TeamDev

ComfyJ Case Study

Bridging Java apps with mass spectrometers via COM interface

Customer Profile

Our customer Rosetta Biosoftware develops informatics solutions and provides services that enable research organizations to efficiently and effectively conduct life-saving discoveries and develop drugs.

Industry: Healthcare and biotechnology

Tools & Technologies: ComfyJ, JNIWrapper

Business Need

The customer developed their own software solution—the Rosetta Elucidator® system—designed for data management and analysis challenges posed by complex LC/MS experiments. There was needed a solution to allow Elucidator to integrate with an ever expanding list of devices from several vendors. This would considerably contribute to the competitiveness of their product on the market.

Technical Challenge

The Rosetta Elucidator® system imports and converts LC/MS data (liquid chromatography/mass spectrometry data) from a range of measuring devices allowing the user to further processing, analyzing and manipulating these data.

The task was to integrate this Java-based solution with a series of legacy devices (particularly a mass spectrometer) via a COM-to-Java bridge as these devices have COM API for external communication. This would allow to automatically obtain data from different devices and to convert them for further manipulation.

Why Did They Choose ComfyJ

Efficiency and correctness of bridging were the key requirements in this project as these were critical issues for correct data transfer and conversion. Primarily Rosetta tried several solutions before switching to ComfyJ (particularly J-Integra). But in the end none of these solutions satisfied the customer.

Finally they tried ComfyJ—our bidirectional Java-COM bridge for working with COM technologies from Java programs—and were impressed with the scope of functionality they got with ComfyJ.

What They Got With ComfyJ

- **The most comprehensive and rigorous access to the COM APIs** of mass spectrometers.
- **Correct conversion of large data arrays without data losses**. No additional languages or tools were used except ComfyJ and its underlying technology called JNIWrapper also developed by TeamDev what helped the customer to avoid any problems with collisions or incompatibilities of different technologies and tools.
- **Better performance in comparison with other converters**. Performance improvements resulted from being able to choose the most appropriate methods, because ComfyJ made available the entire API provided by vendor. Also high performance of JNIWrapper/ComfyJ data mapping allowed to quickly access the large amounts of data over Java-COM bridge.
- **Automation of import process**. Greater automation of import process was achieved, because all the information about imported data was available in the Java code without any intermediate application. This allowed, for example, to easily perform many quick checks that would be next to impossible when using external conversion software. Also many existing LC/MS data converters do not support unattended operation thus preventing their use in automated environment altogether.
- **Import diagnostics**. Since the vendor-specific COM APIs were called directly from the main application, it was much easier to provide problem diagnostic and recovery, than with any external tool.
- **Completeness of the imported data**. Many existing conversion tools ignore some information about the data that can add value to the subsequent analysis. With ComfyJ it became possible to retrieve as much information as needed.

Success Story

ComfyJ helped to successfully solve the technical challenge of the customer and integrate Elucidator® system with a wide range of mass spectrometers, this solution ensured realization of their business need and contributed much to the commercial success of the product.

We assisted Rosetta in integration of ComfyJ into their own software and finally they were so impressed with the result that they decided to outsource some other projects with custom development to us. Occasional assistance in the use of our software turned gradually into a long-term mutually beneficial partnership. But that's another story.