

Boost.Spirit: A Modern, Object oriented, Recursive-Descent Parser and Output Generation Library

Speaker: Hartmut Kaiser, Louisiana State University

Date: April 17, 2009 3:00PM

Abstract

The talk will focus on a unique and unified approach to parsing and output generation using C++. I will present the design goals, the architecture, and recent results in developing a generic library combining Parser Expression Grammars with modern template meta-programming techniques overall aiming at providing a versatile, generic, highly optimized, and well integrated C++ library usable for a broad range of tasks in the domain of parsing and output generation.

Even if today there are many tools and libraries built around the concept of parsing, using them is often considered to be a black art. Especially for small parsing tasks developers tend not to use parser generators but rely either on hand written code or try to utilize concepts such as regular expressions. For many developers, the hurdle to employ a separate tool to do the parser construction just seems to be too high. On the other hand, there are only very few tools or libraries available for C++ helping programmers to deal with output generation and formatting. Hand written code to format output using existing Standard library primitives is often the preferred option.

In this talk I will show how Boost.Spirit, while being a library, provides the user with a complete embedded domain specific language, integrating parsing and output generation seamlessly with the rest of the C++ application code. The fully attributed nature of the generated parsers and generators allows for tight coupling with the application specific data types.

Boost.Spirit helps to overcome the common notion of parsing being a mystery and of output formatting being fragile and difficult to maintain. It has been developed to lessen the difficulties of parsing and output generation in everyday use and is being used by many developers all over the world.

Bio

After his initial education as a systems engineer, a PhD and a habilitation (a research doctorate obtained after the PhD) in computer science, Dr. Kaiser has been exceptionally successful in leading professional software development projects. He acquired outstanding experiences and excellent professionalism as a software architect, designer and developer. His peer reviewed C++ library contributions to well renowned open source projects (such as Boost - one of the most highly regarded and expertly designed C++ library projects) are being used worldwide by thousands of developers. Dr. Kaiser is currently a senior researcher at the Center for Computation and Technology at the Louisiana State University where he is successfully leading the development of the first C++ reference implementation of SAGA (Simple API for Grid Applications) and of HPX (High Performance ParalleX) - the first implementation of the ParalleX model of computation for conventional systems.