Subject: Re: cgGallery with function graphics
Posted by Matthew Argall on Thu, 27 Feb 2014 19:59:56 GMT
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Filled Contour Plot
http://www.idlcoyote.com/gallery/filled_contour_plot_1.png

Several things that are not intuitive and are not explained in the documentation are happening in this one. I cannot precisely reproduce the Coyote version.

```
PRO Filled_Contour_Plot_FG, WINDOW=window
   ;Set up variables for the contour plot. Normally, these values
   ;would be passed into the program as positional and keyword parameters.
   minValue = Floor(Min(data))
   maxValue = Ceil(Max(data))
   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(data, NLevels=10, MinValue=minValue)

   ;Set up colors for contour plot.
   cgLoadCT, 33, NColors=nlevels, Bottom=1, CLIP=[30,255]
   TVLCT, palette, /GET

   ; Open a window and return its reference to the user.
   aWindow = Window(WINDOW_TITLE="Filled Contour Plot")

   ;Draw the filled contour plot.
   ;   - RGB_Table=33 works and creates a discretely filled contour plot. However,
   ;       the TAPER keyword in Colorbar seems to need a non-continuous color pallete
   ;       to not be ignored. Attept to use a reduced color palette failed.
   fgC_Fill = Contour(data, /Current, /FILL, C_Value=contourLevels, RGB_Table=palette, $
                  XTitle=xtitle, YTitle=ytitle, Position=position)

   ;Must overplot another contour to get the lines.
   ;   - Orientation of the labels is rotated 180 degrees.
   ;   - Must supply own Text() or Symbol() object and use the
   ;       C_Use_Label_Orientation and C_Label_Objects keywords to get proper orientation.
   fgC_Lines = Contour(data, C_Value=contourLevels, OverPlot=fgC_Fill, C_Label_Show=1)

   ;Add the right and top axes
```

```
   ;   In IDL 8.2.3+ set Location='Right' or 'Top' and skip finding [xy]range.
   IF Float(!Version.Release) GE 8.3 THEN BEGIN
      xrange = (fgC_Fill.Axes)[0].Range
      yrange = (fgC_Fill.Axes)[1].Range
      xAxis = Axis('X', Target=fgC_Fill, Location=[xrange[1], $
        yrange[1], 0], TickFormat='(A1)', TickDir=1)
      yAxis = Axis('Y', Target=fgC_Fill, Location=[xrange[1], $
        yrange[0], 0], TickFormat='(A1)', TickDir=1)
   ENDIF ELSE BEGIN
      xAxis = Axis('X', Target=fgC_Fill, Location='Right', $
        TickFormat='(A1)', TickDir=1)
      yAxis = Axis('Y', Target=fgC_Fill, Location='Top', $
        TickFormat='(A1)', TickDir=1)
   ENDELSE

   ;Add the colorbar
   ;   - The title and ticklabels are always on the same side. Try to use an Axis() instead
   ;   - The Taper keyword is ignored: It is suppose to be ignored if the color table
   ;      is continuous, but here, "palette" is reduced... Perhaps data is out of range? Do not see
how...
   ;   - TickFormat is ignored
   fgCB = Colorbar(Target=fgC_Fill, Position=cbPosition, Title='Data Value', Taper=0, $
                Border=1, TextPos=1, TickFormat='(A1)')

   ;Create an axis for the colorbar to try and put the ticklabels on the bottom.
   ;   - It seems as though axes cannot have colorbars as targets...
   ;   - cbAxis is undefined after attempt
   ;   - No information is given as to what happened...
   cbAxis = Axis('X', Target=fgCB, Location=[cbPosition[0:1], 0], Axis_Range=[minValue,
maxValue])

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

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

  ; Display the plot in a  resizeable graphics window.
  Filled_Contour_Plot_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, 'filled_contour_plot_fg.eps'

  ; Create a PNG file with a width of 600 pixels. Resolution of this
  ; PNG file is not very good.
  window.save, 'filled_contour_plot_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, 'filled_contour_plot_fg_fullsize.png'
  Spawn, 'convert filled_contour_plot_fg_fullsize.png -resize 600
filled_contour_plot_fg_resized.png'

END
```