Subject: Re: All I get is gray scale (and IDL 5.5)
Posted by Ruediger Kupper on Fri, 01 Feb 2002 13:15:41 GMT
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David Fanning wrote:

> Yes, something is not right. I'd slip a
>
> DEVICE, TRUE_COLOR=24
>
> into an IDL start-up file. I don't think you
> want a Direct Color visual. :-(

Hi Gary and David,

now, perhaps there is a possibility for me to understand
this issue, since I tried several times and never managed.
I encountered the same problem as Gary, and I
(heuristically) found the same solution for it, i.e.,
keeping IDL from allocating a Direct-Color visual by
explicitely requesting a True-Color one.
Then, upgrading to IDL5.5, all my colors were scrambled
again. After a series of tests, I discovered that now I need
an additional DEVICE, BYPASS_TRANSLATION=0 call to turn on
IDL's internal color translation table, AFTER the first
window has been opened. (The translation table is enabled
right after requesting the True-Color visual, but it
switches to bypassed when the first window opens. Although
this was atready the case with IDL 5.4, the TV command
obviously didn't bother - It does with IDL 5.5.)

Okay. Now, if anyone of you can help me with the following
questions, I would greatly appreciate:

First question: If I "don't want a Direct-Color visual", why
does IDL want it? As this is the order in which IDL tries to
allocate: Direct-Color first.

Second question: I did not find any way how to use the
Direct-Color visual at all, but perhaps I still don't
understand it right - What exact difference is there between
Direct-Color and True-Color, and how would IDL access the
two different modes? Reading the IDL documentation I get the
impresseion that everything should work fine - why doesn't it?

Third question (related to this): How and when is IDL's internal translation table used on a 24-bit display? The documentation is not very helpful, as it refers to 8-bit displays (in which case I do understand what it means). Actually, the documentation says:
(1) "By default, the translation tables are used with shared and static color tables. When using displays with private color tables, the translation tables are bypassed." While also stating
(2) "When a private or static color table is initialized, the bypass flag is cleared. It is set when initializing a shared color table."
Now this gives us something to think about :-).

Fourth question: Even if we don't understand why it does, what it does - is there any way to determine a configuration that works, without having to try them all out? We use IDL in our group, with a central startup file, and on many different machines (Windows NT, Intel Linux, DEC Alpha Unix, DEC Alpha Linux, 8-bit and 24-bit graphics cards), and, for licensing reasons, IDL versions ranging from 5.5 back to 5.2. Do I really have to ask every single user to try, until he finds a configuration that works on his system? I would expect a high-end visualisation tool like IDL to work without every single user needing to know the internals of his graphics hardware.

Fith question: Does RSI give any statement on this (sorry to say so) absolutely weird color management on X systems?

Please excuse me sounding a bit frustrated (or "stupid", as Gary put it), but I actually feel like it :-(.

I'm using DECOMPOSED=0, by the way, but this should not really matter here.

Thank you in advance for any helpful comments,
Regards,
Rüdiger.

Subject: Re: All I get is gray scale (and IDL 5.5)
Posted by David Fanning on Fri, 01 Feb 2002 14:27:31 GMT
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Ruediger Kupper (Ruediger.Kupper@Physik.Uni-Marburg.De) writes:

> now, perhaps there is a possibility for me to understand
> this issue, since I tried several times and never managed.

I seriously doubt whether it is *possible* to understand
this issue. But I'll give you a couple of heuristics
I use to get by.

> Then, upgrading to IDL5.5, all my colors were scrambled
> again. After a series of tests, I discovered that now I need
> an additional DEVICE, BYPASS_TRANSLATION=3D0 call to turn on
> IDL's internal color translation table, AFTER the first
> window has been opened.

I haven't encountered the need for this yet, but it
doesn't surprise me any. The way colors are handled in
IDL has changed with every single point release since
at least IDL 5.0. My impression is that the good folks
at RSI are as confused about the situation as we are.

What I do know is that colors are handled differently
on different platforms. This makes it *extremely* hard
to write portable code, which is the primary reason I
wrote all the color tools you find on my web page.
AFAIK, those tools produce the correct color pretty much
everywhere, and in every version of IDL, regardless of how
you have your damn computer configured. :-)

> First question: If I "don't want a Direct-Color visual", why
> does IDL want it? As this is the order in which IDL tries to
> allocate: Direct-Color first.

It would be easier to answer "Why does the sun come up
in the East?". Next question?

> Second question: I did not find any way how to use the
> Direct-Color visual at all, but perhaps I still don't
> understand it right - What exact difference is there between
> Direct-Color and True-Color, and how would IDL access the
> two different modes? Reading the IDL documentation I get the
> impresseion that everything should work fine - why doesn't it?

Here is my take on this question. It's probably not
right, but I haven't really run into anyone who knows the
answer, so who is going to call me a liar?

True-Color visuals are meant to be "static" color tables.
In other words, you can't load other values in the color
table. Why would you want to? You have all 16.7 million

possible colors available to you. If you want some particular color, just specify it's color triple and be done with it.

Unfortunately, this doesn't square with how we want to use IDL. As scientists, we like color tables. We have used color tables for three centuries, and we want to continue to use color tables. So, we want to load the damn things. That's a problem. IDL solves it by providing "virtual" color tables, or software color tables, as an intermediary between you and the static color table provided by the True-Color visual.

Most of the oddness in IDL's color handling comes in as we go back and forth through this intermediary. I suspect some of the problems are caused by different implementations on the hardware end of what constitutes a "true-color" visual. I can't imagine Microsoft, for example, isn't going to try to "solve" this problem themselves in their usual brain damaged way that confuses everything else you are trying to do.

Anyway (I've lost my train here), Direct Color visuals were designed to give you a 24-bit dynamic (as opposed to static) color table. That is, they were 24-bit, but you can change the numbers loaded in them. The best of all worlds.

I've actually seen Direct Color visuals work---once. On one incredibly lucky computer. But no one, and I mean no one, agrees on what a Direct Color visual is suppose to do. (PCs pretend they have never heard of it.) I suppose IDL searches for it first, because it would be wonderful if it were found, and if it worked, which it won't. But, there you go.

> Third question (related to this): How and when is IDL's
> internal translation table used on a 24-bit display?

I don't have the foggiest idea. But I'd bet good money it is used differently in every version of IDL. Presumably the translation tables are used when color decomposition is turned off. But that kind of behavior is just plain dumb when you are trying to display a 24-bit image, and causes all kinds of havoc on PCs.

> Fourth question: Even if we don't understand why it does,
> what it does - is there any way to determine a configuration
> that works, without having to try them all out?

I think so. If you have a 24-bit display, make sure
you have a TRUE_COLOR=24 visual class, then use my
color tools to get colors. If you have an 8-bit display,
make sure you have a PSEUDO_COLOR=8 visual class, then
use my color tools to get colors. :-)

> Fith question: Does RSI give any statement on this (sorry to
> say so) absolutely weird color management on X systems?

No, I have a secret agreement with RSI that doesn't expire
until 2015 that I will be the sole expert on IDL color
management. It was the only way I could further my career,
since my programming skills were so abysmal when I began.

> Please excuse me sounding a bit frustrated (or "stupid", as
> Gary put it), but I actually feel like it :-(.

Frustrated? About colors!? Nonsense!

Cheers,

David
--
David W. Fanning, Ph.D.
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Toll-Free IDL Book Orders: 1-888-461-0155

Subject: Re: All I get is gray scale (and IDL 5.5)
Posted by David Fanning on Fri, 01 Feb 2002 14:55:39 GMT
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David Fanning (david@dfanning.com) writes:

> Anyway (I've lost my train here), Direct Color visuals
> were designed to give you a 24-bit dynamic (as opposed
> to static) color table. That is, they were 24-bit, but
> you can change the numbers loaded in them. The best of
> all worlds.

I am feeling particularly jumbled this morning.
(There was a cow licking me all night long, and
my hair is going in every possible direction this
morning. I *look* like Albert Einstein, even if I
don't think like him.)

The thing about Direct Color visuals that made them
attractive (to some people), was not only that they
were 24-bit and color tables could be loaded, but
that when you loaded your new color tables, your
graphics windows updated automatically, as they
do on an 8-bit display. After working with 24-bit
displays for awhile now, I'd consider this a disadvantage,
but for someone coming directly from 8-bit displays,
this did seem like heaven on earth.

Cheers,

David

--
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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: All I get is gray scale (and IDL 5.5)
Posted by on Fri, 01 Feb 2002 14:58:39 GMT
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David Fanning wrote:

> Frustrated? About colors!? Nonsense!

Thank you very much, I'm feeling much better right now :-).

Rüdiger

File Attachments

1) Ruediger.Kupper.vcf, downloaded 100 times
