

Debug Info BOF

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Optimized debugging is still a big miss with a lot of metadata being lost at various stages, mostly affecting variable tracking, leastly affecting line information.

Dwarf 4 seems to be the standard that LLVM is being coded to, Dwarf 3 in maintenance mode, Dwarf 2 is dead. Still, would be good to have some mechanism to limit the version of Dwarf symbols, to avoid breaking compatibility with older toolchains for a small feature.

In time, Dwarf 3 will be deprecated, and the story will repeat, and it's clear and accepted by all that this is the natural course of thing.

Verifier will check debug info, so metadata is supposed to be consistent after validation.

Metadata may lose type information and be left with line, function and scope info. The rest can be inferred from IR.

Debug metadata is widely known to be huge and methods to reduce the size in IR are being considered, including emitting Dwarf directly in IR, converting the most common constructs to text literals (including small numbers, < 4-8 digits), packing (zip) the contents, etc.