

Software Test Plan (STP)

Project: Digital Asset and Cryptocurrency Portfolio Tracker

Version: 1.0

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Status: Draft

1. Introduction

Purpose:

This document defines the **test plan** for the Digital Asset and Cryptocurrency Portfolio Tracker v1.0. It outlines testing objectives, scope, strategy, resources, schedules, risks, and responsibilities to ensure that all functional and non-functional requirements defined in the SRS are validated.

Scope:

Testing covers authentication, portfolio tracking, price monitoring, analytics, alerts/notifications, and security. Trading, wallet custody, and external exchange API reliability are outside scope.

References:

- SRS v1.0 (dated 04-09-2025)
- UML diagrams & RTM from SRS
- OWASP Security Standards
- ISO/IEC 25010 quality model

Definitions:

- API: Application Programming Interface
- ROI: Return on Investment
- 2FA: Two-Factor Authentication
- SRS: Software Requirements Specification
- RTM: Requirements Traceability Matrix

2. Test Items

- Authentication & User Management
- Portfolio Tracking & Management
- Real-time Price Monitoring
- Analytics & Reports
- Alerts & Notifications
- Non-functional requirements (Performance, Security, Usability, Reliability)

3. Features to be Tested

Mapped to SRS requirement IDs:

- DAP-F-001 to DAP-F-004 (Authentication & User Management)
- DAP-F-005 to DAP-F-007 (Portfolio Tracking)
- DAP-F-008 to DAP-F-010 (Price Monitoring)
- DAP-F-011 to DAP-F-013 (Analytics & Reports)
- DAP-F-014 to DAP-F-015 (Alerts & Notifications)
- DAP-NF-001 to DAP-NF-005 (Non-functional requirements: latency, uptime, security, scalability, usability)

4. Features Not to be Tested

- Actual crypto trading or fund transfers (outside project scope).
- Wallet custody (user holds their own keys).
- Third-party exchange API reliability (assumed tested by providers).

5. Test Approach / Strategy

Levels of Testing:

- **Unit Testing** – individual modules (e.g., login, API fetch).
- **Integration Testing** – API connections with exchanges/wallets.
- **System Testing** – end-to-end flows (portfolio sync → analytics → alerts).
- **Acceptance Testing (UAT)** – validate against SRS acceptance criteria.

Types of Testing:

- **Functional Testing** (all system features).
- **Regression Testing** (after bug fixes/releases).
- **Performance Testing** (real-time updates $\leq 3\text{s}$).

- **Security Testing** (encryption, 2FA, session timeout).
- **Usability & Accessibility Testing** (mobile responsiveness, dark/light mode, screen readers).

Entry Criteria:

- Stable build available.
- Test environment & test data ready.
- APIs configured.

Exit Criteria:

- 100% of planned test cases executed.
- 0 critical/high defects open.
- $\geq 95\%$ pass rate.

5.1 Security Validation

- TLS 1.2+ enforced (HTTPS only).
- Verify API key & password encryption (AES-256).
- 2FA enforcement.
- Session timeout after 15 minutes.
- Penetration testing (SQL injection, XSS, API abuse).
- Log tampering prevention validation.

6. Test Environment

Hardware: Cloud VM servers, Android/iOS mobile devices, desktop browsers.

Software: Portfolio Tracker v1.0, Exchange/Wallet API sandboxes.

Tools:

- Selenium (UI automation)
- Postman (API validation)
- JMeter (performance/load testing)
- OWASP ZAP (security testing)
- Jira (defect tracking)

Test Data: Dummy API keys, simulated wallet/exchange accounts, sample transaction history.

7. Test Schedule

- Test Case Design: 08-Oct-2025
- Environment Setup: 10-Oct-2025
- Test Execution Start: 12-Oct-2025
- Test Execution End: 25-Oct-2025
- UAT: 26-Oct-2025 to 30-Oct-2025

8. Test Deliverables

- Test Plan (this document)
- Test Cases (manual + automated)
- Test Scripts
- Test Data Sets
- Test Execution Logs
- Defect Reports
- Test Summary Report

9. Roles and Responsibilities

Role	Name	Responsibility
QA Lead	Jeevitha S	Prepare plan, coordinate execution
Test Engineer	Hemashree	Design & execute test cases, log defects
Developer	Harshith J Kartik Bhat Sumbly	Support defect fixes and triage
Product Owner	Mr Nandi Keshavan	Approve test results, sign-off readiness

10. Risks and Mitigation

Risk	Mitigation
API rate limits blocking tests	Use sandbox APIs and stagger requests
Exchange downtime	Mock/stub APIs for fallback
Delay in build delivery	Request early smoke builds

11. Assumptions & Dependencies

- Exchange/wallet sandbox APIs available and stable.
- Test data (dummy API keys/accounts) provisioned.
- Notification services (email, push) integrated.

12. Suspension & Resumption Criteria

Suspend if:

- Build too unstable (>30% test cases blocked).
- Environment unavailable >4 hours.

Resume if:

- Blocking issues resolved.
- Stable build/environment available.

13. Test Case Management & Traceability

RTM ensures coverage of all SRS requirements:

- DAP-F-001 (Create account) → TC-Auth-01
- DAP-F-005 (Fetch portfolio balances) → TC-Port-01
- DAP-F-008 (Fetch live prices) → TC-Price-01
- DAP-F-011 (ROI chart generation) → TC-Analytics-01
- DAP-NF-001 (Latency ≤ 3s) → TC-Perf-01
- DAP-NF-003 (Encrypt sensitive data) → TC-Sec-01

14. Test Metrics & Reporting

Metrics:

- % Test cases executed
- % Passed/Failed
- Defect density
- Requirement coverage
- Defect aging

Reports:

- Daily execution status reports
- Weekly defect summary
- Final Test Summary Report

15. Approvals

Role	Name	Signature / Date
QA Lead	Jeevitha S	Jeevitha 04/10/2025
Dev Lead	Harshith J	Harshith J 04/10/2025
Product Owner	Mr Nandi Keshavan	