



Truffle/C Runtime Environment

Master thesis for Matthias Grimmer

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Truffle is a novel framework for implementing managed languages in Java. The language implementer writes an abstract syntax tree (AST) interpreter, which is integrated into the Truffle framework.

The goal of the Truffle/C project is to write a C interpreter for Truffle. The focus of this thesis, as part of the Truffle/C project, is on the runtime environment of Truffle/C. Namely, a linker, the memory environment, and a native function interface for the Graal VM [1] should be implemented.

The scope of this thesis is as follows:

- An implementation of a linker to load compilation units during runtime.
- A memory environment, which is able to handle pointers and other C data types.
- A native function interface to bridge Java and native code for directly calling native functions from Java.

Explicit non-goals are:

- Completeness with respect to the C specification.
- Completeness of the function interface with respect to the Application Binary Interface
- Peak performance of executed code of current C compilers.
- Peak performance of the function interface with respect to existing solutions like JNI.

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.

Supervisor: Dipl.-Ing. Lukas Stadler

[1] <http://openjdk.java.net/projects/graal/>