
Subject: Indexing problems under V6

Posted by [Ian Dean](#) on Fri, 30 Mar 2007 09:41:54 GMT

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Hi,

This is almost a repeat of a posting by Wayne Landsman, 12-Aug-2003.

Because of contracts, we have been stuck on v5.5 for years!!!

However, we are now in a position to upgrade to 6.3. As part of this, a great deal of our code is now broken because of the change in indexing.

In 5.5,

```
a={x:indgen(10)}
b=[1, 4, 10]
c=[4]
val=a.x[c]          <<<<<<<<<<this was a scalar of 4
pos=where(b eq val)  <<<<<<<<<<<<<<< returned [1]
```

In 6.3.

```
a={x:indgen(10)}
b=[1, 4, 10]
c=[4]
val=a.x[c]          <<<<<<<<<<this is now an array of [4]
pos=where(b eq val)  <<<<<<<<<<<<<<< now returns -1
```

The where fails because it is now comparing an array with an array, not an array with a scalar.

Is there any trick/switch that can be used to revert the action to that used in 5.5?

The real problem is much deeper than this, as the search may be done several levels lower than where the selection criteria is setup and furthermore, some searches genuinely use arrays.

I hope this makes sense and I hope for some favourable replies.

Regards,
Ian

Subject: Re: Indexing problems under V6

Posted by [MarioIncandenza](#) on Sat, 31 Mar 2007 20:27:07 GMT

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> Is there any trick/switch that can be used to revert the action to that used
> in 5.5?

Obviously, the easiest solution would be a COMPILE_OPT IDL55 for all of the affected routines, but if anything like that is implemented, it is certainly not documented.

- > The real problem is much deeper than this, as the search may be done several
- > levels lower than where the selection criteria is setup and furthermore,
- > some searches genuinely use arrays.

This is indeed a thorny problem. But if you truly are comparing both arrays to scalars and arrays to arrays, I find the behavior of WHERE to be unintuitive (I always end up using pen and paper to figure out what it's going to do), and you might just be driven to a more powerful tool, such as the SETINTERSECTION-type tools (http://www.dfanning.com/tips/set_operations.html).

Good luck,

Edward H.

Subject: Re: Indexing problems under V6
Posted by [JD Smith](#) on Mon, 02 Apr 2007 21:48:30 GMT
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On Fri, 30 Mar 2007 10:41:54 +0100, Ian Dean wrote:

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- > levels lower than where the selection criteria is setup and furthermore,
- > some searches genuinely use arrays.
- >
- > I hope this makes sense and I hope for some favourable replies.

Probably not what you want to hear, but... it's important to know whether you intend the "scalar inflation" of IDL's operators to work, and, if so, always explicitly use a scalar, e.g. `val[0]`. This is a good habit to get into. Often I recommend turning an array into a scalar as soon as its returned, if you only expect, or ever intend to use, a single value:

```
wh=where(array eq val,cnt)
wh=wh[0]
```

Short of that, you could use `WHERE_ARRAY` in place of `WHERE`, at a cost of some performance (or write your own version to replace `WHERE` which simply checks for single element arrays, and converts them to scalars for you). If it's any solace, I know that at least one of IDL's former engineers regarded the scalar <-> single element array ambiguity as the most troubling vestigial issue in IDL.

JD
