Test Plan

Yolo Group Hub88

Providing Game Supplier

Classification: Yolo Group QA Assignment

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Contents

Document Change History

Description	Requested by	Approved by	Document Version
Yolo Group Hub88 Game Suppliers Test Plan	Shammika Dahanayaka		0.1

1. Introduction

One hub, one API and instant access to many gaming suppliers.
Hub88 provides a simple and efficient integration platform to take many gaming suppliers through a single API for your casino operations.

2. Scope of Testing

2.1. Test Coverage

Type of tests executed by QA team for this project is mentioned in the table below.

Type of Testing
Installation and Smoke Testing
Functional Testing
Game Testing • Real-time strategy (RTS) • Shooters (FPS and TPS) • Multiplayer online battle arena (MOBA) • Role-playing (RPG, ARPG, and More) • Simulation and sports. • Puzzlers and party games. • Action-adventure.
Regression Testing
Integration Testing
Performance Testing
Resilience Testing
UI Testing
Compatibility testing
API Testing
Test Automation

2.2. Functional Requirements

Functional requirements of the system are ranked based on the criticality

No.	Functional Requirement	Criticality
1	Hub88 Supplier should be able to publish games	High
2	Hub88 Supplier should be able to manage/ remove games	High
3	Admin should be able to publish/ manage/ remove games	High
4	Users should be able to find a game	High
5	Users should be able to run a game	High

6	Users should be able to identify similar games	Medium
7	Users should be able to chat option to talk with admin	Medium

2.3. Non-functional Requirements

The following table contains non-functional requirements of the system.

2.3.1 Performance Requirement

No.	Non-Functional Requirement	Criticalit
1 Load Testing	Achieve 500 TPS from a hub88 single box product. Thread users (Game users): 500 Ramp up period: 250s TPS: Backend delays 0s, 1s, 5s, 15s Error rate: 0.02% standard	High
2. Resilience Testing	Chaos Engineering Testing	High

2.3.2 Security Requirement

No.	Non-Functional Requirement	Criticality
1. Security Testing	OWASP test scope will cover under the test.	High

2.4 Out of Scope

QA Team will not execute tests to verify following features.

No.	Out of Scope Functionalities	Criticality
1	Third Party Integrated Federated System Functions/ API's	High
2	Third party suppliers game testing (Out of hub88)	Medium

2.5 Risks

Based on the business needs of the system, following risks are identified. The identified risky areas of the product will be tested by QA team extensively, as a mitigation plan to minimize risk of the product.

Risks are mentioned in below table.

Category	Quality Risks	Frequency	Mitigation Strategy	Priority
Environment	Unavailability of QA environment	For each QA cycle	If the down time is more than a day, need to move alternate environment deploying dockrized environment.	High
Product	Some requirements /CRs/Issues comes from client in the middle of sprint.	For each QA cycle	Follow up with PM and architect to prioritized task and how to deliver them.	High
Test Devices	UI issues may occur for different device models and versions	For each QA cycle	Finalized test devices / models before start test execution	High

2.6 Assumptions

The plan is based on the following assumptions, which affect scope of testing:

- Third party hub88 suppliers' games are tested and verified.
- Hub88 supplier registration and revenue process is done.
- Requirement clarity index for each FRS, user story or technical task must be 4 or above to start test designing.
- All the requirements are finalized and signed off by the business at the start of QA test execution cycle.
- Dedicated test environments (QA and Staging) with all the third-party integration will be available at the start of QA test execution cycle.
- QA builds receiving on time as per the defined timelines.

3 Test Deliverables and Schedule

The following table lists all the major QA deliverables with their due dates. A deliverable may contain more than one document.

Deliverable	Description	End Date
Test Summary Report	Summary of the entire testing of a particular release for management	Before the UAT
QA Release Note	Details of tested functionality to be released	End of a release
UAT Issue Triage Log	Detailed UAT issue log with analysis	After a UAT

4 Test Strategy

4.1 Test Design Techniques

Following test design techniques will be used when designing test cases.

- Mind Map
- Decision tables
- Walk-through
- Experience based

4.2 Test Review Approach

Test Type	Peer Reviews	Lead Reviews
UI Testing	No	Yes
Functional Testing	No	Yes
API Testing	No	Yes
Regression Testing	No	Yes
Performance Testing	No	Yes
Resilience Testing	No	Yes
Automation testing	Yes	Yes

4.3 Test Approach

This section includes information about the various types of tests conducted by the QA team.

A detailed description of testing types executed by QA team is provided in below section.

	Installation & Smoke Testing
Objective	To ensure that, • critical functionalities of the system are working fine after a build received for testing in order to go ahead with further testing.
Entry Criteria	• Developer release note is received. • Application is successfully installed. • Test environment is ready and stable for testing.
Exit Criteria	• No critical defects/blockers are open
Test Suspension Criteria	• Showstoppers or critical issues, which prevent the testing of major functionality, are encountered.
Test Resumption Criteria	• Testing will be resumed when the showstoppers and critical defects are fixed.
Special Considerations	• N/A

	Functional Testing
Objective	To ensure that, • functional requirements specified in requirement specification document, are correctly implemented. • requirement coverage for testing is 100%.
Entry Criteria	• Application is successfully installed. • Smoke testing is successfully completed. • Functional test cases are reviewed and ready to execute. • Test data for functional test execution is available.
Exit Criteria	• No critical and high severity defects are open. • All functional requirements mentioned in the requirement specification document are implemented and accurately functioning. • All functional issues of application are raised in the defect management system (with workaround, if available).

	• All known issues are documented in Test Summary Report and QA Release note (with workaround, if available).
Test Suspension Criteria	• Showstoppers or critical issues, which prevent the testing of major functionality, are encountered. • Functionality is unstable, i.e., too many non-reproducible defects are encountered.
Test Resumption Criteria	• Testing will be resumed when the showstoppers and critical defects are fixed.
Special Considerations	• Manual test execution and BDD Automation test execution will be used.

	UI Testing
Objective	To ensure that, • user experience of the system is up to the agreed standards provided via UI mock-ups/prototypes.
Entry Criteria	• Application is successfully installed. • Entry criteria for smoke testing is met. • Smoke testing is successful.
Exit Criteria	• No critical and high severity defects are open
Test Suspension Criteria	• Showstoppers or critical UI issues, which prevent the testing of UI, are encountered.
Test Resumption Criteria	• Testing will be resumed when the showstoppers and critical defects are fixed.
Special Considerations	

	API Testing
Objective	To ensure that, • Functionality of the implemented APIs are working fine as per the requirements specified in requirement specification document, • APIs are integrated correctly to receive successful responses to meet expected functionalities.
Entry Criteria	• Deployment is successfully done.

	• Entry criteria for smoke testing is met. • Smoke testing is successful. • API test cases are reviewed and ready to execute. • Test data for API test execution is available.
Exit Criteria	• No critical and high severity defects are open. • All functional requirements mentioned in the requirement specification document are implemented and accurately functioning. • All functional issues of application are raised in the defect management system (with workaround, if available). • All known issues are documented in Test Summary Report and QA Release note (with workaround, if available).
Test Suspension Criteria	• Showstoppers or critical issues, which prevent the testing of major functionality, are encountered. • Functionality is unstable, i.e., too many non-reproducible defects are encountered.
Test Resumption Criteria	• Testing will be resumed when the showstoppers and critical defects are fixed.
Special Considerations	• Protractor Automation framework is used for the testing. • Pre-defined postman collection test suite can be used additionally automation testing.

	Compatibility Testing
Objective	To ensure that, • system is working fine in agreed browsers and devices.
Entry Criteria	• Application is successfully installed and can be accessed from multiple browsers and devices. • Smoke testing is successful.
Exit Criteria	• No critical and high severity defects are open.
Test Suspension Criteria	• Showstoppers or critical issues, which prevent the testing of major functionality, are encountered.
Test Resumption Criteria	• Testing will be resumed when the showstoppers and critical defects are fixed.
Special Considerations	• Chrome, Edge, Safari and Firefox latest version (at the test execution) will be focused browser testing.

	Regression Testing
Objective	To ensure that, • Recent code changes and bug fixes has not adversely affected existing system and the system is working fine.
Entry Criteria	• Functional testing is completed. • UI testing is completed. • Browser and device compatibility testing is completed. • System integration testing is completed. • Agreed set of defects are fixed and shared in a developer release note. • Impacted areas are communicated in a developer release note. • Regression test cases are identified based on impacted areas and added to a test cycle for test execution.
Exit Criteria	• No critical and high severity defects are open. • May contain defects that are not closed under the following criteria ◦ Up to 0% of S1- Critical open defects and ◦ Up to 0% to S2- Major open defects and ◦ Up to 15% of S3 & S4- Medium & Minor defects and • Test case execution coverage > 95% • Test Case pass rate > 85%
Test Suspension Criteria	• Showstoppers or critical issues, which prevent the testing of major functionality, are encountered.
Test Resumption Criteria	• Testing will be resumed when the showstoppers and critical defects are fixed.
Special Considerations	• Protractor Automation test execution is used for the testing.

	Performance/Load Testing
Objective	To ensure that, • System is working up to the agreed performance requirements and work without any interruptions to the expected load.
Entry Criteria	• Functional testing is completed. • UI testing is completed. • Browser and device compatibility testing is completed. • Test data and performance test environment is available.

	• Performance test scripts are created and reviewed.
Exit Criteria	• No critical and high severity defects are open. • TPS is more than 500/sec • Endurance test is pass with error rate below 0.02%
Test Suspension Criteria	• Showstoppers or critical issues, which prevent the testing of major functionality, are encountered.
Test Resumption Criteria	• Testing will be resumed when the showstoppers and critical defects are fixed.
Special Considerations	

	Resilience Testing
Objective	To ensure that, • Hub88 system is working up to the agreed stability requirements and work without any interruptions to the system fall overs and attacks.
Entry Criteria	• Functional testing is completed. • UI testing is completed. • Browser and device compatibility testing is completed. • Test environment is available.
Exit Criteria	Stability and endurance of the environment for the chaos. • Rolling Upgrade • Extended Node Failure • VM High Availability
Test Suspension Criteria	• Showstoppers or critical issues, which prevent the testing of major functionality, are encountered.
Test Resumption Criteria	• Testing will be resumed when the showstoppers and critical defects are fixed.
Special Considerations	

	Automation Testing
Objective	To ensure that, • recent code changes and bug fixes has not adversely affected existing system and the target feature is running in the system smoothly.
Entry Criteria	• Functional testing is completed.

	• UI testing is completed. • Browser and device compatibility testing is completed. • Agreed set of defects are fixed and shared in a developer release note. • Framework is fully worked and compatible for the scripting.
Exit Criteria	• Development code and scripts are merged to main branch. • Test coverage status should be passed. • Code reviews are done.
Test Suspension Criteria	• Showstoppers or critical issues, which prevent the testing of major functionality, are encountered.
Test Resumption Criteria	• Testing will be resumed when the showstoppers and critical defects are fixed.
Special Considerations	

5 Test Team

This section will include information about the QA team.

QA team consists of four members.

5.3 QA Team Structure

The organization chart depicts the overall project organization with details of the QA team structure.

5.4 Roles and Responsibilities

The table below contains the name, role and responsibilities of Client and QA Team.

- **Roles and Responsibilities**

The table below contains the name, role and responsibilities of Client and QA Team.

Role	Name(s)	Responsibilities
Business User/ Product Owner		▪ Provide business requirements ▪ Backlog prioritization ▪ Requirement clarification ▪ Mitigate dependencies
Project Manager		▪ Manage stakeholder expectation ▪ Manage team ▪ Manage project deliverables
Architect		▪ Provide guidance for technical solutions ▪ Manage stakeholder expectations
Business Analyst		▪ Gather and elaborate requirements from business ▪ Document and manage requirements for future reference
Tech Lead		▪ Manage development team ▪ Manage internal QA deliverables ▪ Responsible for AXP gateway technical solutions, developments and deliverables
Software Engineer		▪ Responsible for AXP gateway technical developments
QA Lead		▪ Test plan creation ▪ Requirement analysis and clarification ▪ Test case designing and reviewing ▪ Test execution and bug reporting ▪ Test monitoring ▪ Status reporting

		▪ QA release note preparation ▪ Test summary report preparation ▪ UAT issue triage log preparation ▪ Scrum ceremonies
QA Engineer		▪ Requirement analysis and clarification ▪ Test case designing and reviewing ▪ Test execution and bug reporting ▪ Status reporting ▪ Scrum ceremonies

5.5 Training Requirements

The training needs of QA team to successfully deliver the project are mentioned in the table below with the plan to obtain the required training.

5.6 Inter-group coordination

QA team will coordinate with below internal groups to perform testing activities.

Group Name	Contact Member
Solution team	
Cloud engineering	
L1/L2 Team (External teams)	

6 Test Environment

The test environment outlined in this section is necessary for successful execution of test cases. Client will make necessary hardware and software available before the test execution begins.

Test Type	Environments Required	Specific Criteria (Hardware/Software)

Functional Testing	QA	
Performance Testing	QA	

6.3 Tools

The following table lists the tools used by the QA team:

No.	Purpose	Tool
1	Configuration management	Microsoft Teams
2	Defect management	JIRA
3	Risk, Issues, assumptions, dependencies management	JIRA
4	Document templates	Aurora, Confluence, Teams
5	API testing	Postman-linux-x64-8.8.0, Rest Assured 4.1.1 Framework
6	Performance/Load testing/Resilience Testing	Apache-jmeter-5.1.1/ Litmus
7	Test Case Management	JIRA, TestLink 1.9.14
8	Web Browsers	Google Chrome 94.0 Mozilla Firefox 92.0 Microsoft Edge 94.0

7 Test Management Plan

7.3 Test Data Collection Approach

(a) Usually, we do not use any real PII data.
(b) Rarely test data is provided by the BA team or clients via word documents, excel sheets which does not contain real customer PII Data
(c) Test data will be used only for SIT, regression and functional test.

7.4 Test Data Storage

(a) Test data will be stored it in 'MS teams' project QA folder
(b) AXP all team members have access to the test data folder

7.5 Test Data Usage

What test data is required?	UserInfo
Are we using existing PII data in the data dump provided by customer for testing?	No. We are creating test data for testing in same time.
Are we using it for volume only, and any test data required is created newly?	Yes. Newly test data will be created by QA team.
Is there any separate authorization each time data is copied to a test environment?	Whenever data is recreated, it will be created by customer only and sharing to the QA team

7.6 Test Data Disposal

Test data will be kept till the end of the project and will be permanently deleted after 3 month later from closure.

8 Test Execution

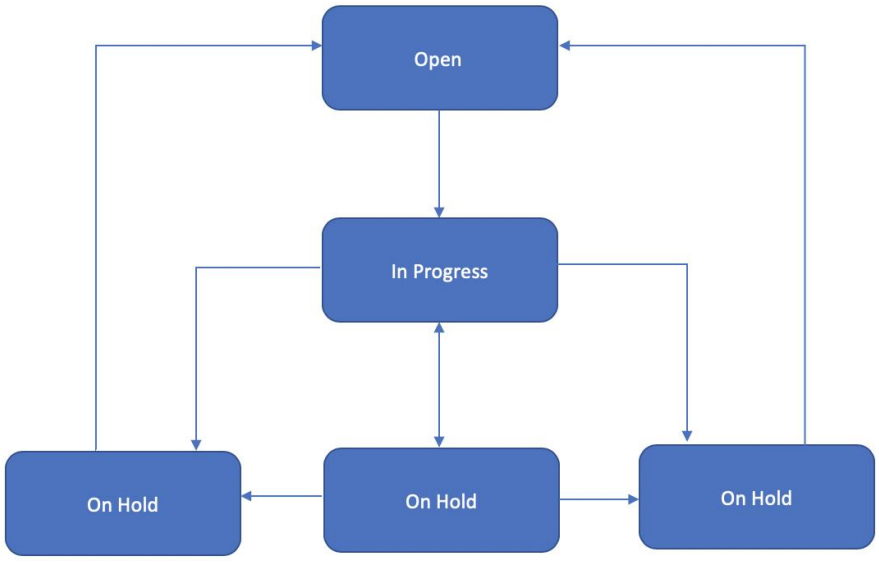
8.3 Test Metrics

The following test metrics will be used to monitor test progress and product quality. The metrics must be correlated to gain more understanding. This metrics will form part of project progress updates.

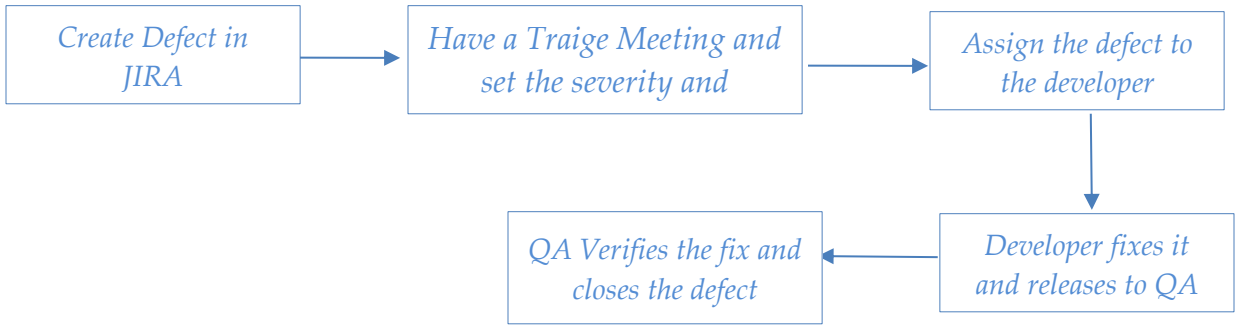
Metric Name	Description
Defect Severity Index	Weighted average of defects logged.

8.4 Defect Management

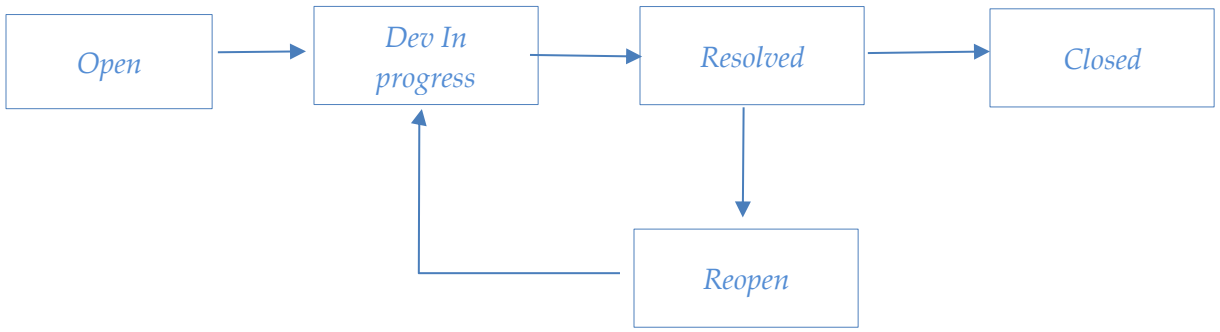
This section contains information about all the defect management related activities in the project.



8.5 Defect Tracking Process



8.6 Defect Status Life Cycle



9 Appendix

9.1 Abbreviations

Acronym	Definition
API	Application Programming Interface
BU	Business User
OS	Operating System
PO	Product Owner
QA	Quality Assurance
SIT	System Integration Testing
SMS	Short Message Service
UAT	User Acceptance Testing

9.2 Defect Severity Classification

Defect Severity: A classification of software defect (bug) to indicate the degree of negative impact on the quality of software.

Classifications are:

Severity	Description	Example
Critical(S1)	There is no workaround for the issue. Total failure of the product or unrecoverable data loss. Security showstoppers are available. Impossible for testing to proceed.	The login page could not be directed to the Home page even providing valid & correct, username and password.
Major (S2)	Affects major functionality or major data. Workaround available but it is not obvious and is difficult.	The login page directs to the Home page and an item can be added to the shopping cart. But

		cannot add two items to the shopping cart. To purchase two items, need to buy each of them seperately.
Medium(S3)	Minor functionality or non-critical data is impacted. Easy and obvious workaround available.	The login page directs to the Home page and one of the menus is not working. But can go to the page where the menu directs from another link.
Monor (S4)	Does not affect functionality or data. Does not need a workaround. Defect causes minimal or unnoticeable problems. Mostly cosmetic errors.	The login page directs to the Home page and one of the images in the home page is missing.

9.3 **Criticality of Requirements**

Criticality: How essential is each requirement to the overall system?

Classifications are:

Criticality	Description
High	A requirement without which the product is not acceptable.
Medium	A necessary but deferable requirement which makes the product less usable but still functional
Low	A nice feature to have but the product functions well without it.

9.4 **Risk Priority Clasification**

Risk Priority: Indicates the importance or urgency of mitigating a risk.

Classifications are:

Priority	Description
High Risk	A risk having a high probability of occurrence and the consequence would affect project objectives, cost, and schedule. The probability of occurrence is high enough to require close control of all contributing factors, the establishment of risk actions, and an acceptable fallback position.

Medium Risk	A risk that could possibly affect project objectives, cost, or schedule. The probability of occurrence is high enough to require close control of all contributing factors.
Low Risk	A risk that is having minor effects on project objectives; the probability of occurrence is sufficiently low to cause only minor concern.

9.5 **Criteria to handover QA release to UAT**

- May contain defects that are not closed under the following criteria
  - Up to 0% of S1- Critical open defects
  - Up to 0% to S2- Major open defects
  - Up to 15% of S3 & S4- Medium & Minor defects
- Test case execution coverage > 95%
- Test Case pass rate > 85%
- Regression Test completion for final Release
- QA Release Note is available with defects information and release content.
- Test Results of the executed tests are available