Subject: Scalar passing with call_external
Posted by Brian Larsen on Thu, 20 Mar 2008 19:48:29 GMT
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All,

I am having a heck of a time with something here. I am trying to understand the behavior of a C routine that I am trying to call from IDL.

Given this C code: (ctest.c)

```
void ctest ( float a, float b, float *c, float v[3] )
{
  float tmp;
  tmp = a*b;
  v[0] = tmp;
  v[1] = a-b;
  v[2] = a+b;
  *c = 66;
}
```

And this IDL code: (ctest.pro)

```
make_dll, 'ctest', 'ctest', 'ctest', compile_directory = '.'
a = 5.
b = 3.
c = [7.]
v = fltarr(3)
ans = call_external('ctest.so', 'ctest', a, b, c, v, /auto_glue, value
= [1, 1, 0, 0])
print, ans, a, b, c, v
end
```

I expect the output to be:

```
<undetermined>     5.0     3.0     66.0
    15.0       2.0    8.0
```

But instead I get:

```
IDL>  .run ctest
 -1073774376      5.00000      3.00000      7.00000
     15.0000      2.00000      8.00000
```

So the root of the question is how do I pass scalar information back out of the C routine to the IDL? As that looks to be failing. Anyone have any useful tips here?

Cheers,

Brian

---------- ----------
Brian Larsen
Boston University
Center for Space Physics

Subject: Re: Scalar passing with call_external
Posted by Allan Whiteford on Tue, 25 Mar 2008 09:30:18 GMT
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Brian Larsen wrote:
> All,
>
> I am having a heck of a time with something here. I am trying to
> understand the behavior of a C routine that I am trying to call from
> IDL.
>
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> ans = call_external('ctest.so', 'ctest', a, b, c, v, /auto_glue, value
> = [1, 1, 0, 0])
> print, ans, a, b, c, v
> end
>
> I expect the output to be:
> <undetermined> 5.0 3.0 66.0
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> IDL> .run ctest
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>
> So the root of the question is how do I pass scalar information back
> out of the C routine to the IDL? As that looks to be failing. Anyone
> have any useful tips here?
>
> Cheers,
>
> Brian
>
> ---------- ----------
> Brian Larsen
> Boston University
> Center for Space Physics

Brian,

Nothing useful besides a fairly unhelpful "it worked for me"...

```
IDL> .r ctest
% Compiled module: $MAIN$.
   1115947008      5.00000      3.00000      66.0000
      15.0000      2.00000      8.00000
IDL> print,!version
{ x86 linux unix linux 6.2 Jun 20 2005      32      64}
```

with identical results on each of:

```
{ x86_64 linux unix linux 6.3 Mar 23 2006      64      64}
{ x86 linux unix linux 7.0 Oct 25 2007      32      64}
{ sparc sunos unix Solaris 6.2 Jun 20 2005      32      64}
{ sparc sunos unix Solaris 6.4 Mar 24 2007      64      64}
{ sparc sunos unix Solaris 7.0 Oct 25 2007      64      64}
```

which were chosen to be sufficiently random across architecture, version number and 32/64 bit. It could be a specific compiler or architecture thing I guess. If you happen to be using one of the above then I'd check compilers rather than IDL.

It might also me that your compiler isn't overwriting the intermediate shared object file, have you tried explicitly deleting it and running the test again? Note also that usually you need to exit IDL and re-run it to pick up any changes in a shared object file (unless you specify /unload to call_external but that might be implicit when you use auto_glue).

Sorry if you've tried everything in the above paragraph, it's all I can think of though.

Thanks,

Allan

Subject: Re: Scalar passing with call_external
Posted by Brian Larsen on Tue, 25 Mar 2008 12:56:14 GMT
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Allan,

thanks. I have found that it works for me some too, but only in a new idl session. I think that the problem is in repeated calls to the routine. I think that call_external() is saving some information somewhere. There is a flag to call_external() to stop that and that seems to help but not totally work... oddness.

Brian

Brian Larsen
Boston University
Center for Space Physics

Subject: Re: Scalar passing with call_external
Posted by Trae on Wed, 26 Mar 2008 14:47:41 GMT
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On Mar 25, 6:56 am, Brian Larsen <balar...@gmail.com> wrote:
> I think that call_external() is saving some information
> somewhere. There is a flag to call_external() to stop that and that
> seems to help but not totally work... oddness.

Very odd. I haven't had these problems with call_external. Which version of IDL are you using? I'm staying with an old version until that beast of a dissertation is done. I wonder if call_external has changed?

As a general note, using call_external, especially with the auto_glue feature, is expensive computationally. It's usually best to roll your own programs in IDL rather than try to import C codes. Unless you are doing something ridiculously nerdy like generating Sobol numbers, or something. :)

-Trae
