Subject: Re: object graphic / direct graphic
Posted by Mark Hadfield on Sun, 09 Sep 2001 22:44:46 GMT
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From: "Reimar Bauer" <r.bauer@fz-juelich.de>
>
> At the moment I am most need fast batch jobs for graphics output.
>
> I am interested in Object graphic for visualisation of 3d or 4d
> datasets.
> Because I wish to use the mouse to control the views in case of rotation
> and may
> be some cuttings and so on. But if I know which kind of view I prefer
> for the output then I believe a batch job should do the print
> outs or animation of several same organized data sets.
>
> How much data could be handled quite good ?

Well the answer is (of course) that "it depends". But I routinely display
animations consisting of (say) 100 frames each displaying an IDLgrSurface
dimensioned 150 x 150.

> Do you have some experience in problems which may occur?

Yep.

Sorry that's not a very helpful answer. But where do I start? Still, it has
to be easier than dealing with colours in Direct Graphics, right?

> I know the object model by idl but in the past it
> frightens me by the output sizes and the speed of a simple direct
> graphics plot
> seen in object graphics. A simple colored XY plot of about 30KByte
> was about a few MegaBytes in Object Graphics.

You're talking about printed output? Originally printing from OG was
extremely inefficient because it involved sending a full resolution bitmap
to the printer. Even before vector output was implemented, RSI achieved a
large reduction in the size of printer-output files by (if I remember
correctly) omitting the white-space pixels.

> How did this change the /vector Keyword?

For most scenes vector output generates much smaller printer files.

> In the past there was direct graphics much faster than object graphics.
> Is this changed?

Well, Direct Graphics is not always faster than Object graphics. I pointed out on the group some time ago that the Object Graphics could display a line plot with 10^6 points *faster* than Direct Graphics.

But in general OG is slower than DG because the OG carries around all the info needed to redraw a plot, whereas DG doesn't.

> I like to know how fast it is to plot
> 100, 1000, 10000 100000 or 1 million points with a dot or a line symbol
> by object graphics.

The complexity of the symbol has a major effect.

I just checked my MGH_EXAMPLE_SCATTER routine, which draws a cloud of randomly-positioned points, each represented by an open hexagon (an IDLgrPolyline with 6 line segments). Following are times to carry out various tasks with on a plot with 100,000 points:

    Construct graph & window: 6 s
    Redraw: 3 s approx
    Write to EPS (vector) file: > 19 minutes
    Write to PNG file (454 x 454 pixels): 5 s

So, except for the EPS output, this is probably acceptable.

I gave up waiting for the EPS file after 19 minutes and terminated IDL. I tried again with fewer points. Here are some results:

    1,000 points: 0.5 s
    2,500 points: 3 s
    5,000 points: 15 s

So it looks like the time to write to vector files is quadratic or worse. (I'd never noticed that before.)

As you can see, vector output is still not Object Graphics' strong point!

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