

# **E2E Test Comprehensive Fix Plan -**

## **January 8, 2026**

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## Executive Summary

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**Current Status:** 161/205 tests passing (78.5%) **Target:** 210/210 tests passing (100%) **Gap:** 49 tests need fixing (39 failures + 5 skipped + restore to 210 total)

## Test Results After Rollback

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- **Passed:** 161 (78.5%)
- **Failed:** 39 (19.0%)
- **Skipped:** 5 (2.4%)
- **Total:** 205 tests

**Note:** Rollback performed worse than Phase 3 ( $173/210 = 82\%$ ). This requires investigation.

# Failure Categories

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## 1. Agent Performance - Parallel Execution (5 tests)

**Failed Tests:** - [chromium] > ai-agents.spec.ts:145:7 > Should support parallel agent execution - [firefox] > ai-agents.spec.ts:145:7 > Should support parallel agent execution - [webkit] > ai-agents.spec.ts:145:7 > Should support parallel agent execution - [Mobile Chrome] > ai-agents.spec.ts:145:7 > Should support parallel agent execution - (Mobile Safari not shown but likely failed)

**Root Cause:** TBD - needs research into parallel async operations in Playwright

## 2. Error Handling - Timeout Scenarios (5 tests)

**Failed Tests:** - [chromium] > ai-agents.spec.ts:243:7 > Should handle timeout scenarios - [firefox] > ai-agents.spec.ts:243:7 > Should handle timeout scenarios - [webkit] > ai-agents.spec.ts:243:7 > Should handle timeout scenarios - [Mobile Chrome] > ai-agents.spec.ts:243:7 > Should handle timeout scenarios - (Mobile Safari not shown but likely failed)

**Root Cause:** TBD - needs research into timeout testing patterns

## 3. Authentication - Validation Errors (5 tests)

**Failed Tests:** - [chromium] > authentication.spec.ts:23:7 > Should show validation errors for invalid login - [firefox] > authentication.spec.ts:23:7 > Should show validation errors for invalid login - [webkit] > authentication.spec.ts:23:7 > Should show validation errors for invalid login - [Mobile Chrome] > authentication.spec.ts:23:7 > Should show validation errors for invalid login - (Mobile Safari not shown but likely failed)

**Root Cause:** Error messages not appearing in UI - needs form error handling research

## 4. Script Management - List Display (5+ tests)

**Failed Tests:** - [chromium] > script-management.spec.ts:194:7 > Should display list of uploaded scripts - [firefox] > script-management.spec.ts:194:7 > Should display list of uploaded scripts - [webkit] > script-management.spec.ts:194:7 > Should display list of uploaded scripts - (More browsers likely affected)

**Root Cause:** React Query data loading after authentication redirect - needs research

## 5. Firefox-Specific Issues (6 tests total)

**Failed Tests:** - [firefox] > ai-analytics.spec.ts:113:7 > Should display analytics dashboard page - [firefox] > ai-analytics.spec.ts:132:7 > Should display cost metrics - [firefox] > script-management.spec.ts:35:7 > Should display upload button - [firefox] > script-management.spec.ts:208:7 > Should allow searching scripts - (Plus 2 from other categories)

**Root Cause:** Firefox-specific rendering or timing - needs browser-specific research

## 6. Mobile Chrome Analytics (1 test)

**Failed Tests:** - [Mobile Chrome] > ai-analytics.spec.ts:161:7 > Should display model performance metrics

**Root Cause:** Mobile viewport rendering issue - needs mobile testing research

## 7. Skipped Tests (5 tests)

**Reason:** Require environment variables (API keys, external services)

**Action Needed:** Document how to enable these tests

# Research Topics for 2026 Best Practices

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1. **Playwright + React Query v5 Integration**

2. Query state management in E2E tests

3. Waiting for cache hydration

4. Testing refetch behavior

5. **Form Validation Error Display**

6. React Hook Form error rendering

7. Accessibility-compliant error messages

8. Testing form validation states

9. **Parallel Async Operations Testing**

10. Testing concurrent API calls

11. Race condition detection

12. Promise.all() testing patterns

13. **Timeout Scenario Testing**

14. Simulating slow network conditions

15. Testing error boundaries

16. Graceful degradation patterns

17. **Firefox-Specific E2E Testing**

18. Gecko engine timing differences

19. Firefox DevTools integration

20. Browser-specific selectors

21. **Mobile Viewport Testing**

22. Touch event simulation

23. Viewport-specific rendering

24. Mobile performance testing

# Comprehensive Fix Approach

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## Phase 1: Research (Current)

- [ ] Internet research for each failure category
- [ ] MCP tools analysis of failing test code
- [ ] Review 2026 Playwright documentation
- [ ] Study React Query v5 + testing patterns

## Phase 2: Validation & Authentication Fixes

- [ ] Fix form error display mechanism
- [ ] Ensure error messages visible in all browsers
- [ ] Add proper ARIA labels for accessibility
- [ ] Test across all 5 browser configurations

## Phase 3: Data Loading & React Query Fixes

- [ ] Implement proper wait strategies for React Query
- [ ] Add data-testid attributes for loaded states
- [ ] Handle authentication redirect → data fetch flow
- [ ] Test list display after navigation

## Phase 4: Agent & Async Operation Fixes

- [ ] Fix parallel agent execution tests
- [ ] Implement timeout scenario testing
- [ ] Add proper error boundaries
- [ ] Test async operation completion

## Phase 5: Browser-Specific Fixes

- [ ] Address Firefox rendering issues
- [ ] Fix Mobile Chrome analytics display
- [ ] Ensure consistent behavior across browsers
- [ ] Test mobile viewport edge cases

## **Phase 6: Verification & Documentation**

- [ ] Run complete test suite
- [ ] Verify 210/210 tests passing
- [ ] Document all changes made
- [ ] Create maintenance guide

# Resources to Utilize

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1. **Internet Research (January 2026)**

2. Latest Playwright documentation

3. React Query v5 testing guides

4. Browser compatibility databases

5. Stack Overflow recent solutions

6. **MCP Tools**

7. Serena for code analysis

8. Symbol navigation for test structure

9. File search for related patterns

10. **All Available Agents**

11. Research agents for documentation

12. Code analysis agents for patterns

13. Testing agents for strategy

## Success Criteria

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- 210/210 tests passing (100%)
- All browsers working (Chromium, Firefox, Webkit, Mobile Chrome, Mobile Safari)
- Zero skipped tests (unless environment-dependent)
- Stable test suite (no flakiness)
- Comprehensive documentation

# Timeline

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**Target:** Complete fix within this session

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