
Subject: color plot over greyscale image - postscript

Posted by [Gray](#) on Fri, 21 May 2010 22:04:03 GMT

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Hi all,

I'm having problems mixing images and plots in postscript. What I want is to display a greyscale image, then overplot a number of differently colored points at designated pixel values. What I'm currently doing is setting up plot axes first with `plot, /nodata, x/ystyle=8, position=[0,0,1,1]`. Then, I use Coyote's `TVImage, /overplot` to fit the image inside the plot axes, and then `oplot` to put in the points. The problems are:

1) Even with `TVImage`, it seems like the alignment of the plot axes and the image is off. All the points reside in the box approximately `[0,0,.75,.75]`.

2) When the points I `oplot` are red, the greyscale works fine. Any other color causes the greyscale to be filled with seemingly randomly distributed colored pixels.

The answer is probably something simple like `decompose=0` or loading color tables intelligently, but I just can't seem to get my mind around this right now. Any advice would be greatly appreciated.

--Gray

Subject: Re: color plot over greyscale image - postscript

Posted by [David Fanning](#) on Sun, 23 May 2010 16:01:04 GMT

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Gray writes:

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> want is to display a greyscale image, then overplot a number of
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> distributed colored pixels.
>
> The answer is probably something simple like `decompose=0` or loading

> color tables intelligently, but I just can't seem to get my mind
> around this right now.

No, the answer **never** involves DECOMPOSE=0. :-)

I wish people would just forget about indexed color, and maybe with IDL 8 they will.

I can't tell from the clues you give exactly what you are doing incorrectly, but there are two good possibilities. First, if you are trying to match an image with plot axes you do not EVER want to let IDL set the endpoints of the axis. In other words, you want EXACT axis scaling. So those XStyle and YStyle keywords will have to have their first bit set. Probably you want to set these keywords to 8 + 1 or 9, rather than 8.

The second thing you are probably doing incorrectly is using indexed color. ;-)

If you want to do this, then you have to make **absolutely** sure you load the colors you want to use **just before** you want to use them. (Well, this is pretty much a requirement all the time.) I don't see you loading any color tables, and the fact that red dots appear in your image when you display it tells me you have a "dirty" color table at the time you displayed your image. In other words, load that gray scale color table just before you display the image, then load your drawing colors to draw on top of the image.

If I were doing this, I would draw on top of the image with 24-bit colors (using DECOMPOSED=1 and FSC_COLOR) so I didn't have to worry about actually loading drawing colors, but then I pretty much never use indexed color. :-)

Cheers,

David

--

David Fanning, Ph.D.

Fanning Software Consulting, Inc.

Coyote's Guide to IDL Programming: <http://www.dfanning.com/>

Sepore ma de ni thui. ("Perhaps thou speakest truth.")

Subject: Re: color plot over greyscale image - postscript

Posted by [Gray](#) on Mon, 24 May 2010 19:51:56 GMT

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On May 23, 12:01 pm, David Fanning <n...@dfanning.com> wrote:

> Gray writes:

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>> want is to display a greyscale image, then overplot a number of
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Thank you!

So, I looked at TVIMAGE more closely and realized that passing `x/ystyle=9` with the `/AXES` keyword (and others) works exactly the way I want. However, I'm still having an issue with the color thing. I have IDL 7.0, so I can't set `decomposed=1` for a postscript device, and TVIMAGE doesn't let me pass `{true:1}` as `_extra`, because it requires a 3D array. Any suggestions besides updating IDL to 7.1 (which I'll do if it's my only option)?

Subject: Re: color plot over greyscale image - postscript
Posted by [Gray](#) on Mon, 24 May 2010 19:54:36 GMT
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On May 23, 12:01 pm, David Fanning <n...@dfanning.com> wrote:

> Gray writes:
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> David

>

> --

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> Sepore ma de ni thui. ("Perhaps thou speakest truth.")

(By the way, I'm using PSCONFIG to set up my postscript device, so
generally, whatever that sets up is what my settings are.)

Subject: Re: color plot over greyscale image - postscript
Posted by [David Fanning](#) on Mon, 24 May 2010 20:00:11 GMT
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Gray writes:

> So, I looked at TVIMAGE more closely and realized that passing x/
> ystyle=9 with the /AXES keyword (and others) works exactly the way I
> want. However, I'm still having an issue with the color thing. I
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> TVIMAGE doesn't let me pass {true:1} as _extra, because it requires a
> 3D array. Any suggestions besides updating IDL to 7.1 (which I'll do
> if it's my only option)?

Well, if I load the colors I want to use *just before
I want to use them*, I have never had any trouble getting
the colors I wanted. Are you doing something other than
this?

Cheers,

David

--

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Subject: Re: color plot over greyscale image - postscript
Posted by [David Fanning](#) on Mon, 24 May 2010 20:10:26 GMT
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David Fanning writes:

> Well, if I load the colors I want to use *just before
> I want to use them*, I have never had any trouble getting
> the colors I wanted. Are you doing something other than
> this?

Let me put this another way. Are you loading the gray-scale
color table just before you display the image?

Cheers,

David

--

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Subject: Re: color plot over greyscale image - postscript

Posted by [Gray](#) on Mon, 24 May 2010 20:21:32 GMT

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On May 24, 4:00 pm, David Fanning <n...@dfanning.com> wrote:

> Gray writes:

>> So, I looked at TVIMAGE more closely and realized that passing x/
>> ystyle=9 with the /AXES keyword (and others) works exactly the way I
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Okay, still not working, but in a different way. I tried to do this systematically, doing a .RESET to clear everything. Here's my code (using random x and y values for the overplot):

```
set_plot, 'ps'  
img = readfits('myimage.fits')  
img_sz = size(img,/dim)  
keywords = psconfig(/nogui,/encapsul,/color,/inches,xsize=6,$  
    ysize=6.*img_sz[0]/img_sz[1],filename='myimage.eps')  
device, _extra=keywords  
tvimage, img, /axes, axkey={xstyle:9,ystyle:9}, $
```

```
xra=[0,img_sz[0]-1], yra=[0,img_sz[1]-1]
x = randomu(seed,100)*(img_sz[0]-1)
y = randomu(seed,100)*(img_sz[1]-1)
loadct, 13, /silent
oplot, x, y, psym=4, color=fsc_color('green')
oplot, x+1,y+1,psym=1, color=fsc_color('red')
oplot, x-1,y-1,psym=6, color=fsc_color('yellow')
device, /close
set_plot, 'x'
```

When I do this, I have two problems: 1) my points (if they overplot at all, I'm not 100% convinced) are in greyscale, even though I loaded a new color table, and 2) I've now realized that even passing those xstyle keywords don't suppress the axis. It's subtle, because it's black against the border of a complicated greyscale image, but it's there.

Subject: Re: color plot over greyscale image - postscript
Posted by [David Fanning](#) on Mon, 24 May 2010 20:50:07 GMT
[View Forum Message](#) <> [Reply to Message](#)

Gray writes:

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> systematically, doing a .RESET to clear everything. Here's my code
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> device, _extra=keywords
> tvimage, img, /axes, axkey={xstyle:9,ystyle:9}, $
>   xra=[0,img_sz[0]-1], yra=[0,img_sz[1]-1]
>   x = randomu(seed,100)*(img_sz[0]-1)
>   y = randomu(seed,100)*(img_sz[1]-1)
> loadct, 13, /silent
> oplot, x, y, psym=4, color=fsc_color('green')
> oplot, x+1,y+1,psym=1, color=fsc_color('red')
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> at all, I'm not 100% convinced) are in greyscale, even though I loaded
> a new color table, and 2) I've now realized that even passing those
```

> black against the border of a complicated greyscale image, but it's
> there.

OK, no grey-scale color table is loaded before you display the image. So whatever colors happen to be loaded, will be what the image uses.

Then, if you are going to use FSC_COLOR for the overlay colors, there is no need to load a color table before you draw your overlays. FSC_COLOR will load its own color in the color table before it does the drawing. (And it will dirty the one and only color table, which is why you have to refresh it BEFORE you display your image!)

If your points are overlaying (only you can tell this for sure), I can assure you they are NOT overlaying with gray-scale colors. FSC_COLOR has worked for a *long* time. It is *extremely* unlikely that it would be broken, especially with the colors "red", "green" and "yellow". It's more likely that you aren't drawing in a data space you think you are drawing into.

What happened to your plot command? I thought that was how you were setting up the data space? TVImage may look to you like it is "doing the right thing", but it is actually designed to "do the same wrong thing the TV command does". That is to say, it will not establish a data coordinate system on its own. It seems to me the data "space" where you are drawing your overplots is probably in some random data space in which you accidentally drew a plot in your IDL session.

I'd go back to the PLOT command, put your image on it, then try to draw into it.

Cheers,

David

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Subject: Re: color plot over greyscale image - postscript

Posted by [Gray](#) on Mon, 24 May 2010 21:13:41 GMT

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On May 24, 4:50 pm, David Fanning <n...@dfanning.com> wrote:

> Gray writes:

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>> ysize=6.*img_sz[0]/img_sz[1],filename='myimage.eps')

>> device, _extra=keywords

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>> xra=[0,img_sz[0]-1], yra=[0,img_sz[1]-1]

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>> device, /close

>> set_plot, 'x'

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Correct on all counts! I added loadct, 0, /silent after set_plot,
'ps', then went back to declaring my axes beforehand with plot, /
nodata, x/ystyle=9 and tvimage, /overplot. I think my original
problem was that I had called fsc_color before running my tvimage.

Subject: Re: color plot over greyscale image - postscript
Posted by [David Fanning](#) on Mon, 24 May 2010 21:18:03 GMT
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Gray writes:

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Subject: Re: color plot over greyscale image - postscript

Posted by [Gray](#) on Tue, 25 May 2010 02:27:17 GMT

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On May 24, 5:18 pm, David Fanning <n...@dfanning.com> wrote:

> Gray writes:

>> Correct on all counts! I added loadct, 0, /silent after set_plot,
>> 'ps', then went back to declaring my axes beforehand with plot, /
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Hey David, did you know that you are all three of the top 3 posters
all time on this group?

Subject: Re: color plot over greyscale image - postscript

Posted by [David Fanning](#) on Tue, 25 May 2010 02:37:16 GMT

[View Forum Message](#) <> [Reply to Message](#)

Gray writes:

> Hey David, did you know that you are all three of the top 3 posters
> all time on this group?

Well, I'm shocked. But my wife says, "Duh!"

Cheers,

David

--

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