
Subject: Re: Re IDL w/ 12-bit grayscale?

Posted by [James Kuyper](#) on Mon, 03 Apr 2006 16:41:05 GMT

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Ertel, KG (Klaus) wrote:

> Hello Mike,

>

> Is it really worth the hassle? My guess would be that you can't

> distinguish more than, say, 10 grey levels by eye. ...

Try this:

```
image = rebin(replicate(1,256)#indgen(256),1024,1024,/sample)
```

```
tvsc!,image/16
```

```
tvsc!,image/8
```

```
tvsc!,image/4
```

```
tvsc!,image/2
```

I could still easily detect the jumps in brightness level with image/4.

It was a little bit harder for image/2, but I think I could still see them.

> ... 12 bits would give

> you 4096 grey levels, slight overkill. I very much prefer false colour

> representations anyway.

I agree - 4096 grey levels is overkill.

Subject: Re: Re IDL w/ 12-bit grayscale?

Posted by [David Fanning](#) on Mon, 03 Apr 2006 16:53:20 GMT

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kuyper@wizard.net writes:

> I agree - 4096 grey levels is overkill.

Gentlemen, I think you miss the fact that there are True Believers (e.g., radiologists) among us. They don't *care* if they can't see it, they believe it is important. End of discussion. :-)

Cheers,

David

P.S. Let's just say it's not bad business to believe in what True Believers believe in.

Especially if you sell expensive hardware.

--

David Fanning, Ph.D.

Fanning Software Consulting, Inc.

Coyote's Guide to IDL Programming: <http://www.dfanning.com/>

Subject: Re: Re IDL w/ 12-bit grayscale?

Posted by [JD Smith](#) on Mon, 03 Apr 2006 23:19:51 GMT

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On Mon, 03 Apr 2006 09:41:05 -0700, kuyper wrote:

```
>
> Ertel, KG (Klaus) wrote:
>> Hello Mike,
>>
>> Is it really worth the hassle? My guess would be that you can't
>> distinguish more than, say, 10 grey levels by eye. ...
>
> Try this:
>
> image = rebin(replicate(1,256)#indgen(256),1024,1024,/sample)
> tvscl,image/16
> tvscl,image/8
> tvscl,image/4
> tvscl,image/2
>
> I could still easily detect the jumps in brightness level with image/4.
> It was a little bit harder for image/2, but I think I could still see
> them.
```

This is a really bad test. The eye is exquisitely sensitive to brightness contrast, but very insensitive to absolute fluxes. In fact, in the world of panorama creation (which I dabble in), blending stitched images together can leave unsightly seams in the sky when the actual bit value on two sides of a seam differs by only 1 (in 8-bit per channel images)! Have a read:

<http://enblend.sourceforge.net/banding.htm>

This usually motivates people to go to 48bit images, to leave room for post-processing. Yes, you heard me correctly.

Here's a better test:

```
IDL> a=bytarr(512,512)+128b & for i=0,511,64 do a[i+32:i+63,*]+=i/64+1b & tv,a
```

when do you see the bars separate? The deltas are a single (1/256) jump in gray.

JD

Subject: Re: Re IDL w/ 12-bit grayscale?
Posted by [Andrew Cool](#) on Tue, 04 Apr 2006 01:14:11 GMT
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As someone who's lived with a brain tumour for 10 years now, I can say that I'm more than happy for the True Believers to worship 4096 levels.

Nothing can be overkill when it's your brain they're looking at... ;-)

Andrew

Subject: Re: Re IDL w/ 12-bit grayscale?
Posted by [David Fanning](#) on Tue, 04 Apr 2006 02:38:40 GMT
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andrew.cool@dsto.defence.gov.au writes:

> Nothing can be overkill when it's your brain they're looking at... ;-)

Amen, brother!

David

--

David Fanning, Ph.D.

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Subject: Re: Re IDL w/ 12-bit grayscale?
Posted by [George N. White III](#) on Tue, 04 Apr 2006 23:08:48 GMT
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On Mon, 3 Apr 2006, andrew.cool@dsto.defence.gov.au wrote:

> As someone who's lived with a brain tumour for 10 years now, I can say
> that I'm more than happy for the True Believers to worship 4096 levels.
>
>

> Nothing can be overkill when it's your brain they're looking at... ;-)

I feel the same way about remote sensing images of "spaceship earth".

--

George N. White III <aa056@chebucto.ns.ca>

Subject: Re: Re IDL w/ 12-bit grayscale?

Posted by [Andrew Cool](#) on Wed, 05 Apr 2006 03:33:44 GMT

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If Klaus Ertel is ever diagnosed with a brain tumour, I do hope that he'll insist that his MRI data is dumbed down to no more than, say 10 grey levels, because his radiologist can't discern anymore than that. ;-)

Andrew
