Subject: Re: the sky is falling down again
Posted by Kenneth Bowman on Tue, 30 Jan 2007 14:11:52 GMT
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In article <epngnc$f9fd$1@zam602.zam.kfa-juelich.de>,
 Reimar Bauer <R.Bauer@fz-juelich.de> wrote:

> a=indgen(10)*1D-7
> b=a
> plot,a,b,psym=1
> oplot,[0,10],[0,10]

It's hard to say where in the graphics pipeline the problem occurs.

This works

  oplot,[0.0D,1.0D-2],[0.0D,1.0D-2]

and in this case the problem is smaller than your example

  oplot,[0.0D,1.0D-0],[0.0D,1.0D-0]

Perhaps it is happening at the stage where the coordinates are converted to device coordinates (integers). Have you tried it with a different device, such as PS?

Ken

Subject: Re: the sky is falling down again
Posted by Haje Korth on Tue, 30 Jan 2007 14:29:42 GMT
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shouldn't your oplot line read "oplot,[0,10]*1d-7,[0,10]*1d-7" ?

"Reimar Bauer" <R.Bauer@fz-juelich.de> wrote in message
news:epngnc$f9fd$1@zam602.zam.kfa-juelich.de...
> 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?
>
> Cheers
> Reimar
>
>
>
> --
> Reimar Bauer
>
> Institut fuer Stratosphaerische Chemie (ICG-I)
> 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
> ========== =======

Subject: Re: the sky is falling down again
Posted by Paolo Grigis on Tue, 30 Jan 2007 15:01:31 GMT
View Forum Message <> Reply to Message

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).

Ciao,
Paolo

>
> Cheers
> Reimar
>
>
>

Subject: Re: the sky is falling down again
Posted by Vince Hradil on Tue, 30 Jan 2007 15:05:08 GMT
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Try this, too:

plot, a, b, psym=1, xstyle=2, ystyle=2
oplot, [0,10], [0,10]

!?!

On Jan 30, 7:20 am, Reimar Bauer <R.Ba...@fz-juelich.de> 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
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> Any idea what is happen here?
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> Cheers
> Reimar
>
> --
> Reimar Bauer
>
> Institut fuer Stratosphaerische Chemie (ICG-I)
> Forschungszentrum Juelich
> email: R.Ba...@fz-juelich.de
> ---------- -------
> a IDL library at ForschungsZentrum Juelich
> http://www.fz-juelich.de/icg/icg-i/idl_icglib/idl_lib_intro. html
> ========== =======

Subject: Re: the sky is falling down again
Posted by edward.s.meinel@aero. on Tue, 30 Jan 2007 15:53:38 GMT
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And this:

plot, a, b, psym=1, xstyle=2, ystyle=3

!?!?!?!?

Curiouser and curiouser...

Ed

Subject: Re: the sky is falling down again
Posted by news.qwest.net on Tue, 30 Jan 2007 16:28:53 GMT
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"Reimar Bauer" <R.Bauer@fz-juelich.de> wrote in message
news:epngnc$f9fd$1@zam602.zam.kfa-juelich.de...
> 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]

I am not sure what point you are going after, but this seems
that it is plotting indgen*10^(-7). Is that your intent?

Or are you pointing out that the line from 0, to 10 when plotted
on the scale 10^-7 is not colinear with the points.

I think the extrapolation necessary to plot from 0, 10
when your axis ranges from 0 to 9*10^(-7) is so huge
(in the plot coordinates) that some roundoff error will
occur, and hence the lines won't line up exactly.

I suggest:
oplot,[0d,10d^(-6)],[0d,10d^(-6)]

that puts the line correctly (i think)

Cheers,

bob

Subject: Re: the sky is falling down again
Posted by Foldy Lajos on Tue, 30 Jan 2007 17:01:07 GMT
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On Tue, 30 Jan 2007, 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?
>
> Cheers
> Reimar
>

add after plot:

print, 'normal x coord:', !x.s[0]+!x.s[1]*10.
print, 'device x coord:', (!x.s[0]+!x.s[1]*10.)*!d.x_size

you will get:

normal x coord: 8781250.3
device x coord: 5.6200002e+09

The pixel value is greater than the max. value for a 32 bit integer,
so anything can happen.

regards,
lajos

Subject: Re: the sky is falling down again
Posted by JD Smith on Tue, 30 Jan 2007 17:51:13 GMT

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

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

--
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
========== =======

Subject: Re: the sky is falling down again
Posted by news.qwest.net on Wed, 31 Jan 2007 18:09:27 GMT
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"Reimar Bauer" <R.Bauer@fz-juelich.de> wrote in message
news:epq5vh$386t$1@zam602.zam.kfa-juelich.de...
...
> Thanks
>
> So may be there should be L64 used instead.

Seriously??
Does anyone think this is really a problem?
I must be missing the point.

Who in their right mind would plot a point on a graph
(or a line to a point) that is so very very off the axis?
That is user error, not a failing in the plot routine to only
use 32 bit numbers.

Look at it this way. If your plot is 10cm wide on your screen,
with the x range from 0 to 10^-7, then the plot you are adding
([10,10]) would be plotted 11,000 km away. That is a very large screen
required to place that point.

Or, if you were plotting time, and [a] was in seconds, then the
x-axis would span 10 seconds, then the plotted point [10,10] would
occur at the year 211. That is insane, when you have a plot of
0 to 10 seconds, and you decide to draw a line to the point
corresponding to year 211.

Cheers,
bob

PS great thread though, very interesting to see the
detective work going on to figure out where the problem
actually occurs, but unfortunately imho utterly irrelevant.

Subject: Re: the sky is falling down again
Posted by David Fanning on Wed, 31 Jan 2007 18:30:57 GMT
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R.G. Stockwell writes:

> Seriously??
> Does anyone think this is really a problem?
> I must be missing the point.

Whoa, Bob. I think you are completely missing the point
of a newsgroup. Where else can people go when they want
to count angles on the head of a pin? :^)

Cheers,

David
--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.dfanning.com/

Subject: Re: the sky is falling down again
Posted by Bob[3] on Wed, 31 Jan 2007 18:40:29 GMT
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On Jan 31, 1:09 pm, "R.G. Stockwell" <n...@email.please> wrote:
> Seriously??
> Does anyone think this is really a problem?
> I must be missing the point.
>
> Who in their right mind would plot a point on a graph
> (or a line to a point) that is so very very off the axis?
> That is user error, not a failing in the plot routine to only
> use 32 bit numbers.

It's certainly counter-intuitive for the line from (0,0) -> (10,10)
not to pass thru the points.
... and it's pretty dangerous to label something like that as 'user
error'.

Perhaps the plotting routine should first interpolate the line to the
extent or the plotted region first - or at least within the limit
posted by JD.

Mightn't this be a problem when zooming on on details on a plot? As
indicated above, it depends on the plot window size as to when this
misrepresentation will occur.

(another) Bob.

Subject: Re: the sky is falling down again
Posted by news.qwest.net on Wed, 31 Jan 2007 18:52:06 GMT
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"Bob Crawford" <Snowman42@gmail.com> wrote in message
news:1170268829.777687.8070@s48g2000cws.googlegroups.com...
> On Jan 31, 1:09 pm, "R.G. Stockwell" <n...@email.please> wrote:
>> Seriously??
>> Does anyone think this is really a problem?
>> I must be missing the point.
>>
>> Who in their right mind would plot a point on a graph
>> (or a line to a point) that is so very very off the axis?
>> That is user error, not a failing in the plot routine to only
>> use 32 bit numbers.
>
> It's certainly counter-intuitive for the line from (0,0) -> (10,10)
> not to pass thru the points.
> ... and it's pretty dangerous to label something like that as 'user
> error'.

I think this is the exact same thing as
IDL> print, 10+2*10^(-7)
10
and complaining that IDL is wrong.

Or,
IDL> for i = 0.0, 9.8 do ....

or
IDL> a = findgen(20)
IDL> print, a[8762938717]

The rule is not to attempt to plot a point that is so far
off the graph that 32 bit calculations do have the required
precision.

anyways, that is how i see it. i.e. as not a flaw in IDL, and
not something they should fix in any priority over some of the
other problems.

> Perhaps the plotting routine should first interpolate the line to the
> extent or the plotted region first - or at least within the limit
> posted by JD.

I don't think we want the routine doing that sort of thing, nor
do I want it to cook toast for me:actually, cook bread, the end
result being toast of course :) .

> Mightn't this be a problem when zooming on on details on a plot? As
> indicated above, it depends on the plot window size as to when this
> misrepresentation will occur.

How can anyone zoom in 8 orders of magnitude (and still have
10 points on the screen)? The length of the array would
probably start to have problems fitting into a 32bit memory address.

Like i said, to see that plot would require a screen 200 km wide.

Thanks for the comments,

Cheers,
bob

Subject: Re: the sky is falling down again
Posted by Mike[2] on Wed, 31 Jan 2007 18:54:48 GMT
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On Jan 31, 1:09 pm, "R.G. Stockwell" <n...@email.please> wrote:
> Seriously??
> Does anyone think this is really a problem?
> I must be missing the point.
>
> Who in their right mind would plot a point on a graph
> (or a line to a point) that is so very very off the axis?
> That is user error, not a failing in the plot routine to only
> use 32 bit numbers.

The problem is that IDL apparently will happily create plots that show
the incorrect relationship between data sets. This is a major problem
for people who use graphics for exploratory data analysis. If the

results of a plot depend on the shape of the display window, that is a huge bug. You are right that reasonable analysis might lead a user to discover the problem, but this still calls into question the reliability of IDL's graphics.

Mike

Subject: Re: the sky is falling down again
Posted by Mike[2] on Wed, 31 Jan 2007 19:04:05 GMT
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Has anyone submitted a bug report yet?

Mike

IDL> a=indgen(10)*1D-7
IDL> b=a
IDL> plot,a,b,psym=1, position=[0.1,0.1,0.3,0.8]
IDL> oplot,[0,10],[0,10]
IDL> plot,a,b,psym=1, position=[0.4,0.1,0.9,0.8], /noerase
IDL> oplot,[0,10],[0,10]

Subject: Re: the sky is falling down again
Posted by Bob[3] on Wed, 31 Jan 2007 19:28:18 GMT
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On Jan 31, 1:52 pm, "R.G. Stockwell" <n...@email.please> wrote:
> I think this is the exact same thing as
> IDL> print, 10+2*10^(-7)
> 10
> and complaining that IDL is wrong.

I think it is. (the same thing, and wrong).
We both know why it's wrong - but thaty doesn't make it right.

> The rule is not to attempt to plot a point that is so far
> off the graph that 32 bit calculations do have the required
> precision.

Well as programmers we need to be aware of these limitations of the underlying language (users cannot be expected to be).

> anyways, that is how i see it. i.e. as not a flaw in IDL, and
> not something they should fix in any priority over some of the

> other problems.

Well, in a case such as presented, either we (as programmers) need to
address it (via workarounds or by limiting users options) or ITTVIS
needs to.

>> Perhaps the plotting routine should first interpolate the line to the
>> extent or the plotted region first - or at least within the limit
>> posted by JD.
>
> I don't think we want the routine doing that sort of thing, nor
> do I want it to cook toast for me:actually, cook bread, the end
> result being toast of course :) .

Why not?
If done properly it'd at least present a correct plot - isn't that
what plot is supposed to do?
(besides plot is already frying the bacon and setting the table)

BTW I too have enjoyed the investigative nature of this thread, as
well as your perspective.

Bob.

Subject: Re: the sky is falling down again
Posted by news.qwest.net on Wed, 31 Jan 2007 19:33:34 GMT
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"Bob Crawford" <Snowman42@gmail.com> wrote in message
news:1170271697.978888.263230@a34g2000cwb.googlegroups.com.. .
..
>> I don't think we want the routine doing that sort of thing, nor
>> do I want it to cook toast for me:actually, cook bread, the end
>> result being toast of course :) .
>
> Why not?
> If done properly it'd at least present a correct plot - isn't that
> what plot is supposed to do?
> (besides plot is already frying the bacon and setting the table)

Well, i grant that the routine could check to see if the plot point
does not exist in the window, and generate an error.

Subject: Re: the sky is falling down again

Posted by news.qwest.net on Wed, 31 Jan 2007 19:37:45 GMT
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"Mike" <Michael.Miller5@gmail.com> wrote in message
news:1170269688.017732.248620@v45g2000cwv.googlegroups.com.. .

> The problem is that IDL apparently will happily create plots that show
> the incorrect relationship between data sets. This is a major problem
> for people who use graphics for exploratory data analysis. If the
> results of a plot depend on the shape of the display window, that is a
> huge bug.

I would agree. This case though calls for attempting to plot a point
that does not exist in the window, or graphics device.

I suppose the routine could check this and issue an error.

> You are right that reasonable analysis might lead a user to
> discover the problem, but this still calls into question the
> reliability of IDL's graphics.

I don't think so, I think plotting an axis from 1 to 10, then
trying to plot the point 10000000,10000000 is not a reasonable
request.

I can accept plotting a point not within the axis. But when it
is way way way off the page, it should not be handled properly.

It is like using the following command:
xyouts,0.5,1000000,'This is offscreen', /normal

Cheers,
bob

Subject: Re: the sky is falling down again
Posted by David Fanning on Wed, 31 Jan 2007 19:53:24 GMT
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Mike writes:

> Has anyone submitted a bug report yet?

You think those people don't have anything better to do!?
Has anyone checked on 24-bit PostScript support lately?

Or a TV command that works correctly? Or, ... oh never
mind. I must be grumpy from a lack of sleep. How come
no one is working on the problem of jet lag? That seems
to me to be a problem worth spending some time on. :-(

Cheers,

David
--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.dfanning.com/

Subject: Re: the sky is falling down again
Posted by JD Smith on Wed, 31 Jan 2007 20:15:14 GMT
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On Wed, 31 Jan 2007 11:52:06 -0700, R.G. Stockwell wrote:

Bob C. offers a good case where this could actually get you. Imagine a
free form plotting widget which allows you to zoom in arbitrarily. Now
imagine a very irregular data set being plotting, with spacings along the
abscissa down at the 10^-7 range, and up to 10. Zooming in to very small
ranges will cause this bug to bite, if you simply replot the entire data
set without trimming.

```
a=(b=[indgen(10)*1D-7,5,6,10.])
window,xsize=800,ysize=300
plot,a,b,PSYM=-4,XRANGE=[0.,1.e-6]
```

I'm surprised they round trip the plotting code through device (integer)
coordinates in this way first, rather than sticking with double for
all plot layout calculations until the very last stage, at which point
they could detect and clip off floating numbers that are out of range in
device coordinates system. Seems like asking for trouble.

JD

Subject: Re: the sky is falling down again
Posted by JD Smith on Wed, 31 Jan 2007 20:17:22 GMT
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On Wed, 31 Jan 2007 11:30:57 -0700, David Fanning wrote:

> Where else can people go when they want

> to count angles on the head of a pin? :^)

I prefer counting them in radians, because !RADEG is single precision
floating point.

Subject: Re: the sky is falling down again
Posted by R.Bauer on Thu, 01 Feb 2007 12:26:24 GMT
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Mike wrote:
> Has anyone submitted a bug report yet?
>
> Mike
>
>
> IDL> a=indgen(10)*1D-7
> IDL> b=a
> IDL> plot,a,b,psym=1, position=[0.1,0.1,0.3,0.8]
> IDL> oplot,[0,10],[0,10]
> IDL> plot,a,b,psym=1, position=[0.4,0.1,0.9,0.8], /noerase
> IDL> oplot,[0,10],[0,10]
>

We will submit a bugreport to creaso

cheers
Reimar

--
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
========== =======

Subject: Re: the sky is falling down again
Posted by R.Bauer on Thu, 01 Feb 2007 12:45:32 GMT
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David Fanning wrote:
> Mike writes:
>
>
>> Has anyone submitted a bug report yet?
>
>
> You think those people don't have anything better to do!?

as fixing bugs and get money for this?

Sometimes I wish they could spent some time for money to get actual
library versions used with idl, e.g. netCDF

A lot of my windows colleagues trapped to use idl 6.2 because of the
'useless' ;) 64 bit extension of 6.3 which does prevent using older dlms
on windows. They have used before always the netCDF 2.4 dlm which has
the same rules for variable name definition as an actual 3.6 netCDF version.

May be I have to look in a dictionary because I have a very different
mind of payed support ;)

cheers
Reimar

> Has anyone checked on 24-bit PostScript support lately?
> Or a TV command that works correctly? Or, ... oh never
> mind. I must be grumpy from a lack of sleep. How come
> no one is working on the problem of jet lag? That seems
> to me to be a problem worth spending some time on. :-(

>
> Cheers,
>
> David

--
Reimar Bauer

Institut fuer Stratosphaerische Chemie (ICG-1)
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a IDL library at ForschungsZentrum Juelich

Subject: Re: the sky is falling down again
Posted by edward.s.meinel@aero. on Thu, 01 Feb 2007 18:58:04 GMT
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On Jan 31, 2:37 pm, "R.G. Stockwell" <n...@email.please> wrote:
> "Mike" <Michael.Mill...@gmail.com> wrote in message
>
> news:1170269688.017732.248620@v45g2000cwv.googlegroups.com.. .
>
>> The problem is that IDL apparently will happily create plots that show
>> the incorrect relationship between data sets. This is a major problem
>> for people who use graphics for exploratory data analysis. If the
>> results of a plot depend on the shape of the display window, that is a
>> huge bug.
>
> I would agree. This case though calls for attempting to plot a point
> that does not exist in the window, or graphics device.

But in this case, all I did was change the x- and y-style on the plot:

a=indgen(10)*1D-7
b=a
plot,a,b,psym=1, xstyle=2, ystyle=3

No overplotting of relatively large values here. Why does that give me
a bad plot?