

Ruby - Bug #18616

Error with clang(1) on MacOS due to \_\_declspec()

03/08/2022 08:10 PM - alx (Alejandro Colomar)

Status:	Closed	
Priority:	Normal	
Assignee:		
Target version:		
ruby -v:	ruby 3.1.1p18 (2022-02-18 revision 53f5fc4236) [x86_64-darwin20]	Backport: 2.6: UNKNOWN, 2.7: UNKNOWN, 3.0: UNKNOWN, 3.1: UNKNOWN

**Description**

Issue originally reported in Nginx Unit <https://github.com/nginx/unit/issues/653>.

Apple version of clang(1) behaves different than what we have in Debian (and presumably other Linux systems).  
It reports 1 for \_\_has\_declspec\_attribute(noreturn) (in Debian it evaluates to 0), without specifying -fdeclspec, but then ruby triggers a build error due to not having specified -fdeclspec.

Not sure if that's a ruby bug or a clang bug.

```
$ cat ruby.c
#include <ruby.h>

int main(void)
{
    printf("RBIMPL_COMPILER_IS_MSVC: %i\n", RBIMPL_COMPILER_IS_MSVC);
    return 0;
}

$ cc -I /usr/local/opt/ruby/include/ruby-3.1.0/ -I
/usr/local/opt/ruby/include/ruby-3.1.0/x86_64-darwin20/ -fdeclspec ruby.c

$ cc -I /usr/local/opt/ruby/include/ruby-3.1.0/ -I
/usr/local/opt/ruby/include/ruby-3.1.0/x86_64-darwin20/ ruby.c
In file included from ruby.c:1:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby.h:38:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/ruby.h:25:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/defines.h:73:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/backward/2/attributes.h:42:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/attr/pure.h:25:
/usr/local/opt/ruby/include/ruby-3.1.0/ruby/assert.h:132:1: error: '__declspec'
attributes are not enabled; use '-fdeclspec' or '-fms-extensions' to enable support for
__declspec attributes
RBIMPL_ATTR_NORETURN()
^
/usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/attr/noreturn.h:29:33: note: expanded from ma
cro 'RBIMPL_ATTR_NORETURN'
# define RBIMPL_ATTR_NORETURN() __declspec(noreturn)
^
In file included from ruby.c:1:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby.h:38:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/ruby.h:26:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/anyargs.h:77:
/usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/intern/vm.h:383:1: error: '__declspec'
attributes are not enabled; use '-fdeclspec' or '-fms-extensions' to enable support for
__declspec attributes
RBIMPL_ATTR_NORETURN()
^
/usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/attr/noreturn.h:29:33: note: expanded from ma
cro 'RBIMPL_ATTR_NORETURN'
# define RBIMPL_ATTR_NORETURN() __declspec(noreturn)
```

```

^
In file included from ruby.c:1:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby.h:38:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/ruby.h:27:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/arithmetic.h:23:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/arithmetic/char.h:23:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/arithmetic/int.h:26:
/usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/arithmetic/long.h:70:1: error: '__declspec'
  attributes are not enabled; use '-fdeclspec' or '-fms-extensions' to enable support for
__declspec attributes
RBIMPL_ATTR_NORETURN()
^
/usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/attr/noreturn.h:29:33: note: expanded from ma
cro 'RBIMPL_ATTR_NORETURN'
# define RBIMPL_ATTR_NORETURN() __declspec(noreturn)
^

In file included from ruby.c:1:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby.h:38:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/ruby.h:27:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/arithmetic.h:23:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/arithmetic/char.h:29:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/core/rstring.h:28:
/usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/core/rbasic.h:63:14: error: expected paramete
r declarator
RUBY_ALIGNAS (SIZEOF_VALUE)
^
/usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/value.h:106:23: note: expanded from macro
'SIZEOF_VALUE'
# define SIZEOF_VALUE SIZEOF_LONG
^
/usr/local/opt/ruby/include/ruby-3.1.0/x86_64-darwin20/ruby/config.h:66:21: note: expanded from ma
cro 'SIZEOF_LONG'
#define SIZEOF_LONG 8
^

In file included from ruby.c:1:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby.h:38:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/ruby.h:27:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/arithmetic.h:23:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/arithmetic/char.h:29:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/core/rstring.h:28:
/usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/core/rbasic.h:63:14: error: expected ')'
/usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/value.h:106:23: note: expanded from macro
'SIZEOF_VALUE'
# define SIZEOF_VALUE SIZEOF_LONG
^
/usr/local/opt/ruby/include/ruby-3.1.0/x86_64-darwin20/ruby/config.h:66:21: note: expanded from ma
cro 'SIZEOF_LONG'
#define SIZEOF_LONG 8
^
/usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/core/rbasic.h:63:1: note: to match this '('
RUBY_ALIGNAS (SIZEOF_VALUE)
^
/usr/local/opt/ruby/include/ruby-3.1.0/ruby/backward/2/stdalign.h:27:22: note: expanded from macro
'RUBY_ALIGNAS'
#define RUBY_ALIGNAS RBIMPL_ALIGNAS /**< @copydoc RBIMPL_ALIGNAS */
^
/usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/stdalign.h:66:44: note: expanded from macro
'RBIMPL_ALIGNAS'
# define RBIMPL_ALIGNAS(_) __declspec(aligned(_))
^

In file included from ruby.c:1:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby.h:38:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/ruby.h:27:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/arithmetic.h:23:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/arithmetic/char.h:29:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/core/rstring.h:28:
/usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/core/rbasic.h:64:1: error: expected function

```

```

body after function declarator
RBasic {
^
/usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/core/rbasic.h:155:23: error: incomplete definition of type 'struct RBasic'
    return RBASIC(obj)->klass;
        ~~~~~^
/usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/core/rbasic.h:155:12: note: forward declaration of 'struct RBasic'
    return RBASIC(obj)->klass;
        ^
/usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/core/rbasic.h:40:57: note: expanded from macro 'RBASIC'
#define RBASIC(obj)                RBIMPL_CAST((struct RBasic *) (obj))
                                   ^
In file included from ruby.c:1:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby.h:38:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/ruby.h:27:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/arithmetic.h:23:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/arithmetic/char.h:29:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/core/rstring.h:30:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/fl_type.h:38:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/value_type.h:33:
/usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/error.h:86:1: error: '__declspec'
attributes are not enabled; use '-fdeclspec' or '-fms-extensions' to enable support for
__declspec attributes
RBIMPL_ATTR_NORETURN()
^
/usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/attr/noreturn.h:29:33: note: expanded from macro 'RBIMPL_ATTR_NORETURN'
# define RBIMPL_ATTR_NORETURN() __declspec(noreturn)
                               ^
In file included from ruby.c:1:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby.h:38:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/ruby.h:27:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/arithmetic.h:23:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/arithmetic/char.h:29:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/core/rstring.h:30:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/fl_type.h:38:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/value_type.h:33:
/usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/error.h:103:1: error: '__declspec'
attributes are not enabled; use '-fdeclspec' or '-fms-extensions' to enable support for
__declspec attributes
RBIMPL_ATTR_NORETURN()
^
/usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/attr/noreturn.h:29:33: note: expanded from macro 'RBIMPL_ATTR_NORETURN'
# define RBIMPL_ATTR_NORETURN() __declspec(noreturn)
                               ^
In file included from ruby.c:1:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby.h:38:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/ruby.h:27:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/arithmetic.h:23:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/arithmetic/char.h:29:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/core/rstring.h:30:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/fl_type.h:38:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/value_type.h:33:
/usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/error.h:118:1: error: '__declspec'
attributes are not enabled; use '-fdeclspec' or '-fms-extensions' to enable support for
__declspec attributes
RBIMPL_ATTR_NORETURN()
^
/usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/attr/noreturn.h:29:33: note: expanded from macro 'RBIMPL_ATTR_NORETURN'
# define RBIMPL_ATTR_NORETURN() __declspec(noreturn)
                               ^
In file included from ruby.c:1:

```

```

In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby.h:38:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/ruby.h:27:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/arithmetic.h:23:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/arithmetic/char.h:29:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/core/rstring.h:30:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/fl_type.h:38:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/value_type.h:33:
/usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/error.h:139:1: error: '__declspec'
  attributes are not enabled; use '-fdeclspec' or '-fms-extensions' to enable support for
__declspec attributes
RBIMPL_ATTR_NORETURN()
^
/usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/attr/noreturn.h:29:33: note: expanded from ma
cro 'RBIMPL_ATTR_NORETURN'
# define RBIMPL_ATTR_NORETURN() __declspec(noreturn)
                                ^

In file included from ruby.c:1:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby.h:38:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/ruby.h:27:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/arithmetic.h:23:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/arithmetic/char.h:29:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/core/rstring.h:30:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/fl_type.h:38:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/value_type.h:33:
/usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/error.h:151:1: error: '__declspec'
  attributes are not enabled; use '-fdeclspec' or '-fms-extensions' to enable support for
__declspec attributes
RBIMPL_ATTR_NORETURN()
^
/usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/attr/noreturn.h:29:33: note: expanded from ma
cro 'RBIMPL_ATTR_NORETURN'
# define RBIMPL_ATTR_NORETURN() __declspec(noreturn)
                                ^

In file included from ruby.c:1:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby.h:38:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/ruby.h:27:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/arithmetic.h:23:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/arithmetic/char.h:29:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/core/rstring.h:30:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/fl_type.h:38:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/value_type.h:33:
/usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/error.h:176:1: error: '__declspec'
  attributes are not enabled; use '-fdeclspec' or '-fms-extensions' to enable support for
__declspec attributes
RBIMPL_ATTR_NORETURN()
^
/usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/attr/noreturn.h:29:33: note: expanded from ma
cro 'RBIMPL_ATTR_NORETURN'
# define RBIMPL_ATTR_NORETURN() __declspec(noreturn)
                                ^

In file included from ruby.c:1:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby.h:38:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/ruby.h:27:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/arithmetic.h:23:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/arithmetic/char.h:29:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/core/rstring.h:30:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/fl_type.h:38:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/value_type.h:33:
/usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/error.h:187:1: error: '__declspec'
  attributes are not enabled; use '-fdeclspec' or '-fms-extensions' to enable support for
__declspec attributes
RBIMPL_ATTR_NORETURN()
^
/usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/attr/noreturn.h:29:33: note: expanded from ma
cro 'RBIMPL_ATTR_NORETURN'
# define RBIMPL_ATTR_NORETURN() __declspec(noreturn)
                                ^

```

[illegible]

```

In file included from ruby.c:1:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby.h:38:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/ruby.h:27:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/arithmetic.h:23:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/arithmetic/char.h:29:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/core/rstring.h:30:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/fl_type.h:38:
In file included from /usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/value_type.h:33:
/usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/error.h:287:1: error: '__declspec'
  attributes are not enabled; use '-fdeclspec' or '-fms-extensions' to enable support for
__declspec attributes
RBIMPL_ATTR_NORETURN()
^
/usr/local/opt/ruby/include/ruby-3.1.0/ruby/internal/attr/noreturn.h:29:33: note: expanded from ma
cro 'RBIMPL_ATTR_NORETURN'
# define RBIMPL_ATTR_NORETURN() __declspec(noreturn)
                                   ^
fatal error: too many errors emitted, stopping now [-ferror-limit=]
20 errors generated.

$ cc --version
Apple clang version 13.0.0 (clang-1300.0.29.30)
Target: x86_64-apple-darwin20.6.0
Thread model: posix
InstalledDir: /Library/Developer/CommandLineTools/usr/bin

```

## History

### #1 - 03/08/2022 08:42 PM - alx (Alejandro Colomar)

Never mind, the bug is in clang(1):

<https://github.com/llvm/llvm-project/issues/49958>

### #2 - 03/09/2022 03:13 AM - shyouhei (Shyouhei Urabe)

Thank you for reporting! Are you using the compiler that nginx detects here? If you use one that the ruby's build system finds, then it should have added -fdeclspec into CFLAGS for you.

<https://github.com/ruby/ruby/blob/cd9a9bdfc57bd5e3f5378345720e3c6aa45fdc3d/configure.ac#L614>

Maybe you want to do the same thing.

### #3 - 03/09/2022 10:50 AM - alx (Alejandro Colomar)

shyouhei (Shyouhei Urabe) wrote in [#note-2](#):

Thank you for reporting! Are you using the compiler that nginx detects here? If you use one that the ruby's build system finds, then it should have added -fdeclspec into CFLAGS for you.

I was using what nginx detects.

<https://github.com/ruby/ruby/blob/cd9a9bdfc57bd5e3f5378345720e3c6aa45fdc3d/configure.ac#L614>

Maybe you want to do the same thing.

Ahh, I tracked it to when it was added to ruby, and it seems it was added to ruby as a workaround for the clang(1) bug: <https://github.com/ruby/ruby/commit/0958e19ffb047781fe1506760c7cbd8d7fe74e57>.

Thanks, I'll use it as a workaround, and will try to find a fix for clang(1).

Cheers,

Alex

### #4 - 03/09/2022 10:50 AM - alx (Alejandro Colomar)

- Subject changed from Warning with clang(1) on MacOS due to \_\_declspec() to Error with clang(1) on MacOS due to \_\_declspec()

**#5 - 05/10/2023 12:13 AM - jeremyevans0 (Jeremy Evans)**

*- Status changed from Open to Closed*