
Subject: performing a TVRD() on 24 bit images...
Posted by [tdarnell](#) on Thu, 14 Aug 1997 07:00:00 GMT
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I am having some difficulty saving 24 bit TIFF files and was wondering if anyone out there had a solution for me. I am constructing 24 bit images of solar image data and am trying to save the resulting image to a tiff file using TVRD(TRUE=1). I am writing each image to a PIXMAP window and performing the TVRD from the PIXMAP. Viewing the image in IDL gives me exactly what I was expecting, however, once I view the image in an external viewer, such as xv, the image appears to have lost some information because it looks lossy. I am performing the TVRD off of the PIXMAP, not the window showing the image, although, I tried it both ways and it doesn't seem to matter. Here's my code:

```
WINDOW,0, /PIXMAP, XSIZE=xsz, YSIZE=ysz
DEVICE,SET_GRAPHICS_FUNCTION=7
loadct,1
STRETCH,50,200
TV,img2,xpos2,ypos2
loadct,3
STRETCH,20,255
TV,img1,xpos1,ypos1
final_img=TVRD(TRUE = 1)
;r=TVRD(CHANNEL=1)
;g=TVRD(CHANNEL=2)
;b=TVRD(CHANNEL=3)
DEVICE,SET_GRAPHICS_FUNCTION=3
WINDOW,1,XSIZE=(sz1(1)>sz2(1)), YSIZE=(sz1(2)>sz2(2)), /FREE
DEVICE,COPY=[0,0,xsz,ysz,0,0,0]
TIFF_WRITE,'test.tif',final_img
;TIFF_WRITE,'test.tif',RED=r,GREEN=g,BLUE=b
```

img1 and img2 are sent to this procedure by the calling program, they are INTARR's of the same size. I noticed that when I do a TVRD on the PIXMAP, final_img is of type LONARR and tiff_write casts arrays to BYTE. I'm not sure if that is what is causing the problem or not. Any help would be much appreciated, this problem has plagued me for some time now...

--

Tony Darnell (tdarnell@hao.ucar.edu) Boulder, CO

Subject: Re: performing a TVRD() on 24 bit images...
Posted by [grunes](#) on Sat, 16 Aug 1997 07:00:00 GMT

tdarnell@hao.ucar.edu (Tony Darnell) writes

> I am having some difficulty saving 24 bit TIFF files and was wondering
> if anyone out there had a solution for me... I am constructing 24 bit
> images of solar image data and am trying to save the resulting image
> to a tiff file using TVRD(TRUE=1)...

> Viewing the image in IDL
> gives me exactly what I was expecting, however, once I view the image in an
> external viewer, such as xv, the image appears to have lost some information
> because it looks lossy.

Let me give a 3 part answer:

1. Possible problems with xv and other display programs that could appear to cause your problem.
2. How to write a 24 bit screen window to a TIFF file.
3. By the way, anyone looking for an experienced programmer?

=====

There are a number of potential problems with xv (and other display programs) that could be causing your problem. E.G., if the image is larger than the xv display window, xv would sub-sample it, producing interesting side effects. Other side effects can result from a image that is smaller than the xv display window, resulting from uneven pixel replication.

Many other display programs would actually create an 8 bit window, drop those colors already in use by the system, and dither.

I use IDL or WAVE for display because I know that I can control exactly what they do, if I work at it, and am willing to trade off some speed. E-mail me if you want a junky but usable image/animation display program, which can also extract other images and sub-images (including TIFF), etc.

=====

I'm sure David Fanning's method of dealing with 8 bit images works, but if you really want to read 24 bit color from the screen, and you want things to be more portable on multiple systems, you might create the window (which should be your FIRST window) with:

```
device,true=24
window,...,colors=2L^24
```

Just as a check that you have a 24 bit window,
print,!d.n_colors,2L^24
They should be the same.

Then place your stuff in the window:
tv,...
etc.

Then read it in, and write to a TIFF file.
It is important to use top-to-bottom storage order, so that most other TIFF viewers can read it right.

In IDL you could do this with:
A=tvrd(0,0,!d.x_vsize,!d.y_vsize,true=1)
tiff_write,'junk.tif',reverse(A,3),1

In PV-WAVE, you could use use:
A=tvrd(0,0,!d.x_vsize,!d.y_vsize,true=3)
for i=0,2 do A(*,*,i)=reverse(reform(A(*,*,i)),0)
if dc_write_tiff('junk.tif',A,class='RGB') ne 0 then \$
stop,'*****Bad dc_write_tiff'

=====

I have a confession. Part of my real reason for responding is that I am looking for a job, since funding for me is indefinite as of October 1.

If anyone out there who is reading this is looking for an experienced IDL/PV-WAVE/Fortran/C scientific programmer, with knowledge of image processing and remote sensing, I am available.

(BTW, I am on leave the week of 8/18.)

I know, wrong newsgroup. Shame on me!
At least I contributed something useful.

(-:

Mitchell R Grunes, grunes@imsy1.nrl.navy.mil. Opinions are mine alone.

Mitchell R Grunes, grunes@imsy1.nrl.navy.mil. Opinions are mine alone.

Subject: Re: performing a TVRD() on 24 bit images...
Posted by [tdarnell](#) on Wed, 20 Aug 1997 07:00:00 GMT
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In article <grunes.596.871738018@imsy1.nrl.navy.mil>,
grunes@imsy1.nrl.navy.mil (Mitchell R Grunes) writes:

>
> There are a number of potential problems with xv
> (and other display programs) that could be causing
> your problem. E.G., if the image is larger than
> the xv display window, xv would sub-sample it,
> producing interesting side effects. Other side
> effects can result from a image that is smaller
> than the xv display window, resulting from
> uneven pixel replication.

Thanks, I considered that so I viewed the image in a variety of viewers
on different platforms, all were the same.

>
> I use IDL or WAVE for display because I know that I
> can control exactly what they do, if I work at it,

Yeah, but I've noticed that sometimes we have to really work at it :-)

>
> I'm sure David Fanning's method of dealing with 8 bit
> images works, but if you really want to read 24 bit color

His method did work better than using tvrd(true=1), there was no loss
of contrast. The problem now is how do I place a smaller array in the
middle of a larger one without destroying the information underneath the
smaller array. (These are composite images of two datasets).

The nice thing about loading a colortable, tv'ing the image to a pixmap,
loading a second colortable, and tv'ing the second image to the pixmap,
was that I got exactly the effect I wanted: two images, each with its
own colortable superimposed on each other. I was able to see red solar
prominences 'underneath' a blue coronal image. This allowed us to see

how an event (say a coronal mass ejection) appeared in two datasets at the same time. All that was left to do was get the info in the window into a file (sigh). Unfortunately, `tvrd()` didn't give me what was on the window. (No WYSIWYG here!)

I've been working with a tech support guy at RSI and he seems to think it is in the `TVRD()` procedure (I'm inclined to agree). I've noticed before on an unrelated problem that IDL does its own thing (at least on a SUN) with the display and colors. This was certainly true when it came to GAMMA settings on the monitor. In order for true color images to look consistent with our SGI's and even in `xv` on the same system, our system admin had to change the gamma to its 'linear' setting (apparently only root can do this). After that change, what we saw in IDL was the same as what we saw in other imagers like `xv`.

Thanks for your reply and suggestion, unfortunately, I've already tried most of what you suggested. Just to be sure, I used `REVERSE` in the `TIFF_WRITE` call to see if that mattered. It didn't. I wish I could help you with your job hunt, but alas I am only a lowly IDL programmer. I know nothing about what positions are available. Good luck in your search!

--

Tony Darnell
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