Subject: Re: cgGallery with function graphics
Posted by Matthew Argall on Thu, 27 Feb 2014 20:15:48 GMT
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Image with Contours Overlayed
http://www.idlcoyote.com/gallery/image_plot_with_contours.pn g

More problems/bugs/not-intuitive-things with this one that I could not solve. My two attempts are below.

```
PRO Image_With_Contours_Overlayed_FG, WINDOW=aWindow
   ; Example Gaussian data.
   img = cgDemoData(26)

   ; Set up variables for the contour plot. Normally, these values
   ; would be passed into the program as positional and keyword parameters.
   minValue = Floor(Min(image))
   maxValue = Ceil(Max(image))
   nLevels = 10
   xtitle = 'X Axis'
   ytitle = 'Y Axis'
   position =   [0.125, 0.125, 0.9, 0.800]
   cbposition = [0.125, 0.865, 0.9, 0.895]
   cbTitle = 'Data Value'

   ;Contour levels
   contourLevels = cgConLevels(img, NLevels=10, MinValue=minValue)

   ; Set up colors for contour plot.
   cgLoadCT, 33, CLIP=[30,255]
   tvLCT, palette, /Get

   ;APPROACH 1: Plot the image directly (does not work)
   ;   The data coordinates are tied to the dimensions of the image. Setting [XY]Range
   ;   will select a subwindow of the image (a 10x200 strip). Setting Image_Location and
   ;   Image_Dimensions allows you to squeeze the entire image into the thin strip. There
   ;   is no natural way to then set the size of the image to something normal without
   ;   clicking on the image and stretching it.
   fgImage1 = Image(img, XRange=[10,20], YRange=[-100,100], RGB_Table=palette, $
              Position=position, Axis_Style=1, Image_Location=[10,-100], $
              Image_Dimensions=[10,200])

   ; Open a window and return its reference to the user.
   aWindow = Window(WINDOW_TITLE="Image with Contours Overlayed")

   ;APPROACH 2: Paste the image into a set of axes
```

```
    ;   Because the axes are fixed to the image's dimensions, setting the Overplot keyword
    ;   results in the same behavior as described above. Here, I will play with the Image's
    ;   aspect ratio to fit it inside the axes.
    fgPlot = Plot([10,20], [-100,100], /Current, /NoData, XStyle=1, YStyle=1, $
                Xtitle=xtitle, YTitle=ytitle, Position=position)

    ;Must set the aspect ratio in order to fill out the axes, otherwise
    coords = fgPlot -> ConvertCoord(position[[0,2]], position[[1,3]], /Normal, /To_Device)
    aspect = double(coords[1,1]-coords[1,0]) / double(coords[0,1]-coords[0,0])

    ;Create the image
    ;   - The image does not stay fitted to the axes if the window is resized.
    ;       The Aspect_Ratio would have to be updated each time.
    fgImage = Image(img, Aspect_Ratio=aspect, Position=position, /Current, RGB_Table=palette)

    ;Bring the plot forward so that the tickmarks are on top.
    fgPlot -> Order, /Bring_Forward

    ;Create the contours
    ;   - Labels are still up-side-down. See the C_Label_Objects and C_Use_Label_Orientation
    fgContour = Contour(img, C_Value=contourLevels, C_Color='Dark Grey', Overplot=fgPlot, $
                    C_Label_Show=1)

    ;Create the colorbar
    ;   - Generates error: "% Attempt to call undefined method:
'IDLITSYMBOL::GETVISUALIZATIONS'."
    ;       but still creates the colorbar
    ;   - fgCB is undefined after the call
    fgCB = Colorbar(Target=fgImage, Position=cbPosition, TextPos=1, Title='Data Value')

END  ;****************************************************** ******

; This main program shows how to call the program and produce
; various types of output.

  ; Display the plot in a  resizeable graphics window.
  Image_With_Contours_Overlayed_FG, Window=window

  ; Create a PostScript file. Linestyles are not preserved in IDL 8.2.3 due
  ; to a bug. Only encapsulated PostScript files can be created.
  window.save, 'image_with_contours_overlayed_fg.eps'

  ; Create a PNG file with a width of 600 pixels. Resolution of this
  ; PNG file is not very good.
  window.save, 'image_with_contours_overlayed_fg.png', WIDTH=600

  ; For better resolution PNG files, make the PNG full-size, then resize it
  ; with ImageMagick. Requires ImageMagick to be installed.
```

```
  window.save, 'image_with_contours_overlayed_fg_fullsize.png'
  Spawn, 'convert image_with_contours_overlayed_fg_fullsize.png -resize 600
image_with_contours_overlayed_fg_resized.png'

END
```