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:

> 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/
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> [0,0,.75,.75].
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> 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.

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:
>> 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
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>> to fit the image inside the plot axes, and then oplot to put in the
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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:
>> 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
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>> distributed colored pixels.
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> First, if you are trying to match an image with plot
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> of the axis. In other words, you want EXACT axis scaling.
> So those XStyle and YStyle keywords will have to have their
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> to 8 + 1 or 9, rather than 8.
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> is using indexed color. ;-)
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> If you want to do this, then you have to make *absolutely*
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> and the fact that red dots appear in your image when you
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> time you displayed your image. In other words, load that
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> then load your drawing colors to draw on top of the image.
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> colors, but then I pretty much never use indexed color. :-)
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> Cheers,
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> David
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> --
> 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.")

(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
> 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)?

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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David Fanning, Ph.D.
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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
>> 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)?
>
> 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
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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
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Gray writes:

```
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>  systematically, doing a .RESET to clear everything.  Here's my code
>  (using random x and y values for the overplot):
>
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>  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')
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>  device, /close
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>  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, expecially 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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Sepore ma de ni thue. ("Perhaps thos speakest truth.")

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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>> 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
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> Sepore ma de ni thue. ("Perhaps thos speakest truth.")

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:

> 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

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Yes, it is probably worth saying one more time. Load the colors
you plan to use JUST BEFORE you plan to use them. :-)

Cheers,

David

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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, /
>> nodata, x/ystyle=9 and tvimage, /overplot. I think my original
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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
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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

--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
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