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Subject: Re: Keeping rotated plots the same size  
Posted by [davidf](#) on Fri, 18 Dec 1998 08:00:00 GMT  
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David Borland ([davidbor@cyber-dyne.com](mailto:davidbor@cyber-dyne.com)) writes:

> I am using the plot\_3dbox command to draw a cylinder:  
> plot\_3dbox, image\_x,image\_y,image\_z,/t3d,psym=7,ax = info.ax,az = info.az  
> and then I am using widget\_sliders to get new values for ax and az.  
> What happens when I rotate the cylinder around is that at certain  
> values of ax and az the graph is larger than other graphs with different  
> ax and az values. Is there a way that I can force the graph to be drawn  
> the same size every time?

I'm afraid you are running directly into the problem  
the object graphic system was meant to solve: IDL's direct  
graphics system is really, technically a 2.5D system.  
That is to say, it fakes 3D graphics in a way that was  
popular oh, say, in the late 1970's when IDL was first  
developed. One of the limitations is that the Z axis  
must always remain vertical on the display. (Hence,  
no AY keyword for rotation about the Y axis.)

If I am doing something that really requires 3D  
rotations, you can bet I am trying hard to figure out  
how I can do it with object graphics rather than  
with direct graphics. In the case of the Plot\_3DBox  
program, you are probably looking at a fairly big  
job. Not undoable, by any means, but you won't knock  
it out in a half hour either. :-)

If this is going to be displayed on a 24-bit color  
display, then combining direct graphic programs where  
that makes sense (e.g. contour plots) and object  
graphics programs where that makes sense (3D rotations,  
transparent or opaque surfaces, etc.) is not hard  
at all. If you are on an 8-bit display, then you  
will probably have considerably more design problems.  
(I'm trying to be diplomatic.)

(It is really odd, because I wasn't a real big fan of  
24-bit color initially, but I can't imagine running  
IDL in anything \*but\* 24-bit color these days. Once  
you sort the color table situation out (and there are  
plenty of tools on my web page to help with that),  
the advantages so far outnumber the disadvantages that  
the decision is a no-brainer.

So, to answer your question directly. No, you can't force the graph to be drawn the same size every time. At least not reliably if you are rotating about both axes. It does sometimes help to use the Position keyword, but it's not nearly as good as doing it correctly in the object graphics system.

Cheers,

David

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David Fanning, Ph.D.

Fanning Software Consulting

Phone: 970-221-0438 E-Mail: [davidf@dfanning.com](mailto:davidf@dfanning.com)

Coyote's Guide to IDL Programming: <http://www.dfanning.com/>

Toll-Free IDL Book Orders: 1-888-461-0155

[Note: This follow-up was e-mailed to the cited author.]

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