Subject: Re: Structures and Call_External
Posted by rivers on Wed, 23 Mar 1994 04:29:22 GMT
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In article <Kile_Baker-180394122621@bakers-mac.jhuapl.edu> Kile_Baker@jhuapl.edu (Kile Baker) writes:
> I have some complicated structures that are used with C routines and I
> would
> like to pass this data into an equivalent structure in IDL. I know I can
> do it by passing the original structure in as a byte array and then
> uppacking the byte array in IDL, but that is a slow process. Is there any
> way of passing
> the structure directly in to an IDL structure?
>

Passing structures to/from IDL with CALL_EXTERNAL is officially unsupported. HOWEVER, it does presently work. What is passed is the address of the first element in the structure. So you can define an IDL structure which is the same as your C structure, pass its address in CALL_EXTERNAL, and use memcpy to copy the data from the C structure to the IDL structure. The only caveat at present is that your IDL structure cannot contain strings, because these are passed by descriptor in the structure. You can use BYTE arrays in place of strings. Other than strings the IDL structures allocate memory sequentially for each element just as C does. On some platforms there may be data alignment issues which you will have to determine empirically.

This is not guaranteed to continue to work, since RSI may change the way structures are stored internally. Such a change could be made to allow array sizes to change inside a structure.

I am routinely passing structures, and arrays of structures, with CALL_EXTERNAL on IDL under VAX/VMS. I am quite sure it will work on other platforms as well. Be aware that it could break in a future release...

--
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Subject: Re: Structures and Call_External
Posted by rarback on Wed, 23 Mar 1994 18:21:54 GMT
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In a previous article, rivers@bnlux1.bnl.gov (Mark Rivers) writes:
> Passing structures to/from IDL with CALL_EXTERNAL is officially
> unsupported. HOWEVER, it does presently work. What is passed is the
> address of the first element in the structure. So you can define an IDL
> structure which is the same as your C structure, pass its address in
> CALL_EXTERNAL, and use memcpy to copy the data from the C structure to the
> IDL structure. The only caveat at present is that your IDL structure cannot
> contain strings, because these are passed by descriptor in the
> structure. You can use BYTE arrays in place of strings. Other than
> strings the IDL structures allocate memory sequentially for each element
> just as C does. On some platforms there may be data alignment issues
> which you will have to determine empirically.

It appears that IDL structures share the alignment of the "native" machine's
C compiler. In particular, in porting some (inherently nonportable) IDL code
from OpenVMS/VAX to OpenVMS/AXP, the structure alignment went from completely
unpadded (VAX C) to strict member alignment (DEC C).

--Harvey

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