Subject: Re: size of a structure
Posted by rivers on Wed, 29 Jan 1997 08:00:00 GMT
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In article <Pine.SUN.3.91.970129142249.26479C-100000@demsyd.syd.dem.csiro.au>, Peter Mason <peterm@demsyd.syd.dem.csiro.au> writes:
> On Mon, 27 Jan 1997, Phil Williams wrote:
>> 1) What is the "length" of a struture in the help,/st mean? It's not
>> the "size" which is what I thought it was. i.e.
>> IDL> help,/st,info
> < ... structure with several string fields & some other fields, with
> < help,/struct showing length=124 >
> < ... code showing that structure written to disk is 162 bytes long >
>
> It seems that the structure's "length" is correct except when it comes to
> structure members which are strings. A string member contributes 16
> bytes to the structure's "length", regardless of string length.
> This is probably because strings are dynamic, while everything else about
> an IDL structure's size (#members, member datatypes and dimensions) is
> static: the 16 bytes shown for a string member is probably some sort of
> string descriptor with a pointer to the actual string.

Be careful here, you also need to worry about padding. IDL will build its structures to obey the machine's alignment requirements. For example if you have a structure:

```
   s = {a: 0, b: 0L}
```

you might expect the size to be 6 bytes. Indeed, here is the output of IDL run on a VAX:

```
IDL>  s=  {a: 0, b: 0L}
IDL> help, /str, s
** Structure <4767ac>, 2 tags, length=6, refs=1:
   A               INT             0
   B               LONG                  0
```

The length is 6.

However, on a machine which requires long integers to be aligned on quadword boundaries, then there will be 2 bytes of padding between s.a and s.b. Here is the output of IDL run on a DEC Alpha:

```
IDL>  s=  {a: 0, b: 0L}
IDL> help, /str, s
** Structure <47cbc0>, 2 tags, length=8, refs=1:
   A               INT             0
   B               LONG                  0
```

Note that length is 8, not 6.

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