
Subject: Re: device, true_color=24, decompose=0
Posted by [Liam Gumley](#) on Mon, 14 Jun 1999 07:00:00 GMT
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Gary Fu wrote:

```
> Based on the IDL documentation the "decomposed=0" for the "device"
> command allows users with TureColor displays to use IDL programs written
> for standard, PseudoColor displays without modification. But I don't
> understand why I got
> different results in the following two idl codes:
>
> device, pseudo=8
> window, xsize=100, ysize=100
> erase, 50
> print, min(tvrd())          ; print out 50
> tvlct, 100, 100, 100, 50
> erase, 50
> print, min(tvrd())          ; print out 50
>
> *****
>
> device, true_color=24, decompose=0
> window, xsize=100, ysize=100
> erase, 50
> print, min(tvrd())          ; print out 50
> tvlct, 100, 100, 100, 50
> erase, 50
> print, min(tvrd())          ; print out 100
```

The IDL 5.2 online book 'Using IDL', section 'Displaying Images', subsection 'True Color Displays' explains how TVRD works differently in True Color mode:

"Furthermore, if the same image is loaded into each channel, operation of the display mimics that of a standard 8-bit deep pseudo-color display. Most, but not all, IDL image processing procedures written for a standard color display will run on a true-color display without modification. The routines that transfer images to the display, TV and TVSCL, write the same 8-bit data to each channel (channel 0) if no channel parameter is present. The function TVRD, which reads data from the display, returns the maximum value contained in the three-color channels for each pixel if no channel parameter is present."

Thus in True Color mode, TVRD does not return the byte pixel values as it does in 8 bit mode. To see this effect more clearly, try running the example shown below, which prints both the color table values (from TVLCT), and the pixel values (from TVRD):

;---cut here---

PRO TEST

;- Default color table

```
loadct,0
erase,50
tvlct,r,g,b,/get
print,'Red color table entry = ',r[50]
print,'Minimum pixel value = ',min(tvrd())
```

;- Modify color table entry 50

```
tvlct,100,100,100,50
erase,50
tvlct,r,g,b,/get
print,'Red color table entry = ',r[50]
print,'Minimum pixel value = ',min(tvrd())
```

END

;---cut here---

Here's what I get running on an SGI 24 bit console:

% idl

IDL Version 5.1 (IRIX mipseb). Research Systems, Inc.

Installation number: 13221-0.

Licensed for use by: Space Science and Engineering Center, Univ. of
WI-Madison

For basic information, enter "IDLInfo" at the IDL> prompt.

IDL> device,pseudo=8,decomp=0,retain=2

IDL> test

% Compiled module: TEST.

% Compiled module: LOADCT.

% Compiled module: FILEPATH.

% LOADCT: Loading table B-W LINEAR

Red color table entry = 89

Minimum pixel value = 50

Red color table entry = 100

Minimum pixel value = 50

IDL> help,/device

Available graphics_devices: CGM HP LJ NULL PCL PRINTER PS REGIS TEK X Z

Current graphics device: X

Server: X11.0, Silicon Graphics, Release 6001

Display Depth, Size: 8 bits, (1280,1024)

Visual Class: PseudoColor (3)

```

Bits Per RGB: 8
Physical Color Map Entries (Used / Total): 143 / 256
Colormap: Shared, 143 colors. Translation table: Enabled
Graphics pixels: Combined, Dither Method: Ordered
Write Mask: 255 (decimal) ff (hex)
Graphics Function: 3 (copy)
Current Font: <default>, Current TrueType Font: <default>
Default Backing Store: Pixmap.
Window Status: -----
id typ( x, y, backing store) id typ( x, y, backing
store)
0: Win( 640, 512, Pixmap)
IDL> exit

```

```

% idl
IDL Version 5.1 (IRIX mipseb). Research Systems, Inc.
Installation number: 13221-0.
Licensed for use by: Space Science and Engineering Center, Univ. of
WI-Madison

```

For basic information, enter "IDLInfo" at the IDL> prompt.

```

IDL> device,true=24,decomp=0,retain=2
IDL> test
% Compiled module: TEST.
% Compiled module: LOADCT.
% Compiled module: FILEPATH.
% LOADCT: Loading table B-W LINEAR
Red color table entry = 50
Minimum pixel value = 50
Red color table entry = 100
Minimum pixel value = 100
IDL> help,/device
Available graphics_devices: CGM HP LJ NULL PCL PRINTER PS REGIS TEK X Z
Current graphics device: X
Server: X11.0, Silicon Graphics, Release 6001
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: Bypassed
Graphics pixels: Combined, Dither Method: Ordered
Write Mask: 16777215 (decimal) ffffff (hex)
Graphics Function: 3 (copy)
Current Font: <default>, Current TrueType Font: <default>
Default Backing Store: Pixmap.
Window Status: -----
id typ( x, y, backing store) id typ( x, y, backing

```

```
store)
  0: Win( 640, 512,      Pixmap)
IDL> exit
```

Cheers,
Liam.

--

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