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Subject: Absolute value of negative number is negative  
Posted by [wlandsman](#) on Mon, 08 Feb 2016 19:00:18 GMT  
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I was surprised to find that taking the absolute value of a 16 bit integer vector was yielding negative numbers.  
While this is non-intuitive, I think it is unavoidable. --Wayne

```
IDL> tab= -32768S    ;IDL won't let us define -32768 as a short integer
```

```
tab= -32768
      ^
```

% Integer constant must be less than 32768.

```
IDL> tab = intarr(1)    ;but we can assign a short integer to -32768
IDL> tab[0] = -32768
IDL> help,tab           ;Still a short integer
TAB      INT           = Array[1]
IDL> print,tab[0]       ;Still a value of -32768
-32768
IDL> print,abs(tab[0])   ;Absolute value is negative!
-32768
```

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Subject: Re: Absolute value of negative number is negative  
Posted by [Dick Jackson](#) on Tue, 09 Feb 2016 21:26:51 GMT  
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On Monday, 8 February 2016 11:00:20 UTC-8, wlandsman wrote:

> I was surprised to find that taking the absolute value of a 16 bit integer vector was yielding negative numbers.

> While this is non-intuitive, I think it is unavoidable. --Wayne

>  
>

> IDL> tab= -32768S ;IDL won't let us define -32768 as a short integer

>  
> tab= -32768  
> ^

> % Integer constant must be less than 32768.

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> IDL> tab = intarr(1) ;but we can assign a short integer to -32768

> IDL> tab[0] = -32768

> IDL> help,tab ;Still a short integer

> TAB INT = Array[1]

> IDL> print,tab[0] ;Still a value of -32768

> -32768

> IDL> print,abs(tab[0]) ;Absolute value is negative!

> -32768

Good find, Wayne. That's the trouble when there are more available negative values than positive ones.

In case this is helpful, here's an easier way to get that constant:

```
IDL> tab = Fix(-32768)
IDL> help, tab, Abs(tab)
TAB      INT      = -32768
<Expression> INT    = -32768
```

And, to show the problem appears on larger integer types as well:

```
IDL> tab = Fix(2L^15L)
IDL> help, tab, Abs(tab)
TAB      INT      = -32768
<Expression> INT    = -32768
```

```
IDL> tab = 2L^31
IDL> help, tab, Abs(tab)
TAB      LONG     = -2147483648
<Expression> LONG  = -2147483648
```

```
IDL> tab = 2LL^63
IDL> help, tab, Abs(tab)
TAB      LONG64   = -9223372036854775808
<Expression> LONG64 = -9223372036854775808
```

Cheers,  
-Dick

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