TEST PLAN Document

FOR

Process Lease Management Services

OF

Design, Development, Operation and Maintenance of Integrated Digital Service Delivery Platform (IDSDP) Software

**16 October 2023**

**Version 1.0**

**Revision History**

|  |  |  |  |  |  |
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| **Date** | **Version** | **Change Description** | **Prepared By** | **Reviewed By** | **Reviewed Date** |
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# Scope

The Test Plan Document covers test planning, test specification, methods, approaches, deliverables, test case/point and test reporting.

# Objective

The goal is to test whether the functionality of” Process Lease Module” is functioning accordingly as stated in User Interface (UI) and Software Requirements Specification documents as per defined technology and environment. Also, to test security and non-functional elements of the system.

# Testing Process

Before testing, test environment is established and test engineer host the application in defined environment. Project will be created in JIRA and components will be created accordingly. And hence, functional testing will be commenced using test case/point. Regression testing is performed to verify that the corrections that were made resolved the original problems and impacts on other scopes are handled accurately. Apart from this, Installation Testing, Browser Compatibility Testing, Security Testing, Destructive Testing, Stress Testing and other Non-functional Testing approaches will be conducted to ensure that the system is running smoothly as per plan.

Table 1: List of Tools to be used

|  |  |  |
| --- | --- | --- |
| **Tools** | **Purpose** | **Comments** |
| JIRA | Defect Reporting and tracking | Every defect has a life cycle (New to Close). JIRA will be used for tracking the life cycle of a defect. Once a defect is reported in JIRA, it can be easily track what is the current status of this defect, what action needs to be performed and by whom. In another word, JIRA is communication tool among internal stakeholders to track the current status of a given defect. |
| POSTMAN | API Testing | POSTMAN will be used to validate the functionality of API. |
| JMeter | Performance and Load Testing | Apache JMeter will be used to test performance of Web applications. It can be used to simulate a heavy load on a server, group of servers, network or object to test its strength or to analyze overall performance under different load types. |
|  |  |  |
|  |  |  |

## Testing Process Entry Criteria

The Entrance Criteria should be fulfilled before a test can commence. The entry criteria are:

* Unit test document by development team.
* QA release note.
* System Requirement Specification Document (to be supplied by the Project Management Team).

## Testing Process Exit Criteria

The Exit Criteria of testing process are detailed below. At least one or more must be achieved before the software under test can be released to production:

* PPQA will verify that all functionality (documented for this application) is working according to specifications.
* When all the possible test cases are executed and passed
* Group meeting between development team and testing team.

# Overview of the module/Software

The Process Lease Module is developed to reduce error and faster the activities of application approval, collections, communication to applicant/lessee/lab/departments, monitoring and all other activities of process Lease Management. End user can apply for developed lease application and sponsorship lease application from anywhere without visiting the BCSIR/BRICM head office. This module have two interfaces one is admin interfaces, which can be accessed by, authorized officers of BCSIR/BRICM another one is user interfaces which can be accessed by the registered users and guest users.

User Interface: Process Lease Application(Developed/ Sponsorship)

* General Information
* Organizational information
* Factory Project information
* Attachment
* Payment information

Admin Interface: Process Lease Admin

* Process Lease Setup
* Process Lease Application
* Factory Project inspection
* Research Proposal
* Monitoring

Approval Flow: Developed

* Application Process
* Application Approval Process
* Inspection Report Approval Process
* Fixation Meeting Resolution Approval Process
* Deed Signing Process
* Monitoring Report Approval Process

Approval Flow: Sponsorship

* Sponsorship Application Process
* Sponsorship Application Approval Process
* Verification Committee Resolution Approval Process
* Fixation Meeting Resolution Approval Process
* Deed Signing Process
* Monitoring Report Approval Process

# Features to be Tested

Test case/point will be developed as per the requirements stated in System Requirements Specification (SRS). Those features will be tested. This might be referred to IDSDP\_MoST\_TestCase.

# Features not to be Tested

As per the release note, outstanding issues might not be tested.

# User Acceptance Test (UAT) criteria to be tested

Following are the criteria for commencing UAT by client representatives

* Signed of Software Requirement Specification (SRS) and User Interface (UI) must be available.
* The development of software application should be completed & different levels of testing like Unit Testing, Integration Testing & System Testing is completed.
* All High Severity, High Priority defects should be verified. No any Showstoppers defects in the system.
* All reported severe defects must be verified prior to UAT starts.
* Before UAT starts error like cosmetic error are acceptable but should be reported.

# Resource Requirements and constraints

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Resource Type** | **Resource Title** | **Resource Name** | **Date Required** | **Responsibilities** |
| Testing | QA Manager | Mohammad Abu Taher | Refer to IDSDP\_MoST\_PjtSchedule | * Prepare test plan * Ensure related support during test execution * Monitor execution process * Communicate with other stakeholders and review the bugs. |
| Test Support Team | QA Engineer | Nilufar Hossain | Refer to  IDSDP\_MoST\_PjtSchedule | * Prepare test case for the project * Execute functional and regression testing * Execute security testing, browser compatibility testing and other testing |
| Support Programmers (developers) | Mamunur Rasid | Refer to  IDSDP\_MoST\_PjtSchedule | * Assist testing team if required |
| Infrastructure Support | Shish Mohammad Shelly | Refer to  IDSDP\_MoST\_PjtSchedule | * Assist testing team to develop test environment |
| UAT Team (Client) | End User | Client representatives | Refer to  IDSDP\_MoST\_PjtSchedule | * Perform User Acceptance Test |

# Environmental Requirements

## Hardware

Required hardware components such as network controller, networked PCs, hub and a server.

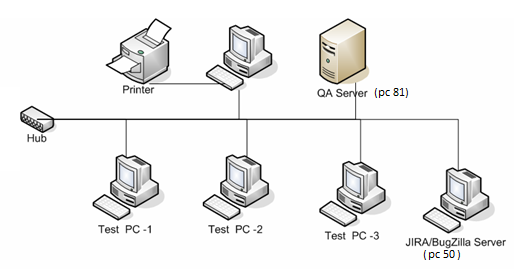


Figure 1: Hardware Components

|  |  |  |
| --- | --- | --- |
| Device | Purpose | Responsible Person |
| PC 50 | Providing all necessary documents (release note, installation guideline etc.), source code, database etc. | Developer |
| PC 81 | Install the application for testing | SQAE |

## Software

|  |  |  |
| --- | --- | --- |
| **Tools & Technologies** | **QA Server** | **Test PC** |
| Operating System | Windows | Windows 7/10 |
| Language | Lavarel 9.x (PHP) | Nil |
| Framework | React.js | Nil |
| Web Server | NginX | Nil |
| Database | MySQL 8 | Nil |
| Reporting Tools | HTML Report | Nil |
| IDE | - | Microsoft Visual Studio Code |
| Performance Testing Tools | - | JMeter |
| API Testing Tools | - | Postman |
| Security Testing Tools | - | OWASP ZAP, Acunetix Web Vulnerability Scanner 6 |
| Office Management | - | MS Office 2003 or higher |
| Browser | - | Google Chrome and Mozilla Firefox. |
|  |  |  |

## Security

Following testing will be conducted for system level security

|  |  |
| --- | --- |
| **SL No.** | **Type of Security Testing** |
|  | **URL manipulation** |
|  | **SQL injection** |
|  | **XSS (Cross Site Scripting)** |
|  | Password cracking |
|  | Test the password quality rules |
|  | Broken Authentication and Session Management |
|  | Web Vulnerability Scanning |

## Tools

These information have been described in section: **3.1**.

# Risks and Assumptions

* **Schedule:** The schedule for each phase is very aggressive and could affect testing. A slip in the schedule in one of the other phases could result in a subsequent slip in the test phase. To meet the schedule parallel test approach should follow during test execution.
* **Management:** Management support is required when the project falls behind the schedule. Test schedule does not shorten for any such case. Management can reduce the risk of delays by supporting the test team throughout the testing phase and assigning people to this project with the required skills set. If management unable to assign experience resources, test engineers will ensure more effort to complete the test on time.
* **Personnel:** Due to the aggressive schedule, it is very important to have experienced testers on this project. Unexpected turnovers of resources may impact the schedule. If attrition does happen, all efforts must be made to replace the experienced individual.
* **Tools:** Currently we are using an older version of Web Vulnerability Scanner – Acunetix tool. So some recent issues might not be addressed by it.
* **Other:** Higher number of major bugs than organizational defect density would be a risk for the project. Unit test process must be monitored if it happens.

# Testing Approach

|  |  |  |  |
| --- | --- | --- | --- |
| **SL No.** | **Type of Testing** | **Purpose of Testing** | **Responsible To** |
|  | Unit Testing | To verify the code is functioning properly. | Developer |
|  | Integration Testing | To check the integration as per design. | QA and Developer |
|  | Functional Testing | To verify that the system is developed as per client requirements. | QA Engineer |
|  | Installation Testing | To verify that the software has been correctly installed with all the inherent features and that the product is working as per expectations | QA Engineer |
|  | Compatibility Testing | To verify that the developed software application is properly working across different browsers, operating systems (OS), mobile devices, networks and hardware. | QA Engineer |
|  | Smoke Testing | To verify that the critical functionalities of software are working fine. It will be executed before any detailed functional or regression tests are executed. | QA Engineer |
|  | Sanity Testing | To verify that the bugs have been fixed and no further issues are introduced due to these changes. It will be performed after receiving a software build, with minor changes in code, or functionality. | QA Engineer |
|  | Regression Testing | To verify that the issues are resolved correctly and also verify the related impact of the issues. | QA Engineer |
|  | Stress Testing | To verify the stability and reliability of the system. | QA Engineer |
|  | Acceptance Testing | To verify that the final system meets Client Needs as expected. | Client representative and SA |
|  | Alpha Testing | To validate whether a new product will perform as expected. | QA Engineer |
|  | Beta Testing | To ensure that end users are satisfied with a software product before make it generally available. | Client representative |
|  | Continuous Testing | To evaluate software quality across the SDLC, enabling higher-quality and faster deliveries. | QA and Developer |
|  | Destructive Testing | To find points of failure in a software program. | QA and Developer |
|  | Performance Testing | To ensure that the software application is performed properly under their expected workload. | QA Engineer |
|  | Usability Testing | To measure how easy and user-friendly a software application is. | End Users |
|  | Accessibility Testing | To verify how easily people can use a web site and feed that information back into improving future designs and implementations. | QA Engineer |
|  | Security Testing | To find out the vulnerable issues related to security | QA Engineer |

# Reference Material

* Software Requirement Specification (SRS) – IDSDP\_MOST\_SRS
* Project Schedule – IDSDP\_MoST\_PjtSchedule
* QA Release Note –
* Test Case – IDSDP\_MoST\_C07.ProcessLease\_TestCase

# Defect Classification

Table 4: List of Defect Classification

|  |  |
| --- | --- |
| **Defect Class** | **Description** |
| Blocker | Blocks development and/or testing work |
| Critical | Crashes, loss of data, severe memory leak |
| Major | Major loss of function |
| Minor | Minor loss of function, or other problem  where easy workaround is present |
| Trivial | Cosmetic problem like misspelled words  or misaligned text |
| Enhancement | Request for enhancement |

# Pass/Fail Criteria

When the functionality matches with UI and SRS documents, in that case it will be a pass criteria otherwise it will be a fail criteria. Pass or fail criteria are clearly described in each test case. So for details this refer to IDSDP\_MoST\_TestCase.

# Suspension Criteria

|  |  |  |
| --- | --- | --- |
| **SL No.** | **Type of Testing** | **Suspension Criteria** |
|  | Functional testing | * When smoke testing is failed or * If maximum 3 blockers raise or * Major 5 individual functionality not working |
|  | Browser Testing | * When page not display in the browser properly |
|  | Integration testing | * When maximum 3 functionality hamper due to software integration |

# Approval Criteria

During Regression Test, the release of new versions of the software will be coordinated between the Project Manager, and the PPQA Manager/PPQA Lead Tester. However, unless it concerns a fix to a very serious error, new versions should only be released when agreed targets have been reached.

# Dependency Matrix

This section is managed in Requirement Traceability Matrix (RTM) document.

# Traceability Matrix

This section is managed in Requirement Traceability Matrix (RTM) document

# Test Case Design Techniques

To design test cases we will use Black Box Testing technique.

# Test Case Description

There will be the following Test cases:

* User Acceptance Test (UAT) Case

# Testing Schedule

This section will be managed in WBS & Project Schedule document. Refer to "IDSDP\_MoST \_ PjtSchedule".

# Test Deliverables

Following deliverables will be produced after testing is completed.

|  |  |  |
| --- | --- | --- |
| **SL No.** | **Input** | **Deliverables** |
|  | Test case (UAT) | Updated test case |
|  | Software system | Module wise no. of defects with test status |
|  | Web Vulnerability Testing Tool | Web Vulnerability Test Result |
|  | Terms of Reference (ToR),  System Requirement Specification (SRS) | Test Plan |