

---

Subject: Interesting WHERE function gotcha  
Posted by [David Fanning](#) on Fri, 07 Feb 2003 02:23:40 GMT  
[View Forum Message](#) <> [Reply to Message](#)

---

Folks,

I just spent a pleasant hour or so chasing down an interesting WHERE function gotcha. I thought you might be interested.

I have an alphabetized string array:

```
array = ['apple', 'avacado', 'banana', 'carrot']
```

I wish to make a list of those vegetables (I think of them as vegetables) that begin with the letter "a". I want this to be fast (there are several hundreds of entries in my real array), so I plan to search for byte values.

```
index = WHERE( (Byte(array))[0,*] EQ Byte('a'), count)
Print, count
1
```

Uh, huh. (Bit of head scratching here.)

I probably did the extraction incorrectly. Try this:

```
veggie_letter = (Byte(array))[0,*]
Print, Reform(veggie_letter)
97 97 98 99
letter = Byte('a')
Print, letter
97
```

Uh, huh. Let's see, "One, two 97s in there." Well, that's interesting. :-(

How about this:

```
Help, veggie_letter, letter
VEGGIE_LETTER BYTE = Array[4]
LETTER BYTE = Array[1]
```

"LETTER, a byte \*array\*!? You don't suppose..." Try this:

```
index = WHERE( (Byte(array))[0,*] EQ (Byte('a'))[0], count)
Print, count
2
```

Hummm. V-e-r-y interesting...

Now I know how to fix the problem, but I don't know exactly what the problem is. (Although this is not so different from most computer problems, when you come to think of it.) Is the problem that the BYTE function always makes a byte \*array\* when extracting string arguments? Or is it that the WHERE function acts in a, uh, non-intuitive way when there are two vectors in a boolean expression?

And how \*does\* this WHERE expression work, anyway? Why don't I get errors? How can I exploit a boolean expression involving two vectors?

As usual, more questions than answers when you look deeper. Any ideas? :-)

Cheers,

David

--

David W. Fanning, Ph.D.

Fanning Software Consulting, Inc.

Phone: 970-221-0438, E-mail: [david@dfanning.com](mailto:david@dfanning.com)

Coyote's Guide to IDL Programming: <http://www.dfanning.com/>

Toll-Free IDL Book Orders: 1-888-461-0155

---