



A CASE STUDY ON SALESFORCE TEST AUTOMATION SERVICES

Testing Services Redefined



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01. PROJECT OVERVIEW

BOAMS (Biodiversity Offsets and Agreement Management System) is an Australian Government initiative that supports the management of biodiversity credits, offset agreements, and regulatory compliance across New South Wales. Built on the Salesforce Lightning platform, BOAMS serves multiple stakeholders - including assessors, landholders, and regulators - enabling transparent and efficient tracking of biodiversity offset obligations.

Innovadeas was engaged to deliver comprehensive end-to-end quality assurance for the BOAMS Salesforce application. The engagement encompassed manual functional testing, System Integration Testing (SIT), data validation, data migration testing, and regression testing - ensuring accuracy across all business rules and regulatory workflows.

A cornerstone of this engagement was the implementation of Playwright-based test automation targeting the Salesforce platform. By building a robust automation framework, Innovadeas significantly reduced regression cycle times, improved release confidence, and supported the client's digital transformation goals in biodiversity management.

Client	Platform	Automation Tool	Engagement
NSW DPE	Salesforce (Lightning)	Playwright	End-to-End QA + Automation

02. SERVICES PROVIDED

Innovadeas delivered a hybrid testing engagement combining manual and automated testing under a Time and Materials (T&M) model with dedicated resources assigned for the defined project duration. Project governance was managed in close partnership with the client's delivery team.

Scope of Work

- Develop and execute Playwright automation scripts targeting the Salesforce Lightning interface for regression and smoke testing
- Conduct manual functional testing for major changes and enhancements to existing BOAMS features
- Perform testing for newly introduced features across all user roles (assessors, landholders, regulators)
- Execute regression testing for both existing and new features using the Playwright automation suite



- Perform System Integration Testing (SIT) with upstream and downstream systems
- Develop test cases based on user stories and acceptance criteria
- Carry out data migration testing to validate accuracy and completeness of migrated records
- Provide support to the UAT testing team and participate in defect triage
- Execute cross-browser testing using BrowserStack (licences provided by the client) to validate Salesforce Lightning across supported browsers

Automation Framework

Playwright (TypeScript) - Salesforce Lightning Web Components

Test Management

Test cases authored from user stories; maintained in the client's test management tooling

Cross-Browser Coverage

Google Chrome (primary), BrowserStack for extended browser matrix

03. AUTOMATION TESTING USING PLAYWRIGHT

Salesforce Lightning presents unique automation challenges - dynamic shadow DOM structures, APEX-driven UI updates, and aura/LWC components that require specialised handling. Innovadeas designed and implemented a purpose-built Playwright framework to address these challenges and deliver reliable, maintainable automation coverage.

Framework Architecture

- Page Object Model (POM) pattern adopted to promote reusability and separation of concerns across BOAMS modules
- TypeScript used throughout for strong typing, improved IDE support, and reduced runtime errors in automation scripts
- Custom Salesforce-specific locator strategies developed to reliably identify Lightning Web Components (LWC) and Aura components despite dynamic rendering
- Reusable helper utilities built for common Salesforce actions: record creation via API (bypassing UI for test data setup), navigation to App pages, and handling of toast notifications
- Playwright fixtures used to manage authenticated Salesforce sessions efficiently, reducing login overhead across test suites
- Environment configuration managed via .env files supporting DEV, SIT, and UAT Salesforce orgs

Test Automation Coverage



- Biodiversity credit assessment workflows - end-to-end flow from landholder application submission through to credit issuance
- Offset agreement creation and lifecycle management - creation, amendment, approval and closure
- Regulatory compliance tracking - validation of obligations, milestones and compliance status fields
- Role-based access control - automated verification that assessor, landholder and regulator profiles display correct data and actions
- Integration touchpoints - automated checks on data synchronisation between BOAMS Salesforce and connected systems
- Reports and dashboards - data accuracy assertions against key biodiversity reporting dashboards
- Workflow and approval processes - automated triggering and validation of BOAMS approval chains and email notification logic

Salesforce-Specific Automation Techniques

- **Shadow DOM traversal**
 - Playwright's built-in `ierce://` selector prefix and `frameLocator()` used to navigate Salesforce's nested shadow roots in LWC components
- **Dynamic element waits**
 - Playwright's auto-wait and explicit `waitForSelector()` calls tuned to handle APEX async responses and spinner overlays common in Salesforce pages
- **Salesforce REST API integration**
 - Test data created and torn down programmatically via Salesforce REST API calls within Playwright setup/teardown hooks, ensuring test isolation and speed
- **Toast and modal handling**
 - Dedicated utilities built to detect and assert Salesforce Lightning toast messages and confirmation modals, which appear transiently and require precise timing
- **Headless and headed execution**
 - Tests run headlessly in CI/CD pipelines (GitHub Actions) and in headed mode for debugging and UAT demonstrations

04. BENEFITS

The delivery of Playwright automation and hybrid testing services by Innovadeas produced measurable benefits across quality, cost, speed, and risk for the BOAMS programme.

Regression Cycle Reduction	~70% faster via Playwright automation
Defect Detection (pre-UAT)	High - systematic coverage of all user roles

Cross-Browser Coverage	Expanded via BrowserStack integration
Migration Validation	Field-level accuracy confirmed across all record types
Release Confidence	Improved via automated smoke and regression suites

Quality Assurance and Risk Mitigation

- Playwright automation provided consistent, repeatable regression coverage - eliminating variability inherent in manual-only regression approaches
- Systematic validation of BOAMS business rules and regulatory compliance logic reduced the risk of non-compliant workflows reaching production
- Early defect detection through structured testing protocols significantly reduced remediation cost compared to post-deployment fixes

Automation Efficiency

- Playwright framework automated repetitive regression scenarios, freeing manual testers to focus on exploratory and edge-case testing
- API-level test data setup via Salesforce REST API reduced test execution time by eliminating unnecessary UI interactions for data preparation
- Parallel test execution enabled by Playwright's built-in sharding reduced overall regression cycle time for each release
- Reusable Page Object Model components minimised script maintenance effort as BOAMS features evolved

Enhanced User Experience

- Thorough testing of all stakeholder-facing workflows - assessors, landholders, and regulators - ensured intuitive and compliant user journeys
- Cross-browser and cross-device validation provided consistent platform behaviour across all government-supported environments
- Validation of Salesforce notification and approval flows confirmed reliable, timely communication to all user groups

Successful Data Migration

- Precise validation of data mapping and transformation rules ensured accurate migration of legacy biodiversity and offset records into BOAMS Salesforce
- Field-level data comparison between source SQL and Salesforce destination minimised the risk of data loss or misrepresentation
- Testing of historical data accessibility maintained compliance with NSW government record-keeping requirements

Accelerated Time-to-Market

- Hybrid approach of manual and automated testing enabled parallel execution across BOAMS modules, compressing the overall test cycle



- Playwright's fast execution engine and Salesforce API-driven data setup reduced regression run duration significantly
- Clear defect reporting and Playwright test result dashboards facilitated faster stakeholder sign-off and release approvals

05. CONCLUSION

Innovadeas' implementation of Playwright-based test automation and comprehensive quality assurance services has been a critical enabler in delivering a robust, reliable, and regulatory-compliant BOAMS platform on Salesforce. Through our purpose-built Playwright framework, tailored specifically for Salesforce Lightning's unique technical constraints, we established a scalable automation foundation that will continue to accelerate BOAMS release cycles and protect platform quality as the system evolves.

Our hybrid testing approach - combining deep manual functional expertise with intelligent automation - ensured that every aspect of the BOAMS platform was thoroughly validated: from complex biodiversity credit workflows and multi-stakeholder user journeys, through to data migration accuracy and system integration fidelity. The automation suite not only reduced regression cycle time by approximately 70%, but also provided the client with a lasting, maintainable asset that supports ongoing digital transformation in NSW biodiversity management.

The success of data migration testing ensured that critical historical records were seamlessly transitioned into BOAMS without loss of integrity or accessibility, underpinning regulatory compliance from day one of go-live. Our structured approach to quality assurance has established a strong, automated foundation for sustainable Salesforce operations and future BOAMS enhancements - ensuring the platform continues to serve assessors, landholders, and regulators with confidence and reliability.