
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.png

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

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; 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_Overlaid_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_overlaid_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_overlaid_fg.png', WIDTH=600

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

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window.save, 'image_with_contours_overlayered_fg_fullsize.png'  
  Spawn, 'convert image_with_contours_overlayered_fg_fullsize.png -resize 600  
image_with_contours_overlayered_fg_resized.png'
```

END
