Subject: Re: Setting values to NaN
Posted by Klaus Scipal on Fri, 25 Jun 2004 11:41:51 GMT
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Hi Matt

!VALUES.F_NAN is a float but your a array is integer. Convert your a array
to float (float(a)) before setting the NaNs and it will work

Klaus

"Matt" <matt_westmore@yahoo.co.uk> wrote in message
news:c66373b9.0406250228.f6cbaf4@posting.google.com...
> Hi,
> I'd realy appreciate someone pointing out why I'm an idiot.
>
> I'm trying to set some values of an image to NaN so that they are not
> included in further calculations but I can't seem to do it!!!
>
> eg:
> a = indgen(10)
> lt5 = where(a LT 5)
> a(lt5) = !VALUES.F_NAN
> %Program caused arithmetic error: Floating illegal operand
> print, a
> 0 0 0 0 0 5 6 7 8 9
>
> Cheers
> Matt

Subject: Re: Setting values to NaN
Posted by David Fanning on Fri, 25 Jun 2004 13:43:09 GMT
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Matt writes:

> I'd realy appreciate someone pointing out why I'm an idiot.

Wrong group. Take this over to alt.masochist.fetish. :-)

Cheers,

David

--
David Fanning, Ph.D.

Subject: Re: Setting values to NaN
Posted by matt_westmore on Fri, 25 Jun 2004 15:27:02 GMT
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OK I spotted it. F_NAN and D_NAN apply to floats.

So is there an alternative I can use with integers?

matt_westmore@yahoo.co.uk (Matt) wrote in message
news:<c66373b9.0406250228.f6cbaf4@posting.google.com>...
> Hi,
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> Cheers
> Matt

Subject: Re: Setting values to NaN
Posted by Paul Van Delst[1] on Fri, 25 Jun 2004 15:50:34 GMT
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Matt wrote:
> OK I spotted it. F_NAN and D_NAN apply to floats.
>
> So is there an alternative I can use with integers?

How would you define a bit pattern for an invalid integer that's not a valid integer?, as opposed to some user-set value (like -99 or or -32767 or -2147483647L etc.) ?

You need to define some user-set value (like -99 or or -32767 or -2147483647L etc.) based on what you knwo about your data. Something like:

```
IDL> MY_INVALID_INTEGER = -32767
IDL> a = indgen(10)
IDL> lt5 = where(a lt 5)
IDL> a[lt5] = MY_INVALID_INTEGER
IDL> print, a
  -32767  -32767  -32767  -32767  -32767      5      6      7      8      9
```

Be careful about mixing values/data types though:

```
IDL> MY_INVALID_INTEGER = -2147483647L
IDL> a = indgen(10)
IDL> lt5 = where(a lt 5)
IDL> a[lt5] = MY_INVALID_INTEGER
IDL> print, a
      1      1      1      1      1      5      6      7      8      9
```

paulv

>
>
> matt_westmore@yahoo.co.uk (Matt) wrote in message
news:<c66373b9.0406250228.f6cbaf4@posting.google.com>...
>
>> Hi,
>> I'd realy appreciate someone pointing out why I'm an idiot.
>>
>> I'm trying to set some values of an image to NaN so that they are not
>> included in further calculations but I can't seem to do it!!!
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>> eg:
>> a = indgen(10)
>> lt5 = where(a LT 5)
>> a(lt5) = !VALUES.F_NAN
>> %Program caused arithmetic error: Floating illegal operand
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>> 0 0 0 0 0 5 6 7 8 9
>>
>> Cheers
>> Matt

Subject: Re: Setting values to NaN
Posted by Craig Markwardt on Fri, 25 Jun 2004 16:14:17 GMT
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matt_westmore@yahoo.co.uk (Matt) writes:

> OK I spotted it. F_NAN and D_NAN apply to floats.
>
> So is there an alternative I can use with integers?

There is no automatic alternative. The "manual" alternative is to declare a certain integer as the "bad data" integer -- any integer you like that won't interfere with your calculations (-9999 or whatever). And then you test for that integer at every step, and accomodate for the bad data.

Craig

--

---------- ----------
Craig B. Markwardt, Ph.D. EMAIL: craigmnet@REMOVEcow.physics.wisc.edu
Astrophysics, IDL, Finance, Derivatives | Remove "net" for better response
---------- ----------

Subject: Re: Setting values to NaN
Posted by Michael Wallace on Fri, 25 Jun 2004 16:30:30 GMT
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>> OK I spotted it. F_NAN and D_NAN apply to floats.
>>
>> So is there an alternative I can use with integers?
>
>
> How would you define a bit pattern for an invalid integer that's not a
> valid integer?, as opposed to some user-set value (like -99 or or -32767
> or -2147483647L etc.) ?
>
> You need to define some user-set value (like -99 or or -32767 or
> -2147483647L etc.) based on what you knwo about your data.

Just to expand on Paul's answer a little, computers work with floating point numbers very differently than they work with integers. For floating point numbers certain bit patterns are reserved for NaN, positive infinity and negative infinity. If you want to see the gory details, look up the IEEE 754 spec for floating point numbers.

The integer specification does not set aside special bit patterns for NaN or the infinities. Therefore, if you want create a NaN for integers, you have to create an arbitrary definition based on your data. Typically, a good rule of thumb is to use the smallest or largest possible integers as these will most likely be outside your data set. The problem is that since your definition will be arbitrary you need to

make sure that if others use your data you indicate that there is a number in the data which needs to be interpreted as NaN.

For example, let's say I have a data set of all positive numbers and I use -1 to indicated NaN. If someone else comes along and doesn't know that -1 represents NaN, they will do their processing using the -1 values and potentially get results that are very far off. I have run into this very thing before. Someone used -999 to represent that no data was present, but didn't document it. It took me the major part of an afternoon to figure out why my code was failing so badly.

-Mike

Subject: Re: Setting values to NaN
Posted by Matt Feinstein on Fri, 25 Jun 2004 16:34:20 GMT
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On Fri, 25 Jun 2004 11:50:34 -0400, Paul Van Delst
<paul.vandelst@noaa.gov> wrote:

> How would you define a bit pattern for an invalid integer that's not a valid integer?, as
> opposed to some user-set value (like -99 or or -32767 or -2147483647L etc.) ?

I guess the 'right' answer is to use a data structure (or, to be buzzword-compliant, an object) with an internal valid/invalid flag.

Matt Feinstein

--
There is no virtue in believing something that can be proved to be true.

Subject: Re: Setting values to NaN
Posted by b_gom on Fri, 25 Jun 2004 18:38:24 GMT
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To expand on this a little, does anyone know how to set the value of a variable to NaN from within a DLM?

Thanks

Brad

Subject: Re: Setting values to NaN

Posted by Craig Markwardt on Fri, 25 Jun 2004 20:17:23 GMT
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b_gom@hotmail.com (Brad Gom) writes:
> To expand on this a little, does anyone know how to set the value of a
> variable to NaN from within a DLM?

You would do it the way you normally do it in C. This typically
depends on your math/C library.

For glibc+math.h, I think the value is NAN.

Craig

--
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Craig B. Markwardt, Ph.D. EMAIL: craigmnet@REMOVEcow.physics.wisc.edu
Astrophysics, IDL, Finance, Derivatives | Remove "net" for better response
---------- ----------

Subject: Re: Setting values to NaN
Posted by matt_westmore on Wed, 30 Jun 2004 11:37:33 GMT
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Thanks guys for all the advice; except of course for the re-direction
to the fetish site!

Matt