Subject: Re: Poscript Component Selection
Posted by IDLmastertobe on Mon, 12 Sep 2005 20:50:26 GMT
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Hi everyone, my post might have been not detailed enough. Let me restate it in a little more detail: I am able to save a 3D image in postscript format, but I want to be
able to select the axis, labels.. each component individually in illustrator and modify it. My postscript image so far only looks like a jpeg image and I have no way to select all the component of the image. Does anyone know what option I will need to set to have the postscript image able to have its components modified at will in Illustrator?

Some helpers suggested to use the VECTOR keyword if I used IDLgrClipboard in my implementation, however I used IDLgrModel and IDL_Container in my implementation. How should I use the VECTOR keyword or related functionalities to get each component of the postscript selected? Thank you.

Subject: Re: Poscript Component Selection
Posted by Michael Wallace on Mon, 12 Sep 2005 21:01:06 GMT
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What is the specific command you use to create the PS?

-Mike

Subject: Re: Poscript Component Selection
Posted by IDLmastertobe on Mon, 12 Sep 2005 21:18:41 GMT
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Hi everyone, my post might have been not detailed enough. Let me restate it in a little more detail: I am able to save a 3D image in postscript format, but I want to be
able to select the axis, labels.. each component individually in illustrator and modify it. My postscript image so far only looks like a jpeg image and I have no way to select all the component of the image. Does anyone know what option I will need to set to have the postscript image able to have its components modified at will in Illustrator?

Some helpers suggested to use the VECTOR keyword if I used IDLgrClipboard in my implementation, however I used IDLgrModel and IDL_Container in my implementation. How should I use the VECTOR keyword or related functionalities to get each component of the postscript selected? Thank you.

Subject: Re: Poscript Component Selection
Posted by IDLmastertobe on Mon, 12 Sep 2005 21:48:23 GMT
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Thanks for your reply Mike. Below is a truncated version of my printPostscript function. I found that even before I printed my postscript, the data is already act as an image (the "im3d" variable in the following code). Since I am continuing on an existing piece of code, as far as I understand, the "owindow" is an IDL number for a graphic window which the 3D image will be drawn on. The "oview" is an IDLgrView. If it is not clear, I will try to post a more detailed documentation of the code. Thanks for your time in helping me. I appreciate it.

partial code:

```
   sState.oVols[sState.iVrendVol]->SetProperty, $
     HIDE=1-vol_rend
   demo_draw, sState.oWindow, sState.oView, debug=sState.debug
   sState.oVols[sState.iVrendVol]->SetProperty,HIDE=1
   oImage = sState.oWindow->Read()
   oImage->GetProperty,DATA=data
   OBJ_DESTROY,oImage

   im3d=data

; Reconstruct the color table:
TVLCT, r,g,b,  /GET

s = SIZE(image3D)

filename = file + name + '.ps'

!P.FONT=0

; Set the plotting device to PostScript:
SET_PLOT, 'ps'

LOADCT, 0

TVSCL, im3d, TRUE=1
; Close the file:
DEVICE, /CLOSE
set_plot,'win'

END
```

Subject: Re: Poscript Component Selection

Posted by IDLmastertobe on Mon, 12 Sep 2005 21:51:29 GMT
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Thanks for your reply Mike. Below is a truncated version of my printPostscript function. I found that even before I printed my postscript, the data is already act as an image (the "im3d" variable in the following code). Since I am continuing on an existing piece of code, as far as I understand, the "owindow" is an IDL number for a graphic window which the 3D image will be drawn on. The "oview" is an IDLgrView. If it is not clear, I will try to post a more detailed documentation of the code. Thanks for your time in helping me. I appreciate it.

partial code:

```
   sState.oVols[sState.iVrendVol]->SetProperty, $
     HIDE=1-vol_rend
   demo_draw, sState.oWindow, sState.oView, debug=sState.debug
   sState.oVols[sState.iVrendVol]->SetProperty,HIDE=1
   oImage = sState.oWindow->Read()
   oImage->GetProperty,DATA=data
   OBJ_DESTROY,oImage

   im3d=data

; Reconstruct the color table:
TVLCT, r,g,b,  /GET

s = SIZE(image3D)

filename = file + name + '.ps'

!P.FONT=0

; Set the plotting device to PostScript:
SET_PLOT, 'ps'

LOADCT, 0

TVSCL, im3d, TRUE=1
; Close the file:
DEVICE, /CLOSE
set_plot,'win'

END
```

Subject: Re: Poscript Component Selection
Posted by IDLmastertobe on Mon, 12 Sep 2005 21:58:45 GMT

hi, sorry about the confusion. I don't know why the same post got posted again. What I just typed was not lost.

Thanks Mike for your reply. Following is the postscript printing code I used. Since I am continuing on someone else's code, as far as I understood, the "owindow" variable is the IDL number of the graphic window the 3D image is drawing on. The 3D image could be rotated as wished in the window. The "oview" is an IDLgrView structure. From what I realized, the output is already in a format of an image ("im3d" variable) even before it was printed as a PS. please let me know if I need to post a more detailed documentation of the code. Thank you very much for your time. I appreciate your help.

partial code:

```
   sState.oVols[sState.iVrendVol]->SetProperty, $
     HIDE=1-vol_rend
   demo_draw, sState.oWindow, sState.oView, debug=sState.debug
   sState.oVols[sState.iVrendVol]->SetProperty,HIDE=1
   oImage = sState.oWindow->Read()
   oImage->GetProperty,DATA=data
   OBJ_DESTROY,oImage

   im3d=data

!P.FONT=0

; Set the plotting device to PostScript:
SET_PLOT, 'ps'

LOADCT, 0

; Write the image to the file:
;TV, [[[r]], [[g]], [[b]]], TRUE=3

TVSCL, im3d, TRUE=1
; Close the file:
DEVICE, /CLOSE
set_plot,'win'
```

Subject: Re: Poscript Component Selection
Posted by David Fanning on Mon, 12 Sep 2005 22:17:23 GMT

IDLmastertobe writes:

> partial code:
> sState.oVols[sState.iVrendVol]->SetProperty, $
> HIDE=1-vol_rend
> demo_draw, sState.oWindow, sState.oView, debug=sState.debug
> sState.oVols[sState.iVrendVol]->SetProperty,HIDE=1
> oImage = sState.oWindow->Read()
> oImage->GetProperty,DATA=data
> OBJ_DESTROY,oImage
>
> im3d=data
>
> !P.FONT=0
>
> ; Set the plotting device to PostScript:
> SET_PLOT, 'ps'
>
> LOADCT, 0
>
> ; Write the image to the file:
> ;TV, [[[r]], [[g]], [[b]]], TRUE=3
>
> TVSCL, im3d, TRUE=1
> ; Close the file:
> DEVICE, /CLOSE
> set_plot,'win'

Oh, dear. Not exactly the "object graphics way", is it? :-(

I'm sure Mike will be able to set you straight. :-)

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.dfanning.com/

Subject: Re: Poscript Component Selection
Posted by David Fanning on Mon, 12 Sep 2005 22:26:23 GMT
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IDLmastertobe writes:

> partial code:
> sState.oVols[sState.iVrendVol]->SetProperty, $

> HIDE=1-vol_rend
> demo_draw, sState.oWindow, sState.oView, debug=sState.debug
> sState.oVols[sState.iVrendVol]->SetProperty,HIDE=1
> oImage = sState.oWindow->Read()
> oImage->GetProperty,DATA=data
> OBJ_DESTROY,oImage

By the way, do you think we could have a peek at that
DEMO_DRAW module? That's probably where you are going
to have to solve this problem, although I have doubts
that it *can* be solved, given the names of some of the
variables in this code.

Cheers,

David
--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.dfanning.com/

Subject: Re: Poscript Component Selection
Posted by Michael Wallace on Mon, 12 Sep 2005 22:38:25 GMT
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> Oh, dear. Not exactly the "object graphics way", is it? :-(
>
> I'm sure Mike will be able to set you straight. :-)

Since when did I become Mr. Object Graphics Setter Straighter? :-)

-Mike

Subject: Re: Poscript Component Selection
Posted by Michael Wallace on Mon, 12 Sep 2005 22:41:26 GMT
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Your code will always produce PS images that look like JPEGs (i.e.
pixelated) rather than vectors. Let's look at some of the important
lines of your code.

Here, you're grabbing the image on the current window. The variable
data is simply a 2-dimensional array of the pixels in the window. What

you have are pixels of the image, not the individual components of the image.

> oImage = sState.oWindow->Read()
> oImage->GetProperty,DATA=data

Setting im3d to data...

> im3d=data

Setting the output to PS...

> SET_PLOT, 'ps'

Now you're drawing the image pixels to the PostScript file. Because you only have pixels at this point, that's all that's going to appear in the file.

> TVSCL, im3d, TRUE=1

Closing out the PS...

> DEVICE, /CLOSE

So, what do you do about all of this? If you can get your hands on the view object before it is drawn, you can use the IDLgrClipboard::Draw method where you pass in the IDLgrView and specify to use VECTOR = 1 and POSTSCRIPT = 1.

-Mike

Subject: Re: Poscript Component Selection
Posted by Mark Hadfield on Tue, 13 Sep 2005 00:34:50 GMT
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David Fanning wrote:
> IDLmastertobe writes:
>> partial code:
>> sState.oVols[sState.iVrendVol]->SetProperty, $
>> HIDE=1-vol_rend
>> demo_draw, sState.oWindow, sState.oView, debug=sState.debug
>> sState.oVols[sState.iVrendVol]->SetProperty,HIDE=1
>> oImage = sState.oWindow->Read()
>> oImage->GetProperty,DATA=data
>> OBJ_DESTROY,oImage
>

> By the way, do you think we could have a peek at that
> DEMO_DRAW module? That's probably where you are going
> to have to solve this problem, although I have doubts
> that it *can* be solved, given the names of some of the
> variables in this code.

The above looks suspiciously like an excerpt from

<IDL_DIR>\examples\demo\demosrc\d_vectrack.pro

line 439-445 (in version 6.2). The original poster appears to be trying to adapt some IDL demo code for his own purposes. Now this *sounds* like a sensible thing to do but (as many of the newsgroup regulars can attest) the code distributed with IDL is a whole Pandora's box of worms.

I imagine that if I spent 15 minutes or so I could fight my way into the code, find the view object and draw it to a PS file in vector form. The results, in terms of code, wouldn't be pretty. The results, in terms of Postscript, may not be very pretty either, as the scene displayed by d_vectrack is a 3D one using effects like shading that will not be reproduced properly.

So, IDL mastertobe, before your or any of the rest of us put the effort in, perhaps you could tell us more about what you're really trying to do. Is this a learning exercise (in which case you might find a totally different approach more fruitful)? Are you are trying to plot the thunderstorm visualization displayed by d_vectrack, or have you changed that too? Do you want a quick and dirty solution or something more general and adaptable?

--
Mark Hadfield "Kei puwaha te tai nei, Hoea tahi tatou"
m.hadfield@niwa.co.nz
National Institute for Water and Atmospheric Research (NIWA)

Subject: Re: Poscript Component Selection
Posted by IDLmastertobe on Tue, 13 Sep 2005 00:35:12 GMT
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Thank you Dr.Fanning. I think the following code is the demo_draw module the previous programmer used. I think this is the one:

http://funk.on.br/rguimara/RSI/IDL54/examples/demo/demosrc/d emo_draw.pro

Thanks for your help.

Subject: Re: Poscript Component Selection
Posted by David Fanning on Tue, 13 Sep 2005 01:38:23 GMT
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IDLmastertobe writes:

> Thank you Dr.Fanning. I think the following code is the demo_draw module
> the previous programmer used. I think this is the one:
>
> http://funk.on.br/rguimara/RSI/IDL54/examples/demo/demosrc/d emo_draw.pro

Reading RSI-supplied code is always illuminating, in
an odd sort of way, isn't it? :-)

OK, find this line in the DEMO_DRAW:

```
  oWindow->Draw, oView
```

And after it, try this:

```
  clipboard = Obj_New("IDLgrClipboard", Dimensions=[4,3], Units=1, $
    Resolution=[2.54/300., 2.54/300.])
  clipboard->Draw, oView, Filename='myfile.eps', /PostScript, /Vector
  Obj_Destroy, clipboard
```

But, I agree with Mark. I don't think it has much of a chance
of actually working.

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.dfanning.com/

Subject: Re: Poscript Component Selection
Posted by Mark Hadfield on Tue, 13 Sep 2005 02:10:03 GMT
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David Fanning wrote:
> OK, find this line in the DEMO_DRAW:

>
>   oWindow->Draw, oView
>
> And after it, try this:
>
>   clipboard = Obj_New("IDLgrClipboard", Dimensions=[4,3], Units=1, $
>   Resolution=[2.54/300., 2.54/300.])
>   clipboard->Draw, oView, Filename='myfile.eps', /PostScript, /Vector
>   Obj_Destroy, clipboard
>
> But, I agree with Mark. I don't think it has much of a chance
> of actually working.

DEMO_DRAW is called by the D_VECTRACK widget every time the window is refreshed, so the above works a little more often than required!

But it does work (I tried it). There are some effects missing in the resulting plot (eg coloured texture map on one of the slices) and the lettering is way to big (different Dimensions or Resolution settings for the clipboard object might fix this).

Don't forget to remove or comment out the extra code and recompile after you've finished!

--
Mark Hadfield "Kei puwaha te tai nei, Hoea tahi tatou"
m.hadfield@niwa.co.nz
National Institute for Water and Atmospheric Research (NIWA)

Subject: Re: Poscript Component Selection
Posted by IDLmastertobe on Tue, 13 Sep 2005 04:47:19 GMT
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Thank you Dr.Fanning and Mike. It was really helpful and I think I can select the components now. But as Mike pointed out, the image in my 3D postscript file is a piece of while plane. It has no color. Is there any way I can fix it? Thanks.

Subject: Re: Poscript Component Selection
Posted by Mark Hadfield on Tue, 13 Sep 2005 05:06:04 GMT
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IDLmastertobe wrote:
> Thank you Dr.Fanning and Mike. It was really helpful and I think I can

> select the components now. But as Mike pointed out, the image in my 3D
> postscript file is a piece of while plane. It has no color. Is there any
> way I can fix it? Thanks.
>

I'm afraid not. When IDL renders object graphics scenes (like the thunderstorm visualisation) to vector formats like Postscript, there are several limitations. One is that images laid on top of surfaces or polygons with the "texture map" feature are not shown. For further info see the following sections in the IDL manual:

  Displaying, Copying and Printing Objects:
    Bitmap and Vector Graphic Output

  Mapping an Image onto Geometry

(I'm looking at these via the IDL 6.2 Help system. I'm not sure where to find them in the printed manuals.)

It is possible to create coloured planes that resemble the one in the thunderstorm visualisation by setting the VERT_COLORS property of the ILgrPolygon or IDLgrSurface object that defines the plane.

It is possible to get high-quality output of object graphics scenes in bitmap format. The bitmap file can then be edited in a graphics package, but you won't be able to select and manipulate lines, axes, etc because in bitmap format they're just a bunch of coloured pixels.

But what exactly is it that you're tyring to achieve?

--
Mark Hadfield "Kei puwaha te tai nei, Hoea tahi tatou"
m.hadfield@niwa.co.nz
National Institute for Water and Atmospheric Research (NIWA)

Subject: Re: Poscript Component Selection
Posted by IDLmastertobe on Tue, 13 Sep 2005 05:07:27 GMT
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Thank you Dr.Fanning and Mike. It was really helpful and I think I can select the components now. But as Mike pointed out, the image in my 3D postscript file is a piece of while plane. It has no color. Is there any way I can fix it? Thanks.

Subject: Re: Poscript Component Selection

Posted by IDLmastertobe on Tue, 13 Sep 2005 06:16:32 GMT
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Thanks Mark. I have a whole bunch of 3D data to visualize in IDL. I can now visualize them, rotate them in any direction I want. It is like a real time display of the 3D object. Now I am trying to save the 3D object in a postscript format such that I can select certain axis, labels, etc and modify them for say presentation or other purposes. I was able to save the 3D object in ps, but it is like a jpeg image and I can't modify any component of the image. After getting help from a lot of people, I can now save it in ps format with the ability of selecting and modifying some component, but the 3D image now appear to be a while plane that has no color at all. I am trying to figure out if it is possible to even have what I want implemented. Thanks for your reply.

Subject: Re: Poscript Component Selection
Posted by IDLmastertobe on Tue, 13 Sep 2005 06:46:43 GMT
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Thanks Mark. I have a whole bunch of 3D data to visualize in IDL. I can now visualize them, rotate them in any direction I want. It is like a real time display of the 3D object. Now I am trying to save the 3D object in a postscript format such that I can select certain axis, labels, etc and modify them for say presentation or other purposes. I was able to save the 3D object in ps, but it is like a jpeg image and I can't modify any component of the image. After getting help from a lot of people, I can now save it in ps format with the ability of selecting and modifying some component, but the 3D image now appear to be a while plane that has no color at all. I am trying to figure out if it is possible to even have what I want implemented. Thanks for your reply.

Subject: Re: Poscript Component Selection
Posted by Ben Panter on Tue, 13 Sep 2005 07:22:11 GMT
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IDLmastertobe wrote:
> Thanks Mark. I have a whole bunch of 3D data to visualize in IDL. I can
> now visualize them, rotate them in any direction I want. It is like a
> real time display of the 3D object. Now I am trying to save the 3D object
> in a postscript format such that I can select certain axis, labels, etc and
> modify them for say presentation or other purposes. I was able to save the
> 3D object in ps, but it is like a jpeg image and I can't modify any
> component of the image. After getting help from a lot of people, I can
> now save it in ps format with the ability of selecting and modifying some
> component, but the 3D image now appear to be a while plane that has no
> color at all. I am trying to figure out if it is possible to even have

> what I want implemented. Thanks for your reply.
>

I notice that in the code you posted you just set_plot, 'ps' and then
start plotting. It might help you to try

device, filename='mypsfile.ps', /color, bits_per_pixel=8

just after your set_plot

but then I have no idea of how that interacts with the object methods
outlined by others here... you might find there is similar functionality
in the object?

Ben

--
Ben Panter, Garching, Germany.
Email false, http://www.benpanter.co.uk
or you could try ben at ^^^^^^^^^^^^^^^

Subject: Re: Poscript Component Selection
Posted by IDLmastertobe on Tue, 13 Sep 2005 08:19:36 GMT
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Hi Ben, that was a truncated version of my code. In my unabridged code, it
acutally has the lines you mentioned. Thanks for the advise though.

Subject: Re: Poscript Component Selection
Posted by Mark Hadfield on Tue, 13 Sep 2005 22:11:18 GMT
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IDLmastertobe wrote:
> Thanks Mark. I have a whole bunch of 3D data to visualize in IDL. I can
> now visualize them, rotate them in any direction I want. It is like a
> real time display of the 3D object. Now I am trying to save the 3D object
> in a postscript format such that I can select certain axis, labels, etc and
> modify them for say presentation or other purposes. I was able to save the
> 3D object in ps, but it is like a jpeg image and I can't modify any
> component of the image. After getting help from a lot of people, I can
> now save it in ps format with the ability of selecting and modifying some
> component, but the 3D image now appear to be a while plane that has no
> color at all. I am trying to figure out if it is possible to even have
> what I want implemented. Thanks for your reply.

If you want vector Postscript output from object graphics then you are going to have to live with or work around its limitations. These are listed in the IDL documentation under the heading...

Programmer's Guides
Object Programming
Displaying, Copying and Printing Objects
Bitmap and Vector Graphics

One of these limitations is that texture mapped images are omitted from vector output; there are other significant ones, eg shaded lighting effects.

Texture mapped images are not the only way to display numeric data as a colour plot in Object Graphics. Surfaces can also be coloured, as can polygons. There are examples of this in the Motley library:

http://www.dfanning.com/hadfield/idl/README.html

Once you've got the library installed and working (contact me if you need help) run the command "mgh_example_density" with various values of the option argument. You can try various output options (image files, Postscript files, printer) and see how they look.

But if you get past this obstacle, you may still find that vector Postscript just can't represent 3D object graphics well enough. Bitmap output, in a format like PNG, represents the plot much better, doesn't have to look too grainy (if the resolution is high enough) and can be annotated in some graphics editor (but the axes and lines aren't entities, just collections of pixels).

Another option is to use the IDL Itools and do your annotation and editing in IDL. I can't really comment on this because I haven't got to grips with Itools.

Or do what I do: do all my annotation with IDL code, running the commands repeatedly until I'm satisfied. This can be time-consuming but has the advantage that the plot can then be generated again without any manual steps.

Or use Tecplot?

--
Mark Hadfield "Kei puwaha te tai nei, Hoea tahi tatou"
m.hadfield@niwa.co.nz
National Institute for Water and Atmospheric Research (NIWA)

Subject: Re: Poscript Component Selection
Posted by IDLmastertobe on Wed, 14 Sep 2005 08:53:29 GMT
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Thank you so much, Mark. Your explanation is really helpful. I will look more into it.