a final “go-no go” decision.
* Entry criteria to start the execution phase of the test: the activities listed in the Test Planning section of the schedule are 100% completed.
* Entry criteria to start each cycle: the activities listed in the Test Execution section of the schedule are 100% completed at each cycle.

| Exit Criteria | Test Team | Tech Team | Notes |
| --- | --- | --- | --- |
| 100% Test Scripts executed |  |  |  |
| 95% pass rate of Test Scripts |  |  |  |
| No open Critical and High severity defects |  |  |  |
| 95% of Medium severity defects have been closed |  |  |  |
| 95% of Medium severity defects have been closed |  |  |  |
| All expected and actual results are captured and documented with the test script |  |  |  |
| All defects logged in JIRA |  |  |  |
| Test Closure Memo completed and signed off |  |  |  |
| Test environment cleanup completed and a new back up of the environment |  |  |  |

## 3.2 Test Cycles

There will be two cycles for functional testing. Each cycle will execute all the scripts .

The objective of the first cycle is to identify any blocking, critical defects, and most of the high defects. It is expected to use some work-around in order to get to all the scripts. The objective of the second cycle is to identify remaining high and medium defects, remove the work-around from the first cycle, correct gaps in the scripts and obtain performance results.

## 3.3 Validation and Defect Management

It is expected that the testers execute all the scripts in each of the cycles described above. However it is recognized that the testers could also do additional testing if they identify a possible gap in the scripts. This is especially relevant in the second cycle, when the Business analyst’s join in the execution of the test, since the BAs have a deeper knowledge of the business processes. If a gap is identified, the scripts and traceability matrix will be updated and then a defect logged against the scripts.

The defects will be tracked through Jira. The technical team will gather information on a daily basis from the tool and request additional details from the Defect Coordinator. The technical team will work on fixes.

It is the responsibility of the tester to open the defects, link them to the corresponding script, assign an initial severity and status, retest and close the defect. Also, review the severity of the defects and facilitate with the technical team the fix and its implementation. After the fix the testing team will retest and modify status as the defect progresses through the cycle; it is the responsibility of the technical team to review the bug tracking tool on a daily basis, ask for details if necessary, fix the defect, and implement the solution.

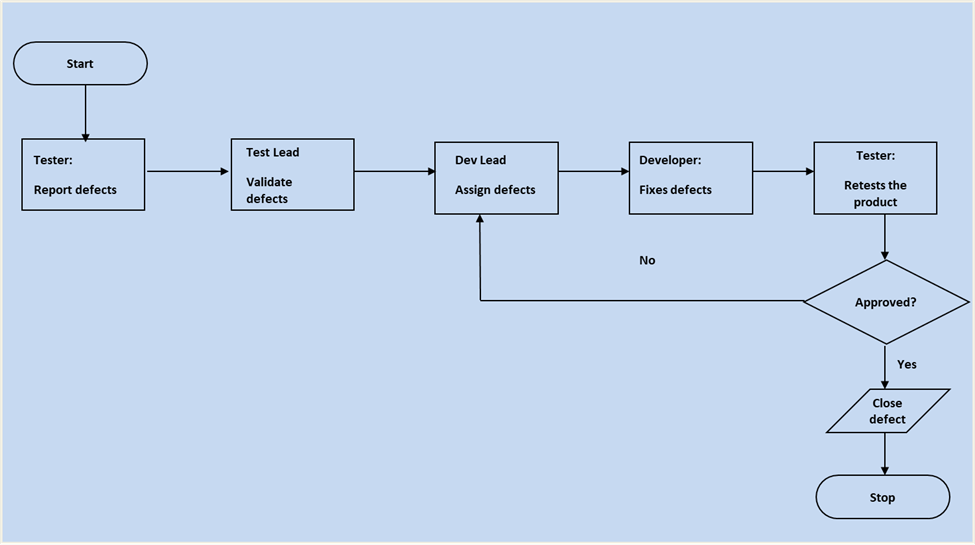
## 3.4. Test Metrics

Test metrics to measure the progress and level of success of the test will be developed and shared with the project manager for approval. The below are some of the metrics

| Report | Description | Frequency |
| --- | --- | --- |
| Test Preparation | Reports Complete, WIP, Pass, Fail | Weekly /Daily |
| Execution Status | Defect severity wise status - open, closed, etc | Weekly /Daily |
| Daily execution status | To report on Pass, Fail, Total defects, highlight blocker / Critical defects | Daily |
| Project Weekly status report | Project driven reporting | Weekly |

## 3.5 Defect tracking & Reporting

Following flowchart depicts Defect Tracking Process:



# **4. Test Management Process**

## 4.1.1. Test Management Tool

JIRA is the tool used for bug tracking and test management. All testing artifacts such as Test cases, test results are updated in the tool. Various reports can be generated to provide status of Test execution. For example, Status report of Test cases executed, Passed, Failed, No. of open defects, Severity wise defects etc.

## 4.1.2 Test Design Process

* The tester will understand each requirement and prepare a corresponding test case to ensure all requirements are covered.
* Each Test case will be mapped to Use cases to Requirements as part of the Traceability matrix.
* Each of the Test cases will undergo review by the BA and the review defects are captured and shared to the Test team. The testers will rework on the review defects and finally obtain approval and sign-off.
* During the preparation phase, testers will use the prototype, use case and functional specification to write step by step test cases.
* Testers will maintain a clarification Tracker sheet and the same will be shared periodically with the Requirements team and accordingly the test case will be updated. The clarifications may sometimes lead to Change Requests or not in scope or detailing implicit requirements.
* Sign-off for the test cases would be communicated through mail by Business Analyst’s.
* Any subsequent changes to the test case if any will be directly updated in JIRA

## 4.1.3 Test Execution Process

* Once all Test cases are approved and the test environment is ready for testing, testers will start an exploratory test of the application to ensure the application is stable for testing.
* Each Tester is assigned Test cases directly in JIRA
* Testers to ensure necessary access to the testing environment, Jira for updating test status and raising defects. If any issues, will be escalated to the Test Lead and in turn to the Project Manager as escalation.
* If any blocker during exploratory testing will be escalated to the respective development for fixes.
* Each tester performs step by step execution and updates the execution status.
* If any failures, defects will be raised as per severity jira tool detailing steps to simulate along with screenshots if appropriate.
* Daily Test execution status as well as Defect status will be reported to all stakeholders.
* Testing team will participate in defect triage meetings in order to ensure all test cases are executed with either pass/fail category.
* If there are any defects that are not part of steps but could be outside the test steps, such defects need to be captured and map it against the test case level or at the specific step that issue was encountered after confirming with Test Lead.
* This process is repeated until all test cases are executed fully with Pass/Fail status.
* Any defects fixed applied will be tested and results will be updated.

As per Process, final sign-off or project completion process will be followed

## 4.1.4. Test Risks and Mitigation Factors

| Risk | Mitigation Plan |
| --- | --- |
| **SCHEDULE**  Testing schedule is tight. If the start of the testing is delayed due to design tasks, the test cannot be extended beyond the UAT scheduled start date. | The testing team can control the preparation tasks (in advance) and the early communication with involved parties.  Some buffers have been added to the schedule for contingencies, although not as much as best practices advise. |
| **RESOURCES**  Not enough resources, resources on boarding too late (process takes around 15 days. | Holidays and vacation have been estimated and built into the schedule; deviations from the estimation could derive in delays in the testing. |
| **DEFECTS**  Defects are found at a late stage of the cycle or at a late cycle; defects discovered late are most likely be due to unclear specifications and are time consuming to resolve. | Defect management plan is in place to ensure prompt communication and fixing of issues. |
| **SCOPE** | Scope is well defined but the changes in the functionality are not yet finalized or keep on changing. |
| Non-availability of Independent Test environment and accessibility | Due to non availability of the environment, the schedule gets impacted and will lead to delayed start of Test execution. |
| Delayed Testing Due To new Issues | During testing, there is a good chance that some “new” defects may be identified and may become an issue that will take time to resolve.  There are defects that can be raised during testing because of unclear document specification. These defects can yield to an issue that will need time to be resolved.  If these issues become showstoppers, it will greatly impact the overall project schedule.  If new defects are discovered, the defect management and issue management procedures are in place to immediately provide a resolution. |

# **5. Role Expectations**

## Project Management

Project Manager reviews the content of the Test Plan, Test Strategy and Test Estimates signs off on it.

## Test Planning (Test Lead)

* Ensure entrance criteria are used as input before starting the execution.
* Develop test plans and the guidelines to create test conditions, test cases, expected results and execution scripts.
* Provide guidelines on how to manage defects.
* Attend status meetings in person or via the conference call line.
* Communicate to the test team any changes that need to be made to the test deliverables or application and when they will be completed.
* Provide functional (Business Analysts) and technical team to test team personnel (if needed).

## Test Team

* Develop test conditions, test cases, expected results, and execution scripts.
* Perform execution and validation.
* Identify, document and prioritize defects according to the guidance provided by the Test lead.
* Re-test after software modifications have been made according to the schedule.
* Prepare testing metrics and provide regular status.

## Test Lead

* Acknowledge the completion of a section within a cycle.
* Give the OK to start the next level of testing.
* Facilitate defect communications between testing team and technical / development team.

## Development Team

* Review testing deliverables (test plan, cases, scripts, expected results, etc.) and provide timely feedback.
* Assist in the validation of results (if requested).
* Support the development and testing processes being used to support the project.
* Certify correct components have been delivered to the test environment at the points specified in the testing schedule.
* Keep the project team and leadership informed of potential software delivery date slips based on the current schedule.
* Define processes/tools to facilitate the initial and ongoing migration of components.
* Conduct first line investigation into execution discrepancies and assist test executors in creation of accurate defects.
* Implement fixes to defects according to schedule.

# **6. Test Environment**

Front-end App : React application (http://localhost:3000)

Back-end App: Nodejs (ExpressJs) application (http://localhost:8080)

Database: MySQL

Browser: Chrome

# **7. Approvals**

The Names and Titles of all persons who must approve this plan.

| **Signature:** |  |
| --- | --- |
| **Name:** |  |
| **Role:** |  |
| **Date:** |  |

| **Signature:** |  |
| --- | --- |
| **Name:** |  |
| **Role:** |  |
| **Date:** |  |