
Subject: Re: "Share data with external processes"
Posted by [davidf](#) on Thu, 16 Jan 1997 08:00:00 GMT
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Ken Stone <k.a.stone@larc.nasa.gov> writes:

> Does anyone know of a fast way to transfer a large array (say
> `fltarr(2000)`) from another process? My first thought was to write the
> data to a file, and then read it back into IDL. But time is of
> a critical nature in this case. Then I found `CALL_EXTERNAL`, but it
> seems to only return a scalar (Is that true?).

Well, this is *literally* true, but it's not what you mean.
`CALL_EXTERNAL` accepts parameters just like any other IDL
procedure or function and these parameters can be passed by
reference or by value to the C program. Your large array will
be one of these parameters. You can think of it as sort of an
output parameter to a normal IDL procedure.

The only real caveat to using `CALL_EXTERNAL` to pass data is
that the variable must be created and sized on the IDL side.
You can fill it on the C side, but don't change its data type or
size. Your code will look something like this:

```
dataArray = FLTARR(2000)
junk = CALL_ETERNAL('fill_it.so', 'fillarray', dataArray)
PLOT, dataArray
```

The first two parameters to `CALL_EXTERNAL` are the name of the
shared object library you have to create and the entry point name
into that library (i.e, the function in the library you are calling).

The only difficult part of using `CALL_EXTERNAL` (and it is not
always difficult) is getting the shared object module made
correctly. This is compiler and operating system specific. RSI
provides lots of example Make files to help with this, but if
you have a wierd compiler you are sometimes on your own.

> `LINKIMAGE` now looks
> like the way to go. Has anyone had any luck using `LINKIMAGE` to pass
> around arrays like this? What is the best way to "share data with
> external processes"? (I put that in quotes because it's in the RSI
> advertisement for IDL. :-))

`LINKIMAGE` is harder to use than `CALL_EXTERNAL` and requires that
you know significantly more about how IDL works internally. I would
say you pretty much have to be an expert C programmer to work with
`LINKIMAGE`, while even someone like me can usually get `CALL_EXTERNAL`

to work. ;-)

Good luck!

David

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