Subject: Re: Indexing into Structures???
Posted by Brian Huether on Thu, 19 Sep 2002 10:25:52 GMT
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Okay I figured this out - I can use the notation A=S.(i) to access a field
by index instead of by name.

"Brian Huether" <bhuether@earthlink.net> schrieb im Newsbeitrag
news:3d89930d_5@news.teranews.com...
> I need to be able to access structure fields within a for loop, meaning
that
> I can't reference the field by name. In MATLAB it was easy to access
> Structure fields by simply using index values. Can someone tell me if it
is
> possible to do this in IDL? If it isn't, then that is really a major
> shortcoming.
>
> -brian
>
>

Subject: Re: Indexing into Structures???
Posted by Randall Skelton on Thu, 19 Sep 2002 10:37:26 GMT
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Indeed there is a way, but it isn't easy to find in the IDL help. If I
remember correctly, it is under the heading of 'advanced' structure usage.
In any case, what you will want is the function 'n_tags()' and the syntax
's.(i)' where s is your structure name, and i is the index number. Note
that the round brackets are important.

```
IDL> s = { a:0L, b:0L, c:0L }
IDL> for i=0, n_tags(s)-1 do s.(i) = 1

IDL> help, s, /structure
** Structure <81b7cb4>, 3 tags, length=12, data length=12, refs=1:
   A               LONG                 1
   B               LONG                 1
   C               LONG                 1

IDL> print, s.(1)
         1
```

It is worth noting that if you ever want to use pointers with a structure,
an extra set of brackets is often required... i.e.

IDL > a = ptr_new(s)
IDL > print, (*a).(1)
1

Let's see you do that with MATLAB ;)

You can find more examples by searching google groups:

http://groups.google.com/groups?hl=en&lr=&ie=UTF-8&a
mp;oe=UTF-8&group=comp.lang.idl-pvwave

Cheers,
Randall

On Thu, 19 Sep 2002, Brian Huether wrote:

> I need to be able to access structure fields within a for loop, meaning that
> I can't reference the field by name. In MATLAB it was easy to access
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>
> -brian
>
>
>

Subject: Re: Indexing into Structures???
Posted by R.Bauer on Thu, 19 Sep 2002 11:52:35 GMT
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Randall Skelton wrote:
> Indeed there is a way, but it isn't easy to find in the IDL help. If I
> remember correctly, it is under the heading of 'advanced' structure usage.
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>
> IDL> help, s, /structure
> ** Structure <81b7cb4>, 3 tags, length=12, data length=12, refs=1:
> A LONG 1
> B LONG 1
> C LONG 1

>
> IDL> print, s.(1)
>   1
>
> It is worth noting that if you ever want to use pointers with a structure,
> an extra set of brackets is often required... i.e.
>
> IDL > a = ptr_new(s)
> IDL > print, (*a).(1)
>   1

Here is another way.

We have written a routine which is able to build two vectors from a
structure (and with substructures). One holds the definition of the
levels and one is a vector of pointers where each pointer is a pointer
of the corresponding tag value.
These vectors could be transformed back into a structure, mainly
we use this for add_tag, rename_tag, delete_tag and replace_tagvalue on
each tag level.

Here is a small example

```
 n=struct2names_and_ptrs(!P,names=names,ptr_values=ptr_values )
print,transpose(names)

BACKGROUND
CHARSIZE
CHARTHICK
CLIP
COLOR
FONT
LINESTYLE
MULTI
NOCLIP
NOERASE
NSUM
POSITION
PSYM
REGION
SUBTITLE
SYMSIZE
T
T3D
THICK
TITLE
TICKLEN
```

CHANNEL

for i=0,n-1 do print,*ptr_values[i]

Here is a lot of output so I don't like to write it down

You may be interested how to build a structure again from these
two vectors.

It's easy

result=names_and_ptrs2struct(names,ptr_values)

```
help,result,/str
** Structure <82ef18c>, 22 tags, length=288, data length=288, refs=1:
   BACKGROUND      LONG              255
   CHARSIZE        FLOAT           0.00000
   CHARTHICK       FLOAT           0.00000
   CLIP            LONG      Array[6]
   COLOR           LONG              0
```

and so on

You can find both routines here and many others in our library

http://www.fz-juelich.de/icg/icg-i/idl_icglib/idl_source/idl
_html/dbase/download/struct2names_and_ptrs.tar.gz

http://www.fz-juelich.de/icg/icg-i/idl_icglib/idl_source/idl
_html/dbase/download/names_and_ptrs2struct.tar.gz

or as idl5.5 binary

http://www.fz-juelich.de/icg/icg-i/idl_icglib/idl_source/idl
_html/dbase/download/struct2names_and_ptrs.sav
http://www.fz-juelich.de/icg/icg-i/idl_icglib/idl_source/idl
_html/dbase/download/names_and_ptrs2struct.sav

For further routines and licensing please have a loot at.
http://www.fz-juelich.de/icg/icg-i/idl_icglib/idl_lib_intro. html

best regards

Reimar

--
Reimar Bauer

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 ---------- -------
        a IDL library at ForschungsZentrum Juelich
  http://www.fz-juelich.de/icg/icg-i/idl_icglib/idl_lib_intro. html
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