Subject: structure length in files
Posted by Helder Marchetto on Tue, 18 Jun 2013 15:20:10 GMT
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Hi,

[Short summary: When IDL writes structures in unformatted binary data files, what size will the resulting file have, that described by n_tags(Example1,/LENGTH) or n_tags(Example1,/DATA_LENGTH)?]

I was just looking at the length/size of a structure. I'm reading data from a file and using structures looking like this:

```
Example1 = {Field1: 0         ,$  ; Integer, 2 byte
        Field2: 0         ,$  ; Integer, 2 byte
        Field3: 0         ,$  ; Integer, 2 byte
        Field4: 0         ,$  ; Integer, 2 byte
        Field5: 0ULL      }   ; Unsigned Long64, 8 byte

Example2 = {Field1: 0         ,$  ; Integer, 2 byte
        Field2: 0         ,$  ; Integer, 2 byte
        Field3: 0         ,$  ; Integer, 2 byte
        Field4: 0         ,$  ; Integer, 2 byte
        Field5: 0ULL      ,$  ; Unsigned Long64, 8 byte
        Field6: 0         }   ; Integer, 2 byte
```

When I look at it using the help command with /structure, I get:
IDL> help, example1, example2, /struct

** Structure <edbf6a0>, 5 tags, length=16, data length=16, refs=1:
...
** Structure <104d4de0>, 6 tags, length=24, data length=18, refs=1:
...

What is bothering me is that the addition of a field in the second structure results in an increased length (24 bytes) for a data length of 18 bytes. In the first example, the length is the same as the "data length". [the origin of this is probably filling the structure up to multiples of 8 bytes...]
The same results can be obtained using n_tags with the /length and data_length keywords.

So, reading the n_tags documentation, it seems like the Data_length is constant (machine independent) and the length is machine dependent (as in 32-64 bit and other things).

However, my question:
I noticed that when I read structures, the sizes are the expected "data_length" (machine independent). When IDL writes, what size will I have to expect: "length" or "data_length"?

Thanks,
Helder

Subject: Re: structure length in files
Posted by David Fanning on Tue, 18 Jun 2013 15:31:28 GMT
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Helder writes:

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> Field2: 0 ,$ ; Integer, 2 byte
> Field3: 0 ,$ ; Integer, 2 byte
> Field4: 0 ,$ ; Integer, 2 byte
> Field5: 0ULL } ; Unsigned Long64, 8 byte
>
> Example2 = {Field1: 0 ,$ ; Integer, 2 byte
> Field2: 0 ,$ ; Integer, 2 byte
> Field3: 0 ,$ ; Integer, 2 byte
> Field4: 0 ,$ ; Integer, 2 byte
> Field5: 0ULL ,$ ; Unsigned Long64, 8 byte
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> So, reading the n_tags documentation, it seems like the Data_length is constant (machine independent) and the length is machine dependent (as in 32-64 bit and other things).
>
> However, my question:
> I noticed that when I read structures, the sizes are the expected "data_length" (machine independent). When IDL writes, what size will I have to expect: "length" or "data_length"?

Donno. Why don't you write one and find out? You can check the file size with FSTAT.

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.idlcoyote.com/
Sepore ma de ni thue. ("Perhaps thou speakest truth.")

---

Subject: Re: structure length in files
Posted by Bill Nel on Tue, 18 Jun 2013 16:20:13 GMT
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On Tuesday, June 18, 2013 11:20:10 AM UTC-4, Helder wrote:

> [Short summary: When IDL writes structures in unformatted binary data files, what size will the resulting file have, that described by n_tags(Example1,/LENGTH) or n_tags(Example1,/DATA_LENGTH)?]

I don't believe it is documented, but empirically (on my Windows 7 system -- and several years ago on a Unix system), writeu, struct writes the structure unpadded to a file, n_tags(struct, /data_length). You can check yourself using

```
openw, unit, filename, /get_lun,
writeu, unit, struct
point_lun, -unit, fileOffset
```

There is one important exception. If the struct contains strings, then n_tags(... , /data_length) isn't the size of the unpadded structure. (This is documented.)

--Wayne

---

Subject: Re: structure length in files
Posted by Helder Marchetto on Tue, 18 Jun 2013 18:13:23 GMT
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On Tuesday, June 18, 2013 6:20:13 PM UTC+2, ri...@crd.ge.com wrote:
> On Tuesday, June 18, 2013 11:20:10 AM UTC-4, Helder wrote:
>
>
>
>> [Short summary: When IDL writes structures in unformatted binary data files, what size will the

resulting file have, that described by n_tags(Example1,/LENGTH) or n_tags(Example1,/DATA_LENGTH)?]
>
>
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> I don't believe it is documented, but empirically (on my Windows 7 system -- and several years ago on a Unix system), writeu, struct writes the structure unpadded to a file, n_tags(struct, /data_length). You can check yourself using
>
>  openw, unit, filename, /get_lun,
>
>  writeu, unit, struct
>
>  point_lun, -unit, fileOffset
>
>
>
> There is one important exception. If the struct contains strings, then n_tags(... , /data_length) isn't the size of the unpadded structure. (This is documented.)
>
>
>
> --Wayne

Hi,
thanks to both of you. Today I learned three things:
1) fstat
2) point_lun
3) to look for the solution yourself... Somewhere in the documentation you'll find the tools to answer your question.

Thanks,
Helder

---

Subject: Re: structure length in files
Posted by David Fanning on Tue, 18 Jun 2013 18:26:16 GMT
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Helder writes:

> 3) to look for the solution yourself... Somewhere in the documentation you'll find the tools to answer your question.

Ah, yes. But, where!?

I spent another fruitless 20 minutes today looking for the DejaVuSans
font table, which I KNOW is in the documentation, but is so well hidden

that it might as well not exist. :-(

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.idlcoyote.com/
Sepore ma de ni thue. ("Perhaps thou speakest truth.")

---

Subject: Re: structure length in files
Posted by lecacheux.alain on Tue, 18 Jun 2013 19:05:54 GMT
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Le mardi 18 juin 2013 20:26:16 UTC+2, David Fanning a écrit :
> Helder writes:
>
>
>
>> 3) to look for the solution yourself... Somewhere in the documentation you'll find the tools to answer your question.
>
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> that it might as well not exist. :-(
>
>
>
> Cheers,
>
>
>
> David
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>

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>
>
>
>
> --
>
> David Fanning, Ph.D.
>
> Fanning Software Consulting, Inc.
>
> Coyote's Guide to IDL Programming: http://www.idlcoyote.com/
>
> Sepore ma de ni thue. ("Perhaps thou speakest truth.")

By simply putting "dejavusans" in the IDL help search box, you will get four answers, all of them leading you to the full documentation...
alx.

---

Subject: Re: structure length in files
Posted by David Fanning on Tue, 18 Jun 2013 19:14:45 GMT
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alx writes:

> By simply putting "dejavusans" in the IDL help search box, you will get four answers, all of them leading you to the full documentation...

Yeah, I grew up reading books, unfortunately, and look for things in the
index. Hard habit to break. :-(

Cheers,

David

--
David Fanning, Ph.D.
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Coyote's Guide to IDL Programming: http://www.idlcoyote.com/
Sepore ma de ni thue. ("Perhaps thou speakest truth.")

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