Subject: IDL code with fortran subroutine and C linker on OSX Posted by laurel on Tue, 28 Jun 2005 20:20:10 GMT

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In nutshell, my problem is with linking all of my different language codes together. One of the languages seem to thing there should be a leading underscore on a subroutine name, and I just don't know why. Here's a more detailed explanation of what is going on.

I have an IDL code, and a fortran subroutine called mainsub. I have a C linker as a go-between from IDL and fortran called field_c. They both compile fine on their own, but don't seem to want to be linked. Here is my set of compiling commands so far:

f90 -c mainsub.f
gcc -c field_c.c
(these both work fine)
gcc -bundle -flat_namespace -fno-leading-underscore -o field_c.so
field_c.o mainsub.o KT_2003_sub.o
(KT is another fortran subroutine called in mainsub)

My problem is that when I enter the last line I get: "Id: Undefined symbols:

mainsub ___A_FWF CLOSE...."

and several more.

In field_c.c, I call "mainsub_" because I think that fortran adds the extra "_" as a suffix. I have tried with and without the suffix, and with and without a prefix. I can't call the subroutine "_mainsub" in the fortran code because subroutines can't start with underscores. I really don't know where these extra underscores are coming from, and what the subroutines are called in the .o files.

So, does anyone know where I could find the symbol tables for my .o files (both C and fortran?). Or, even better, has anyone done this on a Mac OSX, ran into this problem, and been able to fix it. Any help would be appreciated as I think I might be nearing the end of my creativity on the matter.

Thanks so much, Laurel

Subject: Re: IDL code with fortran subroutine and C linker on OSX

laurel wrote:

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Typically FORTRAN compilers add underscores to external names to differentiate them from identically named externals in C. This allows you to have C code with an external idenifier of MYFUNC call a FORTRAN function called MYFUNC without any conflict. The C code would call the external name _MYFUNC or _MYFUNC_ or MYFUNC_ depending on where the FORTRAN compiler adds underscores.

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Normally you would use the FORTRAN compiler to the linking. That way it knows which FORTRAN libraries to link in. What's the purpose of the -fno-leading-underscore flag? Does it do anything during linkage?

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If looks like FORTRAN is adding both a leading and trailing underscore. Try calling _mainsub_. I would think that __A_FWF and __CLOSE are FORTRAN intrinsics which are in whatever FORTRAN library the FORTRAN compiler would normally link in. Try linking with f90 rather than gcc.

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- > Mac OSX, ran into this problem, and been able to fix it. Any help would
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- > Thanks so much,
- > Laurel

The nm command should show you the complete list of external names in a object file. I've never used OSX, or OpenBSD for that matter. But it's not too disimilar from Linux, and the gcc parts should be the same.

--

Nigel Wade, System Administrator, Space Plasma Physics Group,

University of Leicester, Leicester, LE1 7RH, UK

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Phone: +44 (0)116 2523548, Fax: +44 (0)116 2523555

Subject: Re: IDL code with fortran subroutine and C linker on OSX Posted by Haje Korth on Fri, 01 Jul 2005 12:39:43 GMT View Forum Message <> Reply to Message

Besides the underscore that Nigel mentions, typical mistakes are spelling of the function; they are CASE SENSITIVE.

Haje

"Nigel Wade" <nmw@ion.le.ac.uk> wrote in message news:d9tro2\$6gd\$1@south.jnrs.ja.net...

> laurel wrote:

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  Nigel Wade, System Administrator, Space Plasma Physics Group,
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