



Analysis of Compilation Log Files

Master thesis for Florian Jäger

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The Java HotSpot™ VM compiles the bytecodes of frequently executed methods to optimized machine code. Because compilation is performed in the background in separate threads, the decisions which methods are compiled and the exact order of the compilations vary between multiple runs of the same applications. Additionally, enabling and disabling compiler optimizations and other VM flags affects the timing. The goal of this thesis is to develop a tool that compares the log file of the compiler for several runs and highlights differences in the compilation decisions.

The compilation log file is a structured XML file that contains information about the compilation decisions and the compilation phases. A simple textual or structural difference algorithm is not sufficient because the file contains data such as ID numbers and timestamps that differ even when there are no differences in the compilation decisions. It is therefore necessary to parse the file and to analyze the differences on a higher level based on the meaning of the XML tags. The file format is documented here:

<http://wikis.sun.com/display/HotSpotInternals/LogCompilation+overview>

The application should be implemented in Java based on the NetBeans platform. This makes it possible to integrate it into the VisualVM application [<https://visualvm.dev.java.net/>], a platform for monitoring and performance analysis of the Java SE platform. It will be also necessary to analyze the C++ source code of the Java HotSpot™ VM that generates the compilation log file.

The work progress should be discussed with the supervisor every 2 weeks. Please note the guidelines of the Institute for System Software when preparing the written thesis.

Platform: Java and NetBeans

Supervisor: Dipl.-Ing. Thomas Würthinger

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