Subject: Colors of a 24-bit Color Image
Posted by davidf on Mon, 22 Mar 1999 08:00:00 GMT
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Kenneth P. Bowman (bowman@null.tamu) writes:

> Actually, some 24-bit devices do have writable color tables. This is the
> distinction between TrueColor and DirectColor visuals. I believe our
> SGI's have DirectColor visuals, but most of our other 24-bit hardware does
> not allow one to change the color maps.

This is true. Normally, a 24-bit TrueColor visual class is non-writable, meaning that you can't change the values in the color table. UNIX workstations (some of them) also offer a writable 24-bit visual class called the DirectColor visual class.

The PC, as I learned much to my consternation in a class last week, seems to be a bit of a hybrid. Here is what I learned:

If you have a 24-bit image, such as the rose.dat dataset in the IDL examples directory:

```
file = Filepath(SubDir='[examples', 'data'], 'rose.dat')
Read_JPEG, file, image24
```

Then you imagine that the "colors" are built into the data itself. There is no reason to use a color look-up table. So that if you issue a command like this:

```
TV, image24, True=1
```

You expect to see the image as it is meant to be seen. But this is not so on a PC set in 24-bit color and running IDL 5.2.

In this case, what you see depends upon which color table you have loaded and the current state of the DECOMPOSED keyword to the DEVICE command.

The command above produces accurate color only if (1) the gray-scale color table is loaded (LOADCT, 0) or (2) the DECOMPOSED keyword is set equal to 1. If color decomposition is OFF, and a color table is loaded, then IDL apparently runs the RGB color values of the image through the color table to get display colors.

```
LoadCT, 5
Device, Decomposed=0
```

```
TV, image24, True=1
```

While it might be possible to argue that this works as expected
(I.e., this is what it "means" to turn color decomposition off),
I would argue that this is *never* what I want. What it means,
of course, is that in my code if I display *any* 24-bit color
image, then I have to first make sure either the gray-scale color
table is loaded or I have to set the DECOMPOSED keyword:

```
Device, Decomposed=1
TV, image24, True=1
```

If I have to do that, why not have a DECOMPOSED keyword for the
TV command:

```
TV, image24, Decomposed=1, True=1
```

But isn't that duplicating what I already set with the TRUE
keyword? If I have a 24-bit image, then I want it displayed in
those colors and not some others.

I'm going to suggest to RSI that they may want to give this
situation some more attention. But I thought I would mention it
here in the hopes of saving others some small amount of
frustration. :-)

Cheers,

David

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