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Subject: How do I place an image when I am using !P.Multi?  
Posted by [atmospheric physics](#) on Mon, 23 Jun 2014 10:16:33 GMT  
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Hello,

I have a sky image file (.JPG). I am trying to plot with other subplots.

(a) I get a problem w.r.t the size of the sky image that is displayed (sub-plot#2) in the saved file. I see a very small image at the right top corner. How can I actually fit the image that is read in the exact position dimensions I have defined for the display?

(b) In sub-plot#4 I wanted to actually make a PDF (probability density function) for my data array. Is relative frequency that is displayed with the following code the same? If not, how can I actually obtain only PDF displayed?

Below is the code I wrote: (probably you can use some demo data to understand my problem!)

```
-----  
cgPS_Open, FigFileName, FONT=-1, CHARSIZE=0.6  
  
; Setting variables to plot  
thick = (!D.Name EQ 'PS') ? 2 : 1 ; Setup variable to the plot  
  
; Display window  
cgDisplay, XSIZE=2000, YSIZE=1500 ; Create a map projection space  
  
!P.Multi=[0,2,2] ; 2 columns X 2 rows  
  
pos1 = [0.05,0.49,0.5,0.89]  
pos2 = [0.57,0.55,0.92,0.9]  
pos3 = [0.07,0.1,0.5,0.40]  
pos4 = [0.6,0.1,0.90,0.40]  
  
; Sub-Plot#1  
  
  
  
; Sub-Plot#2  
READ_JPEG, SkyImgFile, img1, ORDER=1  
cgImage, img1, /NOERASE, Position=pos2, /KEEP_ASPECT_RATIO  
  
; Sub-Plot#3  
  
  
  
; Sub-Plot#4
```

```
cgHistoplot,flux,/Frequency,/OProbability,ProbColorName='red ', $
ProbThick=2,PolyColor='dodger blue', /NAN, DataColorName='navy', $
POSITION=pos4,XTITLE='Flux in W/m^2', Charsize=0.85,$
/LINE_FILL,LINE_THICK=2,/OUTLINE,SMOOTH=1,THICK=2,XRange=[0. 0,1.2], $
FONT=-1,YRange=[0.0,0.5]
```

```
!P.Multi=0
```

```
cgPS_Close
```

```
; Create a PNG file with a width of 1500 pixels
cgPS2Raster,FigFileName,/PNG, Width=1500
```

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Please let me know where I am going wrong!!!

Thanks in advance

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Subject: Re: How do I place an image when I am using !P.Multi?  
Posted by [David Fanning](#) on Mon, 23 Jun 2014 17:16:15 GMT  
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Madhavan Bomidi writes:

```
> cgPS_Open,FigFileName,Font=-1, CHARSIZE=0.6
>
> ; Setting variables to plot
> thick = (!D.Name EQ 'PS') ? 2 : 1 ; Setup variable to the plot
>
> ; Display window
> cgDisplay,XSIZE=2000,YSIZE=1500 ; Create a map projection space
>
> !P.Multi=[0,2,2] ; 2 columns X 2 rows
>
> pos1 = [0.05,0.49,0.5,0.89]
> pos2 = [0.57,0.55,0.92,0.9]
> pos3 = [0.07,0.1,0.5,0.40]
> pos4 = [0.6,0.1,0.90,0.40]
>
> ; Sub-Plot#1
>
>
> ; Sub-Plot#2
> READ_JPEG,SkylmgFile,img1,ORDER=1
> cgImage,img1,/NOERASE,Position=pos2,/KEEP_ASPECT_RATIO
```

```

>
> ;Sub-Plot#3
>
>
> ;Sub-Plot#4
>
> cgHistogram,flux,/Frequency,/OProbability,ProbColorName='red ', $
> ProbThick=2,PolyColor='dodger blue', /NAN, DataColorName='navy', $
> POSITION=pos4,XTITLE='Flux in W/m^2', Charsize=0.85,$
> /LINE_FILL,LINE_THICK=2,/OUTLINE,SMOOTH=1,THICK=2,XRange=[0. 0,1.2], $
> FONT=-1,YRange=[0.0,0.5]
>
> !P.Multi=0
>
> cgPS_Close
>
> ; Create a PNG file with a width of 1500 pixels
> cgPS2Raster,FigFileName,/PNG, Width=1500
>
> -----
>
> Please let me know where I am going wrong!!!

```

Well, you are doing quite a lot of things...I hesitate to use the word "wrong", but certainly "unnecessarily"...which in combination are giving you a lot of trouble.

There are still a few people who disagree with me, but I do think it is a grave error to use !P.MULTI and the POSITION keyword at the same time. If it is not "wrong", then it is certainly responsible for weeks, if not months, of head scratching. It wouldn't surprise me to learn that just removing the position keywords allowed you to muddle through with these plots in some form you could live with.

You set the plot up like this:

```

> cgPS_Open,FigFileName,FONT=-1, CHARSIZE=0.6
>
> ; Setting variables to plot
> thick = (!D.Name EQ 'PS') ? 2 : 1 ; Setup variable to the plot
>
> ; Display window
> cgDisplay,XSIZE=2000,YSIZE=1500 ; Create a map projection space

```

This may be exactly what you want, but there is usually no need for all this. cgPS\_Open will do all the character sizing and changing of line thicknesses for you if you just get out of its way. I've always found it to go a great job with this, but there are people who like to tweak it.

You may be one of them.

I'm not sure exactly what you are doing with `cgDisplay`, but I can assure you it is NOT creating a PostScript page that is 2000 by 1000 pixels in size, which seems your intention here. I'm on vacation and so can't test this readily this morning, but I suspect it is simply giving you a PostScript "page" that has this aspect ratio. That is it's normal job in a PostScript file.

I'm not sure why you are using a `NOERASE` keyword on the `cgImage` call, but that might really mess up your following histogram, if you are using `!P.Multi` to set the position. `cgImage` will do the right thing when using it with `!P.Multi` without having to manipulate it in any way.

If you want to fill up the `!P.Multi` position space with your image, don't set the `KEEP_ASPECT` keyword. If you do set the keyword, it will fill the space while keeping the aspect ratio. If you want the image to fill less of the space, use the `MULTIMARGIN` keyword. The image is really small right now because you are giving it so many contradictory messages it doesn't know if it is coming or going.

Good luck with this!

Cheers,

David

--

David Fanning, Ph.D.

Fanning Software Consulting, Inc.

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

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

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Subject: Re: How do I place an image when I am using `!P.Multi`?  
Posted by [atmospheric physics](#) on Mon, 23 Jun 2014 20:05:11 GMT  
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Hello David,

Thanks for your brief explanation. I have solved my problem.

I always have confusion using `!P.Multi`. How can I actually adjust the length and width of my figure if I don't use 'Position' keyword when I am using `!P.Multi`?

Can you provide some insight and examples? Suppose I want to plot 100 subplots with 10 columns and 10 rows, where I have only 99 to plot and 1 is missing.

If I want to adjust the 99th plot to occupy the 100th plot space also, then how `!P.Multi` can do this?

Thanking you in advance.  
Have a nice vacation!!

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Subject: Re: How do I place an image when I am using !P.Multi?  
Posted by [Matthew Argall](#) on Tue, 24 Jun 2014 00:40:32 GMT  
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> If I want to adjust the 99th plot to occupy the 100th plot space also, then how !P.Multi can do this?

I am not David, but you can use cgLayout to do this easily.

```
positions = cgLayout([10,10])
pos99 = positions[* ,98]
pos100 = positions[* ,99]
merged_pos = [pos99[0], pos99[1], pos100[2], pos100[3]]
```

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Subject: Re: How do I place an image when I am using !P.Multi?  
Posted by [David Fanning](#) on Tue, 24 Jun 2014 02:44:24 GMT  
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Matthew Argall writes:

```
> I am not David, but you can use cgLayout to do this easily.
>
> positions = cgLayout([10,10])
> pos99 = positions[* ,98]
> pos100 = positions[* ,99]
> merged_pos = [pos99[0], pos99[1], pos100[2], pos100[3]]
```

Yes, as Matthew suggests, cgLayout is a more powerful alternative to the !P.MULTI system variable as it gives more options for positioning the plots.

But, skipping plots with !P.MULTI is extremely easy, too. Just manipulate (set) the first element of the !P.MULTI vector. It tells you how many plots to plot on a page:

```
IDL> !P.Multi = [0,4,1]; four plots in a row
IDL> cgPlot, cgDemoData(1) ; first plot
IDL> Print, !P.Multi[0]
3
IDL> cgPlot, cgDemoData(1) ; second plot
IDL> !P.Multi[0] = 1 ; skip third plot
IDL> cgPlot, cgDemoData(1) ; fourth plot
```

IDL> !P.Multi=0

Cheers,

David

--

David Fanning, Ph.D.

Fanning Software Consulting, Inc.

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

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

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Subject: Re: How do I place an image when I am using !P.Multi?

Posted by [David Fanning](#) on Tue, 24 Jun 2014 02:47:48 GMT

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David Fanning writes:

- > But, skipping plots with !P.MULTI is extremely easy, too. Just
- > manipulate (set) the first element of the !P.MULTI vector. It tells you
- > how many plots to plot on a page:

Sorry, it tells you how many plots REMAIN to be plotted on the page. Too many Mai-Tais this afternoon. :-(

David

--

David Fanning, Ph.D.

Fanning Software Consulting, Inc.

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

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

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Subject: Re: How do I place an image when I am using !P.Multi?

Posted by [atmospheric physics](#) on Tue, 24 Jun 2014 10:34:01 GMT

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Thanks to both Matthew and David for their examples.

Madhavan

On Tuesday, June 24, 2014 4:47:48 AM UTC+2, David Fanning wrote:

> David Fanning writes:

>

>

>

>> But, skipping plots with !P.MULTI is extremely easy, too. Just

>  
>> manipulate (set) the first element of the !P.MULTI vector. It tells you  
>  
>> how many plots to plot on a page:  
>  
>  
>  
> Sorry, it tells you how many plots REMAIN to be plotted on the page. Too  
>  
> many Mai-Tais this afternoon. :-(  
>  
>  
>  
> David  
>  
> --  
>  
> David Fanning, Ph.D.  
>  
> Fanning Software Consulting, Inc.  
>  
> Coyote's Guide to IDL Programming: <http://www.dfanning.com/>  
>  
> Sepore ma de ni thue. ("Perhaps thos speakest truth.")

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Subject: Re: How do I place an image when I am using !P.Multi?  
Posted by [atmospheric physics](#) on Tue, 24 Jun 2014 17:04:34 GMT  
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I tried to do as per the example suggested by Matthew, but I am getting some strange things. I am not able to see any plot. When I see the .ps file, I see multiple pages each page containing 1 smallbox but not plot. Also, the display window is not able to plot all 10 subplots. Can you try with some arbitrary data and let me know where I am going wrong??

```
-----  
cgPS_Open, OutFileName  
cgDisplay  
positions = cgLayout([10,10]) ; 10 cols x 10 rows  
  
FOR j=0,(ns-1) DO BEGIN  
  
    pos = positions[* ,j]  
  
    cgPlot,uTime,data[j,*],XStyle=1,YStyle=1,Position=pos, $  
        XRange=[4,20],YRange=[0,1200],Font=-1,LineStyle=0  
  
ENDFOR
```

cgPS\_Close

```
; Create a PNG file  
cgPS2Raster,OutFileName,/PNG
```

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Subject: Re: How do I place an image when I am using !P.Multi?  
Posted by [Matthew Argall](#) on Tue, 24 Jun 2014 18:47:31 GMT  
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One point is that if you do not use the NOERASE keyword, each new plot will create a new postscript page.

Here is an example that works...

```
noerase = bytarr(100) + 1B  
noerase[0] = 0B  
positions = cgLayout([3,3])  
for i = 0, 8 do cgPlot, cgDemoData(1), TITLE='Title', XTITLE='X Title', YTITLE='Y Title', $  
                NOERASE=noerase[i], POSITION=positions[*],i]
```

However, I noticed that if you increase the number of columns and rows (e.g. to [4,4] with the default window size), then the margin and gap sizes create a funky position that turns things up-side-down, inside-out, and round-and-round.

```
positions = cgLayout([4,4])  
for i = 0, 15 do cgPlot, cgDemoData(1), TITLE='Title', XTITLE='X Title', YTITLE='Y Title', $  
                NOERASE=noerase[i], POSITION=positions[*],i]  
print, positions[*],0  
    0.208333  0.801414  0.166667  0.725793
```

So, you will have to pick a layout that is reasonable for your window size.

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Subject: Re: How do I place an image when I am using !P.Multi?  
Posted by [atmospheric physics](#) on Tue, 24 Jun 2014 19:25:04 GMT  
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Hello Matthew,

Thanks for the examples. I wanted to make a plot similar to [http://www.idlcoyote.com/gallery/multiple\\_image\\_plot.pro](http://www.idlcoyote.com/gallery/multiple_image_plot.pro) but without images and colorbar. I will

use cgPlot for my line plots. I still don't understand if there is a way we can manage margin and gap sizes. For my purpose, I don't need to create so huge plots. Very minimal or no gap between plots is fine. Can I change the plotting window size to fit these all 10 x 10 plots in one page?

Thanks in advance.  
Madhavan

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Subject: Re: How do I place an image when I am using !P.Multi?  
Posted by [Matthew Argall](#) on Tue, 24 Jun 2014 22:49:30 GMT  
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You can set the [XY]Gap and [XY]Margin keywords in cgLayout and open a bigger window. Just use the example I gave. If the title is on bottom and the x-title is on top, then you have to do at least one of those those things.

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Subject: Re: How do I place an image when I am using !P.Multi?  
Posted by [Matthew Argall](#) on Tue, 24 Jun 2014 23:07:12 GMT  
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> Can I change the plotting window size to fit these all 10 x 10 plots in one page?

The biggest a postscript page can be is 8.5"x11". If you want something bigger, you have to use cgSnapshot, which does not use intermediate post-script files. Then, you can make the window as big as you want.

---