



## Flow Cytometry Acquisition and Analysis Software

### Client Overview

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The client is one of the largest businesses supporting the life sciences today with expertise in molecular biology, cellular biology, immunology, and cell analysis. It is a world leader in bringing innovative tools to research and clinical laboratories in basic research, drug discovery and development, biopharmaceutical production, and disease management and delivering flow cytometry systems that are more powerful and more dependable.

### Challenges

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Flow cytometry (FCM) is a technique for counting and examining microscopic particles, such as cells and chromosomes. Fluorescence-activated cell sorting (FACS) is a specialized type of flow cytometry which provides a method for sorting a heterogeneous mixture of biological cells into two or more containers, one cell at a time. The technology has wide applications in a number of fields, including molecular biology, pathology, immunology, plant biology and marine biology. The use of software to setup, track and maintain the cytometer and to analyze the data helps researchers and pathologists to streamline the flow cytometry workflow.

Hence the client required a novel software system to setup and track the cytometer and also be capable of measuring, calculating, and tracking industry-standard performance parameters. The client also needed the software with some enhancing features that could work with their existing software system.

# Solution

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Optra systems helped the client to develop the flow cytometry setup, acquisition and analysis software.

## **Special features:**

- The software has data control and analysis package specifically designed for digital-based flow cytometers. It uses flexible features to simplify acquisition, including experiment templates, userdefinable experiment layouts and automated compensation calculation.
- The software also provides powerful analysis features including one-click snap-to gating tools, hierarchical gating, the ability to copy and paste gates and biexponential display.
- To simplify experiment and data management, software uses a browser view that allows user to easily organize experiments, group specimens and tubes, design global or tube-specific analyses and set independent cytometer settings.
- The browser view also allows user to manage and process recorded data in the context of a single tube or panel, as well as an entire experiment.

Optra systems also developed the software that can enhance the functionality of existing software application of client. This enhanced software version is now being used for all the aspects of the workflow in flow cytometry from instrument and application setup, system maintenance, manual and automated acquisition of flow data, manual and automated analysis of flow data to reporting, transferring, and sharing of flow data, results, and flow acquisition, analysis templates, data archiving and management of flow data.

## **Special features:**

- The user can run daily Performance QC on the cytometer which involves modifying the cytometer settings based on re-running beads and matching the target values determined in the cytometer characterization process which is performed once in 6 months.
- After the Performance QC is done, user can create a new experiment, manually load the tube, add samples and tubes to the experiment, preview the data, set the tube properties and then acquire the data.
- With having acquired the data, user can perform ad hoc analysis involving addition of different gates, expressions and statistics. This can help a user to create the analysis report.

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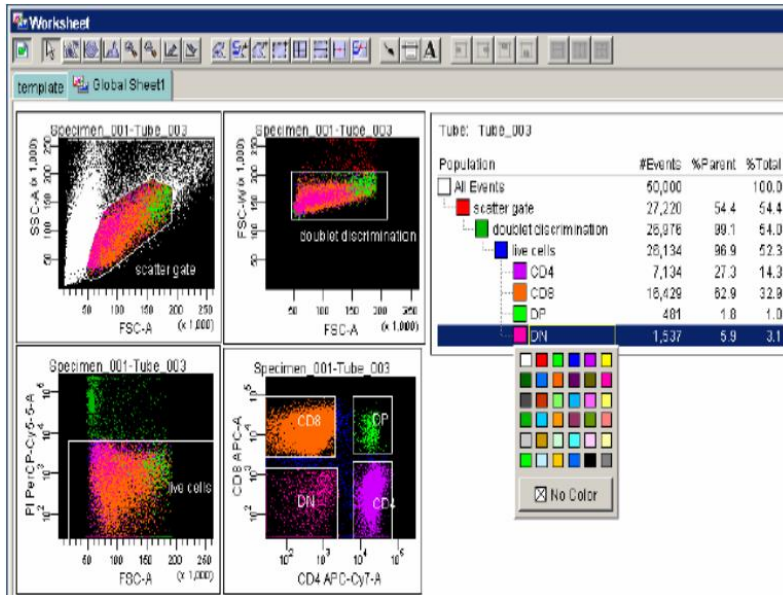
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User can then save the experiment. The user can also create a user defined assay from this experiment which gets saved in the Library workspace.

- The user can further create a work list, select the user defined assays as tasks and perform ad hoc or batch analysis using the manual or auto loading options and generates analysis reports as required.



## Technology Environment

- Core Java with Swing
- .NET framework 3.5 - WF, WPF, WCF
- Design pattern and practices- MVVM, Composite application
- Structure- Modular structure
- Database- Microsoft SQL Server 2008 Express Edition

## Benefits

- Use of application improves day-to-day cytometer performance and application consistency with automated performance adjustments for research experiments.
- It ensures system configurations and setups are under administrative control for increased laboratory efficiency.

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- The software increases throughput with automated tracking to assist in preventative maintenance.
- Simplifies use in a single-point experiment design in an expanded experiment layout.
- This application is a PC based application and it gets installed in laboratory to work with various cytometers available in market like Canto, Aria, Fortssa etc.
- The current software version of the client software with added enhanced features from Optra is RUO version which helps in the domain research.
- The software is very fast & user friendly.
- It allows the publication quality results output so that researcher can directly go for online publication or take the print outs.

## About Optra Systems

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Optra Systems is an ISO-certified global organization with deep domain expertise in medical devices, lab automation, life science informatics and healthcare IT solutions. The company provides a fully-scalable, cost-effective OptiShore™ delivery model. This enables customers to choose the optimal balance between on-site, on-shore, and off-shore development that will best address their budget and collaboration requirements. With Optra Systems, customers are able to shrink their time-to-market by leveraging practical, building-block based solutions. Committed to clear communication and total transparency, the company consistently meets or exceeds its clients' expectations. Offering a full complement of expert engineering and consulting services, Optra Systems is aligned to real business needs applied over the entire product development lifecycle. The robust, scalable and efficient IT infrastructure of the company, together with its outstanding project management team, consistently ensures superior results. Optra Systems' global delivery model helps its customers cut costs by about 50% without compromising on quality and realize a 200% improved production cycle.

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### Contact Optra Systems Today

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