Subject: NaN problem in integer arrays
Posted by galaxytraveler42 on Thu, 17 Oct 2013 15:44:46 GMT
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I use NaN's a lot in my arrays in place of missing or bad data points, but I have problems with it everytime my arrays are integer.

An example of a test program:
x=[0,1,2,0]
s=where(x EQ 0,count)
if count gt 0 then x(s)=!Values.F_NAN
help, X

> X INT = Array[4]

print, X
> % Stop encountered: test.pro
> % Program caused arithmetic error: Floating illegal operand

And if I change it to a long array:
x=long(x)
then I get:
> X LONG = Array[4]
> -2147483648 1 2 -2147483648
> % Program caused arithmetic error: Floating illegal operand

But if I do this with a floating array.
x=[0.,1.,2.,0.]
Then it works just fine
> X FLOAT = Array[4]
> NaN 1.00000 2.00000 NaN

I can see that other people have had troubles with this and explained it as a windows compiler errors, but I have a mac computer.
http://www.idlcoyote.com/math_tips/nans.html

Do anyone know if there is a solution for this?

Subject: Re: NaN problem in integer arrays

Posted by David Fanning on Thu, 17 Oct 2013 15:50:56 GMT
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Galaxytraveler writes:

> I use NaN's a lot in my arrays in place of missing or bad data points,
> but I have problems with it everytime my arrays are integer.

Yes, there are only two types of NaNs in IDL. !Values.F_NaN
is the floating point NaN (that is what the F means) and !Values.D_NaN
is a double precision floating point NaN (that is what the D means).
There is no integer or long or byte value that can be used as a NaN.

Bottom line, if you are going to use NaNs, you will need to use them in
floating point or double precision arrays. No way around it. :-)

> I can see that other people have had troubles with this and explained
it as a windows compiler errors, but I have a mac computer.
> http://www.idlcoyote.com/math_tips/nans.html

That's funny! :-)

Cheers,

David

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

Subject: Re: NaN problem in integer arrays
Posted by Kenneth Bowman on Thu, 17 Oct 2013 20:51:17 GMT
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On 2013-10-17 15:44:46 +0000, Galaxytraveler said:

> I use NaN's a lot in my arrays in place of missing or bad data points,
> but I have problems with it everytime my arrays are integer.

NaNs are identified by a special bit pattern in the IEEE floating point
standard (http://en.wikipedia.org/wiki/IEEE_floating_point). There is
no such thing as NaN for integer data types. If you need to implement
a similar concept for integers, you have to choose a specific integer
value to represent, for example, missing data, and then you have to

assume all responsibility for checking for that value.

Ken Bowman