
Subject: Re: iVolume isosurface placement
Posted by [David Fanning](#) on Fri, 24 Feb 2006 15:51:31 GMT
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Kenneth Bowman writes:

>
> I have to admit, it is cool to interactively drag the image plane (slice) up and
> down.

How do you do that? This option is grayed out for me. :-(

Cheers,

David

--

David Fanning, Ph.D.
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Coyote's Guide to IDL Programming: <http://www.dfanning.com/>

Subject: Re: iVolume isosurface placement
Posted by [David Fanning](#) on Fri, 24 Feb 2006 15:54:48 GMT
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David Fanning writes:

> How do you do that? This option is grayed out for me. :-(

Oh, never mind. I figured it out.

David

--

David Fanning, Ph.D.
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Subject: Re: iVolume isosurface placement
Posted by [David Fanning](#) on Fri, 24 Feb 2006 15:56:35 GMT
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Kenneth Bowman writes:

> I think the following example demonstrates the problem clearly.

Nice example of the problem. How many hours did it take you? :-)

Cheers,

David

--

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Subject: Re: iVolume isosurface placement

Posted by [Karl Schultz](#) on Fri, 24 Feb 2006 16:22:14 GMT

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On Fri, 24 Feb 2006 09:18:01 -0600, Kenneth Bowman wrote:

> I have been experimenting with iVolume in order to understand my problem with
> displaying isosurfaces.

>

> I think the following example demonstrates the problem clearly.

>

>

>

> n = 5

> x = FINDGEN(n)/(n-1)

> x3 = REBIN(REFORM(x, n, 1, 1), n, n, n)

> y3 = REBIN(REFORM(x, 1, n, 1), n, n, n)

> z3 = REBIN(REFORM(x, 1, 1, n), n, n, n)

> vol = z3 - SIN(!PI*x3)*SIN(!PI*y3)

>

> iVolume, vol, /NO_SAVEPROMPT, \$

> VOLUME_LOCATION = [0.0, 0.0, 0.0], \$

> VOLUME_DIMENSIONS = [1.0, 1.0, 1.0]

>

>

>

> After the volume is created, add an isosurface at the level 0.0 by using
> Operations...Volume...Isosurface.

>

> The peak in the surface should be at (x,y) = (0.5,0.5), not (0.4,0.4), and the
> isosurface should span the whole data space, 0 -> 1.

>

> Volume slicing (Operations...Volume...Image plane) and volume rendering
> operations do place the data correctly.

>

- > If you have a lot of points in your data set, you may not care that isosurfaces
- > are squeezed by one grid point in each direction, but for my purposes, this is
- > causing me real problems.

I think it is a bug in `idlitvisisosurface__define.pro`. The scaling should be accomplished with a value one less than the volume dimensions since the number of voxels is one less than the number of samples in each direction:

```
:: Prepare vertex data
;; - scale by dimensions
oDimensions = self->GetParameter('VOLUME_DIMENSIONS')
if OBJ_VALID(oDimensions) then begin
    success = oDimensions->GetData(dimensions)
    dimensions = FLOAT(dimensions)
    volDims = SIZE(*pVol, /DIMENSIONS)
    verts[0,*] *= dimensions[0] / (volDims[0]-1) ; change
    verts[1,*] *= dimensions[1] / (volDims[1]-1) ; change
    verts[2,*] *= dimensions[2] / (volDims[2]-1) ; change
endif
```

I'll file a bug report. But you should be able to apply this change yourself and get on with things. And yeah, you're right in that it is hard to notice with bigger volumes.

Karl

Subject: Re: iVolume isosurface placement
Posted by [K. Bowman](#) on Fri, 24 Feb 2006 16:29:27 GMT
[View Forum Message](#) <> [Reply to Message](#)

In article <MPG.1e68da9a7cb846f6989ba7@news.frii.com>,
David Fanning <davidf@dfanning.com> wrote:

- > Kenneth Bowman writes:
- >
- >> I think the following example demonstrates the problem clearly.
- >
- > Nice example of the problem. How many hours did it take you? :-)
- >
- > Cheers,
- >
- > David

Don't even ask.

Ken

Subject: Re: iVolume isosurface placement
Posted by [K. Bowman](#) on Fri, 24 Feb 2006 16:40:56 GMT
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In article <pan.2006.02.24.16.22.07.969000@rsinc.com>,
Karl Schultz <k____schultz@rsinc.com> wrote:

```
> I think it is a bug in idlitvisisosurface__define.pro. The scaling should
> be accomplished with a value one less than the volume dimensions since the
> number of voxels is one less than the number of samples in each direction:
>
> ;; Prepare vertex data
> ;; - scale by dimensions
> oDimensions = self->GetParameter('VOLUME_DIMENSIONS')
> if OBJ_VALID(oDimensions) then begin
>     success = oDimensions->GetData(dimensions)
>     dimensions = FLOAT(dimensions)
>     volDims = SIZE(*pVol, /DIMENSIONS)
>     verts[0,*] *= dimensions[0] / (volDims[0]-1) ; change
>     verts[1,*] *= dimensions[1] / (volDims[1]-1) ; change
>     verts[2,*] *= dimensions[2] / (volDims[2]-1) ; change
> endif
>
>
> I'll file a bug report. But you should be able to apply this change
> yourself and get on with things. And yeah, you're right in that it is
> hard to notice with bigger volumes.
```

Thanks, Karl. You pointed me in this direction earlier, and I thought that I tried exactly the change you suggest, but it didn't work. (Blunder on my part no doubt ... not that I have any clue how idlitvisisosurface__define.pro works) I just tried this again, and now everything is copacetic.

There is an existing bug report (198801), and I sent a follow-up with this example earlier today.

Thanks again, Ken

Subject: Re: iVolume isosurface placement
Posted by [David Fanning](#) on Fri, 24 Feb 2006 16:53:01 GMT
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Kenneth Bowman writes:

```
> David Fanning <davidf@dfanning.com> wrote:
>
>> Kenneth Bowman writes:
```

>>
>>> I think the following example demonstrates the problem clearly.
>>
>> Nice example of the problem. How many hours did it take you? :-)
>>
>> Cheers,
>>
>> David
>
> Don't even ask.

I'm nominating you for the Meritorious Service Award at this
year's IEPA convention. :-)

Cheers,

David

--

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Subject: Re: iVolume isosurface placement
Posted by [K. Bowman](#) on Fri, 24 Feb 2006 17:29:18 GMT
[View Forum Message](#) <> [Reply to Message](#)

In article <MPG.1e68e7ddea45b130989ba9@news.frii.com>,
David Fanning <davidf@dfanning.com> wrote:

> I'm nominating you for the Meritorious Service Award at this
> year's IEPA convention. :-)
>
> Cheers,
>
> David

I'm planning to be in Boulder for a while this summer. How about a kegger in
the RSI parking lot?

Ken

Subject: Re: iVolume isosurface placement
Posted by [David Fanning](#) on Fri, 24 Feb 2006 17:40:17 GMT
[View Forum Message](#) <> [Reply to Message](#)

Kenneth Bowman writes:

> I'm planning to be in Boulder for a while this summer. How about a kegger in
> the RSI parking lot?

Yeah, let's do that. RSI is always up for sponsoring these kinds of things. :-)

Cheers,

David

P.S. The last time I was up to RSI I noticed that ITT has changed the, uh, culture a bit. When I called to get some information no one answered the phone, and when I showed up unannounced the front door was locked. (Apparently, it is ALWAYS locked.) Friendly sort of place. Perfect for a kegger. :-)

--

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