
Subject: Re: Help with moving from 8 to 24 bit colour
Posted by [davidf](#) on Tue, 21 Sep 1999 07:00:00 GMT
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Surendar Jeyadev (jeyadev@wrc.xerox.com) writes:

> Was the GETCOLOR suggestion in answer to the second question that I
> asked (i.e. how do I get to see that palette?)? From what I see, that
> is not what I want. I want to be able to see the 255 colours in the
> table that I am using. When I issue the color_pallette command, I get
> a very thin window which is blank.

I don't know the Color_Palette program at all, but from your description I am almost positive the author uses a TV command in there. Your problem could be fixed, probably, by adding a TRUE=1 (or whatever) keyword to that TV command.

Another alternative is to download the ancient CINDEX program from my IDL 4 archive file. This program is so old I believe it will still run in PV-Wave. :-)

ftp://ftp.dfanning.com/pub/dfanning/idl_examples/archive4/cindex.pro

If this program shows all red colors when you have a color table loaded, then you are going to have to figure out some way to turn color decomposition off. Are you *sure* Device, Decomposed=0 didn't work for you. That is a *very* old keyword, I think. If you are sure, could you show us the result of a "Help, /Device".

Cheers,

David

P.S. I would also make sure (if you want 24-bit color) that you get a TrueColor visual class. Something like this, I think:

Device, True_Color=24

You will have better defined behavior in this class than in a DirectColor visual class. You can determine what class you have by opening a graphics window and typing "Help, /Device".

--

David Fanning, Ph.D.
Fanning Software Consulting
Phone: 970-221-0438 E-Mail: davidf@dfanning.com
Coyote's Guide to IDL Programming: <http://www.dfanning.com/>

Subject: Re: Help with moving from 8 to 24 bit colour
Posted by [jeyadev](#) on Tue, 21 Sep 1999 07:00:00 GMT

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In article <7s7n36\$dqf\$2@alster.dkrz.de>,
Martin.Schultz@dkrz.de <m218003@modell3.dkrz.de> wrote:
> In article <7s6au2\$nsu\$1@news.wrc.xerox.com>,
> jeyadev@wrc.xerox.com (Surendar Jeyadev) writes:
>
>> But, I do notice that when I start a Wave session and draw a simple plot,
>> the axes, labels, etc. are in red instead of white, while the lines of
>> the graph itself (the data) are white, as required.
>
> device,decomposed=0
> and get the GETCOLOR program from David Fanning:
> <http://www.dfanning.com>
>
>
> does that get you any further?

```
WAVE> device, decomposed=0
% Keyword DECOMPOSED not allowed in call to: DEVICE
% Execution halted at $MAIN$ (DEVICE).
```

I guess that I can just run the first programme twice and get over the problem. Better still, I can put a dummy plot programme in my startup file to just do a dumb plot, as I find that I get the right colours in all subsequent plots -- even when I open new windows.

Was the GETCOLOR suggestion in answer to the second question that I asked (i.e. how do I get to see that palette?)? From what I see, that is not what I want. I want to be able to see the 255 colours in the table that I am using. When I issue the color_palette command, I get a very thin window which is blank.

thanks for the hints
--

Surendar Jeyadev jeyadev@wrc.xerox.com

Subject: Re: Help with moving from 8 to 24 bit colour
Posted by [thompson](#) on Tue, 21 Sep 1999 07:00:00 GMT

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m218003@modell3.dkrz.de (Martin.Schultz@dkrz.de) writes:

```
> In article <7s6au2$nsu$1@news.wrc.xerox.com>,
> jeyadev@wrc.xerox.com (Surendar Jeyadev) writes:
>> I assume that this question has been asked, and answered, many times,
>> but I cannot find an FAQ.
>>
> http://www.ivsoftware.com:8000/FAQ/default.htm
```

```
>> [...] SIRD background. I found that that the problem arose from
>> the line
>>
>>     max_colors = !d.n_colors
> max_colors = !d.n_colors < 256 is much better ;-)
```

How about

```
max_colors = !d.table_size
```

William Thompson

Subject: Re: Help with moving from 8 to 24 bit colour
Posted by [m218003](#) on Tue, 21 Sep 1999 07:00:00 GMT
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```
In article <7s6au2$nsu$1@news.wrc.xerox.com>,
jeyadev@wrc.xerox.com (Surendar Jeyadev) writes:
> I assume that this question has been asked, and answered, many times,
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> the graph itself (the data) are white, as required.
```

```
device,decomposed=0
```

and get the GETCOLOR program from David Fanning:
<http://www.dfanning.com>

does that get you any further?

Martin

--

```

[[
[[ Martin Schultz Max-Planck-Institut fuer Meteorologie [[
[[ Bundesstr. 55, 20146 Hamburg [[
[[ phone: +49 40 41173-308 [[
[[ fax: +49 40 441787 [[
[[ martin.schultz@dkrz.de [[
[[
[[

```

Subject: Re: Help with moving from 8 to 24 bit colour
Posted by [davidf](#) on Wed, 22 Sep 1999 07:00:00 GMT
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Surendar Jeyadev (jeyadev@wrc.xerox.com) writes:

> After some messing around, I found that the solution is as follows:
>
> device, pseudo_color=8
>
> I am not sure what this does (that is part of today's education!),

What this does is make your expensive new hardware act
like it was last year's model. :-)

But, I agree, this will solve all of your problems and
you can carry on like you have been.

Should you ever have the need or desire to see more
than 256 colors simultaneously, however, I recommend
you use the TrueColor visual class and not the
DirectColor visual class, which appears to be the
default for your machine. DirectColor confuses all
of us. :-)

In a PseudoColor visual class you specify a color by
specifying an index into a color table. Suppose, for
example, we load the color yellow into color index
10 of the color table. Yellow is full red and full
green, but no blue. We could load those values in
the current color table like this:

TVLCT, 255, 255, 0, 10

To draw a plot in that yellow color, we would do this:

```
Plot, data, Color=10
```

We have specified the color as an **index** into the color table. If we load a new color into index 10, then the graphic display is automatically updated, since the display is "tied to" or "connected to" the index.

If we want a yellow color in a 24-bit environment, we don't use an index, but we specify the color directly. That is to say, we must specify the color triple as a number. Now, how could that be? Well, the number is going to be a long integer, and we are going to "decomposed" that number into three components that will specify the red, green, and blue component of the color we want. The lowest 8 bits of the number will be used for red, the next 8 bits for green, and the next 8 bits for blue. So a yellow color will have the lowest 16 bits set, but none of the high bits set. For example,

```
yellow = 2L^16 - 1  
Plot, data, Color=yellow
```

Another way to write this is as a hexadecimal number:

```
Plot, data, Color='00FFFF'xL
```

Colors that are expressed directly are not tied or connected to an index, so if we change the colors loaded at a particular index we don't affect display colors at all. The only way they can be changed is if we change them directly by specifying another color.

In IDL you can turn this color decomposition off by using the `DEVICE, DECOMPOSED=0` syntax. With color decomposition off, IDL treats the color value as if it were an index and looks the color up in a color table. In other words, IDL "acts" like it was an 8-bit device. Although not to the extent that display colors are automatically updated when we change colors in the color table.

In PV-Wave, it looks to me like you actually **make**

it an 8-bit device. In other words, it looks like you can't turn color decomposition off when in 24-bit mode, but you *have* to use decomposed color values.

It's hard to say which protocol is better. I would say it is probably easier for PV-Wave users to use old programs when they move to 24-bit machines, but at the total expense of not being able to take advantage of 24-bit color. (If they want 24-bit color, of course, they can close all windows and change the visual class, but then they have none of the advantages of 8-bit color.)

IDL users get to take advantage of 24-bit colors and they can still use old programs, but they have to learn new techniques for automatic update of their graphics displays when they change color tables, since in 24-bit color the graphics display colors are no longer tied to a color index.

I guess you take your picks and take your chances. But that's color in a nutshell. :-)

Cheers,

David

--

David Fanning, Ph.D.
Fanning Software Consulting
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Subject: Re: Help with moving from 8 to 24 bit colour
Posted by [jeyadev](#) on Wed, 22 Sep 1999 07:00:00 GMT
[View Forum Message](#) <> [Reply to Message](#)

In article <MPG.1251e8384ce5356c989904@news.frii.com>,
David Fanning <davidf@dfanning.com> wrote:
> Surendar Jeyadev (jeyadev@wrc.xerox.com) writes:
>

>> Was the GETCOLOR suggestion in answer to the second question that I
>> asked (i.e. how do I get to see that palette?)? From what I see, that
>> is not what I want. I want to be able to see the 255 colours in the
>> table that I am using. When I issue the color_pallette command, I get
>> a very thin window which is blank.

>
> I don't know the Color_Palette program at all, but from your
> description I am almost positive the author uses a TV
> command in there. Your problem could be fixed, probably,
> by adding a TRUE=1 (or whatever) keyword to that TV command.

color_palette is a standard PV Wave procedure that opens a window and presents a palette of the colours of the current colour table in a chequerboard format. In the 8 bit world, you get about 234 colours, and examples are given in the (online) manual. I am looking up the latest Wave Reference Manuals on the website to see if I can get it to display the colours in the 24 bit mode as well. What I do know, from my application, is that the colour tables do exist and I can load the different tables and the display updates just as it did in the 8 bit world on my (ex)Sparc20. The fundamental problem seems to be with the fact that the color_palette procedure also uses the !d.n_colors variable:

```
yboxes=fix(!d.n_colors/(8*int))
```

for the number of colours to be displayed (int = 2 if !d.n_colors > 128, 1 otherwise). I guess that this throws off the procedure and that !d.table_size would be a better choice. After some messing around, I found that the solution is as follows:

```
device, pseudo_color=8
```

I am not sure what this does (that is part of today's education!), but when followed by the 'color_palette' command, I get the colors available *and* the palette is updated when I issue a 'loadct' command to load a new colour table.

> Another alternative is to download the ancient CINDEX
> program from my IDL 4 archive file. This program is so
> old I believe it will still run in PV-Wave. :-)
>
> [ftp://ftp.dfanning.com/pub/dfanning/idl_examples/archive4/ci ndex.pro](ftp://ftp.dfanning.com/pub/dfanning/idl_examples/archive4/ci%20index.pro)
>
> If this program shows all red colors when you have a
> color table loaded, then you are going to have to figure
> out some way to turn color decomposition off. Are you
> *sure* Device, Decomposed=0 didn't work for you. That

Now, I do not what 'decomposition' is -- this the the second education project for the day. I have never been interested in colour as the output in hard copy format usually gets copied (note the employer!) and things loose all meaning. However, I do have a number of applications to display 3d data, and as long as they work, I am happy. I should add that

they are not terribly sophisticated and I can live with 8 bit colour!

> is a **very** old keyword, I think. If you are sure,
> could you show us the result of a "Help, /Device".

No, it did not work. And here is the transcript:

```
WAVE> device, Decomposed=0
% Keyword DECOMPOSED not allowed in call to: DEVICE
% Execution halted at $MAIN$ (DEVICE).
WAVE> info, /dev
Available graphics_devices: CGM HP NULL PCL PS REGIS TEK X Z
Current graphics device: X
  Server: X11.0, Sun Microsystems, Inc., Release 3600
  Display Depth, Size: 24 bits, (1280,1024)
  Visual Class: DirectColor (5)
  Bits Per RGB: 8
  Physical Color Map Entries (Used / Total): 256 / 256
  Colormap: Private, 16777216 colors. Translation table: Enabled
  Dither Method: Ordered
  Write Mask: 16777215 (decimal) ffffff (hex)
  Graphics Function: 3 (copy)
  Current Font: <default>
  Default Backing Store: Requested From Server.
WAVE> device, pseudo_color=8
WAVE> info, /dev
Available graphics_devices: CGM HP NULL PCL PS REGIS TEK X Z
Current graphics device: X
  Server: X11.0, Sun Microsystems, Inc., Release 3600
  Display Depth, Size: 8 bits, (1280,1024)
  Visual Class: PseudoColor (3)
  Bits Per RGB: 8
  Physical Color Map Entries (Used / Total): 256 / 256
  Colormap: Private, 256 colors. Translation table: Enabled
  Dither Method: Ordered
  Write Mask: 255 (decimal) ff (hex)
  Graphics Function: 3 (copy)
  Current Font: <default>
  Default Backing Store: Requested From Server.
WAVE>
```

The pseudo_color=8 setting seems to have changed the Visual Class (whatever **that** may be!). If I try the true_color=24, this is what I get:

```
WAVE> device, true_color=24
WAVE> info, /dev
Available graphics_devices: CGM HP NULL PCL PS REGIS TEK X Z
```


Current graphics device: X
Server: X11.0, Sun Microsystems, Inc., Release 3600
Display Depth, Size: 24 bits, (1280,1024)
Visual Class: TrueColor (4)
Bits Per RGB: 8
Physical Color Map Entries (Used / Total): 256 / 256
Colormap: Private, 16777216 colors. Translation table: Enabled
Dither Method: Ordered
Write Mask: 16777215 (decimal) ffffff (hex)
Graphics Function: 3 (copy)
Current Font: <default>
Default Backing Store: Requested From Server.
WAVE>

> P.S. I would also make sure (if you want 24-bit color) that
> you get a TrueColor visual class. Something like this, I think:
>
> Device, True_Color=24
>
> You will have better defined behavior in this class than in
> a DirectColor visual class. You can determine what class you
> have by opening a graphics window and typing "Help, /Device".

Tried it -- see above -- but it does not give me the colors in
the table when I run colour palette.

In short, it appears that I will still be in the 8 bit world as far
as Wave is concerned. I am not even sure what 24 bit colour will
buy for me as far as Wave is concerned. I do need it for some other
applications.

Thanks for all your help. Clearly, a considerable of ignorance has to be
dispelled first. I will start reading the manual about colour depth.

--

Surendar Jeyadev jeyadev@wrc.xerox.com

Subject: Re: Help with moving from 8 to 24 bit colour
Posted by [davidf](#) on Thu, 23 Sep 1999 07:00:00 GMT
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Surendar Jeyadev (jeyadev@wrc.xerox.com) writes:

> I have long been interested in getting your book to step
> beyond my "plain graph" skills with PV Wave. Is this kind
> of thing written up there (see my earlier complaint above!)?
> I guess I will buy it anyway!!

Just about the only place it **is** written up, as far as I can tell. :-)

I sell quite a few books to PV-Wavers. No returns so far. (Knock on wood.) :-)

Cheers,

David

--

David Fanning, Ph.D.

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Posted by [jeyadev](#) on Thu, 23 Sep 1999 07:00:00 GMT

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In article <MPG.12533f6852f3ee22989906@news.frii.com>,

David Fanning <davidf@dfanning.com> wrote:

> Surendar Jeyadev (jeyadev@wrc.xerox.com) writes:

>

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>>

>> device, pseudo_color=8

>>

>> I am not sure what this does (that is part of today's education!),

>

> What this does is make your expensive new hardware act

> like it was last year's model. :-)

>

> But, I agree, this will solve all of your problems and

> you can carry on like you have been.

Yes, I recognized that that is what it would do. But, it was done in the interest of time. I am still learning ...

> Should you ever have the need or desire to see more

> than 256 colors simultaneously, however, I recommend

> you use the TrueColor visual class and not the

> DirectColor visual class, which appears to be the

> default for your machine. DirectColor confuses all

> of us. :-)

Glad to know that even you are confused by this. The trouble is that I cannot find a self contained book that can help. Being sent off to learn about X windows and its graphical libraries to do a reasonably simple analysis is too much! But, I will continue to bite away ...`

```
> In a PseudoColor visual class you specify a color by
> specifying an index into a color table. Suppose, for
> example, we load the color yellow into color index
> 10 of the color table. Yellow is full red and full
> green, but no blue. We could load those values in
> the current color table like this:
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> TVLCT, 255, 255, 0, 10
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> To draw a plot in that yellow color, we would do this:
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> Plot, data, Color=10
>
> We have specified the color as an *index* into the color
> table. If we load a new color into index 10, then the
> graphic display is automatically updated, since the
> display is "tied to" or "connected to" the index.
```

I remember this from the SunView to OpenWindows transition. In those Good Old Days, Sun actually sent reasonable verbose hard copy documentation explaining how all this worked! I actually learnt something!!

```
> If we want a yellow color in a 24-bit environment, we
> don't use an index, but we specify the color directly.
> .....
```

Thanks a lot for this bit. But, guess what? I have a new question for you.

I have long been interested in getting your book to step beyond my "plain graph" skills with PV Wave. Is this kind of thing written up there (see my earlier complaint above!)? I guess I will buy it anyway!!

thanks, again
sj
--

Surendar Jeyadev jeyadev@wrc.xerox.com
