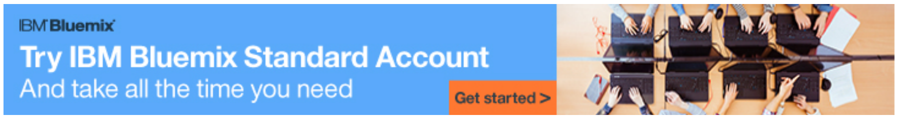
How to make clang compile to llvm IR


IBM Bluemix
Try IBM Bluemix Standard Account
And take all the time you need
Get started >

I want clang to compile my `C/C++` code to `LLVM` bytecode rather than binary executable. How can I achieve that? And if I get the `LLVM` bytecode, how can I take it to further compile it to binary executable.

Basically I want to add some of my own code to the `LLVM` bytecode before compiling to binary executable.

c llvm clang

edited Feb 6 '12 at 9:48
Jav_Rock
16.3k 17 91 157

asked Feb 5 '12 at 11:34
pythonic
6,125 17 66 119

5 Answers

Given some C/C++ file `foo.c`:

```
> clang -S -emit-llvm foo.c
```

Produces `foo.ll` which is an LLVM IR file.

The `-emit-llvm` option can also be passed to the compiler front-end directly, and not the driver by means of `-cc1`:

```
> clang -cc1 foo.c -emit-llvm
```

Produces `foo.ll` with the IR. `-cc1` adds some cool options like `-ast-print`. Check out `-cc1 --help` for more details.

To compile LLVM IR further to assembly, use the `llc` tool:

```
> llc foo.ll
```

Produces `foo.s` with assembly (defaulting to the machine architecture you run it on). `llc` is one of the LLVM tools - here is its documentation.

edited Nov 24 '13 at 18:05

answered Feb 5 '12 at 12:56
Eli Bendersky
139k 56 274 342

3 What does -S do here? – meawoppl Feb 27 '14 at 16:17

8 @meawoppl: -S like in gcc says emit textual assembly rather than assembled binary – Eli Bendersky Feb 28 '14 at 16:53

Ahha. I was having a hard time finding anything in the docs about it. It is safe to assume that many flags in clang mirror gcc flag structure? – meawoppl Feb 28 '14 at 17:35

@EliBendersky Do you know how to compile multiple .c and .h files into one human readable IR so that I can run the IR using 'lli theIrFile'? Thanks – cache Jul 20 '14 at 18:43