
Subject: Re: Could you explain why this happen?
Posted by [jeanh](#) on Wed, 28 Apr 2010 17:01:37 GMT
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On 28/04/2010 12:46 PM, Bryan wrote:

```
> This may be a stupid question, but I really want to know why.  
> Please, see below and explain. Thanks.  
>  
> IDL> print, 132*30  
> 3960  
> IDL> print, 132*30*10  
> -25936  
> IDL> print, 132*300  
> -25936  
> IDL> data1 = 132  
> IDL> data2 = 300  
> IDL> data3 = data1*data2  
> IDL> print, data3  
> -25936
```

Hi,

you are working with integers, the maximum value being 32 767. When you go over this limit, IDL goes back to the minimum value (-32 768). So $32\,767 + 1 = -32\,768$
Use long integers instead, and you will have the value you are expecting!

Jean

Subject: Re: Could you explain why this happen?
Posted by [Michael Galloy](#) on Wed, 28 Apr 2010 17:04:06 GMT
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On 4/28/10 10:46 AM, Bryan wrote:

```
> This may be a stupid question, but I really want to know why.  
> Please, see below and explain. Thanks.  
>  
> IDL> print, 132*30  
> 3960  
> IDL> print, 132*30*10  
> -25936  
> IDL> print, 132*300  
> -25936  
> IDL> data1 = 132  
> IDL> data2 = 300  
> IDL> data3 = data1*data2  
> IDL> print, data3
```

> -25936

The default integer in IDL is a 16-bit signed integer (i.e., INT), range -32768 to 32767. Your calculation involved two of these 16-bit integers, so IDL calculated a result which was a 16-bit integer, wrapping around to negative values in the process:

```
IDL> help, 132
<Expression>  INT    =    132
IDL> help, 300
<Expression>  INT    =    300
IDL> help, 132 * 300
<Expression>  INT    = -25936
```

The way to fix this to get the "correct" result is to make one or both of the operands in the operation be of type long, making the result of type long (range -2^{31} to $2^{31} - 1$):

```
IDL> help, 132L * 300L
<Expression>  LONG    =    39600
```

Mike

--

www.michaelgalloy.com
Research Mathematician
Tech-X Corporation

Subject: Re: Could you explain why this happen?
Posted by [David Fanning](#) on Wed, 28 Apr 2010 17:06:05 GMT
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Bryan writes:

```
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> Please, see below and explain. Thanks.
>
> IDL> print, 132*30
> 3960
> IDL> print, 132*30*10
> -25936
> IDL> print, 132*300
> -25936
> IDL> data1 = 132
> IDL> data2 = 300
> IDL> data3 = data1*data2
> IDL> print, data3
> -25936
```

Here is a clue. These are the same IDL commands in my IDL session:

```
IDL> print, 132*30
      3960
IDL> print, 132*30*10
      39600
IDL> print, 132*300
      39600
IDL> data1 = 132
IDL> data2 = 300
IDL> data3 = data1*data2
IDL> print, data3
      39600
```

Probably the only difference between your IDL session and mine is that I have this command in my IDL startup file:

```
compile_opt defint32
```

Why would that matter?

Cheers,

David

--

David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: <http://www.dfanning.com/>
Sepore ma de ni thui. ("Perhaps thou speakest truth.")

Subject: Re: Could you explain why this happen?
Posted by [bryan.s.hong](#) on Wed, 28 Apr 2010 17:54:40 GMT
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```
> Bryan writes:
>> This may be a stupid question, but I really want to know why.
>> Please, see below and explain. Thanks.
>
>> IDL> print, 132*30
>>      3960
>> IDL> print, 132*30*10
>>      39600
>> IDL> print, 132*300
>>      39600
>> IDL> data1 = 132
>> IDL> data2 = 300
>> IDL> data3 = data1*data2
>> IDL> print, data3
>>      39600
```

```

>> IDL> print, 132*300
>> -25936
>> IDL> data1 = 132
>> IDL> data2 = 300
>> IDL> data3 = data1*data2
>> IDL> print, data3
>> -25936
>
> Here is a clue. These are the same IDL commands in my IDL
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>      39600
> IDL> data1 = 132
> IDL> data2 = 300
> IDL> data3 = data1*data2
> IDL> print, data3
>      39600
>
> Probably the only difference between your IDL session and mine
> is that I have this command in my IDL startup file:
>
> compile_opt defint32
>
> Why would that matter?
>
> Cheers,
>
> David
>
> --
> David Fanning, Ph.D.
> Fanning Software Consulting, Inc.
> Coyote's Guide to IDL Programming:http://www.dfanning.com/
> Sepore ma de ni thui. ("Perhaps thou speakest truth.")

```

Thank you for your kind response. Then, could you let me know how to set the IDL start-up file like you?

Thanks.

Bryan

Subject: Re: Could you explain why this happen?
Posted by [David Fanning](#) on Wed, 28 Apr 2010 19:26:53 GMT
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Bryan writes:

> Thank you for your kind response. Then, could you let me know how to
> set the IDL start-up file like you?

An IDL start-up file is simply a text file containing IDL commands of the sort you would type at the IDL command line. You point to it via an environment variable named IDL_STARTUP.

Here is how you might define it in a UNIX environment:

http://www.dfanning.com/misc_tips/idlsetup.html

In a Windows environment, you define it via a Windows Preference dialog.

Cheers,

David

--

David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: <http://www.dfanning.com/>
Sepore ma de ni thui. ("Perhaps thou speakest truth.")

Subject: Re: Could you explain why this happen?
Posted by [Carsten Lechte](#) on Thu, 29 Apr 2010 10:57:15 GMT
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David Fanning wrote:

> An IDL start-up file is simply a text file containing
> IDL commands of the sort you would type at the IDL
> command line. You point to it via an environment
> variable named IDL_STARTUP.

Note however, that COMPILE_OPT only affects the local scope, i.e. you have to put it into every procedure and function definition, not just into the startup file, or you will be wondering if the sky is falling. Example:

IDL Version 6.4 (linux x86 m32). (c) 2007, ITT Visual Information Solutions
IDL> print, 32000*6

```
-4608
IDL> compile_opt defint32
IDL> print, 32000*6
      192000
IDL> .comp
- pro test
- print, 32000*6
- end
% Compiled module: TEST.
IDL> test
      -4608
IDL> print, 32000*6
      192000
IDL>
```

chl
