Subject: mixing plots and images in IDL
Posted by lucio on Fri, 08 Sep 1995 07:00:00 GMT
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I had been told that the correct way to plot an image in colour or
grayscale in an axis frame (with or without overplotted a contour) was :

```
; set up ps device
;
device,yoffset=3,ysize=16,xsize=16.9443
!p.font=0
device,/helvetica,font_size=12
device,bits_per_pixel=8
device,/color
; plot axes to set window
 plot,a.data(0:255,1),xrange=[1,256],yrange=[1,256],/nodata,c olor=1
; scale image and set 0 to white
c=bytscl(a.data,min=0.90,max=1.11)
c(where(c eq 0b))=255B
; plot image
 tv,c,!x.window(0),!y.window(0),xsize=!x.window(1)-!x.window(
0),ysize=!y.window(1)-!y.window(0),/norm
; replot axes
 plot,a.data(0:255,1),xrange=[1,256],yrange=[1,256],/nodata,/ noerase,color=1
```

and this apparently works OK.
The trick is the use of the !x.window keys

Now what I want to do is to plot a colour bar with the indication of the
levels in some part of the frame. To do this I thought to do :

```
; construct the color bar as a small rectangular image
;
y=findgen(210)
y=0.90+y*0.001
z=fltarr(210,20)
for i=0,19 do z(0:209,i)=y
;
; apply the same scaling as for the main image
c=bytscl(z,min=0.90,max=1.11)
c(where(c eq 0b))=255B
tv,c,20,220,xsize=100,ysize=20,/data                 <-------
;
; annotate with the levels
device,/helvetica,font_size=5
for i=0,209,20  do  xyouts,20+100*float(i)/210.,240,string(y(i),format='(F4.2)')
for i=0,209,20  do oplot,[20+100*float(i)/210.,20+100*float(i)/210.],[235,239]
```

I'd expect this (in my frame 0:256 0:256) to plot a colour bar in the
rectangle (20:120 220:240), and annotate it with 11 tics from 0.90 to 1.10.

The point is that the width and size of the colour bar are not what I
expect (I've used /DATA coordinates in the TV statement)

I've then played interactively using a Postscript previewer, and I found
that I could (BUT I DO NOT UNDERSTAND WHY) fix the width of the bar applying
a fudge factor :

tv,c,20,220,xsize=0.82*100,ysize=0.82*100*20./210.,/data

So I inserted that in my code and tried again but ... in the final plot
the colour bar came out of the wrong size.

It looks like there is an interference between the size of the font I use
and the size of the color bar ....

In summary :

    device,/helvetica,font_size=12
    plot axes
    tv main image
    replot axes
    tv colour bar with fudge
    device,/helvetica,font_size=5
    annotate tics

    IS WRONG

    device,/helvetica,font_size=5   SIC !
    plot axes
    tv main image
    replot axes
    tv colour bar with fudge
    device,/helvetica,font_size=5
    annotate tics

    IS CORRECT (BUT NOT WHAT I WANT !)

    device,/helvetica,font_size=5
    plot axes
    tv main image
    tv colour bar with fudge
    device,/helvetica,font_size=5
    annotate tics
    device,/helvetica,font_size=12

replot axes

   GIVES THE CORRECT COLOUR BAR BUT THE AXES ARE REPLOTTED WRONG

Now I'd try to play around always with /NORM coordinates, but I'd appreciate
if somebody could explain the interference between TV, axis setting and font
setting ....

```
---------------------------------------------------------- ---------------
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---------------------------------------------------------- ---------------
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---------------------------------------------------------- ---------------
```

Subject: Re: mixing plots and images in IDL
Posted by Anonymous on Tue, 19 Sep 1995 07:00:00 GMT
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Originally posted by: <pellet>

Mike Harrison <m.c.harrison@rl.ac.uk> wrote:
> lucio@ifctr.mi.cnr.it (Lucio Chiappetti) wrote:
>>
>> I had been told that the correct way to plot an image in colour or
>> grayscale in an axis frame (with or without overplotted a contour) was :
>>

This is all very well explained (with examples) in the IDL User's Guide
(chapter 15 in IDL 3.6 manuals). I used it and it's working fine.

Jeff
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