



# Case Studies

## Integration Test Tooling

Re-developing Integration Test Components for system emulation and API resource exercising using Spring, SpringBoot, Camel and Maven

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# The Client

## A leading UK Banking Group

The Client is a leading UK banking group.

The client has an existing Payments platform based on IBM Integration Bus (IIB) which is responsible for managing the exchange of payments information between both internal and external systems.

The Platform is considered critical to the organisation and any change to the platform is highly regulated and vigorously tested.

# The Project

As part of a multi phase project around automation of delivery and testing the client had implemented a new continuous integration (CI) process using Maven, Git/Gerrit and Jenkins. During this project it had become clear that the existing integration test framework was not a good fit for the new CI process and that a new approach to testing was urgently required.

The existing framework was made up of a single package which contained test data as well as software responsible for emulating both internal and external systems. Managing the single package had become cumbersome and the simulation software was in urgent need of redevelopment. Creating new emulation components had become a very complex and time-consuming task.

The client had clear requirements for the new testing framework:

- Conformance to the new CI environment
- An easy migration path for bringing existing test data into the new framework
- A familiar build platform for IBM Integration Bus developers
- An automated process for the creation of new emulators and injectors
- A highly modular approach to emulator and injector creation allowing management to be spread among relevant teams

# Implementation

Spida Solutions initiated and managed a PoC to develop a new test framework using a combination of Maven, Spring, Apache Camel, Drools and Freemarker.

The PoC was very well received by the Client, the development platform proved to be intuitive both for Java and IIB developers and the migration of the legacy test data into Drools spreadsheets and Freemarker templates proved to be a simple task.

The combination of Spring, Camel, Drools, Freemarker and Maven provided a number of key features which enabled the speed and agility of the implementation as well as simplifying the migration path:

- Rapid project startup with the creation of Maven archetypes to represent the various component models.
- Components which emulate internal and external systems with different end point protocols (emulators)
- Components that exercise internal API resources (injectors)
- Development platform familiar to IIB developers using Eclipse. The JBOSS Camel plugin for eclipse provides a drag and drop canvas style of development similar to that used to develop IIB flows
- Seamless integration between Maven, Spring and Camel which allows for underlying components to be easily shared across multiple components (e.g. beans needed for IBM MQ connections can easily be created and shared using Maven and Spring contexts)
- A very broad range of prebuilt components are provided by Camel requiring only simple configuration.
- Implementation of Drools decision tables within Excel spreadsheets provided an easy migration path from legacy test scenarios which were already in spreadsheet form). An additional migration component was created by Spida Solutions that further improved the migration and resulted in greater accuracy of the final test scenarios.
- Adoption of the Freemarker templating engine for test data templates provided a simple migration path for conversion of existing templates.
- Use of Camel's powerful Data Format components allowed for easy migration of test scenarios which used fixed length or CSV formats, even in one edge case where a custom format, a combination of fixed length and SWIFT, was in use.

An additional Spring Boot component was developed which allowed emulator components to be composed together into a single web application by simply adding the component as a Maven dependency. The web application exposes a REST API which allows testers to control emulator components during a test scenario (stop, start, inject data)

# Outcome

Spida Solutions managed the development, testing and delivery of the new test framework to the Client Test Team within a very short timeframe.

Every test scenario that was migrated into the new framework resulted in a unit test for a component leading to a very high quality of delivered components and extremely high levels of confidence in the product.

The integration of the product into “live” test scenarios is ongoing and expected to be completed by the end of Q1 2018

The flexibility and ease of configuration of the new test framework has proven to be a great asset to the Client and early adoption by the Client’s platform developers has been extremely positive.

# About Spida Solutions

## Innovative, common sense, full-lifecycle solutions

Spida Solutions is an innovative information technology group with a passion for the opportunities presented by the convergence of service and component based architectures.

Spida Solutions strives to provide clients with a common sense approach to software development

We believe in making use of best of breed software without big label licence limitations wherever possible. We also recognise that many organisations continue to work with a range of vendor products and are equally comfortable engaging with such development projects.

Spida Solutions is able to provide both turnkey solutions and consultancy services

We can provide these wherever you are in your project lifecycle, from inception through to implementation. We can enable fast project start up and rapid delivery of robustly tested, high quality solutions either through our extensive library of project archetypes and test frameworks or by consulting with your in-house teams to produce your own.

Spida Solutions seeks to partner with the best of breed software providers including WSO2.

By being part of a global network of partners we can provide customers with the expertise they need to meet their business challenges.