

LLVM plugin for Eclipse CDT

The mission

- The task was to develop LLVM (Low Level Virtual Machine) toolchain support as a plugin for Eclipse CDT (C/C++ Development Tooling)

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Basic LLVM information

- LLVM (Low Level Virtual Machine) Compiler System is a collection of tools such as assembler, archiver, linker, parser and compilers (front-ends) such as Clang and llvm-gcc
- LLVM with Clang compiles C/C++, Fortran, Objective C and Ada program code even multiple times faster than GCC (GNU Compiler Collection)

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Why LLVM plugin was made for Eclipse CDT?

- LLVM speeds up compiling C/C++ code and thus C/C++ programmers can work more efficiently
- However LLVM tools are currently used mainly from the command line by executing the LLVM toolchain Linux binaries which isn't the most user friendly way
- LLVM plugin for Eclipse CDT (one of the most used graphical open source IDEs) doesn't exist yet (until now!)

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Development information and goals

- LLVM toolchain is made for the Eclipse CDT that offers support for e.g. C/C++ languages, which are the main languages that are commonly compiled by the LLVM
- The main target in developing the LLVM plugin was to compile C/C++ projects with Clang and llvm-gcc front-ends in Linux and Windows (with Cygwin and MinGW Linux emulators) environments

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What was made to achieve all this?

- Every tool in the LLVM toolchain was defined and configured in the plugin for Eclipse CDT in addition with Clang and llvm-gcc compilers
- Now the C/C++ projects created with Eclipse can be compiled with LLVM directly via Eclipse in co-operation with CDT Internal Builder or GNU Make Builder
- Certain CDT bugs needed to be fixed to make specific functions to work that were necessary for LLVM plugin to exist but those patches are a part of the next release of Eclipse CDT

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Future development ideas

- LLVM could be used to compile other languages using Eclipse IDE. This can be achieved by developing a support for additional front-ends which make possible to compile e.g. Java, Python and Haskell program code

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Links

- www.eclipse.org
- www.llvm.org
- www.llvm.org/pubs/2008-10-04-ACAT-LLVM-Intro.pdf