

Instrument Interfacing Development

Case Study

Domain: Instrument Interfacing

Type: Product Plug-in Development

“Generic framework developed for interfacing Analytical Instruments being used in Pathology Laboratories with PathlabSys – LIMS product.”

Generic Framework Development, Ongoing Enhancements and Sustenance Support

Need identified to develop an interface to read results from the instruments as an add-on to input results into PathlabSys™ – LIMS being used in Pathological Laboratories

Challenge

- Various instruments each having their own proprietary representation of information
- Different Protocols and Communication standards being adopted by each Instrument Manufacturer
- To develop a generic plug-in which can be used for any type of instrument to read results and input it into LIMS after review and approval

Solution

- Developed a generic framework which can be adopted for interfacing all various types of instruments

Instrument successfully interfaced

- Horiba ABX - **Micros – 60** Fully Automated Hematology Analyzer
- TransAsia Diagnostics - **EM – 200** Automated Random Access Clinical Chemistry Analyzer
- Roche Diagnostics - **Cobas Integra 400 Plus** fully automatic Clinical Chemistry Analyzer
- Abbot Diagnostics - **Cell Dyn 3200 –** Automated Hematology Analyzer
- Erba Diagnostics Mannheim – **XL-300 –** random access Clinical Chemistry Analyzer
- Sysmex – **KX-21 –** Fully Automated Hematology Analyzer
- BioMerieux Inc. – **mini VIDAS –** Automated ImmunoAnalyzer
- Sysmex – **XT-2000i –** Automated Hematology Analyzer

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

- Identification of instruments for interfacing
- Procuring the requisite information and manuals for identified instruments
- Data Acquisition from client sites
- Generating User Stories and Acceptance Tests

Delivering Solution:

B.A.T. sales team identified potential client sites for acquisition of instrument data and testing.

Domain experts in conjunction with the development team at B.A.T studied various instruments, their protocols, communication standards, interfaces manuals and came up with a strategy to develop a framework for building the instrument interface plug-in.

Architectural and technical reviews were conducted to validate and verify the design identified for developing the framework.

Since the plug-in was identified to be built incrementally, 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.

Key Technologies:

- C#.net windows based application
- Dot net Framework 3.5
- Development involved communication with real time systems
- Testing covered integration and user acceptance
- Testing on Instruments (acquisition testing)

Stage 2- Product Design and Implementation

- Detailed analysis of requirements through specifications walkthroughs and group discussions
- Architectural and Technical Reviews conducted
- POC developed and evaluated
- Daily standup and reviews conducted

Stage 3- Integration, Acceptance and Delivery

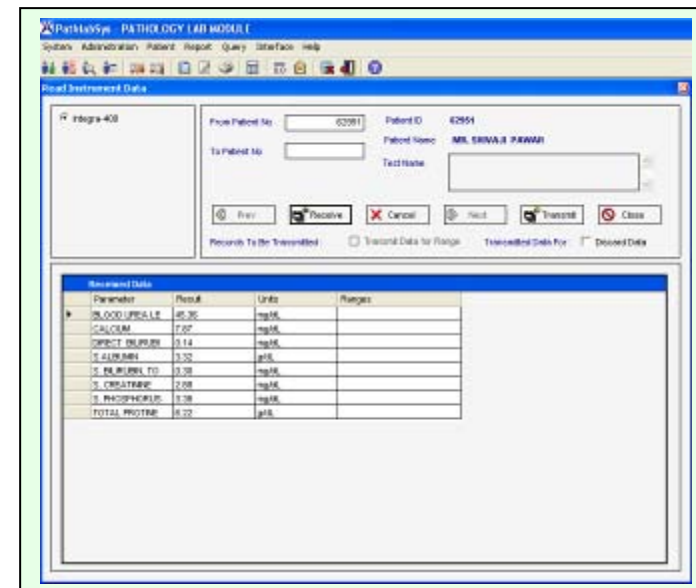
- Configuring the settings for the instruments at the client side
- Deploying instrument interface and integrating it with PathlabSys – LIMS

Stage 4- Deployment and Support

- Support and Training imparted to the customer personnel
- 24 x 7 Support extended through internet access

Expertise Shared:

This project was exclusively a Domain Driven Project for Development, Enhancement and Sustenance Support and included the study of instruments and communication protocols along with integration with LIMS.



Customer Benefits:

PathLabSys™ LIMS is now supported with the custom plug-in for instrument interfacing making it a complete solution.

Direct Benefits to customer:

- ✓ Easy to implement – One click deployment
- ✓ Minimizes human errors while reporting test results generated by the instrument
- ✓ Speeds up T-A-Ts and delivery of reports enhancing quality of services provided by the labs
- ✓ NABL compliant work flow

Benefits to BAT:

- One time development activity for creation of a generic framework.
- The plug in can be licensed to use for all types of instruments by configuring a set of license keys.
- Excellent teamwork, domain expertise, knowledge of industry vertical helped B.A.T. to perform exceptionally well in this project.