Introspection and reflection are powerful programming tools that allow generic solutions for difficult problems such as multiple dispatch or serialization. In C++, the support for introspection is seriously limited, while reflection is virtually non-existent. The language standard has been developing significantly in recent past and thus it is now possible to extend the language with those features using a custom tool. The result of this thesis is an introspection library working with metadata generated from source code and a compiler-based metadata generator. The functionality of the whole system shall be demonstrated by implementing multiple dispatch, for which there is no simple implementation in standard C++.