



## Eclipse User Interface for Replay Compilation

Bachelor/Master thesis for ...

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Graal, which is part of the Maxine project [1], is an effort to create a new just-in-time compiler for Java that is itself written in Java. It is based on a port of the HotSpot client compiler from C++ to Java.

Graal communicates with the underlying Virtual Machine through a well-defined set of interfaces, which are based on the Maxine compiler-runtime-interface (CRI). Due to the encapsulation of the compiler it is possible to record, and later replay, all interaction of the compiler with the outside world.

For a deterministic compiler, replaying the input should lead to exactly the same compiler run each time, which would be a very valuable tool for debugging compiler problems.

The main goals for this project are:

- Familiarize yourself with the Eclipse plugin programming model, especially with the JDT and the parts that drive the Java debugger.
- Design an interface that allows the user to load, run and inspect compilation runs.
- Develop an extensible framework for adding visualizations for important internal data structures.
- Create visualizations for the most important internal compiler data structures.

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

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[1] <http://labs.oracle.com/projects/maxine/>