
Subject: Re: the sky is falling down again
Posted by [R.Bauer](#) on Wed, 31 Jan 2007 13:35:46 GMT
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JD Smith wrote:

> On Tue, 30 Jan 2007 16:01:31 +0100, Paolo Grigis wrote:

>

>

>>

>> Reimar Bauer wrote:

>>

>>> Hi all

>>>

>>> here is another example which is very funny if you see it the first time

>>>

>>> a=indgen(10)*1D-7

>>> b=a

>>> plot,a,b,psym=1

>>> oplot,[0,10],[0,10]

>>>

>>> because the coordination system is defined by plot it could be a bug too

>>> and not only a question about precisions

>>>

>>>

>>> Any idea what is happen here?

>>

>> I think that maybe plot tries to find out the pixel coordinates

>> corresponding to the far end of the line. If it uses long, signed

>> integers for that, then it will overflow around pixel 2^{31} , which

>> seems roughly where the line is supposed to be with your settings

>> (which should be something like 500 pixel times 10 divided by 1d-6).

>

>

> In fact this has to be the right explanation. If instead of a wide

> window, you create a tall one:

>

> window,xsize=600,YSIZE=800

>

> Then the line falls below the points. And if you make an exactly square

> plotting window:

>

> window,xsize=800,ysize=800

> a=indgen(10)*1D-7

> b=a

> plot,a,b, psym=1,xstyle=3,ystyle=3,POSITION=[.1,.1,.9,.9],/NORMAL

> oplot,[0,10],[0,10]

>

> Then it all lines up well. The direction with the largest pixel count per

```

> unit data value ends up "truncating" first: i.e. the longer dimension of
> the plotting window. You can see where it truncates by gradually altering
> the values until the line just starts deviating:
>
> for k=2.,5.,.1 do begin & print,k & oplot,[0,k],[0,k] & wait,1 & endfor
>
> At some point, both clip, and you get a min and max angle (the size of
> which is related to the aspect angle of your plotting window). The first
> deviation for me was near k=2.3. What's close to that number?
>
> IDL> print,!X.CRANGE[0]+(!X.CRANGE[1]-!X.CRANGE[0])/ $
>          ((!X.WINDOW[1]-!X.WINDOW[0])*!D.X_SIZE)) * 2.^31
>      2.2700673
>
> Aha. This is precisely the data coordinate where the implied device
> pixel coordinate with this plotting range hits 2.^31, the limit for a
> signed long integer. At that point, it clips to this value, while the
> Y-axis, not having clipped yet, continues to move up, until it too
> clips. Your number may differ depending on your window size.
>
> JD
>

```

Thanks

So may be there should be L64 used instead.

cheers
Reimar

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Reimar Bauer

Institut fuer Stratosphaerische Chemie (ICG-1)
Forschungszentrum Juelich
email: R.Bauer@fz-juelich.de

a IDL library at Forschungszentrum Juelich
http://www.fz-juelich.de/icg/icg-i/idl_icglib/idl_lib_intro.html

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