Subject: volume() for function graphics?
Posted by David Grier on Fri, 06 Jul 2012 17:47:20 GMT
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Dear Folks,

I've been wondering why there's no volume() function analogous
to the other function graphics routines. Anyone know why not?

TTFN,

David

Subject: Re: volume() for function graphics?
Posted by chris_torrence@NOSPAM on Wed, 11 Jul 2012 16:52:23 GMT
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On Friday, July 6, 2012 11:47:20 AM UTC-6, David Grier wrote:
> Dear Folks,
>
> I've been wondering why there's no volume() function analogous
> to the other function graphics routines. Anyone know why not?
>
> TTFN,
>
> David

Hi David,
There just wasn't much demand for 3D volume rendering with new graphics. So we didn't bother to document or ship the routine. If you're really curious, you can try the following code:

```
function volume, arg1, arg2, DEBUG=debug, _REF_EXTRA=ex

  compile_opt idl2, hidden
@graphic_error

  nparams = n_params()
  hasTestKW = ISA(ex) && MAX(ex eq 'TEST') eq 1
  if (nparams eq 0 && ~hasTestKW) then $
    MESSAGE, 'Incorrect number of arguments.'

  switch (nparams) of
  4: if ~ISA(arg4, /ARRAY) then MESSAGE, 'Input must be an array.'
  3: if ~ISA(arg3, /ARRAY) then MESSAGE, 'Input must be an array.'
  2: if ~ISA(arg2, /ARRAY) then MESSAGE, 'Input must be an array.'
  1: if ~ISA(arg1, /ARRAY) then MESSAGE, 'Input must be an array.'
```

```
  endswitch

  name = 'Volume'
  case nparams of
    0: Graphic, name, _EXTRA=ex, GRAPHIC=graphic
    1: Graphic, name, arg1, _EXTRA=ex, GRAPHIC=graphic
    2: Graphic, name, arg1, arg2, _EXTRA=ex, GRAPHIC=graphic
    3: Graphic, name, arg1, arg2, arg3, _EXTRA=ex, GRAPHIC=graphic
    4: Graphic, name, arg1, arg2, arg3, arg4, _EXTRA=ex, GRAPHIC=graphic
  endcase

  return, graphic
end
```

Just save it in a file, "volume.pro". Then try:
v = VOLUME(/TEST)

Just beware that this code is untested, undocumented, and unsupported. :-)

-Chris
ExelisVIS

Subject: Re: volume() for function graphics?
Posted by David Fanning on Wed, 11 Jul 2012 16:57:33 GMT
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Chris Torrence writes:

> There just wasn't much demand for 3D volume rendering
> with new graphics. So we didn't bother to document or
> ship the routine.

Ah, this explains why the Colorbar function still
doesn't work. Nobody uses it. ;-)

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.idlcoyote.com/
Sepore ma de ni thui. ("Perhaps thou speakest truth.")

Subject: Re: volume() for function graphics?
Posted by dg86 on Sat, 08 Sep 2012 11:12:12 GMT
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Dear Chris,

Your volume() function is just what I wanted, even if it lacks documentation and has plenty of quirks. For others who might be
interested in using function graphics to make publication-quality
volume renderings, my big breakthrough was realizing that I could
learn about the volume object's properties with the useful but
apparently undocumented itpropertyreport procedure.

v = volume(...)
itpropertyreport, v.gettool(), igetid('volume')

This reports what properties are available and how to set them.
For instance

isetproperty, 'volume', interpolate = 1, _render_quality = 1

I'd never have guessed the leading "_" for setting the render_quality
otherwise.

One quirk is that I couldn't add a colorbar object to a volume in
an obvious way. Instead, I created a window object using the 8.2
window() function and placed the volume and colorbar objects into that.

All the best,

David

Subject: Re: volume() for function graphics?
Posted by dg86 on Fri, 19 Oct 2012 10:45:13 GMT
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On Saturday, September 8, 2012 7:12:12 AM UTC-4, David Grier wrote:
> Dear Chris,
>
>
>
> Your volume() function is just what I wanted, even if it lacks documentation and has plenty of quirks. For others who might be
>
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> learn about the volume object's properties with the useful but
> apparently undocumented itpropertyreport procedure.
>
>
> v = volume(...)
> itpropertyreport, v.gettool(), igetid('volume')
>
>
> This reports what properties are available and how to set them.
> For instance
>
>
> isetproperty, 'volume', interpolate = 1, _render_quality = 1
>
>
> I'd never have guessed the leading "_" for setting the render_quality
> otherwise.
>
>
> One quirk is that I couldn't add a colorbar object to a volume in
> an obvious way. Instead, I created a window object using the 8.2
> window() function and placed the volume and colorbar objects into that.
>
>
> All the best,
>
>
> David

I'm putting in another plug for the volume() new-graphics wrapper around the IDLgrVolume object. IDL's volumetric rendering capabilities really are very good, and Chris Torrence's partial implementation already is very useable. For what it's worth, my group has a figure rendered by this routine on the front page of Physical Review Letters today

(http://physics.aps.org/synopsis-for/10.1103/PhysRevLett.109. 163903).

All the best,

David

Subject: Re: volume() for function graphics?
Posted by chris_torrence@NOSPAM on Fri, 19 Oct 2012 15:20:10 GMT
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Hey David,

That's great to hear that the Volume function is working out well. I like your paper - it sounds very interesting!

Mark Piper and I are thinking about adding the Volume function "for real" to the next IDL release. If you (or anyone else on the newsgroup) could give us feedback about what is missing or broken, that would be very helpful.

We were also thinking about adding an Isosurface and possibly a "slicer/image plane" function. Would these be useful to you? If you fire up iVolume with your data, you can try out the menu items under Operations->Volume to get an idea of how these would work.

Thanks again for the great feedback.

-Chris (and Mark who is standing right here)
ExelisVIS
