

# Device Driver Development

## Case Study

Domain: Device Driver

Type: Offshore Development

*“Software primarily used for interface Mass Spectroscopy systems with HPLC devices to enhance the functionality required for the process of detection, analysis and quantitation of samples”*

## Successful Core Development, Ongoing Enhancements and Sustenance Support

The customer had a single line requirement *“Need to develop device driver for HPLC”* for this project which was completed successfully and delivered on-time including full verification support for product release

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### Challenge

- Elucidating and elaborating the intricate requirements of HPLC devices and operations that are relevant to running the LCMS software.
- To maintain schedules with iterative requirements creep and deliver the quality product within specified time frame.
- To develop and establish necessary understanding on the LCMS application for enhancements related interfacing and integrating newer LC devices that included High pressure pumps, Auto samplers and Detectors.
- To adopt and implement Agile software development processes.

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### Solution

- Setup a suitable model tailored for such projects wherein B.A.T. took full responsibility for infrastructure and allocation of qualified resources (including SMEs), Product Design, Design Implementation, Verification Strategy and Sustenance Support.

## Solution Requirements:

The client is a leading global company from North America who manufactures and markets HPLC instruments. The client offers proven market leadership in devices used with mass spectrometers that set the gold standard for high-performance analytical systems.

The client was in the process of introducing a new analytical instrument product in the market and wanted a solution to be developed for interfacing this product with existing third-party mass spectroscopy software.

The customer being leading global name, wanted B.A.T. to ensure that robustness and quality of the development would adhere their internal standards and FDA guidelines including 21 CFR Part 11.

## Methodology:

An imperative element of the project was the choice of a suitable methodology. The entire process right from building requirements up to the final delivery was handled vigilantly and professionally. This process comprised of four stages and followed stringent work pattern for the team.

### Stage 1- Requirements Building

Right from the initial stage B.A.T. domain specialist were highly involved in the project. Starting from feature and work pack definition and then converting these definitions to authentic product requirements which were reviewed by the client. Since followed agile process, there was scope for revision by default.

### Stage 2- Product Design and Implementation

B.A.T. team prepared detailed analysis of the requirements. This was done through specifications walk-through, mock sessions and group discussions. To ensure design feasibility, POC was developed and evaluated for performance. For all stake holders to stay informed, daily stand-ups with the B.A.T. team and a weekly status call along with web-demo, with the client was scheduled. Iteration management sheet, meetings, planning and scheduling for implementation were routine tools employed during the project execution. All these were duly assigned in the team.

### Stage 3- Integration, Acceptance and Delivery

For the quality and timely delivery, this stage included Pair tasting, Integration testing and extensive acceptance testing for each work / work product.

## Delivering Solution:

B.A.T. team assessed the initial requirement of the client based on which a POC was developed and presented to the client for review/ feedback. Since requirements were being added and elaborated, the team decided to follow “**B.A.T. Agile Process**”. This addressed the client’s immediate and expected future needs allowing revision in total scope of the product expectations.

B.A.T. is equipped with Multidisciplinary skills; the experts of different streams required for the project were involved in the process of software development for accurate and professional delivery. B.A.T. worked closely with the client for perfect and timely delivery. The team included Domain experts, software developers, software testers etc.

Correct understanding of the application, the core software and end-user perspective is extremely critical to provide appropriated solutions. B.A.T. handled this entire process very smoothly and professionally which was well appreciated by the client.

Proper configuration and setup including Instruments specific to this project were duly taken care by B.A.T. to replicate the similar work environment at client’s location.

## Key Technologies:

- C#.net windows based application
- Framework 2.0 (with service pack 2)
- Development involved communication with real time systems
- Testing covered integration and user acceptance
- Testing on Instruments (acquisition testing)

#### Stage 4- Enhancement and Sustenance Support

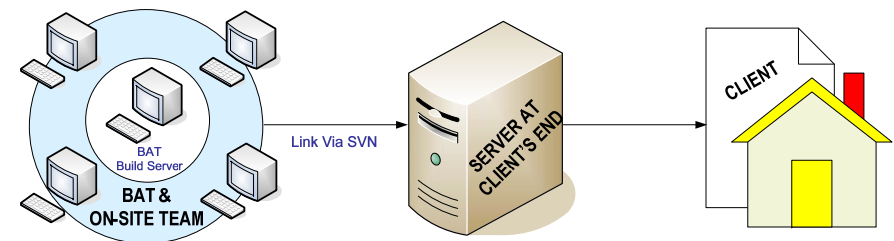
This is the final and very crucial stage which included uploading the build on source repository at the client, connected with the B.A.T. server via secure private links. All project artifacts including source code, design documents, manuals and help guides, verification reports and evidences were duly updated and uploaded.

#### Expertise Shared:

This project was exclusively a Domain Driven Project for Development, Enhancement and Sustenance Support of LC devices that included High pressure pumps, Auto samplers and Detectors and integration with one of the world's leading LCMS software.

#### B.A.T. worked as an external development team for project activities like:

- ✓ Requirement building
- ✓ Product design
- ✓ Usability and intuitive GUI design
- ✓ Design implementation
- ✓ Development of verification strategy and contents
- ✓ Paired verification, integration verification, etc.
- ✓ Delivery, training, project related documentation



B.A.T. has always believed in creating and fostering a well-knit environment. There was regular communication with the client for completing the work as per the requirement and on time. Complete knowledge of Domain, external Co-Development capabilities and excellent project management made B.A.T. to deliver the quality product.

#### Trust in B.A.T.:

Successful completion of this project helped the client to gain confidence in B.A.T. Having experienced the potential of B.A.T., the client entrusted B.A.T. to work on its subsequent project with enhanced responsibilities.

Client has shown a deep interest in associating with B.A.T. as an external development team **to handle development and testing independently for the next release** with activities like:

- ✓ Develop user specific solutions- software customization
- ✓ Develop new features to the existing software for better productivity and efficiency

#### Benefits:

- Act as an extended arm on requirement basis.
- B.A.T. successfully accomplished all the requirements of the client as per the plan.
- Availability of multidisciplinary skills at B.A.T. made the process much faster and smoother.
- Excellent team, domain expertise, knowledge of industry vertical helped B.A.T. to perform exceptionally well in this project.
- Reduced development cost at client's end.