

Part 1: Exhaustive Test Plan for End-to-End Testing

1. Test Types and Objectives

Test Type	Description	Objective
Functional Testing	Validates that each feature works according to requirements	Ensure all application features function correctly
UI/UX Testing	Evaluates the user interface and experience	Confirm intuitive design and proper visual elements
Integration Testing	Tests interactions between components	Verify components work together properly
Regression Testing	Re-tests after changes	Ensure new changes don't break existing functionality
Performance Testing	Evaluates system responsiveness	Confirm acceptable response times
Security Testing	Identifies vulnerabilities	Protect against unauthorized access and data breaches
Compatibility Testing	Checks functionality across platforms	Ensure consistent behavior across browsers/devices
Boundary Value Testing	Tests edge cases	Verify behavior at input limits
Error Handling Testing	Validates error messages	Ensure proper error handling and messaging

2. Test Cases by Functionality

2.1 User Authentication

2.1.1 Sign Up

Test ID	Test Case	Test Steps	Expected Result	Type
SU-01	Successful sign up	1. Navigate to sign up page 2. Enter valid email 3. Enter valid password 4. Submit form	Account created successfully, user redirected to dashboard	Success
SU-02	Sign up with existing email	1. Navigate to sign up page 2. Enter email of existing account 3. Enter password 4. Submit form	Error message indicating email already in use	Failure
SU-03	Sign up with invalid email format	1. Navigate to sign up page 2. Enter invalid email (e.g., "test") 3. Enter password 4. Submit form	Error message indicating invalid email format	Failure
SU-04	Sign up with weak password	1. Navigate to sign up page 2. Enter valid email 3. Enter weak password 4. Submit form	Error message about password requirements	Failure
SU-05	Sign up with empty fields	1. Navigate to sign up page 2. Leave fields empty 3. Submit form	Form validation errors for empty fields	Failure

2.1.2 Sign In

Test ID	Test Case	Test Steps	Expected Result	Type
SI-01	Successful sign in	1. Navigate to sign in page 2. Enter valid email 3. Enter correct password 4. Submit form	User logged in successfully, redirected to dashboard	Success
SI-02	Sign in with incorrect password	1. Navigate to sign in page 2. Enter valid email 3. Enter incorrect password 4. Submit form	Error message indicating incorrect credentials	Failure
SI-03	Sign in with non-existent email	1. Navigate to sign in page 2. Enter email not in system 3. Enter password 4. Submit form	Error message indicating incorrect credentials	Failure
SI-04	Sign in with empty fields	1. Navigate to sign in page 2. Leave fields empty 3. Submit form	Form validation errors for empty fields	Failure

2.1.3 Sign Out

Test ID	Test Case	Test Steps	Expected Result	Type
SO-01	Successful sign out	1. Click sign out button/link	User logged out, redirected to login page	Success
SO-02	Session expiry auto-logout	1. Remain inactive for session timeout period	User automatically logged out, redirected to login page	Success

2.2 Submit Request to Onboard Nodes to Existing Blockchain

2.2.1 Node Addition

Test ID	Test Case	Test Steps	Expected Result	Type
ON-01	Add valid node	1. Enter valid Node ID (e.g., "NodeID-123") 2. Enter valid IP (e.g., "192.168.1.1") 3. Click "ADD NODE"	Node added to list successfully	Success
ON-02	Add node with invalid ID format	1. Enter invalid Node ID (e.g., "Node123") 2. Enter valid IP 3. Click "ADD NODE"	Error message about invalid Node ID format	Failure
ON-03	Add node with invalid IP format	1. Enter valid Node ID 2. Enter invalid IP (e.g., "999.168.1.1") 3. Click "ADD NODE"	Error message about invalid IP format	Failure
ON-04	Add duplicate node	1. Add a node successfully 2. Try to add the same node again	Error message about duplicate node	Failure
ON-05	Add node with empty fields	1. Leave Node ID and/or IP empty 2. Click "ADD NODE"	Form validation errors for empty fields	Failure

2.2.2 Wallet Addition

Test ID	Test Case	Test Steps	Expected Result	Type
OW-01	Add valid wallet	1. Enter valid wallet address 2. Select permission type 3. Click "ADD WALLET"	Wallet added to list successfully	Success
OW-02	Add wallet with invalid address format	1. Enter invalid wallet address 2. Select permission type 3. Click "ADD WALLET"	Error message about invalid wallet address format	Failure
OW-03	Add wallet without selecting permission	1. Enter valid wallet address 2. Don't select permission type 3. Click "ADD WALLET"	Error message about missing permission type	Failure
OW-04	Add duplicate wallet	1. Add a wallet successfully 2. Try to add the same wallet again	Error message about duplicate wallet	Failure
OW-05	Add wallet with empty fields	1. Leave wallet address empty 2. Click "ADD WALLET"	Form validation errors for empty fields	Failure

2.2.3 Request Submission

Test ID	Test Case	Test Steps	Expected Result	Type
OS-01	Submit valid request	1. Add valid nodes 2. Click "NEXT" 3. Add valid wallets 4. Click "NEXT" 5. Review details 6. Click "SUBMIT"	Request submitted successfully	Success
OS-02	Submit request without nodes	1. Without adding nodes 2. Click "NEXT"	Error message about needing at least one node	Failure
OS-03	Submit request without wallets	1. Add valid nodes 2. Click "NEXT" 3. Without adding wallets 4. Click "NEXT"	Error message about needing at least one wallet	Failure
OS-04	Cancel submission process	1. Start submission process 2. Click cancel/back button	Process canceled, returns to appropriate page	Success

2.3 Submit Request to Create New Private Blockchain

2.3.1 Basic Information

Test ID	Test Case	Test Steps	Expected Result	Type
NB-01	Enter valid network name and wallet	1. Enter valid network name 2. Enter valid wallet address 3. Click "NEXT"	Proceeds to node addition page	Success
NB-02	Enter invalid wallet address	1. Enter valid network name 2. Enter invalid wallet address 3. Click "NEXT"	Error message about invalid wallet address format	Failure
NB-03	Submit with empty fields	1. Leave network name and/or wallet address empty 2. Click "NEXT"	Form validation errors for empty fields	Failure

2.3.2 Node Addition

Test ID	Test Case	Test Steps	Expected Result	Type
NN-01	Add valid node	1. Enter valid Node ID 2. Enter valid IP 3. Click "ADD NODE"	Node added to list successfully	Success
NN-02	Add node with invalid ID format	1. Enter invalid Node ID 2. Enter valid IP 3. Click "ADD NODE"	Error message about invalid Node ID format	Failure
NN-03	Add node with invalid IP format	1. Enter valid Node ID 2. Enter invalid IP 3. Click "ADD NODE"	Error message about invalid IP format	Failure
NN-04	Add duplicate node	1. Add a node successfully 2. Try to add the same node again	Error message about duplicate node	Failure
NN-05	Add node with empty fields	1. Leave Node ID and/or IP empty 2. Click "ADD NODE"	Form validation errors for empty fields	Failure

2.3.3 Request Submission

Test ID	Test Case	Test Steps	Expected Result	Type
NS-01	Submit valid request	1. Enter valid network name and wallet 2. Click "NEXT" 3. Add valid nodes 4. Click "NEXT" 5. Review details 6. Click "SUBMIT"	Request submitted successfully	Success
NS-02	Submit request without nodes	1. Enter valid network name and wallet 2. Click "NEXT" 3. Without adding nodes 4. Click "NEXT"	Error message about needing at least one node	Failure
NS-03	Cancel submission process	1. Start submission process 2. Click cancel/back button	Process canceled, returns to appropriate page	Success

2.4 Cross-Functional Testing

Test ID	Test Case	Test Steps	Expected Result	Type
CF-01	Browser back button during form submission	1. Start form submission process 2. Click browser back button	Application handles navigation appropriately, preserves data if needed	Success
CF-02	Form data persistence after page reload	1. Fill form partially 2. Reload page	Application behavior consistent with design (either preserves data or resets form)	Success
CF-03	Session timeout during form submission	1. Start form submission 2. Wait for session timeout 3. Try to submit	User notified of session expiry, redirected to login	Success
CF-04	Network interruption during submission	1. Start form submission 2. Disconnect network 3. Try to submit	User notified of connection issue	Success

3. Performance Testing

Test ID	Test Case	Test Steps	Expected Result	Type
PT-01	Page load time	Measure time taken to load each page	Pages load in acceptable time (<3 seconds)	Success
PT-02	Form submission response time	Measure time taken to process form submissions	Form submissions processed quickly (<5 seconds)	Success
PT-03	Concurrent user load	Simulate multiple concurrent users	System maintains performance under load	Success

4. Security Testing

Test ID	Test Case	Test Steps	Expected Result	Type
ST-01	Authentication token validation	1. Attempt to access protected pages without login	Redirected to login page	Success
ST-02	SQL injection protection	1. Enter SQL injection attempts in input fields	Application properly sanitizes inputs	Success
ST-03	Cross-site scripting protection	1. Enter script tags in input fields	Application properly sanitizes inputs	Success
ST-04	Brute force protection	1. Attempt multiple incorrect logins	Account temporarily locked after several failed attempts	Success
ST-05	Password security	1. Test password storage	Passwords stored securely (hashed, not plaintext)	Success

5. Compatibility Testing

Test ID	Test Case	Test Steps	Expected Result	Type
CT-01	Browser compatibility	Test on Chrome, Firefox, Safari, Edge	Application functions correctly on all browsers	Success
CT-02	Mobile compatibility	Test on various mobile devices	Application is responsive and functions correctly	Success
CT-03	OS compatibility	Test on Windows, macOS, Linux	Application functions correctly on all OS platforms	Success