Subject: Re: Arrays of Structures
Posted by Brian Larsen on Thu, 08 Feb 2007 18:59:56 GMT
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Mick,

>
> (I think) I'm following you to here...
>
>> Meaning that structs.a[23] doesn't make sense because structs.a is an
>> int.
>
> ... but this is where you lose me. Doesn't the the first line that you
> showed say that structs.a is an array of 50 ints?
> Maybe I just can't read the output of HELP properly, but struts.a
> certainly sometimes behaves as an array. Try PRINTing it, for
> instance.
> Or let's compare the output of HELP on a real array of 50 ints:

True, this is a little odd. I like to think of structures as a
container holding things like a. In this case a is an integer and you
have an array of the containers. The other way to do it would be

```
IDL> structs = {a:intarr(50)}
IDL> help, structs
STRUCTS         STRUCT    = -> <Anonymous> Array[1]
IDL> help, structs, /str
** Structure <84bd4a4>, 1 tags, length=100, data length=100, refs=1:
   A               INT       Array[50]
```

Where the thing in the container, a, is an integer array and you only
have one container.

The way that I use structures on a day to day basis is that I read in
a satellite data file that has a bunch of fields in certain coordinate
systems, I store all that in a structure, I then call routines to
change around the coordinate systems and add the parameters to the
structure in that routine so that the container now has more stuff in
it. Then I repeat this for lots of things. So the original structure
is not an array but has arrays and scalars in it, then if I want more
files I read them into the same structure making the structure an
array, that still contains scalars and vectors.

```
IDL> dat=read_sim('2001101131206.sim')
IDL> help, dat
DAT             STRUCT    = -> <Anonymous> Array[1]
IDL> help, dat, /str
** Structure <82731ec>, 7 tags, length=301112, data length=301108,
refs=1:
   THETA           FLOAT     Array[12540]
   R               FLOAT     Array[12540]
   INTENSITY       FLOAT     Array[12540]
   FIELD4          FLOAT     Array[12540]
   HEADER          STRUCT    -> <Anonymous> Array[1]
   X               FLOAT     Array[12540]
   Y               FLOAT     Array[12540]
```

Of course to make it more confusing still there is a structure header
inside my structure dat

```
IDL> help, dat.header
<Expression>    STRUCT    = -> <Anonymous> Array[1]
IDL> help, dat.header, /str
** Structure <84d4ccc>, 21 tags, length=152, data length=148, refs=2:
   TIME            STRING    '2001101131206'
   FORMAT          STRING    'PT'
   NITER           INT              6
   SDEV            FLOAT          0.490877
   XSTART          FLOAT          -3.14159
   XEND            FLOAT           3.14159
   YSTART          FLOAT           1.00000
   YEND            FLOAT           7.00000
   XLENGTH         INT            209
   YLENGTH         INT             60
   XSTORAGE        STRING    'POINT'
   YSTORAGE        STRING    'POINT'
   GSTORAGE        STRING    'ROW'
   ZEROS           STRING    'IGNORE'
   ORDER           STRING    'NEW'
   UNFILLED        INT              0
   BAD             FLOAT          -5.00000
   GMIN            FLOAT           0.00000
   GMAX            FLOAT       1.00000e+30
   XCYCLIC         STRING    'YES'
   YCYCLIC         STRING    'NO'
```

So I print those elements like this:

```
IDL> print, dat.header.time
2001101131206
```

We'll get to the bottom of this.

Brian

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