Subject: Subset of a structure? Posted by troydporter13 on Mon, 20 Jan 2014 22:36:06 GMT

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Hi,

I am trying to get a subset from a structure. I have the following;

help, pm25 total, /struc

```
** Structure <358d280>, 11 tags, length=7160, data length=6566, refs=1:
              STRING
                       'Station1'
 STATION
 OBSERVABLE
                 STRING
                         'Value1
 UNITS
             STRING
                     ' microg m-3'
 RATE
            INT
                      600
 REPORTS_GOOD STRUCT -> < Anonymous > Array[144]
                           -> < Anonymous > Array[1]
 REPORTS BAD
                  STRUCT
                  STRUCT -> < Anonymous > Array[1]
 REPORTS GEN
 GAPS
             STRUCT -> < Anonymous > Array[1]
 JS GAPS
              STRUCT -> <Anonymous> Array[1]
 P FILL
            STRUCT -> < Anonymous > Array[1]
 STATS
             STRUCT -> < Anonymous > Array[1]
```

help, pm25\_total.reports\_good, /struc

```
** Structure <3504e50>, 4 tags, length=48, data length=44, refs=2: TIME_GOOD STRING '2012/06/01 00:00:00' TIME_JS_GOOD DOUBLE 3.9182400e+008 VALUE_GOOD FLOAT 13.7600 COMMENT_GOOD STRING "
```

```
help, pm25_total.reports_good.time_js_good, /struc 
<Expression> DOUBLE = Array[144, 5]
```

Time\_JS\_good is in julian seconds so if there is a zero value in my data I want to eliminate it. I have tried;

```
good_val_pm25 = where(PM25_TOTAL.reports_GOOD.time_JS_GOOD gt 1, good_val_pm25_count)
```

and then tried to use PM25\_TOTAL.reports\_GOOD.time\_JS\_GOOD(good\_val\_pm25) but it does not work. Any ideas why?

Troy

Subject: Re: Subset of a structure?

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Hi Troy-

You need to be careful between an array of structures and a structure of arrays. Here's what I gather from your example:

- 1) pm25\_total is a scalar structure (N\_ELEMENTS(pm25total) =1)
- 2) pm25\_total.reports\_good is an array of structures. There are 144 elements in this array. Each element is a structure and has 4 tags. Each tag is a scalar.

So, we have

A) pm25\_total.reports\_good is a 144 element array of structures

B) pm25\_total.reports\_good[0], pm25\_total.reports\_good[1], etc is a structure, and pm25\_total.reports\_good[0].time\_js\_good is a scalar (as is pm25\_total.reports\_good[1].time\_js\_good, etc)

C) pm25\_total.reports\_good.time\_js\_good[1] is non-sensical. time\_js\_good (the tag) is not an array, but a scalar. You want to index the array, which in this case is pm25\_total.reports\_good.

TL;DNR: PM25\_TOTAL.reports\_GOOD[good\_val\_pm25].time\_JS\_GOOD should work.

(Notice the use of square brackets for indexing an array.)

Subject: Re: Subset of a structure?

Posted by Matthew Argall on Mon, 20 Jan 2014 22:59:58 GMT

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> and then tried to use PM25\_TOTAL.reports\_GOOD.time\_JS\_GOOD(good\_val\_pm25) but it does not work. Any ideas why?

Try this,

IDL> help, (PM25\_TOTAL.reports\_GOOD).time\_JS\_GOOD[good\_val\_pm25]

Sometimes the order of operations between "." and "()" can be tricky.

If that does not work, what is the error that you get?

Subject: Re: Subset of a structure?

Posted by Matthew Argall on Mon, 20 Jan 2014 23:03:08 GMT

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Ahh, yes. Phil payed more attention that I did:-p Use his answer...

Subject: Re: Subset of a structure?

Posted by troydporter13 on Mon, 20 Jan 2014 23:35:51 GMT

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Hi guys,

Thanks for your help, I appreciate it.

help, (PM25\_TOTAL.reports\_GOOD).time\_JS\_GOOD[good\_val\_pm25] <Expression> DOUBLE = Array[719, 144, 5]

This seems to have multiplied the original array by all the good data points so I have 719 versions of it. What I wanted it to do was remove the bad data ponit. So instead of 720 points I should have 719 to now plot. This didn't do that.

Troy

Subject: Re: Subset of a structure?

Posted by Matthew Argall on Tue, 21 Jan 2014 00:13:21 GMT

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> help, (PM25\_TOTAL.reports\_GOOD).time\_JS\_GOOD[good\_val\_pm25]

>

> <Expression> DOUBLE = Array[719, 144, 5]

Yeah, this was wrong. See Phil's answer if you have not already.

Subject: Re: Subset of a structure?

Posted by troydporter13 on Tue, 21 Jan 2014 00:29:18 GMT

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help, PM25\_TOTAL.reports\_GOOD[good\_val\_pm25].time\_JS\_GOOD <Expression> DOUBLE = Array[719, 5]

This is still not correct though. It was an array that had 144 measurements (one every 10 minutes  $-24 \times 6$ ) for each of the 5 days of data. Now it has 719 measurements for each of the five days, when it should really have 719 over the whole 5 days combined.

Troy

Subject: Re: Subset of a structure?

Posted by Matthew Argall on Tue, 21 Jan 2014 01:33:52 GMT

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> help, (PM25\_TOTAL.reports\_GOOD).time\_JS\_GOOD[good\_val\_pm25]

>

> <Expression> DOUBLE = Array[719, 144, 5]

You posted my wrong solution twice... Phil's answer was the following:

PM25\_TOTAL.reports\_GOOD[good\_val\_pm25].time\_JS\_GOOD

-----

My solution (the one you posted) did not work because IDL truncates its indices, so basically you got the scalar value (PM25\_TOTAL.reports\_GOOD).time\_JS\_GOOD[0] 719 times for each of the good reports.

Subject: Re: Subset of a structure?

Posted by Matthew Argall on Tue, 21 Jan 2014 01:36:52 GMT

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Oh, my. I am messing this one up today :-p Forget my last message.

try

IDL> help, PM25\_TOTAL.reports\_GOOD[good\_val\_pm25[0]].time\_JS\_GOOD

IDL does not really like referencing a single tag in an array of structures. You may have to loop through them all

Subject: Re: Subset of a structure?

Posted by Matthew Argall on Tue, 21 Jan 2014 01:50:29 GMT

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Sorry for all the mix-ups. To make up for it, tell me if I am doing something differently from you...

IDL> reports\_good = {time\_good: '2012/06/01 00:00:00', time\_js\_good: 0D, value\_good: 0.0, comment\_good: "}

IDL> help, reports\_good

\*\* Structure <28533d8>, 4 tags, length=48, data length=44, refs=1:

TIME\_GOOD STRING '2012/06/01 00:00:00'

TIME\_JS\_GOOD DOUBLE 0.0000000

VALUE\_GOOD FLOAT 0.00000

COMMENT\_GOOD STRING

IDL> reports\_good = replicate(reports\_good, 144)

```
IDL> pm25_total = {reports_good: reports_good}
IDL> help, pm25_total
** Structure <2937008>, 1 tags, length=6912, data length=6336, refs=1:
 REPORTS_GOOD STRUCT -> < Anonymous > Array[144]
IDL > index = indgen(50)
```

IDL> help, (pm25\_total.reports\_good)[index].time\_good <Expression> STRING = Array[50] IDL> help, pm25\_total.reports\_good[index].time\_good <Expression> STRING = Array[50]