Subject: Re: 2D array as colour dot image
Posted by chris_torrence@NOSPAM on Tue, 15 Jan 2013 18:06:38 GMT
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Hi Mark,

How about something like this, using New Graphics?

```
F1 = RANDOMN(seed, 10000000)
F2 = f1 + RANDOMN(seed, 10000000)
Result = HIST_2D(F1, F2, MIN1=-2, MAX1=2.001d, $
  MIN2=-2, MAX2=2.001d, BIN1=0.05d, BIN2=0.05d)
; HIST_2D seems to include a column & row of all zeroes. Remove it.
Result = Result[0:-2, 0:-2]
x = -2 + 0.05d*FINDGEN(80)
y = x
print, min(result, max=mx), mx

i = IMAGE(result, x, y, RGB_TABLE=74, AXIS_STYLE=1, $
  XTITLE='X data', YTITLE='Y data', POSITION=[0.1,0.1,0.8,0.84], $
  TITLE='Ran1 vs (Ran1+Ran2)')
!null = COLORBAR(TARGET=i, /ORIENTATION, $
  TITLE='Magnitude', TEXTPOS=1, $
  POSITION=[0.82,0.1,0.87,0.84])
c = CONTOUR(result, x, y, /OVERPLOT)

i.Save, 'scatter.png', RESOLUTION=96, BORDER=10
```

Obviously, you would need to change the HIST_2D inputs, and I just hardcoded the X and Y variables.

This should create a scatter plot, colored by "magnitude", which here is just the number of samples in each bin in the 2D histogram. Then I added a colorbar on the right side, and a contour plot with labels.

Note that this example requires IDL 8.2.1.

Regarding the speed difference between direct and new graphics: for direct graphics the surface is just "burned" into the window, so it only has to draw it once. For new graphics, the image (or surface) is a dynamic object, which can be manipulated after creation.

Hope this helps!

-Chris
ExelisVIS
p.s. here's a screenshot of the resulting graphic:
http://www.flickr.com/photos/79705059@N06/8383412553/