
Subject: Re: set_plot,'PS' and accurate colors?

Posted by [David Fanning](#) on Tue, 07 Jan 2003 19:30:08 GMT

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dave (knapp@rtt.colorado.edu.NOSPAM) writes:

> If I plot PS files in IDL I can't seem to get the same color table as
> when I plot to the screen.

Well, then, you are obviously not reading the right articles. :-)

What exactly are you trying to "plot" to the screen?
Line plot, image, filled contour plot?

How many colors does your display have? What color table
are you trying to use?

What does it mean, exactly, that colors are being "compressed"?

Cheers,

David

--

David W. Fanning, Ph.D.

Fanning Software Consulting, Inc.

Phone: 970-221-0438, E-mail: david@dfanning.com

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

Toll-Free IDL Book Orders: 1-888-461-0155

Subject: Re: set_plot,'PS' and accurate colors?

Posted by [dave](#) on Tue, 07 Jan 2003 19:31:24 GMT

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David Fanning wrote:

> dave (knapp@rtt.colorado.edu.NOSPAM) writes:
>> If I plot PS files in IDL I can't seem to get the same color table as
>> when I plot to the screen.
> Well, then, you are obviously not reading the right articles. :-)
> What exactly are you trying to "plot" to the screen?

I'm plotting lat/lon, then oplotting some more.

> Line plot, image, filled contour plot?

They wind up being line plots.

>
> How many colors does your display have? What color table
> are you trying to use?

loadct,13
display is currently set to 16bit
I get a nice rainbow of plots incrementing the color as I generate new
lat/lons
(too much to explain why I'm doing that)

oplot,lons,lats,color=(j+k)*30+200

> What does it mean, exactly, that colors are being "compressed"?
>

Sure, notice my lack of articulation... sigh

My nice rainbow of lat/lon trajectories wind up as primarily red with one
orange
track. I'm calling that "compressed", but that may not be the right term.

Subject: Re: set_plot,'PS' and accurate colors?
Posted by [David Fanning](#) on Tue, 07 Jan 2003 19:44:49 GMT
[View Forum Message](#) <> [Reply to Message](#)

dave (knapp@rtt.colorado.edu.NOSPAM) writes:

> loadct,13
> display is currently set to 16bit
> I get a nice rainbow of plots incrementing the color as I generate new
> lat/lons
> (too much to explain why I'm doing that)
>
> oplot,lons,lats,color=(j+k)*30+200
>
> My nice rainbow of lat/lon trajectories wind up as primarily red with one
> orange track.

Ah, right. It looks to me like you are trying to express
your colors in 24-bit notation and the PostScript device
is an 8-bit device (with the exception of 24-bit images).
So you are going to have to figure out some way to use
a 256-element color table for your colors if you want to
duplicate what you see on the display. I'm afraid this
is just a limitation of the PostScript device.

Cheers,

David

--

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Subject: Re: set_plot,'PS' and accurate colors?

Posted by [dave](#) on Tue, 07 Jan 2003 20:00:38 GMT

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

I just reduced the color depth in the plots (the range in the color variable) to less than 255 with no change in the output colors at all.

Oh well. Thank you.

David Fanning wrote:

> dave (knapp@rtt.colorado.edu.NOSPAM) writes:

>

>> loadct,13

>> display is currently set to 16bit

>> I get a nice rainbow of plots incrementing the color as I generate new

>> lat/lons

>> (too much to explain why I'm doing that)

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> your colors in 24-bit notation and the PostScript device

> is an 8-bit device (with the exception of 24-bit images).

> So you are going to have to figure out some way to use

> a 256-element color table for your colors if you want to

> duplicate what you see on the display. I'm afraid this

> is just a limitation of the PostScript device.

>

> Cheers,

>

> David

>
> --
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Subject: Re: set_plot,'PS' and accurate colors?
Posted by [David Fanning](#) on Tue, 07 Jan 2003 20:18:26 GMT
[View Forum Message](#) <> [Reply to Message](#)

dave (knapp@rtt.colorado.edu.NOSPAM) writes:

> I just reduced the color depth in the plots (the range in the color variable)
> to less than 255 with no change in the output colors at all.

Oh, I don't think so. :-)

Can you show me how you constructed and loaded your
color table and indexed the colors?

Cheers,

David

--

David W. Fanning, Ph.D.
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Subject: Re: set_plot,'PS' and accurate colors?
Posted by [David Fanning](#) on Tue, 07 Jan 2003 20:38:51 GMT
[View Forum Message](#) <> [Reply to Message](#)

David Fanning (david@dfanning.com) writes:

> dave (knapp@rtt.colorado.edu.NOSPAM) writes:
>
>> I just reduced the color depth in the plots (the range in the color variable)
>> to less than 255 with no change in the output colors at all.
>
> Oh, I don't think so. :-)

>
> Can you show me how you constructed and loaded your
> color table and indexed the colors?

This code produces a series of rainbow colored lines both on the display and in a PostScript file.

PRO Test

Loadct, 13 ; Rainbow colors

x=findgen(256)* 0.8/256. + .1

Window, XSize=800, YSize=400

for j=0,255 do plots, [x[j], x[j]], [0.1, 0.9], Color=j

thisDevice = !D.Name

Set_Plot, 'ps', /Copy

Device, XSize=10, YSize=7, XOffset=0.5, File='test.ps', \$

YOffset = 10.75, /Inches, /Landscape

for j=0,255 do plots, [x[j], x[j]], [0.1, 0.9], Color=j

Device, /Close

Set_Plot, thisDevice

END

Cheers,

David

--

David W. Fanning, Ph.D.

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Subject: Re: set_plot,'PS' and accurate colors?

Posted by [dave](#) on Wed, 08 Jan 2003 19:59:29 GMT

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I'm sorry I didn't see the response until just now.

It's looking like IDL can't plot output graphics (PS, metafile etc) with more than 256 colors ever, is that true?

David Fanning wrote:

> David Fanning (david@dfanning.com) writes:

>

```
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>
> thisDevice = !D.Name
> Set_Plot, 'ps', /Copy
> Device, XSize=10, YSize=7, XOffset=0.5, File='test.ps', $
>   YOffset = 10.75, /Inches, /Landscape
>
> for j=0,255 do plots, [x[j], x[j]], [0.1, 0.9], Color=j
>
> Device, /Close
> Set_Plot, thisDevice
> END
>
> Cheers,
>
> David
> --
> David W. Fanning, Ph.D.
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```

Subject: Re: set_plot,'PS' and accurate colors?

Posted by [David Fanning](#) on Wed, 08 Jan 2003 20:08:51 GMT

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

dave (knapp@rtt.colorado.edu.NOSPAM) writes:

```
>
> It's looking like IDL can't plot output graphics (PS, metafile etc) with more than
> 256 colors ever, is that true?
```

256 colors out of a palette of 16.7 million. Yes,
that is what it means to be an 8-bit device. Computers
used to be like this in the old days. :-)

Cheers,

David

--

David W. Fanning, Ph.D.
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Subject: Re: set_plot,'PS' and accurate colors?
Posted by [dave](#) on Wed, 08 Jan 2003 20:25:07 GMT
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David Fanning wrote:

> dave (knapp@rtt.colorado.edu.NOSPAM) writes:
>>
>> It's looking like IDL can't plot output graphics (PS, metafile etc) with more than
>> 256 colors ever, is that true?
>
> 256 colors out of a palette of 16.7 million. Yes,
> that is what it means to be an 8-bit device. Computers
> used to be like this in the old days. :-)

Sigh,

So how does one print anything in IDL with good color selection?

Subject: Re: set_plot,'PS' and accurate colors?
Posted by [Mark Hadfield](#) on Wed, 08 Jan 2003 20:47:07 GMT
[View Forum Message](#) <> [Reply to Message](#)

"dave" <knapp@rtt.colorado.edu.NOSPAM> wrote in message
news:3E1C8321.655CD000@rtt.colorado.edu.NOSPAM...

> It's looking like IDL can't plot output graphics (PS, metafile etc) with
more than
> 256 colors ever, is that true?

It's true of the direct-graphics PS device. It's not true of the direct-graphics METAFILE or PRINTER devices, both of which accept a TRUE_COLOR keyword. (These statements are based on my reading of the manual. I don't actually have any experience of creating direct-graphics plots with > 256 colours.)

Actually, it's not quite true of the PS device, in that you can end up with more than 256 colours in a Postscript file by loading a colour table, plotting, loading a different colour table, plotting. Do this n times and you can have 256*n colours in the file.

And, of course, you can write true-colour images to bitmap formats like TIFF, JPG and PNG.

--

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

Subject: Re: set_plot,'PS' and accurate colors?
Posted by [Liam E. Gumley](#) on Wed, 08 Jan 2003 20:48:45 GMT
[View Forum Message](#) <> [Reply to Message](#)

The METAFILE and PRINTER graphics devices both support 24-bit color. Just use

device, true_color=24

after you select the device. Note that the METAFILE graphics device is only available on Windows platforms.

Cheers,
Liam.
Practical IDL Programming
<http://www.gumley.com/>

"dave" <knapp@rtt.colorado.edu.NOSPAM> wrote in message
news:3E1C8321.655CD000@rtt.colorado.edu.NOSPAM...

> I'm sorry I didn't see the response until just now.

>

> It's looking like IDL can't plot output graphics (PS, metafile etc) with more than

> 256 colors ever, is that true?

>

> David Fanning wrote:

>

>> David Fanning (david@dfanning.com) writes:


```

>>
>>> dave (knapp@rtt.colorado.edu.NOSPAM) writes:
>>>
>>>> I just reduced the color depth in the plots (the range in the color
variable)
>>>> to less than 255 with no change in the output colors at all.
>>> Oh, I don't think so. :-)
>>> Can you show me how you constructed and loaded your
>>> color table and indexed the colors?
>>
>> This code produces a series of rainbow colored lines both on
>> the display and in a PostScript file.
>>
>> PRO Test
>> Loadct, 13 ; Rainbow colors
>> x=findgen(256)* 0.8/256. + .1
>> Window, XSize=800, YSize=400
>> for j=0,255 do plots, [x[j], x[j]], [0.1, 0.9], Color=j
>>
>> thisDevice = !D.Name
>> Set_Plot, 'ps', /Copy
>> Device, XSize=10, YSize=7, XOffset=0.5, File='test.ps', $
>>   YOffset = 10.75, /Inches, /Landscape
>>
>> for j=0,255 do plots, [x[j], x[j]], [0.1, 0.9], Color=j
>>
>> Device, /Close
>> Set_Plot, thisDevice
>> END
>>
>> Cheers,
>>
>> David
>> --
>> David W. Fanning, Ph.D.
>> Fanning Software Consulting, Inc.
>> Phone: 970-221-0438, E-mail: david@dfanning.com
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>

```

Subject: Re: set_plot,'PS' and accurate colors?
Posted by [Paul Van Delst\[1\]](#) on Wed, 08 Jan 2003 20:58:33 GMT
[View Forum Message](#) <> [Reply to Message](#)

dave wrote:
>

> David Fanning wrote:
>
>> dave (knapp@rtt.colorado.edu.NOSPAM) writes:
>>>
>>> It's looking like IDL can't plot output graphics (PS, metafile etc) with more than
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>>
>> 256 colors out of a palette of 16.7 million. Yes,
>> that is what it means to be an 8-bit device. Computers
>> used to be like this in the old days. :-)
>
> Sigh,
>
> So how does one print anything in IDL with good color selection?

methinks there may a problem with how your system be setup. plotting in color in IDL (direct graphics at least) is pretty easy - especially stuff like you have described.

- What version of IDL are you using?
- How many bit planes are you set up to use? 8,16,24? (xdpyinfo should tell you that - for unix at least)
- If 8 bit planes, what is the output when you do:

```
window, /free, /pixmap, colors = -5  
plot, [ 0 ]  
wdelete, !d.window  
print, 'Number of colors is ', !d.n_colors  
print, 'Color table size is ', !d.table_size
```

immediately after starting IDL?

Depending on what your system colour depth is and how many color-intensive applications (e.g. web browser, fancy editor, movie player, etc) you have running, you may have simply run out of colours.

paulv

--

Paul van Delst
CIMSS @ NOAA/NCEP/EMC
Ph: (301)763-8000 x7274
Fax:(301)763-8545

Subject: Re: set_plot,'PS' and accurate colors?
Posted by [David Fanning](#) on Wed, 08 Jan 2003 21:02:37 GMT
[View Forum Message](#) <> [Reply to Message](#)

dave (knapp@rtt.colorado.edu.NOSPAM) writes:

> Sigh,
>
> So how does one print anything in IDL with good color selection?

I don't know. You'll have to ask one of the old-timers. :-)

Cheers,

David

P.S. Let's just say IDL is **not** the software
of choice for the four-color repro work I do with the
nude models. :-)

--

David W. Fanning, Ph.D.

Fanning Software Consulting, Inc.

Phone: 970-221-0438, E-mail: david@dfanning.com

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Subject: Re: set_plot,'PS' and accurate colors?

Posted by [dave](#) on Wed, 08 Jan 2003 21:02:55 GMT

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Mark Hadfield wrote:

> "dave" <knapp@rtt.colorado.edu.NOSPAM> wrote in message
> news:3E1C8321.655CD000@rtt.colorado.edu.NOSPAM...
>
>> It's looking like IDL can't plot output graphics (PS, metafile etc) with
> more than
>> 256 colors ever, is that true?
>
> It's true of the direct-graphics PS device. It's not true of the
> direct-graphics METAFILE or PRINTER devices, both of which accept a
> TRUE_COLOR keyword. (These statements are based on my reading of the manual.
> I don't actually have any experience of creating direct-graphics plots with
>> 256 colours.)

I tried the true_color keyword with "metafile" and cannot find a syntax that it
won't complain about. Tells me true_color cannot be used with the metafile
device.

>

- > Actually, it's not quite true of the PS device, in that you can end up with
- > more than 256 colours in a Postscript file by loading a colour table,
- > plotting, loading a different colour table, plotting. Do this n times and
- > you can have 256*n colours in the file.

Interesting thought, although I've coded this in a way that would make that difficult now.

And, of course, you can write true-colour images to bitmap formats like

- > TIFF, JPG and PNG.

If I rewrite all my code to not make line plots but rewrite 2-d arrays, yes.

Subject: Re: set_plot,'PS' and accurate colors?

Posted by [David Fanning](#) on Wed, 08 Jan 2003 21:04:07 GMT

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

Mark Hadfield (m.hadfield@niwa.co.nz) writes:

- > Actually, it's not quite true of the PS device, in that you can end up with
- > more than 256 colours in a Postscript file by loading a colour table,
- > plotting, loading a different colour table, plotting. Do this n times and
- > you can have 256*n colours in the file.

I was wondering about this. Have you actually tried it?

Cheers,

David

--

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Subject: Re: set_plot,'PS' and accurate colors?

Posted by [dave](#) on Wed, 08 Jan 2003 21:08:32 GMT

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

Paul van Delst wrote:

- > methinks there may a problem with how your system be setup. plotting in color in IDL

- > (direct graphics at least) is pretty easy - especially stuff like you have described.
- > - What version of IDL are you using?

5.4, win2k

- > - How many bit planes are you set up to use? 8,16,24? (xdpyinfo should tell you that - for unix at least)
- > - If 8 bit planes, what is the output when you do:
 - > window, /free, /pixmap, colors = -5
 - > plot, [0]
 - > wdelete, !d.window
 - > print, 'Number of colors is ', !d.n_colors
 - > print, 'Color table size is ', !d.table_size
 - > *immediately* after starting IDL?

```
IDL> window, /free, /pixmap, colors = -5
IDL> plot, [ 0 ]
IDL> wdelete, !d.window
IDL> print, 'Number of colors is ', !d.n_colors
Number of colors is    16777216
IDL> print, 'Color table size is ', !d.table_size
Color table size is      256
```

- > Depending on what your system colour depth is and how many color-intensive applications
- > (e.g. web browser, fancy editor, movie player, etc) you have running, you may have simply

Hm... good thought.

Most of my experience has been on VMS using the TV command on a TEK terminal. I'm not sure why the color table is 256 right now.

Subject: Re: set_plot,'PS' and accurate colors?
Posted by [dave](#) on Wed, 08 Jan 2003 21:10:52 GMT
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That works!

I tried that device call but kept getting syntax errors. I must have not recompiled it when I thought I had or something, because I swear I tried this...

Thank you!

Liam Gumley wrote:

```

> The METAFILE and PRINTER graphics devices both support 24-bit color. Just
> use
>
> device, true_color=24
>
> after you select the device. Note that the METAFILE graphics device is only
> available on Windows platforms.
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> Practical IDL Programming
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>>> David Fanning (david@dfanning.com) writes:
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>>>> dave (knapp@rtt.colorado.edu.NOSPAM) writes:
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>>> Set_Plot, 'ps', /Copy
>>> Device, XSize=10, YSize=7, XOffset=0.5, File='test.ps', $
>>> YOffset = 10.75, /Inches, /Landscape

```

```
>>>
>>> for j=0,255 do plots, [x[j], x[j]], [0.1, 0.9], Color=j
>>>
>>> Device, /Close
>>> Set_Plot, thisDevice
>>> END
>>>
>>> Cheers,
>>>
>>> David
>>> --
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>>
```

Subject: Re: set_plot,'PS' and accurate colors?
Posted by [Mark Hadfield](#) on Wed, 08 Jan 2003 21:18:15 GMT
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Dave:

```
> I tried the true_color keyword with "metafile" and cannot find a syntax
that it
> won't complain about. Tells me true_color cannot be used with the metafile
> device.
```

Hmm, looks like the documentation is wrong.

[Me:]

```
>> And, of course, you can write true-colour images to bitmap formats like
>>
>> TIFF, JPG and PNG.
```

[Dave:]

```
> If I rewrite all my code to not make line plots but rewrite 2-d arrays,
yes.
```

Assuming you have a 16-bit or 24-bit display, you can send your line plotting commands to a window (or an off-screen pixmap created by "window, /PIXMAP") then extract the image with "tvrd(/TRUE)".

There are lots of complications & subtleties associated with different colour models in IDL direct graphics. I suggest you read everything you can find on the subject at David's WWW site:

<http://www.dfanning.com/>

--

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

Subject: Re: set_plot,'PS' and accurate colors?
Posted by [David Fanning](#) on Wed, 08 Jan 2003 21:33:15 GMT
[View Forum Message](#) <> [Reply to Message](#)

Mark Hadfield (m.hadfield@niwa.co.nz) writes:

>
> It's true of the direct-graphics PS device. It's not true of the
> direct-graphics METAFILE or PRINTER devices, both of which accept a
> TRUE_COLOR keyword. (These statements are based on my reading of the manual.
> I don't actually have any experience of creating direct-graphics plots with
> 256 colours.)

I've been corresponding with a friend for the past 24 hours trying to get something other than red to show up in an HP Color Laserjet 5M printer. Anyone have experience with that? I'm guessing that the printer is taking the color index as a 24-bit value, but DEVICE, DECOMPOSED=0 is not a valid keyword for this PRINTER device. Sigh...

Maybe this is the *opposite* problem from what we have been discussing in this thread. Maybe attacking this from both ends will get RSI's attention. :-)

Cheers,

David

--

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Subject: Re: set_plot,'PS' and accurate colors?
Posted by [Mark Hadfield](#) on Wed, 08 Jan 2003 21:59:36 GMT
[View Forum Message](#) <> [Reply to Message](#)

"David Fanning" <david@dfanning.com> wrote in message
news:MPG.18864034813e7285989a9e@news.frii.com...

> Mark Hadfield (m.hadfield@niwa.co.nz) writes:

>

>> Actually, it's not quite true of the PS device, in that you can end
>> up with more than 256 colours in a Postscript file by loading a
>> colour table, plotting, loading a different colour table,
>> plotting. Do this n times and you can have 256*n colours in the
>> file.

>

> I was wondering about this. Have you actually tried it?

Yes. To make sure I just ran a test with n = 40.

--

Mark Hadfield "Ka puwaha te tai nei, Hoea tatou"

m.hadfield@niwa.co.nz

National Institute for Water and Atmospheric Research (NIWA)

Subject: Re: set_plot,'PS' and accurate colors?

Posted by [thompson](#) on Mon, 13 Jan 2003 16:26:05 GMT

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David Fanning <david@dfanning.com> writes:

> dave (knapp@rtt.colorado.edu.NOSPAM) writes:

>> Sigh,

>>

>> So how does one print anything in IDL with good color selection?

> I don't know. You'll have to ask one of the old-timers. :-)

> Cheers,

> David

> P.S. Let's just say IDL is *not* the software

> of choice for the four-color repro work I do with the

> nude models. :-)

David:

I thought that the 8-bit restriction was only for line-drawn graphics. Images
can be displayed in 24-bit resolution with TV,TRUE=index. Are you drawing your
nude models in IDL? I'm really impressed. ;^)

Bill Thompson

Subject: Re: set_plot,'PS' and accurate colors?

Posted by [thompson](#) on Mon, 13 Jan 2003 16:27:29 GMT

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David Fanning <david@dfanning.com> writes:

> Mark Hadfield (m.hadfield@niwa.co.nz) writes:

>> Actually, it's not quite true of the PS device, in that you can end up with
>> more than 256 colours in a Postscript file by loading a colour table,
>> plotting, loading a different colour table, plotting. Do this n times and
>> you can have 256*n colours in the file.

> I was wondering about this. Have you actually tried it?

I've certainly done this with images, loading one color table for one image,
and another for a different image, and it works just fine in PostScript.

Bill Thompson

Subject: Re: set_plot,'PS' and accurate colors?

Posted by [Alexander Rauscher](#) on Mon, 03 Mar 2003 18:46:36 GMT

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i use a little work around to avoid the color problems with set_plot, 'ps'

```
pro tvgif, array, show=xview
sz=size(array)
xdim=sz(1)
ydim=sz(2)
window,31, /pixmap, xsize=xdim,ysize=ydim ; internal window, does not
    ; appear on the screen
tvsc1, array
WRITE_GIF, 'tvgif.gif', TVRD() ;saves image in working directory
wdelete,31
if keyword_set(xview) then spawn, 'xv tvgif.gif'
return
end
```

usage:
tvgif, array, /show

if i set the keyword 'show' idl spawns xv where i can save my file in a different format, print it etc...
alex

On Wed, 8 Jan 2003, dave wrote:

*
*
*David Fanning wrote:
*
*> dave (knapp@rtt.colorado.edu.NOSPAM) writes:
*> >
*> > It's looking like IDL can't plot output graphics (PS, metafile etc) with more than
*> > 256 colors ever, is that true?
*>
*> 256 colors out of a palette of 16.7 million. Yes,
*> that is what it means to be an 8-bit device. Computers
*> used to be like this in the old days. :-)
*
*Sigh,
*
*So how does one print anything in IDL with good color selection?
*
*
