Subject: Faster Astronomy Library Routines
Posted by David Fanning on Sat, 07 Jan 2012 14:48:39 GMT
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Folks,

I just wanted to update you on a couple of things Wayne and I have been doing with Astronomy Library routines. As you know, the plotting routines in this library are now using Coyote Graphics routines. We have had reports that some of these routines, namely PlotError and OPlotError, have been slow when there are large numbers of error bars to plot.

Slowness in Coyote Graphics routines comes about for the same reason Function Graphics routines are slow: there is a lot of code to wade through before you get to the heart of the matter. In these routines, for example, the problem was that we initially "converted" these routines to Coyote Graphics routines by simply replacing every PlotS command with a cgPlotS command. That added a LOT of overhead.

To give you an example, doing a PlotError command with 4096 data points took about 20 seconds to execute.

But, this is not the optimal way to convert a routine to a Coyote Graphics routine. The optimal way to do it is so embarrassingly simple I am reluctant to mention it, for fear of reducing book sales even further. It is simply to put yourself in decomposed color and use cgColor to specify all your colors. That's really about the extent of it!

Anyway, in the past couple of days, Wayne and I have rewritten PlotError and OPlotError with these principles in mind, and the same example that took 20 seconds to plot now takes less than 0.5 seconds to plot.

I'm planning an article that will outline some of these conversion principles in more detail. But, I point out that this is *exactly* what my book, Coyote's Guide to Traditional IDL Graphics, is designed to help you do. Write better graphics code that is close to the machine and extremely fast.

Anyway, if you use these two routines (and who doesn't!), then you will want to pick up the latest versions:

http://idlastro.gsfc.nasa.gov/news.html

Cheers,

David

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David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.idlcoyote.com/
Sepore ma de ni thui. ("Perhaps thou speakest truth.")
