Subject: Re: Calling IDL from Fortran called by IDL
Posted by Nigel Wade on Tue, 27 Nov 2001 10:02:54 GMT
View Forum Message <> Reply to Message

Kevin A. Park wrote:

> Hi,
>
> I have an IDL GUI which sits on top of a calculation engine which
> is written in Fortran 90. Currently IDL accesses the calculation engine
> by calling C wrapper functions via CALL_EXTERNAL. These C wrappers then
> call Fortran routines. The system runs both on Solaris and Windows
> platforms. I am currently using IDL 5.4, but will upgrade to IDL 5.5
> soon.
>
> Some of the calculations in the Fortran take a long time, so what I
> would like to do is have IDL create a progress bar which can be updated
> from the Fortran.

I'm pretty sure that you are on to a non-starter here. I don't think this will be possible until IDL is multi-threaded. Even if you can somehow get your FORTRAN to update a widget, how that widget is rendered on the display won't change until the windowing event loop is reentered when your external code returns to IDL.

What you want to do is normally achieved by having the work done in a work thread, and letting the main thread get on with handling events in the display. From my limited knowlege of Java I think it's true for Java also.

--

Nigel Wade, System Administrator, Space Plasma Physics Group,
University of Leicester, Leicester, LE1 7RH, UK
E-mail : nmw@ion.le.ac.uk
Phone : +44 (0)116 2523568, Fax : +44 (0)116 2523555

Subject: Re: Calling IDL from Fortran called by IDL
Posted by Pasi Hakala on Tue, 27 Nov 2001 12:13:07 GMT
View Forum Message <> Reply to Message

"Kevin A. Park" wrote:
>
> Hi,
>
> I have an IDL GUI which sits on top of a calculation engine which
> is written in Fortran 90. Currently IDL accesses the calculation engine
> by calling C wrapper functions via CALL_EXTERNAL. These C wrappers then

> call Fortran routines. The system runs both on Solaris and Windows
> platforms. I am currently using IDL 5.4, but will upgrade to IDL 5.5
> soon.
>
> Some of the calculations in the Fortran take a long time, so what I
> would like to do is have IDL create a progress bar which can be updated
> from the Fortran. Having waded through the IDL External Development
> Guide, I have a few questions.....
>
How about a simple and stupid IDL-widget process that checks a "status
file"
(created and updated by the fortran routine) periodically?

Cheers, Pasi

Subject: Re: Calling IDL from Fortran called by IDL
Posted by Mark Rivers on Tue, 27 Nov 2001 16:01:10 GMT
View Forum Message <> Reply to Message

Kevin A. Park <kpark@prism-cs.com> wrote in message
news:3c02c150$0$35565$272ea4a1@news.execpc.com...
> Hi,
>
> I have an IDL GUI which sits on top of a calculation engine which
> is written in Fortran 90. Currently IDL accesses the calculation engine
> by calling C wrapper functions via CALL_EXTERNAL. These C wrappers then
> call Fortran routines. The system runs both on Solaris and Windows
> platforms. I am currently using IDL 5.4, but will upgrade to IDL 5.5
> soon.
>
> Some of the calculations in the Fortran take a long time, so what I
> would like to do is have IDL create a progress bar which can be updated
> from the Fortran. Having waded through the IDL External Development
> Guide, I have a few questions.

I have done something like this in the past. Here is the general method.

- IDL calls your external C wrapper routines

- The external C routines launch a new thread and pass this thread
the address of an IDL variable into which some progress information
can be written.

- The external C routine returns to IDL immediately, leaving the new
thread running to do the time-intensive work. The new thread
writes progress information to the IDL variable, which the
IDL code is peridically checking and using to update a progress

meter, display new results or whatever.

The last time I did this was on VMS (!) for a real-time scanning x-ray microscope display. The "real-time" thread was interupt driven FORTRAN code that communicated with IDL via the addresses of IDL variables that were passed to it when a new scan was begun.

The same general ideas should still work. You don't need IDL to be multi-threaded, you just need to be able to launch a new thread in your external code.

Mark Rivers

Subject: Re: Calling IDL from Fortran called by IDL
Posted by Craig Markwardt on Wed, 28 Nov 2001 02:38:29 GMT
View Forum Message <> Reply to Message

"Mark Rivers" <rivers@cars.uchicago.edu> writes:

> Kevin A. Park <kpark@prism-cs.com> wrote in message
> news:3c02c150$0$35565$272ea4a1@news.execpc.com...
>> Hi,
>>
>> I have an IDL GUI which sits on top of a calculation engine which
>> is written in Fortran 90. Currently IDL accesses the calculation engine
>> by calling C wrapper functions via CALL_EXTERNAL. These C wrappers then
>> call Fortran routines. The system runs both on Solaris and Windows
>> platforms. I am currently using IDL 5.4, but will upgrade to IDL 5.5
>> soon.
>>
>> Some of the calculations in the Fortran take a long time, so what I
>> would like to do is have IDL create a progress bar which can be updated
>> from the Fortran. Having waded through the IDL External Development
>> Guide, I have a few questions.
>
...
> - The external C routine returns to IDL immediately, leaving the new
> thread running to do the time-intensive work. The new thread
> writes progress information to the IDL variable, which the
> IDL code is peridically checking and using to update a progress
> meter, display new results or whatever.
...

Oooh, but be careful, because if you allow your IDL variable to be released, say by reassigning it, then your external C routine will probably end up overwriting some part of memory you didn't want it to.

I would say that the easy compromise is to declare a system variable, because I believe those are fixed in memory (ie, can't be unallocated). System variables can be declared via IDL commands, or within your DLM.

Also, one always needs to worry that things like malloc() and printf() may not be threadsafe on one's platform. If your work thread and the IDL thread clash, then *pow*, that will hurt.

Craig

--

---------- ----------
Craig B. Markwardt, Ph.D. EMAIL: craigmnet@cow.physics.wisc.edu
Astrophysics, IDL, Finance, Derivatives | Remove "net" for better response
---------- ----------