
Subject: Re: CALL_EXTERNAL and structures
Posted by [Jeff Koppers](#) on Mon, 23 Jun 1997 07:00:00 GMT
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> Hubert Rehrauer <rehrauer@vision.ee.ethz.ch>
> In the following example the values of the tag 'second' can not be
> modified and I can't see why!

I think the problem is in the way you defined the structure in
'idltest.c':

```
> typedef struct {  
>   long first;  
>   double * second;  
> } data;
```

If your IDL structure is defined like this

```
IDL> data = {first:0L, second:dblarr(4)}
```

then in your C program you would want to define the same structure.
That means the second tag should be a double, **not** a pointer to a
double. In fact, if data.second always has 4 or fewer elements, then
in C the second tag should be a "double second[4];".

But assuming that IDL is responsible for allocating memory for the
data structure, and that your C source code does not know how many
elements data.second is going to have, you could do something like
this:

```
/* content of the file 'idltestfix.c' */  
typedef struct {  
    long first;  
    double second; /* Actually the first element in an array of doubles */  
                /* See IDL code */  
} data;  
  
long idltestfix( int argc, void * argv[])  
{  
    data * d;  
    double * psecond;  
  
    d = (data * ) argv[0];  
  
    d->first = 25;  
    psecond = &d->second;  
    *pssecond = 1.4;  
    *(pssecond+2) = 3.8;
```

```
    return(0L);  
}
```

On SunOS 4.1.3 with IDL 5.0 I did the following

```
IDL> $ acc -c -pic idltestfix.c  
IDL> $ ld -o idltestfix.so -assert pure-text idltestfix.o  
IDL> a = 5L  
IDL> b = dblarr(4)  
IDL> data = {first:a,second:b}  
IDL> print, data  
{      5      0.0000000      0.0000000      0.0000000      0.0000000  
}  
IDL> check = call_external('idltestfix.so','idltestfix',data)  
IDL> print, data  
{      25      1.4000000      0.0000000      3.8000000      0.0000000  
}
```

Good luck

Jeff

Subject: Re: CALL_EXTERNAL and structures
Posted by [rivers](#) on Mon, 23 Jun 1997 07:00:00 GMT
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In article <33AE2A0D.481@vision.ee.ethz.ch>, Hubert Rehrauer <rehrauer@vision.ee.ethz.ch> writes:

```
> Hello,  
>  
> I got the following problem. I want to call a C function that modifies a  
> IDL structure. This works pretty well, except for structure tags that  
> have an array-type.  
> /*  
>   IDL input:  
>  
>   $ cc -G -Kpic -c -lm -v idltest.c  
>   $ ld -G -o idltest.so idltest.o  
> a= 5L  
> b = DBLARR(4)  
> data ={ first: a, second: b }
```

...

```
> /* content of the file 'idltest.c' */  
> typedef struct {
```

```
> long first;  
> double * second;  
> } data;
```

The declaration "double * second" is your problem. "second" is not a pointer to a double, it is an array of doubles, i.e. the array occupies memory immediately after the long "first", not at a location pointed to by a pointer after "first". I have not tried it, but I predict that if you change the declation and code to:

```
typedef struct {  
    long first;  
    double second[4];  
} data;  
...  
d->first = 25;  
d->second[0] = 1.4;  
d->second[2] = 3.8;
```

that it will work.

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